Series 100
Owner's Manual

HEWLETT PACKARD

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Printing History

New editions of this manual will incorporate all material updated since the previous edition. Update packages may be used between editions and contain replacement and additional pages to be merged into the manual by the user. Each updated page will be indicated by a revised date at the bottom of the page. Note that pages which are rearranged due to changes on a previous page are not considered revised.

The manual printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates which are incorporated at reprint do not cause the date to change.)

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Table of Contents

Chapter 1: Introducing the Series 100 Personal Office Computer

Chapter 2: The Computer Keyboard

Chapter 3: Using a Series 100 as a Computer

Chapter 4: Discs

Chapter 5: Applications

Chapter 6: Using a Series 100 as an Electronic Typewriter

Chapter 7: Using a Series 100 as a Terminal

Appendix A: Maintenance Instructions

Appendix B: Control and Escape Sequences

Appendix C: Configuring a Series 100

Appendix D: Typing Aids

Appendix E: In Case of Difficulty

Appendix F: Questions to Ask About Non-HP Software

Appendix G: Using 8″ Discs Created with A.01.10 CP/M

Glossary

Index

Chapter 1

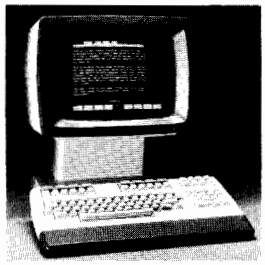
INTRODUCING THE SERIES 100 PERSONAL OFFICE COMPUTER

The 100 Series of Personal Computers consists of two machines: the HP 120 and the HP 125. The machines are similar in that:

- Both run the same programs (software).
- Both use the same disc drives, printers, and plotters.
- Both react the same way - the environments are identical.

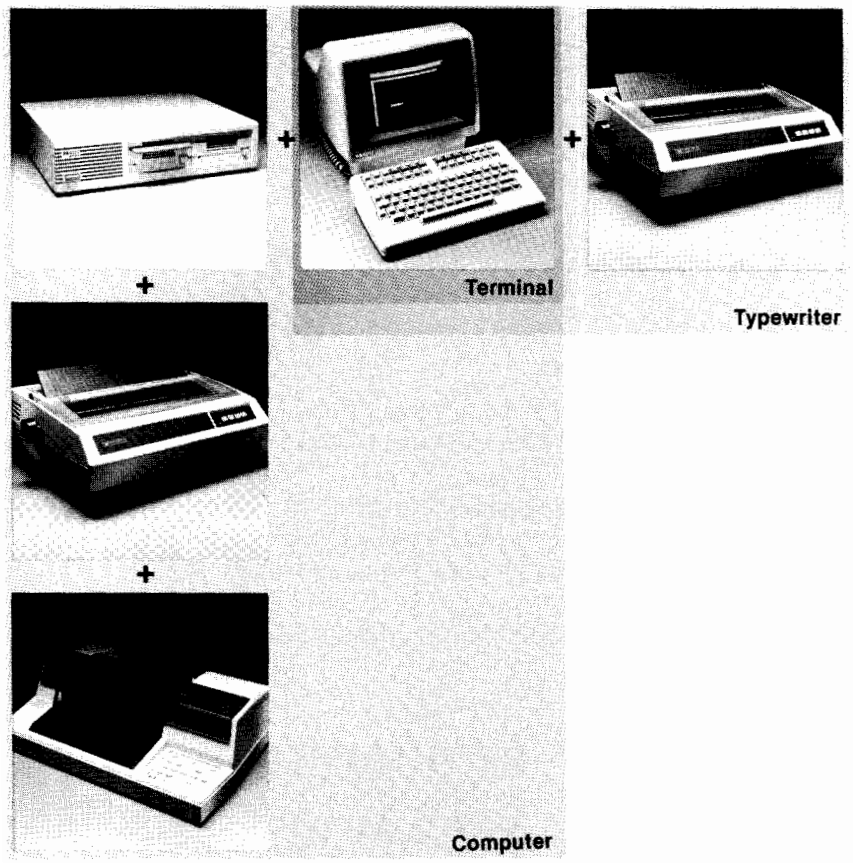
The difference between the HP 125 and the HP 120 is their size and shape.

HP 120



HP 125

A Series 100/Personal Office Computer can be used in three ways:



A Series 100 as a Computer

As an office computer, a Series 100 uses software programs (also called applications) to increase the productivity of day-to-day operations. Files can be organized, financial calculations performed, documents created, charts produced, accounting done, and payroll completed by using applications for the Series 100.

Hewlett-Packard has several categories of applications for the HP 120/125, as described in Chapter 5 (''Applications'').

When you use a Series 100 as a computer, you can contact a larger computer to transfer files either to or from the larger computer (see Chapter 5).

A Series 100 as an Electronic Typewriter

You may decide at some point to use a Series 100 as a typewriter. This is done quite simply by typing information on the screen and sending it to a printer. For details on how this is accomplished, see "Using a Series 100 as a Typewriter" (Chapter 6).

A Series 100 as a Terminal

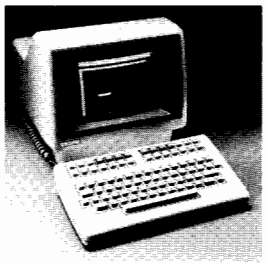
As a general-purpose "smart" terminal, a Series 100 is linked by cable or phone lines to a computer. Many companies pay to use "data services" that provide information such as news summaries, stock and bond prices, or airline schedules; this kind of information is received on your Series 100 terminal.

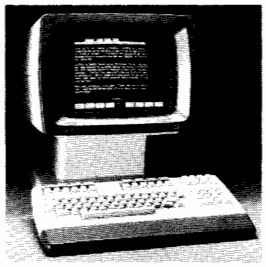
For more information on the terminal capabilities of the Series 100, see Chapter 7, "Using a Series 100 as a Terminal."

Series 100 Components

System Processor

The different pieces of equipment that are used with the Series 100 are called components; the components are collectively called the system. At the very least, you have a keyboard and screen which make up the component called the system processor.





Disc Drive

A disc drive is a system component used only when a Series 100 is used as a computer. You must have a disc drive if you plan to use a Series 100 as a computer; flexible discs containing both the

operating system (CP/M®) and software programs such as Series 100/VisiCalc®, Series 100/Word, Series 100/Graphics, and Series 100/DSN/Link are inserted in the disc drive. Information is then read from or written to these discs (called Work discs and located in drive A:). Information can also be read from and written to discs containing nothing but data (located in drives other than A:).

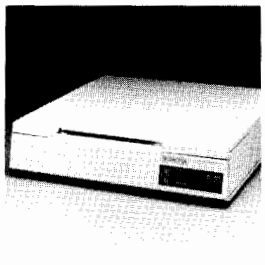
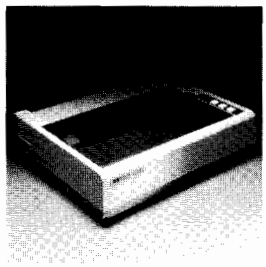
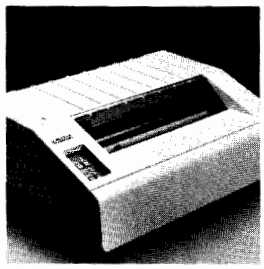
For more information about discs, see Chapter 4.

Printer

A printer is also a system component. If you want paper copies of any information from a Series 100, you need a printer. Hewlett-Packard supplies a number of printers that can be used with Series 100. You need to tell your Series 100 what kind of printer you have by configuring the terminal; do this by either using the disc labeled COMPUTER TUTOR, or following directions in Appendix C. Once a Series 100 knows what kind of printer it is dealing with, you will be able to use your software packages to print information.

Basically, there are three kinds of printers:

- Dot matrix printers (lower cost).
- Letter-quality printers (typewritten quality).
- Thermal printers (quiet and lower cost).

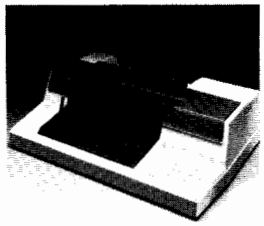
Some of the printers on the facing page are called dox matrix printers; they create characters by using inked dots in different patterns for each character. The HP 2631B and HP 82905B are dot matrix printers.

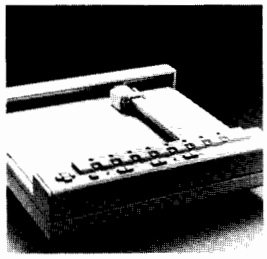
Another kind of printer is the daisywheel printer; it creates characters in a manner similar to that of a typewriter. A round wheel is placed in front of a striking mechanism; when a character is printed, the wheel spins to the character before the striking mechanism presses a copy through the ribbon. You can use different print wheels for different typefaces with a daisywheel printer such as the HP 2601A or HP 2602A.

The third type of printer is a thermal dot matrix printer. Thermal printers print characters by applying heat to special thermal paper; the heat is applied in dots to form a character, and the image appears in either black or blue. The HP 2671A and Option 050 (built into the model HP 125) are thermal dot matrix printers.

Plotter

A plotter is a system component used when a Series 100 is a computer. If you plan to create graphs, charts, and words on overhead transparencies or paper, you need a plotter. Several Hewlett-Packard plotters work with Series 100 Personal Computers. As you see below, the main difference between plotters is how many pens they can hold at once. All of them will draw with eight colors; you may have to change the pens to accomplish this, but Series 100/ Graphics asks you to change pens, then waits for you to do so.





What System Components Do I Need?

Consult the following chart to determine which components you probably need.

	System Processor	Disc Drive	Printer	Plotter
Series 100 as a Computer				
Document Management	X	X	X	
Decision Support	X	X	[2]	X
Data Communications	X	X		
Information Management	X	X	[2]	
Program Development	X	X	[2]	
Small Business	X	X	[2]	
Series 100 as a Terminal[1]	X			
Block-Format Terminal[1]	X	X		
Series 100 as a Typewriter	X		X	

[1] *A Series 100 must be connected to a host computer by cable or by modem and phone lines.*
[2] *Printer is useful but not necessary.*

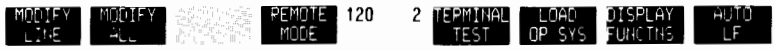
How Does a Series 100 Know When It Is a Terminal or Computer or Typewriter?

The Series 100 checks the state of the MODES key labels to determine whether to act as a computer, terminal, or typewriter. Look at the MODES keys using these keyboard keys:

- Press [CTRL], [SHIFT], and [RESET] simultaneously.
- Press function key 8 (EXIT TO CP/M).
- Press the MODES key.

Pressing [CTRL], [SHIFT], and [RESET] on the keyboard loads the computer operating system and removes everything from display; note that the modes keys appear briefly while the operating system loads. You can change modes any time the labels are on the screen.

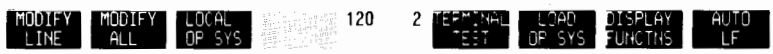
The MODES keys look like this:



Look at the highlighted keys above. This is what they mean:

LOCAL OP SYS* - Use a Series 100 as a computer.
REMOTE MODE* - Use a Series 100 as a terminal.

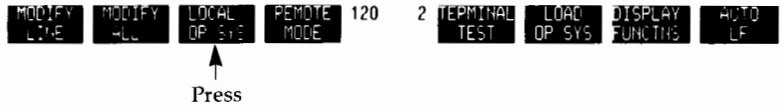
In the above example, there is an asterisk in the LOCAL OP SYS label. This means that the Series 100 is being used as a computer. To make the Series 100 operate as a terminal, you would press the function key corresponding to REMOTE MODE. The asterisk would then be in the REMOTE MODE label:



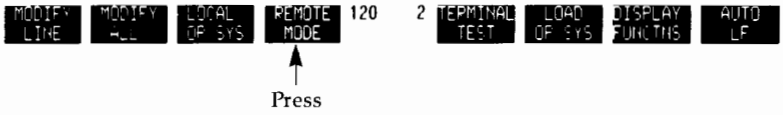
Pressing REMOTE MODE automatically turns LOCAL OP SYS off. Pressing LOCAL OP SYS turns REMOTE MODE off; both can't be turned on at the same time. A Series 100 is either a computer (LOCAL OP SYS) or a terminal (REMOTE MODE), but not both at the same time.

The third way to use a Series 100 is as a typewriter. In this case, it is neither a computer nor a terminal. When there is no asterisk in LOCAL OP SYS nor in REMOTE MODE, a Series 100 is a typewriter. Turn an asterisk off by pressing the function key corresponding to the label containing an asterisk:

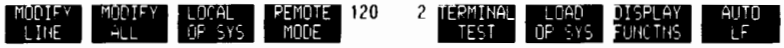
Turn Off Local OP SYS



Turn Off Remote Mode



Series 100 (as a Typewriter)



Notice in the last set of keys above that neither LOCAL OP SYS nor REMOTE MODE have an asterisk. For more information on using a Series 100 as a typewriter, see Chapter 7, "Using a Series 100 as a Typewriter."

The three keyboard-selectable Series 100 modes are summarized in the chart below.

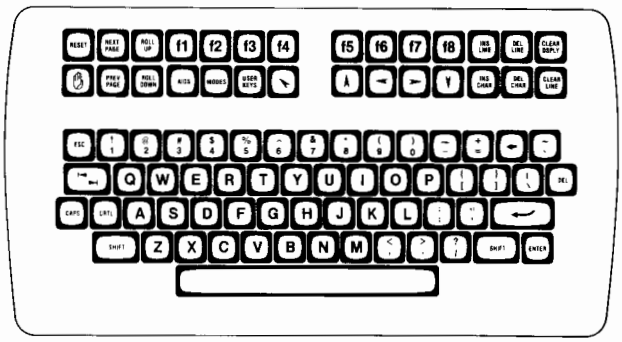
Series 100 Modes		
Use	**Called**	**How to Access the Mode**
Computer	LOCAL OP SYS MODE	Press function key 3 on the MODES keys (LOCAL OP SYS) if an asterisk is not already present.
Terminal	REMOTE MODE	Press function key 4 of the MODES keys (REMOTE MODE) if an asterisk is not already present.
Typewriter	LOCAL MODE	Turn off asterisks in LOCAL OP SYS MODE and REMOTE MODE by pressing the function key corresponding to the label with an asterisk currently in it.

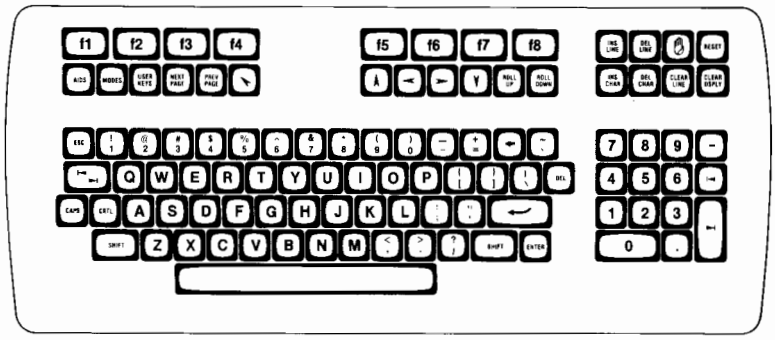
If no disc drive is attached to a Series 100, you can only use remote mode (terminal) and local mode (typewriter). To use the Series 100 as a terminal, connect it by the proper cable (or modem and phone lines) to a host computer just as you would any other terminal. For more information on local mode, see Chapter 6 (''Using a Series 100 as a Typewriter''). For more information on cables and connecting a Series 100 to a host computer, see the installation manual.

Chapter 2

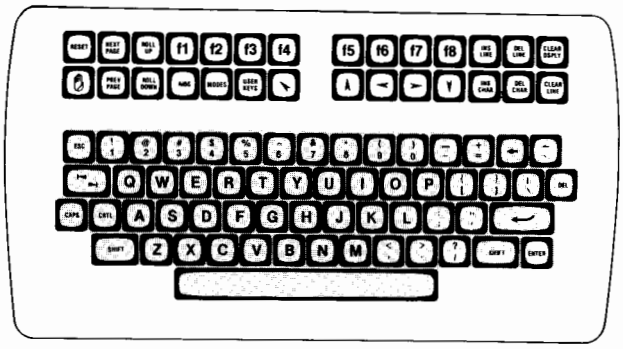
THE COMPUTER KEYBOARD

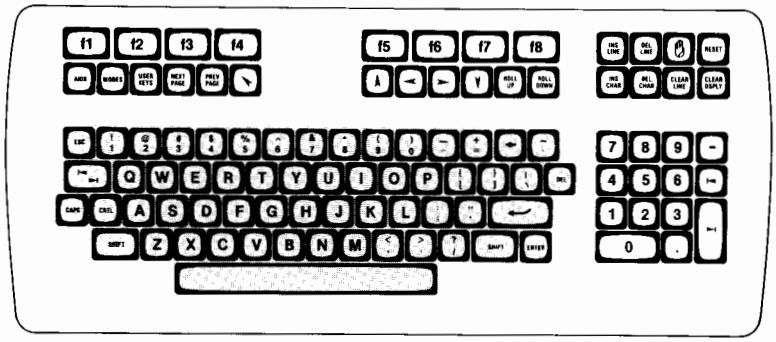
The keyboard is a vital part of the system processor because it communicates all of your instructions and information to the system. A Series 100 keyboard has more keys than most typewriter keyboards do; this chapter explains the use of the extra keys.





Character Set





The character set is a standard typewriter keyboard used to communicate data, text, and commands to the system processor. The alphabetic, numeric, and symbol keys act just as they do on a typewriter, except that the results appear on the screen of the system processor, not on paper. The character set works as follows:

Produces uppercase letters and symbols; also, when pressed simultaneously with other keys, produces unique functions (e.g., pressing [SHIFT], [CTRL], and [RESET] together restarts a Series 100 computer. See the [RESET] key in this chapter.)

Moves the cursor left one position at a time, deleting characters as it moves.

Returns the cursor to the left margin (left margin is set in the ReturnDef field in the Configuration Menu; applications may define their own left margin), usually on the beginning of the next line.

Moves the cursor forward to the next set tab. [SHIFT] [TAB] moves the cursor backward to the previous set tab.

When the CAPS key has been pressed, unshifted letters appear uppercase and shifted letters are lowercase. Pressing [CAPS] again returns the keys to normal function (unshifted letters are lowercase). Only letters are affected. (This key is similar to CAPS LOCK on a typewriter.)

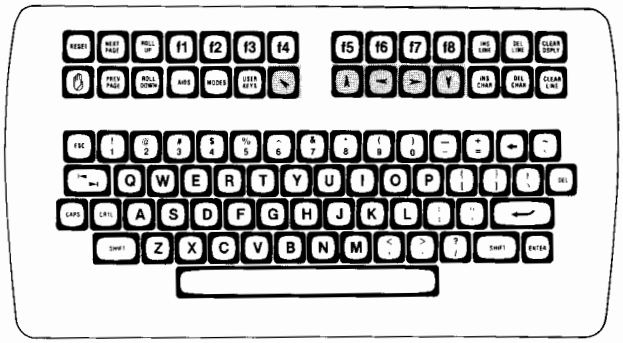
The ESCAPE key extends the capability of the keyboard. Many programs use the ESC key followed by other keys to perform certain operations.

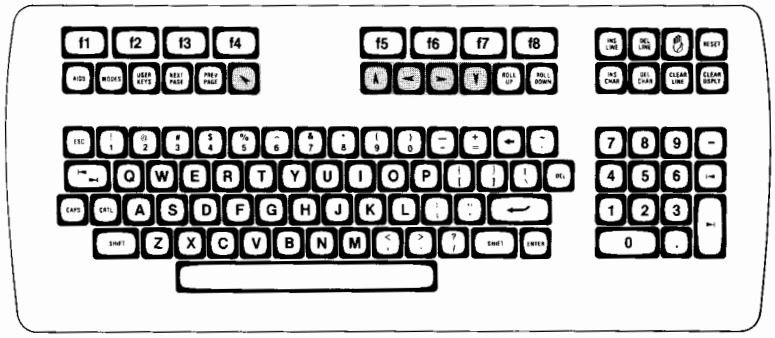
The CONTROL key extends the capability of the keyboard. Pressing [CTRL] simultaneously with other keys generates special "control codes."

The DELETE key generates a "deletion character"; it is also used by applications for special deletion functions.

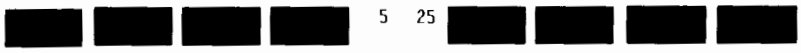
The ENTER key is used when a Series 100 is an electronic typewriter (Chapter 6) or a terminal (Chapter 7).

Cursor Control Keys





Cursor control keys move the cursor on the screen. You know exactly what position the cursor occupies on the screen by the two numbers between function labels on the bottom center of the screen.



The first number indicates which screen line the cursor is in (1-120), and the second number indicates which screen column (1-80) the cursor is in. In the example above, the cursor is located in line 5, column 25. To move the cursor from any position, either type characters or use the cursor control keys:

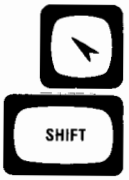
''Cursor up'' moves the cursor up one line. If the key is held down, the cursor moves up until either the key is released or the top line of display memory (including previous pages) is reached.

''Cursor down'' moves the cursor down one line. If the key is held down, the cursor moves down until either the key is released or the last line of display memory is reached.

''Cursor left'' moves the cursor one column to the left. If the key is held down, the cursor moves left until either the key is released or the first column of the first line of display memory is reached. (The cursor wraps to the previous line from column 1.)

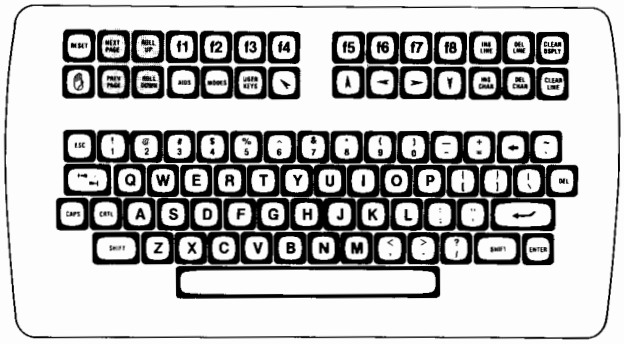
''Cursor right'' moves the cursor one column to the right. If the key is held down, the cursor moves right until either the key is released or the last column of the last line is reached. (The cursor wraps to the next line from column 80.)

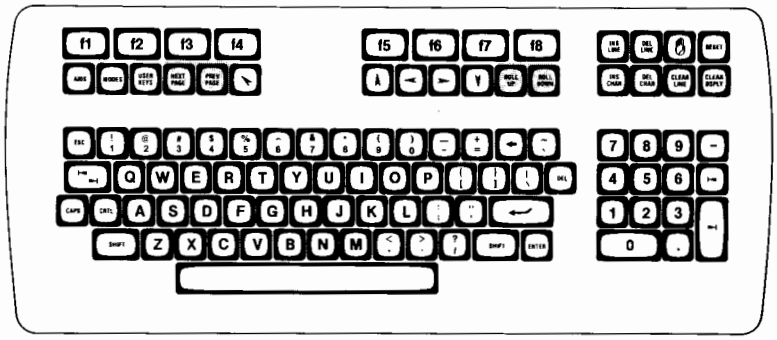
''Cursor home'' positions the cursor at line 1 of column 1 of display memory. This is called ''home up.''



''Shift cursor home'' positions the cursor at a blank line below the last line in display memory. If display memory is full (has 120 lines in it), the first line is deleted to allow room for the blank line at the end. This is called ''home down.''

Display Keys





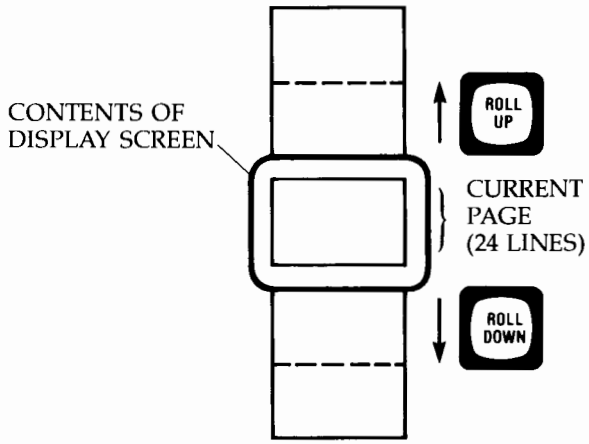
The Series 100 has a large "display memory," meaning that more information can be held in memory than can be displayed on the screen at one time. The display memory holds 120 lines of data, while the screen shows 24 lines; this means that five "pages" of display are available, but only one can be seen at a time.

As you type, the first 24 lines appear one after another on the screen. When you enter the 25th line, there is no longer room on the screen for all of the lines; the top line is rolled up where you can no longer see it. When you have typed 120 lines, the last 24 appear on the screen, and the first 96 have been rolled up. (When you type line 121, line 1 is lost.)

NOTE

When Block-Format is loaded, you have only 47 lines, total.

ROLL UP and ROLL DOWN usually scroll display memory past the screen as shown below:

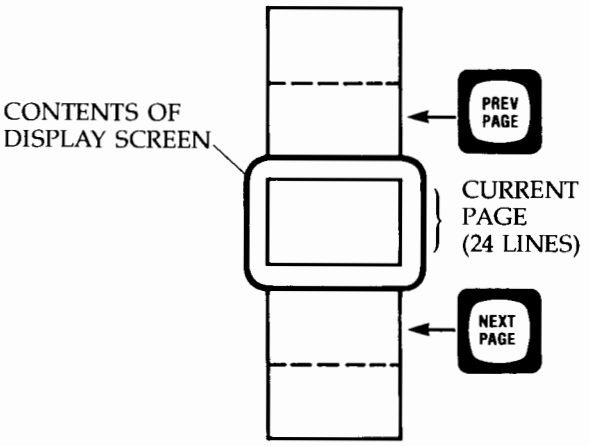


NEXT PAGE

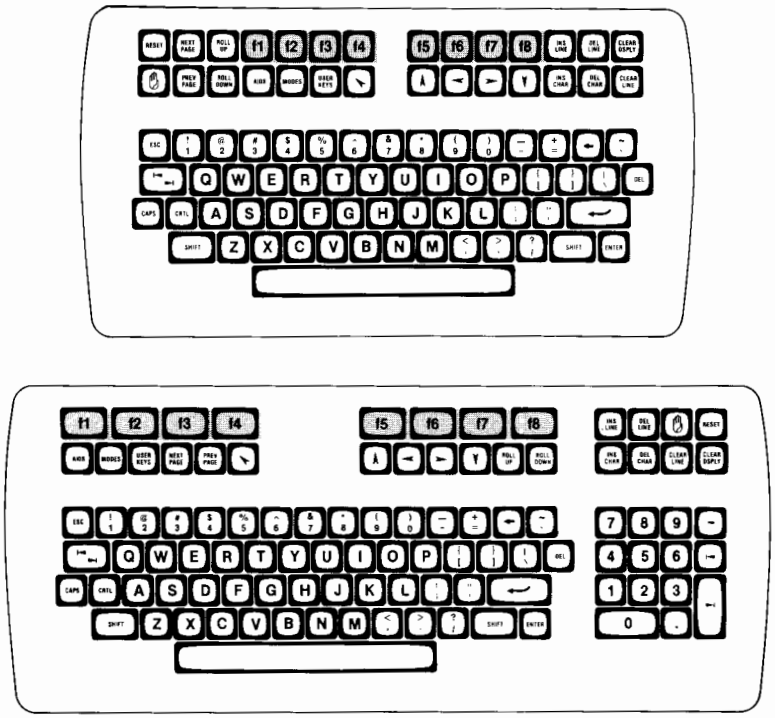
Performs various functions, depending on which application is running. Usually rolls display memory up so that the next page (next 24 lines) shows on the screen. Hold the key down to repeat the action (until the end of display memory is reached).

PREV PAGE

Performs various functions, depending on which application is running. Usually rolls display memory down so that the previous page (previous 24 lines) shows on the screen. Hold the key to repeat the action (until the beginning of display memory is reached).



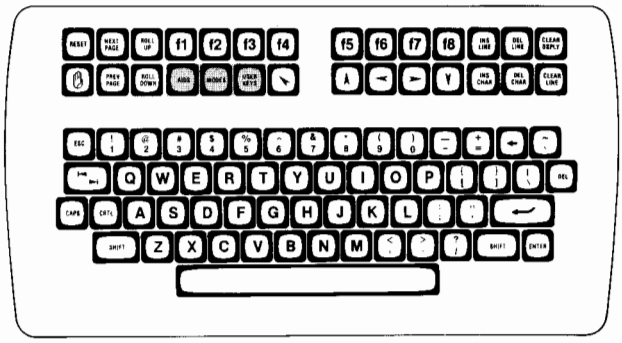
Function Keys

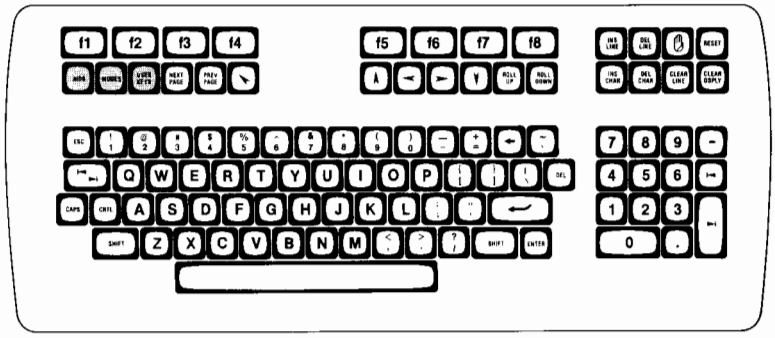


Function keys perform different functions, depending on which application program you are using; each program uses them differently.

When no applications software is running, you have three sets of function keys available. A set of screen labels is produced by pressing the AIDS key, the MODES key, or the USER KEYS key on the keyboard. (For more information on the three sets of function keys and labels, see ''Function Control Keys'' below.)

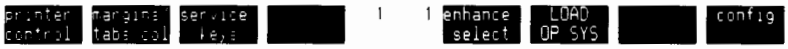
Function Control Keys





None of these keys work when an application is running; they only work when you EXIT TO CP/M or when no disc is in the A: drive.

The AIDS key works only when you EXIT TO CP/M or no disc is in the A: drive. Programs often "lock out" the labels associated with the AIDS key (the program wants its own labels to stay on the screen). When it's not locked out, pressing the AIDS key results in these labels:



Pressing the key associated with one of the lower case labels produces a new set of labels on the screen (see below). Pressing the LOAD OP SYS key loads the operating system. Once you have accomplished a task, press the AIDS key again for another task or press MODES to work as a computer or terminal.

printer control — Displays the first of two sets of labels for transferring data to Series 100 printers (* means on; no * means off):

printer modes — Displays Printer Modes labels:

printer control — Brings the Printer Control key labels (see above) back to the screen.

PORT 2 PRINTER — Indicates that the printer attached to data comm port 2 receives printed output (*) or does not (no *). Port 2 must be configured in the configuration menu (Appendix C) if this field is on (*).

HP-IB PRINTER — Indicates that the printer attached to the HP-IB port receives printed output (*) or does not (no *). The HP-IB port must be configured in the Configuration Menu (Appendix C) if this field is on (*).

INT PRINTER	Indicates that the internal printer receives printed output (*) or does not (no *). (Label only appears if you have internal printer.)
LOG BOTTOM	Any information typed after LOG BOTTOM is on (*) is printed (on one of the printers mentioned above) when the [↵] key is pressed. LOG TOP and BOTTOM can't both be on (*) at once.
LOG TOP	If LOG TOP is on (*), there is no effect until display memory is full (120 lines have been typed). When line 121 is typed, line 1 is not ''lost'' as it normally would be. Instead, as data goes off the top of display memory, it is printed at one of the printers mentioned above.
REPORT PRINT	Displayed if internal printer is present; normally, it prints one long continuous sheet of paper. REPORT PRINT (re)sets the internal printer to print 11-inch pages rather than continuous printing. The page format is a three-line top margin, 60 lines of text, and a three-line bottom margin. Tick marks indicate page breaks. REPORT PRINT and METRIC PRINT can't both be on (*) at once.
METRIC PRINT	Displayed if internal printer is present; normally, it prints one long continuous sheet of paper. METRIC PRINT (re)sets the internal printer to print pages in metric length rather than continuous printing. Metric format is a three-line top margin, 64 lines of text, and a three-line bottom margin. A tick mark indicates page breaks.

ADVANCE LINE — Selected printer(s) advance one line, creating a blank line.

ADVANCE PAGE — Selected printer(s) advance to the top of the next page.

COPY ALL — Copies contents of display memory (from the cursor to the end of display memory) to selected printer(s).

COPY PAGE — Copies contents of the screen (from the cursor to the bottom of the current page) to selected printer(s).

COPY LINE — Copies the line containing the cursor to selected printer(s).

margins/ tabs/col — Set margins, tabs and columns with the function keys that appear when you press this key.

START COLUMN — Specifies the column containing the cursor as the starting column for data transfers in Modify Mode.

(See the Modify Line key in this chapter for an explanation of Modify Mode.) This column can also be set on the Terminal Configuration Menu.

You need to use the START COLUMN key in Modify Mode when you wish to edit information that the computer has placed on the screen. For example, if you did a directory and wish to transmit the information from column 12 to column 80, you would do a START COLUMN at column 12.

SET TAB	Works only in LOCAL and REMOTE modes. (See Chapter 7.)
CLEAR TAB	Works only in LOCAL and REMOTE modes. (See Chapter 7.)
CLR ALL TABS	Works only in LOCAL and REMOTE modes. (See Chapter 7.)
LEFT MARGIN	Sets the left margin at the current position of the cursor, as long as the cursor isn't located past the right margin.
RIGHT MARGIN	Sets the right margin at the current position of the cursor, as long as the cursor isn't located before the left margin.
CLR ALL MARGINS	Clears the left and right margin settings. The left margin is reset to column 1 and the right to column 80.

service keys — These functions test system components to verify proper operation. Pressing service keys displays the following set of labels:

POWER ON TEST	Manually initiates the same test that is automatically performed when the system is turned on. (Refer to Appendix D for more details on system tests.)
TERMINAL TEST	Tests the overall terminal operation. (Refer to Appendix D for more details on system tests.)
IDENTIFY ROMS	Displays a list of the ROMs installed in the system. (Refer to Appendix D for more details on ROM identification.)
DATACOMM TEST	Support Engineers use this test to check the data communications circuits. (Refer to Appendix D for more details on the DATACOMM test).
INT PRT TEST	Appears if an internal printer is present; tests the printer.

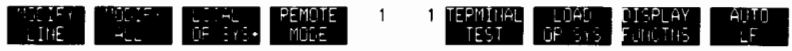
enhance select — Normally, each line of characters are displayed on the screen in light-on-dark format. You can, for emphasis, reverse one or all words on a line to dark-on-light (inverse video), or change them to half-bright, underlined, or blinking. See Appendix C to find out how to choose any of the above as your enhancement. Once your enhancement is chosen, use the enhance select key labels to actually enhance the characters, words, or lines.

- REMOVE CHAR ENH — Removes enhancement from the character above the cursor.
- ENHANCE CHAR — Enhances the character above the cursor.
- ENHANCE LINE — Enhances a line from the cursor position to the end of the line. (All enhanced words on a line must have the same enhancement.)

LOAD OP SYS — Loads the CP/M operating system from disc A: into memory, and begins operation if LOCAL OP SYS mode is selected (the label has * in it). If LOCAL OP SYS isn't selected, system processor beeps.

config — Displays the Configuration Menu with all of the currently chosen values; allows you to change the values. See Appendix C for a description of the fields and how to change them.

The MODES key works only when you EXIT TO CP/M or no disc is in the A: drive. Programs often "lock out" the labels associated with the MODES key (the program wants its own labels to stay on the screen). When it's not locked out, pressing the MODES key results in these labels:



Pressing the MODES key brings a set of labels to the screen. Turn these labels "on" and "off" by pressing the corresponding function key. An * means the option is selected (on), while no * indicates that the option is not selected (off). With the MODES key, you can:

- Use the terminal's modify mode (MODIFY LINE, MODIFY ALL).
- Select the mode (LOCAL OP SYS mode is a computer; REMOTE MODE is a terminal; neither Local Op Sys nor Remote mode is an electronic typewriter) in which your system will operate.
- Test the terminal part of a Series 100 (TERMINAL TEST).
- Load the CP/M operating system (LOAD OP SYS).
- Select display functions (DISPLAY FUNCTNS) or auto linefeed (AUTO LF).

When an asterisk (*) is in a label, it means that the mode is active. Press a function key once to activate a mode, and again to deactivate it.

MODIFY* LINE When a Series 100 is a computer, it receives letters as you type them. For example, if you typed "d r", then used the < key to move to the blank and type "i", your screen would show "dir", but the computer reads "d ri". If you want the computer to read words as they appear on the screen, press MODIFY LINE. For one line, the computer won't read any letters until you press [↵]

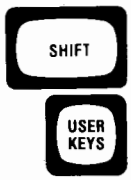
MODIFY* ALL Activates Modify Mode, just as MODIFY LINE does (see above), except that the Series 100 stays in Modify Mode until this mode is turned off (not just for one line as above).

LOCAL* OP SYS	Places a Series 100 in Local Op Sys Mode (use as a computer).
REMOTE* MODE	Places a Series 100 in Remote Mode (use as a terminal).

NOTE

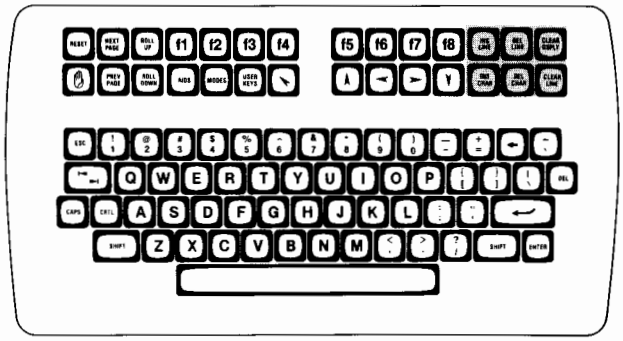
Remember that Local Mode is a Series 100 operating as an electronic typewriter; turn off LOCAL OP SYS and REMOTE MODE for LOCAL MODE.

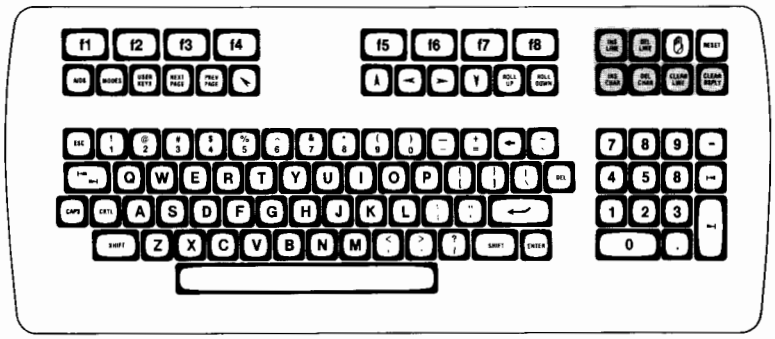
TERMINAL TEST	Tests Series 100 terminal operations, and displays a test pattern on the screen.
LOAD OP SYS	Loads the CP/M Operating System from disc A: into memory and begins operation if * is in the LOCAL OP SYS label. You know the operating sytem is loaded when the Welcome Menu appears on the screen.
DISPLAY* FUNCTNS	Causes internal control characters (or escape sequences) to be symbolically displayed on the screen rather than being executed by the system processor. The action normally produced by some key (such as ROLL UP, INS LINE, etc.) is not performed; instead the control symbol(s) are displayed on the screen. Your Service Representative may use DISPLAY FUNCTIONS if you are experiencing a datacommunication or other problem.
AUTO* LF	Do not use this when using a Series 100 as a computer (Local Op Sys mode); use AUTO LF when a Series 100 is a typewriter or terminal. (See Chapter 6, "Series 100 as an Electronic Typewriter," and Chapter 7, "Series 100 as a Terminal.")



Simultaneously press the SHIFT and USER KEYS to create your own set of function key labels, either within a program or from the keyboard is described in Appendix E of this manual.

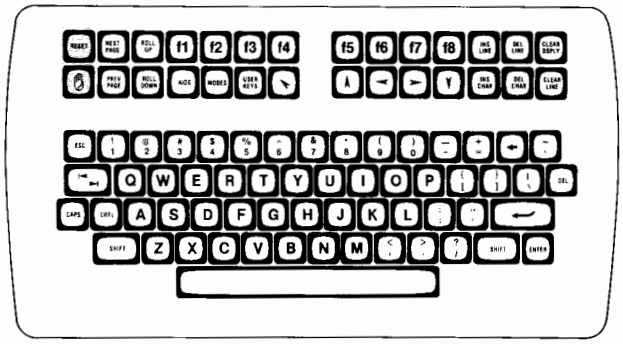
Edit Control Keys

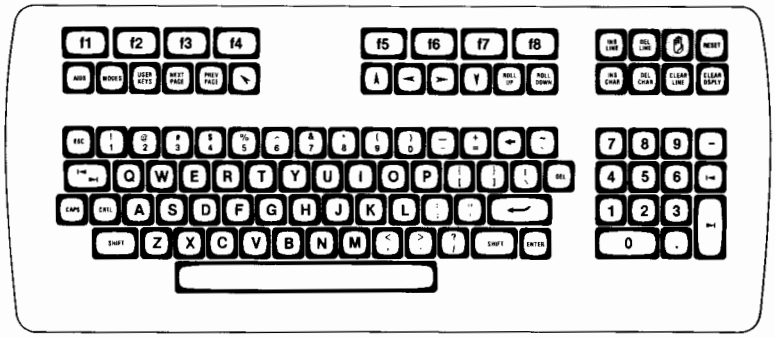




Edit control keys edit words on the screen in various ways, depending on which application program is running.

Terminal Control Keys

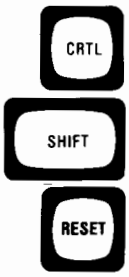




Causes a "soft reset" which:

- Unlocks the keyboard if a program has "disabled" it.
- Clears some error conditions and removes any error messages from the screen. If the message says you must press the [↵] key, you still need to do that.
- Turns off display functions (turned on by pressing the MODES key, then DISPLAY FUNCTNS).

- Halts any data communications transfers currently in progress, and reinitializes both Series 100 data communications ports (according to the terminal configuration power-on values).
- Resets the internal printer, if present.
- Halts any device operations currently in progress.



Causes a ''hard reset'' to the system, when all three keys are pressed simultaneously; this is like turning the system processor off, then on. In addition to the results caused by a soft reset, a hard reset:

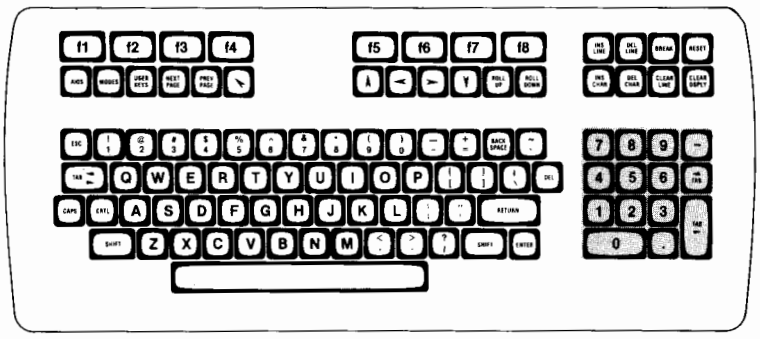
- Clears display memory.
- Resets certain operating modes and parameters such as the caps mode, report mode, metric mode, left/right margins, and insert character function.
- Clears terminal memory.
- Attempts to load Series 100's operating system (CP/M) if the system is in Local Op Sys Mode with a disc drive attached.

NOTE

A hard reset is a drastic measure, but some parts of CP/M memory may be recovered.

Interrupts data transfer operations on both data-communications ports. Use the break key when Link is operating or when a Series 100 is a terminal.

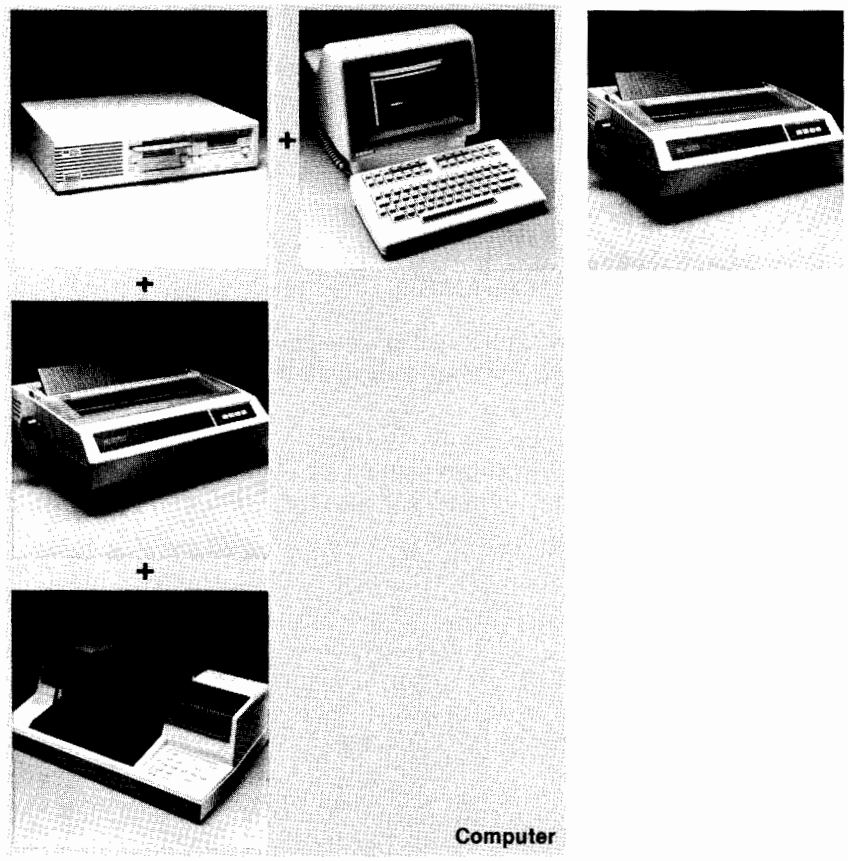
The Numeric Pad



A numeric keypad is part of the Series 100's large keyboard. It is set up like a calculator (ten numbers, a decimal point, and a negative sign) for fast numeric input. The tab keys are used in various ways by application programs.

Chapter 3

USING A SERIES 100 AS A COMPUTER



All computers need a supervisor to operate them; this supervisor is called the operating system. The operating system is kept on a flexible or fixed disc, and must be located in the A: disc drive. Operating system instructions run progams in addition to performing utility functions used during disc initialization (preparation for use) and disc copying. The Series 100 uses a version of the CP/M® operating system. All of HP's application programs run on this CP/M. Also, most CP/M programs you purchase will run on this CP/M version; to be sure, refer to Appendix F.

What Is Local Op Sys Mode?

Local Op Sys Mode means the CP/M operating system is loaded into your Series 100 and running; your HP 120 or 125 is now a computer. A disc (either flexible or fixed) containing CP/M must be in the left-most drive; usually, this disc also contains an application such as Series 100/VisiCalc or Word.

How Do I Get into Local Op Sys Mode?

First, be sure that the disc drive and system processor are turned on, and that a copy of the CP/M operating system is in the A: disc drive.

There is more than one way to get into Local Op Sys (computer) Mode, depending on what a Series 100 was last used for. You want

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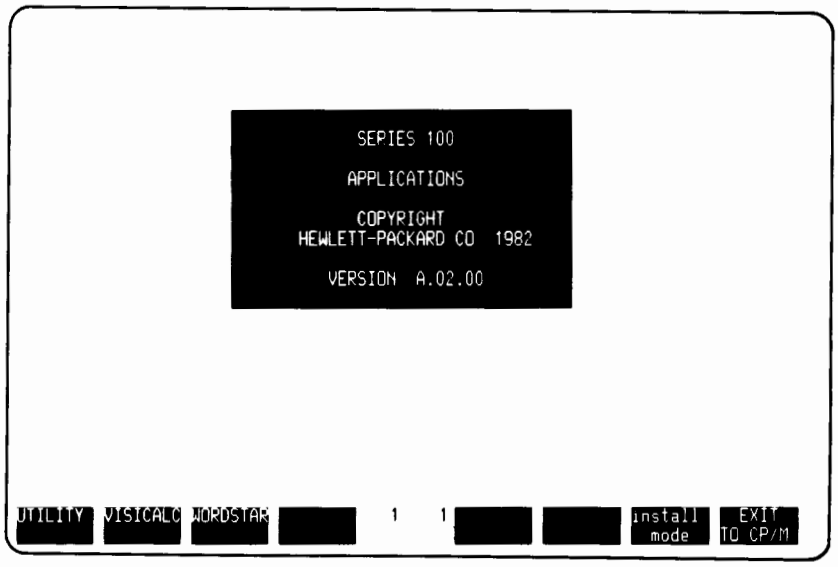
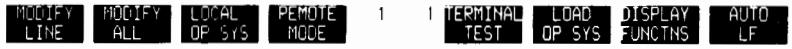
the following soft keys displayed on the screen:



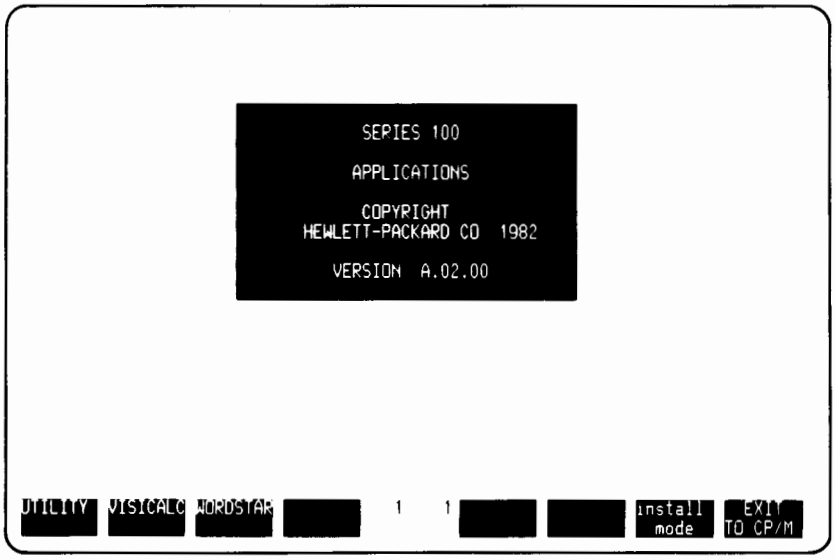
These keys appear when you turn on a Series 100 system processor. They also appear when you press [MODES], or when you press [CTRL] [SHIFT] [RESET]. When a Series 100 loads automatically,(see ''Series 100 Last Used as a Computer'') they also appear briefly before the Welcome Menu appears.

Series 100 Last Used as a Typewriter

If a Series 100 was last used as a typewriter, the MODES keys appear this way:

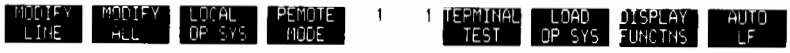


Press function key 3 (LOCAL OP SYS), so that an asterisk appears in it. Then, press function key 6 (LOAD OP SYS). CP/M loads, and the Welcome Menu appears:



Series 100 Last Used as a Terminal

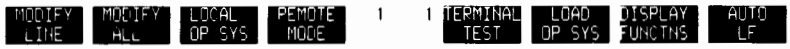
If a Series 100 was last used as a terminal, the MODES keys appear this way:



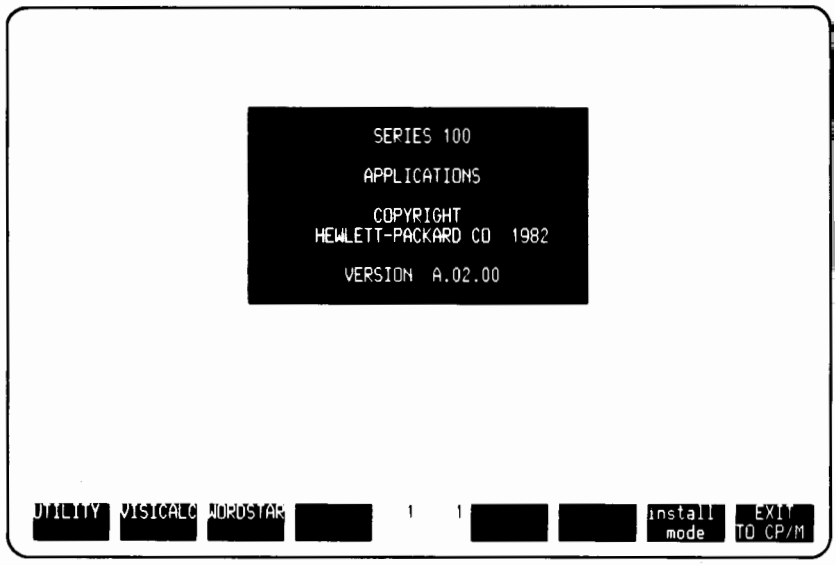
Press function key 3 (LOCAL OP SYS), so that an asterisk appears in it. Then, press function key 6 (LOAD OP SYS). CP/M loads, and the Welcome Menu appears:

Series 100 Last Used as a Computer

If a Series 100 was last used as a computer, the modes keys will appear this way:



CP/M loads automatically, and the Welcome Menu appears:

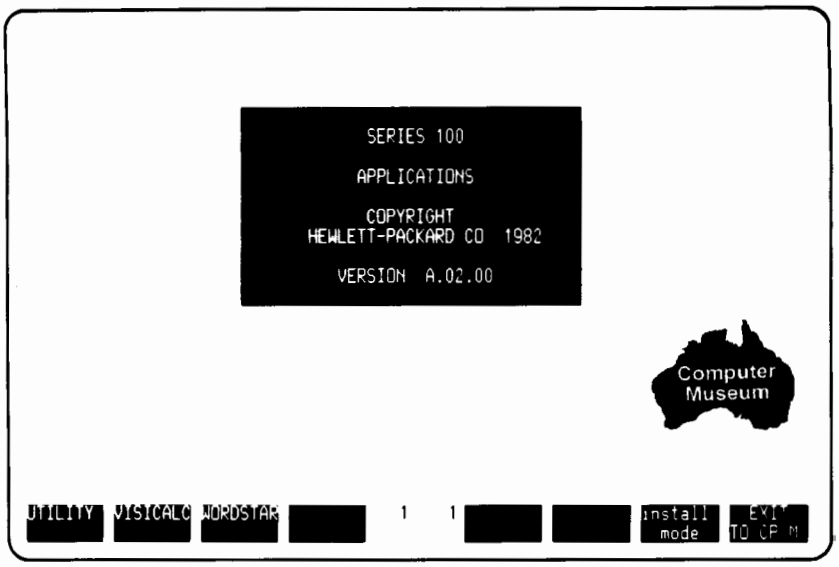


Series 100 Is Brand New

Before a Series 100 leaves the factory, it is tested. The last test uses it as a computer, so follow the instructions above for "Series 100 Last Used as a Computer." If you followed the instructions in your installation manual, you last used your Series 100 as a computer, also.

What Do I Do After I'm in Local Op Sys Mode?

The first thing you see in Local Op Sys mode is the Welcome Menu:



If you want to use an application, press the function key corresponding to it. If you want to deal directly with CP/M, press EXIT TO CP/M. The CP/M prompt appears:

```
A>
```

The A> prompt tells you that you are dealing directly with CP/M, and that disc A: is assumed unless you specify otherwise.

Chapter 4

DISCS

Information, such as the operating system, software programs, and your data, is stored on discs. Discs are either flexible or fixed, and hold varying amounts of information.

Fixed and flexible discs differ slightly. Fixed discs cannot be removed from the drive, and hold more information than flexible discs. Flexible (or floppy) discs are placed in a disc drive only when information on them is being used, added, or removed. However, both fixed and flexible discs have the following in common:

- Discs must be inside a drive (if it has a door, it must be closed) before any information can be read from them or written to them.
- Series 100 discs are named with a letter of the alphabet, followed by a colon (e.g., A: B: C:).
- Discs must be prepared for use before they are used for the first time. This process is called formatting a disc.

- Information is stored on discs in what are known as files.
- Files or entire discs should have duplicate (backup) copies in another location. In addition to the possibility that you might accidentally spill coffee on or crease a disc, discs themselves are fairly sensitive and do eventually wear out.

Formatting a Disc

Both flexible and fixed discs must be formatted before they are used for the first time. If you ever wish to erase all of the information on a disc, format it again. (This is only one way; see ''Erasing Files from a Disc'' in this chapter.)

The Series 100 has a program called FORMAT that places a pattern on both flexible and fixed discs. This pattern is unique to the Series 100; HP disc drives can read discs that have this special pattern on them. If an unformatted disc (or a disc formatted for use with a computer* other than the Series 100) is inserted in the drive, a message such as ''Unformatted Disc'' or ''Disc Drive Error'' will appear on the screen. Doing this will not hurt your drive, but you won't be able to use the disc either.

On the other hand, a disc formatted on an HP 125 will work on an HP 120 or on another HP 125.

**IBM 3740 interchange format can be used with eight-inch HP disc drives (HP 9895); the FORMAT utility can format the disc to work on IBM disc drives, and the format from a non-HP drive can be read by HP drives.*

FORMAT Utility

Explanation

The FORMAT Utility has three programs:

INIT Program
VERIFY Program
SEEK CHECK Program

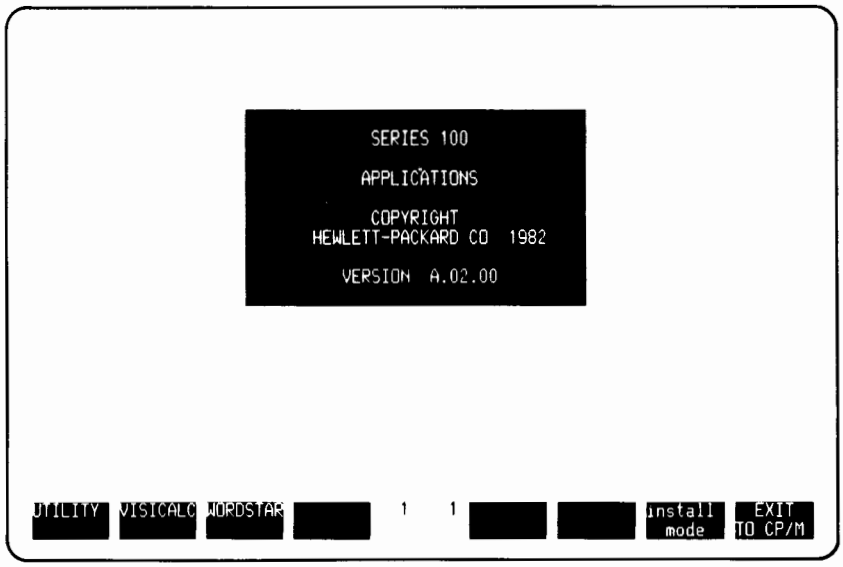
INIT checks each track on a disc for defects, and then establishes a directory where file names and other information are stored. Three test patterns are used on each disc, erasing any data present.

VERIFY checks the formatting on a disc to be sure it has been done properly.

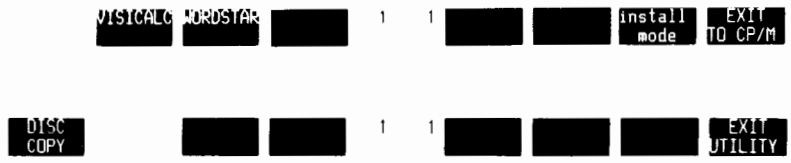
SEEK CHECK checks the addresses on a disc to be sure they are correct and present.

Procedure

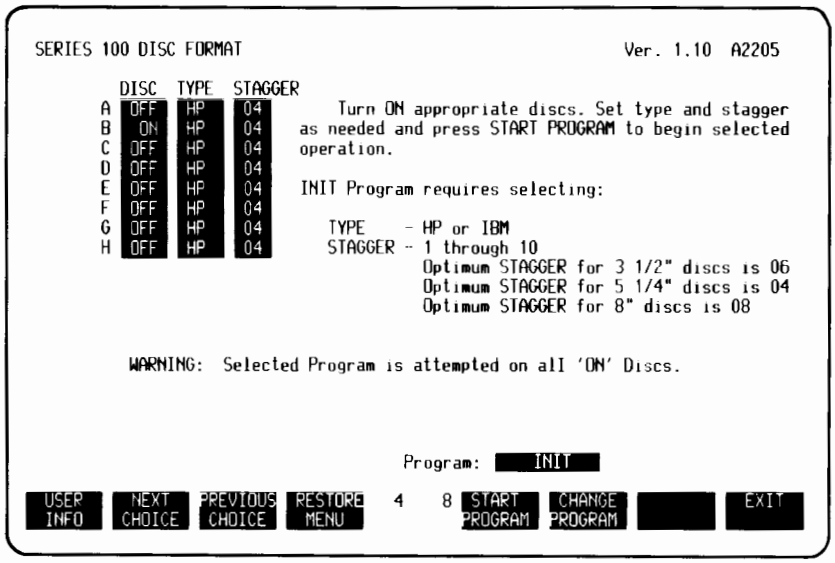
The FORMAT Utility is accessed through the Welcome Menu (in CP/M, you can type FORMAT and press [←]):



If you are formatting a flexible disc, insert it in a drive (fixed discs are already present, and are usually formatted when installed). Press:



The following screen is displayed:



Follow the instructions on the screen. Pressing corresponding function keys accomplishes the following:

USER INFO	Print further instructions on disc formatting.
NEXT CHOICE	Cycle forward through all choices for the field containing the cursor.
PREVIOUS CHOICE	Cycle backward through all choices for the field containing the cursor.
RESTORE MENU	Redisplay the Disc Format Menu on the screen.
START PROGRAM	Start the disc format operation.

CHANGE PROGRAM	Cycle programs, from INIT, to VERIFY, to SEEK CHECK, back to INIT.
EXIT	End the FORMAT utility and return to the Welcome Menu.

Use the function keys described above to complete the following steps. Using your cursor control keys and the NEXT CHOICE and PREVIOUS CHOICE function keys:

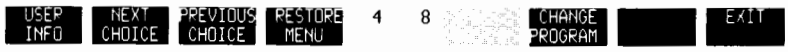
Make sure that the drive(s) holding the disc(s) to be formatted is turned ON.

Be sure the type of disc (HP or IBM) is noted for each drive.

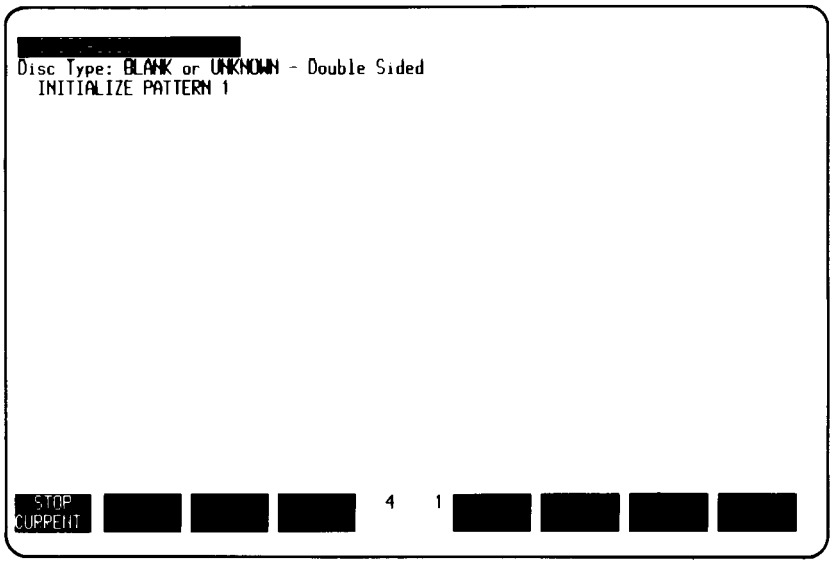
Be sure the apropriate stagger is set for each disc (stagger is the number of physical sectors separating one logical sector from the next on the disc):

Disc	Staggers
8″ and fixed disc	8
5¼″ disc	4
3½″ disc	6

Press:



The screen now looks like this:



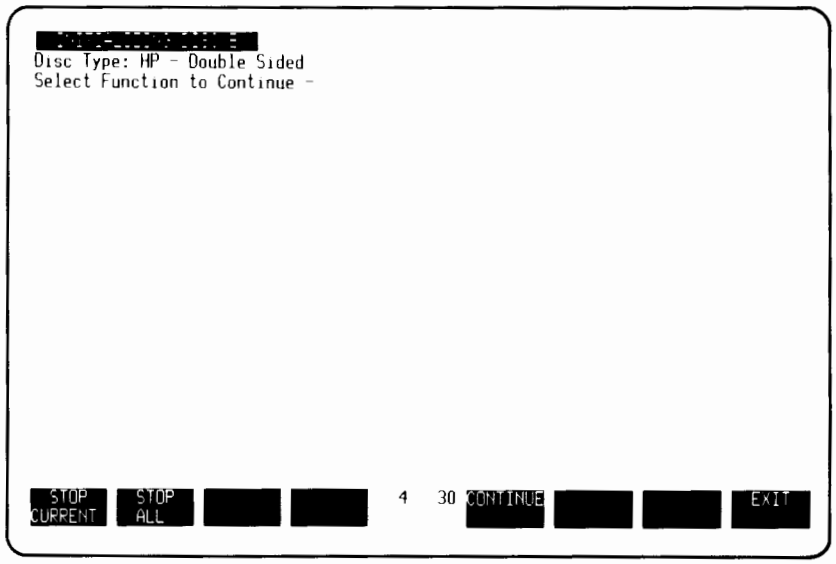
Press the corresponding function keys to accomplish the following:

STOP CURRENT	Interrupt the FORMAT program after the current pattern, and display " ." Press again to display " ." If other discs are selected, formatting continues with those discs.
STOP ALL	(After pressing) Abort all formatting; Series 100 then requests the next function.
CONTINUE	Continue the FORMAT program after it stops with a warning that a disc has already been formatted. Press to overcome the warning, clear the disc, and reformat the disc. Also use after using STOP CURRENT.

If one of the drives set to does not contain a disc, the following message appears on the screen:

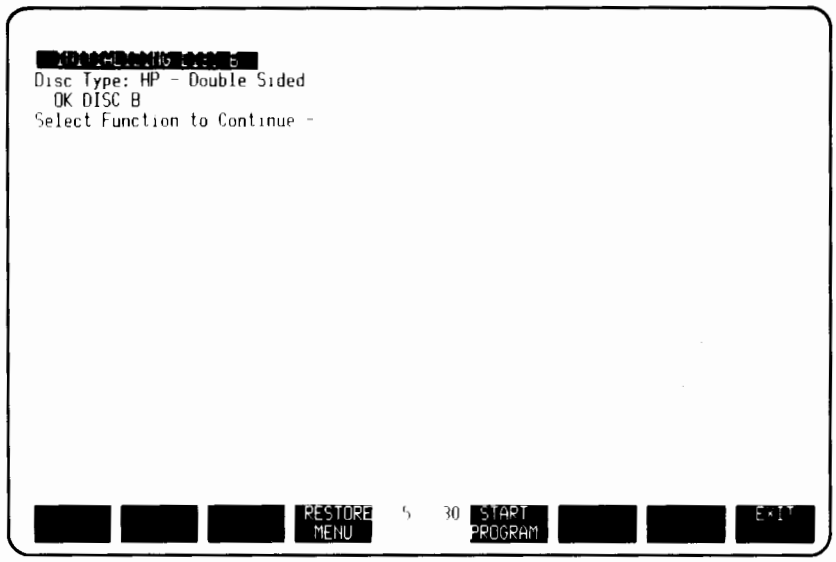
If the drive isn't turned on, you may get the error:

If you format a disc that has already been formatted, FORMAT will stop and display:



Press to format it, even though it has been formatted before.

If a disc is formatted properly, the following screen is displayed:



Saving Information on a Disc

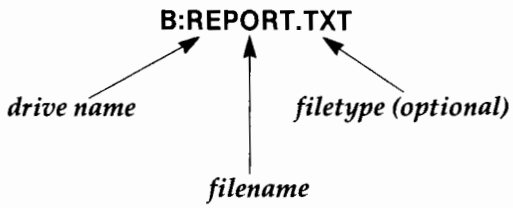
Information is saved by each application in similar ways. A file stored by one application (VisiCalc, for example) can often be used by another application (Graphics uses VisiCalc data). Programmers use the CP/M SAVE command to save programs and data; application programs also use the CP/M SAVE command. Therefore, all files are saved following CP/M rules.

CP/M organizes information on a disc in a manner similar to file folders in a file cabinet. Programs, word processing documents, graphs, financial worksheets, and other information are stored in files on a disc. Each file has a unique name, so that you can bring it to the screen by specifying the name. CP/M (the operating system) keeps a list of all of the filenames on each disc, and scans through the list when you ask for a file. The greatest number of files (and filenames) that can be on one disc is 128; if a file is very large, it may require two entries.

Naming a File

When an application saves information, it prompts you to supply a name for the file about to be created.

Filenames must follow certain rules. The filename must have two parts and may have three, as seen below:



Drive Name

B:REPORT.TXT

Each disc drive has a name. This name is always a letter and a colon (e.g., A: B: C: D: E: F: G: H:). Look at your disc drives

if you don't know what letter they are; a letter should be attached to the front of each one.

If you do not specify a drive name, a Series 100 usually assumes that you want to use the A: drive. The problem with using the disc in drive A:* frequently is that A: already contains the operating system utilities and application software; there is probably not much available space left on the disc to store files. It is a better idea to use B: to store your data; that way you can put in a new disc when the one in (flexible) drive B: is full. (The A: disc must contain the operating system utilities and applications, so it is more difficult to keep using new ones.)

**The default drive is the drive currently indicated in the CP/M prompt A> or B> or C> and so on.*

Filename

A:REPORT.TXT

Filenames consist of one to eight characters; all keyboard characters are allowed except ? * - = . < > : ; and the space character. In CP/M, capital letters are no different from lowercase letters, as CP/M changes all filenames to capitals before the name is stored. (Therefore, the filename B:payroll1 is stored as B:PAYROLL1. If you later request the file b:payroll1, the CP/M will automatically look for B:PAYROLL1 because it knows that all filenames are uppercase.)

Series 100/BASIC does note the difference between uppercase and lowercase names. For example, FILE1, File1, and file1 are all different files in BASIC.

File naming conventions differ from application to application. In Word, VisiCalc, Link, and Graphics, all filename letters are uppercased as they are in CP/M. Other applications may not do this; refer to the manual that comes with each application to find out how filenames are handled.

Using the * and ? Wildcards with Filenames

Use the wildcard * to mean "any filename." If you indicated B:*, all of the files on disc B: would be found; if you indicated B:*.BAR,

all of the files on disc B: with .BAR after them would be found. Use the wildcard ? to mean "any letter." For example, if you indicated MAILLIST.BA?, both MAILLIST.BAR and MAILLIST.BAK would be found.

File Type

A:REPORT

This optional three-letter filetype must be separated from the rest of the name by a period. It may consist of up to three letters, with the same restrictions (? * - = . < > : ; and the space character) as the filename. You can use any characters as filetype (such as your initials). The Series 100 automatically designates filetypes such as these:

Filetype	What the File Contains
.COM	An application or user-written program that can be accessed by entering its filename as a CP/M command.
.VC	A VisiCalc worksheet.
.PRF	A VisiCalc print file.
.BAR,PIE,LIN,SLD	A Graphics bar chart, pie chart, line chart, or slide.
.$$$	A temporary file.
.BAK	Word automatic backup file.
.HEP	Word help file.
.WPM	Word macro files.
.TAB	Word proportional space table file.
.DIF	VisiCalc Data Interchange Format file.
.BAS	BASIC programs.

Using the * and ? Wildcards as Filetype

If you want to indicate "any filetype," use the *. For example, MAILLIST.* would find MAILLIST.BAR, MAILLIST.BAK, and MAILLIST. The * is called a wildcard; it replaces any filetype. To replace any single letter, use ?. For example, MAILLIST.BA? would find both MAILLIST.BAR and MAILLIST.BAK.

Listing the Files on a Disc

Sometimes, you may want to know what files, if any, are on a disc. The directory command (abbreviated DIR) lists the data and application program files on the screen.

DIRectory Command

Explanation

DIR displays a list of all non-system (operating system files are not listed) files on a given disc.

Syntax

DIR drivename:filename.filetype.

Examples

1) To list all files on the disc in drive A: type:

```
A>
```

   Because the prompt above was A>, it was assumed that you wanted the list from drive A:.

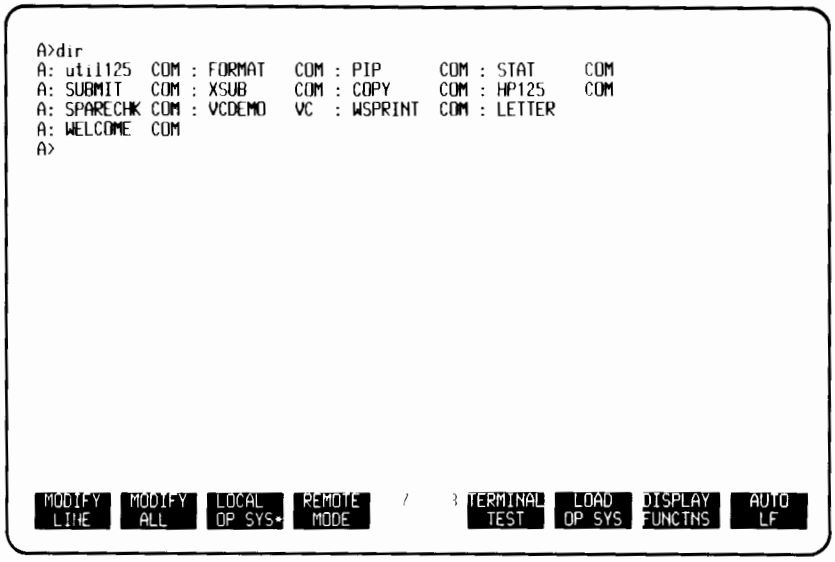
2) To get a list of the drive B: files, type:

```
A>
```

3) To list all files on drive B: with the filetype .PIE, use the * (wildcard) to indicate "any filename":

```
A>
```

The wildcard (*) can be used either for the filename or the filetype; use * to match zero or more letters. Use the ? as a wildcard for a single unknown letter (e.g., file? would find file1 and file, but not file11). A typical directory looks like this:



NOTE

If you try to list a directory for a disc containing a compact backup, an error such as NO FILE appears. Compact files can be listed using the RESTORE COMPACT portion of the BACKUP utility.

Recalling a File

Files are recalled by each application in a similar manner; you are prompted for the name of the file you want to read. Once you supply the name of the file, it is brought to the screen.

Files are recalled by the exact name given to them when they were created. If the file was created as A:PAYROLL1.TXT, specifying just A:PAYROLL will not recall the file.

Erasing a File

ERAse Command

Explanation

ERA removes a file from a given disc, freeing that space for reuse. An erased file can never be retrieved, so be sure that you no longer need it before you erase it.

Syntax

ERA drivename:filename.filetype.

Examples

To remove a file named ABC from the disc in drive A:, type:

A>ERA ABC [↵]

The drivename (A:) was omitted because A: is the current drive, as indicated by the A> prompt. To remove the file XYZ.TXT from the disc in drive B:, type:

A>ERA B:XYZ.TXT [↵]

To remove all files from the disc in drive B:, use two wildcards (* means all):

A>ERA B:*.* [↵]

Erasing every file from a disc is considered serious enough that you get a warning when you do it. You are asked:

ALL (Y/N)

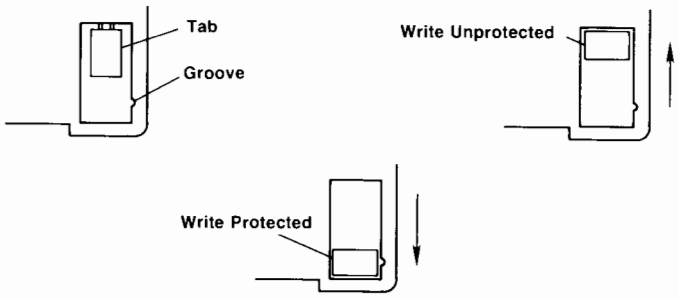
Type Y for ''yes'' and press the [↵] key to erase the contents of the disc. Type N for ''no'' to cancel the command.

Protecting Disc Files

Every disc has a way for you to ''write-protect'' the information on it. When a disc is write-protected, you cannot store or erase a file from it.

Write-protect 3½″ discs as follows:

1) Break off the write-protect tab.
2) Align the protrusion on the tab with the slot in the disc.
3) Depress the tab into the groove—tab should fit snugly.



Write-protect a 5¼″ disc by placing a write-protect tab over the square hole on the disc.

Write-protect an 8″ disc by REMOVING the tab from the square hole on the disc.

Information is written on a disc's thin surface by means of magnetic charges. Therefore, exposure to magnets, scratches, dust, dirt, or even ordinary wear can alter these magnetic charges so that information is lost. Once the charges on a disc have been altered, there is virtually no way information can be retrieved.

To prevent loss of important information, always make a duplicate (backup) copy of the files, or even a copy of the whole disc. There are two utility programs that make copies of your files.

NOTE

3½" drives have a built-in limit to the number of times a disc is used. After a disc has revolved in a drive about 1.5 million times, the light on the front of the drive blinks on and off while the heads make a clicking noise. DUPLICATE ANY DISC THAT REACTS THIS WAY.

If you do not duplicate the disc, a drive will let you continue to use it up to a certain point. After another .5 million revolutions, the disc is marked as worn out; you cannot write to this disc anymore, under any circumstances.

The BACKUP utility copies any number of files to a new disc; it also copies large files from a fixed disc to two or more flexible discs by prompting you for additional discs. The COPY utility makes another copy of either the entire disc, the operating system, or data files.

BACKUP Utility

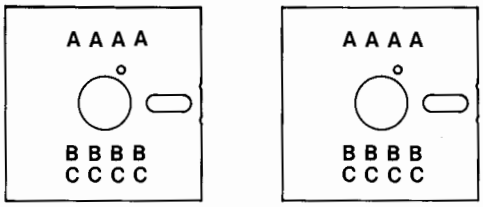
The BACKUP utility is provided to make duplicate copies of your files. You can do two kinds of backup:

1) Regular File Backup

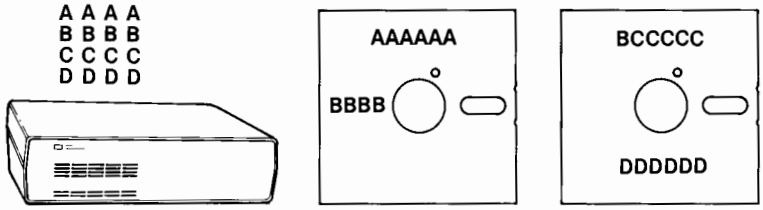
2) Compressed File Backup

Regular file backup makes exact duplicate copies of files. You could back files A, B, and C up and use the backup copies as files if you

wished to; any program that used the originals can use the regular backup copies.



Compressed file backup takes the extra spaces out of your files, and compresses your data into the backup copy. The advantage of this method is that more data fits on the backup copy; the disadvantage is that programs cannot read a compressed file. A compressed file must be restored to a disc before it can be read by a program.



NOTE

You cannot put compacted backup files on a disc containing any other kind of files. BACKUP COMPACT puts a special format on a disc; regular backup files and normal files are destroyed by this format.

Compact files can only be backed to a disc that contains other compact files, or a disc that is blank.

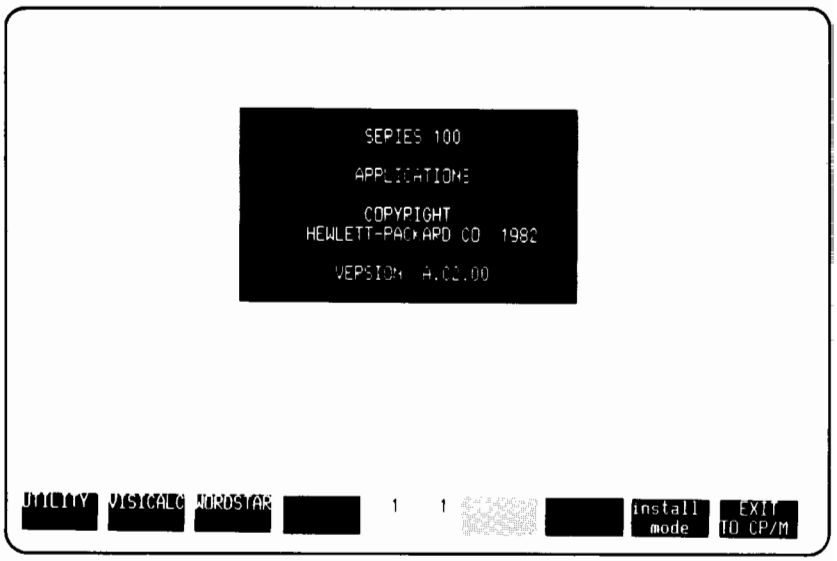
BACKUP REGULAR

If you have a dual flexible disc system, you will use three discs:

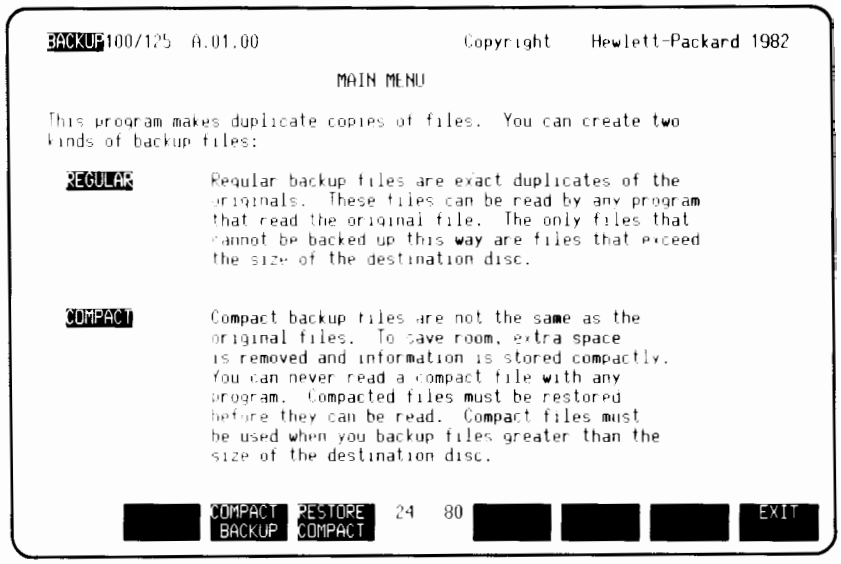
- One disc contains the operating system and BACKUP.
- One disc (source) contains the original files.
- One disc (destination) is formatted to receive backup files.

Load the operating system from the disc containing BACKUP. Do nothing with the other two discs, for now.

Access the BACKUP program by pressing BACKUP on the Welcome Menu.

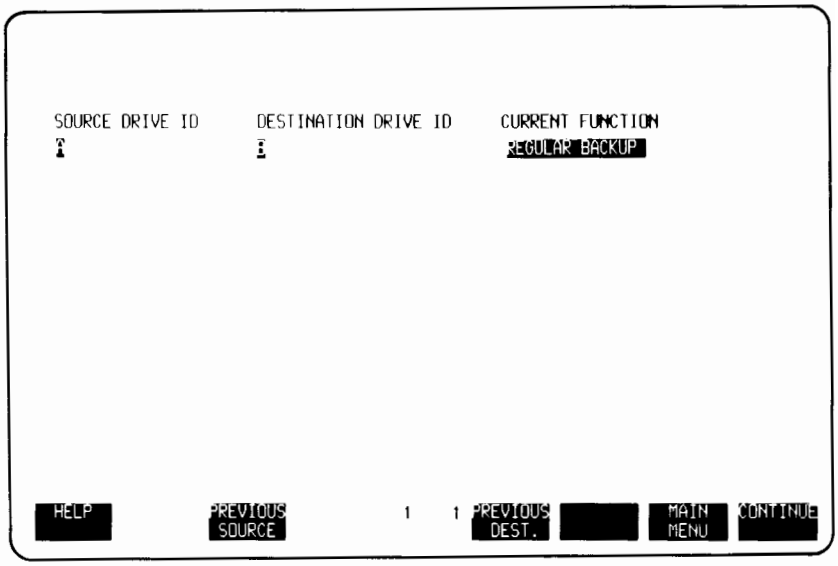


Indicate that you want to do a regular file backup by pressing
.

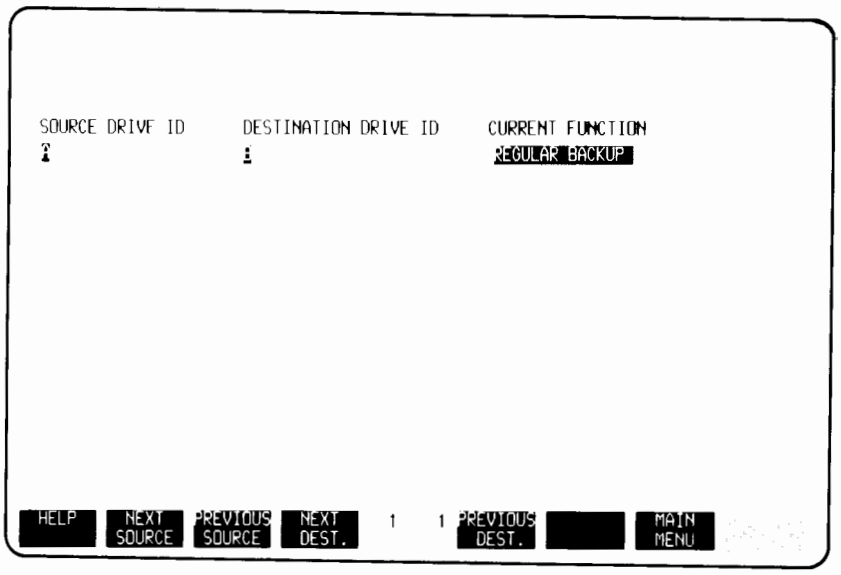


If the original files won't be in drive A:, press
until the letter of the disc containing the original files appears.

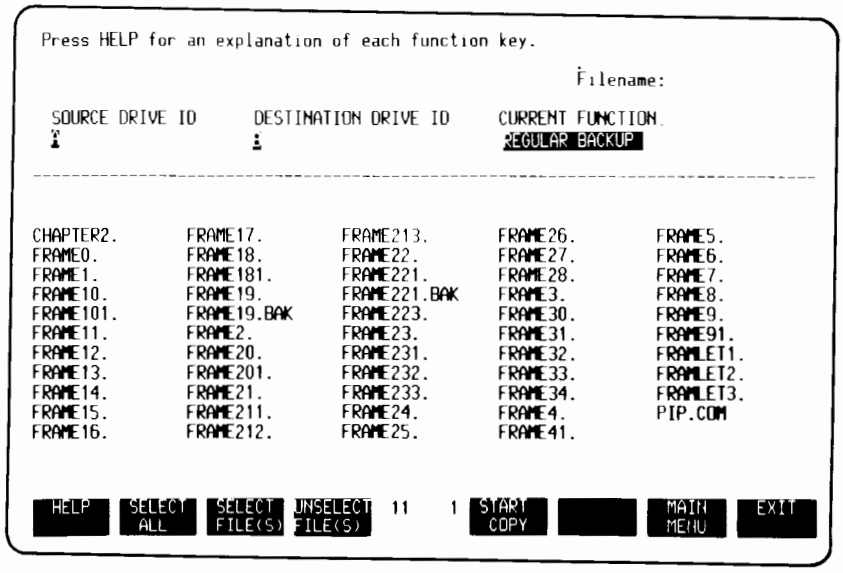
If the formatted destination disc won't be in drive B:, press
until the letter of the destination disc appears.



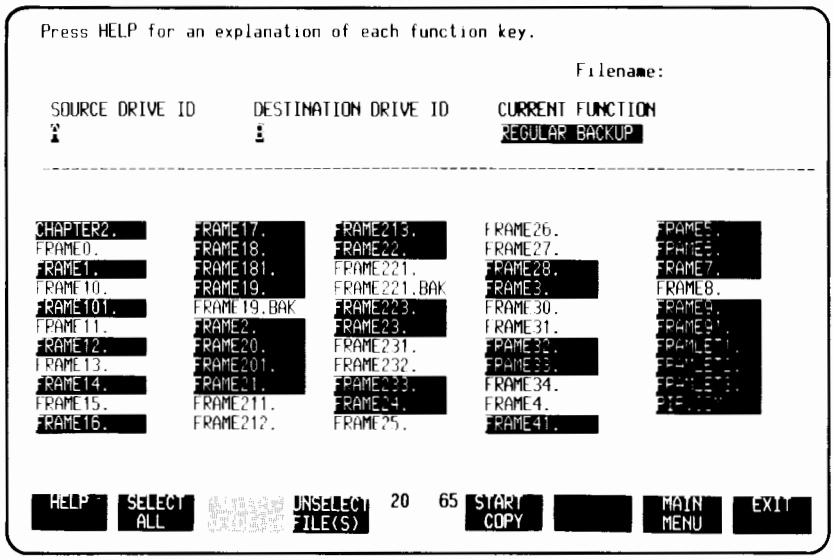
When the source and destination files are correct, place the source and destination discs in the drives indicated. (If you indicated A: as the source drive, remove the operating system disc from A: and replace it with the source disc.) Press CONTINUE.



The next screen shows you all of the files (up to 255) on the source disc.



The cursor is positioned at the first filename on the list. If this file is to be backed up, press SELECT FILE. Move the cursor to each file to be backed up and press SELECT FILE.



NOTE

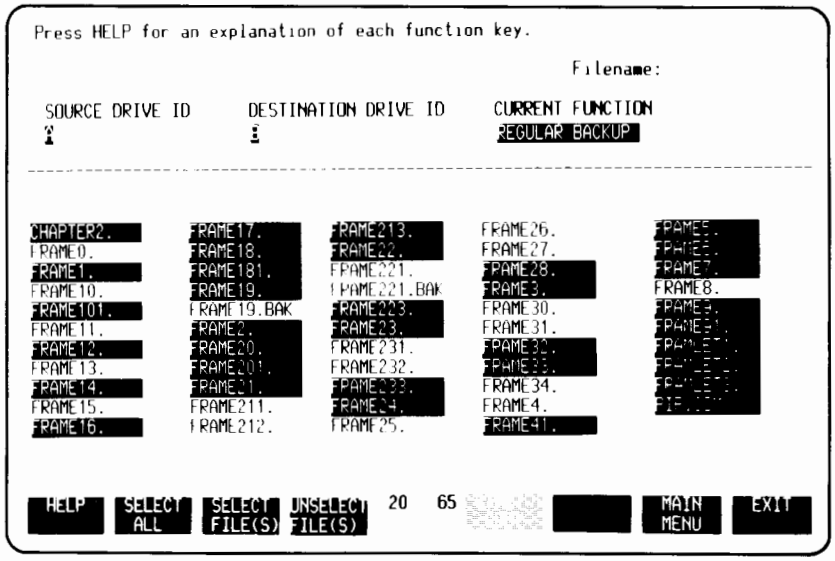
If you have several files with something in common, you can use a wildcard (*) and type the filename at the top of the screen.

When you start to type, the cursor automatically moves to ''Filename:'' at the top of the screen.

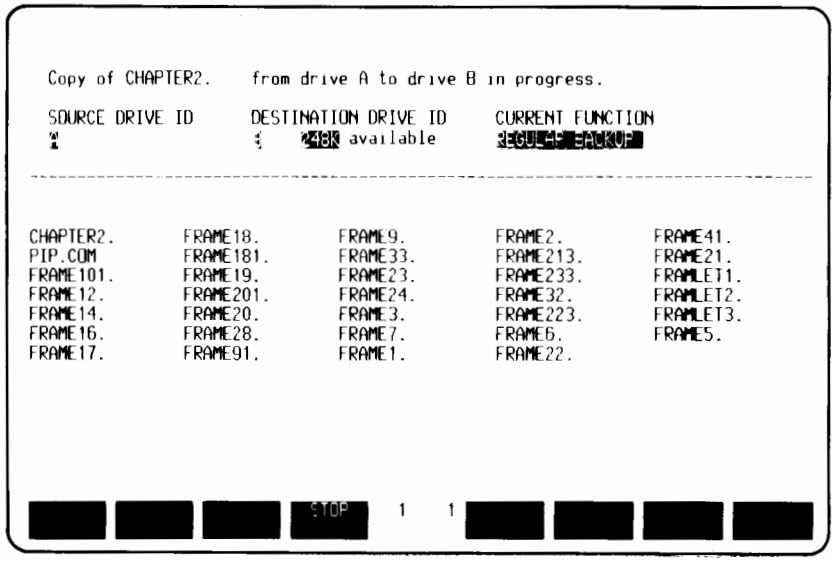
Type a filename, using the * wildcard if you want to; the * means ''any letters.'' For example, FILE* will find FILE1, FILE2, and FILE10. *.BAK finds FILE1.BAK, FILE2.BAK, and FILE3.BAK.

Press [↵]. All indicated files should be highlighted, and the cursor back where it was when you started typing.

When all of the files to be backed up are highlighted, press START COPY.

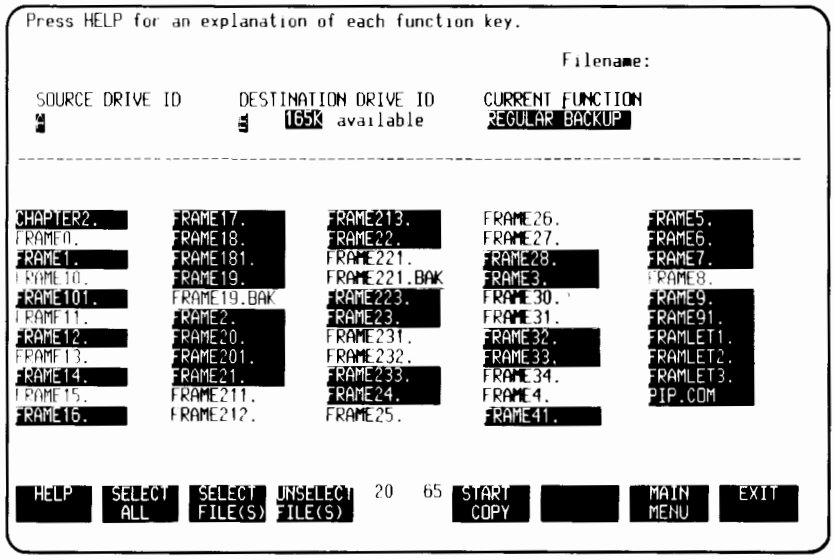


Now, only the files to be copied appear on the screen; they appear in order from the largest to the smallest file.



When a file has been backed up, the filename is highlighted on the screen. If there is no room for a file, it is skipped and the next one on the list is backed up.

When all of the files have been copied, this screen appears:



BACKUP COMPACT

Compacted files require their own disc(s). Set aside as many discs as you feel you will need for compact backup.

NOTE

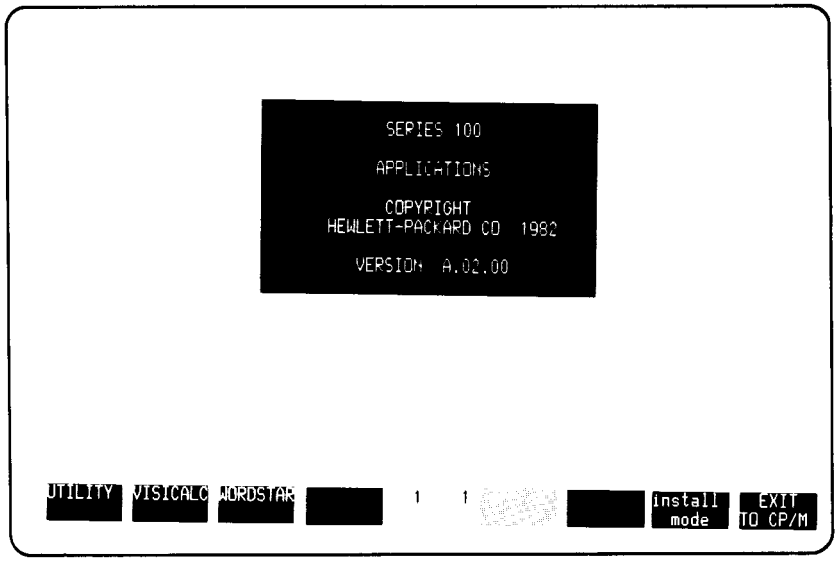
If you use a disc for compact backup, any regular files on that disc are lost.

If you write regular files to a compact backup disc, the compact files will be lost.

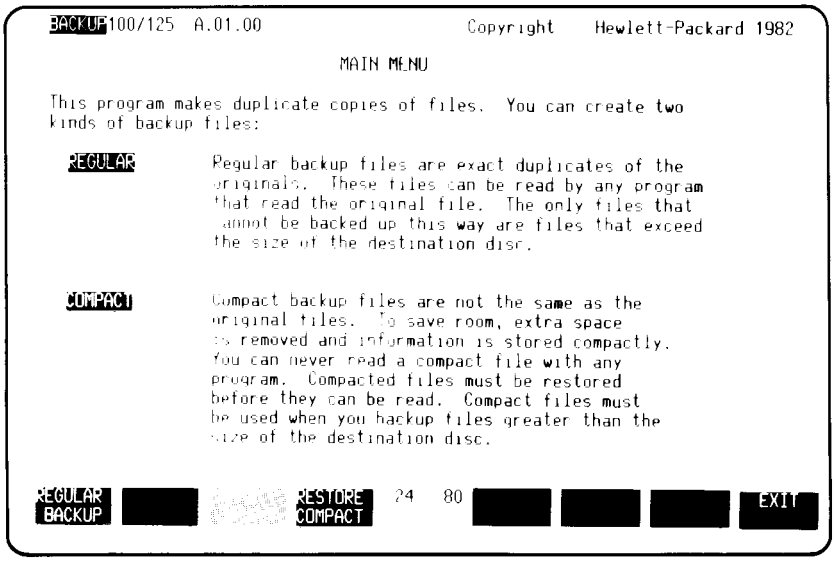
DO NOT MIX COMPACT FILES WITH ANY OTHER FILES.

If you have a fixed disc and a flexible disc, you probably have BACKUP on the fixed disc. Source files are probably on the fixed disc, also. Destination files are probably stored on flexible discs.

Access the BACKUP program by pressing BACKUP on the Welcome Menu.

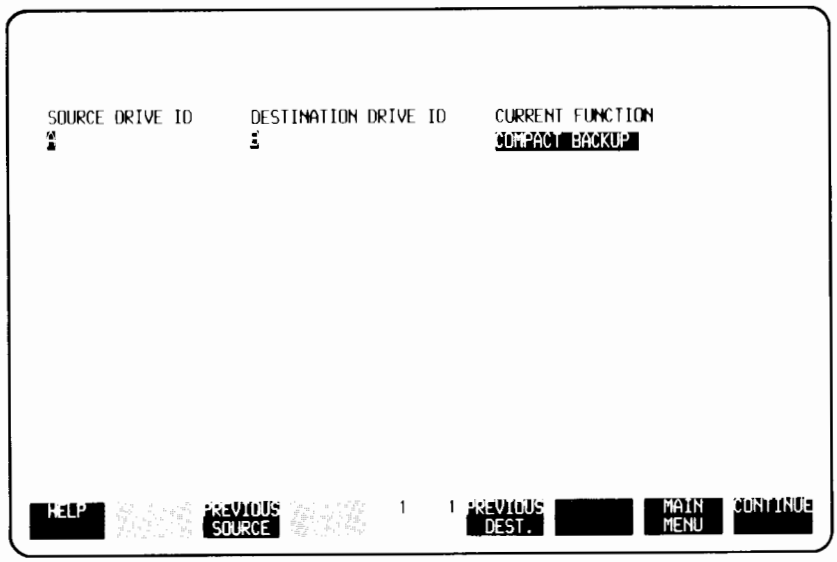


Indicate that you want to do a compacted file backup by pressing COMPACT BACKUP

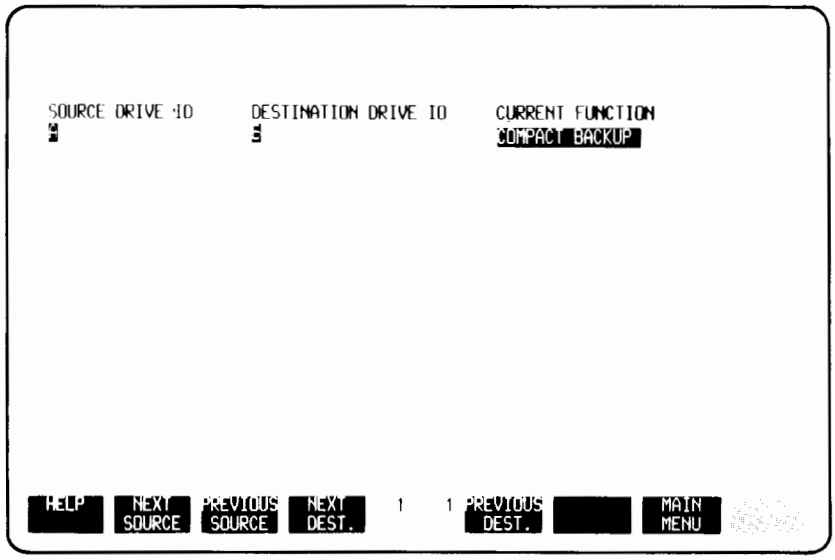


If the original files aren't in drive A:, press NEXT SOURCE until the letter of the disc containing the original files appears.

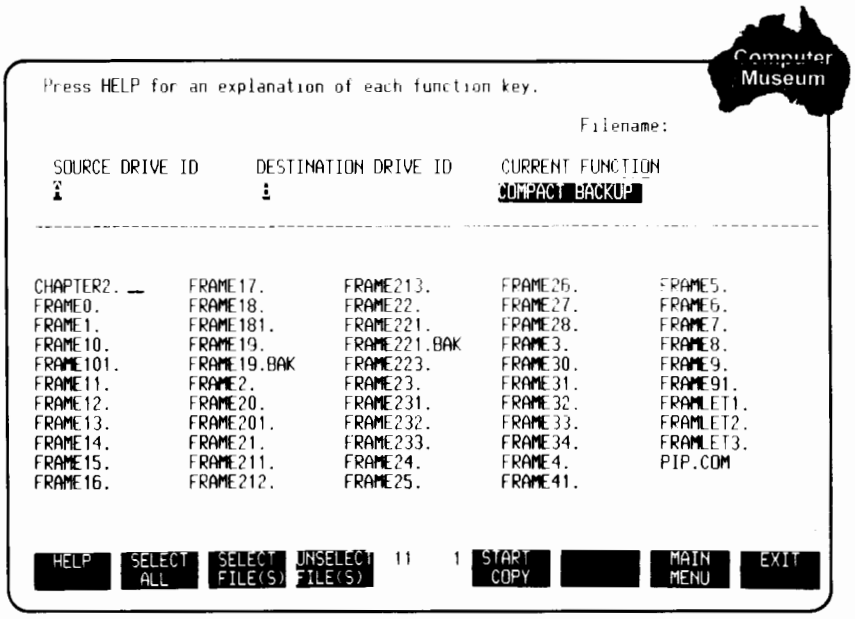
If the formatted destination disc won't be in drive B:, press NEXT DEST until the letter of the destination disc appears.



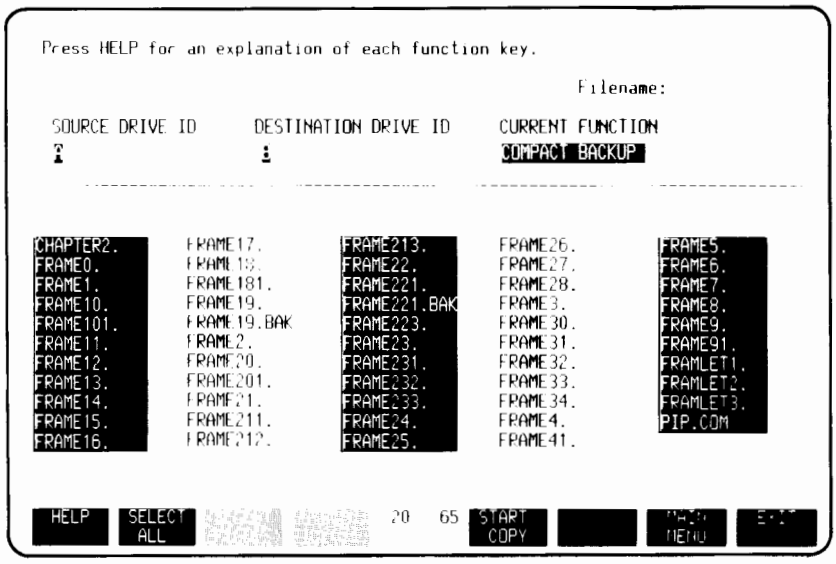
When the source and destination files indicated on the screen are correct, make sure that the source and (formatted) destination discs are present in the drives.



The next screen shows you all of the files on the source disc.



The cursor is positioned at the first filename on the list. If this file is to be backed up, press SELECT FILE. Move the cursor to each file to be backed up and press SELECT FILE.



NOTE

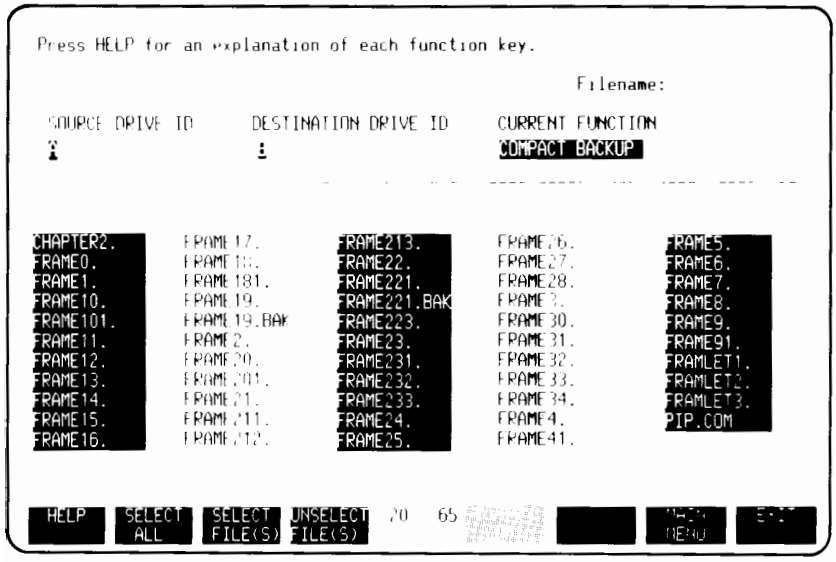
If you have several files with something in common, you can use a wildcard (*) and type the filename at the top of the screen.

When you start to type, the cursor automatically moves to ''Filename:'' at the top of the screen.

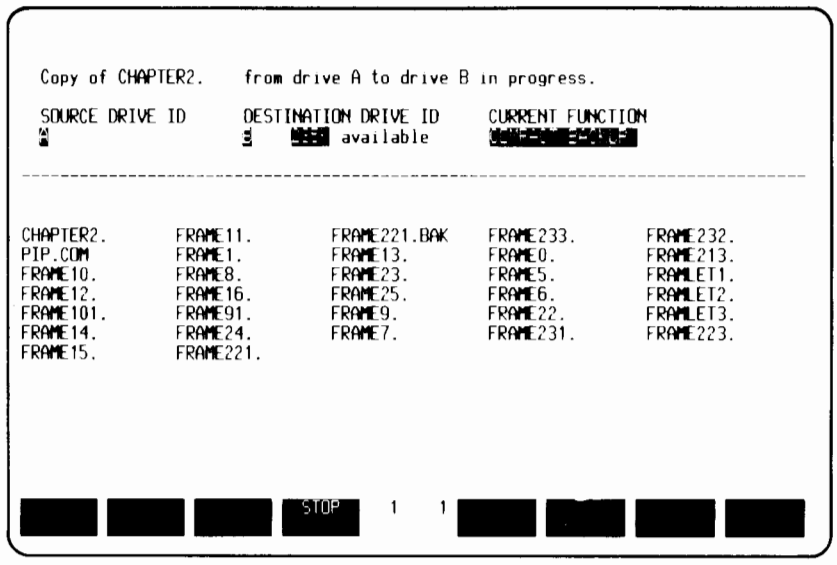
Type a filename, using the * wildcard if you want to; the * means ''any letters.'' For example, CHAPTER* will find CHAPTER1, CHAPTER2, and CHAPTER9. *.BAK finds CHAPTER1.BAK, CHAPTER2.BAK, and CHAPTER3.BAK.

Press [↵]. All indicated files should be highlighted, and the cursor back where it was when you started typing.

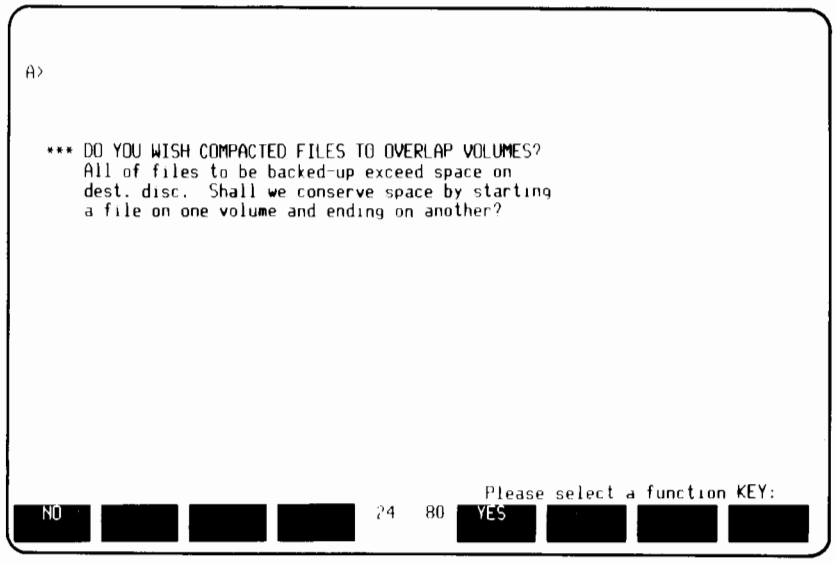
When all of the files to be backed up are highlighted, press START COPY.



Now, only the files to be backed up appear on the screen; they appear in order from the largest to the smallest file.

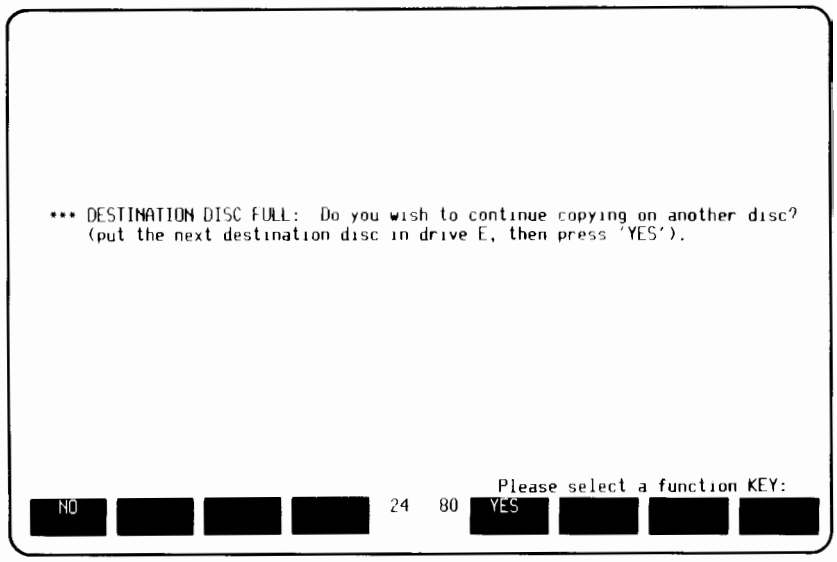


When a file has been backed up, the filename is highlighted on the screen. If a whole file will not fit on the destination disc, that file is temporarily skipped, and files that will fit are backed up. If there are no files that will totally fit, BACKUP COMPACT asks if you want to split a file between two discs:



If you answer NO when asked if you want to back up part of the file, it will not be split. You will be asked to put another formatted destination disc in the drive; the whole file (if it is less than the entire size of the disc) will be put on this second disc, and any remaining files will be backed up.

If you press YES, part of the file will be backed up. Then, you will be asked to put another formatted destination disc in the drive; the second half of the file will be backed up to the second disc. If necessary, more destination discs are requested:



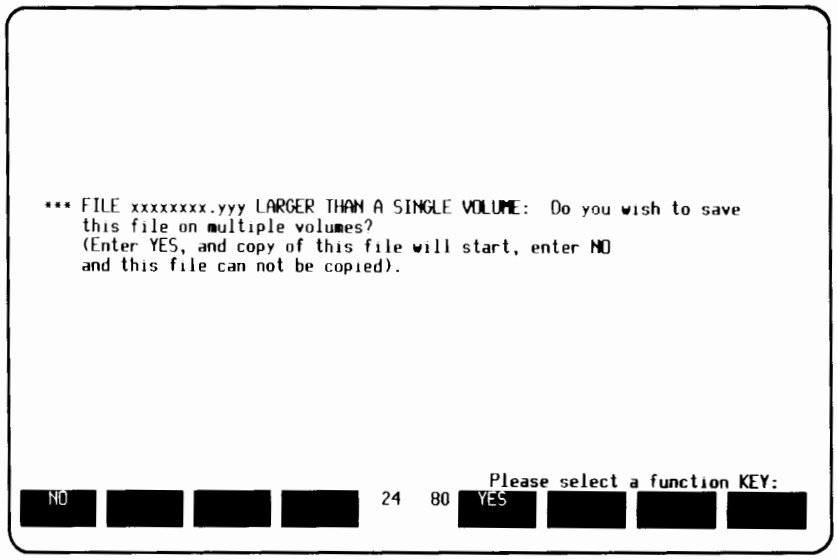
If you use multiple destination discs, be sure to label them:

BACKUP #1
Chps. 1-8
Owners Manual
7-8-82

This way, you know in what order to restore the volumes, and exactly when the backup was done. You can avoid mixing up discs from old backups, and avoid restoring discs in the wrong order.

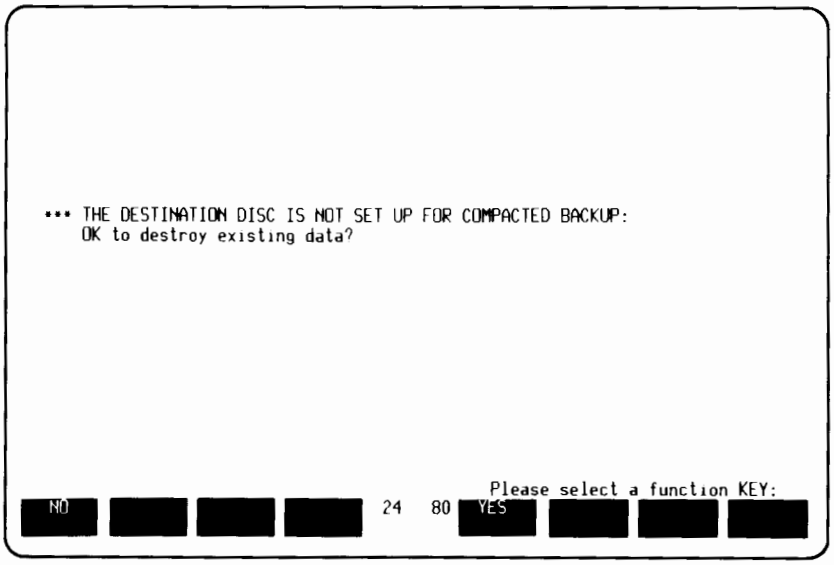
Backing Up Files Larger than a Flexible Disc

If a file is bigger than an entire flexible disc (e.g., a database), you will have to split it between discs to back it up. Since backup starts with the largest file, BACKUP COMPACT finds files larger than a flexible disc first. A message tells you that this file can only be backed up on more than one disc, and asks if that is all right. You answer by pressing YES or NO:



If you answer NO, this file is not backed up.

If the destination disc has regular files on it, you are warned:



If you answer YES, all existing files on the destination disc are overwritten by compact files.

Using Non-Empty Discs with BACKUP COMPACT

When the compact file destination disc already contains data, this screen appears:

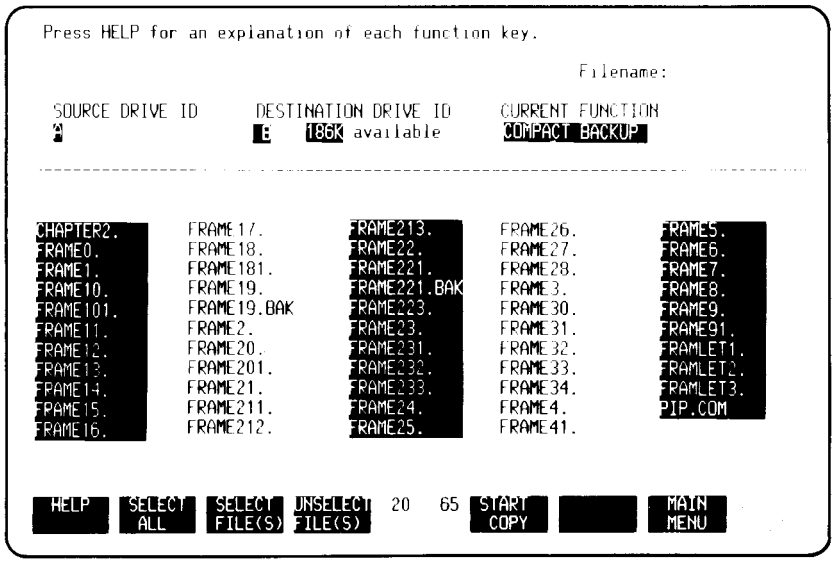
```
*** DESTINATION DISC NOT EMPTY:  Do you wish the volume to be cleared
    before the copy starts?
```

Press YES to clear the volume. Press NO, and the backup will be placed after the existing files on the destination disc.

If you've used a disc for a previous backup and the files are still there, this screen may appear:

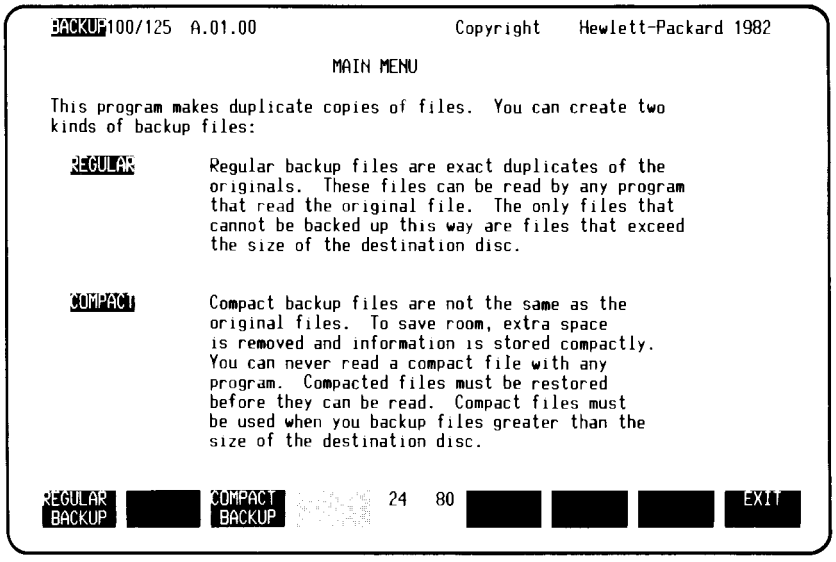
```
*** DUPLICATE FILENAMES *** WARNING ***

The destination disc already contains some or all of the backup
files. Do you wish to continue and replace the old files with
new ones?
```

When all of the files have been copied, this screen appears:



RESTORE COMPACT

To restore compact files, first press RESTORE COMPACT on the initial BACKUP screen.



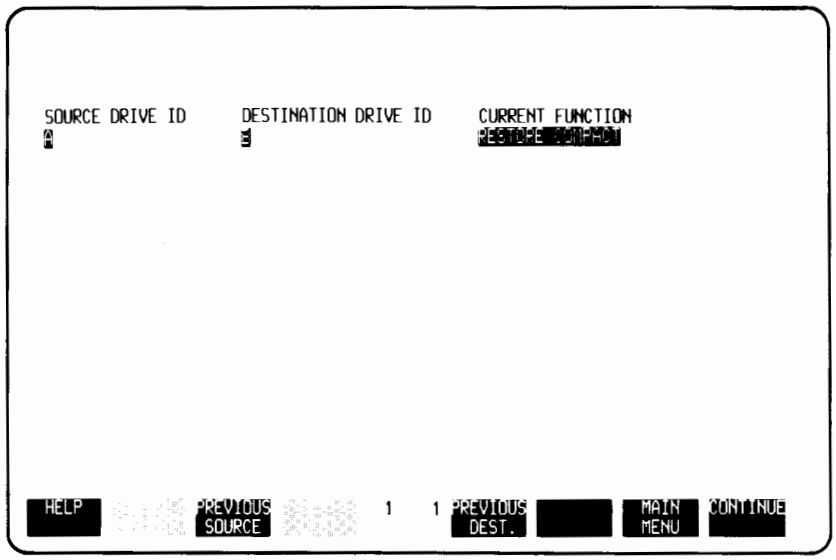
Next, indicate the source (disc containing the files), and destination (disc to receive the restored files).

NOTE

If you are restoring a compact backup from more than one disc, be sure to restore the discs in the order that were backed up. If you insert a disc out of order, the message:

WRONG DISC FOR CURRENT RESTORE

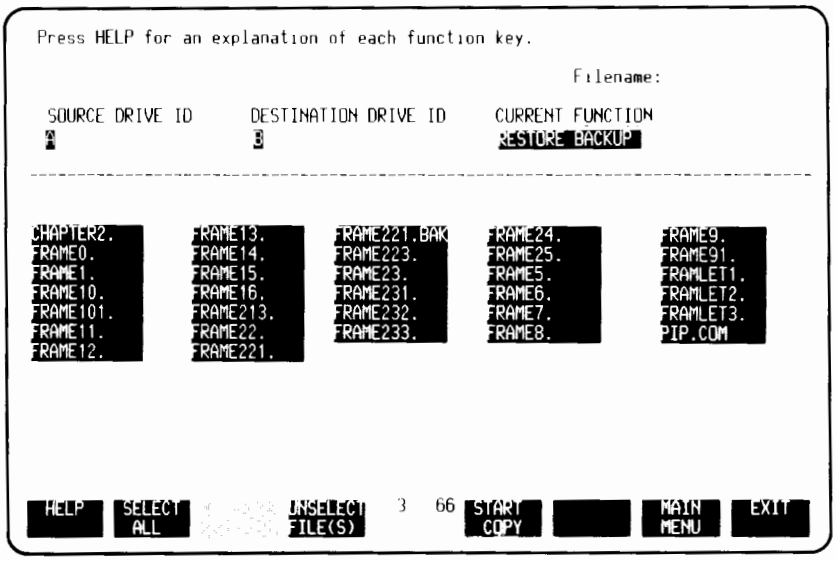
appears. You are then prompted for the correct volume.



The next screen shows you the compacted files:

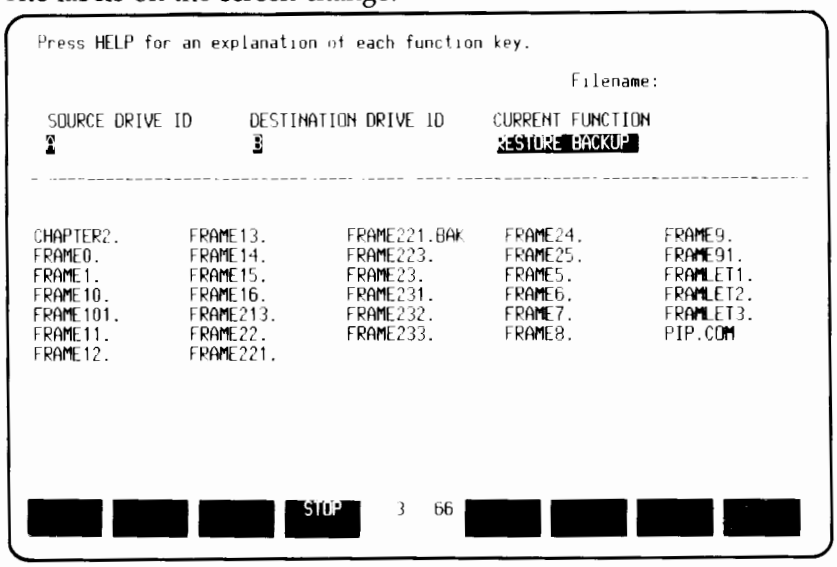
```
Press HELP for an explanation of each function key.

                                                          Filename*:

 SOURCE DRIVE ID      DESTINATION DRIVE ID      CURRENT FUNCTION
 A                    B                         RESTORE COMPACT

 CHAPTER2.        FRAME13.         FRAME221.BAK     FRAME24.         FRAME9.
 FRAME0.          FRAME14.         FRAME223.        FRAME25.         FRAME91.
 FRAME1.          FRAME15.         FRAME23.         FRAME5.          FRAMLET1.
 FRAME10.         FRAME16.         FRAME231.        FRAME6.          FRAMLET2.
 FRAME101.        FRAME213.        FRAME232.        FRAME7.          FRAMLET3.
 FRAME11.         FRAME22.         FRAME233.        FRAME8.          PIP.COM
 FRAME12.         FRAME221.

 HELP | SELECT ALL | SELECT FILE(S) | UNSELECT FILE(S) | 11 | 1 | START COPY | | MAIN MENU | EXIT
```

Position the cursor and press SELECT FILE to highlight a filename. All highlighted files will be restored.



Press START COPY. All unselected files are removed from the screen, and the selected files appear in order from largest to smallest.

The labels on the screen change:



Files are restored, then the filenames are highlighted on the screen.

BACKUP ERROR MESSAGES

During BACKUP, several error messages could occur:

Read-only disc in drive:
If a 3½" disc is in the drive, the tab is missing or in the wrong position; if an 8" drive, the necessary tab is not over the square hole; if a 5¼" drive, the tab **is** over the square hole (remove it).

Disc access error on drive:
Either the drive doesn't exist, isn't turned on, or no disc is in the drive.

Unformatted disc in drive:
Use FORMAT to format the disc indicated.

Drive is empty, off, or undefined:
Is the drive on? Is there a disc in the drive?

Could not find files on disc:
Is the source disc in the drive indicated?

No files were selected for backup:
Move the cursor to a filename and press SELECT FILE. Do this as many times as needed.

Drive is both the SOURCE & DEST:
You indicated the backup should go from a drive to the same drive. Change either the source or destination drive.

Selected file not on source:
The file isn't on the source disc. Check to be sure the correct letter is indicated under source disc.

Only checking 1st 255 file extents:
You have more than 255 files on this disc; only the first 255 can be backed up.

Duplicate files on drive. Unable to proceed:
You already have a copy of these files on the disc. Erase these files from the destination disc, and try again.

COPY Utility

Explanation

COPY duplicates either the operating system only, the data files only, or the entire disc to another formatted disc of the same size and format. (Fixed discs are set up as four 8″ discs.)

If the duplicate disc contained information before the copy, that information is:

1) Left intact if only the operating system is copied from the original disc.

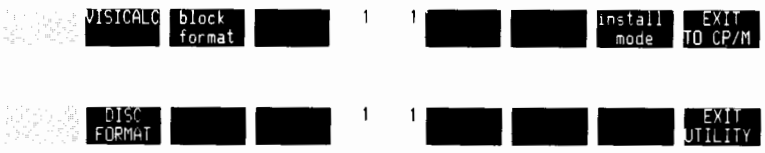
2) Erased if everything is copied from the original disc.

3) Erased if only data is copied from the original disc.

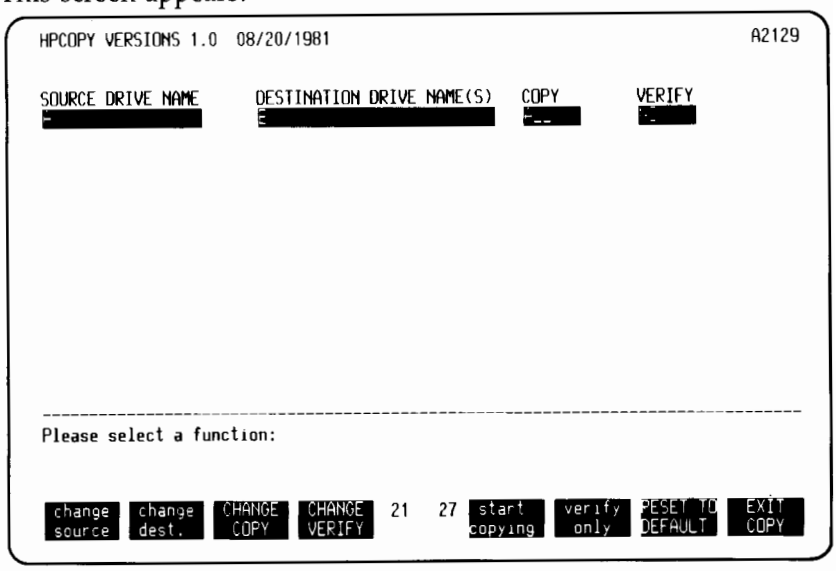
Hewlett-Packard application programs are protected and cannot be copied; these programs must be installed. If you copy an entire disc with an application on it, everything but the application will be copied.

Procedure

Start with the Welcome Menu on the screen. Press:



This screen appears:



Make any changes to the menu by pressing the function keys explained below.

change source Prompts for a new source drivename.

change dest. Prompts for a new destination drivename. Indicate one or multiple destinations; when multiple destinations are typed in, they are separated by commas (e.g., B,C,D). Each disc then gets a copy of the source disc, one at a time.

CHANGE COPY Cycles through the three copy options: ALL, SYSTEM, and DATA.

ALL copies both operating system and data files; SYSTEM copies just the operating system; DATA copies just the data files.

CHANGE VERIFY Changes the verify option between YES and NO. If verify is YES, all information copied onto the destination disc is compared to the same data on the source disc to verify a proper copy; verify YES is recommended.

start copying Starts copying files and/or the operating system as indicated on the screen.

verify only	Compares two discs to see if the files match.
RESET TO DEFAULT	Resets the entries in the menu to their default values (present when the menu first appears on the screen).
EXIT COPY	Terminates the DISC COPY program. Clears the display screen, displays the message "HPDISC COPY COMPLETED," and returns to the Welcome Menu.

Insert the source and destination discs when the program asks you to, and then press PROCEED W/COPY or PROCEED W/VERIFY. If you decide to make additional changes to the copy menu at this point, press the function key "main menu."

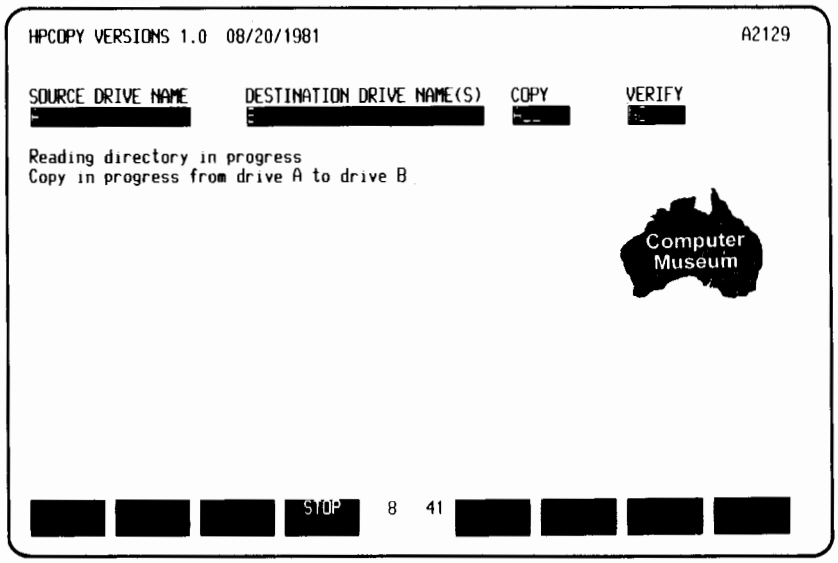
If you forget to put either the source or destination disc in the proper drive, the message:

DRIVE OR DISC NOT AVAILABLE

appears on the screen, where X is the disc drive causing the error. If you haven't turned the drive on at all, you may get the error:

TIMEOUT OR EOI ERROR

When a copy is in progress properly, this screen appears:



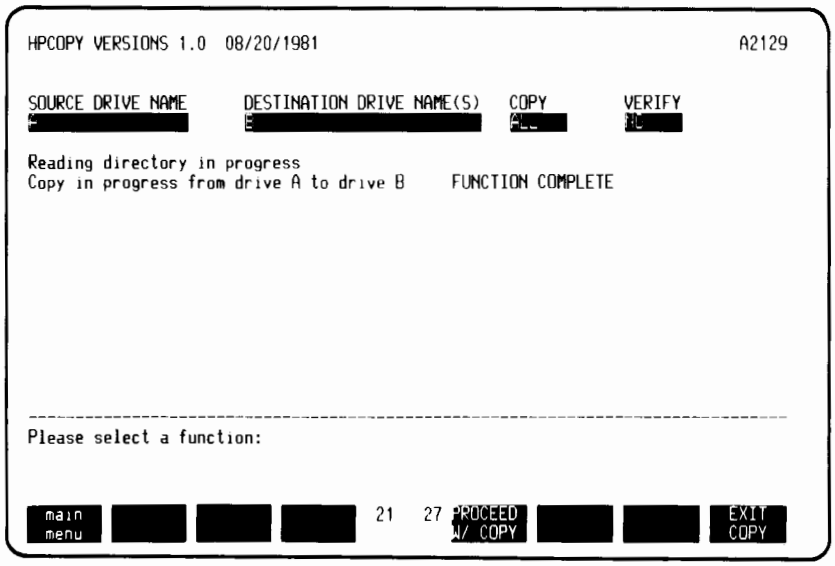
Press STOP to temporarily stop the copy, then press CONTINUE to continue. Press EXIT COPY to terminate the program and return to the Welcome Menu.

If you specified verify instead of copy, this message will appear on the screen:

Verify in progress from drive A: to drive B:

Once the verify is complete, either "FUNCTION COMPLETE" or "VERIFY FAILED" is added to the above message. If the verify fails, your disc is not initialized properly.

After a copy or verify is complete, this screen appears:



Press any of the function keys above to accomplish the following:

main menu	Return to the disc copy menu to change values for another copy.
PROCEED W/COPY	Copy another disc using the same copy values as the first.
	or
PROCEED W/VERIFY	Verify another disc using the same verify values as the first.
EXIT COPY	Terminate the DISC COPY program and return to the Welcome Menu.

Another way to prevent loss of data is to take special care when handling and storing flexible discs.

DON'T

- Don't touch the actual disc itself (inside the black cover).
- Don't write on the affixed disc label with a ballpoint pen (use a felt-tipped marker).
- Don't use labels that clip on or staple.
- Don't try to clean anything off of a disc by conventional methods, such as soap or water.
- Don't keep worn discs around—mark them and discard them immediately.
- Don't operate your system in an extremely hot and humid (or cold and dry) environment. (See the installation guide for a list of temperature and humidity ranges.)

DO

- Do return discs to their storage envelopes and storage box when they are not in use.
- Do remove discs from drives when they aren't in use.
- Do operate your system in a clean environment.
- Do back up discs frequently.
- Do replace discs when they are worn.
- Do avoid magnetic fields.
- Do use a felt-tipped pen to label discs.

Taking Care of Disc Drives

Occasionally, you may need to clean the heads inside the disc drives. The procedure is described in Appendix A of this manual. If you get a lot of error messages on the screen referring to discs or disc drives, refer to the cleaning procedure.

Disc Status

To find out the status of a file, type:

```
STAT drivename:filename.filetype
```

To find out the status of a disc, type:

```
STAT drivename:
```

Chapter 5

APPLICATIONS

Applications (also called software packages or software applications) are programs written to perform a specific task. An application is usually centered on one subject such as accounting, word processing, finance, or a filing system. Anyone, including you or someone in your company, can write an application for a Series 100. Several applications are produced and supported directly by Hewlett-Packard. (''Supported'' means Hewlett-Packard has a service that deals with questions or problems.) Other programs are purchased by HP, modified, and sold through Hewlett-Packard's HP PLUS program. (HP PLUS products are supported by either HP or the original author.) The third category of applications includes programs written by other companies who make sure that the programs will run on a Series 100.

Hewlett-Packard Applications

Hewlett-Packard applications for Series 100 can be grouped into six general categories:

Document Management
This category consists of word processors used to create, store, and print documents such as letters and contracts. Applications such as Series 100/Word or WordStar®/100 are document management applications.

MailMerge™/100 and SpellStar™/100 are used with WordStar/100 to create individualized letters and to check spelling, respectively.

WordStar® is a registered trademark of MicroPro International Corporation.
MailMerge™ and SpellStar™ are trademarks of MicroPro International Corporation.

Decision Support

Three examples of decision support products are Series 100/ VisiCalc®, Series 100/Graphics, and Series 100/Milestone™. VisiCalc is a decision support tool providing a financial worksheet that manipulates and prints rows and columns of figures with corresponding labels. Budgeting, forecasting, and planning methods are improved with decision support programs such as VisiCalc.

The Series 100/Graphics program creates labeled line, bar, and pie charts on a plotter; text can also be created alone. It is useful for illustrating report statistics on paper or slides.

Milestone manages projects using PERT and Critical Path Method techniques.

Data Communications

Data communications programs such as Series 100/DSN/Link allow you to transfer information to and from another computer.

Information Management

Information storage and retrieval is accomplished with database programs such as Series 100/Condor. Managing interconnected information such as part numbers, order numbers, customer addresses, and inventory is just one example of data management use. Series 100/Report Writer is an example of a program that creates reports out of database information. Use Report Writer to organize and print Condor information, or use it to index data stored in a Condor database.

Program Development

Any programming language you use to create your own programs would be a program development tool. Series 100/BASIC is a language used with Series 100 computers. Other tools, included in the Series 100 Programmers Pack, are Assembly Language, an editor, a debugger, and a dump program.

Small Business

Applications designed for small business include Series 100/General Accounting. This accounting tool provides a general ledger, accounts receivable, and a general journal. A payroll package that interfaces with General Accounting is another small business application.

After I Buy an HP Application, How Do I Install It?

To use your HP applications, you must complete four steps; these steps are explained in detail in this chapter:

1) Load the operating system.

2) Format a Work Disc that applications will be stored on, if this hasn't been done already (a fixed disc should have been formatted when it was installed).

3) Put a copy of the operating system on the Work Disc if one isn't present (a fixed disc should already have a copy of the operating system on its drive A:).

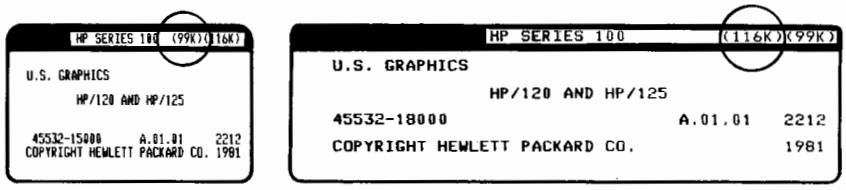
4) Put a copy of a utility or application on the disc.

Once you have installed one application, you can add additional applications until you run out of disc space. Discs have the following amounts of space (called disc capacity), measured in bytes:

Disc	Drives Used	Capacity	
		Actual	Abbreviated
Fixed*	HP 9134, HP 9135	4,505,600 bytes	4.4 Mbytes
Flexible 8"	HP 9895	1,126,000 bytes	1.1 Mbytes
Flexible 5¼"	HP 82901, HP 82902, HP 9135	254,032 bytes	248 Kbytes
Flexible 3½"	HP 9212, HP 9133	245,032 bytes	248 Kbytes

**A fixed disc uses space like four 8-inch discs.*

Applications take up various amounts of space; look on each application disc sent from HP for the exact amount of bytes each application needs. The labels on HP applications look something like this:



The expression Mbyte refers to 1,048,576 bytes; the expression Kbyte refers to 1024 bytes.

Installation Instructions

1) Load the Operating System

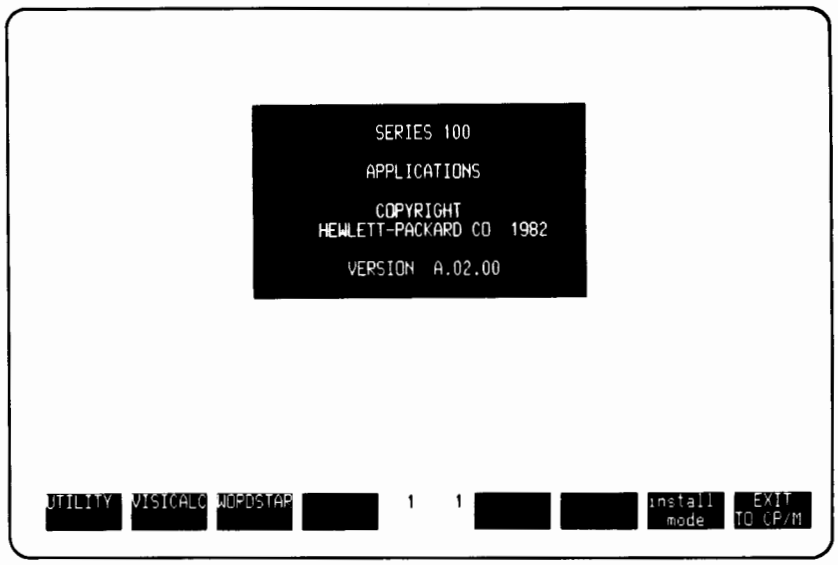
Follow these steps to load the operating system:

Turn on the disc drive.

Insert the master operating system disc in drive A:. If you have a fixed disc at location A:, the operating system should already be there. (Directions are in the installation manual.)

Turn on the system processor. If the operating system doesn't load automatically, press:

The Welcome Menu appears:

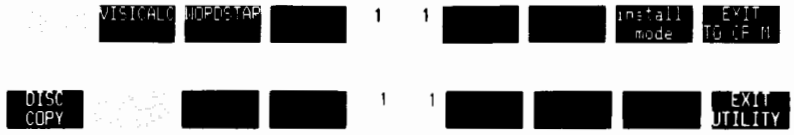


2) Format a (Flexible) Disc

Format a flexible disc, if you have not already done so, before applications are stored there. If you plan to use a fixed disc for this purpose, it should have been formatted when the disc was installed and you can skip this section.

To format a flexible disc, place a disc in a drive other than A: and follow these steps:

Press:



Notice that the Series 100 DISC FORMAT screen lists all drives with ON or OFF next to each. The drive containing the unformatted disc should say ON. If it does not, change the entry by positioning the cursor at the drive (use the [TAB] key to move the cursor) and pressing NEXT CHOICE.

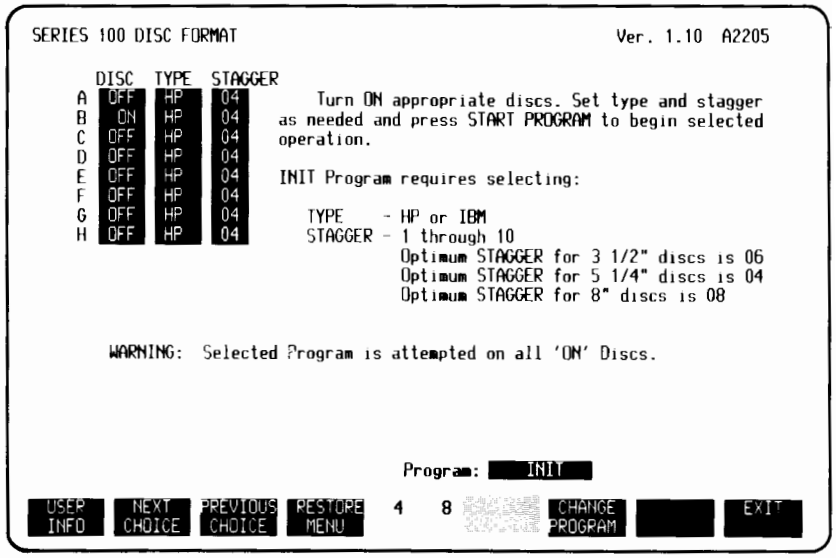
All other discs should say OFF; use the cursor and NEXT CHOICE function key to turn them off if you need to. Formatting a used disc completely clears all information from it, and sets it up like a new disc.

If you are formatting a 5¼" disc, leave STAGGER set to 04. For an 8" disc, set STAGGER to 08 by positioning the cursor at the value and pressing NEXT CHOICE until 08 shows on the screen next to STAGGER. (This makes reading an 8" disc faster.) For a 3½" disc, set STAGGER to 06.

If an 8" disc will be used on another system requiring IBM 3740 format, position the cursor in the TYPE column and press NEXT CHOICE until IBM appears.

If you ever just wish to check the format of a disc to be sure it can be used on the Series 100, use VERIFY instead of INIT. Set the program to VERIFY by pressing the CHANGE PROGRAM function key. If you want to use the program to check the addresses on a disc, press the CHANGE PROGRAM function key again; SEEK CHECK will appear in the program area on the screen.

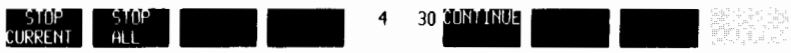
Press:



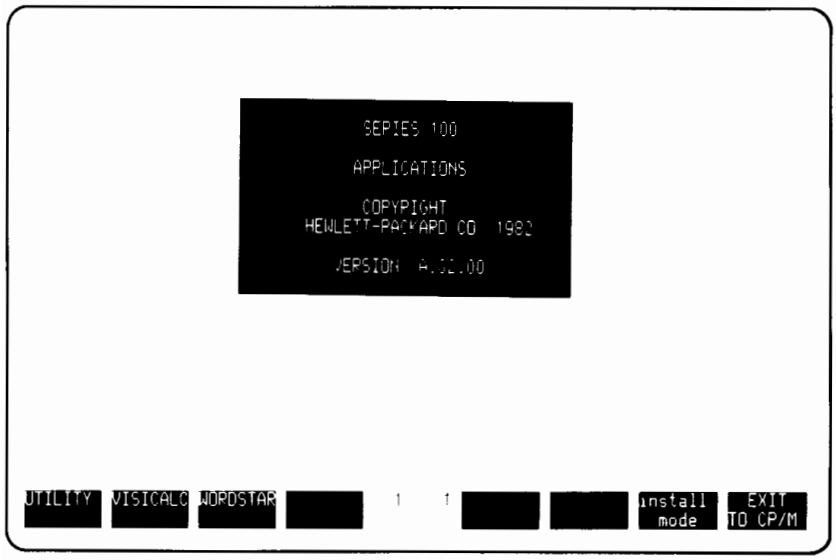
The message ''INITIALIZING DISC (letter)'' appears, indicating that formatting is in progress. If the disc has been formatted before and you are removing all data, the message ''Select function to Continue'' appears. Press the CONTINUE function key [f5] to begin formatting.

Three patterns are imprinted, and two are verified on each disc. When initialization is finished, the message ''OK DISC X. Select Function to Continue'' appears on the screen.

Press:



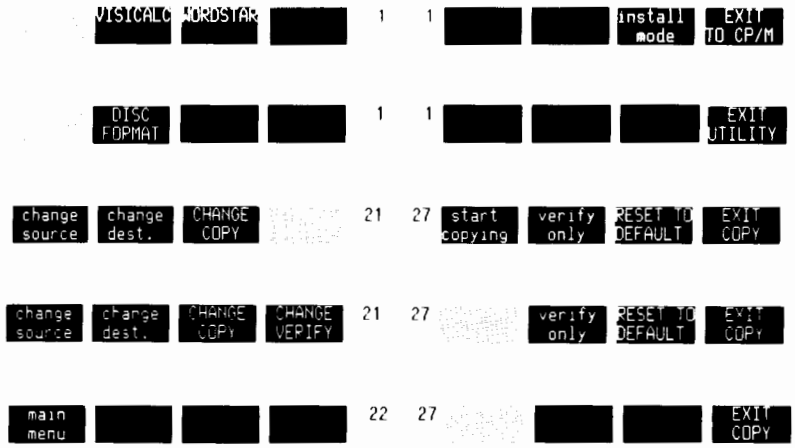
The screen should look like this:



3) Put a Copy of the Operating System on the Disc

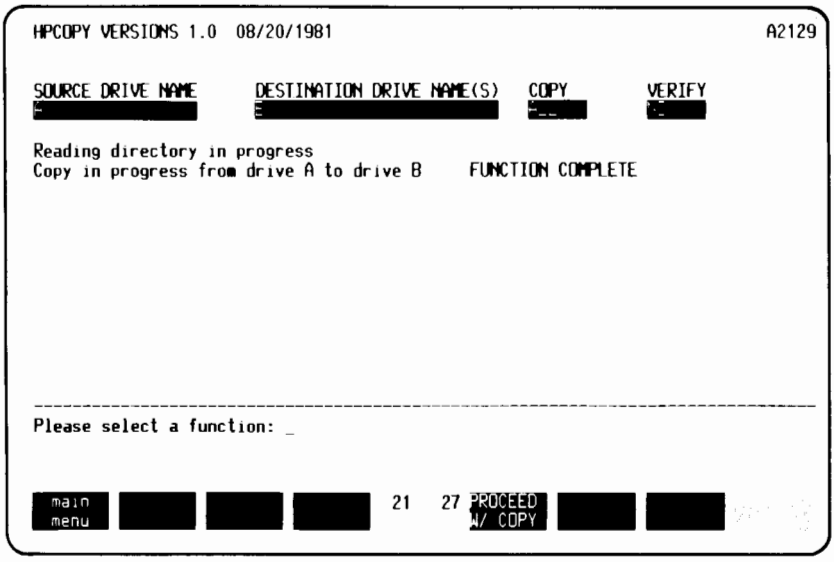
A copy of the Series 100 operating system (taken from the master disc only) must be on a disc in drive A: in order for the Series 100 to run. One master disc (received from HP) contains the operating system. Another master disc, labeled "UTILITIES," contains programs such as Backup, and Block-Format; these programs are installed the same way that applications are.

A fixed disc should already have a copy of the operating system on its drive A: (this is done when the drive is installed). If your drive A: is a flexible disc drive, you must create a Work Disc using the following method. Transfer a copy of the operating system to the formatted flexible disc in drive B: by pressing:



At this time, lights on the disc drives will blink while information is copied onto the flexible disc in the B: drive. Prepare a label (e.g., Work Disc) for the disc.

Press:

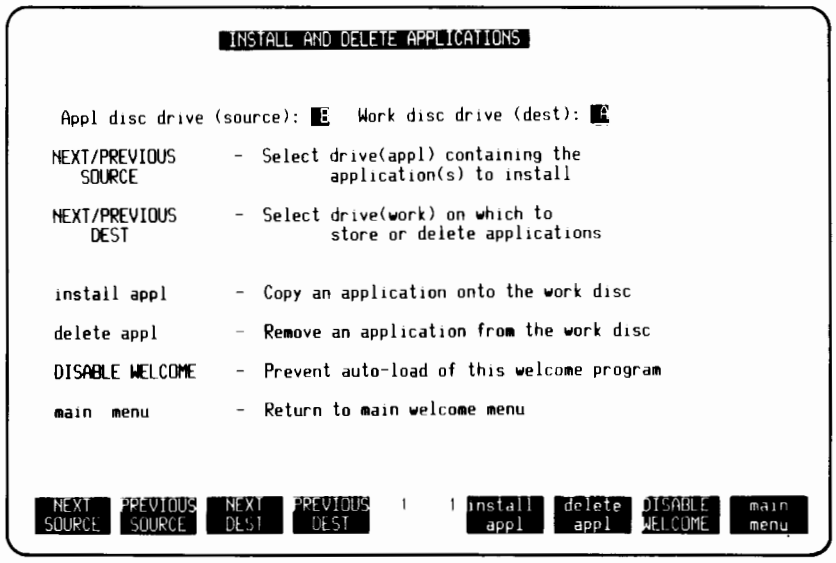


Remove the master operating system disc from drive A:, place it in a protective jacket, (for 3½" discs, slide the metal plate to the right) and store it in a safe place. Remove the copy from the other drive, attach the label, and insert the new copy in drive A:. This copy will be referred to as the Work Disc from now on.

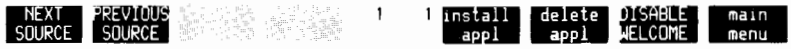
4) Put a Copy of Each Application on the Work Disc

Whether you are putting Backup, Block-Format, or an application on a disc (flexible or fixed), your screen should now look like this:

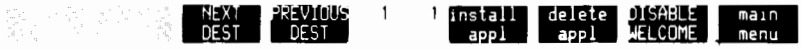
Place the master UTILITIES Disc (Backup and Block-Format are on this disc) or a master application disc into a drive other than drive A:. Press function key 7 (install mode). This screen appears:



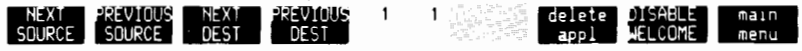
Look at the part of your screen that says "Work disc drive (dest): ." Does the letter after the colon correspond to the letter of the disc drive (probably A:) that you are storing applications on? If not, press:



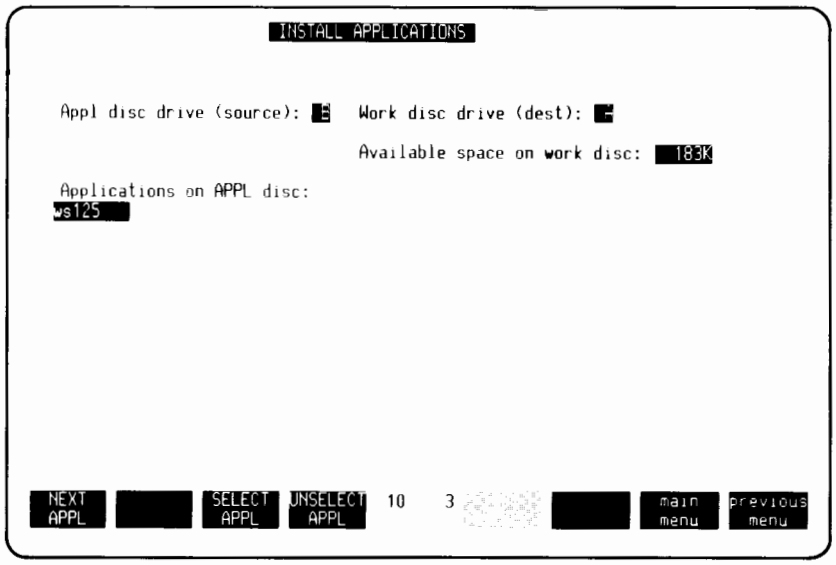
Check the "Appl disc drive source" on the screen. Change the disc drive letter if it is not the one containing the master application disc. Press:



You are ready to begin the installation. Press:



This screen appears:



Look at the highlighted line above. Is there enough room for the application you want to install? The size of each application is on the disc you receive from HP, and you must allow 20 Kbytes extra for installation procedures.

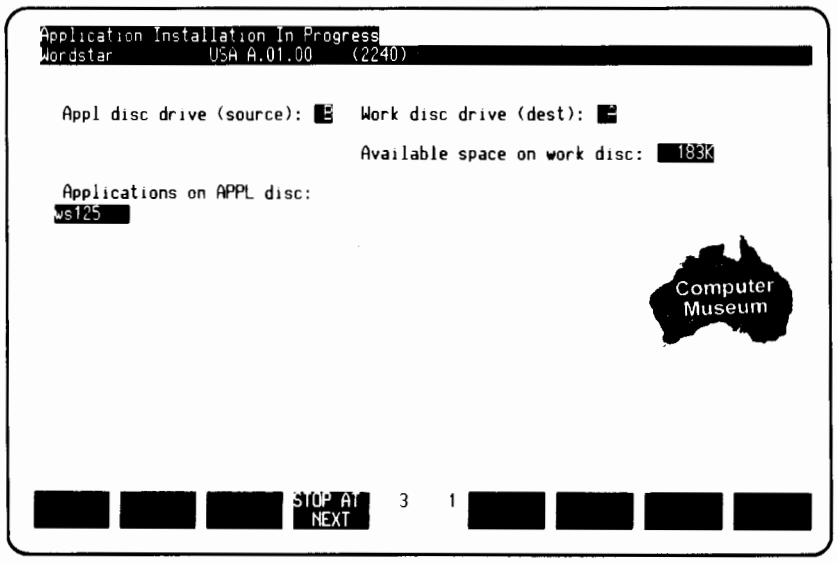
Notice that the contents of the master disc are listed on the screen. The master application discs you receive from HP have only one application apiece on them. The utilities disc has two programs on it; both of these appear when the contents of this disc are listed. When the applications found on a master disc are listed on the screen, the HP 120/125 assumes you want to install all of them.

NOTE: CONSERVING DISC SPACE

Do not install Block-Format (from the master utilities disc) unless you plan to operate as a block mode terminal; it uses needed space on your disc. To further conserve space, consider creating a separate Work Disc for backup; the operating system and Backup would be inserted only when a backup is needed. (The Backup program does Series 100 backup.)

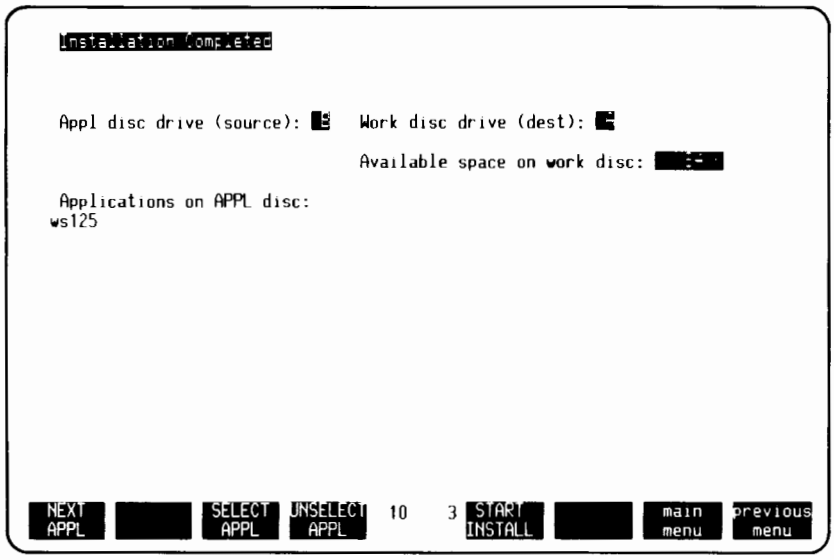
If you do not want to install one of multiple applications, move to that application with NEXT APPL (function key 1), then press UNSELECT APPL. When the name of the application is no longer highlighted, it will not be installed.

When the correct applications are highlighted, press START INSTALL. A message appears, telling you which application is being installed; at the same time, the lights on the disc drive blink as each drive is accessed during installation.



After an application is installed, the name is no longer highlighted. Only applications that are going to be installed are highlighted.

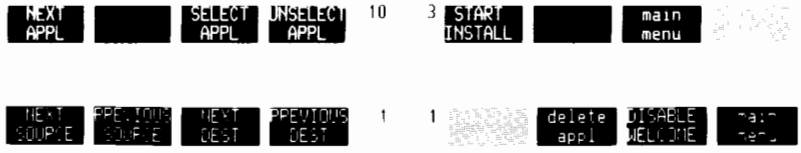
If you are installing more than one program, you can press STOP ON NEXT. The program stops after the current program is installed. When the installation is complete, this screen appears:



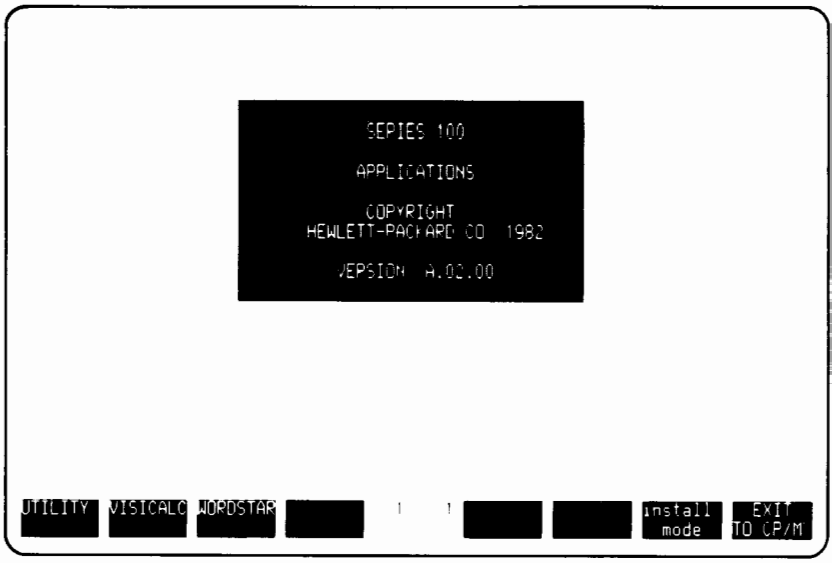
NOTE

If the message "***Installation aborted. Insufficient disc space on X." appears on the screen, there isn't enough space on the Work Disc for that application. If you are installing more than one application from the same master disc, you may want to skip the one that is too big and install another one. To do this, press START INSTALL; installation will continue with the next application on the list.

To install an additional application disc, place the next master disc in the drive and press:



When all applications are installed, press:



Your applications are installed and ready to use. Simply press the function key corresponding to an application label to run that application. Once you exit an application, the Welcome Menu above will reappear.

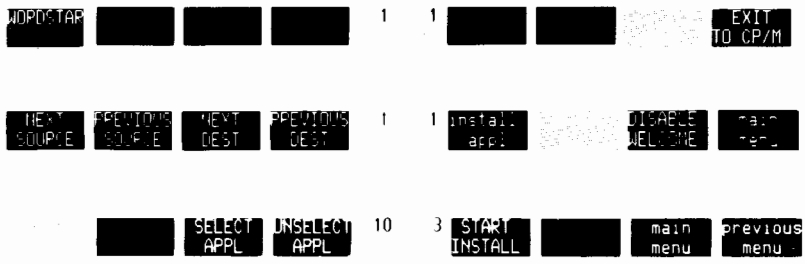
When you install an application, it appears in the left-most available function key label. In the example above, VisiCalc was the first application installed, followed by Wordstar.

Programs that are not HP supplied may be installed on a Welcome Menu by following the instructions in the *System Reference Manual.* If you don't want a non-HP program on the Welcome Menu, you can run the program from CP/M. (See "Running Applications Directly from CP/M" in this chapter.)

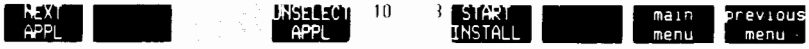
If more than six applications are installed on a Welcome Menu, another level of function keys is created, using NEXT LEVEL, PREVIOUS LEVEL, or TOP LEVEL as additional function keys. You can always create a new Work Disc if you run out of room on the first one, splitting your applications between the two discs.

Deleting HP Applications from a Work Disc

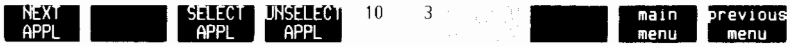
To delete an application, begin from the Welcome Menu, and press:



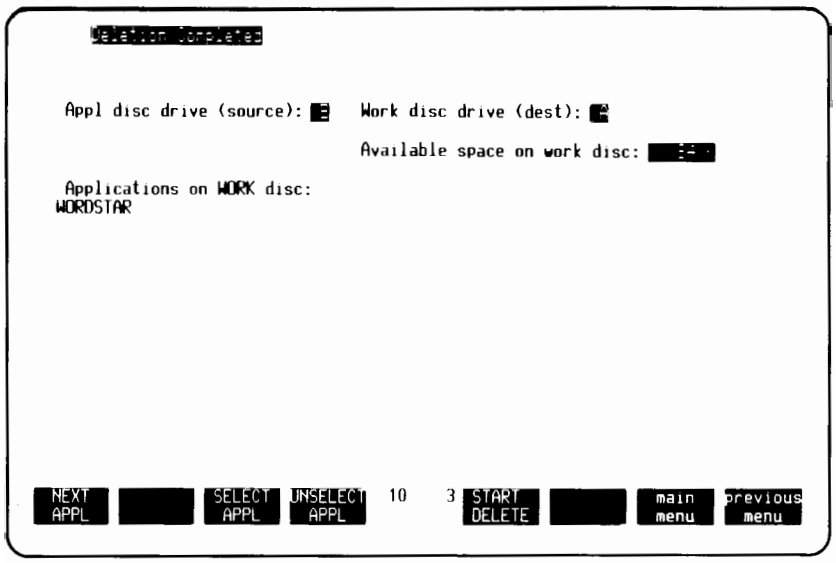
until the cursor is at the application you want to delete.



You can select as many applications as you wish. When an application is selected, it appears in inverse video.



If you have chosen more than one application, you can press STOP AT NEXT to stop deleting after the current operation.



Running Uninstalled Applications

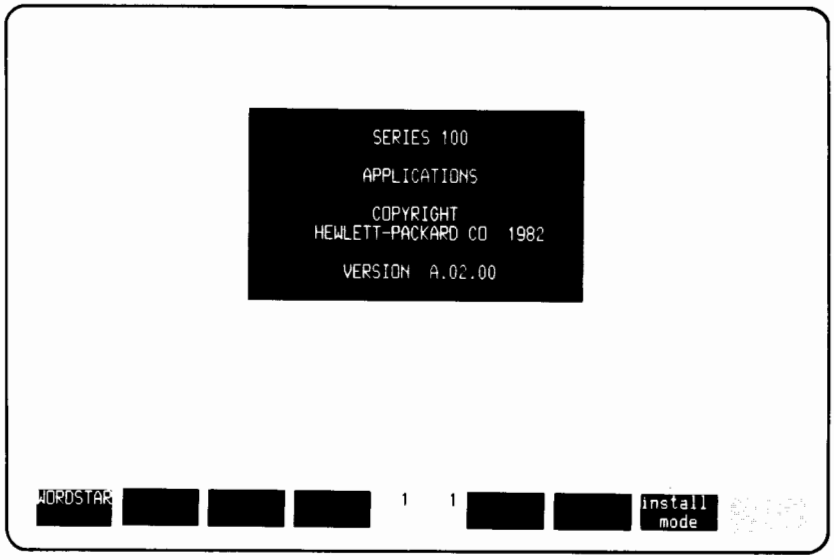
All computers use an operating system to run their applications. When the Series 100 is a computer, it uses the operating system CP/M (version 2.2) to run applications. (CP/M stands for Control Program for Microcomputers.)

The Welcome Menu uses CP/M to run installed applications. You can run non-installed applications directly from CP/M. (Non-installed applications are applications that are not installed with install mode. These include programs purchased outside of HP; if you have questions concerning which non-HP programs will work, refer to Appendix F.)

This section explains how to get into CP/M, and how to run programs other than installed HP programs. (Installed HP programs can only be run from the Welcome Menu.)

Getting Into CP/M

Get into CP/M from the Welcome Menu that appears when you turn on your system processor (disc drive A: must be running and a copy of the Work Disc must be in drive A:):



Getting Out of CP/M

To get out of CP/M type:

WELCOME

and press the [↵] key. This returns the Welcome Menu to the screen.

Running Applications Directly from CP/M

Because the Series 100 uses more than one disc drive, you must let it know which disc to use when you want to store, recall, or alter information. For example, you will keep CP/M (operating system) and its utilities on the disc in drive A:, but you may keep files of information on the disc in drive B:.

The Series 100 knows that CP/M is on the disc in drive A:, but it has no way of knowing whether you wish to access information on the disc in any other drive. You can always indicate this by referring to files with a disc name first, such as B:FILE, C:FILE, D:FILE, and so on.

When using an application, you can ensure that the proper disc is always being accessed by specifying the drive name before the file name. After you access CP/M by pressing EXIT TO CP/M on the Welcome Menu, the prompt A will appear, this means that A: is the current disc drive. The Series 100 will assume you mean drive A: unless you specify otherwise. To run a program called FORECAST stored on the disc in drive B:, you would type:

A>B:FORECAST [↵]

If you want B: to be the default when no drive letter is given, type:

A>B: [↵]

Now, the prompt in CP/M will be B , indicating that B: is the current drive. To run FORECAST from the disc in drive B:, you would simply type:

B>FORECAST [↵]

To change the current disc drive to G:, you would type:

B>G: [↵]

Now the prompt is G:, and you would run the program FORECAST by indicating disc drive B: first:

G>B:FORECAST [↵]

All utilities can be run from CP/M.

A>COPY [↵]
A>FORMAT [↵]
A>ARCHIVE [↵]
A>DIR [↵]

NOTE

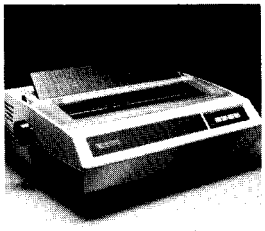
Applications that have been installed according to the directions in this chapter cannot be run from CP/M. Programs such as VisiCalc, Word, and Graphics must be run from the Welcome Menu.

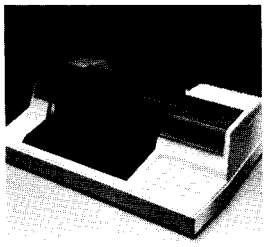
Other programs, such as BASIC can be either installed or run from CP/M.

Chapter 6

USING A SERIES 100 AS AN ELECTRONIC TYPEWRITER

Electronic Typewriter





A Series 100 can be used three ways:

- As a computer.
- As an electronic typewriter.
- As a terminal.

This chapter explains how to use the electronic typewriter; this is called Local Mode. What you actually do in this mode is create words or characters on the screen, then send a copy of it to a printer. What you see on the screen is exactly what is printed at the printer. You use only the system processor and the printer. The disc drive is not necessary because you are not using an operating system or any applications.

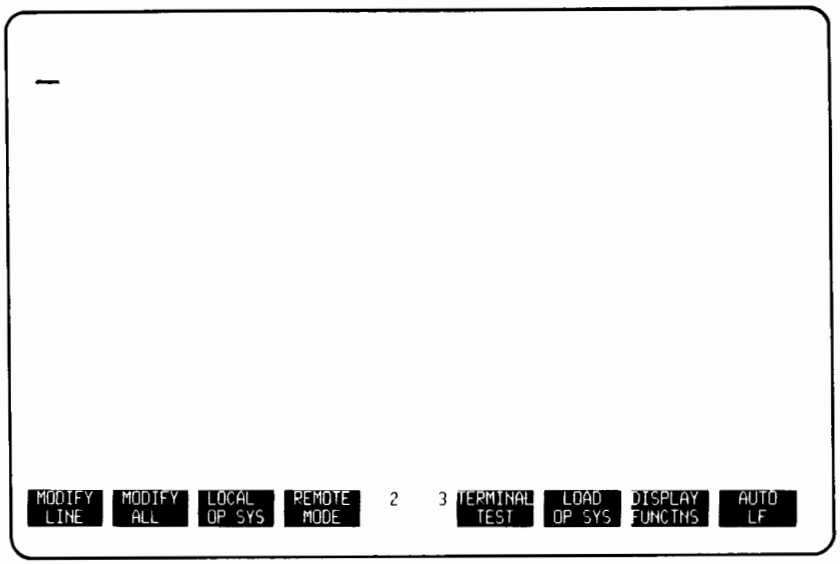
How Do I Tell a Series 100 to Act as a Typewriter?

The Series 100 is a typewriter when it is neither a computer nor a terminal. If you turn off the terminal and turn off the computer, the Series 100 becomes a typewriter. Do this by altering the MODES key settings:

Bring these keys to the screen by pressing [CTRL] [SHIFT] [RESET] simultaneously, then function key 8 (exit to CP/M), then the MODES key on the keyboard. When the keys are on the screen, remove the asterisks from both LOCAL OP SYS and REMOTE MODE by pressing the corresponding function key. For example, the keys above are set up for the Series 100 computer. Pressing [f3] removes the asterisk, telling the Series 100 to perform as an electronic typewriter.

How Do I Create a Document With a Series 100 Typewriter?

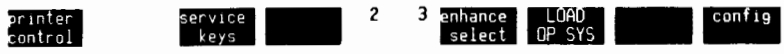
After you turn both the computer and the terminal off, you have a screen containing the cursor and the MODES labels:



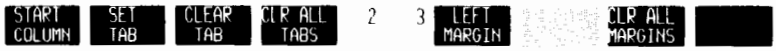
Type any words that you wish onto the screen. Letters will wrap around at column 80, and continue on the next line. If you want to use a 65-column width for regular 8½″ × 11″ paper, you need to do two things:

1) Indicate that you want the cursor to move to the next line when you press [↵]; an asterisk in AUTO LF (automatic line-feed) tells a Series 100 to do this. Press [f8].

2) Set the right margin at 65 by following these steps:



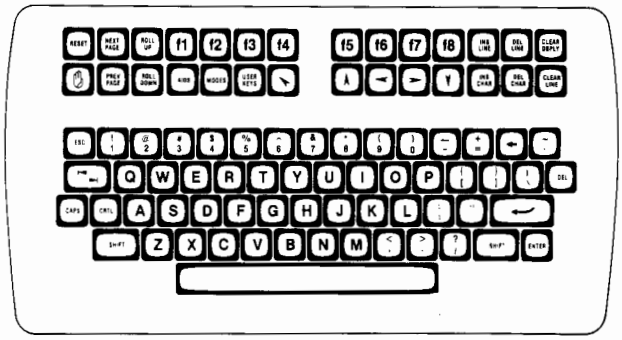
Position the cursor in column 65 (column position is shown at the bottom of the screen). Press:

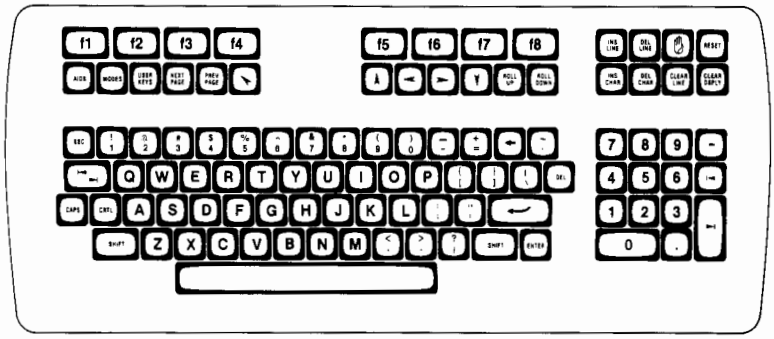


Now, when you press [↵], the cursor moves to the next line. (Without AUTO LF* the cursor moves to the beginning of the same line.)

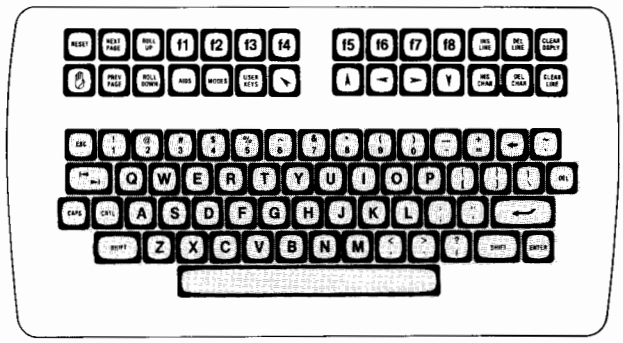
The Typewriter Keyboard

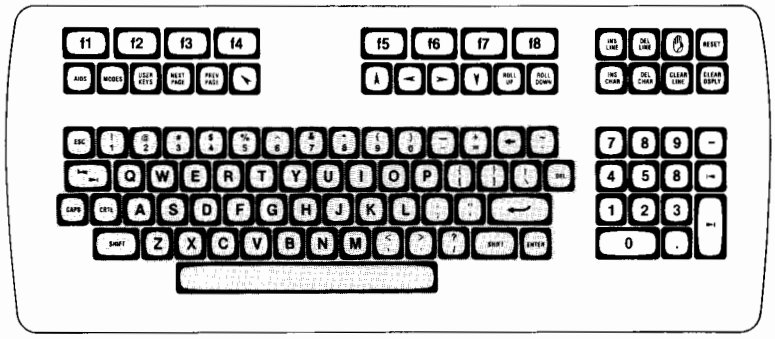
When the Series 100 is a typewriter, the keyboard keys work as follows:





Character Set





The character set is a standard typewriter keyboard used to communicate data, text, and commands to the system processor. The alphabetic, numeric, and symbol keys react just as they do on a typewriter, except that the results appear on the screen of the system processor, not on paper. Additional keys perform special functions, as described below.

Produces uppercase letters and symbols; also, when pressed simultaneously with other keys, produces unique functions (e.g., pressing [SHIFT], [CTRL], and [RESET] together restarts the Series 100 computer. See the RESET key in this chapter.)

Moves the cursor left one position at a time, deleting characters as it moves.

Returns the cursor to the left margin, usually on the beginning of the next line. If AUTO LF is not on, the cursor returns to the beginning of the same line.

Moves the cursor forward to the next set tab. [SHIFT] [TAB<>] moves the cursor backward to the next set tab. Set tabs by following the directions under printer modes in this chapter.

When the CAPS key has been pressed, unshifted letters appear uppercase and shifted letters are lowercase. Pressing CAPS again returns the keys to normal function (unshifted letters are lowercase). Only letters are affected. (This key is similar to CAPS LOCK on a typewriter.)

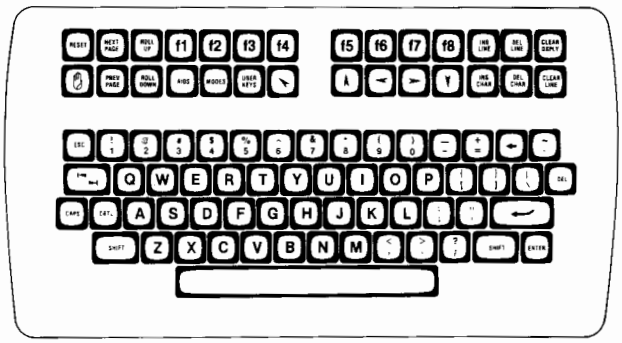
The ESCAPE key extends the capability of the keyboard. Many programs use the ESC key followed by other keys to perform certain operations.

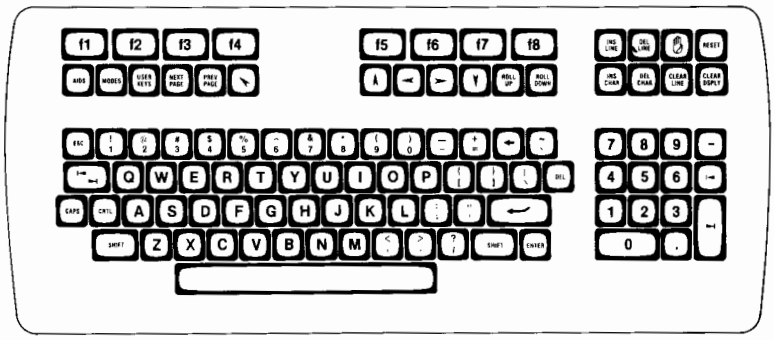
The CONTROL key extends the capability of the keyboard. Pressing [CTRL] simultaneously with other keys generates special "control codes," as described in Appendix B.

The DELETE key generates a "deletion character"; it is also used by applications for special deletion functions.

Use ENTER when a Series 100 is a terminal; pressing it transmits data to a host.

Display Keys

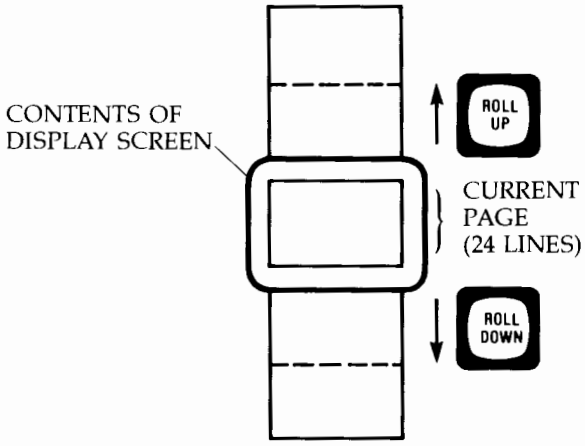




The Series 100 has a large "display memory," meaning that more information can be held in memory than can be displayed on the screen at one time. The display memory holds 120 lines of data, while the screen shows 24 lines; this means that five "pages" of display are available, but only one can be seen at a time.

As you type, the first 24 lines appear one after another on the screen. When you enter the 25th line, there is no longer room on the screen for all of the lines; the top line is rolled up where you can no longer see it. When you have typed 120 lines, the last 24 appear on the screen, and the first 96 have been rolled up. (When you type line 121, line 1 is lost.)

ROLL UP and ROLL DOWN scroll display memory past the screen as shown below:

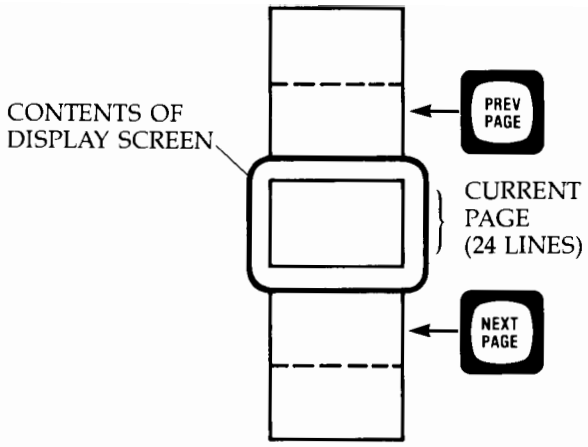


ROLL UP

Rolls display memory up at the top, pulling text upward on the screen.

ROLL DOWN

Rolls display memory down at the bottom, pulling text downward on the screen.



NEXT PAGE

Rolls display memory up so that the next page (next 24 lines) shows on the screen. Hold the key down to repeat the action (until the end of display memory is reached).

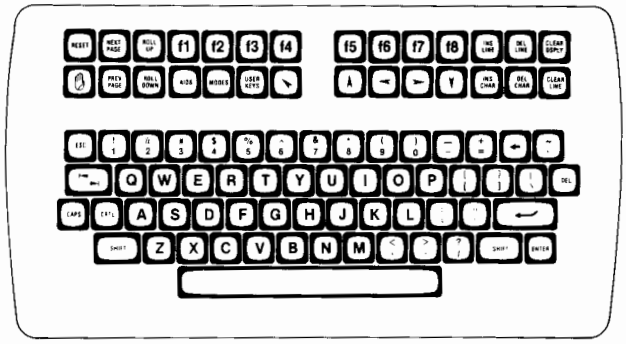
PREV PAGE

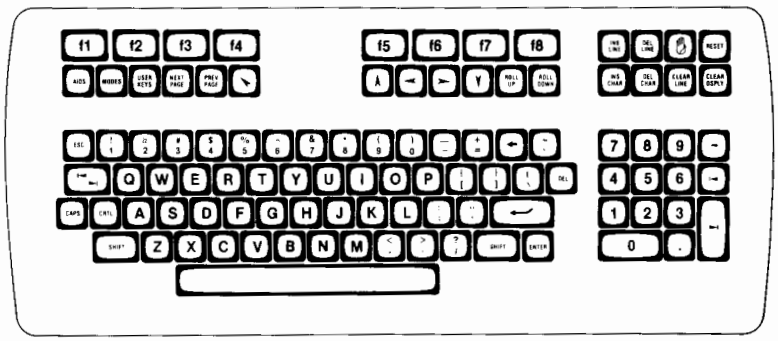
Rolls display memory down so that the previous page (previous 24 lines) shows on the screen. Hold the key to repeat the action (until the beginning of display memory is reached).

Function Keys

With no applications software, you have three sets of function keys available. A set of labels is produced by pressing [AIDS], [MODES], and [USER KEYS] on the keyboard. (For more information on the three sets of function keys and labels, see "Function Control Keys" in this chapter.)

Function Control Keys





Pressing [AIDS] brings a set of labels to the screen. These functions are typing aids and operating aids.

Pressing the key associated with one of these labels produces a new set of labels on the screen, with the exception of the LOAD OP SYS key. (Any lowercase label always leads to another set of labels.)

printer control — Displays the first of two sets of labels for transferring data to Series 100 printers (an * means on; no * means off):

printer modes — Displays Printer Modes labels:

printer control — Brings the printer control key labels (see above) back to the screen.

PORT 2 PRINTER — (Un)selects the printer attached to data communications port 2 to receive printed output when function key print commands are used. Port 2 must also be configured on the Configuration Menu.

HP-IB PRINTER — (Un)selects the printer attached with HP-IB to receive printed output when function key print commands are used. The HP-IB port must also be configured in the Configuration Menu.

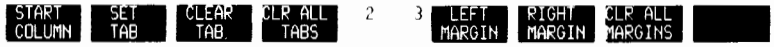
INT PRINTER — (Un)selects the internal printer to receive printed output. (Label appears only if you have internal printer.)

LOG BOTTOM — (Re)sets printer logging to the bottom of display memory. When LOG BOTTOM has an asterisk in it, any lines typed will be printed when [↵] is pressed. (must also have an asterisk.)

LOG TOP — (Re)sets printer logging to the top of display memory. (As data goes off the top of display memory, it is printed.)

REPORT PRINT	Displayed if internal printer is present; normally, it prints one long continuous sheet of paper. REPORT PRINT (re)sets the internal printer to print 11″ pages rather than continuous printing. The page format is a three-line top margin, 60 lines of text, and a three-line bottom margin. Tick marks indicate page breaks. REPORT PRINT and METRIC PRINT can't both be on (*) at once.
METRIC PRINT	Displayed if internal printer is present; normally, it prints one long continuous sheet of paper. METRIC PRINT (re)sets the internal printer to print pages in metric length rather than continuous printing. Metric format is a three-line top margin, 64 lines of text, and a three-line bottom margin. A tick mark indicates page breaks.
ADVANCE LINE	Selected printer(s) advance one line, creating a blank line.
ADVANCE PAGE	Selected printer(s) advance to the next page.
COPY ALL	Copies contents of display memory (from the cursor to the end of display memory) to selected printer(s).
COPY PAGE	Copies contents of the screen (from the cursor to the bottom of the current page) to selected printer(s).
COPY LINE	Copies the line containing the cursor to selected printer(s).

margins/ tabs/col — Set margins, tabs, and columns with the function keys that appear when you press this key.



START COLUMN — Use when a Series 100 is a terminal. Specifies the column containing the cursor as the starting column for data transfers in Modify Mode. (See the MODIFY LINE key in this chapter for an explanation of Modify Mode.) This column can also be set on the Terminal Configuration Menu.

You need to use the START COLUMN key in Modify Mode when you wish to edit information that the computer has placed on the screen. For example, if you did a directory and wish to transmit the information from column 12 to column 80, you would do a START COLUMN at column 12.

SET TAB — Sets a tab in the column containing the cursor.

CLEAR TAB — Clears the tab in the column containing the cursor.

CLR ALL TABS — Clears all set tabs.

LEFT MARGIN — Sets the left margin at the current position of the cursor, as long as the cursor isn't located past the right margin.

RIGHT MARGIN — Sets the right margin at the current position of the cursor, as long as the cursor isn't located before the left margin.

CLR ALL MARGINS — Clears the left and right margin settings. The left margin is reset to column 1 and the right to column 80.

service keys	These functions test system components to verify proper operation. Pressing service keys displays the following set of labels:

POWER ON TEST	Manually initiates the same test that is automatically performed when the system is turned on. (Refer to Appendix D for more details on system tests.)
TERMINAL TEST	Tests the overall terminal operation. (Refer to Appendix D for more details on system tests.)
IDENTIFY ROMS	Displays a list of the ROMs installed in the system. (Refer to Appendix D for more details on ROM identification.)
DATACOMM TEST	Support Engineers use this test to check the data communications circuits. (Refer to Appendix D for more details on the DATACOMM test.)
INT PRT TEST	Appears if an internal printer is present; tests the printer.

enhance select	Normally, each line of characters are displayed on the screen in light-on-dark format. You can, for emphasis, reverse one or all of the words on a line to dark-on-light (inverse video), or change them to half-bright, underlined, or blinking. See Appendix C to find out how to choose any of the above as your enhancement. Once your enhancement is chosen, use the enhance select key labels to actually enhance the characters, words, or lines.

REMOVE CHAR ENH	Removes enhancement from the character above the cursor.

ENHANCE CHAR — Enhances the character above the cursor.

ENHANCE LINE — Enhances a line from the cursor position to the end of the line. (All enhanced words on a line must have the same enhancement.)

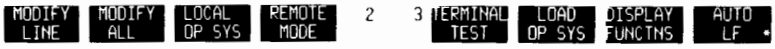
LOAD OP SYS — Loads the CP/M operating system from disc A: into memory, and begins operation if Local Op Sys mode is selected (the label has an asterisk in it.) If Local Op Sys isn't selected, system processor beeps.

config — Displays the Configuration Menu with all of the currently chosen values; allows you to change the values. Options include keyboard click on or off, printer selection, and data communications configuration. (For more information on configuration, see Appendix C.)

Pressing the MODES key brings a set of labels to the screen. Turn these labels "on" and "off" by pressing the corresponding function key. An * means the option is selected (on), while no * indicates that the option is not selected (off). Using the MODES key, you can:

- Use the terminal's Modify Mode.
- Select the mode in which your system will operate.
- Verify the proper operation of the terminal portion of the Series 100.
- Load the CP/M operating system (LOAD OP SYS).
- Select display functions or auto linefeed.

You can always press the MODES key in CP/M, Remote Mode, or Local Mode. In Local Op Sys Mode, programs often ''lock out'' the labels associated with the MODES key (the program wants its own labels to stay on the screen). When it's not locked out, pressing the MODES key results in these labels:



When an asterisk (*) is in a label, it means that the mode is active. Press a function key once to activate a mode, and again to deactivate it.

MODIFY* LINE — When a Series 100 is a computer, it receives letters as you type them. For example, if you typed ''d r,'' then used the [<] key to move to the blank and type ''i,'' your screen would show ''dir,'' but the computer reads ''d ri.'' If you want the computer to read words as they appear on the screen, press MODIFY LINE. For one line, the computer won't read any letters until you press [↵].

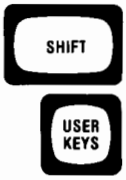
MODIFY* ALL — Used when a Series 100 is a computer. Activates Modify Mode, just as MODIFY LINE does (see above), except that a Series 100 stays in Modify Mode until this mode is turned off (not just for one line as above).

LOCAL* OP SYS — Places the Series 100 in Local Op Sys Mode. (Use as a computer.)

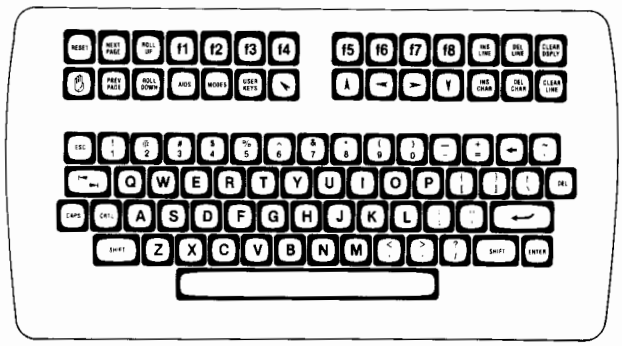
REMOTE* MODE — Places the Series 100 in Remote Mode. (Use as a terminal.)

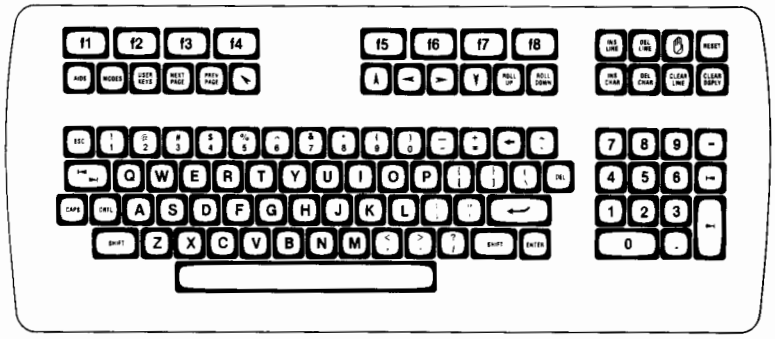
NOTE

Remember that Local Mode is the Series 100 operating as an electronic typewriter; turn off Local Op Sys and Remote Mode for Local Mode).

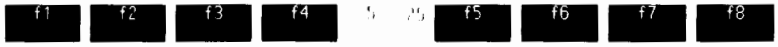
TERMINAL TEST	Tests the Series 100 terminal operations, and displays a test pattern on the screen.
LOAD OP SYS	Loads the CP/M Operating System from disc A: into memory and begins operation if an asterisk is in the LOCAL OP SYS label.
DISPLAY* FUNCTNS	Causes internal control characters (or escape sequences) to be symbolically displayed on the screen rather than being executed by the System Processor. The action normally produced by some key (such as ROLL UP, INS LINE, etc.) is not performed; instead the control symbol(s) are displayed on the screen. Your Service Representative may use DISPLAY FUNCTIONS if you are experiencing a data communications or other problem.
AUTO LF*	When a Series 100 is a typewriter, pressing [←] returns the cursor to the beginning of the same line. When AUTO LF is on (an asterisk is present), the cursor returns to the beginning of the next line.
	Use [SHIFT] and [USER KEYS] to create your own set of function key labels, either within a program or from the keyboard. Defining keys from the keyboard is discussed in Appendix E of this manual.

Cursor Control Keys





Cursor control keys move the cursor on the screen. You know exactly what position the cursor occupies on the screen by the two numbers between function labels on the bottom center of the screen.



The first number indicates which screen line the cursor is in (1–120), and the second number indicates which screen column (1–80) the cursor is in. In the example above, the cursor is located in line 5, column 25. To move the cursor from any position, either type normally or use the cursor control keys:

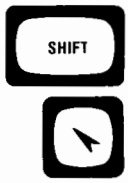
''Cursor up'' moves the cursor up one line. If the key is held down, the cursor moves up until either the key is released or the top line of display memory (including previous pages) is reached.

''Cursor down'' moves the cursor down one line. If the key is held down, the cursor moves up until either the key is released or the last line of display memory is reached.

''Cursor left'' moves the cursor one column to the left. If the key is held down, the cursor moves left until the key is released or the first column of the first line of display memory is reached. (The cursor wraps to the previous line from column 1.)

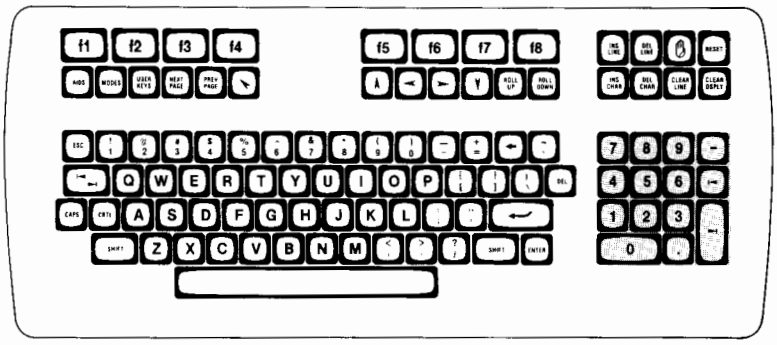
''Cursor right'' moves the cursor one column to the right. If the left is held down, the cursor moves right until either the key is released or the last column of the last line is reached. (The cursor wraps to the next line from column 80).

''Cursor home'' positions the cursor at line 1, column 1 of display memory. This is called ''home up.''



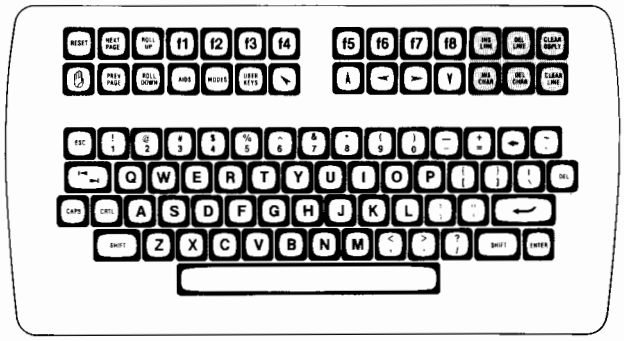
''Shift cursor home'' positions the cursor at a blank line below the last line in display memory. If display memory is full (has 120 lines in it), the first line is deleted to allow room for the blank line at the end. This is called ''home down.''

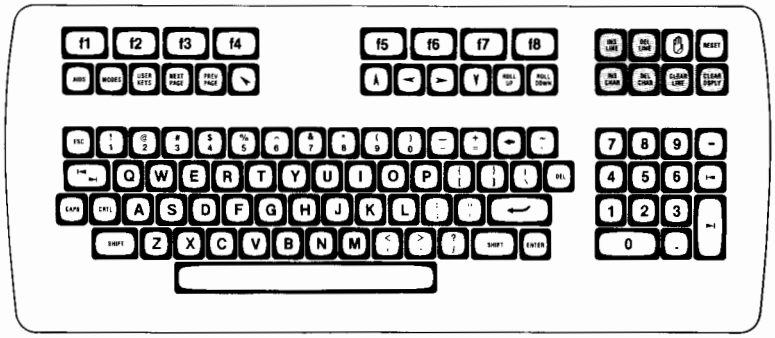
The Numeric Pad



This numeric keypad appears on the larger keyboard. It is set up like a calculator (ten numbers, a decimal point, and a negative sign) for fast numeric input. A forward tab moves the cursor to the next tab stop, while a backward tab moves it back to the previous tab stop.

Edit Control Keys





Inserts a blank line before the current cursor line. When display memory is full (120 lines are indicated), lines are deleted from the top of display memory unless the top line is visible on the screen; then, lines are deleted from the bottom of display memory.

Deletes the line containing the cursor, and moves the following line up. Holding [DEL LINE] down repeats the action until the end of display memory is reached or the key is released.

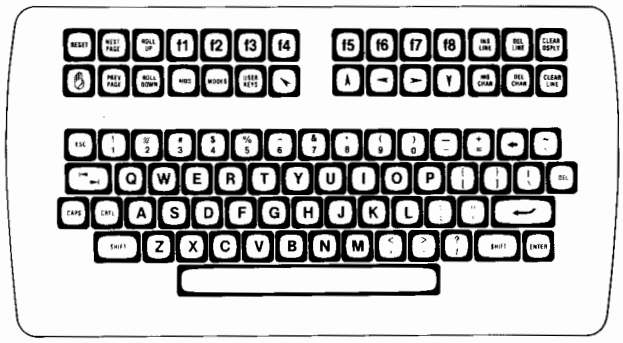
Press [INS CHAR], then type characters that you want entered at the position of the cursor. Existing text moves to the right one character at a time as you type, until existing text on the line reaches the end of the line. Existing new text now disappears, as inserted characters fill the last columns of the line. When this line is full, characters are inserted at the beginning of the next line, pushing the text from this next line to the right in the same manner described above.

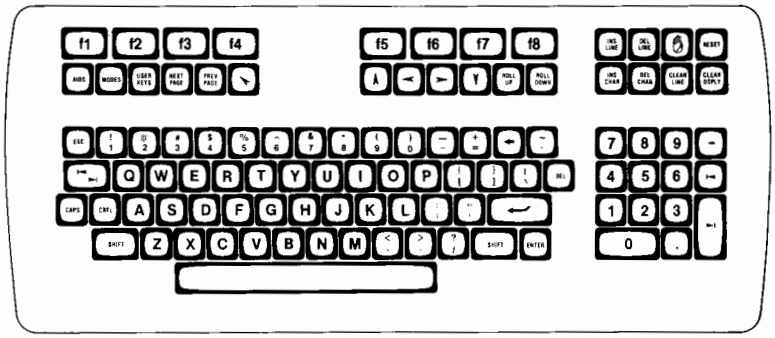
When [INS CHAR] is on, IC appears at the bottom of the screen. Press [INS CHAR] again to turn it off.

Deletes a character at the position of the cursor, moving text to the left to fill in. Hold the key down to repeat the action on the line until the end of the line is deleted.

Clears text from the position of the cursor to the end of the line. This differs from [DEL LINE] in that the line is not removed from display memory, but is instead filled with blanks.

Clears display memory from the position of the cursor to the end of display memory. To clear all of display memory, home the cursor up before pressing [CLEAR DSPLY].

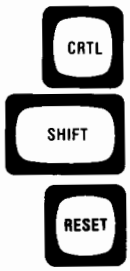




Causes a ''soft reset'' which results in the following:

- Keyboard unlocks if a program has ''disabled'' it.
- Clears some error conditions and removes any error messages from the screen. If the message says you must press the [↵] key, you still need to do that.
- Turns off display functions (turned on by pressing the MODES key, then DISPLAY FUNCTNS).

- Halts any data communications transfers currently in progress, and reinitializes both of the Series 100 data communications ports (according to the terminal configuration power-on values).
- Resets the internal printer, if present.
- Halts any device operations currently in progress.



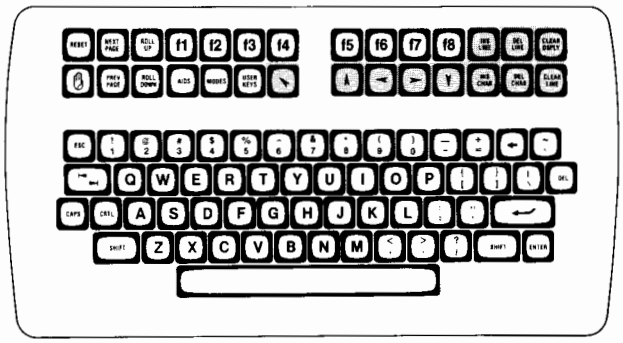
Causes a "hard reset" to the system, when all three keys are pressed simultaneously. In addition to the results caused by a soft reset, a hard reset:

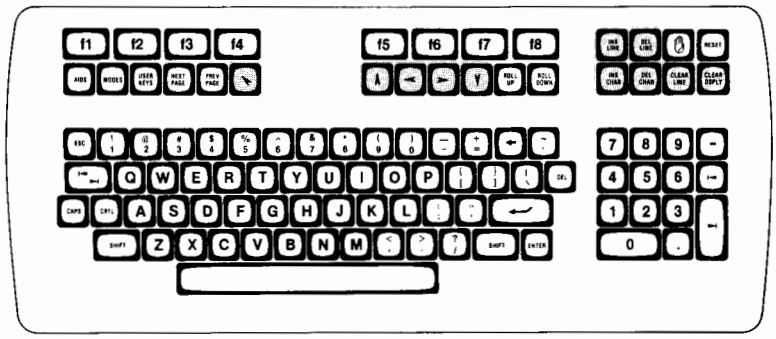
- Clears display memory.
- Resets certain operating modes and parameters such as the Caps Mode, Report Mode, Metric Mode, left/right margins, and insert character function.
- Clears terminal memory.
- Attempts to load the Series 100 operating system (CP/M) if the system is in Local Op Sys Mode with a disc drive attached.
- Initiates system power-on test.

Used when a Series 100 is a terminal. Interrupts data transfer operations on both of the data communications ports.

How Do I Make Changes to Screen Copy?

Use your cursor control keys and editing keys to make changes to the screen:





[DEL LINE] and [DEL CHAR] delete lines and characters. [INS LINE] and [INS CHAR] insert lines and characters. ([INS CHAR] must be turned on and off by pressing the key; when INS CHAR is on, IC appears at the bottom of the screen.) [CLEAR LINE] clears the line from the cursor to the end of the line, while [CLEAR DSPLY] clears the screen from the cursor to the end of display memory.

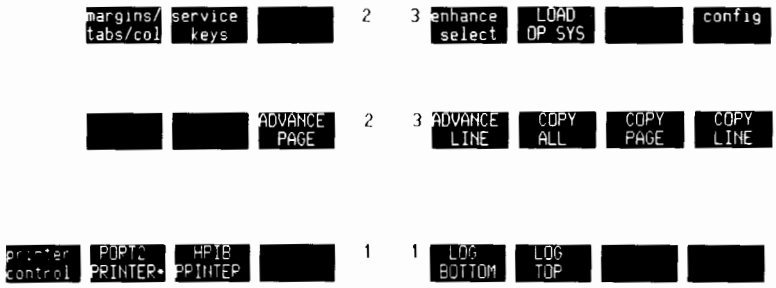
How Do I Print Screen Copy On a Printer?

There are two steps (covered in detail) to printing in Local Mode:

- Select a printer.
- Specify what should be copied. (Select what parts of the screen should be printed.)

Select a Printer

To select a printer, press:



printer control	Returns the printer control function keys to the screen.
PORT 2* PRINTER	Selects the printer connected to port 2 to receive output. If this has not been done already, you must also configure the printer using the configuration screen as described in the installation manual.
HP-IB* PRINTER	Selects the printer connected to the HP-IB port to receive output.
INT* PRINTER	Selects the internal printer to receive output. The paper in an internal printer is in one long roll and prints lines that way. Choose REPORT PRINT or METRIC PRINT to form the printout into pages, instead of the usual single long sheet.

LOG* BOTTOM	Turns bottom logging on. When an asterisk is present, any lines typed will be printed at the indicated printer when [↵] is pressed. (AUTO LF must also have an asterisk.)
LOG TOP	Turns top logging on. Top logging means that when display memory is full and loses lines, they roll off the top of display memory. As lines roll off, they are printed.
REPORT PRINT*	If you have an internal printer, this label appears. Choose it or METRIC PRINT as your page format. REPORT format is standard U.S. format: three blank lines, 60 lines of text, and three more blank lines. A tick mark indicates where to cut the paper into pages.
METRIC PRINT	If you have an internal printer, this label appears. Choose it or REPORT PRINT as your page format. METRIC format is common in Europe. It consists of three blank lines, 64 lines of text, and three more blank lines. A tick mark indicates where to cut the paper into pages.

In the above examples, an asterisk is shown in each label; this means that they are turned on. More than one option can be turned on at a time. If you have a printer connected to port 2 and another to the HP-IB port, both of them can be turned on. Each printer would print a copy of the text. Two pairs of keys that can't be turned on at the same time are LOG BOTTOM and LOG TOP, and REPORT PRINT and METRIC PRINT.

Turn an option on by pressing the corresponding function key on the keyboard. Turn it off the same way.

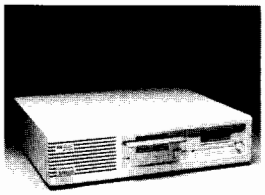
Specify What Should Be Copied

You can print one line, a page, or up to all five pages of the computer memory. Press the printer control function key; the labels look like this:

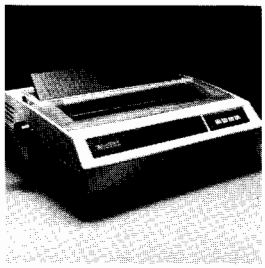
PRINTER MODES	Returns the printer modes function keys to the screen.
ADVANCE PAGE	Advances paper through the printer to the top of the next page.
ADVANCE LINE	Feeds a line of paper through the printer, causing a blank line at the current position.
COPY ALL	Prints the contents of display memory from the cursor to the end.
COPY PAGE	Prints the contents of the page (what is showing on the screen) from the cursor to the bottom of the screen.
COPY LINE	Prints the line containing the cursor.

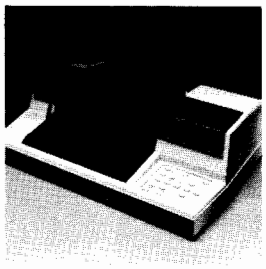
Chapter 7

USING A SERIES 100 AS A TERMINAL



Terminal





A Series 100 can be used three ways:

- As a computer.
- As an electronic typewriter.
- As a terminal.

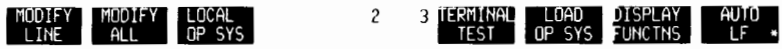
This chapter describes the Series 100 terminal; when the machine is a terminal, it is in Remote Mode.

How Do I Tell the Series 100 to Act as a Terminal?

The MODES function keys control the mode of the machine. Bring the MODES labels to the screen:

- Press [CTRL] [SHIFT] [RESET] on the keyboard.
- If the Series 100 was last used as a computer, the Welcome Menu appears. In this case, EXIT TO CP/M [f8].
- Press the MODES key on the keyboard.

When an asterisk is in the REMOTE MODE label, the Series 100 is a terminal. Press function key 4 to accomplish this.



The Series 100 will continue to act as a terminal until you specifically tell it to do otherwise.

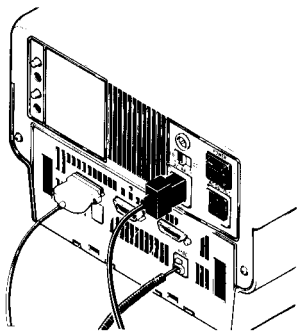
How Does a Host Computer Know the Series 100 Is a Terminal?

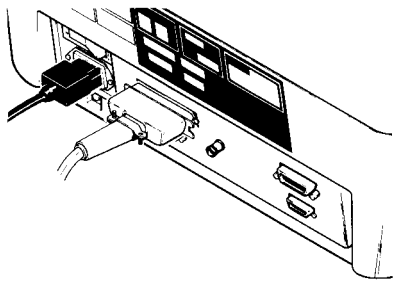
The host computer must first be connected to the Series 100. Then the Series 100 must be set to communicate with the particular host computer. When the host computer sends a signal through the cable, looking for familiar responses, the Series 100 must be ready with those responses. (These settings are called terminal configuration; see Appendix C, "Data Communications.")

A Series 100 is connected to a host computer in one of two ways. It is either connected by cable or by modem.

Terminal Connected by Cable

If your terminal is connected by cable, the back of it looks like this:





You can leave the terminal connected, even when the Series 100 is a computer or a typewriter. Once the terminal is in Remote Mode, press the [↵] key for a prompt from the host computer. Log on and interact with the host computer as you would from any terminal. If this process does not work, check your terminal configuration as described in Appendix C, "Data Communications."

Terminal Connected by Modem

If the terminal uses a modem to connect to the host computer, follow these steps:

- Turn the modem on.
- Check the modem speed and parity settings. The speed (baud rate) and parity of the modem must be the same as those set for the Series 100. To see these, refer to Appendix C,''Terminal Configuration.''
- Dial the telephone number of your host computer.

If you have any questions about installing the modem, see the installation manual.

How Does the Data Transfer Work?

The terminal sends data to the host computer as it is typed. Normally, all information from column 1 through column 80 is sent, although you could change this (to column 9 through column 60, for example) in the Configuration Menu (see Appendix C).

Some applications (such as the HP3000's V/3000 program) require a block mode type of data transfer. Instead of each character being sent as it is typed, a group of characters is sent when ENTER is pressed. To provide your Series 100 with the terminal capabilities necessary to run application programs which use V/3000, load and run a program called Block-Format.

Using Block-Format

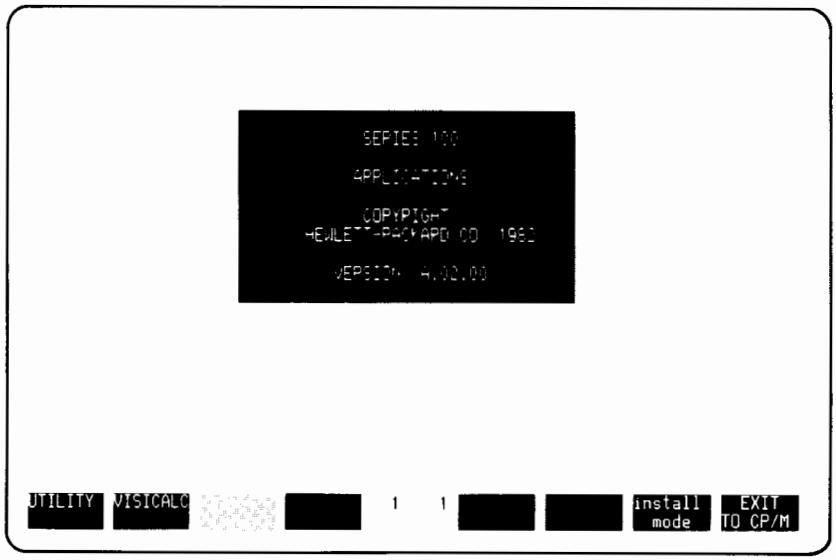
To use Block-Format, you must complete these steps (details are given later in this chapter).

- Install it (only once) from the UTILITIES Disc onto a Work Disc while the Series 100 is a computer.
- Load and run it while the Series 100 is a computer.

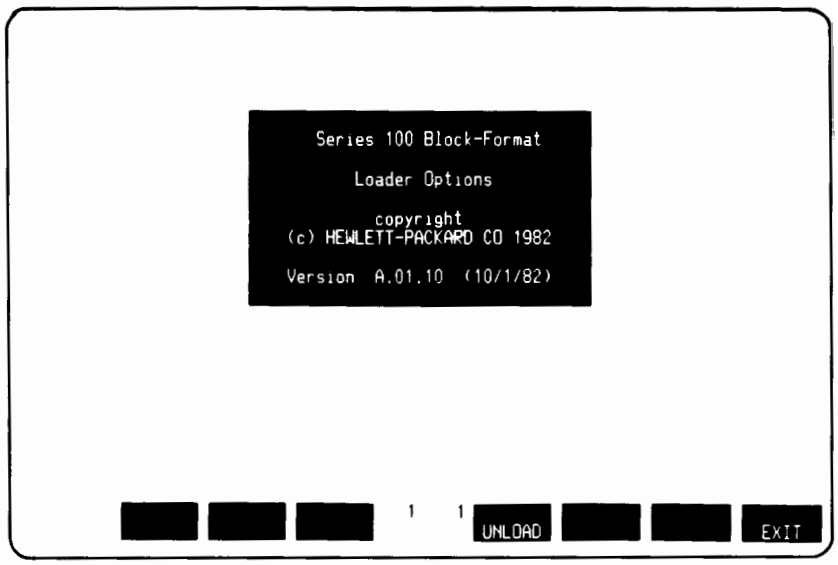
After block and format modes are loaded, your Series 100 will switch to being a terminal by itself.

Installing Block-Format

Install Block-Format onto a Work Disc by following the directions in Chapter 5 of this manual. After it is installed, a softkey labeled BLOCK-FORMAT appears in the Welcome Menu.

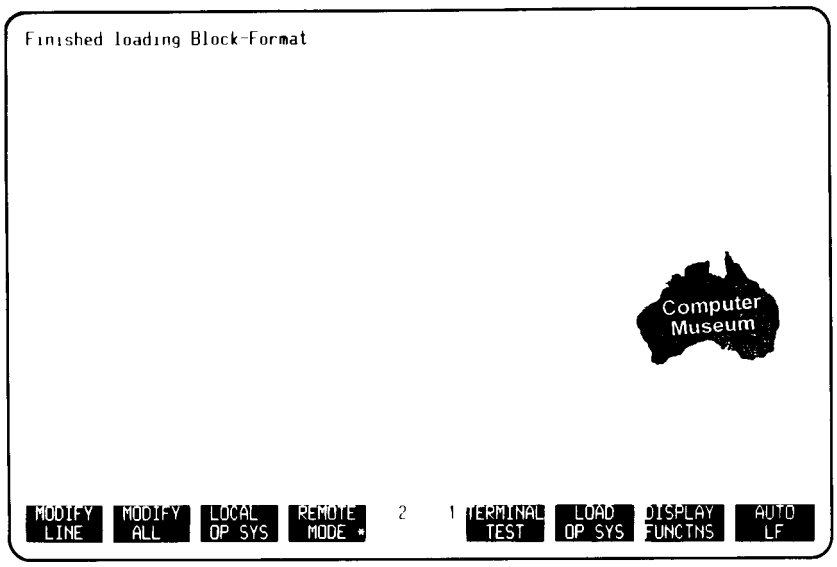


Block-Format is loaded, while the Series 100 is a computer, from the Welcome Menu. Press the key labeled BLOCK-FORMAT.



LOAD	Loads Block-Format into memory and puts your Series 100 into Remote Mode (acts as a terminal).
UNLOAD	Unloads Block-Format program from memory and returns the Welcome Menu to the screen.
EXIT	Returns the Welcome Menu to the screen, leaving Block-Format loaded.

Press the LOAD key; the following screen appears:



Now, you can press the [⟵] key to get a prompt from the host computer. Your Series 100 is now a terminal. When you log off, the Series 100 is still set up to act as a terminal with Block-Format loaded. Even if you change the MODES key to LOCAL OP SYS* (Series 100 computer), Block-Format is still there. Any of the following will unload Block-Format.

1) Turning the system processor off.

2) Resetting the Series 100 by pressing [CTRL], [SHIFT], and [RESET]simultaneously.

3) Running certain local CP/M applications such as VisiCalc, Word, Graphics, or Link. (Your Series 100 beeps when the Block-Format program is no longer available.)

4) Pressing the UNLOAD key on the Block-Format screen.

Certain keys react differently in Block-Format; see the section in this chapter entitled ''The Terminal Keyboard.''

Other changes are:

- Display memory is reduced from 120 lines to 47 lines.
- Format mode sequences are monitored, which reduces data communications speed slightly.
- You can create forms with a form-building utility such as the HP 3000's FORMSPEC program.
- You can run programs that display forms and use them for data entry.

How Is Series 100 with Block Mode Different from a Block Mode Terminal?

A Series 100 emulates an HP 2622 terminal, but includes the following differences:

1) All display enhancements (inverse video, half-bright, underline, and blinking) appear as half-bright inverse video fields. Only one enhancement is allowed per line.

2) Memory lock is only partially implemented. Data will not scroll out of screen memory when memory lock is enabled; however, display lock is not implemented to hold lines at the top of the display.

3) The location of the display enhancements is frozen while in format mode. (With some block mode terminals, the end points of an enhanced field within an unprotected field may be moved left or right with the DELETE CHAR and INS CHAR keys, respectively.)

4) The HP 2622 terminal integrates format capability with a data logging feature so that data on a V/3000 screen can be printed onto a pre-printed form, transferring only the unprotected data. The Series 100 format capability is not integrated with logging.

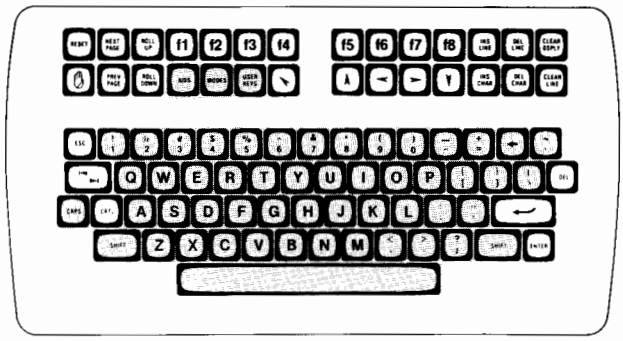
5) Some application programs shift to an alternate character set to prevent certain information from being displayed on the terminal (using the shift in/shift out characters). The Series 100 displays this data exactly as transmitted rather than shifting to an alternate character set.

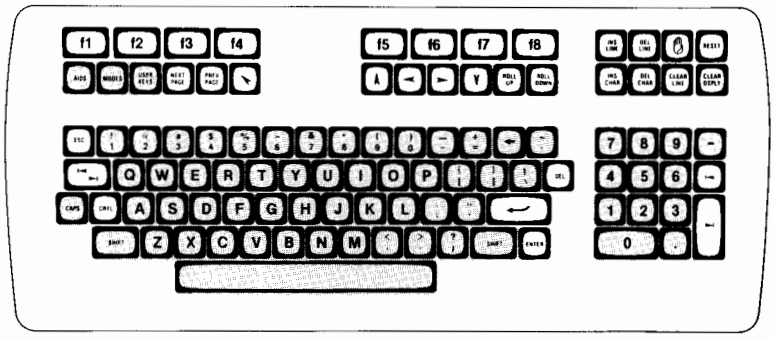
6) Block terminator characters (written to display memory by an application program for use as record separators in a block of data) are ignored by the Series 100.

7) An extra line may be allocated on a Series 100 after a block-page read.

The Terminal Keyboard

The keys highlighted below behave the same way, whether the Series 100 is a terminal, a typewriter, or a computer.





When a key on the keyboard is pressed, a Series 100 sends a message to the host computer. This message is sent as a number because computers only deal with numbers. For example, pressing the backspace key sends the number 8 to the host computer. Every computer recognizes the 8, but some interpret it in a slightly different manner. One computer may move the cursor back one

space, while another moves the cursor back and erases the previous character.

Because of these different interpretations, it is impossible to say exactly how certain keyboard keys will react when pressed. The chart below tells you the keys that may be different, lists each one's ASCII code (computer shorthand name) and ASCII value (the number sent to a host computer when a key is pressed), and gives an example of how one computer (the HP 3000) reacts to each ASCII value.

Key	ASCII Code	ASCII Value	HP 3000 Example
DEL	# (delete)	127	Deletes a character at the position of the cursor.
BREAK			Applications are temporarily interrupted, returning control to the operating system. Command execution is stopped.
ESC	EC (escape)	27	Combined with letters and symbols, gives commands.
BACKS	BS (backspace)	8	Moves the cursor back one space, deleting the previous character from memory but not from the screen.
TAB fwd	HT (horizontal tab)	9	Moves the cursor to the next set tab column.
TAB bak	ECi (ESCAPE i)	27 105	Moves the cursor to the previous set tab column.
ENTER	CR LF (carriage return, line feed)	13 10	Transmits a line of data.

Series 100 Keys Affected When Block-Format Is Loaded

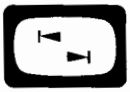
Block-Format interprets and reacts to some keys in its own way. These keys react in the following ways when a form is on the screen:

Blanks replace all unprotected (shown in inverse) characters from the current cursor position to the end of memory.

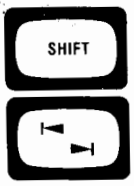
In an unprotected field, blanks replace all display characters from the current cursor position to the end of the field. When the cursor is in a protected field, there is no effect.

When the cursor is in an unprotected field, the current character is deleted by shifting the remaining characters to the field one position to the left. When the cursor is in a protected field, there is no effect.

This key enters or exits Insert Mode; when you enter data to Insert Mode, the cursor reacts as follows. When the cursor is in an unprotected field, characters are inserted before the cursor. When the cursor is in a protected area, it moves to the next unprotected field and begins inserting before the first character. (In either case, the remaining characters in the field are shifted to the right one position, while the character type is put in the current position and the cursor is moved one position to the right.) If you continue to insert characters after the field is full, the last character(s) of the field are lost. If you fill the field with inserted characters, the cursor will move to the next unprotected field and begin inserting there.



Moves the cursor to the next unprotected field (moving left to right and top to bottom). When the TAB key is pressed while the cursor is in the last protected field, the cursor moves to the beginning of the first field.

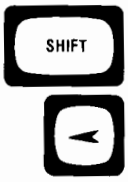


Moves the cursor to the previous unprotected field.

Displays the next 24 lines of the form.

Displays the previous 24 lines of the form.

Positions the cursor at the beginning of the first unprotected field. If no fields have been defined, the cursor appears in the first column of the first row on the screen.

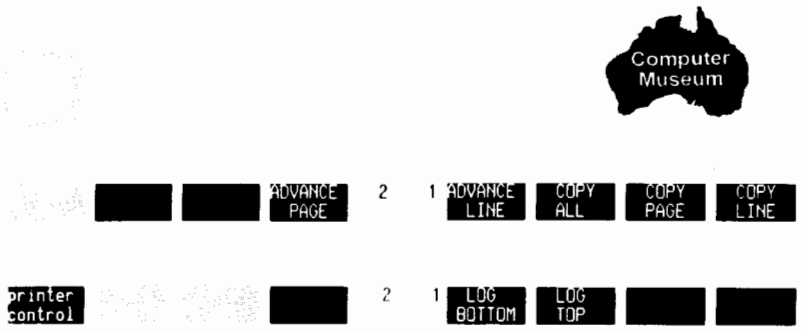


Moves the cursor to the beginning of the line following the last non-empty line on the screen.

Transfers the block of data from display memory to the host computer; the keyboard is locked until the data transfer is complete. Precisely what data is transmitted depends on whether the terminal is in Format Mode, and whether certain values have been set in the Configuration Menu. See Appendix C, "Terminal Configuration."

Printing in Remote Mode

Press the following to print in Remote Mode:



PORT 2 PRINTER — Selects the printer connected to port 2.

HP-IB PRINTER — Selects the printer connected to the HP-IB port.

NOTE

Instead of completing the following steps, you could activate (*) LOG TOP or LOG BOTTOM to print.

LOG BOTTOM — After LOG BOTTOM is on (*), any lines typed are sent to the printer when [↵] is pressed.

LOG TOP — When LOG TOP is on (*), nothing prints until 120 lines have been typed. At this point, display memory is full. (Remember, display memory can only hold 120 lines.) When lines roll off the top of display memory, they are printed. For example, if you typed line 121, line 1 would disappear from the display and be printed.

After choosing a printer, press:

The printer control keys look like this:

Press the function keys to accomplish the following:

ADVANCE PAGE	Advances paper to the top of the next page. (This will work on an HP 82905 printer only after the printer has been used at least once.)
ADVANCE LINE	Feeds a line of paper through the printer, resulting in a blank line at the current cursor position. (This will work on an HP 82905 printer only after the printer has been used at least once.)
COPY ALL	Prints the contents of display memory from the cursor to the end.
COPY PAGE	Prings the contents of the page (what is showing on the screen) from the cursor to the bottom of the screen.
COPY LINE	Prints a line from the position of the cursor to the end of the line.

Appendix A

MAINTENANCE INSTRUCTIONS

Your Series 100 is designed to provide years of reliable, trouble-free operation. By following a few recommendations about maintenance and care, you help ensure your system's performance. The following components require regular care as described in this chapter:

- HP 120 system processor battery.
- Display screen and keyboard.
- Flexible disc drives.
- Thermal printers.
- Dot Matrix and Daisywheel printers.
- Plotters.

Changing the HP 120 System Processor Battery

Remove the battery:

1) Push the tabs on the sides of the battery pack together.

2) Pull the battery pack straight back until it is clear of the mainframe.

Replace the battery:

1) Place the new battery in the battery pack. Be sure that the + on the battery is on the same end as the + on the battery pack.

2) Line up the guiding tab on the bottom of the battery pack with the groove at the base of the computer's battery mount.

3) Push battery pack forward until the side tabs lock into place.

Cleaning the Screen and Keyboard

The display screen and keyboard should be cleaned regularly to remove dust and grease. Lightly dust the entire unit using a damp, lint-free cloth or paper towel. The cloth or paper towel should be damp enough to pick up any dust, but should not be wet. Avoid wiping dust or lint into the key area of the keyboard. Greasy smudges and fingerprints can be removed using most conventional spray cleaners. Avoid spraying between the keys; spraying the cloth instead of the unit is a safe procedure.

Do not use petroleum-based cleaners (such as lighter fluid) or cleaners containing benzene, trichlorethylene, ammonia, dilute ammonia, or acetone; these chemicals could damage the system's plastic surfaces.

Caring for Disc Drives

A disc drive is a mechanical device with motors and moving parts; therefore, rough handling such as dropping the drive or dropping objects on the drive can cause malfunction. If you still have the cardboard inserts shipped with flexible drives, you may want to reinsert them for long moves.

Placing the drive near magnets can also cause damage; keep discs and drives away from magnetic charges.

After a month or so of use, the read/write heads inside the disc drive may be dirty. A symptom of this is a series of disc errors on media that previously had no problem. A cleaning disc is available for all three (3½", 5¼", and 8") drives; this special disc comes with its own cleaning fluid. Follow the directions that come with the cleaning kit (available from HP's Computer Supplies Catalog) to clean the heads in the disc drive.

Disc Drives Using 5¼-inch Discs	Cleaning Kit Part Number
HP 82901M HP 9135A HP 82902M	92193A
Disc Drives Using 8-inch Discs	**Cleaning Kit Part Number**
HP 9895A-010 HP 9895A HP 9138A	92193B
Disc Drives Using 3½-inch Discs	**Cleaning Kit Part Number**
HP 9121S HP 9121D	92193C

Caring for Internal Printers

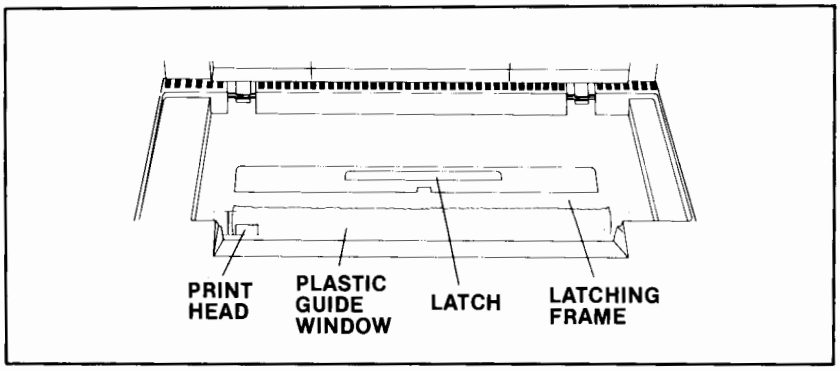
A Series 100 Model 125 may have a printer built into the top of it. This printer is a thermal printer that prints by means of heat applied to specifically sensitive paper. This paper is ordered from HP's Computer Supplies Catalog using these part numbers:

1 Box (24 rolls) Thermal Printer Paper (blue)	Part # 9270-0638
1 Box (24 rolls) Thermal Printer Paper (black)	Part # 9270-0656

Always use the paper listed above in your thermal printer. Use of non-Hewlett-Packard paper may shorten the life of the print head and affect paper quality. Also, a warranty or service contract is valid only if the paper listed above is used.

Loading Paper into the Internal Printer

To load a roll of thermal paper into the printer, follow these steps:



- Lift the top cover of the printer mechanism. The illustration embossed on the underside of the cover shows the correct paper position and flow.
- Pull the latch toward the front of the system processor to release the latching frame. Lift the hinged latching frame to its forward position.
- Remove any paper remaining in the printer.
- Grasp the center of the paper core and lift forward and upward along the guide slots to remove the core and the metal rod that holds it in place.
- Be sure to remove all paper dust from the roller.
- Remove the rod from the old core and insert the rod through the core of a new roll of paper.
- HP thermal paper must feed toward the front of the system processor from the underside of the paper roll (see the embossed illustration on the top cover). Because only one side of the paper is heat-sensitive, paper must be inserted correctly to produce a print image.

- Place the ends of the rod into the guide slots on either side of the print mechanism. Press down then toward the back of the system processor until the rod snaps into place.

- Feed the leading edge of the paper through the latching frame (between the latching frame and the plastic guide window).

  The print head (see illustration on previous page) is relatively fragile and susceptible to damage; be careful not to contact it while loading paper.

- Lower the latching frame without locking it into place.

- Align the sides of the paper with the guidelines embossed on each side of the guide window.

- Each new roll of HP thermal paper has a glue spot near the leading edge of the roll (it holds the paper roll intact during shipment). The print head must not come in contact with this glue spot. Feed approximately 12 inches of paper through the latching frame so the glue spot is beyond the print head and guide window.

- Press the latch down until it locks into place with an audible click. If the latch is not locked, a printer error will be displayed at the bottom of the screen when a printer operation is attempted or when the power-on test is run.

- Tear off excess paper using the edge of the guide window as a cutting edge.

- Close the top cover securely and press the [↵] key.

  If printer operations produce no image on the paper, the paper has probably been installed with the wrong side facing the print head. Images are printed only on one side of thermal paper.

Caring for (Thermal) Dot Matrix Printers

The HP 2631B, HP 82905B, and HP 2671A printers have their own manuals shipped with them; maintenance is covered in these manuals.

Caring for Daisywheel Printers

The HP 2601A and HP 2602A printers have their own manuals shipped with them; maintenance is covered in these manuals.

Caring for Plotters

The HP 9872C, HP 7470A, and HP 7225B plotters have their own manuals shipped with them; maintenance is covered in these manuals.

Appendix B

CONTROL AND ESCAPE SEQUENCES

Control Sequences

The CTRL key is provided to extend the ability of the keyboard. Pressing [CTRL] in combination with other keys generates special "control codes," as described below:

CTRL C — Stops most CP/M programs (some "lock out" the effect) currently running, and reloads the CP/M operating system.

CTRL E — Allows you to type a command longer than the width of the screen. Even though the cursor goes to the next line, the line is not transmitted to the system processor until [↵] is pressed. CTRL E is usually not required because of the Series 100's wraparound feature, and some applications won't let you use it.

CTRL H — Erases the last character typed from both the screen and memory (the same result as the [BACKSPACE] key).

CTRL J — Moves the cursor to the next line (a linefeed). Any command is terminated, returning control to CP/M. Reaction is similar to pressing the [↵] key (except that the cursor, instead of returning to column 1, returns to the same column that the cursor was in on the previous line), so you rarely need to use this.

CTRL M	Moves the cursor to the beginning of the same line (a carriage return). Any command on that line is terminated, returning control to CP/M. CTRL M is rarely used, as pressing [↵] accomplishes the same result.
CTRL P	CTRL P, when pressed before typing data, causes the data to be sent to both the screen and the printer. Press CTRL P again when you want data sent to only the screen.
CTRL R	Retypes the current line from memory onto a clean line.
CTRL S	During a program, stops display screen output temporarily. Press CTRL S again to continue program execution and output on the screen.
CTRL U	Erases the current command line from memory. The cursor moves to the next line, and a pound sign (#) is displayed, indicating a new command can be entered.
CTRL X	Backspaces the cursor to the beginning of the current command line, erasing all characters as it goes.

Escape Sequences

The following are escape codes for the Series 100.

Two Character Escape Sequences

Sequence	Description
ESC 0	Print contents of display memory to selected printer.
ESC 1	Set tab at cursor column.
ESC 2	Clear tab.
ESC 3	Clear all tabs.
ESC 4	Set left margin.
ESC 5	Set right margin.
ESC 9	Clear all margins.
ESC @	Delay one second.
ESC A	Cursor Up.
ESC B	Cursor Down.
ESC C	Cursor Right.
ESC D	Cursor Left.
ESC E	Hard Reset TPU.
ESC F	Home Down.
ESC G	Return.
ESC H	Home Up cursor.
ESC I	Tab Forward.
ESC J	Clear Display.
ESC K	Clear Line.
ESC L	Insert Line.
ESC M	Delete Line.
ESC P	Delete Character.
ESC Q	Turn on Insert Character Mode.
ESC R	Turn off Insert Character Mode.
ESC S	Roll Up Display.
ESC T	Roll Down Display.
ESC U	Next Page.
ESC V	Previous Page.
ESC Y	Display Functions On.
ESC Z	Display Functions Off.
ESC ^	Send Primary Terminal Status.
ESC ~	Send Secondary TPU Status.
ESC \	Relative Cursor Sense.

ESC a	Absolute Cursor Sense.
ESC b	Enable Keyboard.
ESC c	Disable Keyboard.
ESC d	Enter Line.
ESC f	Modem Disconnect.
ESC g	Soft Reset TPU.
ESC h	Home Up Cursor.
ESC i	Back Tab Cursor.
ESC j	Display Softkey Menu.
ESC k	Exit Softkey Menu.
ESC x	Perform Datacom Self-Test.
ESC z	Perform TPU Self-Test.

Multi-Character Escape Sequences

ESC & a		Cursor Addressing.	
	col number	c	Set column
	row number	r	Set absolute row
	row number	y	Set relative row
ESC & d		Display Enhancement.	
		@	Clear enhancement
	{A|B,I|N|O}	F	Set enhancement
ESC & f		Define User Softkeys.	
	{0,1,2}	a	Set key attribute
	{len}	d	Label length
	{1|2|....8}	E	Execute selected key
	{1|2|....8}	k	Select key to be defined
	{len}	l	Definition length
	{string}		Display label definition
	{string}		Softkey definition
ESC & i		Device Assignment.	
	{bufr numbr}	d	Destination code
	{bufr numbr}	s	Source code
	{mode numbr}	m	Operating Mode

ESC & j		Softkey Display Control.	
		@	Turn off softkey labels
		A	Enable MODES softkeys
		B	Turn on [USER KEYS] labels
		R	Unlock label set
		S	Lock label set
ESC & k		Set Terminal Straps.	
	{0,1}	A	Auto Linefeed Mode
	{0,1}	B	Block Mode
	{0,1}	C	Caps Lock Mode
	{0,1}	D	Bell
	{0,1}	J	Screen refresh frequency
	{0,1}	L	Local echo
	{0,1}	M	Modify All Mode
	{0,1}	N	Space overwrite latch
	{0,1}	P	Caps Mode
	{0,1}	Q	Key click
	{0,1}	R	Remote Mode
	{0,2}	R	Local Op Sys Mode
ESC & p		Printer Device Control.	
		^	Device status request
		b	Print one line
		f	Print page
		m	Print memory
	cntrl num	c	Data log function
	cntrl num	=11	Log bottom
		=12	Log top
		=13	Disable logging
		=17	Enable report print
		=18	Enable metric print
		=19	Disable report/metric print
ESC & q		TPU Configuration Control.	
	{0,1}	L	Lock configuration
ESC & s		Terminal Strap Control.	
	{0,1}	A	Transmit function key sequences
	{0,1}	B	Space overwrite enable
	{0,1}	C	Cursor wraparound
	{0,1}	D	Set block page
	{0,1}	G	Inhibit DC1 handshake
	{0,1}	H	Inhibit DC2 handshake
	{0,1}	L	Inhibit self-test
ESC * s^		Terminal Identification.	

Appendix C

CONFIGURING A SERIES 100

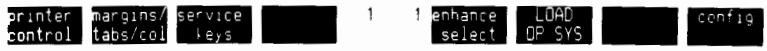
A Series 100 has many characteristics that are built into it. However, some characteristics are hard to choose; for example, should port 1 or port 2 on the back be used to attach a host computer? What speed should the Series 100 use when it sends files to another computer? Each computer receives data at its own speed; which computer should we set up for? When a user says ''PRINT THIS'' in an application or in CP/M, which printer do we assume they want to use if they have two?

Since certain options have no obvious best choice, some of them are changeable. These options are listed in what is called a Configuration Menu; you set values in the Configuration Menu to correspond to your needs. The values set affect your Series 100 computer, typewriter, and terminal. If you used the interactive owner's disc on your Series 100, your printers may already be configured by that program.

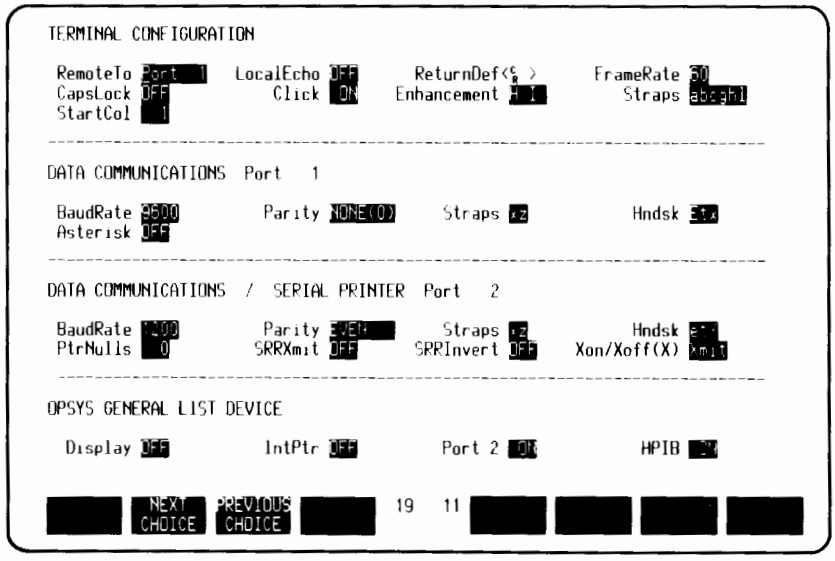
How Do I See the Configuration Menu?

To display the menu, follow these steps:

- If the Welcome Menu is on the screen, press the EXIT TO CP/M function key. This enters CP/M (the operating system). If the Series 100 is not a computer at the time, proceed to the next step.
- Press the AIDS key on the keyboard.



- Press the config function key to display the menu with its current values:



What Do the Fields in the Configuration Menu Mean?

Terminal Configuration

Field	Function
Remote To	This field specifies which data communication port is assigned to a remote host computer. When the Series 100 is a terminal, the cable must be connected to the port (1 or 2) named here. (If you connect a host computer to port 2, you will not be able to connect an RS-232 printer to your system.) Default: Port 1
Local Echo	Echo refers to a Series 100 computer's ability to display characters (on the screen) that you type at the keyboard. Most computers do this themselves—both the Series 100 computer and the HP 3000 echo what is typed to the screen. Therefore, echo is usually OFF. You would need to turn echo ON if you connected the Series 100 to a host computer by using a half duplex cable; half duplex cables only send information from the terminal to the computer. Default: OFF
ReturnDef	The [↵] key usually sends the ASCII sequence CR (carriage return) when it is pressed. (Remember that CP/M and MPE both interpret CR as carriage return, linefeed; the Series 100 typewriter uses only carriage return.) If you want to, you can change CR to any other two-letter ASCII sequence. When the [↵] key is pressed, the new action takes place. Default: CR

FrameRate This field specifies the power line frequency (50 or 60 Hz); the screen refresh rate is then synchronized to the specified frequency. If this field is set to the wrong value, images on the screen may pulsate visibly.

Default: 60 for option 001
Default: 50 for options 002 - 006

CapsLock This field uppercases all alphabetic keys, (but no symbol or numeric keys) when it is ON.

Default: OFF

Click Series 100s are capable of producing audible clicks as each key is pressed; turn click OFF to stop the sound.

Default: ON

Enhancement There are four screen enhancements on the HP 125:

H Half bright
U Underline
I Inverse video
B Blinking

The four can be used in various combinations such as HU, IB, or even HUIB. This display enhancement appears when the enhancement select function keys are used.

Straps This field specifies the strap settings available to control the terminal display and data transfer characteristics. Each is represented on the display by an alphabetic character (a, b, c, g, h, and l).

The values for a, b, c, g, h, and l are as follows:

a escape sequence transmission
b space overwrite [SPOW] latch
c cursor end-of-line wraparound
g block transfer handshake
h inhibit DC2
l inhibit self-test

A strap is turned on by changing the letter from lowercase to uppercase. For example, if the straps entry is AbcGhl, A (escape sequence transmission) and G (block transfer handshake) would be on; the other straps would be off.

Move to a letter with the cursor control keys; press NEXT CHOICE to uppercase (on) or lowercase (off) a letter.

Escape (esc) Transmission (a-strap): When this strap is A, any keyboard-generated escape sequence (cursor movements, etc.) is passed through to the host system and not executed. When this strap is a, keyboard generated escape sequences are executed locally and no information is given to the host.

Space Overwrite (SPOW) Latch (b-strap): This strap controls whether the space bar produces spaces or skips over existing characters only when a Series 100 is a typewriter. When the strap is B, you can make the cursor skip existing letters with the space bar by pressing [←] first. Press [↘] or [TAB] on the keyboard to switch back to having spaces generated by the space bar. (Pressing [↵] with AUTO LF on (*) accomplishes this, also.) When the latch is OFF, spaces are always generated by the space bar.

Wraparound Cursor, End-of-Line (c-strap): When this strap is c, the cursor wraps around to the beginning of the next line when column 80 or the right margin of a line is passed. (The system processor generates a return and a linefeed character to accomplish this.) When the strap is C, no return or linefeed is generated at the end of a line. The cursor remains in, and overwrites column 80 or the right margin.

Short Transfer Trigger Handshake and Long Transfer Warning Handshake (g and h-straps): Series 100s can do three kinds of data transfers: long transfers in line mode, long transfers in character mode, and short transfers.

Long Transfer Line Mode	Data transfers are initiated with the [↵] or [ENTER] key. Modify Mode must be on.
Long Transfer Character Mode	Data transfers are initiated with the [ENTER] key. Modify Mode is off.
Short Transfer	Data transfers involve: ■ Cursor sensing ■ Terminal status ■ f1 through f8 functions ■ Response to an "Esc &" sequence

The transfer mode affects the type of handshake used. The complete DC1/DC2 handshake protocol consists of a "trigger" signal (DC1) send from the host computer to inform the Series 100 that a transfer is possible. In response, the system sends a "warning" signal (DC2) to the host computer indicating that the data is ready to transfer. The host computer sends another trigger signal (DC1) to open the transfer.

Handshake Protocol Diagram

Host	Series 100
DC1—trigger—>	Host opens transfer
<—warning—DC2	Series 100 signals ready
DC1—trigger—>	Host opens transfer
<—transfer—<data>	Series 100 transmits data

Depending on the state of the g and h straps, one of three subsets of the handshake protocol is used by the terminal as follows:

TYPE 1 (No Handshake)

Host	Series 100
<—transfer—<data>	Series 100 transmits data

TYPE 2 (DC1 Trigger Handshake)

Host	Series 100
DC1—trigger—>	Host opens transfer operation
<—transfer—<data>	HP 125 transmits data

TYPE 3 (DC1/DC2/DC1 Warning Handshake)

Host	Series 100
DC1—trigger—>	Host opens transfer
<—warning—DC2	Series 100 signals ready
DC1—trigger—>	Host opens transfer
<—transfer—<data>	Series 100 transmits data

The effects on the various g and h strap states are as follows:

Strap State	Long (Line Mode)	Short	Long (Char Mode)
g,h	TYPE 3	TYPE 2	TYPE 1
g,H	TYPE 1	TYPE 2	TYPE 1
G,h	TYPE 3	TYPE 3	TYPE 3
G,H	TYPE 1	TYPE 1	TYPE 1

Data Speed Select (x-strap): When this strap is X, the data speed signal is set high (CH=ON). When this strap is x, the data speed signal is set low (CH=OFF).

Parity (z-strap): Parity is one way the Series 100 and a host computer can verify that your data was transferred correctly. Parity refers to a "vertical redundancy check" bit that is added as the high bit of each byte as it is transmitted and checked for the correct value as it is received over the data communications line.

When the parity strap is Z, a parity check for even or odd parity is performed by the terminal on received data.

When the parity strap is z, no parity check is performed.

Note that parity is never checked for received data if the Series 100 is configured for either NONE (0) or NONE (1) parity.

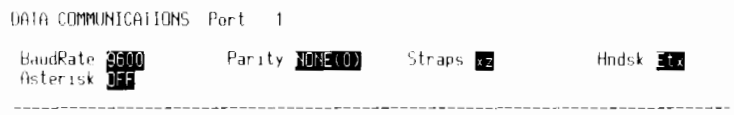
Inhibit Self-Test (l-strap): When the l-strap is l, the power-on test, data comm test, and terminal test are accessible from the keyboard. When the l-strap is L, these tests are not accessible. Any attempt to initiate the tests results in an error message; to clear the message, press [↵].

Default: abcghl

StartCol This field determines the beginning column (1-80) for data transfer. This setting affects Modify Line or Modify All mode.

Default: 1

Data Communications Port 1



BaudRate This field specifies the speed at which data transmission takes place; the speed is measured in bits per second. The following are valid baud rates:

110
150
300
600
1200
1800
2400
3600
4800
9600

Default: 2400

Parity This field specifies the type of parity generation and checking used with each data character transmitted. (The z-strap determines if parity is checked on received data.) The following are acceptable values:

NONE (0)	Eighth bit is a zero on transmitted data; on received data, eighth bit is ignored.
NONE (1)	Eighth bit is a one on transmitted data; on received data, eighth bit is ignored.
EVEN	Even parity is generated on transmitted data; eighth bit = parity result.
ODD	Odd parity is generated on transmitted data; eighth bit = parity result.

Default: NONE (0)

Straps

This field specifies the additional strap selections associated with data transfer. The straps are represented by the letters x and z.

x Data speed select
z Parity check

(For a full explanation, look at the strap information earlier in this appendix.) Change straps by using cursor control keys to move left or right to the character you want to change; press NEXT CHOICE to uppercase (on) or lowercase (off) letter.

Default: xzz

Hndsk

This field specifies what type of communications "handshake" is used. Each type of handshake is represented by a single alphabetic character (e, t, and x):

e ENQ/ACK handshake
t Transmit handshake
x XON/XOFF

The handshake configured for your system allows the following conditions when you specify lowercase or uppercase e, t, and x.

Handshake	On	Off	Default
ENQ/ACK Handshake	E	e	E (on)
Transmit Handshake	T	t	t (off)
XON/XOFF	X	x	x (off)

Enable (turn on) a handshake by changing a lowercase letter to uppercase. For example, etX would indicate XON/XOFF handshaking.

ENQ/ACK Handshake: ENQ/ACK may be used to ensure an empty buffer before the host transmits more data. When ON (default), an acknowledge signal (ACK) is sent by a Series 100 when an in-

quiry (ENQ) is received from the host computer. If the buffer has data in it when a Series 100 receives an ENQ, the data in the buffer is processed before an ACK is sent to the host.

When ENQ/ACK is e, ENQ inquiries from the host are treated as data characters; no acknowledge signal (ACK) is sent.

Transmit Handshake: When the value is T, the transmit handshake allows the host computer or the printer to transmit a ''busy'' signal across the Clear To Send (CB for RS-232C or 106 for CCITT V.24) control line to temporarily stop the transmission of data from the terminal.

When the Transmit Handshake is t, data transmission continues uninterrupted by the host computer.

XON/XOFF: This handshake protocol allows a Series 100 to signal the host computer to stop sending data and, subsequently, to resume sending data as the input buffer fills and empties.

When XON/XOFF value is X, the input buffer fills to within about 40 bytes of its capacity. At this point, the Series 100 sends a Transmit Off signal (XOFF) to cause the host computer to stop transmitting data. When the buffer has emptied below a quarter of its capability, the terminal sends a Transmit On signal (XON) which causes the host computer to resume data transmission. This process is repeated until the current data transfer operation is completed. When the value is x, no XON/XOFF handshake occurs.

Note that the XON signal is represented by a DC1 (ctrl-Q) character transmission. The XOFF signal is represented by a DC3 (ctrl-s) character transmission.

Default: Ext (ENQ/ACK handshake)

Asterisk

A Series 100 can display a ''transmit indicator''—an asterisk at the bottom of the screen that indicates when a host computer is connected over an active data communications line. The Asterisk field specifies whether the transmit indicator is on, and if it is, which RS-232 line or port 1 it should check.

OFF turns off the transmit indicator.

CS turns on transmit indicator; reflects the state of the RS-232 Clear to Send (CS) control line (asterisk = HI; no asterisk = LO).

DM turns on transmit indicator; reflects the state of the RS-232C Data Mode (DM) or Data Set Ready (CC) control line (asterisk = HI; no asterisk = LO).

Default: OFF

Data Communications / Serial Printer Port 2

BaudRate

This field specifies the speed at which data transmission takes place; the speed is measured in bits per second. The following are valid baud rates:

110
150
300
600
1200
1800
2400
3600
4800
9600

Default: 2400

Parity

This field specifies the type of parity generation and checking used with each data character transmitted. (The z strap determines if parity is checked on received data.) The following are acceptable values:

NONE (0)	Eighth bit is a zero on transmitted data; on received data, eighth bit is ignored.
NONE (1)	Eighth bit is a one on transmitted data; on received data, eighth bit is ignored.
EVEN	Even parity is generated on transmitted data; eighth bit = parity result.
ODD	Odd parity is generated on transmitted data; eighth bit = parity result.

Default: NONE (0)

Straps

This field specifies the additional strap selections associated with data transfer. The straps are represented by the letters x and z:

x Data speed select
z Parity check

Default: xz

Hndsk

This field specifies what type of communications ''handshake'' is used. Each type of handshake is represented by a single alphabetic character (e, t, and x):

e (ENQ/ACK handshake)
t (Transmit handshake)
x Xon/Xoff)

Enable (turn on) a handshake by changing a lowercase letter to uppercase. For example, etX would indicate Xon/Xoff handshaking.

Default: Etx (ENQ/ACK handshake)

PtrNulls Some printers require that "null characters" be transmitted after certain control functions (e.g., carriage return), to allow the printer time to complete the operation. This field specifies the number of ASCII null codes (0–99) to be transmitted to an external printer after each ASCII control code. Under normal operation, the HP 2601A does NOT require this field to be greater than zero.

Default: 0

SRRXmit This field specifies whether or not a −12V is required for transmitting data on the RS-232C Secondary Receiver Ready (SRR) or Secondary Carrier Detect (SCF) control line. SRRXmit is usually ON when printers must control the transmission of data from other devices.

Default: OFF

SRRInvert This field applies only when the SRRXmit field is ON. SSRInvert defines whether −12V or +12V is the "true" state of the line. When both the SRRXmit and SRRInvert fields are ON, the RS-232C Secondary Receiver Ready (SRR) or Secondary Carrier Detect (SCF) control line is inverted from −12V (OFF) to +12V (ON).

Default: OFF

Xon/Xoff(X) This field defines Xon/Xoff protocol to be used for receive pacing (communicating with a computer is Recv) or transmit pacing (communicating with a printer is Xmit). This applies to port 2 when port 2 Xon/Xoff handshaking is selected.

Default: Recv

OpSys General List Device Menu Fields

Display — If Display is ON, output from application programs that is directed to the Op Sys General List Device is listed on the screen.

Default: OFF

IntPtr — If IntPtr is ON, output from application programs that is directed to the Op Sys General List Device is printed on the internal printer (if there is one).

Default: OFF (ON if an internal printer is present)

Port 2 — If port 2 is ON, output fro application programs that is directed to the Op Sys General List Device is printed on the printer attached to port 2.

Default: ON (OFF for option 50)

HPIB — If HPIB is ON, output from application programs that is directed to the Op Sys General List Device is printed on the printer attached to the HPIB port at address 1.

Default: OFF

NOTE

Although output is normally routed to only one destination, any combination of these list devices can be active at the same time.

How Do I Know What Settings Are Required for a Device?

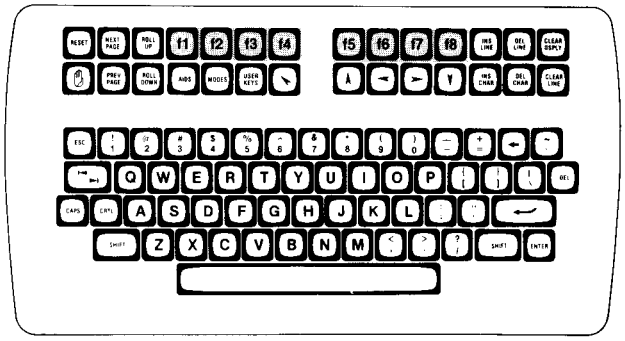
Refer to Appendix C of the installation manual for information on the configuration entries required for each device.

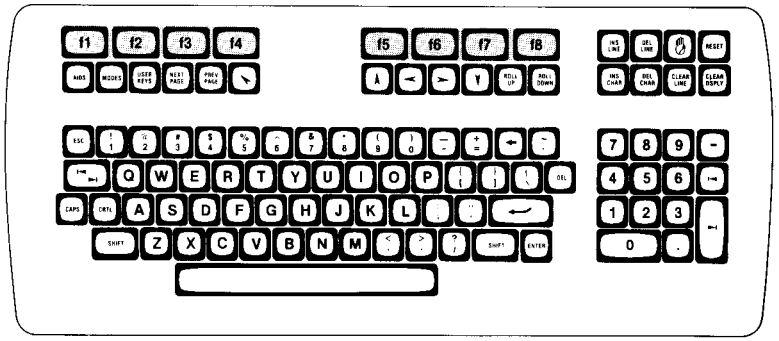
Appendix D

TYPING AIDS

What Keys on the Keyboard Can Be Typing Aids?

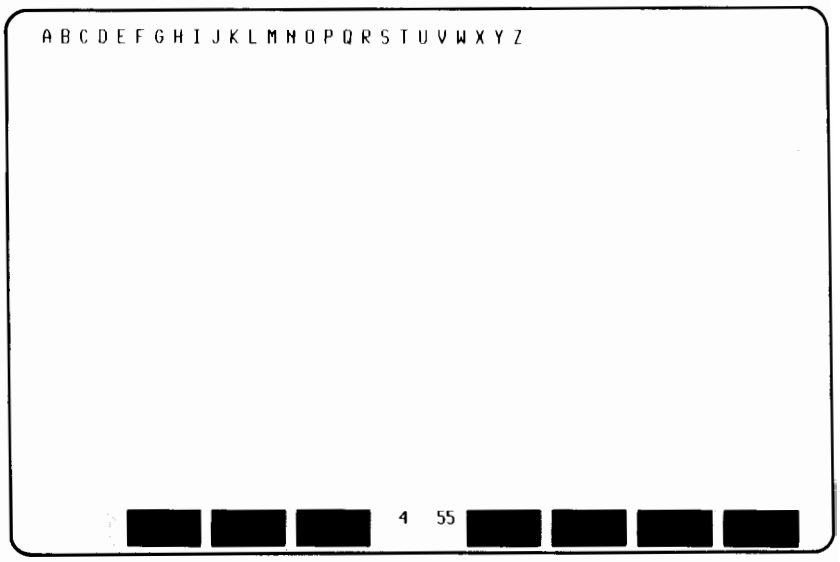
Function keys (f1 through f8 on the keyboard) are used by application programs to perform various functions with one keystroke. When no application is using the function keys and you are not using AIDS or MODES, you can use function keys for typing aids.



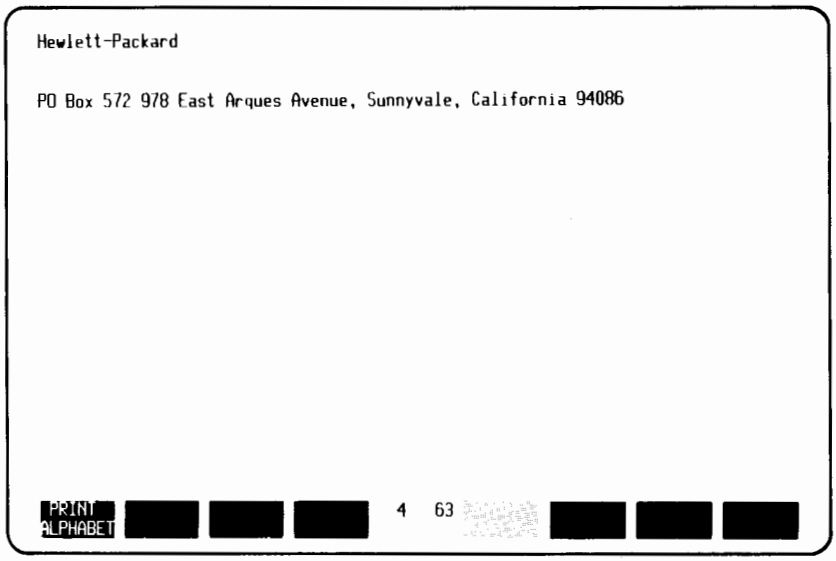


What Is a Typing Aid?

On a Series 100, a typing aid is up to 80 characters that are typed by the system when you press a function key. Instead of just trying to remember what the 80 characters are, you can put a 16-character label on the screen to help you remember.

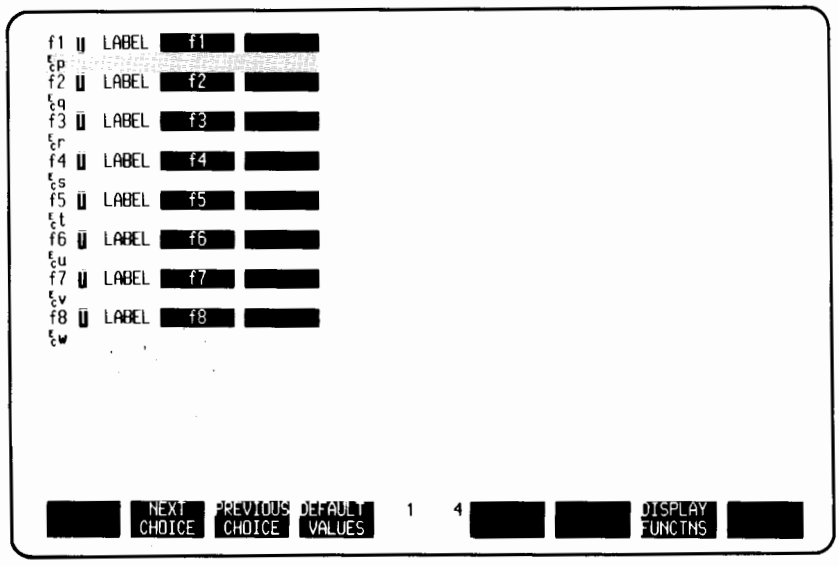


The 80 or less characters that appear when you press a key do not have to all appear on one line. You can press [↵], or use cursor control or editing keys when you create the 80 characters. In the example below, function key f5 produces a letterhead for office mail.



How Do I Create Typing Aids?

A programmer creates typing aids by sending escape sequences to the terminal. You create typing aids from the keyboard. Press [SHIFT] and [USER KEYS] on the keyboard; this screen appears:



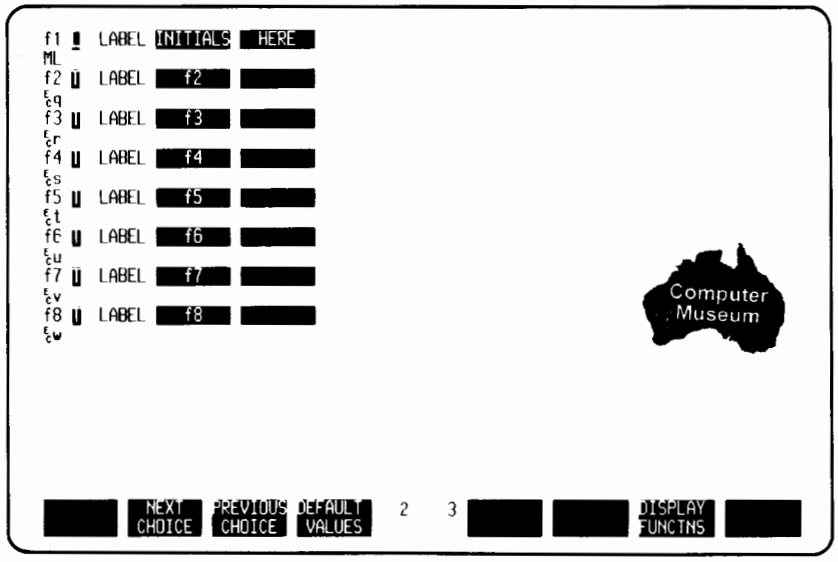
The three highlighted areas for each key must be filled in. These fields are called, from left to right, the attribute, the key label, and the key definition.

The Attribute

The attribute tells a Series 100 what to do when you press the function key. When the key is pressed, the information in it can be sent to the terminal side of a Series 100 and not to the computer side or host computer. Or, the information can be sent to the computer side of the Series 100 or to a host computer. The third choice is to use the information as regular keyboard input.

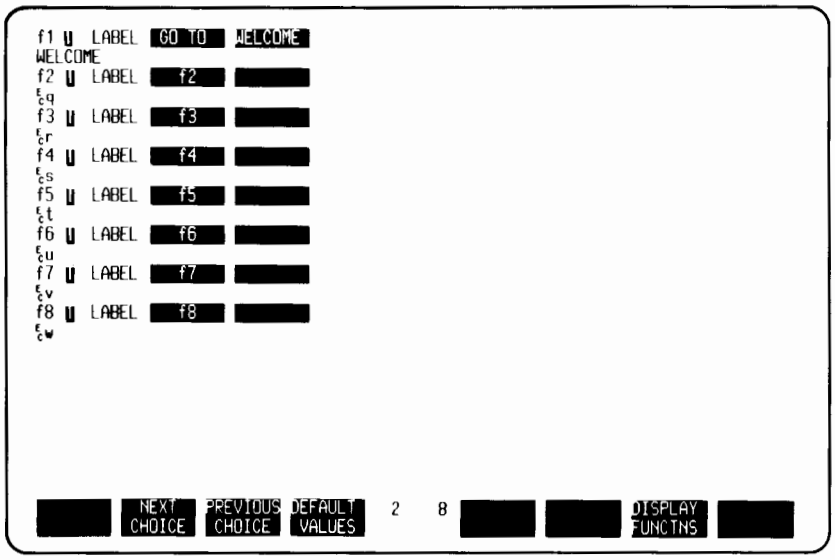
Position the cursor (with cursor control or tab keys) in the left-most field of a key, and press NEXT CHOICE until the letter you want appears:

L Indicates that the key definition is to be executed in the terminal portion of a Series 100. It is not transmitted to the Series 100 computer nor to a host computer.



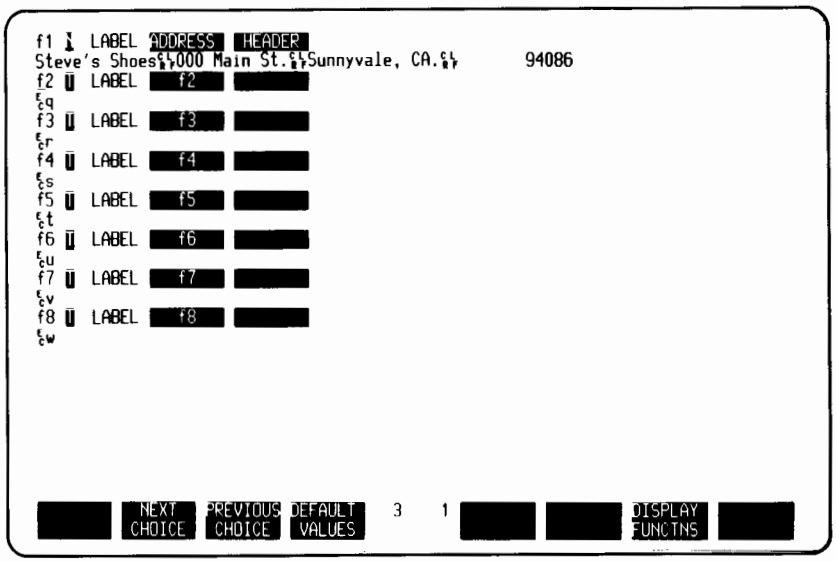
If you were using the Series 100 logging feature to log interaction with an HP 3000, you could put your initials into the log report without the HP 3000 receiving the information.

T Indicates that the key definition is to be transmitted to the computer side of a Series 100 if you're in Local Op Sys Mode.



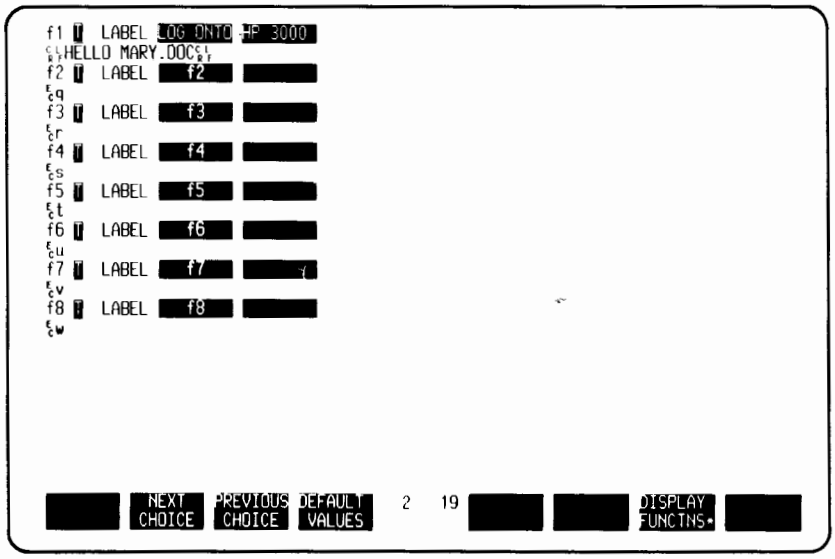
If T is used in Remote Mode, the key definition is transmitted to the host computer. The definition is then displayed on the screen if the computer sends it back (as done by the HP 3000).

N Indicates that the key definition is to be treated as normal keyboard input; the whole definition appears on the screen. If a Series 100 is a typewriter (Local Mode), use N as an attribute for lines of text.



Remember that AUTO LF must be on (*) whenever the Series 100 is to act as a typewriter (Local Mode).

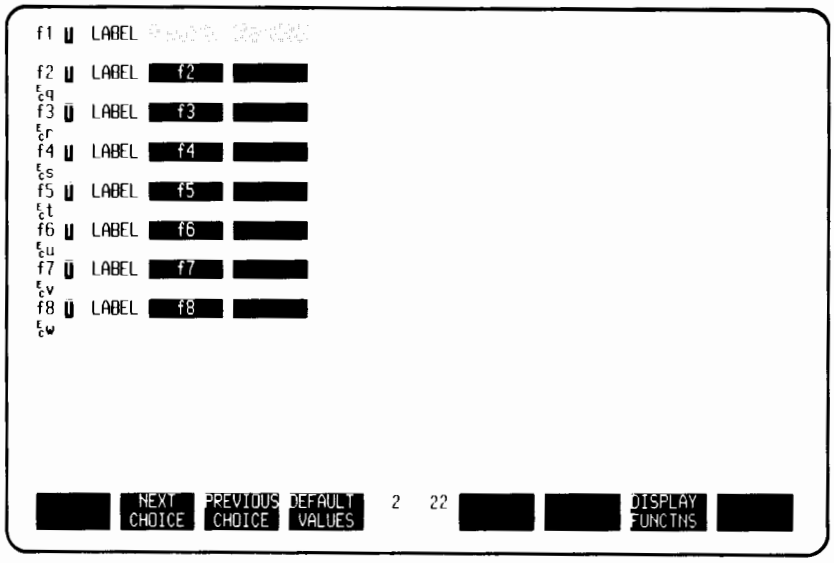
If a Series 100 is a terminal, contents are transmitted to the host computer when [↵] is pressed.



Notice in the example above that <cr lf> was inserted where [↵] would have been pressed. This was done by turning DISPLAY FUNCTIONS [f7] on (*), then pressing [↵]. When <cr lf> is encountered, a [↵] is executed. For more information, see "Typing Escape Sequences" in this appendix.

The Key Label

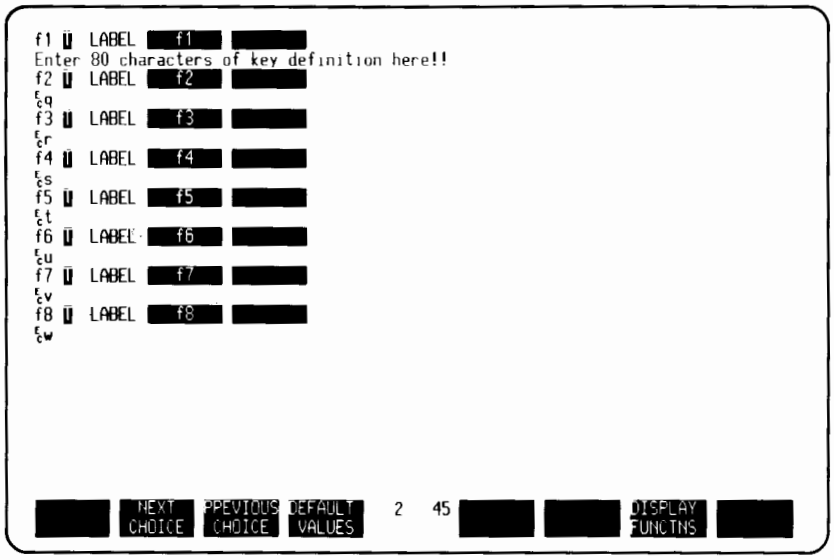
The key label is in two parts; the first part represents the top line of a label, and the second part represents the bottom line. Each line is eight characters long, giving you 16 characters for each label.



To create a key label, move to the field with cursor control or tab keys, then type any letters or numbers. When you are finished, press [↵].

The Key Definition

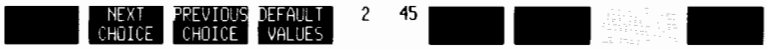
The key definition is entered on this line:



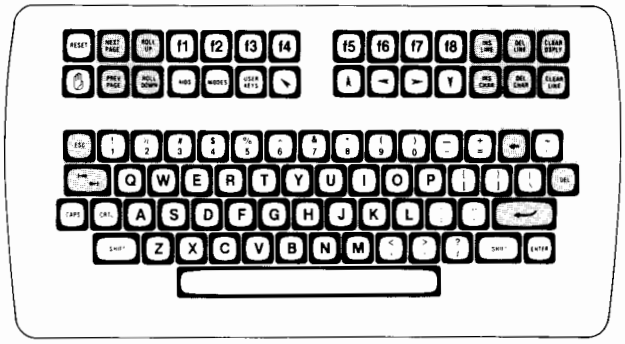
If you press [↵] after entering the key label, the cursor goes to the beginning of the key definition. (If you're in Local Mode, and pressing RETURN doesn't move the cursor to the next line, you need to turn AUTO LF on (*).) Type up to 80 letters, numbers, or escape sequences (e.g., [↵], [CLEAR DSPLAY], [DEL CHAR], etc.).

Typing Escape Sequences

To type an escape sequence, press function key 7 (DISPLAY FUNCTNS); an (*) appears on the label:



Now, when you press any of these keys:



the escape sequence or ASCII representation for that key will appear in your definition. Press function key 7 again to turn display functions off.

NOTE

Remember that AUTO LF must be on (*) before typing aids work properly when a Series 100 is used as a typewriter.

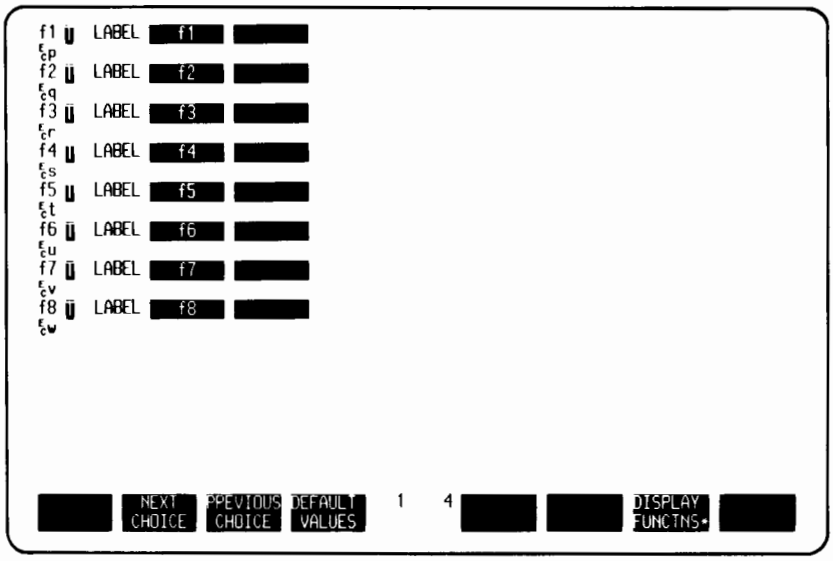
AUTO LF should be off when a Series 100 is a computer or terminal.

What Are Key Definitions Used For?

The contents of this line are displayed, executed, or transmitted (depending on the attribute) when you press the function key.

What Happens If I Press DEFAULT VALUES?

When you press DEFAULT VALUES, all of the fields revert to this:



How Do I Get Out of Key Definition Mode?

Press [AIDS], [MODES], or [USER KEYS] to leave Key Definition Mode. Your labels and definitions will remain in place until you turn the machine off, or run an application that uses function keys.

How Do I Put My Labels on the Screen?

Press [USER KEYS] on the keyboard to put your definitions on the screen.

Appendix E

IN CASE OF DIFFICULTY

One of the System Self-Tests Failed

A Series 100 performs five types of system self-tests:

- Power-on Test.
- Terminal Test.
- Data Comm Test.
- Identify ROMs.
- Internal Printer Test.

Power-on Test

The power-on test is performed automatically whenever you turn on the system's power. To perform the test manually, press the AIDS key, followed by the service keys function key, then the POWER ON TEST function key. The power-on test normally takes 15 seconds (about the time it takes for the screen to warm up). During the 15 seconds, the following electronic components are tested:

- The two microprocessors.
- The five read-only memories (ROMs).
- Non-volatile (configuration) memory (CMOS RAM).
- Display memories (RAMs).
- Display electronics.
- Keyboard controller.
- HP-IB controller.
- Internal printer electronics (if present).
- Data communications controllers.
- The interface between microprocessors.

The path from the system processor to the disc drives is also tested through a ''disc identify'' test during power-on.

Successful completion of the power-on test, therefore, provides a high degree of confidence that your system is functioning properly. If the test passes, 15 seconds after power is turned on, the display appears and the system processor is ready for use.

The power-on test can fail two ways:

1) From 25 seconds to one minute after power is turned on, the display appears with the message:

   Power-on test failed

   where nnn has the following meaning:

0001 0002 0008	The system processor is malfunctioning in some manner and may be unreliable.
0004 1000 8000	The Series 100 can function as a terminal in all respects; however, the local operating system is malfunctioning and the computer may not be reliable.
0100 0200 0400 0800	The operating system (CP/M) may not load or run correctly.
0010	The keyboard may not be functioning correctly.
0020	The configuration memory is malfunctioning and may not retain configuration settings. The system processor may be unreliable.
0040	The data communications and/or serial printer interface is malfunctioning. Data communications and/or serial printer use may be unreliable.
0080	The internal printer is malfunctioning and may be unreliable.
2000 4000	The HP-IB interface is malfunctioning and HP-IB peripheral operations may be unreliable.

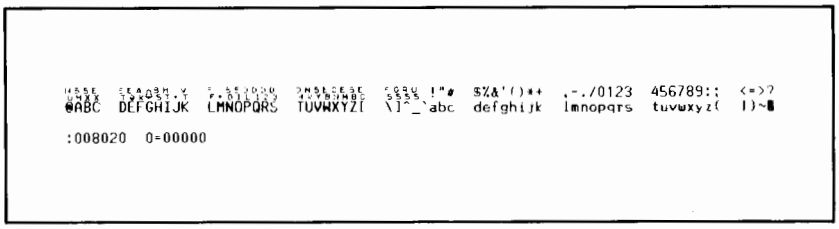
2) The test fails; the display never appears or reappears visibly malfunctioning because display electronics are faulty.

If any of these power-on test failure messages are displayed or if the test fails completely, contact your Service Representative.

Terminal Test

This test checks the terminal part of a Series 100, by doing the following:

- Tests the firmware ROM chips.
- Tests the CP/M processor.
- Tests the configuration, display, and operating system memories.
- Tests the keyboard/printer controller chip.
- Tests the internal printer (if present) by generating a blank line.
- Displays this test pattern:



To test the terminal, press the AIDS key on the keyboard, then service keys function key, then the TERMINAL TEST function key.

If the test fails, this message appears on the screen:

TEST FAILED

If no TEST FAILED message appears but the test pattern on the screen is different than the one above, you may have a problem with display electronics. Use your red adjustment tool on the top of the HP 125 to adjust center, height, focus, and bright; use the adjustment controls on the back of the HP 120 to do the same.

Data Comm Test

The Data Comm test checks the operation of the data communications ports (they connect a Series 100 to a host computer or serial

printer). The series of tests performed require either a test hood, a cable with a test hood, or a modem with local and/or remote data loopback capability.

The following tests are performed on both data comm ports:

- A control line test.
- A data comm controller chip test.
- A data loopback test.

Baud rate and parity are tested at the settings specified by the entries in the Configuration Menu.

To test the data communications ports, press the AIDS key on the keyboard, then the service keys function key, then the DATA COMM TEST function key.

The screen is blank until the test is finished or until an error condition occurs. During the test, the interrupt system is disabled, so data received over a port during the test may be lost.

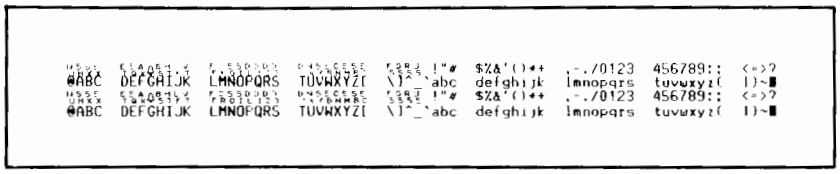
If an error occurs, one of the following messages appears:

*PORT 1 ERROR **nnnnnn** (or) PORT 2 ERROR **nnnnnn***

The ''nnnnnn'' in the error message is a six-digit hexadecimal number. The number 8002AA is displayed if no cable or hood is connected. If you get a number other than 8002AA (or if you get that number when a cable or hood is attached), call your Service Representative.

Printer Test

The Printer Test checks the internal printer (if you have one). To perform the test, press the AIDS key on the keyboard, then the service keys function key, then the INT PRT TEST function key. If the printer is working properly, this test pattern is printed.



If your system has no internal printer, the INT PRT TEST function key does not appear. If the test fails, this message appears on the screen:

Internal printer error

To clear the message, press the [↵] Key. Fix the problem yourself if:

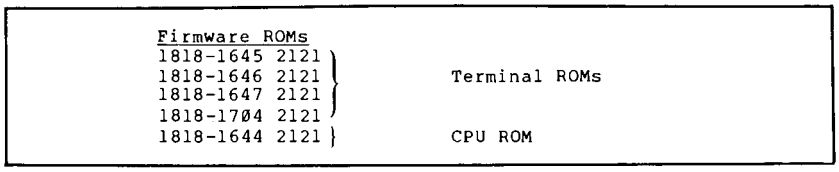
- The unit is out of paper.
- The metal latch (under the plastic printer lid) is not pressed down securely.

The problem may be with the print mechanism itself; in that case, call your Service Representative.

Identify ROMs

This test lists all ROM chips installed in the system. To identify your ROMs, press the AIDS key on the keyboard, then the service keys function key, then the IDENTIFY ROMS function key.

A list similar to this one appears on the screen:



Service Representatives use the above information to determine revision level and dates of the ROMs. One of them may ask you to perform the test and give them the results.

An Error Message Appeared When the Series 100 Was a Terminal

The error messages and their meanings are as follows:

*** Default configs used**
The configuration set-up was lost. The system does not ''remember'' any changes you may have made to the default settings. All other parts of the system should operate correctly. If the message appears repeatedly, contact your Service Representative.

*** Device routing pending**
An application program has specified a ''device mapping'' for its input/output operation. Certain terminal operations (e.g., configuration changes) are not allowed while this mapping is being used.

*** Disc did not identify at address zero**
Either the disc drive power was not turned on, the cable linking the disc drive and system is loose or disconnected, or there is a fault with your system or disc drives. If none of these applies, make sure that the disc from which the operating system is to load is set to HP-IB address zero, as described in the installation manual. If the problem persists, contact your Service Representative.

*** Internal printer error**
The internal printer is unable to print. Two possible causes are:

1) The paper latch is not closed properly.
2) The printer is out of paper.

If these two causes do not apply, contact your Service Representative.

*** No ''TO'' device**
A printer logging or print operation tried to use a printer reserved by CP/M; the reverse could also be true. The other possibility is that no device was selected from the printer control function keys.

*** Nonexistent printer**
An attempt was made to select a printer for output that is not configured into your system. Change the printer configuration in the Configuration Menu.

*** Port 1 error nnnnnn**
The DATA COMM TEST function key was pressed when no cable (or test hood) was attached to Port 1. DATA COMM TEST is only for use by service personnel.

*** Port 2 error nnnnnn**
The DATA COMM TEST function key was pressed when no cable (or test hood) was attached to Port 2. DATA COMM TEST is only for use by service personnel.

*** Press RETURN to clear**
Occurs whenever a warning or error message is displayed.

*** Printer(s) busy**
A logging or print operation tried to use a printer reserved by CP/M; the reverse could also be true.

*** A self-test inhibited**
The terminal test, power-on test, internal printer test, or datacomm test have been inhibited by the L strap. (See the Configuration Menu self-test strap.)

*** Test failed**
The terminal test or power-on test failed.

*** Power-on test failed nnnn**
See the explanation of the power-on test in this section.

*** This function LOCKED**
The configuration is locked and an attempt was made to change it. Another possibility is that either the REMOTE MODE or LOCAL OP SYS key was pressed while an unusual device mapping existed.

An Error Message Appeared When the Series 100 Was a Computer

The error messages and their explanations are as follows:

****OPSYS warmboot error.**
This error message should occur only if the system tries to partially reload (''warmboot'') an operating system that is a different size

than the one already in display memory. When this message appears, press [↵] to completely load the new operating system. You may want to check the new copy of the operating system to be sure it is the correct version.

****Sector read/write error.**
The system is unable to read or write to the disc specified (A to H). The disc is either:

1) worn out
2) unformatted
3) scrambled by a magnet

After pressing the [↵] key to warmboot, make sure the disc is formatted and placed correctly in the drive (flexible discs could be sideways). If neither of these applies, attempt to read different parts of it with PIP or COPY. Copy as much of the information as possible, and discard the faulty disc. If a number of relatively new discs are failing, contact your Service Representative.

****Disc select on drive failed.**
The system cannot find the disc specified. Either the disc door is open, a flexible disc drive is empty, or you asked for a disc drive outside the range of A - H.

****Write to R/O disc error on drive x.**
An attempt was made to write to a disc not "logged in" by the system. After a disc reset, the first access (DIR, STAT, etc.) causes some information to be sent to memory. If you switch flexible discs without restarting the system, CP/M recognizes it by comparing the copy of the directory in memory against the one on the new disc. CP/M then protects the new flexible disc by placing it in "read-only" status. Many applications take care of this problem for you, but standard CP/M utilities do not.

****Write to R/O file error on drive x.**
An attempt was made to write to a file placed in "read only" status. This status indicates that the file cannot be undated or deleted unless the status is reset to read-write (use the STAT utility).

****Write to write-protected disc error in drive x.**
An attempt was made to write to a disc physically protected from update. On 5¼" discs, covering the square cutout with a tab

protects the disc. On 8″ discs, removing the tab protects the disc. On a 3½″ disc, breaking off the plastic write-protect tab and sliding it down protects the disc.

****DISC RETRY #n (Seek error on drive x).**
****DISC RETRY #n (Read error on drive x).**
****DISC RETRY #n (Write error on drive x).**
If a Series 100 cannot seek, read, or write a disc sector correctly, it automatically retries up to 10 more times. As it retries, the attempts are logged in this message for your information.

****Retry #n succeeded. Check disc in drive x for excessive wear.**
If any of the three types of retries described above are successful, the operation system displays this message, and the current program continues. Some programs may sense that this problem has occurred, and prompt you to press [↵] to continue, giving you a chance to check the disc. Other programs and utilities simply continue until completion.

****No OPSYS on disc in A.**
This message is displayed when a Series 100 cannot access an operating system on the disc in drive A. The disc in drive A may have no operating system in it, the door may be open, or there may be no disc in the drive. The system needs to access the operating system before loading some application programs, before exiting most programs to return to CP/M, and when the operating system is partially or fully loaded into memory. To fix the problem, be sure the disc containing the operating system is in drive A. Press [SHIFT] [CTRL] [RESET].

****Free OP SYS list device General printer.**
****Free OP SYS list device Internal printer.**
****Free OP SYS list device Port #2 printer.**
****Free OP SYS list device HPIB printer.**
If there is a conflict between the local CPU and the terminal over which part of the system has control of a printer, this message may be displayed. Make sure that any previous use of a printer is finished.

****Worn disc in drive x.**
It appears to a Series 100 that a disc has worn out. Clean the disc drive heads, and try to copy the contents of the disc to another one. In any case, you should consider the disc as having failed. If a number of discs fail that are not particularly old, contact your Service Representative.

**Disc parity error.
A hardware error occurred while a disc was being accessed. If the condition persists, contact your Service Representative.

The Printer or Plotter Won't Respond

Check the printer or plotter for error lights; you may have to press the RESET button, or take some other action depending on which light is lit.

Do a terminal test. Press the AIDS key, followed by the service keys function key [f3] then the TERMINAL TEST function key. The complete character set should be printed in several lines. Check the printed pattern; if it appears to be all right, the problem may be due to the fact that your printer or plotter isn't configured properly.

If you're using an HP-IB printer, and you cleared an error from the screen by pressing [↵], your HP-IB printer may not be fully cleared. Press [RESET] on the keyboard to clear the printer.

Check the Configuration Menu as described in Appendix B. Another possibility is that your cables are not connected properly; check the cabling information in the installation manual. If a message appears on the screen, check the instructions for that message. If you are still having problems, check with your Service Representative.

The Keyboard Won't Respond

1) Press the AIDS and MODES keys to see if the labels change. If they change, press the MODES key, and switch to LOCAL OP SYS by pressing function key 3. An asterisk should appear in the label. Then, remove the disc from the disc drive, switch off all units, and retry the startup procedure.

   If the labels don't change when you press [MODES], press [SHIFT] [CTRL] [RESET] simultaneously. The screen should be blank for about 15 seconds; then, try pressing AIDS and MODES keys again. If the labels still do not change, turn the System Processor off, then on again.

2) Check the keyboard cable to be sure it is securely attached on both ends. Repeat step 1.

3) Disconnect the cable from the back of the system processor. For an HP 125, check to see if the keyboard connector has bent or missing pins; there are usually 11 pins in the connector.

   If pins are bent, straighten them and return to step 1.

   If pins are missing, contact your Service Representative.

4) If none of the above actions works, contact your Service Representative. You probably have a hardware problem.

The Screen Is Blank

1) Put your hand on the top of the unit to see if the fan is working. If not, is the unit plugged in? Turned on? Is the outlet working? (Try plugging in something else.) Do you have an extra power cord to switch with the one plugged in? If you cannot get the system processor, contact your Service Representative.

2) If the fan is working, check the BRIGHT adjustment on the of the system processor by turning it clockwise.

My Data Transfer to a Host Computer Isn't Working

Look at your Configuration Menu to be sure that your Data Comm/ Port 1 configuration is correct. Check your data communications cables to be sure they are securely connected. If you are still having problems, contact your Service Representative.

I Can't Read the Screen

Use your red plastic adjustment tool to adjust center, height, focus, and bright on the HP 125 system processor. Tune the HP 120 with the screen adjustment controls on the back of the unit.

Appendix F

QUESTIONS TO ASK ABOUT NON-HP SOFTWARE

Many CP/M programs can be used on a variety of computers and terminals. Check to see if a particular CP/M program will work properly on a Series 100 by asking the questions covered in this appendix. Your dealer or vendor should be able to answer these questions.

1) Is the application designed for use with the standard CP/M operating system?

   Standard CP/M _____ Non-standard CP/M _____

2) Does the application require configuration, depending which computer it is used on?

   No configuration _____ Configuration _____

   If the program is designed for standard CP/M (question 1), and requires no configuration, it should run on a Series 100. If the program has a Configuration Menu, see questions 3 - 11.

3) Does the terminal configuration list computers and let you pick one? If so, is the HP 125 or HP 120 included in the list of computers?

   List includes Series 100 _____ Series 100 not included _____

   If the program configures by using a computer list (not containing the HP 120 or HP 125), the program probably won't run on a Series 100.

If the program configures by asking you to select features, ask questions 4 - 11.

4) When using applications, the cursor control sequence is often required. (A cursor control sequence positions the cursor on the screen.) A Series 100 cursor control sequence has a control code, row number, control code, column number, control code.

   QUESTION TO ASK: Can this program use a cursor control sequence such as:

   ESC & a 1 0 c 1 2 R

   This sequence positions the cursor at column 11, row 13 on the screen.

   Yes _____ No _____

   QUESTION TO ASK: Can the row and column numbers in this program be represented as ASCII characters? (In the example above, the column number would be a one and a zero, not a ten.)

   ASCII _____ NUMERIC _____

5) When the application program performs each of the screen control functions on the left (below), can it be configured to use the HP control sequence on the right?

Function	HP Control Sequence
Home up	ESC h
Clear to end of screen	ESC J
Clear to entire screen	ESC h ESC J
Clear to end of line	ESC K
Insert line	ESC L
Delete line	ESC M
Insert character on	ESC Q
Insert character off	ESC R
Delete character	ESC P

Can use escape sequences __ Can't use escape sequences __

6) Are display enhancements done character by character, or by turning display enhancement on and off? A Series 100 turns display enhancement on and off—if the program doesn't do this, you may be able to use the program by setting the enhance sequence to null (not using enhancements).

   On and off _____ Character by character _____

7) Does the program move CP/M 'down' in memory to allow memory above the operating system to be used for an activity such as spooling? If so, the Series 100 ROMs won't be able to find CP/M. The program will not run under any circumstances.

   CP/M not moved _____ CP/M moved _____

8) Does the program use port I/O to communicate to a physical device other than a disc drive? If so, it won't find the printer or plotter it's looking for, and nothing will print or plot because a Series 100 uses device mapping. You may be able to purchase consulting time to adjust the program to use system calls.

   No port input/output _____ Port input/output _____

9) Is the program available in HP format? If not, the only other option is to buy the program on an 8-inch disc in CP/M IBM 3740 format, and pay a consultant to convert it to a 3½ or 5¼-inch disc. (If you have your own 8-inch disc drive, try to run it before calling; it may run with no adjustment.)

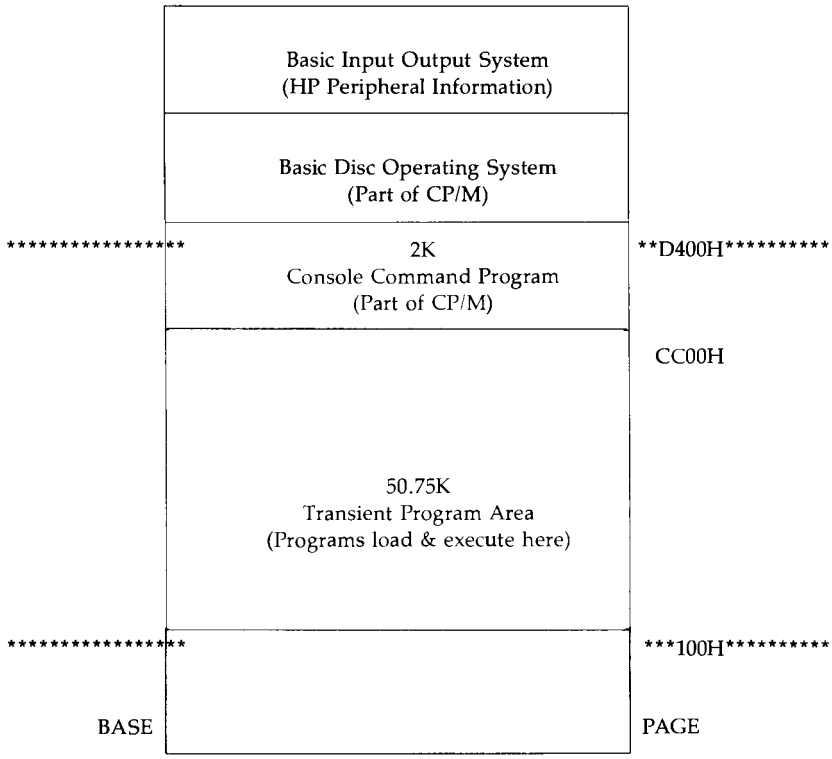
   HP format _____ Non-HP format _____

10) Does the program include its own driver, bypassing the operating system? Unless it was specifically written for the HP 125 or HP 120, the program may not run.

   Uses system driver _____ Has its own driver _____

11) Does the program load and execute more than 53K of code at a time? If so, it will use part of the room needed for the operating system, and the program won't run.

If you are asked specific questions by a dealer or vendor as to what part of memory can be used to execute a program, refer to the diagram and sample answers below.



If you are asked why a program can use (in addition to the TPA) the CCP section of memory, the answer is as follows. The CCP is the part of CP/M that lets you use CP/M directly; the A> prompt activity is done in the CCP. When a program is running, you can't do A> activities, so the CCP part of memory can be overwritten. The BIOS and BDOS parts of memory are parts of the operating system that are always needed.

If possible, ask a dealer to try the program you are considering on his HP Series 100 system. If it runs on his system, it will run on yours.

If you checked any boxes on the right, reread the explanation to see if any additional steps can be taken to make the program work on a Series 100.

Appendix G

USING 8" DISCS CREATED WITH A.01.01 CP/M

Operating System Revision A.01.20

With Operating System Version A.01.20 and greater, the HP 9134 and 9135 Winchester Discs are supported for use with Series 100. Both devices contain a 4.4 Megabyte disc which appears as four separate 9895 8" flexible discs to the operating system. A certain portion of each logical 8" disc on an HP 9134/35 is reserved. This reserved area (known as spare tracks) is used if the regular storage area has a small fault (which can result in inaccurate data).

To be consistent in the implementation of HP 9134/35 and 9895 drives on the HP 125, the A.01.20 Operating System makes use of cylinders 2 through 74 for data storage (with cylinders 75 and 76 used for sparing). The previous version of the Operating System (A.01.01) had cylinders 2 through 76 available for data storage.

Therefore, if you meet the following criteria:

1) You own an HP 9895A Flexible Disc Drive.

2) You are converting from Operating System Version A.01.01 to A.01.20 or later.

You need to check all of your 8" flexible discs used with Version A.01.01 of the operating system to determine if files exist on cylinders 75 and 76.

With Version A.01.20, you will not be able to copy the file(s) in the last two cylinders with the DISC COPY utility program (you will still be able to read and write to these files). Therefore, any files found in cylinders 75 and 76 should be transferred.

To aid you in checking your discs, a program named SPARECHK is included on the A.01.20 System Disc. Use the following procedure to check your 8″ flexible discs.

1) Insert a copy of the new System Disc (Version A.01.20) into Drive A of the 9895A and press the LOAD OP SYS function key.

2) Press the EXIT TO CP/M function key.

3) Insert the flexible disc to be checked into Drive B and type in the following command:

   A>ERA B:*.$$$ [↵]

   This command will erase all unnecessary temporary files from your disc.

4) Run the SPARECHK program by typing the following command:

   A>SPARECHK [↵]

The screen displays three paragraphs describing the SPARECHK program. The program will then report whether or not there are files in cylinders 75 and 76. If no files are found, the message:

Disc OK. No conversion needed.

is displayed. If files exist in the reserve area, the message:

Disc OK. No conversion needed.

is displayed. If files exist in the reserve area, the message:

Disc needs conversion. Files found on the last two cylinders.

is displayed along with the file names found on the last two cylinders. Be sure to record the names of the files displayed on the screen.

Repeat this procedure for all of your 8″ flexible discs. If SPARECHK reports that all of your discs are OK and no conversion is needed, you can stop here; no problems will occur when you use these discs with Version A.01.20.

If the SPARECHK program reports that a disc (or discs) requires conversion, proceed to the next section, which describes the transfer procedure.

Transfer Procedures

How you perform the transfer procedure is dependent on:

1) the type of file(s) found in the last two cylinders,

2) your preference as to where you would like these files to reside.

The file(s) in question is either a data file or an application file. A data filename appears as all upper-case characters (e.g., DATA). An application filename appears as lower-case charactaers (e.g., applic). Data files will be transferred with the PIP utility in Chapter 4. You cannot use PIP with an application file. In addition, you would probably not want to transfer a single application file, since it may be linked to other application files; therefore, the best strategy for transferring an application is to re-install the entire application on another disc (described in Chapter 5).

Now that you know the attributes of the file(s) to be transferred, your next step is to determine what disc to transfer the file to. Generally, you have three choices.

1) You can transfer a file to the new Work Disc.

2) You can transfer the file back to the disc it was on before.

3) You can transfer the file to any other disc (either one that already exists or a newly formatted flexible disc).

When you have determined the filetype (either application or data) and have decided where you want the file to reside, you may proceed with the actual transfer.

Transferring Application Files

If any file identified by SPARECHK is an application file, you should re-install all the applications onto a new disc, following the procedure described in Chapter 5.

Transferring Data Files

Data files will be transferred with the PIP utility program. Insert a copy of the master disc containing Version A.01.20 into Drive A and the disc containing files to be transferred into Drive B. Then, repeat the following sequence of steps for all files identified by the SPARECHK program.

1) Press the EXIT TO CP/M function key in the Welcome Menu.

2) Transfer a file identified by the SPARECHK program to the system disc by typing:

   A>PIP A: = B:filename [↵]

3) Even if no error messages associated with PIP appear, you can ensure that the file has been successfully transferred to the system disc by typing in the following CP/M command:

   A>DIR A:filename [↵]

   If the file is present on the system disc, proceed to the next step. Otherwise repeat step 2.

4) Erase the file that was transferred from the disc in Drive B by typing the following (note that the write enable tab must be present for this command to execute successfully):

A>ERA B:filename [↵]

5) Repeat steps 1 through 4 until all files on Drive B identified by the SPARECHK program are successfully transferred.

6) If you have chosen the system disc as the final destination of the file(s) in question, you may stop here. If you wish to have the file(s) reside on another disc (either the original or a new disc), continue on.

7) Insert the final destination disc you have chosen into Drive B.

8) Transfer the file(s) from the disc in Drive A to the disc in Drive B with PIP by typing the following:

A>PIP B:=A:filename [↵]

9) If the transfer is unsuccessful because of a lack of space on the destination disc (indicated by the error message ''DISC WRITE ERROR: =A:filename''), you should first erase the $$$ temporary file by typing the following command:

A>ERA B:*.$$$ [↵]

Then you can either ERAse files on the destination disc that you no longer require, or insert another flexible disc into drive B. In either case, repeat step 8. If the transfer completed successfully, continue on.

10) Even if no error messages associated with PIP appear, you can ensure that the file has been successfully transferred by typing in the following CP/M command:

A>DIR B:filename [↵]

11) You may now erase the files on the disc on Drive A by typing the following command:

A>ERA A:filename [↵]

Glossary

Application — A software program designed to perform a specific task.

ASCII — American Standard Code for Information Interchange. A standard 8-bit information code used with most computers and data terminals.

Backup — A copy preserved on a different disc as protection from destruction of the original data.

Baud Rate — The transmission rate at which data flows between computers. Synonymous with bits per second.

Cable — Connector used for computers, printers, plotters, and disc drives. Series 100 uses two kinds of cables: 1) HP-IB cables are used with HP equipment only, 2) RS-232 cables are used with most personal computers.

Component — A basic part or element.

CP/M – IBM 3740 Format — A single-sided, single-density format that allows you to exchange data with IBM mainframes, in many cases.

Cursor — On a system processor, a blinking indicator used to show position on the screen.

Data Communication	Transmitting information from one computer/ terminal to another.
Database	Vast file of information on a particular subject.
Datacomm	See data communication.
Data Transfer	Sending data from one (part of a) system to another.
Directory	A file listing the name and size of each file on the disc.
Display Memory	Memory in the system processor allotted to the screen display. Series 100 has 120 lines of display memory.
Dot Matrix Printer	A printer that forms characters with dots.
Enhancement	One of four different ways to highlight characters on the screen of the system processor: blinking, half-bright, inverse video, and underline. The screen enhancement is set in the Configuration Menu.
File	Collection of information treated as a unit.
Function Keys	Special set of keys that allow you to perform functions by pressing them. Functions can be defined by an application or from the keyboard.
Function Key Labels	Sixteen characters that appear in an inverse video box at the bottom of the screen. Each label corresponds to the function key ([f1], etc.) below it.
Graphics	Written symbols and visual displays produced by an application on a plotter.
Handshake	Required signals for communication between computers (or a computer and printer, etc.).
IBM Format	See CP/M – IBM format.

Initialize	Establish basic conditions for use.
Installation	Process of putting a copy of the operating system and application(s) on a Work Disc.
Kilobyte (kbyte)	One thousand units of space on a disc or tape.
Local Mode	Series 100 acts as a typewriter. (The labels for the MODES key have no asterisk in any label.)
Local Op Sys Mode	Series 100 acts as a computer. (The labels for the MODES key have an asterisk in Local Op Sys.)
Master Disc	Disc shipped from HP with a copy of the operating system, an application, or a utility on it. Copy master discs to Work Discs and store the masters.
Megabyte (mbyte)	One million units of space on a disc or tape.
Memory	Area of a computer where information can be stored.
Memory, Temporary Display	The 120 lines of memory used for the screen are temporary because shutting off the system processor empties display memory.
Mode	On a Series 100, mode refers to the state of the machine. Local Op Sys Mode is a computer; Local Mode is a typewriter; Remote Mode is a terminal. Change the state of the machine by pressing [MODES] on the keyboard.
Modem	Device that converts data from a computer form to a phone line form and back again.
Operating System	Organized collection of techniques and procedures for operating a computer.
Parity	A count performed to check data in computer operations.

Peripheral	Devices connected to a computer, such as printers and plotters.
Plotter	A device that graphs a visual display with a pen(s).
Precision Printer	A printer that uses a strike print mechanism and a ribbon. These printers produce ''typewriter quality'' print.
Printer	A device that prints coded characters on paper.
Program	A set of instructions or steps that tells the computer exactly how to handle a complete function.
Prompt	Character(s) that appear on the screen to signify that the computer or terminal is ready for use. For example, A7 is a CP/M prompt; a: is the MPE (HP 3000) prompt.
Remote Mode	Series 100 acts as a terminal. The labels for the [MODES] key have an asterisk in Remote Mode.
Port	Entry channel to which a cable is attached; the cable leads to another computer or a peripheral.
RETURN Key	Pressing this key causes the next character to be printed in the left column of the screen. Most actions are concluded by pressing [←].

Sector, Disc	A triangular section of a disc surface. Sector addresses are established by the FORMAT program.
Strap	Settings formerly done by placing jumpers on pins. These settings are now done in the Terminal Configuration Menu.
Thermal Dot Matrix Printer	A printer that creates characters with dots in various patterns.
Utility	A program written to perform a basic function such as formatting a disc or copying files.
Warmboot	Same as soft reset. See Chapter 2.
Welcome Menu	First menu seen after the computer loads CP/M. All installed applications are reflected on the Welcome Menu.
Work Disc	A regular disc that has been formatted, has a copy of the operating system on it, and has application(s) installed on it.

Index

A

B

C

D

E

F

G

I

L

M

O

P

R

S

T

U

V

W