HEWLETT PACKARD

Issue 12

for users of The Portable, HP 12x, and

Touchscreen/150 computers

HP Series 100 Communicator

Touchscreen *II*

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HP Computer Museum
www.hpmuseum.net

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The HP PC Newsline

late-breaking news on HP Series 100 personal-computer products

The **Portable PLUS is now available.** This successor to HP's popular lap-top computer features a **25-line bit-mapped anti-glare LCD display,** the Portable/Desktop Link, the HP-IL interface, a battery charger, **20 hours of battery life** between charges, and the Personal Applications Manager (P.A.M.). Memory in The Portable PLUS is expandable from 128 Kbytes to **896 Kbytes.** The computer has a flexible ROM applications drawer that accommodates **twelve 128-Kbyte applications** (including Lotus 1-2-3, Microsoft Word, MemoMaker and Time Management, and full block-mode HP 2622 terminal emulation with options). See your dealer or HP representative for more details.

* * *

To complement the new **HP HelpLine software assistance program** described elsewhere in this issue, HP now offers a Series 100 software support plan for users of the **HP 3000 Personal Productivity Center.** For a supplemental monthly charge, you can add the Series 100 Applications Support Option to your U.S. HP 3000 System Software Support Agreement. This option provides **unlimited HP Helpline service** for one trained caller and one designated alternate -- and also a subscription to the Communicator. Your HP sales and service office has details.

* * *

To find out more about Lexisoft's **upgrade for Word/125** (as reported in Issue 11 of the Communicator), please contact **Lexisoft** directly, by phone at **(916) 758-3630** or by mail (P.O. Box 1950, Davis, California 95617).

continued . . .

As announced in Issue 8 of the Communicator, HP stopped selling **HP 120 and HP 125 personal computer systems** on May 1, 1984. Twelve months later, we discontinued the application software packages for these systems, as announced in the last issue of the magazine. Alas, the announcement in Issue 11 contradicted the information in the Software Exchange Kit listing elsewhere in that issue. The fact is that **HP 120 and HP 125 software exchange kits have been and will continue to be available** -- along with parts and full repair services -- as part of HP's standard five-year post-discontinuance support program. For details and ordering information, please refer to the "Current Information" section of this issue.

* * *

The new **Drawing Gallery software** for Touchscreen/150 computer systems require that your system have at least **384 Kbytes of RAM.** (If your system is configured for more than 384K, you'll be able to create even larger and more complex Drawing Gallery images.) The 384K minimum does not apply to **Charting Gallery** or **Executive Memo-Maker**, although these programs will also give improved performance if your system has more memory.

* * *

INTEREX, the International Association of Hewlett-Packard Computer Users, will hold its first **international conference** for users of all HP computers -- HP 3000, 1000, 9000, and Series 100 machines -- in **Washington, D.C., September 8-13, 1985.** For more information, write or call INTEREX:

INTEREX -- Conference Manager
2570 El Camino Real, Fourth Floor
Mountain View, CA 94040
(415) 941-9960

You'll also find an INTEREX membership form in the "Current Information" section of this issue.

continued . . .

A **math co-processor board** is available for HP's newest personal office computer, the **Touchscreen II.** The 8087 Co-processor Accessory (HP product number 45885A) supports the following compilers: **Lattice** C, **Pascal** by Microsoft Version 3.13, and versions 3.13 and 3.2 of **FORTRAN** by Microsoft. The 8087 board also supports **AutoCAD** (47956A, described later in this Newsline), an advanced computer-aided drafting and design system. For more information, contact your local HP dealer or HP office.

* * *

The latest embodiment of HP's popular **ThinkJet printer** offers the **RS-232C interface.** The HP 2225D joins the HP-IB, HP-IL, and Centronics parallel-interface models to offer fast, convenient, quiet printing with a wide range of systems. It also provides text support for **HP 2623, 2624B, 2627, 2628, and 2392** terminals.

* * *

With the addition of six **new font cartridges,** the HP **LaserJet printer** now offers users a total of fourteen different typeface families, all available from your dealer or through HP's Direct Marketing Division:

- **Legal Elite** (HP product number 92286G)
- **Legal Courier** (HP product number 92286H)
- **Prestige Elite** (92286M; both "portrait" and "landscape" modes in the Roman-8 character set)
- **Letter Gothic** (92286N; "portrait" and "landscape")
- **Times Roman** (92286P; "portrait" and "landscape")
- **Memo 1** (92286Q; "portrait" and "landscape")

* * *

With the user-installable **EtherStart/150** accessory (HP product number 45649A), your networked Touchscreen/150 computer can operate on an EtherSeries/150 local-area network **without using disc drives.** EtherStart/150 works on any HP Touchscreen/150 or Touchscreen II computer with the C.01.00 operating system, Revision E (or later) firmware, and an EtherLink/150 accessory board. For more information, contact your HP dealer or sales and service office.

continued . . .

FORTRAN by Microsoft now runs on **Touchscreen/150, Portable,** and **Portable PLUS** computers. This new compiler (HP product number 45449D) is HP's implementation of Microsoft FORTRAN **Version 3.2.** Its features include:

- Arrays and common blocks larger than 64K bytes
- COMPLEX*8 and COMPLEX*16 data types and intrinsics
- A simple overlay scheme
- An optimized alternative math package
- A new decimal math package
- A new PARAMETER statement
- New linkers
- An interface to the MS-DOS 2.0 file system
- Alternative RETURNs from subroutines

To order this product, specify HP 45449D; to **upgrade** from Version 3.13 to Version 3.2, order HP part number 45449-63003. (Ordering information appears in the "Current Information" section of this issue.)

* * *

R:base 4000 (HP product number 45545A), a powerful high-end **relational data-base management** program, gives your HP Touchscreen/150 computer the information-management capability of a mainframe computer. R:base 4000 accepts data from other ASCII-format programs such as **dBASE, Condor, Lotus 1-2-3,** and **Multiplan.** Experienced applications developers will appreciate its password security, forms-generation ability, built-in screen editor and command language, and its full set of relational operators; beginners will find its built-in "help" and command-line prompts especially useful.

* * *

AutoCAD is an advanced two-dimensional **computer-aided drafting and design system** whose 512x390 graphics resolution lets it run on all of the HP Touchscreen/150 personal business computers. The 12-inch screen and optional **8087 math co-processor** board make the **Touchscreen II MAX** especially useful as a CAD workstation for this application -- particularly in conjunction with the **HIL Mouse** or data-entry tablets and a large drafting plotter. AutoCAD (product number 47956A) is available from HP in the U.S. and is supported by the developer, Autodesk, Inc.

Welcome to the *Series 100 Communicator* — Barbara Clifford

The *Series 100 Communicator* is the backbone of HP's support program for Series 100 computers and software. The magazine contains programming techniques, information on software updates, notes on using applications, and corrections for manuals. The *Communicator* also lists known software problems and their solutions, and introduces new members of the Series 100 family.

We encourage readers to, um, restructure their copies of the *Communicator.* Tear out the articles that apply to the work you're doing and the programs you're using; compile a wantlist of new products; set up a file for information on supplies and accessories. This is after all primarily a user's magazine ... so use it! (Need spare copies? Use the back-issue order form in the **Current Information** section of this issue.)

With this issue, the **Programmers' Potpourri** is no more. This change reflects the fact that most of the articles that appear in this section are contributed by Brian Rainie, our resident mad BASIC master. Although from time to time we'll include articles by other experts on programming in other languages, we should give credit where it's due: with a quick glance over our shoulder to see if *Byte* is watching, we're delighted to introduce **Brian's BASIC Basement.**

The *Communicator* is also broadening its coverage to include the major peripheral devices for Series 100 personal computers. Our first addition is the HP 2686A LaserJet printer. Watch for it in the **Encyclopedia** section of this and future issues.

Subscriptions and Back Issues

In many countries, you can order *Communicator* subscriptions and back issues by telephone. For details, see the "Ordering *Communicator* Subscriptions" and "Ordering Back Issues" sections in the Current Information insert.

Becoming a Contributor

Much of the material in this issue was submitted by users and HP field-support people. If you'd like to contribute an article, program, question, or suggestion, please send it to us at the following address:

Editor, *Series 100 Communicator*
Hewlett-Packard Company
P.O. Box 486
Sunnyvale, CA 94086 U.S.A.

By submitting information to the *Communicator*, you agree that the material will not be considered confidential, and that HP may use, copy, edit, modify, publish, or sell it without any liability and without any obligation to you or to anyone else. If we publish your contribution in the *Communicator*, your name will appear on the by-line. If you'd like us to return the material you submit, please enclose a stamped, self-addressed envelope with it.

We look forward to sharing your ideas with Series 100 users throughout the world.

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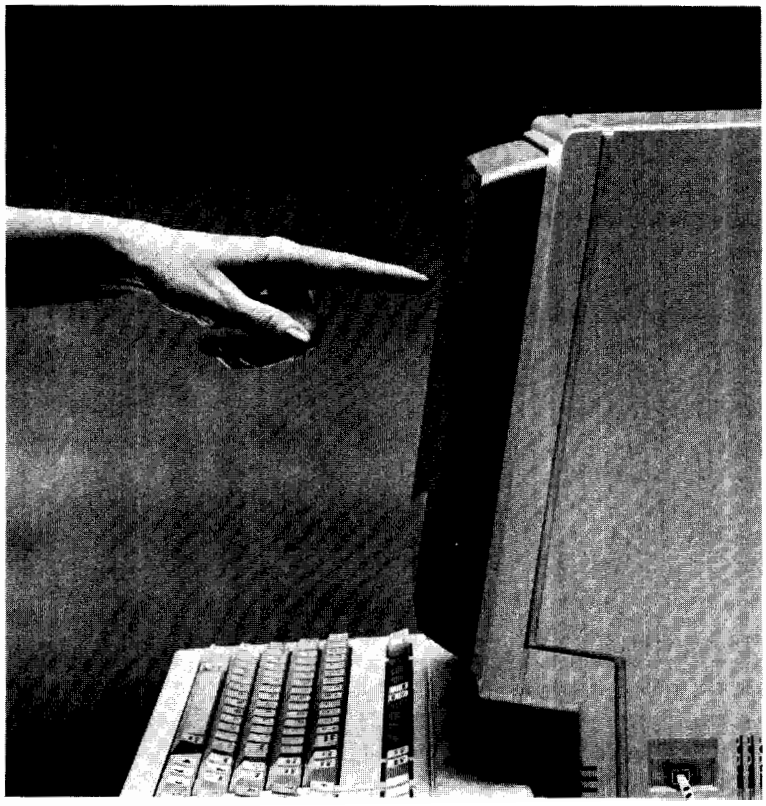

The HP Personal Computer Assistance Program

Cyril Yansouni

In the last issue of the Communicator, we made preliminary mention of the change in the U.S. from HPCoach to the HP HelpLine program. We asked Cyril Yansouni, vice president of our personal computer group, to explain the reasons for this change.

Upon introduction of the HP 150A, we initiated HPCoach—providing unlimited no-charge telephone assistance calls to U.S. users through toll-free lines. From our experience with this program, we have come to these conclusions:

- Many users obtain telephone assistance from their authorized HP dealer or from the M.I.S., data processing, or office automation group within their own organization.
- Those of you who need telephone assistance from Hewlett-Packard require an expanded service with an improved level of responsiveness.

We have, therefore, discontinued the HPCoach program in favor of a new Personal Computer Assistance program. Startup telephone assistance from the HP HelpLine is provided through Call Certificates shipped with new Touchscreen systems; continuing telephone consultation is available at additional charge. Those who called HPCoach in the last six months have already received notification of this change—together with an introductory HelpLine Call Certificate.

As a *Communicator* reader, you are a key person among our users. Many of you are providing consultation, training, and assistance—formally or informally—to other users in your organization. We feel that it is important to share with you the background behind this change.

Objectives

The new program has two key objectives:

- Users who need startup assistance from Hewlett-Packard will receive more responsive support under the new program at no increase in cost.
- Users whose needs go beyond startup assistance will be able to purchase the specific services they need.

Telephone Assistance via the HP HelpLine

Here is how the new U.S. HP HelpLine program works:

- Calls to the HP HelpLine are paid for by one of three means:
  - –By quoting a unique "certificate number" from a Call Certificate. Certificate packs are ordered by mail or telephone from HP's computer supplies distribution center.
  - –By providing a VISA, Master Charge, or American Express charge authorization.
  - –By identifying yourself as the Authorized Caller under a specific annual System Software Support Agreement.
- Startup assistance is provided for certain HP products through the inclusion of Call Certificates at no additional charge.
- A call-incident is defined as a discussion of moderate duration focusing on one specific topic to resolve an inquiry or problem. A call-incident includes the time on the telephone discussing the question, time to research the solution, plus any additional call-backs required to clarify the question.
- The actual charge for a call-incident is not initiated until the call is closed. There is no charge if the call is the result of a specific documentation defect or software design problem ... of if an answer cannot be found.

Under the HP HelpLine program, there are two key service improvements:

- Extended morning hours. HP HelpLine is open Monday through Friday from 7 A.M. to 9 P.M. Eastern Standard Time (to 6 P.M. Pacific Standard Time).
- Faster response time. Your initial HP HelpLine call will be returned within two hours.

[Of course, this is only a summary of the new Personal Computer Assistance program. For details, please call HP HelpLine at (800) 858-8867.]

Reducing the Need for Telephone Assistance

We are also working on a more fundamental objective: reducing your need for telephone assistance in the first place.

To meet this goal, we are taking action in three main areas:

- Improving our manuals. Through extensive research, we have developed better techniques for organizing, writing, and producing personal

computer user manuals. Of course, if your HP HelpLine call is due to an explicit error in a manual, you will not be charged for the incident.

- Strengthening the *Communicator.* The new Encyclopedia section, initiated with Issue #9, provides detailed, easily-accessed information on each major hardware and software product. Many of these sections are written by people from HP HelpLine, reflecting the most common questions and problems.
- Increasing our use of CompuServe. HP maintains a database on the CompuServe™ on-line information service called HP OnLine—it contains product news, answers to frequently-asked questions, and other information. HP also facilitates user interaction by hosting an open forum where users may post messages for general user response. Periodically, HP may respond to selected user questions.

Mutual Objectives

You, as an HP personal computer owner, have as big a stake as we do in making software support of HP PCs both successful and economically viable. In other words, the objectives I've been discussing here are really mutual objectives:

- Reduction in the need for telephone assistance—improving the efficiency of users, dealers, and HP.
- More responsive startup assistance from Hewlett-Packard available through the Call Certificates included with each system.
- Assistance beyond the startup stage available on a pay-as-you-go basis—without requiring a contribution through product pricing from all users, including those who are obtaining service from their dealer or from their own organization.

We are confident that this new program meets these objectives—and that, working together, we can continue our mutual progress in the exciting world of personal computation.

□

How to Use Diagraph

Dyanne Klinko

Diagraph (HP product number 45463A) is a powerful, multi-function graphics product that fully utilizes the touchscreen capability of the HP 150. You can use Diagraph to create a variety of "clip-art" presentation aids in addition to organizational charts, forms, signs, words charts and flow charts—even if you have little or no experience in graphic design.

The following is a step-by-step description (from opening the carton to making a slide) of how this fun-to-use program works.

First, when you open the box, you will find four diskettes labeled PROGRAM DISC, SYMBOL LIBRARY #1, SYMBOL LIBRARY #2, PICTORIAL LIBRARY #1.

NOTE: If you have a Winchester disc drive, you may want to INSTALL these programs onto your fixed disc. This will avoid time lost changing discs while you are creating a slide. If you own a dual flexible disc drive, the program will instruct you when to change discs.

Also in the Diagraph kit you will find a SOFTKEY. The SOFTKEY is a security lock which will prevent unauthorized use of the sowtware program. Attach the SOFTKEY to your HP-IB cable. Make sure that it is securely in place.

Now You Are Ready To Make a Slide!

1. The main PAM screen should contain a box labelled **Diagraph.** Touch that label until it lights up. You will hear a beep soon, followed by a message that says: **PLEASE PRESS, THEN RELEASE THE BUTTON ON THE SOFTKEY.** This will open the Diagraph files.
2. To create a new slide, touch **Design Diagraph.**
3. Touch **Uniform Pattern.** This will bring you to the screen where you will be creating your first slide.
4. You will notice a box with a flashing box inside the main box. The flashing box is the pattern you will want to change. Touch **Change Symbol.**

   Select a pattern. Your Diagraph manual contains a variety of patterns from which to choose. Notice the number located next to your chosen pattern.

5. The cursor should be in the **Symbol #** field. Put in the number of the pattern you have chosen.
6. Tab to the **Pen** field to choose the color pen you want for each symbol.
7. Tab to the **Line Type** field and select the type of line you want.
8. Next is the **Bold** field. By putting a **Y** in this field, your pattern will be created with a heavy line.
9. You can frame your pattern by putting a **Y** in the next field.
10. You can shade your pattern by putting a number in the **Shading Pattern** field. Shading patterns and their numbers are described on page 103 of the Diagraph manual.
11. The last field is **Pen.** If you want to shade in a color different from the pattern, simply type in the pen number you want to use.

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12. Touch **Done** and your pattern will be drawn on the screen.

    If after the pattern has been drawn on the screen the picture looks distorted, touch the functional label **"MoveSize Symbol,"** followed by the functional label **"Size Symbol."** The screen will remove the pattern and replace it with a flashing box. This is where you make your changes. By using either the functional label or the arrow keys you can make your pattern longer, shorter, taller, or smaller. When you get the size you desire, touch **Done** and your pattern will be redrawn in its new dimensions.

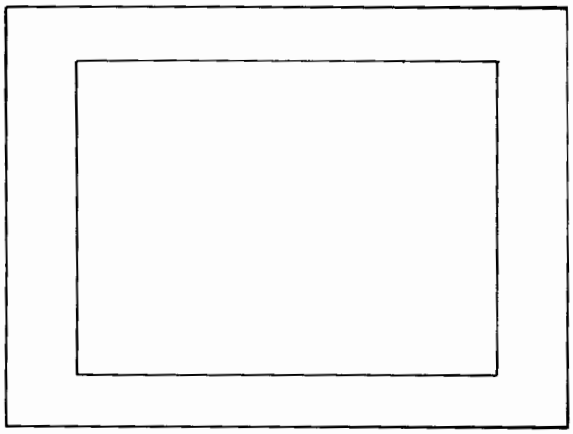
    By touching **MoveSize Symbol** you can move your pattern from one point to another. Touch **Move Symbol** and then use your arrow keys to tell your computer to move your pattern up or down, left or right. Touch **Done** when you have your pattern in its new location.

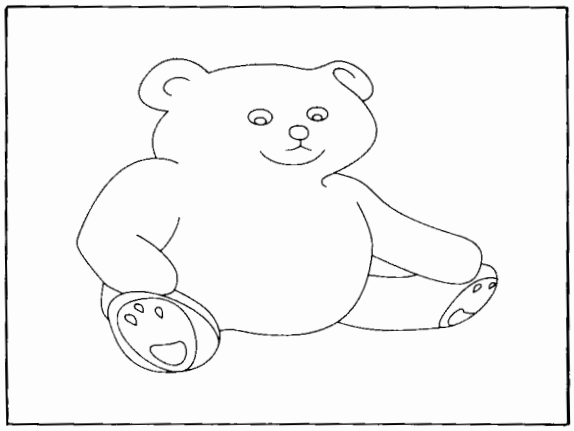
    If you want to add text to your slide, touch **Text Functions** and then touch **Text Menu.** This will put you into the text screen. Once in this screen, you will be able to write your text and choose the type of lettering you want by following the step-by-step instructions that appear on the screen. The numbers and sizes of your text can be found in the back of your Diagraph manual.

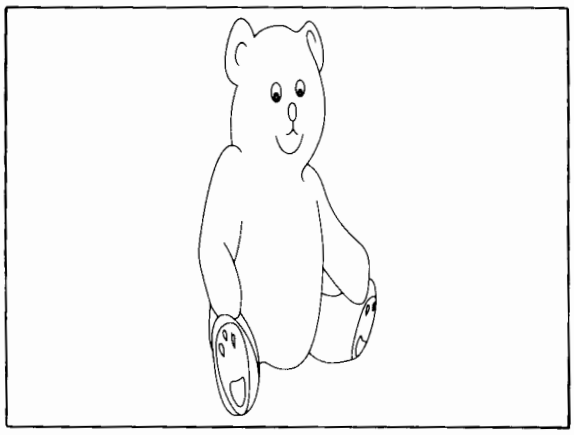
When all text information is finished, touch **Done.** This will add your text to the screen. As with your pattern, you can move your text and change its size.

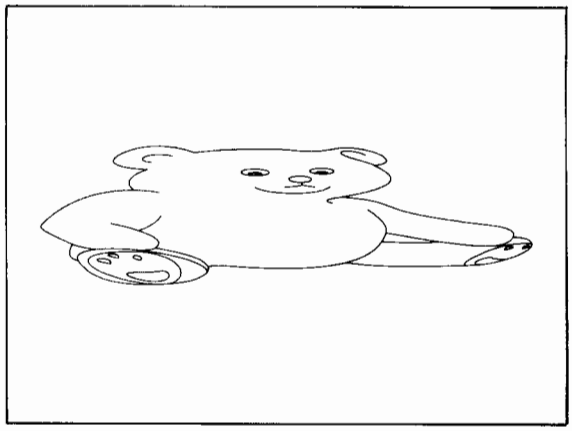
13. When your slide is complete, touch **Done.**
14. **Primary Functions** will appear. Touch that. This will bring you to the Plotting field.
15. Touch **Plot Diagraph.** (Touch **Plot Format** if you want to change the page size or delete the border.) Make sure at this time that your plotter is turned on and that paper has been loaded.
16. Next touch **Plot To Plotter.** This will tell your plotter what to draw.

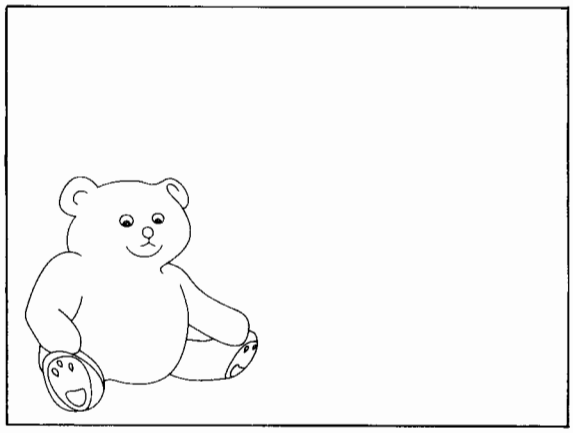
Congratulations! You have just produced your first Diagraph slide!

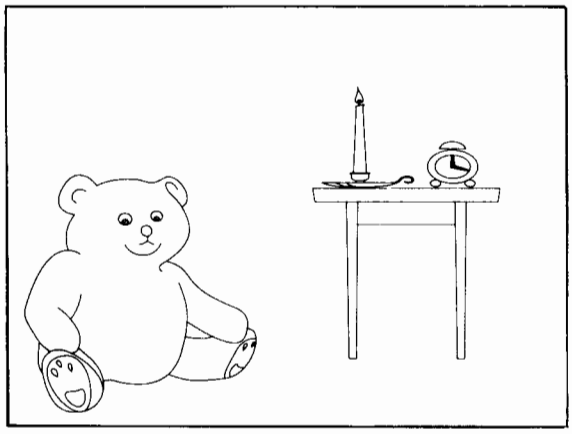












Transferring Files from Condor to dBASEII — Enrique Castillo

To transfer files from Condor to dBASEII:

In Condor, write to a file using the B option. This option creates a variable length file which can be used not only with dBASEII but also with BASIC, WordStar and MailMerge because it encloses fields within quotes.

Example: WRITE DATABASE TEXTFILE.TXT[B]

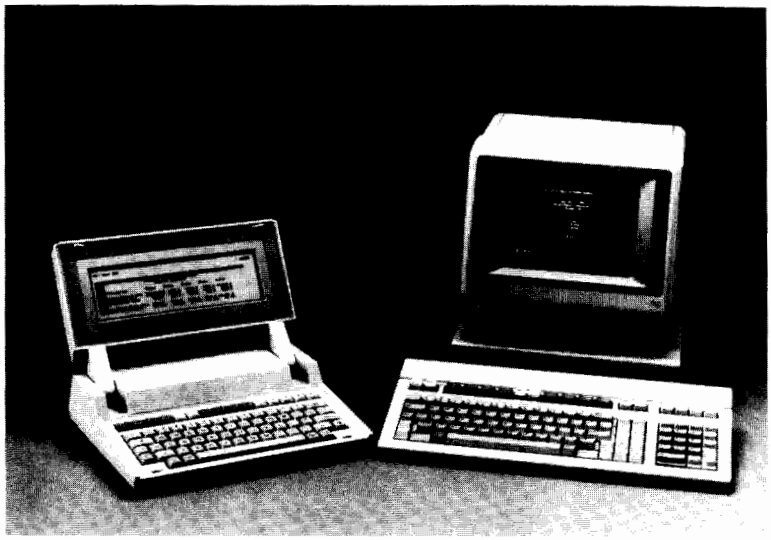
If a filename is not given ("textfile.txt" in this case), Condor creates a temporary file R$.ASC. This file can later be renamed.

Next create a database in dBASEII to accommodate the data to be read. The fields in this database have to be the same length and type as those in the Condor file. Once you have created your database, append the data as follows:

```
USE DATABASE APPEND FROM
TEXTFILE.TXT DELIMITED
```

The delimited option will strip the quotes from the data. You can now verify your data by entering the LIST ALL command.

□



If you need to transfer files between The Portable and the HP 150, or share information between The Portable and an IBM PC or IBM XT, read on. This article explains the procedures step by step.

You will need The Portable-Desktop Link (PDL) to transfer information between The Portable and the desktop computers. The PDL for the IBM PC or XT is HP product number 82937A; for the HP 150 it's product number 45643A. The PDL consists of an HP-IL Interface Card, an HP-IL Installable Device Driver, the HPLINK Program, and a user's manual.

Desktop Discs as External Drives

To use the desktop's discs as external drives for The Portable, follow the steps outlined below:

1. Install the HP-IL Interface Card into the desktop computer. Connect the desktop computer to The Portable via the HP-IL cables.
2. *On the desktop computer:* Insert the disc containing the HPLINK program into drive A:.
3. Create a file with the name "AUTOEXEC.BAT" that contains the line "ASSIGN A: = B:". ASSIGN.COM is a program supplied on the IBM XT that must be run in order to complete the HP-IL connection to The Portable. Then reboot the desktop computer.
4. Load and run the HPLINK program by typing:

   A:HPLINK [RETURN]
5. When requested to select a device, type "1" [RETURN] to select the disc drive.
6. On The Portable: In the SYSTEM CONFIG menu, set EXTERNAL DRIVES to "2". (NOTE: Set this parameter to "3" if you're connecting an IBM PC or XT).

Now the desktop's disc drives are external drives for The Portable. To return control to the desktop computer, type "E" on the desktop's keyboard.

HP 150 Discs as External Drives

To use the HP 150's discs as external drives for The Portable, follow the procedure described below:

1. Install the HP-IL Interface Card into one of the HP 150's accessory slots and connect the HP 150 to The Portable using HP-IL cables.
2. Install HPLINK and the EXTENDED I/O applications into the P.A.M. menu on your destination disc.
3. Select HPLINK on your P.A.M. screen and start application.

4. When requested to select a device, type "1" [RETURN] for disc.
5. *On The Portable:* In the SYSTEM CONFIG menu, set EXTERNAL DRIVES to "2".

Now the HP 150's disc drives are external drives for The Portable. To return control to the HP 150 computer, type "E" on the keyboard.

The Portable's Discs as External Drives

To use The Portable's discs as external drives for the desktop, use the following procedure:

1. Install the HP-IL Interface Card in the desktop computer as explained above.
2. On the desktop computer: Copy the file HPIL.SYS from the PDL disc to the boot disc of the desktop.
3. Create the file CONFIG.SYS on disc "A". Make sure this file contains the following line:

   DEVICE = HPIL.SYS

   and then re-boot the system.
4. On The Portable: On the MS-DOS command line, type HPLINK [RETURN]

The Portable's disc drives are now external drives for the desktop computer. Pressing any key on The Portable will stop the HPLINK program.

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MemoMaker on The Portable: More Differences

Tess Pender

Earlier we noted some of the differences between MemoMaker on the 150 and on The Portable. Here are a few more. If you notice others, please let us know so we can pass the word along.

STARTUP.FMT

The defaults are set in the program, so there is no STARTUP.FMT file when MemoMaker is loaded on The Portable. If you choose to change the defaults, you may create a STARTUP.FMT file. See the user's manual for more information.

Enhanced Text

The "what you see is what you get" rule is broken just a bit on The Portable, since the Bold and Underline enhancements do NOT show on the screen (not even in italics, as the HP 150 shows underline). Instead, the control character is displayed in inverse video at the beginning and end of the enhanced text. Bold and Underline are the only enhancements available from The Portable version of Memomaker, since it is not possible to embed escape sequences in the text to access other printer functions. (On the HP 150, this can be done by a Control-[instead of the ESCAPE key.)

ordStar Files

WordStar Document files can be read by MemoMaker, but all controls except those for bold and underline will be stripped from the file and discarded. This means that a file once read by MemMaker will not retain any other printer control information. The manual is contradictory on the effects, but the outcome is that all printer controls must be re-entered if a file is to be printed using WordStar.

HELP

The HELP function will not traverse the function keys on The Portable. Pressing any function key while HELP is in use will have no effect.

Align Block

Once a block has been defined on The Portable, it is immediately aligned. There is no opportunity to approve or cancel the alignment. If the result is not acceptable, another Align Block must be done.

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LaserJet Support Under MultiMate and WordStar

Kathy Weiler

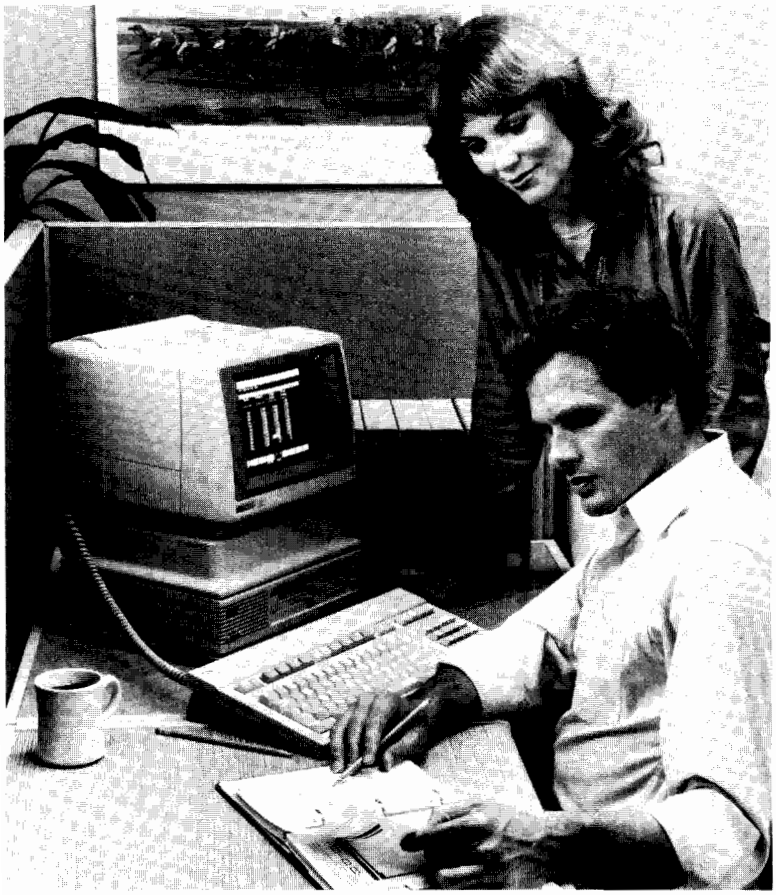
We are proud to announce support of HP's LaserJet and ThinkJet printers under MultiMate (Product Number 45424A) and WordStar for the 150B (Touchscreen) and Touchscreen Max computers. The ThinkJet is fully supported on both MultiMate and WordStar. Not all LaserJet features are supported under all applications.

The following table lists the LaserJet features which are and are not supported under each word processor. Look for an article in the near future comparing the LaserJet support under all of the 150B's word processors.

MultiMate	**WordStar**
SUPPORTED	
Microspace justification	Landscape or portrait* mode
Boldface	Boldface
Italics	Italics
Underline	Underline
Super/subscript	Super/subscript
Multiple character pitch 6 & 8 lines/inch	10 & 12 pitch characters
NOT SUPPORTED	
Multiple fonts**	Multiple fonts
Proportional spacing	Proportional spacing
Landscape mode	Microspace justification
	Variable line height
	Variable character pitch (except 10 & 12 pitch)

* with difficulty
**unless you customize PAM

□



HP 120/125 Word and WordStar with the LaserJet

Steven Johnson

Many HP 120/125 customers have requested information on use of the LaserJet printer with wordprocessing on their HP 120 or HP 125 system. Below are the configuration details:

SET TERMINAL CONFIGURATION:

BAUD RATE	9600
PARITY	NONE (0)
HNDSK	etX
XON/XOFF	xMIT

WORD:

The format Y-Table should be configured as follows:

Printer Type	1	(dot matrix/typewriter)
Destination	2	(serial printer)
Lines/Page	58	

You should use the .E command at the end of the document to eject the last page. (This command clears the printer buffer.)

With page numbers, set the bottom margin to "2" and lines/page between 54 and 58. (You will have a better-looking form with page numbers at 58.) If you have over 58 lines of material, the Word program will automatically begin a new page.

Continuous print worked when setting CONTINUOUS PRINT to "1" and CRS PAGE END to "255" within the Y-Table.

WordStar

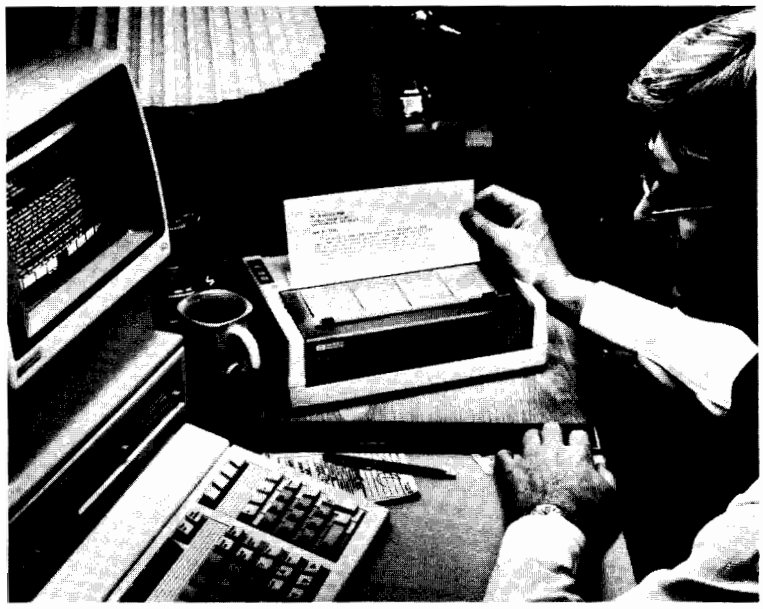
The WSPRINT program must be set up as "A Any 'Teletype-Like' printer" and "S PORT 2 Serial Printer".

Dot commands .MT with a "2" and .PL with a "60" gave the best results.

RESULTS:

Shadow Print	NO
Boldface	NO
Super/Subscripts	NO
Underline	YES
Slash Overstrike	YES
Space Instead of Character	YES
Skip Character	YES
Ignore Enhancement	YES
Right Justify	YES

□



When preparing a document with oft-used words, phrases or keystrokes (such as a legal document or a form), there is a way to avoid the repetitious typing. The 150 has a system feature that lets you program a "hidden" set of softkeys. Then, by a simple touch of a softkey, the system will do the work for you by inserting the desired text in a document.

The procedure for setting up these softkeys is as follows:

1. Load Wordstar and remain at the **OPENING MENU.**
2. Hold the **CTRL** key down and press **MENU** (the white key in the center of the keyboard.)
3. Move with the arrow key to **F2.** Move to the small square that contains the letter **T.** Use the **NEXT CHOICE** key at the bottom of the screen to change this to **N.**
4. Tab over to the blank square on this line and type the name that will appear on the softkey screen label (example: **"1st"**) followed by **RETURN.** Then while holding down the **CTRL** key, press **J** to bring the cursor down to the next line.
5. Press the **F7** key, **DISPLAY FUNCTIONS,** and an asterisk should appear on the key.
6. Type the word, phrase or keystroke combination desired, up to 79 characters (example: **"the first party"**). If you make a mistake, take the asterisk out of **DISPLAY FUNCTIONS,** back space, turn **DISPLAY FUNCTIONS** on again and continue typing.
7. When finished, take the asterisk out of **DISPLAY FUNCTIONS** again and press **RETURN.**

   (7.5 If you want to program any other of the remaining 7 softkeys, you would do so at this point, following steps 3–7 above for each of the other softkeys desired.)
8. While holding the **CTRL** key down, press **J** again and continue doing so until the cursor reaches the blank portion of your screen.
9. While holding the **CTRL** key, press the **USER SYSTEM** key (the other white key in the center of the first row on the keyboard). This will bring you back to the **OPENING MENU** of Wordstar.

10. To bring back the normal Wordstar keys, hold down **SHIFT** and press the **USER SYSTEM** key. To bring your own keys back, hold down **CTRL** and press the **USER SYSTEM** key.

To use your programmed softkeys in a document, position the cursor where you want the desired word or phrase to appear, then press **CTRL** and **USER SYSTEM** to bring your special softkeys up. After your special softkeys appear, if you press **F2** (which, following our example, reads **"1st"**) you will get **"the first party"** inserted in your document. Similar to any control code in Wordstar, you can use these softkeys as often as you want in a document.

Once set up, your softkeys can be invoked in any Wordstar document you work with, as well as in other software you may load after exiting Wordstar. However, the programming cannot be saved; thus once you turn your computer off, your special words and phrases will be lost from the system memory.

□

File Transfers from VisiCalc to Condor

Kathy Sulgit

The procedure outlined below lets you transfer files from VisiCalc/150 (version A.01.03) to the Condor/150 data-base program.

1. Load VISICALC Spreadsheet to be transferred.

   LOAD + STORE
   LOAD SHEET
   Specify Drive:filename

2. Set Printer Configuration Menu /PC so that the top six answers are "no." Left Margin = 1, Right Margin = 80 (or the width of the record, Top Margin = 1, Bottom Margin = 60. Take the CR out of the set up string.

   VISICALC MAIN
   PRINT SHEET
   PRINTER CONFIG
   Make changes as noted in #2
   DONE

3. Save the spreadsheet as a "Print File."

   Place cursor on beginning cell of data to be saved
   PRINT TO FILE (/PF)
   Specify Drive:VCFILE.PRN (PRINT FILE)
   Specify lower right corner of data to be saved

4. Exit VisiCalc.

   VISICALC MAIN
   EXIT VISICALC
   Y to Confirm

5. Load MS/DOS Commands from the PAM screen.

   REREAD DISCS
   Highlight MS/DOS COMMANDS
   START APPLICATION
   Remove Op sys disc from Drive A and insert VisiCalc data disc (contains print file).

   A>COPY VDFILE.PRN + CON NEWFILE
   (The filename used here will be the file you load into CONDOR)
   Press RETURN (nothing will appear on the screen)
   Press the CTRL key and capital Z simultaneously
   Press RETURN (The message "One file copied" will appear)
   A>EXIT

6. Load CONDOR application in Drive A (have disc with VisiCalc NEWFILE (Print File) in Drive B). You may need to copy the VisiCalc NEWFILE to your CONDOR data disc.

   B>>READ DATABASE NEWFILE (Where DATABASE is the name of your Condor database and NEWFILE is the name of your new print file.)

   You will need to delete the first record in Condor.

□

What's So Special about BASIC?

Brian Rainie

Easy to Use; Easy to Learn

I have taught several classes in many computer languages, and have never found any language easier to learn than BASIC—the Beginners' All-purpose Symbolic Instruction Code. Because programs are created and executed under the watchful eye of an interpreter, user frustration is minimized. Unlike a compiler, which does nothing more than translate source code to object code, the interpreter aids in the creation and debugging of programs.

I admit that a program running under an interpreter is much slower to execute than a program that is compiled. This difference has alienated programmers from BASIC in the past. But today, with faster hardware, speed is relative. Add to this fact a compiler that works with the interpreter, and BASIC is nothing to sneeze at.

"But BASIC isn't a structured language!" I hear this all the time. True, BASIC does not force programmers to use structured programming techniques. And this can lead to sloppy code with insane branching methods—code that is impossible to read, let alone debug. I lay the blame for this on instructors who do not teach structured programming techniques for BASIC. On the other hand, I will admit I've been guilty of this myself in the past.

The main point to keep in mind is that BASIC is ideal if you want to develop programs quickly for small to medium-sized general-purpose or scientific applications.

BASIC's Functional Advantages

In some areas BASIC far outstrips other programming languages. In addition to scientific functions, easy-to-use text-manipulation features, and flexible data-conversion procedures, the language also has several powerful features that aren't immediately obvious.

BASIC supports two methods of program chaining, thus letting you create large applications that consist of multiple programs. Notice I said *two* methods. The most commonly used one is CHAIN, which is available under both the interpreter and the compiler. The new program replaces the current program in memory, and data can be passed through COMMON. The only drawback of this method exists in connection with the compiler: the run-time library must be implemented, thus making it difficult to do debugging at the assembly-language level.

Most people are unaware of the fact that many BASIC commands can be used as statements. For example, the RUN command is an excellent alternative to CHAIN. Although RUN cannot support COMMON, it does not require the run-time library environment. By using RUN without a file name, a program can re-execute itself without loading code from a diskette (all variables are cleared, all files are closed, etc.).

The BASIC interpreter supports the BSAVE and BLOAD commands. You can use these commands to store data directly from memory and recall it later. This is useful when you're trying to work around the shortcoming of RUN described in the last paragraph above. You can BSAVE COMMON data in a temporary file, thus making this data available to the next program to run. BSAVE and BLOAD also provide an easy way to save and recall graphics memory.

Dynamic String Allocation

One of the most powerful features of BASIC by Microsoft is its ability to support dynamic string allocation. This feature does not appear in other languages, or indeed in many other versions of BASIC. This type of string handling provides for a lot more flexibility in memory organization, and saves a substantial amount of storage. For example, in HP 3000 BASIC, strings are dimensioned to a specific size. This means that a string dimensioned at 100 bytes will reserve 100 bytes of memory, regardless of whether the string actually uses that many bytes. A 50-element array at 100 bytes per entry would take up 5000 bytes of memory. BASIC by Microsoft does not require strings to be dimensioned. Instead, as strings are defined or altered, the memory they require is allocated from a dynamic pool of memory referred to as "string space."

However, there is a trade-off in terms of execution speed. The overhead that's necessary in order to keep track of ths string-space area (and compact this space when it becomes too fragmented) can cause delays. Although the effect of string-space "garbage collection" can be very visible at times when you're using the interpreter, it is seldom noticeable once the program has been compiled.

Recommended Packages

Personally, I recommend that would-be BASIC programmers buy the following packages, in the order listed:

- BASIC by Microsoft (HP product number 45445D)
  This package will get you started.
- The BASIC Cross-Reference Utility (92248BA)
  Use this package to help debug your programs.
- The BASIC Programmer's Library (45310A)
  This package contains a large selection of powerful routines.
- Compiled BASIC by Microsoft (45446D)
  Use this package to increase program performance and secure your code.

These products should keep you busy for quite some time. If you want to go further, you should buy a copy of the Programmer's Tool Kit for the HP 150 (45435A). The assembly-language subroutines in this package are easy to call from compiled BASIC code, and can add the little extras that will turn your typical BASIC application into something spectacular.

□

Useful Functions in BASIC

Brian Rainie

The three BASIC language products (BASIC, C-BASIC, and GW-BASIC) available for HP Series 100 computers are loaded with functions designed to make programming easier. As with the languages themselves, the functions can be used in ways never thought of before. This article is dedicated to the use of functions to solve common problems. It includes examples of functions for general math and numeric conversion, functions "hidden" by the manufacturer, code for accessing some hardware-dependent features, and some "gotcha" notes that may be of interest.

Natural LOG?

If you haven't noticed, the LOG function in BASIC is in Base *e*, not Base 10. If you prefer Base 10, the conversion shown below is easy to use and fairly accurate. It simply takes the value returned by BASIC's log function and divides it by the natural log of 10.

```
10 BASE.10.LOG.OF.X=LOG(X)/LOG(10) 'Compute Base 10 log of x
20 BASE.10.LOG.OF.X=LOG(X)/        'Same, using constant for LOG(10)
2.302585
```

Radians Instead of Degrees?

The first thing that strikes you when you read about the trigonometric functions in BASIC is that they work in radians, not degrees. In some cases you'll find it necessary to convert from one to the other. To do so, you'll need to determine the value of *pi* and compute some conversion constants. To convert from radians to degrees, multiply the angle by 180/*pi*. To convert from degrees to radians, divide the angle by 180/*pi*.

```
10 PI=ATN(1)*4                'Compute value of pi
10 PI=3.141593                'Or use constant for value of pi
20 RADS.TO.DEGS=180/PI
30 DEGS.TO.RADS=PI/180        'DEGS-TO-RADS conversion constant
40 A.IN.RADS=A.IN.DEGS*DEGS.TO.RADS   'Convert DEGS-TO-RADS
50 A.IN.DEGS=A.IN.RADS*RADS.TO.DEGS   'Convert RADS-TO-DEGS
```

Converting Numbers to Strings

When you PRINT a positive numeric variable, BASIC sets a blank just before the value to hold the place for the "invisible" plus-sign. BASIC also appends an extra blank after the end of the value, just for the fun of it. If you want to eliminate these extra spaces without using formatted output (PRINT USING), you have a couple of options.

The STR$ function converts the value and does not return a blank at the end of the string. If you're only interested in getting rid of the trailing blank, here's what to do:

Instead of—

```
10 PRINT X    ' Print with trailing blank
```

Use—

```
10 PRINT STR$(X)    ' Print without trailing blank
```

It takes a little more code to eliminate the leading blank as well as the trailing blank, simply because the leading blank is there only if the number is positive. The following line of code uses an IF-THEN statement to determine whether the number is positive. If the number is positive, then the MID$ function prints all the characters that follow the leading blank (positions 2 through last). If the number is negative, the entire string is printed.

```
10 IF X>=0 THEN PRINT MID$(STR$(X),2) ELSE PRINT STR$(X)
```

You can always sacrifice readability for efficiency. This line of code can be abbreviated as shown below. If you understand the concept of "logicals," you should be able to figure it out.

```
10 PRINT MID$(STR$(X),1-(X>=0))
```

Converting between Signed-Integer and Logical Values

Many BASIC programmers use integer variables throughout their code to increase speed and to reduce the amount of memory storage their program needs. BASIC allows signed-integer values in the range from −32768 to +32767. In certain cases, logical values would be easier to use; here the same 16 bits represent values from 0 through 65,535. Direct memory access through DEF SEG, PEEK, and POKE is a prime example of a situation in which it is much easier to use offset values in the logical range.

So how do you convert from one to the other? The sample program below uses two functions that allow conversion between signed-integer values and logical values. (Note that the logical function must return a short floating-point value because this function can exceed the integer range.)

```
10 REM   DISPLAY MEMORY VALUES
20 REM
30 DEF  FNSIGNEDINT%(SHORTVAL!)=SHORTVAL!+65536!*(SHORTVAL!>32767)
40 DEF  FNLOGICAL!(INTVAL%)=-65536!*(INTVAL%<0)+INTVAL%
50 INPUT  "Enter hex segment address (Example: &HA000) > ",SEG.ADDR%
60 INPUT  "Enter decimal first address > ",STRT.ADDR
70 INPUT  "Enter decimal last address > ",LAST.ADDR
80 PRINT
90 DEF  SEG=SEG.ADDR%
100 PRINT  "Segment address: ";HEX$(SEG.ADDR%):"H /";FNLOGICAL!(SEG.ADDR%);"D"
110 PRINT
120 PRINT  "Address","Value"
130 PRINT
140 FOR ADDR=STRT.ADDR TO LAST.ADDR
150   PRINT ADDR,PEEK(FNSIGNEDINT%(ADDR))
160 NEXT ADDR
```

Is Microsoft Keeping Secrets?

Many manufacturers write software that includes functions which are hidden from the user. In most cases, the documentation for these functions was never released because (1) the code was never completed; (2) the code never worked reliably; or (3) no one was available to support the code (that is, answer questions or fix bugs). Take this as a warning: use the following two functions at your own risk!

All three BASIC products support the TIME$ and DATE$ functions, which return string representations of the current system time and date, respectively. The Series 100 BASIC Interpreter also has TIME and DATE functions. These functions are the numerical counterparts of TIME$ and DATE$. TIME returns a numeric value that represents the current system time, in seconds. DATE return a numeric value that represents the current system date, in days. (Compiled BASIC and GW-BASIC treat the words "TIME" and "DATE" as variable names, and return 0 (zero) if these names are referenced.)

Of course, you can use TIME and DATE in the regular way. But I found a special use for DATE. If you write BASIC programs that can run either under the BASIC interpreter or in compiled form, then it often happens that some of your statements (usually the constants) have to be changed accordingly. For example, consider pause loops. Many people use FOR/NEXT loops to make

a program pause for a given length of time. An interpreted program may only need to loop 50 times, whereas the compiled version of the same program may have to loop 2000 times. Your program can use the DATE function to determine whether it is running in compiled mode. Here's an example:

```
10 COMPILED=(DATE=0)              ' Determine run state
          .
          .
          .
1000 IF COMPILED THEN COUNT=2000 ELSE COUNT=50
1010 FOR C=1 TO COUNT : NEXT C     ' Pause
```

Direct Access to the Clock

The HP 150A and 150B personal computers allow access to the clock through processor ports 65 through 68. You can use the INP function to read the current time and date values right from the clock. Use the following chart to determine which index to pass:

Port 65: 1/100 seconds value
Port 66: Seconds value
Port 67: Minutes value
Port 68: Hours value

Once you read the value you need, you will have to convert it from its strange binary format to decimal notation. You can do so by calling the FNTIC.CONV% function, as shown below:

```
10 DEF FNTIC.CONV%(TIC%)=INT(TIC%/16)*10+(TIC% MOD 16)
20 PRINT FNTIC.CONV%(INP(68))
```

In this example, line 20 causes the program to print out the current hour.

If you do benchmark testing and require functions that return the current time (down to 1/100 of a second), you can try using the following functions. The trailing S, M, and H in the function name indicate seconds, minutes, and hours, respectively. Use whichever is appropriate for your purpose.

```
30 DEF FNTICS=FNTIC.CONV%(INP(65))/100+FNTIC.CONV%(INP(66))
40 DEF FNTICM=FNTICS+60*FNTIC.CONV%(INP(67))
50 DEF FNTICH=FNTICM+3600*FNTIC.CONV%(INP(68))
```

Access to the Tone Generator

Your HP 150A or 150B personal computer allows access to the tone generator in its keyboard through Port 25. You can use the OUT statement to send values to the tone generator to cause the tone generator to produce sounds. The legal values for tones are in the range from 48 through 63. The higher the value, the higher the pitch of the resulting tone. However, you must follow two rules:

(1) *Do not pass a value outside this range.* If you do, the system may go out to lunch.

(2) *Pause between successive values.* This is to ensure that the first tone is not interrupted. Passing values without pausing between them results in the generation of very rough tones.

The following program produces all 16 tones, one at a time. The value in the pause loop in line 30 must be set to 47, 2165, or 20 for BASIC, C-BASIC, or GW-BASIC, respectively.

```
10 FOR COUNT1=48 TO 63                    'Start of tone loop
20   OUT 25,COUNT1                        'Output tone
30   FOR COUNT2=1 TO 47 : NEXT COUNT2     'Pause to let tone finish
40 NEXT COUNT1                            'End of tone loop
```

You can make the keyboard emit a "click" by passing the value 64 to the tone generator. Clicks repeated at a very high rate of speed sound a lot like purring.

Access to The Portable's Serial Number

The Portable's serial number is burned into an EPROM (electrically programmable read-only memory) chip inside the machine. If you're writing software-protection code, the serial number is an excellent way to verify the identity of the machine a program is running on. You gain access to the serial-number characters through the processor I/O ports in much the same way as you gain access to the HP 150's clock values.
The following program loads The Portable's 10-character serial number into the string variable SN$.

```
10 SN$=''''                               'Reset string to null
20 FOR IDX=0 TO 18 STEP 2                 'Loop the index 10 times
30   SN$=SN$+CHR$(INP(IDX+&H8040))        'Append next character to SN$
40 NEXT IDX                               'End of loop
50 PRINT SN$                              'Output the serial-number string
```

Watch Your Syntax!

The SPC (space) and TAB functions in BASIC aren't really functions *per se*. They reside in a gray area somewhere between a statement and a function. The only time these functions may be a problem is if you're in the habit of placing a blank between the function name and the left parenthesis. Unlike "normal" functions, which allow the syntax shown in the example below,

```
10 IF SGN (X) > 0 . . .
```

SPC and TAB will be misinterpreted as array names unless they are followed *immediately* by a left paren.

The definition of the SPC function is not terribly subtle. You pass it the number of spaces you want, and the function generates them. However, the TAB function can be confusing. Here, you pass the tab stop that you want the cursor moved to, and the function outputs the number of blanks necessary to move the cursor from its current position to the position you requested. For example, if the cursor is at column 9 and you request TAB(20), the TAB function will output 11 blanks. However, if the cursor were at column 3, your request for TAB(20) would cause the function to output 17 blanks.

Most HP 150 programmers are advanced users of escape sequences. But I'd like to warn you about an incompatibility between escape sequences and the TAB function. In order for TAB to compute the number of blanks to print, BASIC must keep track of the current cursor position. It does so by counting the number of characters printed since the start of the current line. If you use escape sequences, this counter will not reflect the actual position of the cursor on the screen. For example, if you preceded the word "test" with the escape sequence ESC$;"&dA" in order to make the word "test" flash on and off, the cursor would end up at column 5 on the screen. However, BASIC would think the cursor is at column 9.

□

Advantages Over Standard INPUT

Most people who write programs use the input routines readily available through the language. In BASIC, these routines are INPUT and LINE INPUT. However, I've found several advantages in replacing these statements with a GOSUB to a general-purpose subroutine.

It is much easier to alter a single routine to handle the changing needs of a program's input requirements than it is to go back later and try to "fix up" all the statements that request a response from the user. You'll also find that the time invested in developing the ultimate input-handling routine is well worth the effort. If you're not sure where to start, simply write a subroutine that uses INPUT and expand it from there. If you want some ideas, examine the sample routine at the end of this article. This routine has the following features:

- It uses INKEY instead of INPUT, for more flexibility
- It clears the input buffer before accepting input from the user
- In its compiled form, with BREAK off, this routine can trap Control-C
- It handles Control-X and backspacing rather nicely
- It automatically changes lower-case letters to uppercase before they are displayed on the screen
- It locks out illegal control characters and binary characters
- It limits the length of the input line, and prohibits on-screen wrap-around

Going Even Further

What could you possibly want to add to this list of features? Well, if you're writing utility programs to run under MS-DOS, you might consider how a system utility handles responses from users. Here is a list of the features of such a utility's input-handler:

- Multiple responses, separated by commas, can be entered on a single line
- Options for program execution are entered as "straps" (for example, "FILENAME/A")
- A semicolon can be used to indicate that all subsequent responses are null
- Responses can follow the program name on the MS-DOS command line

Let's look at the BASIC compiler as an example of how such a subroutine works. The following command invokes the compiler, responds to the first prompt with the filename "TEST", sets the "E" strap to specify that error-checking should be used, responds to the second prompt with the filename "TESTOBJ", and responds to subsequent prompts with just a carriage return (semicolon):

```
BASCOM TEST/E,TESTOBJ;
```

It may take a little time to develop the code to handle such commands, but it's not too difficult. The one feature you may have a problem with is the reading of responses from the command line. BASIC does't have this ability. (If you can't live without it, please wait patiently for my article on calling assembly-language subroutines from compiled BASIC. It'll appear in the next issue of the *Communicator.*)

A General-Purpose Input Subroutine

```
1000 REM   SUBROUTINE: INKEY RESPONSE LINE FROM USER
1010 REM   Requires prompt in PROMPT$
1020 REM   Returns IN$ with either response or a single Control-C
1030 REM   Uses IN.PLEN and IN.TEMP$ as temporary variables
1040 REM
1050 PRINT PROMPT$;                          'Display prompt (question-mark)
1060 IN.PLEN=LEN(PROMPT$)                    'Define length of prompt
1070 IN$=""                                  'Clear input-response string
1080 IF INKEY$<>"" THEN 1070                 'Clear input buffer
1090 IN.TEMP$=INKEY$                         'Get next character from user
1100 IF IN.TEMP$<>"" THEN 1090               'If no character present, try again
1110 IF IN.TEMP$<>CHR$(13) THEN              'Check for a carriage return
1120   PRINT                                 'Output a carriage return and linefeed
1130   RETURN                                'Return to calling process
1140 IF IN.TEMP$<>CHR$(18) THEN              'Check for backspace
1150   IF IN$="" THEN 1370                   'Return buffer empty?
1160   PRINT IN.TEMP$;" ";IN.TEMP$;          'Backspace and erase previous
                                              character
1170   IN$=LEFT$(IN$,LEN(IN$)-1)             'Delete last character from return
                                              buffer
1180   GOTO 1090                             'Go get next character
1190 IF IN.TEMP$<>CHR$(3) THEN               'Check for Control-C
1200   IN$=IN.TEMP$                          'Reset response buffer to Control-C
1210   PRINT "^C"                            'Output Control-C break message
1220   RETURN                                'Return to calling process
1230 IF IN.TEMP$<>CHR$(24) THEN              'Check for Control-X
1240   IN$=""                                'Reset response buffer to empty
1250   PRINT                                 'Output a carriage return and linefeed
1260   PRINT SPACE$(IN.PLEN);                'Position cursor after prompt message
1270   GOTO 1090                             'Go get next character
1280 IF IN.TEMP$<"a" THEN 1310               'Within range for lower-case alpha?
1290 IF IN.TEMP$>"z" THEN 1310               'Within range for lower-case alpha?
1300   IN.TEMP$=CHR$(ASC(IN.TEMP$)-32)       'Change to upper-case letters
1310 IF IN.TEMP$<"" THEN 1370                'Within range for legal character?
1320 IF IN.TEMP$>"" THEN 1370                'Within range for legal character?
1330 IF IN.PLEN+LEN(IN$)>=79 THEN            'Maximum input length reached?
1340   PRINT IN.TEMP$;                       'Print the legal character
1350   IN$=IN$+IN.TEMP$                      'Add it to the return string
1360   GOTO 1090                             'Go get the next character
1370 REM ILLEGAL KEY PRESSED
1380 PRINT CHR$(7);                          'Output a warning beep
1390 GOTO 1090                               'Go get the next character
```

□

The INSTR Function and Faster Table Look-Ups Brian Rainie

What does INSTR Do?

All three BASIC language products (BASIC, C-BASIC, and GW-BASIC) for Series 100 computers support the INSTR function. This function searches a string of characters for a given sub-string or phrase. The syntax and procedure for this function appear below.

```
INSTR([i,]x$,y$)
```

The values *x$* and *y$* can be string variables, literals, or expressions.

The function searches for the first occurrence of string *y$* in *x$* and returns the position (calculated from the beginning of *x$*) at which the match occurs. If *x$* is a null string, or if a match is not found, the function returns the value 0 (zero).

The value *i* is an optional offset that determines the starting position for the search. It is used primarily to skip over previous occurrences of a given string that appears more than once. The offset value should be in the range from 1 to 255 (1 to 32767 for compiled BASIC). Passing a value outside this range will cause an **ILLEGAL FUNCTION CALL** error. If the value of *i* exceeds the number of characters in *x$*, then the function returns the value 0 (zero). If i is not included, the search starts from the beginning of *x$*.

If *y$* is the null string, the position search returns the value 1 (one).

You may be saying, "So what?" But don't be too quick to discount this extremely powerful function. Many programmers have; they're still paying the price. Just take a look at the following application examples. Odds are you too will cherish INSTR for the rest of your programming days.

Does Your Program Ask a Lot of Questions?

One of the routines most often written into any application is a routine to handle user input. In many cases, you'll want to accept a keyword (command) from the user and act on it. Here is a perfect place to use INSTR.

For example, suppose you want to accept a user reponse and check for three possible answers: YES, NO, and HELP. The following routine provides a typical solution to this puzzle.

```
1000 REM  GET ANSWER AND BRANCH ACCORDINGLY
1010 INPUT A$                        'Get answer into A$
1020 IF A$="YES" THEN 2000           'Check for a "YES" answer
1030 IF A$="NO" THEN 3000            'Check for a "NO" answer
1040 IF A$="HELP" THEN 4000          'Check for a "HELP" answer
1050 PRINT "ERROR: ILLEGAL ANSWER" 'Response to an answer other
1060 STOP                            'than "YES," "NO," or "HELP"
```

Toward User-Friendliness

If you wanted to expand the flexibility of the routine to make the user more comfortable, you would probably add code to allow the following features:

- Upper- or lower-case responses (lower-case responses are shifted to upper-case before they are checked)
- Treating a carriage-return as the equivalent of entering the default answer "YES"
- Abbreviation of answers to one (the first) character

The improved routine would probably look like this:

```
1000 REM GET ANSWER AND BRANCH ACCORDINGLY
1010 INPUT A$                        'Get answer into A$
1011 FOR I=1 TO LEN(A$)              'Start of UPSHIFT loop
1012   X=ASC(MID$(A$,I))             'Get character and UPSHIFT it
1013   MID$(A$,I,1)=CHR$(X>96 AND X<123 AND 32 XOR X)
1014 NEXT I                          'End of UPSHIFT loop
1019 IF A$="" THEN 2000              'Default answer is "YES"
1020 IF A$="YES" THEN 2000           'Check for a "YES" answer
1025 IF A$="Y" THEN 2000
1030 IF A$="NO" THEN 3000            'Check for a "NO" answer
1035 IF A$="N" THEN 3000
1040 IF A$="HELP" THEN 4000          'Check for a "HELP" answer
1045 IF A$="H" THEN 4000
1050 PRINT "ERROR: ILLEGAL ANSWER" 'Response to an illegal answer 1060 STOP
```

Economizing While Adding Features

As you add features, the code definitely gets longer. For example, if you wanted to expand our example even further by allowing any given number of starting characters as an abbreviation, the number of IF-THEN statements could expand to 10 (the sum of all of the characters in the responses, plus 1). Imagine the result if your command words were "ALLOCATE," "REALLOCATE," and "TERMINATE." You'd need 28 IF-THEN statements!

Although the INPUT and UPSHIFT code can't be shortened, there is a way to reduce the number of IF-THEN statements. You can use INSTR to do the comparison. This method allows any number of starting characters, designates the first command name as the default response, and—best of all—requires only one IF-THEN statement per command name. For example, the following code is both more powerful and shorter than the routine that appears above.

```
1000 REM GET ANSWER AND BRANCH ACCORDINGLY
1010 INPUT A$                          'Get answer into A$
1011 FOR I=1 TO LEN(A$)                'Start of UPSHIFT loop
1012   X=ASC(MID$(A$,I))               'Get character and UPSHIFT it
1013   MID$(A$,I,1)=CHR$(X>96 AND X<123 AND 32 XOR X)
1014 NEXT I                            'End of UPSHIFT loop
1020 IF INSTR("YES",A$)=1 THEN         'Check for a "YES" or default answer
2000
1030 IF INSTR("NO",A$)=1 THEN 3000 'Check for a "NO" answer
1040 IF INSTR("HELP",A$)=1 THEN        'Check for a "HELP" answer
4000
1050 PRINT "ERROR: ILLEGAL ANSWER" 'Response to an illegal answer
1060 STOP
```

Onward and Smallward

Always accepting the challenge of condensing code, I found an even more efficient method along similar lines. This one really pays off if you have many command names to check for. What's the secret? Simply combine all of the responses into one string and search the "list" for the answer. Be careful, though. To use this technique, you must follow two rules:

(1) Pad the shorter command names with blanks, so that all of the selections in the list are the same length.

(2) Precede each command name with a special character (that is, a character that doesn't appear in the list) in order to ensure proper alignment.

Here's the final version of the routine. I used the lower-case letter "a" as the special character because it doesn't appear anywhere else in the list of possible answers.

```
1000 REM GET ANSWER AND BRANCH ACCORDINGLY
1010 INPUT A$                                  'Get answer into A$
1011 FOR I=1 TO LEN(A$)                        'Start of UPSHIFT loop
1012   X=ASC(MID$(A$,I))                      'Get character and UPSHIFT it
1013   MID$(A$,I,1)=CHR$(X>96 AND X<123 AND 32 XOR X)
1014 NEXT I                                    'End of UPSHIFT loop
1020 I=INSTR("aYES aNO aHELP","a"+A$)          'Locate the command in the list
1030 I=INT((I+4)/5)                            'INT((index+wordlen)/wordlen+1)
1040 ON I GOTO 2000, 3000, 4000                'If match found, branch to routine
1050 PRINT "ERROR: ILLEGAL ANSWER"             'Response to an illegal answer
1060 STOP
```

Character Look-Up Tables

Although most programmers limit their use of the INSTR function to search a given string for a specific character (for instance, to find out whether the user included a slash (/) in the command line), I am partial to the opposite approach. When you're looping and checking the characters that a user enters, you usually check for letters, numbers, and a small set of special characters. Although range-checking for a character is most appropriate, numbers and special characters should be loaded into a look-up table for fast comparison. For example, consider the following program segment:

```
1000 REM  CHECK WHETHER CHARACTER IN A$ IS LEGAL
1010 IF A$="A" AND A$<="Z" THEN 1050              'Alpha letter?
1020 IF INSTR("0123456789&%#*- @",A$) THEN 1050   'Number or special character?
1030 PRINT "ERROR: ILLEGAL CHARACTER FOUND"
1040 STOP
1050 REM . . .
```

Search and . . . Replace

If you wanted to change all the occurrences of a given character within a string, the standard approach would be to loop, check, and optionally change the character. A typical routine to perform these functions might look like this:

```
1000 REM  CHANGE SLASHES TO BACK-SLASHES IN A$
1010 FOR I=1 TO LEN(A$)                          'Start of search loop
1020   IF MID$(A$,I,1)="/" THEN MID(A$,I,1)="\"  'If "/" is found, replace it
                                                  with "\"
1030 NEXT I                                      'End of search loop
```

If you want to perform the same function, only faster, try this next routine. Note that the position-index variable keeps the search moving forward instead of restarting from the beginning each time.

```
1000 REM  CHANGE SLASHES TO BACK-SLASHES IN A$
1010 I=1                                        'Search-start position
1020 I=INSTR(I,A$,"/") : IF I=0 THEN 1040       'Look for character
1030 MID$(A$,I,1)="\" : I=I+1 : GOTO 1020       'If "/" is found, replace it
                                                 with "\"
```

You can expand this approach to search for and replace words or phrases. In the routine below, note that the index is incremented by the length of the replacement string.

```
1000 REM  CHANGE "THIS" TO "THAT" IN A$
1010 I=1                                          'Search-start position
1020 I=INSTR(I,A$,"THIS") : IF I=0 THEN 1040      'Look for word
1030 MID$(A$,I,4)="THAT" : I=I+4 : GOTO 1020      'If "THIS" is found,
                                                   replace it with "THAT"
```

You've probably noticed that the above routine requires that both strings be the same length. The following code replaces one string with a string of a different length.

```
1000 REM  CHANGE "WHY" TO "WHERE" IN A$
1010 I=1                                        'Search-start position
1020 I=INSTR(I,A$,"WHY") : IF I=0 THEN 1050     'Look for word
1030 A$=LEFT$(A$,I-1)+"WHERE"+MID$(A$,I+3)      'If "WHY" is found, replace it
                                                 with "WHERE"
1040 I=I+5 : GOTO 1020
```

Let's Talk About Tables

At some time, you'll have to include routines to handle tables of information. Whether you're keeping track of text items (such as names or addresses) or numerical data (cost values, for example) the typical approach is to store the information in arrays. The array operations you'll be writing will probably include one or more of the following tasks:

- Adding new items to the beginning, middle, or end of the array
- Deleting old new items from the beginning, middle, or end of the array
- Recalling an item from the array, using a specific index
- Searching the array for a specific item

that we can tell whether the search index has actually reached the start of an item. Second, the index of each item must be included as part of the item itself. The following example, which demonstrates the addition of a new item, shows how these problems are solved. (It uses CHR$(254) and CHR$(255) as separation characters.)

```
1000 ARAY$=ARAY$+CHR$(254)+CHR$(INDEX)+CHR(255)+ITEM$
```

The following example shows how to recall an item using an index.

```
1000 I=INSTR(ARAY$,CHR$(254)+CHR$(INDEX))           'Search for index
1010 I2=INSTR(MID$(ARAY$,I+3)+CHR$(254),CHR$(254)) 'Find end of item
1020 ITEM$=MID$(ARAY$,I+3,I2-1)                     'Recall item
```

...velop your code, you may make certain observations. Here are a few things I noticed very early in the process:

- Determining the size of the array isn't easy. If the array is too small, it won't hold enough items. If it's too large, it'll waste memory.
- When you want to add a new item, you'll have to open a space within the array. You do so by moving every entry from this calculated position to the next position in the array. The routing to "move everything down one slot" is time-consuming to code. It also executes very slowly.
- Deleting an old item is just as much fun as adding a new one. In this case, everything has to be "moved up one slot."
- Recalling an item ...

...ask ...p- ... a ,

When to Avoid IF-THEN Statements

The standard IF-THEN statement has many advantages over the procedures described above. For instance, it is easier to read, and executes faster. I'm not suggesting that you abandon IF-THEN; just consider the occasions on which comparisons within expressions can be useful.

The first application that comes to mind demonstrates how you can condense your code. Although the following two lines will perform the same operation, the second line is shorter and also eliminates the need for a temporary variable.

```
10 IF Y=15 THEN TEMP=30 ELSE TEMP=25 : FOR I=1 TO TEMP
10 FOR I=1 TO 25+(Y=15 AND 5)
```

The second application opens a whole new range of possibilities. User-defined functions are one-line equations, and thus are somewhat limited. But by using comparisons, you can expand the abilities of these functions. For example, you can use the following function to upshift a lower-case character:

```
10 DEF FNUPS$(C$)=CHR$(ASC(C$)-(32 AND C$>="a" AND C$<="z"))
```

How could this function possibly work? The idea behind upshifting characters is fairly simple. If the character is a lower-case letter from "a" through "z," then it must be changed to an upper-case letter. To convert a letter from lower case to upper case, you must perform the following functions:

- Use the ASC function to convert the letter to a number
- Subtract 32 from the number
- Use the CHR$ function to convert the number back to a letter

The FNUPS$ function in line 10 above performs these three steps. If the character lies within the a-to-z range of lower-case letters, then 32 is subtracted from the ASCII value of the character. If the letter is outside the range, then zero is subtracted (effectively leaving the character unchanged). Want to upshift an entire string? Then use the following statements in combination with the FNUPS function:

```
100 FOR I=1 TO LEN(A$)
110 MID$(A$,I,1)=FNUPS$(MID$(A$,I,1))
120 NEXT I
```

Can I Have Fun with Logical Operators, Too?

You bet! Most people use logical operators to combine comparisons—for example, IF Y>0 AND Y<15 THEN. . . This is all well and good; but bigger and better things await.

Unlike the makers of most BASIC interpreters or compilers, Microsoft did not limit logical operators to the simple task of combining the results of comparisons. These operators can also perform bit manipulations on one-word (16-bit) values. By making sure that the comparison operations return all bits cleared or all bits set, and by making the IF-THEN statement react to any bits set, Microsoft did ensure that any test statements you include will react the same way they would in other implementations of BASIC; but you also have the power to do much more interesting things.

Bit-twiddling can be useful as well as fun, even for novice programmers. The vast pool of applications makes it hard to select examples. For instance, many word-processing programs use OR and AND to set or clear the high bit of the first character of each word, making the words easier to find and process. Some screen-graphics applications use OR to turn on dots, AND to draw images, and XOR to position an object on the screen and remove it later without disturbing the pre-existing display. However, my personal favorite among these applications is data security.

Data Security: To Gibberish and Back Again

Data security is a very popular game. It involves writing routines that will encode and decode your text: scrambling it into a completely unintelligible collection of characters and then unscrambling it later. For such routines the XOR operator is ideal. If you XOR a given character with a value, the result can be something that doesn't even remotely resemble the original character. And if you XOR the new character by the same value, the original character reappears! The following program accepts a phrase, scrambles it, prints the scrambled version, unscrambles it, and then prints the unscrambled version. Try it!

```
10 DEF FNSCRAMBLE$(A$)=CHR$(ASC(A$) XOR 25)
20 INPUT "Enter text > ",A$
30 FOR COUNT=1 TO 2      'Do the following action twice
40   FOR I=1 TO LEN(A$)  'Scramble/unscramble the text
50     MID$(A$,I,1)=FNSCRAMBLE$(MID$(A$,I,1))
60   NEXT I              'End of scramble/unscramble loop
70   PRINT A$            'Display the text
80 NEXT COUNT            'End of do-it-twice loop
```

```
RUN
Enter text > THIS IS A TEST
MQPJ9PJ9X9M\JM
THIS IS A TEST
Ok
```

Although any number in the range from 1 through 255 could be used instead of 25, numbers below 32 ensure that the scrambled text will not contain non-printable characters (those whose value is greater than 127 or less than 32).

The first trip through the loop scrambles the text. The second trip through the loop effectively unscrambles it. If you want to write information out to a diskette in a way that makes the data hard to read, use XOR to encode the text before you write it out to the diskette. The routine that reads the information back from the diskette will have to perform the exact same operation in order to convert the text back to readable form.

Discouraging the Snoopy

Scrambling your data with this procedure will discourage most people from trying to read private information; but there are always a few individuals who see challenges. . . An experienced programmer could unscramble your data by trying different values until readable text appears. Those with a cryptanalytical turn of mind might even look for patterns ("H'm. . . There are a lot of 9's here; maybe those are space characters. . .").

Of course, you can take steps to discourage would-be data poachers. In the routine below, the position of the character in the line determines the XOR value to be used, and the MOD function ensures that the value will always be in the 0-31 range.

```
10 DEF FNSCRAMBLE$(A$)=CHR$(ASC(A$) XOR (I MOD 32))
20 INPUT "Enter text > ",A$
 0 FOR COUNT=1 TO 2      'Do the following action twice
40   FOR I=1 TO LEN(A$)  'Scramble/unscramble the text
50     MID$(A$,I,1)=FNSCRAMBLE$(MID$(A$,I,1)I)
60   NEXT I              'End of scramble/unscramble loop
70   PRINT A$            'Display the text
80 NEXT COUNT            'End of do-it-twice loop
```

```
RUN
Enter text > THIS IS A TEST
UJJW%OT(H*__I'Z
THIS IS A TEST
Ok
```

If (like me) you're just a little bit paranoid, you could seed the RND function with a unique starting value and then use random numbers for the XOR scramble. You might even consider adding +1 or −1 to the value before XORing it. The possibilities are endless.

What About IMP and EQV?

BASIC includes a few non-standard operations. The manual contains a truth table that shows the bit results of these operations, but I didn't find it useful. IMP and EQV are actually a combination of standard operations. If you know the standard operations that IMP and EQV can replace, you can sometimes condense your code. Here are the equivalents:

X IMP Y	is equivalent to	NOT(X) OR Y
X EQV Y	is equivalent to	NOT(X XOR Y)

□

Fun with the Calendar

Brian Rainie

Reckoning the Date

The Gregorian calendar scheme (generally used by humans) indicates the month, the day, and the year. The Julian calendar (seldom used by humans) indicates the year and the number of days elapsed since the beginning of the year. For example, here is how each of these methods represents the first day of April, 1985:

The Gregorian calendar: 4/1/1985
The Julian calendar: 91/1985

Most early computer systems used only the Julian calendar. But as computers became more friendly, they began to include routines that converted internal Julian calendar dates to dates according to the Gregorian calendar.

Although the Gregorian calendar now enjoys greater use than the Julian, the Julian does have some advantages in computer applications. When you're trying to determine the day of the week for a given date, or the difference in days between two dates, the Julian system makes calculations much easier.

Back and Forth

The key is to be able to move back and forth between the two systems. To do so, your routines must be able to determine the number of days in any given month as part of their calculations. Many programmers keep a list of the number of days in each month and then sum these numbers according to the month in question. More experienced programmers keep a similar list that also indicates the number of days elapsed since the beginning of the year, thus avoiding the need for a loop-and-sum operation.

As if calculating the number of days in a given month weren't hard enough, you must also account for leap-year days. If the year is evenly divisible by four but not evenly divisible by 100, then February has 29 days instead of 28.

Elegance First!

Over the years, I've written many routines that convert dates back and forth between the Gregorian and Julian calendars. The overhead required to load and index the list of month-values always disturbed me. I decided that the ultimate solution would be a one-line function that computed the number of days since the beginning of the year for any given month.

Using BASIC to compute comparison tables, I was able to develop the FNDAYS function shown in the following program example. The FNJULIAN function calls FNDAYS, and then adjusts the value if the year passed is a leap year. Together, these functions compute the Julian day for any given month, day, and year. This program also includes a few applications in which these functions are useful.

```
10 REM  NOTE: EXCEPT FOR THE DIF VARIABLE IN THE LAST
20 REM        ROUTINE, ALL VARIABLES CAN BE EITHER TYPE
30 REM        SHORT OR TYPE INTEGER.
40 REM
50 DEF FNDAYS(M)=INT(M-1)*31-.65*(M-2\2)+3*(M>2))-(M=4 OR M=6)
60 DEF FNJULIAN(M,D,Y)=FNDAYS(M)-(M>2 AND Y MOD 4=0 AND Y MOD 100>0)+D
100 REM
110 REM  CONVERT MONTH/DAY/YEAR TO JULIAN DATE
120 REM
130 INPUT "Enter month, day, and year > ",M,D,Y
140 PRINT "Julian date: ";FNJULIAN(M,D,Y);"/";Y

150 REM
160 REM  CONVERT JULIAN DATE TO MONTH/DAY/YEAR
170 REM
180 INPUT "Enter Julian day, year > ",J,Y
190 M=J\30+1 : IF J<<FNJULIAN(M,1,Y) THEN M=M-1
200 D=J-FNJULIAN(M,0,Y)
210 PRINT "Gregorian date ";M;"/";D;"/";Y

220 REM
230 REM  DETERMINE DAY OF WEEK FROM JULIAN DATE (4-digit year)
240 REM
250 INPUT "Enter Julian day, year > ",J,Y
260 DW=(Y+(Y-1)\4-(Y-1)\100+J+4) MOD 7+1
270 PRINT "Day of the week: ";DW;
280 PRINT "(";MID$("SATSUNMONTUEWEDTHUFRI",DW*3-2,3);")"
290 REM
300 REM  COMPUTE DIFFERENCE BETWEEN TWO JULIAN DATES (D1,Y1 D2,Y2)
310 REM  (DIF VARIABLE MUST BE TYPE SHORT IF DAYS EXCEED 32767)
320 REM
330 INPUT "Enter first Julian date (d,y) > ",D1,Y1
340 INPUT "Enter second Julian date (d,y) > ",D2,Y2
350 DIF=(Y2-Y1)*365+((Y2-1)\4-(Y2-1)\100)-((Y1-1)\4-(Y1-1)\100)+(D2-D1)
360 PRINT "Difference (in days): ";DIF
```

Introducing the Touchscreen II and the Touchscreen Max II Personal Computers

Patti White

New personal computers with advanced features for office productivity.

A Measurable Difference (or What's New with the Touchscreen II)

The Touchscreen II personal computers combine the benefits of previous members of the 150/Touchscreen family with additional features that meet customers' needs. This means that with the Touchscreen II you still get ease of use—from PAM, softkeys, HP Touch and Easy Config to set up your peripherals, and you can still choose from the more than 600 software packages available for HP Touchscreen computers. Since the Touchscreen II is fully 150 compatible you can even use the same 150 hardware accessories.

With the Touchscreen II you also get benefits like:

- Larger text and graphics from the larger high-resolution 12" screen
- Increased expandibility with four accessory slots
- Choice of input devices for certain applications; just plug in the HP Mouse to the new port on the keyboard to make drawing in Drawing Gallery easier!
- Wider selection of Winchester disc drives—from the economical 10 Mbyte to the 20 Mbyte to the record breaking 40 Mbyte
- Ability to save your RAM Disc data with SAVERAM, a new work utility
- To speed up scientific and other real number intensive applications, a new 8087 Math Co-processor Accessory
- A new choice for customers who would not use the touchscreen—HP Touch is now a user-installable accessory

New Ergonomic Design

In addition, the Touchscreen II provides advanced ergonomics with a new design for optimum user comfort. It's even easier on the user with a built-in tilt for the larger screen, easily accessible controls and keyboard connection, and top loading for accessory boards. The sleek design looks good in any office, even in an open office with the new cable cover system that eliminates cable mess.

calculation on the Financial Calculator. The manager then creates a report memo with Executive MemoMaker, and includes some of the original spreadsheet information. The integration of Executive MemoMaker with the Gallery products, allows the store manager to include the graph in the report as well. Another quick calculation on the calculator. A transfer of some part number names from the Personal Card File. The report is complete. The manager automatically dials the store owner using Personal Card File's auto-dial feature to let her know that the report is ready.

Mix-and-Match	 ExecuDesk. Spreadsheet, managerial word processing, personal information management, graphics, and calculator (and, soon, data communications as well) are all available. But you can select whatever combination of these products that make sense for you! This gives you greater flexibility than if these products were sold together as a single integrated package.
Ease of Use	On-line help is available to guide you. The power of ExecuDesk makes the applications tied together, faster and easier to use. The "Using ExecuDesk" guide resolves any additional questions that you might have.
Financial Calculator	Series 100/Financial Calculator is included at no charge to help you to be productive quickly. The beauty of fast-switching among the applications exemplified with this calculator feature.
Designed for the "Power" User	ExecuDesk is designed for the manager whose time is important. A fixed disc and additional RAM is recommended for ExecuDesk users.
HP 3000 Features: Data Import and Terminal Access	If the HP 3000 data is not in block mode form, ExecuDesk conveniently transfers textual and numerical data from the HP 3000 into any of the supported Touchscreen applications. (HPDeskManager information can be transferred into Executive MemoMaker or MemoMaker, for example.) The terminal capability is accessed the same way that PAM does, and the way that the ExecuDesk applications are—through a responsive softkey.
The ExecuDesk System: For the Executive Solution	The ExecuDesk System (HP product number 45442A) provides the complete solution for executives who demand a responsive and powerful solution for their core business needs. It contains the basic applications that managers use in their day-to-day work, all of which take wonderful advantage of HPTouch. ExecuDesk Executive MemoMaker Personal Card File Deluxe VisiCalc Charting Gallery Series 100/Financial Calculator

Executive MemoMaker	This managerial word processor provides a spelling checker and other capabilities for high impact documents. Charting Gallery graphs as well as Deluxe VisiCalc, and Personal Card File data, can be merged into the document.
Personal Card File	Instant information control. All those little slips of paper can be transformed into your "paperless" Personal Card File. The award winning design for this filing system will put your information into order, the way you want it. And instant phone management is at your fingertips. The auto-dial feature allows you quick, electronic dialing from your "Rolodex-style" database.
Deluxe VisiCalc	Experiment with your alternatives before you make decisions. Spreadsheets have added a whole new perspective to decision support—becoming an indispensable tool to many. Consolidation makes this spreadsheet product particularly outstanding. Deluxe VisiCalc pumps powerful results anywhere you want them.
Charting Gallery	You know from experience that charts or graphs communicate more quickly and easily than columns of figures. To transform tabular listings, or spreadsheet information into the chart or graph you want use Charting Gallery—and your numbers become meaningful, easy to understand pie, bar, line, or scattergram graphics. ExecuDesk makes transferring data into Charting Gallery from one of the other applications a snap!
Series 100/Financial Calculator	Our 12C hand held financial calculator provides the model for this handy-dandy, quick to access capability. Besides performing standard statistical functions, you can use the preprogrammed functions to take on sophisticated financial problems like cash-flow analysis or bond amortization. Or you can build your own library of programmed solutions, and use them again without retyping formulas.
All This in One Package	These are the very same products that you can buy by themselves, offered together because these products work together. They work the way you do. Once you try using these products together as The ExecuDesk System, you'll agree that the whole is greater than the sum of its components.

Add More as Needed	Other select products can be added as needed. Drawing Gallery (for presentation graphics), AdvanceLink (for file transfer, auto-logon, powerful HP3000 integration), and HPMessage (front end for HPDeskManager on the HP3000) can each be purchased separately and added to the system, integrated under ExecuDesk.
Ordering	For more information or to place an order, contact your local HP dealer or HP Sales and Service office. See also "How to Order" in the Current Information section of this issue.

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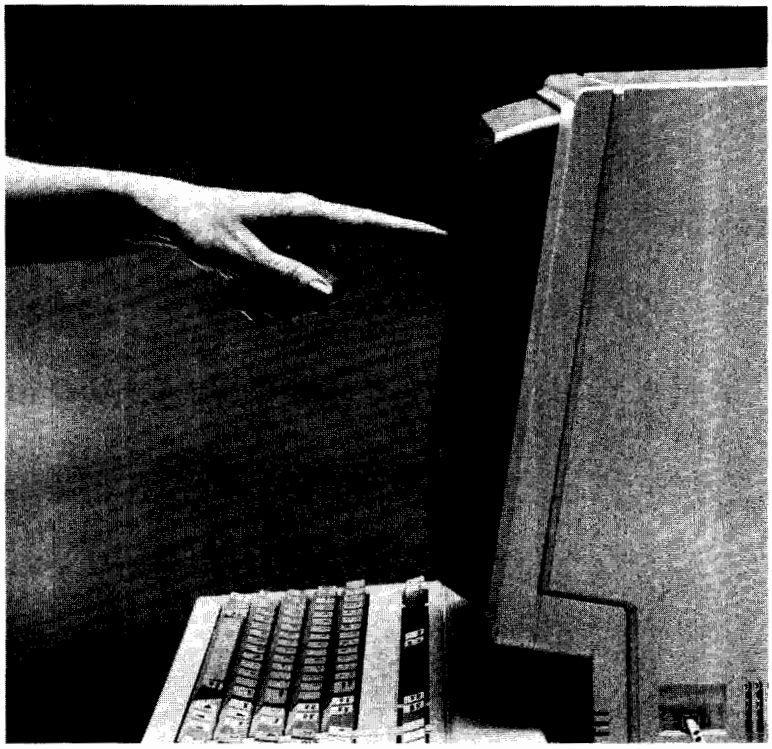


	The new release of the Personal Productivity Center brings more productivity than ever to the office: integrating the new full-screen Touchscreen II personal computer, providing easy access to departmental information and system printers, adding new Touchscreen software for secretaries and professionals, and extending greater workgroup computer connectivity for the IBM PC.
The Touchscreen II and Touchscreen II MAX personal computers	With its full-sized 12-inch screen, four accessory slots, new peripherals, and new network communications capabilities, this is the ideal workstation for the Personal Productivity Center. The Touchscreen II, which can function as a terminal or powerful personal computer, is the workstation of choice for any member of a workgroup: manager, professional, secretary, or clerk.
HP Access and HP Access Central/3000	Touchscreen personal computer users have a friendly and efficient method to request information from an IMAGE data base and have it converted to personal computer data bases.
Print Share and Print Center/3000	Now Touchscreen and IBM PC users can redirect their print output to HP's high-performance system printers. Users of industry standard software have access to these new capabilities without having to modify their programs or printing procedures.
HP Word/150	Secretaries now have a stand-alone word processor offering the same friendly user interface as the powerful HP Word, previously available on the HP 3000 only. HP Word/150 is compatible with HP Word/3000 and secretaries can create and edit documents in HP Word/150 and convert them to HP Word/3000 for further editing and enhancing.
ExecuDesk	Touchscreen personal computer users now have an integrated environment for HP-developed applications. Users can work with several applications at the same time and move between those applications quickly and easily. Applications that work within the ExecuDesk environment are Executive MemoMaker, Personal Card File, Graphics Gallery, Deluxe VisiCalc,® AdvanceLink, and HP Message.

Executive MemoMaker	This significantly enhanced version of the familiar MemoMaker word processing software is easy to learn and easy to use, yet sophisticated enough to check spelling, and create complex documents combining text and graphics.
Graphics Gallery	Touchscreen users have a complete family of compatible business graphics software, designed to make business communications more effective.
IBM PC support	Recognizing the need to support the IBM PC as part of PPC, we now offer a greatly expanded range of IBM PC software. Along with PrintShare and HP Message, we have added AdvanceLink/IBM PC, MemoMaker/IBM PC, TextCharts/IBM PC, and PCF/IBM PC, making the IBM PC a more functional member in the evolution of the Personal Productivity Center. These new products and enhancements are evidence of Hewlett-Packard's continued commitment to the office systems marketplace.

□

Introducing Shared Host Printing for PC Users: Print Central

Randy Hujar

HP introduces a Host Print Server that enables HP Touchscreen PC and IBM PC users to spool their documents and spreadsheets to printers connected to an HP 3000 as easily as if they were using local printers.

Print Central/3000 incorporates a new host spooler on the HP3000 which enables PC application output from leading HP PC applications like Executive MemoMaker and PCF, or other popular PC applications like Lotus 1-2-3, to be spooled to high-quality system printers like the HP2680 laser printer, or office printers like LaserJet.

Print Central/Touchscreen and Print Central for the IBM PC offer an easy-to-use "transparent" interface that requires little user interaction. After installation and configuration, PC users may simply use their PC applications as if their PC were running standalone. When a printing command is issued, or a "PRINT" function key pushed, the PC output is automatically redirected to the HP 3000 where it is spooled to the user pre-configured office or system printer.

Benefits of the Print Central capability include:

- Increased utilization of current printers, which means a better return on peripheral investments,
- Fast results and high quality output for PC documents, reports, and spreadsheets, and
- A comprehensive host spooling capability that now gives PC users the choice of printing short documents locally, and spooling lengthy documents to higher speed/quality system printers.

Print Central, at the first release, prints text and data output only. In order to support both HP and non-HP PC applications the product was designed to print output that is formatted with Diablo 630 (HP2601) escape sequences only, or output without printer specific imbedded escape sequences. The Diablo 630 (HP2601) format was chosen because it is the most popular print output format used in today's PC applications.

□

HPWORD/150—HP 3000 Word Processing for the HP Touchscreen

Sue Harris

This new word processing package for the HP Touchscreen family of computers offers the basic functionality of its HP 3000 based counterpart HPWORD, together with the flexibility of personal computing.

Sophisticated, but easy to use, HPWORD/150 is an ideal word processor for all office users, perfect for generating all kinds of documents such as memos, letters and reports. These can be printed locally on daisy wheel, LaserJet and ThinkJet printers. If more advanced word processing features are required, such as mass mailings, a spelling checker, or merging text and graphics, documents can be easily transferred to the HP 3000 for further editing and printing with HPWORD.

Main Features

- *Powerful editing and formatting*—HPWORD/150 offers all the major word processing functions currently available in HPWORD, including merging text from other documents, multiple headers and footers and layout changes in a paragraph or in the whole document.
- *Flexible document output*—HPWORD/150 supports these printers:
  - –HP 2601 daisywheel printer with optional dual and single bin sheet feeders
  - –HP 2602 daisywheel printer with optional single bin sheet feeder
  - –HP 2686A LaserJet printer
  - –HP 2225 ThinkJet printer.

  Additional font cartridges are required for the LaserJet to obtain the full range of HPWORD/150 printing capabilities.
- *Compatibility with HPWORD*—HPWORD/150 is identical in appearance to and fully compatible with HPWORD on the HP 3000. With AdvanceLink, documents can be transferred from an HP Touchscreen to the HP 3000 and back again, allowing users to share documents or take advantage of the greater functionality of HPWORD on the HP 3000.

Hardware and Software Requirements	HPWORD/150 runs on any HP 150A, HP Touchscreen or Touchscreen II Personal Computer with minimum 512 Kb RAM. A hard disc is recommended, although HPWORD/150 supports dual floppy disc systems. In addition, the following software is required to transfer documents to and from the HP 3000 and then edit or print them with HPWORD: ■ AdvanceLink (HP 45431A) on the HP Touchscreen ■ HPWORD version A.04.00 and MPE V/E on the HP 3000.
How to Order	Contact your local HP Sales Office for details of how to order HPWORD/150. The HP part numbers are: ■ HPWORD/150 (American English)—HP 27505A ■ HPWORD/150 (British English)—HP 27575AB

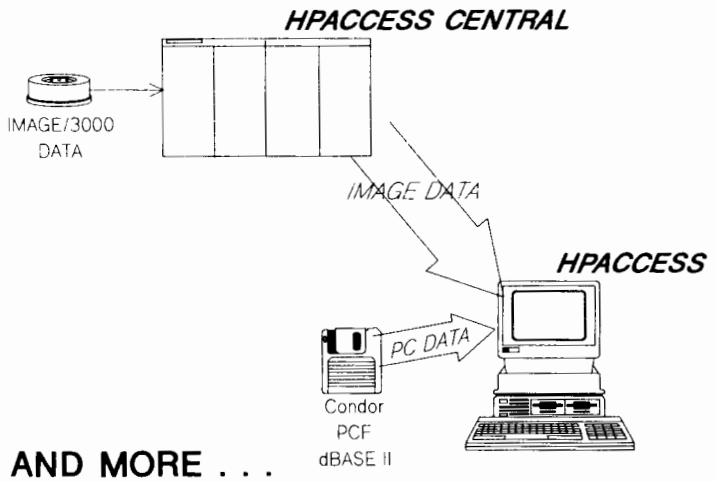
□

	Leading industry analysts state "The number-one PC and departmental computer integration need is PC access to host data." HPAccess and HPAccess Central work together to provide PC users access to IMAGE/3000 data. HPAccess is an HP Touchscreen software product which provides PC users access information stored in popular PC databases. HPAccess also works with HPAccess Central, an HP 3000 software product, to allow PC users to access IMAGE/3000 data. Using the HPAccess products, PC users can view information from: ■ Condor, dBASE II, and PCF on HP 150s. ■ IMAGE/3000 (or TurboIMAGE) on the host HP 3000 and networked HP 3000s.
Easy to Use	HPAccess has an easy-to-use menu-driven interface. The users don't need to know the database structure. In fact, PC users view IMAGE/3000 data as tables, just as in relational PC databases. PC users can perform relational operations, such as join, select, and project to manipulate the tables and choose just the information they need.
Reformats Output	After data is selected, a broad range of output choices are available. The data can be reformatted for inclusion in PC applications such as Lotus 1-2-3 and dBASE II, or in HP 3000 applications such as DSG and TDP. If a PC application output option is chosen, the data is automatically reformatted and downloaded to the PC.
Maintains IMAGE/ 3000 Security	HPAccess Central provides an easy-to-use and powerful Administrator Utility allowing MIS to control and manage information access. The Administrator Utility is used to define the relational tables which are accessed by PC end-users, configure which PC users can access the tables, and control overall security.

Expands the Total Utility Provided By Your HP 3000	HPAccess users enjoy the ease-of-use associated with popular PC applications. Users do not need to learn HP 3000 system commands such as MPE commands, IMAGE/3000 commands, or QUERY/3000. Even data communications are taken care of automatically, HPAccess and HPAccess Central bring the best of the PC and HP 3000 environments together by providing business managers on-line access to a broad range of information, when it's needed, where it's needed.
To Order	For more information or to place an order, contact your local HP dealer or Sales and Service Office.

□

HPACCESS = ACCESS TO INFORMATION



AND MORE . . .

Data-Storage Solutions For HP Host Computers

Barbara Bennett-Brown

Hard-Disc Drives for Convenience and Speed

Whether your business is large or small, or your needs range from daily word processing to the demands of large multiuser local area networking, you need the convenience and speed of a hard disc for your personal or business computer. Tasks are easier when all your software conveniently resides in the disc waiting for you to access it. An entire software library is at your fingertips without switching floppies to get to it. Nor do you have to wait to get to it. It's there seven times faster with a Winchester than with a floppy-based system.

Affordable Hard-Disc Systems

For the day-to-day operations of an individual in a small business, the new 10 Mbyte Winchester hard disc with a 3½" 710-Kbyte microfloppy diskette keeps your word processing, spreadsheet, graphics software, and your data right where you can get to it on a moment's notice. Switching from one to another is quick and easy—and it easily fits in a small business budget.

Is Your Personal Computer Expanding with You?

As your business grows, you need more disc space for increased use of your workstation. Add client listing, mailings, and accounting records to your other daily operational software and data and you'll still have room to spare on the 20-Mbyte hard disc. It has the perfect capacity, performance and price combination to satisfy most business applications.

Your Data is an Investment—Protect It

It would be virtually impossible to recreate a large client list or a company's payroll records if they were destroyed. Now it's very easy to protect yourself from a disastrous loss with the new 13/52 Mbyte ¼" tape backup drive. You don't have to spend time memorizing complicated commands—just push a softkey for an image "snapshot" of your entire hard disc. You can then quickly and easily pull up just one of those files rather than the entire disc. With both image backup and file-fy-file recovery, you have the best of both worlds—speed and flexibility.

Some data can be lost in data transfer or through flawed media. The 9142A protects you from data loss by duplicating 50% of the data allowing the drive to reconstruct your entire life. If your hard disc fails, the 9142A can be used as a disc in emergency situations. Because it emulates a disc, you can use the normal DOS commands to access

	files until your hard disc is repaired. And data can be restored on discs other than the one you copied from providing data interchangeability as well as transportability. This backup solution is a small dollar investment that protects your large data investment. Your data is not the place to take a chance.
HP Stamp of Quality	HP recognizes how important data is to a business, and pays special attention to high quality and very reliable storage solutions to safeguard your business's most valuable asset: your records.
How to Order	These products are supported on HP Touchscreen II computers. Please contact your dealer or HP Sales and Service Office for information about supported configurations. ■ HP 9153A 3½" 10 Mbyte Winchester Hard Disc Drive with 3½" 710 Kbyte Microfloppy ■ HP 9154A 3½" 10 Mbyte Winchester Hard Disc Standalone Drive ■ HP 9133H 5¼" 20 Mbyte Winchester Hard Disc Drive with 3½" 710 Kbyte Microfloppy ■ HP 9134H 5¼" 20 Mbyte Winchester Hard Disc Standalone ■ HP 9142A 13/52 Mbyte ¼" Streaming Tape Drive

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Microsoft Word for The Touchscreen and The Portable

Curt Riffle

Microsoft Word is one of the most powerful and versatile word processors available for personal computers. It is now available for The Touchscreen and The Portable computers, without requiring any additional memory.

Features of Microsoft Word

Microsoft Word (MS Word) is simple to learn and use because of its "what you see is what you get" approach. You no longer need to memorize keycodes to perform operations. An On-Screen Command Menu, similar to that found in Multiplan, makes it easy to perform operations. HP has even added softkeys to make learning and using Word even more productive. Make a mistake? No problem! Just use the **UNDO** command to get the original text back. Have a question? MS Word's extensive **on-line HELP feature** is always ready to help you; just press the HELP softkey and Word knows exactly where you are having trouble.

Entering text is easy with MS Word. **Wordwrap** and **Automatic Paragraph Reformatting** does all the work for you. Word even does footnotes automatically for you! Have a multi-page, multi-column document? MS Word will automatically set up the pages and columns or will let you do it manually. If you would like to work with more than one document simultaneously, MS Word will display up to **eight windows** on the screen.

Editing text is easy with MS Word. The **Search and Replace** command will quickly and easily find words anywhere in your document and replace them. If you text which you use repeatedly, the **Glossary** function will automatically insert this text for you anywhere in the document as many times as needed. And on the Touchscreen, moving within the document and moving any size of test is as simple as **touching the screen.** Have a Wordstar document you would like to work on in MS Word? Use Wordstar to **MS Word Conversion Utility** included in MS Word.

MS Word's formatting capability is probably MS Word's most powerful feature. Choose from 64 different font styles to make your document look exactly how you want it. Bold, underlining, super and subscripts, double underlining, and italics are just some of the formatting options available. MS Word can even format an entire document in seconds using a pre-set style sheet. This formatting power combined with MS Word's automatic printer configuration make it easy to produce high-quality documents.

What Microsoft Word Can Do For You	MS Word is an extremely powerful word-processing product which has been designed to handle a wide range of applications. You will learn to use MS Word quickly with HP's enhanced *User's Guide* and training courses. The on-screen command menu and extensive on-line HELP facility make it easy to tap MS Word's powerful feature set. Text entry and text editing is fast and powerful. And documents can be formatted to help convey the message exactly the way you want it. From memos to legal documents to technical reports, the combination of MS Word and Hewlett-Packard's personal computers and peripherals provide a total solution to your written communication needs.
Ordering	Microsoft Word for The Touchscreen, The Touchscreen Max, and The PORTABLE is available as HP product number 45474D. Refer to the "How to Order" section in this issue for ordering details.

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MS-DOS Manual Update for 150C Owners

Gayle Dolby

Owners of the *HP 150/MS-DOS User's Guide* who have upgraded their HP 150A Personal Computer or HP Touchscreen PC (150B) to the HP Touchscreen II PC (150C) will be glad to learn of the availability of the *Update to the HP 150/MS-DOS User's Guide*.

The *Update* corrects errors in the original manual, and integrates information specific to the hardware and operating system for the HP Touchscreen II PC (150C) with the *Supplement*, which documented new commands, utilities, and features added with the HP Touchscreen PC (150B). In this integration process, material could be reorganized to result in a shorter manual that fits easily into the existing binder.

The following new information, specific to the HP Touchscreen II PC (150C) has been added:

- Descriptions of the new hardware features and the HP Touch accessory.
- A command line version of the FORMAT command that can be entered at the MS-DOS prompt. Options include:

/V <label>	to label a disc
/C	to clear a disc instead of format it
/E	to erase files before formatting a disc
/S	to copy the Operating System files
/1	to format double-sided discs in single-sided format (the letter O) to format discs for use with IBM PC-DOS version 1.0
/I	to format discs for use with IBM PC-DOS version 2.0

- SAVERAM, a new utility that allows you to Save and Restore the contents of your RAM disc
- The capability to create an Installation File to install a Batch File and run it from the P.A.M. Main Menu.

The part number of the *Update to the HP 150/MS-DOS Owner's Guide* is 45624-90002. For ordering information please refer to the Current Information section of this issue.

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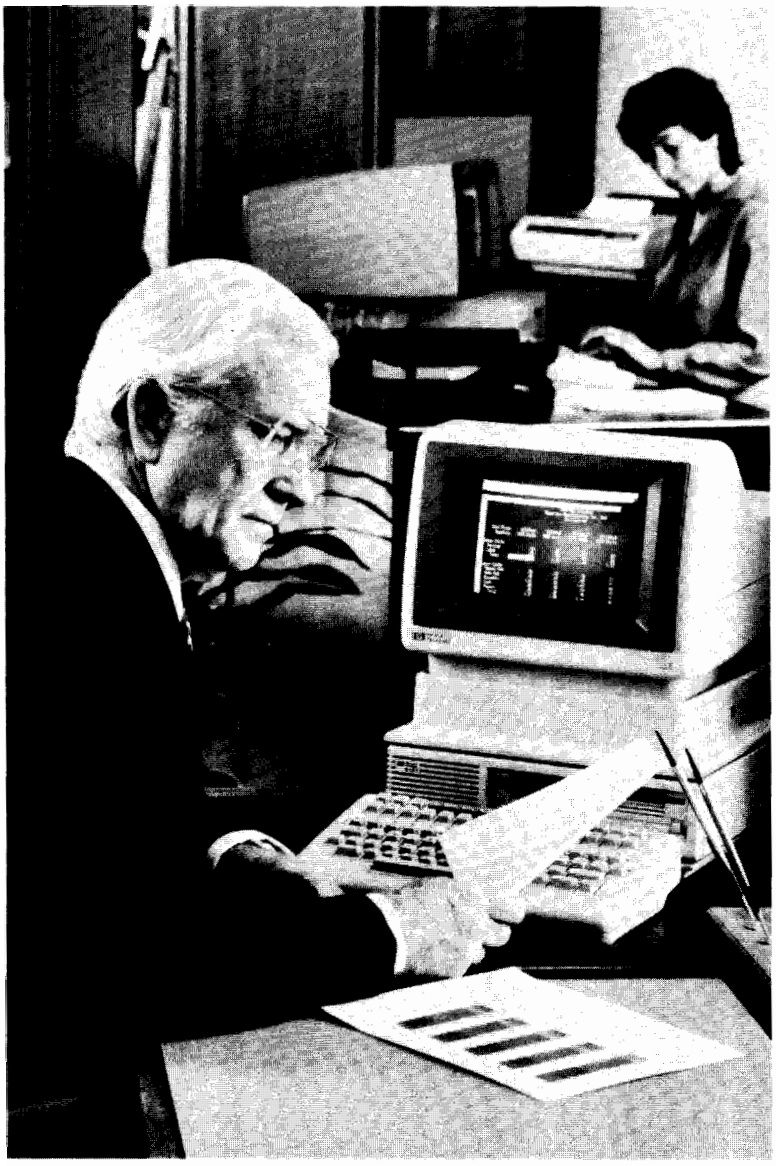

Announcing Deluxe VisiCalc

Paula Dieli

Deluxe VisiCalc/150 (product number 45405A) is here! This is the latest version of VisiCalc for the 150B (Touchscreen) personal computer.

Listed below are the differences between Deluxe VisiCalc (B.01.01) and VisiCalc (A.01.04)—what makes Deluxe VisiCalc *deluxe!*

New Functions

- Financial functions:
  @IRR
  @PV
  @FV
  @PMT
- Date functions:
  @TODAY
  @DATE
  @DAY
  @MONTH
  @YEAR
  @WEEKDAY
- Statistical functions:
  @VAR
  @STD
- Label-returning functions:
  @LOOKUP, @CHOOSE and @IF are modified so that they can return labels.
- Round function:
  @ROUND

Additions/ Modifications

- *Zero width columns*–provide the capability of not displaying an individual column on the screen or when printing a worksheet. Can also be used to print non-contiguous columns side by side.
- *Expanded row range*–increased from 254 to 500. The size of the spreadsheet depends on the user's application and the memory configuration of the 150B computer.
- *Print key support*–pressing the [SHIFT][PRINT] keys will copy lines 0-23 of the alpha display to the selected list device. Note that all inverse video fields appear underlined instead.
- *Programmatic access*–the ability to submit to Deluxe VisiCalc a series of commands contained in a file and have those commands executed as if they were typed in from the keyboard. This file can be accessed at startup time or from within Deluxe VisiCalc. It is a good way to perform repetitive tasks (*i.e.*, consolidating several DIF files into a worksheet).

- *Row, Prev, and Next key scrolling*–supported as described in the user's manual.
- *Default data directory*–will be saved when Deluxe VisiCalc is exited.
- *Sorting*–rows and columns using primary and secondary keys. (Sorting moves the entire row or column, so make sure thate are no lookup or data tables in a sort range.)
- *New replicate options*–attributes only and values only; also block replicating. Softkeys for options have been added to simplify option selection.
- *Consolidation*–full sheet and named range, using DIF files brought into a VC file.
- *Print configuration*–the menu has changed. The margin fields now represent spaces from the edge of the paper rather than absolute column positions. The Compress Print and Lines Per Inch settings only affect printers supported by the 150B (not including the 2601). (Note that the LaserJet has no compressed print mode. To simulate compressed print, enter an escape sequence into the setup string field on the print configuration menu to select a character set which prints more characters per inch.)

Deluxe VisiCalc files will not be backward compatible with the original VisiCalc on the HP 150 and HP 3000 because of the additional features present in Deluxe VisiCalc. However, it will work as long as none of the new features mentioned above are used and if the /GAC and /GSC commands are stripped from the Deluxe VisiCalc files. These sorting and consolidating defaults are present in all Deluxe VisiCalc files, and may be stripped out using the editor of your choice. (If you use WordStar, make sure you are in non-document mode.)

AdvanceLink: The Superset Successor to DSN/Link

Leonard Knapp

Data Communications Made Easier

Applications on any 150B (Touchscreen) PC-compatible host systems are now a PAM selection away with AdvanceLink, PSD's newest data communications software package for the 150B PC. AdvanceLink is a powerful package that lets you set up command files that can be easily run through PAM, or from MS-DOS as batch files.

AdvanceLink, which emphasizes command files rather than file transfer, replaces DSN/Link. Along with the new version of PAM (B.01.07), AdvanceLink allows command files to be "installed" into PAM. For example, a command file that would log on to Dow Jones and request the stock quotation for HP can have its own PAM label, executed from PAM like any other application. AdvanceLink can also be set up to log off one system and log on to another automatically, if necessary, to select a new application.

You can use command files effectively with many different types of hosts to run applications or duplicate common keyboard sequences. You are not limited to 150B/150B or 150B/HP 3000 connections. The only feature that is not present in AdvanceLink is the verified file transfer.

AdvanceLine consists of several new programs, listed below, as well as revisions to programs from DSN/Link such as Monitor/Touchscreen and Monitor/3000 (formerly called Link100).

AdvLink

AdvLink is a superset of DSN/Link. File transfer, printer and/or disk logging, and the command feature set as in DSN/Link are all present. The command set has been enhanced to allow Touchscreen Port, Baud Rate and Parity selection from within a command file. There is branching to labeled sections of command files and two new commands, &CALL and &HANGUP, to make modem interfacing easier. &WTIMEOUT allows you to set a timeout period for the &WAITDC and &READDC commands. You can also use &TIMEOUT in conjunction with the &IF command. The keyboard is now live during the &WAITDC command. Finally, there are some new commands to aid in automatic logon/logoff.

	AdvLink is a true 150B terminal emulator. Most HP 3000 applications now run flawlessly through AdvLink; the only exception we know of is HPListKeeper. You can select 7-bit or 8-bit transfers for ASCII files. In the 7-bit mode, the eighth bit of each byte sent is stripped. WordStar and MemoMaker files can then be used in TDP/3000 or Editor/3000.
Create Remote	Create Remote is a specialized editor used to create and maintain command files; you no longer need WordStar or MemoMaker. Create Remote allows you to install command files into versions B.01.07 or later of PAM. It checks syntax and has an extensive help facility. Create Remote won't write your command files for you, but it makes all other aspects of command file manipulation easy.
Strip-It	Strip-It is a utility that strips the eighth bit from all the bytes in an MS-DOS file and writes the result to a new MS-DOS file. Use Strip-It to prepare WordStar or MemoMaker files for 3000-based editors. Strip-It also removes format control codes in WordStar and MemoMaker files, something the 7/8 bit option in AdvLink doesn't do. These control codes can interfere with some editors, such as TDP/3000 and Editor/3000.
To Order	AdvanceLink is HP product number 45431A. For more information, or to order, contact your HP dealer or Sales and Service Office—or use the order form in the "Current Information" section of this issue.

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	The HP 150B can now communicate with a DEC computer! The VT100 Terminal Emulator from Hewlett Packard allows the 150B (Touchscreen) or 150B Max to work like a DEC VT100 terminal. Developed specifically for the 150B personal computers, this product makes it easy to communicate with systems supporting VT100 terminals and exchange ASCII and binary files.
Easy Access to DEC and Back	The Emulator requires no complex menus. When the application is selected from P.A.M., the screen changes to resemble a VT100 terminal. You can easily switch back to P.A.M. at the touch of a key to access programs like Lotus 1-2-3 or MultiMate. A touch of the P.A.M. screen will toggle you back to your last VT100 screen.
Most VT100 Features Supported	VT100 Terminal Emulator closely emulates nearly all VT100 features, including ANSI/VT52 modes; all VT100 keyboard keys and key modes; VT100 set-up screens; incremental baud rates up to 19.2K; and VT100-equivalent speed, even during screen changes. The Emulator does not support 132-column mode. When placed in 132-column mode, the VT100 Terminal Emulator shows only the first 80 characters. Double-height characters are displayed as underlined normal-height characters. Double width characters are displayed as single-width characters with a blank position to the right.
Advanced Capabilities	The VT100 Terminal Emulator provides several advanced features not available on a VT100 terminal: ■ Disc logging: Information appearing on the screen can be simultaneously copied to a printer attached to the 150B or 150B Max. This adds the convenience of local printing at the touch of a key. ■ Printer logging: Information appearing on the screen can be simultaneously copied to a printer attached to the 150B or 150B Max. This adds the convenience of local printing at the touch of a key. ■ File transfer: ASCII or binary files can be exchanged between the 150B and a host computer using the XMODEM protocol, an industry-standard error-checking protocol. This easy-to-use feature allows files to be transferred

between the 150B and a DEC compatible system, The Portable, public bulletin boards, or another 150B. The XMODEM program must be running on the host system, however. Note: The Portable includes an XMODEM (or MODEM7) program.

- Keyboard files: ASCII files, like certain WordStar and VisiCalc files, or files downloaded using disc logging, can be uploaded to the host computer. No XMODEM program is required for this type of file transfer.
- Programmable function keys: Function keys can be easily set up to represent frequently used commands. For example, you could assign function key F1 to represent a log-on sequence.

To Order

The VT100 Terminal Emulator (HP product number 45412A) is currently available with U.S. keyboards only. For more information or to place an order, contact your HP dealer or Sales and Service Office—or use the form in the "Current Information" section of this issue.

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	The HP 150 Emulation Accessory allows the HP 150B to emulate an IBM™ 3278 Model 2 Display Station and connect to a mainframe computer. This product includes file transfer capability. The power of a personal computer is retained; you can easily switch back and forth between the PC and emulator mode without losing your mainframe connection. Best of all, the enhanced product is available at the same price as the original version. The HP 150 3278 Emulation Accessory consists of an accessory board inserted into the back of the 150B, three keyboard overlays, the software and a user's manual. A coaxial cable is used to attach the accessory board to a control unit, which then talks to the mainframe. Emulator functions such as file transfers, display of unprotected fields and dumping of screen contents to a local printer are only a touch away on the 150B.
File Transfer Enhancement	When you touch the file transfer area of your screen, a menu is displayed prompting you to type the name of the file you want to transfer and its destination name. You can transfer a file from your local mass storage to the remote mainframe or transfer a file from the remote mainframe to your local system. After touching "Start Transfer" your source file is sent to its destination and the screen displays a message notifying you that the transfer is complete. Both binary and text files may be transferred, allowing you to develop a program, document or spreadsheet in BASIC, WordStar or Lotus 1-2-3 using the 150B and to distribute it electronically through the host computer to other PC's.
Ease of Use	Designed for easy installation and operation, the accessory board is inserted into either slot in the back of the 150B and then connected with a coaxial cable to the control unit. After loading the Emulator program, the 150B displays a mainframe prompt asking you to input your logon information.
Ordering	To order the enhanced Emulation Accessory, specify product number 45641B. Upgrade kits for the US will be available through Hewlett-Packard's Direct Marketing Division (DMK) (part number 45641-63001).

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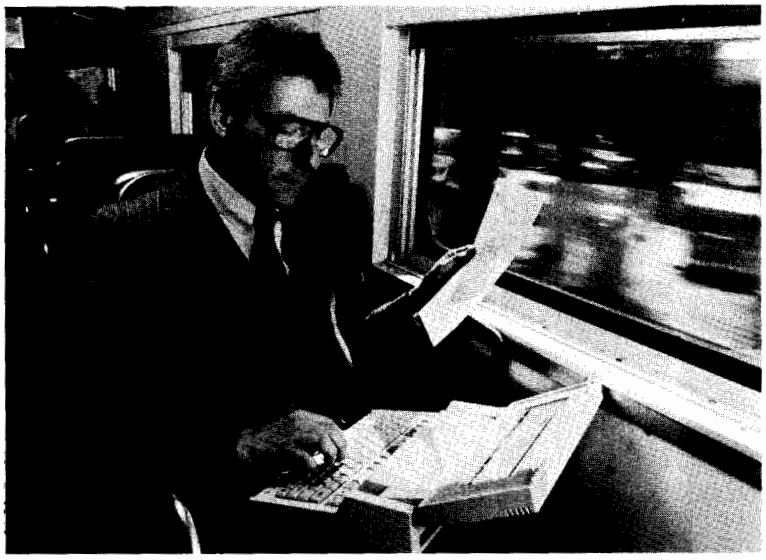
Notes



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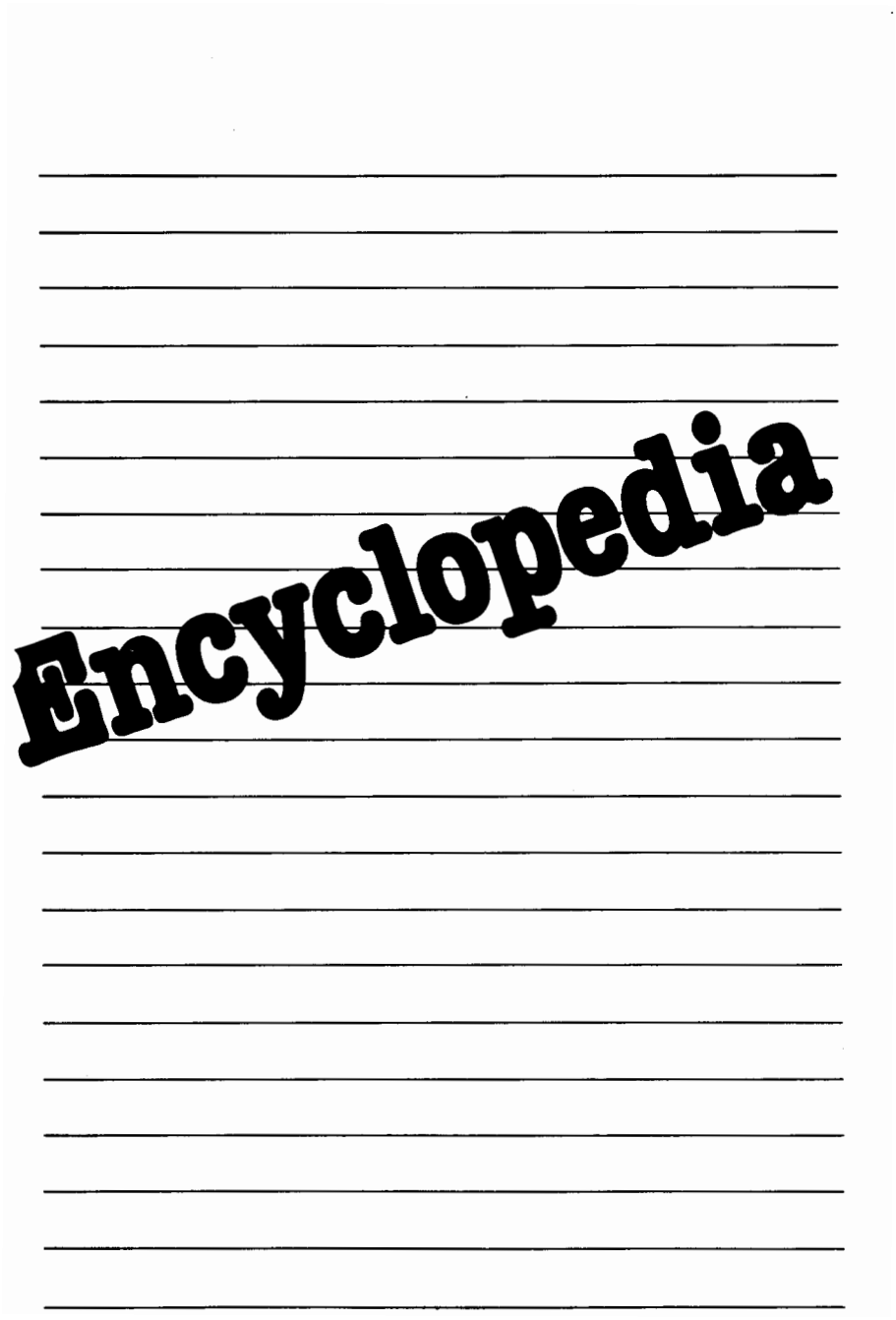
Encyclopedia

The Encyclopedia

From the Coach

latest information about HP PC questions, problems, and solutions

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Users who need to transfer fixed-length ASCII records from an HP 3000 to an HP 150 Touchscreen personal computer should note the following program listing, which gives the correct procedure for this operation.

Command file: "FIXEDREC"

```
&!  This command file sends an HP 3000 fixed-length
&!  ASCII file from an HP 3000 to an HP 150, preserving
&!  the length of the records.
&!
&MSG "You will be prompted to:"
&MSG ""
&MSG "  1.  Enter the name of the file on the HP 3000"
&MSG ""
&MSG "  2.  Enter the name of the file to be created
&MSG "      on the HP 150"
&MSG ""
&MSG "  3.  Enter the number of bytes per record"
&MSG ""
&!
&INPUT "NAME OF HP 3000 FILE TO BE DOWNLOADED",&P1
&INPUT "NAME OF FILE ON HP 150 AFTER DOWNLOADING",&P2
&INPUT "RECORD LENGTH IN BYTES (CHARACTERS)",&P3
PURGE TEMPFILE
&SEND "FILE TEMPFILE;REC=-",&P3,",,F,BINARY"
&SEND "FCOPY FROM=",&P1,";TO=*TEMPFILE;NEW"
Y
&DSCOPY TEMPFILE TO &P2, LOCAL; BINARY
[this line must be entirely blank]
&!
```

* * *

There was a typographical error -- dollar signs instead of ampersands -- in the article "Setting User-Defined Function Keys in dBASE II," which appeared in Issue 10 of the Communicator. Here's the correct input listing:

```
? CHR(27)+"&F0a1k1x16d7L"+"BROWSE FILES  "+"BROWSE"+CHR(13)
? CHR(27)+"&jB"
```

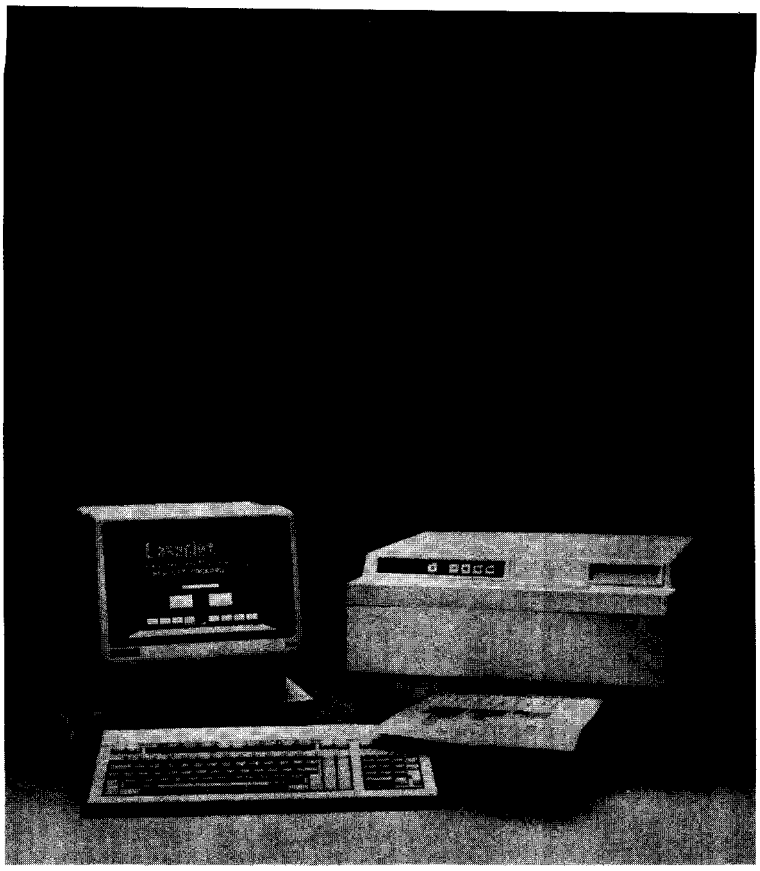
Note that the second character after the ampersand in the first line above is a zero, not an upper-case letter "o."

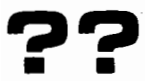
Guides, textbooks, etc. available from HP for the product. (New items since the last issue are marked with a "New" symbol.)
- *Communicator* Articles—an index of articles in back issues of the *Communicator.*
- Courses—descriptions of courses available from HP for the product. (New items since the last issue are marked with a "New" symbol.)

The Encyclopedia entries are arranged so that you can remove them for insertion in your manuals or a separate binder.

Which Products are Covered?

To make the best use of space, the entire Encyclopedia is not repeated in every issue of the *Communicator.* The Encyclopedia Table of Contents, given at the front of the section, is updated in every *Communicator*... directing you to the issue containing the latest article for each product.





Q. Will my "Brand X" software package work with the LaserJet?

A. We are actively working with 50–100 ISV's and it is impossible to monitor their status at all times. Therefore, to get the most updated information, please contact the software vendor about the compatibility of the package with LaserJet.

Q. How do I use my software with LaserJet?

A. First, reset the printer by doing an ESC E (Refer to your computer's manual for information regarding the sending of escape sequences). This places all features to the default conditions (a known state). Refer to Section IV of the LaserJet Owner's Manual *for information on the feature access.*

Q. Can I run other software packages not on the support matrix?

A. Print and Space applications (Database, Spread sheets, and General Business) should work well. Graphics and Word Processing packages may require user changes or changes on part of the ISV.

Q. What languages can I write programmatically to LaserJet?

A. BASIC has been thoroughly tested and documentation is available in the LaserJet Owner's Manual. *FORTRAN, COBOL, and PASCAL have not been tested; however, there should not be a problem if written for an HP PCL printer. Old applications will work if written for another HP PCL printer or if the packages were written to only use base level features (standard control codes), otherwise, they might need to be modified to work with LaserJet.*

Q. What is the status of IBM's DisplayWrite2 software package working with the LaserJet printer?

A. We have received a copy of a printer driver which includes LaserJet from Koch Industries. For more information on the software and how to obtain it, contact Bruce Koch at (312) 228-0590.

Q. Why can't I print bold with Memomaker?

A. You need to change DEVICE CONFIG, MODEL FIELD from "Special" to "Other". OTHER is the only field that lets all escape sequences pass through unaltered. Also, you need a font cartridge that supports bold (i.e., 92286A).

Q. Why can I embed escape sequences using Memomaker on the HP 150 but cannot using Memomaker on the HP 110?

A. Currently, Memomaker on the HP 110 does not support embedded escape sequences.

Q. In LOTUS, I am using "set up string" to print a spread sheet using a landscape, compressed font; the spread sheet printed fine. I then graph the spread sheet and do a screen dump from the HP 150. Why did the spread sheet print and the graph did not?

A. The printer was still in landscape mode when the screen dump was done. You need to send an ESC E to reset the printer to default conditions or return to protrait mode by sending the following escape sequence: "ESC&100". If landscape mode is required, use the Printgraph feature of LOTUS (this may require repositioning the logical cursor of the LaserJet before printing). The screen dump graphics capability, from LOTUS, cannot be done in landscape mode.

Q. In LOTUS, how do I print in landscape compressed mode on a legal size sheet of paper?

A. In the SETUP string of LOTUS send the following string: \027E\027&184plo2H\027&k2S. This sends a reset to the printer, sends a page length of 84 lines (6 lines per inch x 14-inch legal paper), sets the orientation of the character set to landscape, sets the printer in manual feed mode, and selects compressed print (16.66 cpi).

Q. When will you support LOTUS 1-2-3 Graphics on IBM?

A. Lotus will be distributing the necessary driver files for Laserjet support. To obtain the current status of these files, please contct Lotus Development Corporation.

Q. Is LaserJet supported on Symphony?

A. Yes, however, not on the HP 150.

Q. Why is MicroSoft Word not included in the software matrix distributed by HP?

A. There are several software packages to date (MicroSoft Word is one of them) that have been adapted to operate with LaserJet. Since this was done by the software vendor and no HP documentation was necessary, it was not included on the software matrix.

Q. When printing consecutive copies of cards on the LaserJet printer using the "PRINT CARD" function of PCF on the HP 150, on about the sixth card, the cards begin to "split" and print on 2 pages. Why?

A. The LaserJet defaults to utilize a maximum of 60 lines of text per page, i.e., a 3-line top and bottom margin and 60 lines of text. The current versions of PCF, versions A.01.02 and A.02.01, are programmed to utilize 33 lines per card; therefore, 66 lines are required to print 2 cards per page. The net result is that the LaserJet generates a page break after every 66 lines and will eventually "split" PCF cards onto 2 pages. The next version of PCF will take care of this incompatibility. Until then, the workaround is to use the "PRINT CARD FILE" function to obtain copies of multiple cards in the card file.

Q. I have followed the Multimate application note for using the LaserJet with my IBM PC, however, I still cannot get the subscripting feature to work. Why?

A. There is an error in the application note for Multimate. On page 2, letter "d", field "92 Automatic Subscript ON", the correct string to be entered is: "1B26612B343556". This error will be corrected in future printings.

Q. Why are my graphics always printed on my internal printer and only the text is printed on LaserJet?

A. The "PrinterCode4" field of the Terminal Configuration is set to "INT" (Internal). Set this field to "EXT" (External) and the graphics will then be printed on LaserJet, as well as the text.

Q. Why can't I get screen-dump graphics to work on the HP 150?

A. You need to access the "to devices" configuration. Enable the "serial device" and disable the internal printer.

Q. What if it still doesn't work?

A. A few of the HP 150's (those which do not have internal printers) have a bug which prevents you from directing data to the serial device rather than the internal printer. The following escape sequence solves this problem: "ESC&p4D".

Q. How can I tell when the screen dump is completed?

A. There is no direct way to determine when it has completed, however, be patient, on the average it completes in about 40 seconds. With some packages (and some 150's) the message "KEYBOARD LOCKED" will display on the screen while graphics transfer is taking place and will go off when completed.

Q. How do I print a graph anywhere on a page?

A. First, are you using a software package, screen dump, or your own software?

—If using an ISV software package, you can position your graph according to the capabilities of the package. If positioning is not supported by the package, you cannot position the graph.

—If using the screen dump, you can move vertically on the page by setting the VMI (Vertical Motion Index; see Section IV of the Owner's Manual*) or by sending a number of line feeds to get positioned.*

—If using your own software, refer to Section IV of the Owner's Manual *for graphics commands.*

Q. How much graphics can I print on a page?

A. Graphics is resolution dependent. The default graphics resolution is 75 dpi (dots per inch) which fills an 8.5" x 11.0" page. Other programmable resolutions image will be smaller and cannot exceed 59KB of raster graphics. The following table lists the maximum square inches for the specified resolution.

RESOLUTION (dpi)	*SQUARE INCHES*
75	*85.9*
100	*48.3*
150	*21.5*
300	*5.4*

Q. Does LaserJet accept standard HP graphics commands (vector)?

A. No, purely raster. (See Section IV of the Owner's Manual.*)*

Q. Why is my font not working?

A. *Unlike a daisy-wheel print wheel, plugging in a new cartridge does not cause the printer to recognize the new fonts. If you change the cartridge you should:*

(1) Turn the printer OFF when removing or inserting a cartridge.

(2) Ensure cartridge is firmly seated.

(3) Ensure the font select procedures in Section IV of the Owner's Manual *are followed exactly.*

Q. I started my print job using the ITALICS character font, then changed to BOLD; however I am still getting the ITALICS character font. Why?

A. *All font selection is done by priority (See Section IV, pages 4–9 through 4–11, of the* Owner's Manual*). In this case, the Character Style (upright vs. italic) has a higher priority than Stroke Weight (light, medium, and bold). Therefore, you must turn the Italics OFF before turning the Bold ON.*

Q. Why can't I access any of the alternate fonts from the 92286B cartridge, but I can with the 92286A?

A. *The 92286B cartridge uses the USASCII symbol set (this allows more fonts to be contained in the cartridge) and must be specified at the beginning of the print job. The following escape sequence specifies the USASCII symbol set as the primary symbol set: "ESC(0U". To request the USASCII symbol set as the secondary symbol set use: "ESC)0U". The LaserJet defaults to the ROMAN-8 symbol set.*

Q. The fonts internal to the LaserJet are non-proportional. Can I get a proportional font?

A. *Yes. The 92286B cartridge contains 5 proportional fonts and 1 non-proportional font.*

Q. When I send data to the printer why doesn't anything seem to happen (no output)? Why must I do a form feed to print the last page?

A. *The printer does not eject a page of data until the end of page is reached or a form feed is sent by the software.*

Q. How do I know when something is in the printer buffer?

A. *The form feed LED is illuminated.*

Q. Why do I get a blank page?

A. When changing orientation or resetting the printer, the printer will print anything left in the buffer, including non-printable characters like escape sequences, carriage returns, or line feeds.

Q. Why didn't my escape sequence work?

A. Be sure you have not confused the lowercase "L" (l) with the number one (1) or the uppercase "I" and also the uppercase "O" with the number zero (0).

Q. Why doesn't my printer print 8 pages per minute?

A. The print speed is sometimes dependent on the software package and the CPU you are running it on. (In some cases, the CPU cannot format the print job at 8 pages per minute.)

Q. Why can't I get the manual feed to feed envelopes?

A. Extra stiff paper requires users to assist the feeding operation.

Q. I replaced my EP cartridge and now nothing is printing, why?

A. You probably forgot to remove the sealing tape before inserting. Refer to Section V of the Owner's Manual.

Q. I am getting Error 54, why?

A. There may be too much paper in the input cassette.

Q. How can I get 66 lines on a letter-size page in portrait mode?

A. Send the following escape sequence to the printer at the beginning of each job: ESCEESC&l14cle7.64c66F. (It is assumed that the proper paper tray has been mounted, that the user realizes it will not be printing at six lines per inch and that this command is not a permanent configuration change, requiring it to be sent at the beginning of each job.)

Q. Why does the toner indicator on the side of the printer indicate green or yellow (indicating toner remains) when the printer is out of toner?

A. The EP cartridge life is 3000 pages at 4% print coverage (black-to-white ratio). You may be printing jobs with a higher print coverage; i.e., solid black in graphics, which uses more toner or you may be printing large continuous jobs which do not increase the counter appropriately causing the indicator to be incorrect. The indicator is an approximation for average print density and is based on the number of pages (not amount of toner used). NOTE: You may try rocking the cartridge to distribute any remaining toner to prolong the cartridge use.

Q. Why can't I use the toner cartridge from the PC-20 copier which costs less?

A. It uses a different photo conductor drum, different toner, and it won't fit. Note also that the printer cartridge lasts 3000 pages and the copier only 2000 pages. So actually the cost per page is the same.

Q. Will the LaserJet run at 19.2 KB? If so, how do I configure it?

A. Yes it can run at 19.2 KB or the following baud rates: 300, 600, 1200, 2400, 4800, 9600. To reconfigure the printer the switch (SW1) inside the back panel needs to be set as follows for the desired baud rate:

POSITION #			
2	3	4	BAUD RATE
OFF	OFF	OFF	300
OFF	OFF	ON	600
OFF	ON	OFF	1200
OFF	ON	ON	2400
ON	OFF	OFF	4800
ON	OFF	ON	9600
ON	ON	OFF	19200

Q. Will the printer support RS-422?

A. Yes. Remove the 4 screws which hold the back panel. The jumper is located in the upper left corner when facing the back. If the jumper is jumping 1 and 3, it is configured for RS-232. If the jumper is jumping 2 and 4, it is configured for RS-422.

Q. Why doesn't the LaserJet appear in the device configuration on the HP 150?

A. It will in the next release of the HP 150 operating system; until then use "OTHER".

Q. Are there any plans for support of a Centronics interface?

A. No plans currently.

Q. Why a serial rather than parallel interface?

A. HP chose to support remote printing on mini computers and personal computers and also modem support and low cost sharing or networking. It was felt the serial provided more flexibility in supporting various systems.

Q. How do I share my printer on several CPU's?

A. An RS-232 switchbox from CSO or comparable switchbox from a dealer.

Q. What is required for user LaserJet with the HP 110 (The Portable)?

A. A 92221P cable. Also, set HP 110 at 9600 baud, XON/XOFF, No parity, 8 data bits, one stop bit.

Q. Why doesn't anything happen when I print using my IBM PC?

A. Somehow the mode commands may have been reset on the IBM PC (or IBM compatibles). You need to follow the procedure in Section II of the LaserJet Owner's Manual to autoboot the operating system or manually specify the mode commands.

Q. Why do I get an Error 40 every time I reboot my IBM PC or look alike?

A. This error may occur if you power up the computer while the printer is on-line. If this happens, press CONTINUE to clear the error (See Section V of the Owner's Manual.*)*

Q. On the IBM PC, if I have multiple serial boards can I run off any one of them or must I use COM1?

A. You can run off any one of them by specifying COM2, etc.

Q. What other CPU's and operating systems will LaserJet work with?

A. The printer has been tested and documentation is available on the HP 150 and the IBM PC or look-alike. Configuration testing has also been completed on the Apple IIe, Apple III, and the Dec Rainbow 100. If the CPU is not listed here, it still may work with the LaserJet, which is an RS-232 device supporting XON/XOFF protocol or hardware handshaking. The printer pin assignments for cabling are listed in the Owner's Manual. *Also, it is set at 9600 baud rate, 8 data bits, 1 stop bit, and no parity.*

Q. What does LaserJet emulate?

A. It emulates HP Level III PCL. It has features like the Diablo's (HMI, VMI, etc.), but the way of accessing the features is different.

Q. Why didn't HP emulate EPSON and/or DIABLO?

A. Two reasons: LaserJet has more features (font selection, letter quality, graphics, landscape) and an appropriate means of selecting these features (PCL). NOTE: EPSON and DIABLO escape sequences are mutually exclusive.

Q. Does LaserJet have a wide carriage option?

A. No, but to get more characters you can use compressed and/or landscape mode (176 characters in 11 inches).

Q. What size paper is supported?

A. Four standard sizes without going to manual feed:
(1) Letter size (8.5 x 11 in)
(2) Legal size (8.5 x 14 in)
(3) European A4 (210 x 297 mm)
(4) European B5 (182 x 257 mm)
Other sizes (smaller) can be fed manually.

Q. Is color possible with the LaserJet.

A. Only black currently; however, future plans include color. Note one color per pass of a page (can't do multicolor pie charts). Cartridges will only contain one color of toner.

Q. Can the LaserJet be shipped with the toner cartridge installed?

A. It should not be, otherwise toner may spill and will need to be cleaned out (blowing and vacuuming). Toner is harmless plastic powder.

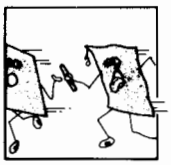
Q. How good is the print registration (for preprinted forms)?

A. From our testing it has been good and consistent (within 1/16 in). We suggest you try it.

Q. Can I print multipart forms?

A. No.

□



Q: How many external disc drives may be connected to The Portable?

A: The Portable can support up to 8 disc drives.

Q: Can the HP82161A Digital Cassette Drive be used with The Portable?

A: Yes. You will need two HP-IL cables (refer to section 3-2 in "Using the HP 110" manual). In the SYSTEM CONFIG menu, increase the number of EXTERNAL DRIVES by one.

Q: The HP 110 Utilities disc is double-sided. What should I do if I have a single-sided drive?

A: HP's Computer Supplies Operation (CSO) will exchange the Utilities discs for 4 single-sided 3.5" HP discs or 2 IBM 5.25" discs. The product number for the HP discs is 00090-12011; for the IBM discs, 00090-12012. Contact CSO at 800-538-8787 (in California 408-738-4133) for more information on the exchange process.

Q: What is the storage capacity of a double-sided disc?

A: Approximately 700 Kbytes.

Q: What do I need to connect the HP 9114A disc drive to The Portable?

A: You will need two HP-IL cables (refer to section 3-2 in the "Using your HP 110" manual). In the SYSTEM CONFIG menu, increase the number of EXTERNAL DRIVES by one.

Q: My 9114 seems to need charging after an hour of use, even when I have it plugged into the wall outlet. Why does the power run down so quickly?

A: The HP 9114A can store enough power to last 40 minutes during times of heavy disc access. The charger that comes with the HP 9114A does not allow the HP 9114A to run off the wall outlet; it is used solely for charging the disc drive when the drive is turned off. To be safe, always recharge the disc drive before doing large disc backups.

Q: I have a Portable, an HP 2225B printer, and an HP 9114 disc drive. The HP 9114 drive was fully charged at the beginning of the day. Even though I never accessed the drive, the power light started blinking at the end of the day. I only used the printer. Why is the disc drive losing power?

A: Even when the HP 9114 is not being accessed, it is "awakened" for several seconds each time another peripheral, on the loop before the HP 9114, is accessed. To help optimize usage time of the HP 9114, either take the disc drive off the loop when not in use, or put it after all other peripherals on the loop.

Q: Can you use the HP 9114A disc drive with the HP 150 or the Series 80 computers?

A: No. The HP 9114A is not supported on these computers.

Q: Does the HP 9114A disc drive have a media wear monitor?

A: The 3.5" discs have a built-in limit to the number of times a disc is accessed. After the disc has revolved about 1.5 million times, the light on the front blinks on and off and makes a clicking noise while the disc is being accessed. Be sure to backup any disc before it gets into this condition.

Q: Which HP-IB disc drives are compatible with The Portable? What is required to connect these drives to The Portable?

A: The following HP-IB disc drives are supported on The Portable: HP 9122, HP 7908, HP 7911, HP 7912, HP 7914, HP 9121 D/S, HP 82901 M/2M, all versions of the Winchester drive (5MB 1 or 4 volumes, 10MB, and 15MB), and the HP 9895 8-inch floppy.

To use these disc drives with The Portable, you will need an HP 82169A HP-IL/HP-IB converter for hardware compatibility. (If the serial number of the converter is less than 2406, call the Corvalis Service Center, direct dial number (503) 757-2002, or mail your converter to the Corvalis Service Center address below.)

- *Connect the disc drives to the HP-IL/HP-IB converter and connect the converter at any position in the HP-IL loop. Set all the switches on the converter to address zero, then connect to AC power.*

A. *For the HP 9122 and other double sided 7900 drives (CS-80 drives), increase the number in the EXTERNAL DRIVE field of the SYSTEM CONFIG menu to match the number of drives you have connected to The Portable.*

B. *For the other HP-IB drives (Amigo disc drives), you will need to activate the Amigo drive software which is supplied on the B: drive as follows:*

- *Using MemoMaker, create a CONFIG.SYS file which points to the Amigo driver, and specifies the HP-IB address and number of volumes at each address. Your CONFIG.SYS file should look similar to this:*

  DEVICE = B:AMIGO.SYS /0#2,2#4

  This particular CONFIG.SYS file says there is a two volume disc drive connected to HP-IB address 0, and another 4 volume drive connected to HP-IB address 2.

- *Press [CONTROL][SHIFT][BREAK] to install the driver. It will automatically go out and find the disc drives and assign the letters "C" & "D" to the first address, "E", "F", "G" & "H" to the second address.*

Q: The message "BAD OR MISSING AMIGO.SYS FILE" is displayed when The Portable tries to access my HP9121 disc drive. What's missing?

A: Your Portable does not have the file CONFIG.SYS on its A: drive. Create one by following the instructions in the previous question.

Q: I have an HP9133 winchester and an HP9121 connected to my Portable via the HP-IL/HP-IB interface. Why do I keep getting the message "BAD UNIT ERROR READING DRIVE"?

A: Make sure the address switches on the back of the converter are set to zero and none of the external drives has the same address setting on the back of the unit.

Check the serial number on your HP-IL/HP-IB converter. Converters with serial numbers that begin with anything less than 2406 have the old processors and will need to be updated with a new one. For more information on exchanging your HP-IB/HP-IL converter, write or call:

In the U.S.: Hewlett-Packard Company
Corvalis Service Center
P.O. Box 999
Corvalis, Oregon 97339

(503) 757-2002
Ask for Calculator Repair/
Peripheral Service

In other countries: contact a local HP office for information

If you have all of the above set correctly, check to make sure that you have your CONFIG.SYS file created to the specifications described in the question on the preceding page.

Q: Are single-sided discs compatible with the HP9114A disc drive?

A: The HP9114A is capable of reading either single-sided or double-sided media. However, to maximize efficiency of the drive, it is strongly advised that you back up any single-sided media onto double-sided media as soon as possible.

Q: When do you use single/double-sided format procedures when formatting discs on The Portable?

A: To format discs as double-sided, you can use either the MS-DOS FORMAT command or the FORMAT utility (on the HP 110 Utilities disc). The FORMAT utility, with a "/W" option, formats discs as single-sided; the "/X", "/Y" and "/Z" options format discs as double-sided, with 256, 512 and 1024 bytes per sector, respectively.

Notes:

- *discs formatted as single-sided can be read by either a single- or double-sided disc drive*
- *discs formatted as double-sided may be read ONLY by double-sided drives*
- *only format discs labeled "DOUBLE-SIDED" using a double-sided format*

Q: How do you format a disc as single-sided using a double-sided disc drive like the HP 9114A?

A: The procedure for formatting a disc as single-sided is as follows:

- *Insert your HP 110 Utilities disc into your disc drive "C"*
- *From P.A.M. or from the MS-DOS A> prompt, type:*
  COPY C:FORMAT.COM A:
  and press [RETURN]. This copies the formatting program onto disc "A"
- *When copying is done, remove the Utilities disc from drive and insert the blank disc to be formatted*
- *Then type: A:FORMAT C:/W and press [RETURN]*

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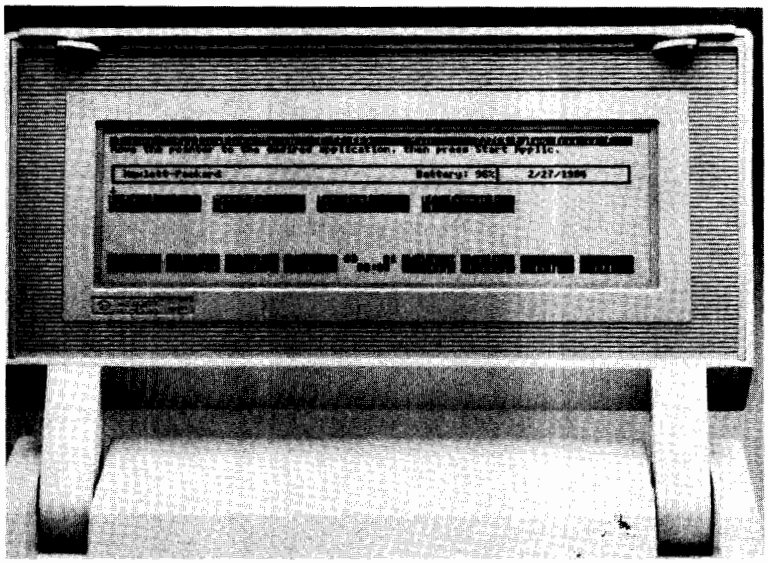

Q: Every time I try to run the Lotus 1-2-3 Tutorial, I get the message "LOADING TUTOR" and then I return to the P.A.M. screen. What's wrong?

A: You need at least 192K bytes allocated to memory on the RAM disc to load the Lotus Tutorial. Check the SYSTEM CONFIG menu for the number of bytes you have allocated to memory.

Q: Is there any way to load the Lotus Tutorial without using an external disc drive?

A: No.

Q: How can I transfer Lotus files from The Portable to the HP 150 using an HP9133 DISC DRIVE?

A: Format the floppy disc for the transfer using the FORMAT utility on the HP 150. Save the files from The Portable to this floppy.

Q: How much memory does the Lotus application use?

A: Approximately 70K bytes. MS-DOS occupies 27K and Lotus takes up 40K.

Q: Can the built-in Lotus application on The Portable be transferred to another personal computer?

A: No. None of the built-in applications on The Portable are transferrable.

Q: When I try to run PRINTGRAPH, the message "LOADING PRINTGRAPH" appears but the system returns to the P.A.M. menu instead of running the program. What's wrong?

A: You need at least 152K bytes of memory on the electronic disc to load PRINTGRAPH. Check the SYSTEM CONFIG menu for the number of bytes you have allocated to memory.

Q: Why does the message "MISSING OR ILLEGAL CONFIGURATION FILE" appear on the screen when I try to run Lotus 1-2-3 on The Portable?

A: Never mind why. To remove this message, press [RETURN] and select the following commands: / WORKSHEET, GLOBAL GLOBAL DEFAULT, UPDATE. This creates a default configuration file called 123.CNF for which Lotus 1-2-3 looks each time it is invoked.

Q: I want Lotus 1-2-3 to pause after each keystroke (single-step execution) in my macro, rather than type the entire sequence. How can I do this?

A: Press [CONTROL][F1]. There is no need to hold down the [SHIFT] key as indicated in the manual.

Q: How do I save a Lotus data file to read into a BASIC program?

A: In Lotus, you will need to save your data so that it is in an ASCII format that BASIC can interpret. To do so:

- *From the main Lotus menu invoke the command /PRINT FILE and enter the print file name.*
- *Select the /RANGE command and enter the range of calls that you want saved.*
- *Invoke the commands /OPTION OTHER UNFORMATTED to delete all page breaks, headers, and footers. Press /QUIT.*
- *Press /ALIGN GO QUIT.*

To read this file into BASIC, open the file and read in the lines of data as ASCII strings:

```
10 OPEN "I",#1,"Filename.PRN"
20 LINE INPUT#1,A$
```

You can do this for each line of data, and then take the data strings to manipulate within your program.

Q: The manual says that I can press [SHIFT][PRINT] and my graph will automatically dump to my HP82905B printer, but this doesn't work. Why?

A: There is a misprint in the manual. You cannot do a raster dump to this printer. It should say HP82906A or HP2225A (ThinkJet).

Q: I worked on a Lotus file that I had transferred from my IBM on my 110, and then transferred it back to the IBM. Now the worksheet only takes up half of the IBM screen. How can I get the worksheet back to normal?

A: When you transfer a Lotus file from The Portable to the IBM, it remains in its 16 line format even after it is transferred back to the IBM. To expand the worksheet back to its original size on the IBM, press /WORKSHEET WINDOW HORIZONTAL to create a window. Then invoke /WORKSHEET WINDOW CLEAR and your worksheet will then take up the full IBM screen again.

Q: I named my macro C. When I invoked it, I got the message "Cntl-break". Why?

A: When a macro is invoked, you must press the [CONTROL] [SHIFT] keys along with the letter that you assigned to the macro. [CONTROL] "C" has an additional meaning to your Portable. It is a software control code that MS-DOS interprets as a signal to "BREAK" or stop the "C" to work without invoking an MS-DOS command, go into MS-DOS before you invoke Lotus and type in the command "BREAK OFF". Now you will be able to invoke your macro as designated by the character "C".

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discarded. These controls must be re-entered if the file will subsequently be printed using WordStar.

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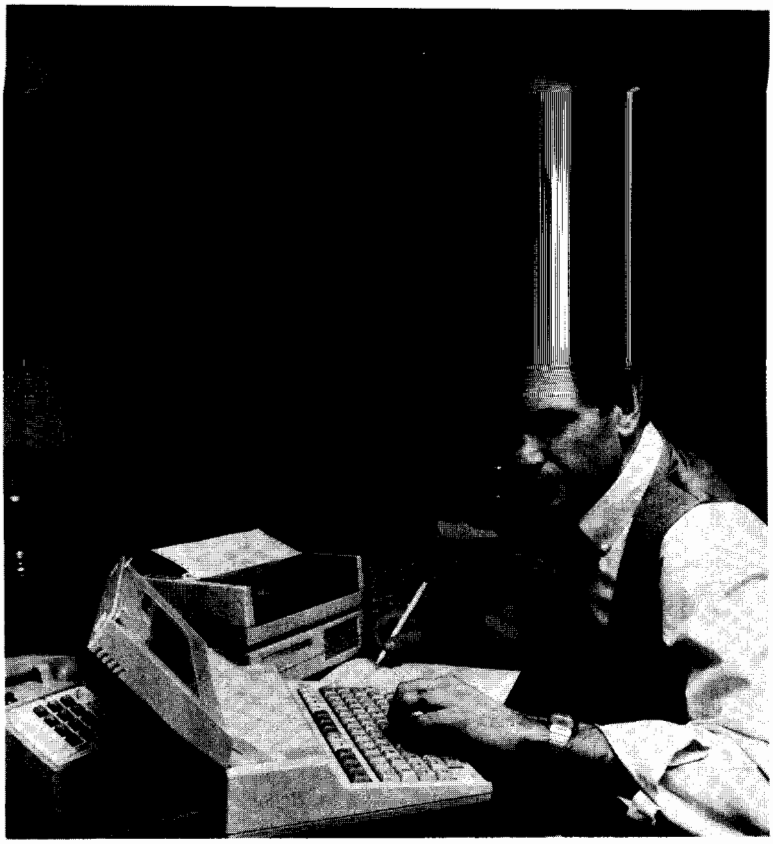

Q: Will I be able to use the HP 150 version of WordStar on The Portable?

A: No. This software will not run on The Portable.

Q: Is there any database management software available for The Portable?

A: Yes. A version of DBASEII will run on The Portable. Its product number is HP45468D.

Q: Can The Portable run off electricity as well as battery?

A: Yes. A recharger/adapter unit is included with The Portable.

Q: How much internal memory is available on The Portable? Can the internal memory be expanded?

A: There are 272K bytes of RAM available on disc "A" and 348K bytes of ROM on disc "B". No, you cannot expand the internal memory. Only external drives may be added.

Q: Can I use The Portable in European countries?

A: Yes. You will need a 220 volt adapter/recharger, product number HP82066B.

Q: Where is the serial port located on The Portable?

A: The serial port is located on the back right-hand side of the system, next to the modem connector. This is a special 9 pin connector, as opposed to the larger 25 pin connector.

Q: How can I tell which software packages will work on The Portable?

A: Software packages that have a "C" or "D" as the first alphabetic character following the product number are designed to run on The Portable.

Q: Will memory be affected if there is a power outage while I'm running The Portable with the adapter plugged in?

A: No.

Q: What languages are supported on The Portable?

A: Currently, both compiled and interpreted Microsoft BASIC and the 110 Programmers' Toolkit are supported.

Q: How can I get the BASIC Interpreter onto my RAM disc?

A: With the BASIC master disc in your "C" drive, type COPY C..* A: in the MS-DOS command line.*

Q: How do I run the built-in Diagnostic Test on The Portable?

A: To run the built-in test proceed as follows:

- *Turn The Portable off*
- *Hold [CONTROL][SHIFT][EXTEND CHAR] keys down and press [F8].*

For a more extensive diagnostic test, run the TEST program on the HP 110 Utilities disc.

Q: I was in the middle of an application when the system locked up. I tried to re-boot the system, but the keyboard just beeped. How can I get back to P.A.M.?

A: Whenever your Portable's keyboard locks up, the only key that will respond is the Contrast key (half-moon shaped key). The Contrast key is connected directly to the firmware, and is not effected by MS-DOS as are the rest of the keys on the keyboard.

To unlock your system, hold down the Contrast key until the system screen shuts off, approximately 15 seconds. To turn the system back on, press any key.

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Q: How can I get the MS-DOS edit keys to be displayed?

A: While in MS-DOS, press the [MENU] soft key.

Q: Can I have The Portable "awakened" in MS-DOS instead of in P.A.M.?

A: In order to bypass P.A.M., create a file in MemoMaker that contains the following line:

SHELL = B:BINCOMMAND.COM B:BIN /P.

Save this as A:CONFIG.SYS. Then press [CONTROL][SHIFT] [BREAK] to activate the file.

Q: How do I install applications in P.A.M.?

A: Refer to sections 2-24 and 2-25 in "Using HP 110" manual.

Q: When I first received my Portable, five applications appeared on the P.A.M. screen. Now the Diagnostics application no longer appears. What has happened, and how do I get the Diagnostics application back onto the P.A.M. menu?

A: Every disc that contains installed applications has the file PAM.MNU, which PAM checks for each applications label and program file name. (Refer to sections 2-24 and 2-25 in the "Using HP 110" manual.) If you no longr have a label on your P.A.M. menu that specifies "Diagnostics", most likely the PAM.MNU file on drive A: has been deleted.

To reinstall the Diagnostics program, follow the manual directions using "Diagnostics" as the label for the first line and "TEST.EXE" as the program name on the second line.

Q: How do you return to MS-DOS commands from the BASIC Interpreter subsystem?

A: Type "SYSTEM" and press [RETURN].

Q: My electronic disc states that there are 50K bytes free. When I try to reallocate my memory/RAM disc sizes, the RAM disc will go down to 30K and then go back to 50K. Why can't I get my RAM disc size smaller?

A: The MS-DOS electronic disc allocates space for files in a consecutive order. When you delete a file out of the middle, you leave a gap of unused space in the middle, not at the end of the disc where you need empty space in order to reallocate. Disc fragmentation is the term used to describe a disc with patches of non-consecutive empty space.

To solve this problem, copy all files from disc "A" to hard media; erase the files on disc "A"; reallocate the file space; and copy the files back on to your now-cleared electronic disc.

Q: Why do I get the message "DISCS MUST BE THE SAME SIZE" when I try to make a backup copy of the HP 110 Utilities disc using DISKCOPY?

A: When using DISKCOPY, both discs must have the same number of physical sectors and those sectors must be the same size. The HP 110 Utilities disc is a double-sided disc formatted with 512 bytes per sector. Your target disc must therefore be a double-sided disc with the same format.

Q: I am sure that I successfully stored a file to my A: drive, but now when I try to retrieve that file the system tells me the file does not exist. What could have happened to my file?

A: In P.A.M. Version A.01.01, the minimum memory allocation can be set below the 108K required for P.A.M. to run properly. If 108K is not available in memory when P.A.M. is run, it takes the extra space it needs from the EDISC, thus wiping out any files in the last 16K bytes of the EDISC. To avoid having any files erased by P.A.M., check to make sure the MEMORY/EDISG allocation is set to 108K/164K.

To permanently fix this problem, install P.A.M. A.01.02 updated ROM chips.

Q: How can I execute The Portable's escape sequences that are mentioned in the manuals?

A: The Portable's escape sequences are active all the time and can be accessed either programmatically or by using the MSDOS PROMPT command.

In BASIC, you can use the LPRINT command to send escape sequences to the printer, or use the PRINT command to send escape sequences to The Portable's firmware as follows:

```
PRINT CHR$(27) + "H" + CHR$(27) + "J"
```

where "27" is the ASCII value for the escape key. Any spaces within an escape sequence will cause an error on The Portable.

To send an escape sequence from MS-DOS, use the PROMPT command and type:

```
PROMPT $e&dA$g
```

where "$e" specifies the escape character, followed by the rest of the sequence.

Q: I have a program that takes up 100K of RAM memory to run. When I try to load it, the system just locks up and doesn't load the program. Why is this happening?

A: If you run your program from P.A.M., you not only need enough memory for your application, you also need to account for the system overhead of 4K for P.A.M. and 27K for MS-DOS. Therefore to run your program you will need a minimum of 131K available in RAM.

Q: How can I make a complete copy of the files and subdirectories on my disc? When I tried to use the MSDOS COPY *.* command, it only copied files, not subdirectories.

A: The MSDOS COPY command will only copy the files from a specific directory. The only way to copy subdirectories is to use DISKCOPY, or the COPY command and specify the exact subdirectory you want copied. For instance, the command COPY A:LEVEL1.*B:*.* will copy all files from the subdirectory LEVEL1 to the B: drive.*

Q: I have a file on my disc that has a space in the middle of the name. When I try to delete it, the system replys with a message that the file doesn't exist. How can I get rid of the file?

A: Within some applications, including MS-DOS commands, files with illegal names, or those with spaces or non-alpha numeric characters, can sometimes be saved onto media. The best way to get rid of such files is to go into MS-DOS and delete the file using the DEL command and wild cards (.*), as described on page 3.3 of your MS-DOS section.*

- *In MS-DOS, try to get the DIR command to list your file name by typing "DIR n*.*", where "n" is the first letter of your file name. Continue to add letters after the "n" until the only file listed is your problem file.*
- *Using the same parameters that listed only your problem file, delete your file using the DEL command (e.g. "DEL nnn*.*").*

Under most circumstances, this method should remove your unwanted file. If it doesn't, you will need to copy all the files you want to save onto a separate disc. Delete all files off the old disc, including the bad file, then copy back the good files.

Q: I've tried formatting my disc in every format, but each time I use DISKCOPY to copy my EDISC A:, I get the error "Source and target discs are not the same format". Why won't DISKCOPY work with the EDISC?

A: When you use DISKCOPY, your source and target disc must be the same size and have the same number of bytes per sector. Since no disc is the same size as your EDISC A:, DISKCOPY is not able to copy the files to a matching media.

Q: I was using DISKCOPY to make a copy of my Utilities disc. The copy seemed to go all the way to the end before displaying the error message, "Data error writing drive C, Abort, Retry, Ignore." The files still copied, and seem to work fine. Why do I get this error message?

A: The Portable has a built in "Write Verify" function accessed through a field in the SYSTEM CONFIG menu. When this is turned on, it is supposed to operate similar to the MSDOS verify option, however there seems to be a problem implementing this function from ROM. To avoid having any problems copying, turn the "Disc Write Verify" field to "off".

□

Q: What peripheral interfacing devices are available for The Portable?

A: There is an HP82169A HP-IL/HP-IB converter and an HP82164A HP-IL/RS-232 converter available for connecting various peripherals.

Q: What models of the ThinkJet Printer (HP2225) can be used with The Portable?

A: Both the HP2225A (HP-IB interface) and the HP2225B (HP-IL interace) can be connected to The Portable.

1. To connect the HP2225A to The Portable you need an HP82169A HP-IL/HP-IB converter. Use the PAM SYSTEM CONFIG menu to configure the printer by setting the PRINTER field to "HPGraphics/Alpha" and PRINTER INTERFACE to "HP-IB:01". Set the switches on the converter to the "0" position.

2. To connect the HP2225B to The Portable by using the two HP-IL cables, refer to section 3-2 in "Using HP 110" section of the 110 Owner's Manual. In the PAM SYSTEM CONFIG menu, set PRINTER to "HPGraphics/Alpha" and PRINTER INTERFACE to "HP-IL".

The HP2225C (Centronics interface) is NOT supported on The Portable.

Q: I have a ThinkJet Printer connected to my Portable. When I try to print, I get the message "PRINTER NOT READY". What's wrong?

A: Check your cables to make sure they are properly connected (refer to section 3-2 of "Using HP 110" manual). In SYSTEM CONFIG menu, set PRINTER INTERFACE to "HP-IL".

Q: How do I change the print pitch for the ThinkJet Printer?

A: You can change the print pitch by choosing one of the values supplied in the PRINT PITCH field of the SYSTEM CONFIG menu. The choice of pitches is "Normal", "Expanded", "Compressed", or "Expanded-Compressed".

Q: Can I connect The Portable to an external video monitor?

A: Yes. The Portable can be connected to an external video monitor using the HP 92198A video interface. You will need two HP-IL cables (refer to section 3-2 in the Using your HP 110 manual) and a video monitor. In SYSTEM CONFIG, set PRINTER to "Alpha Only" and PRINTER INTERFACE to "HP-IL".

NOTE: The external monitor will function as a printer device only. It will NOT replace the LCD display on The Portable.

Q: What is required for using the LaserJet Printer (HP2686A) with The Portable?

A: If you're using The Portable's built-in serial port, you will need an HP92221P cable. In SYSTEM CONFIG menu, set PRINTER INTERFACE to "Serial". In the DATACOM CONFIG menu, set SERIAL PORT to "RS-232", BAUD RATE to "9600", WORD LENGTH to "8 bits", STOP BITS to "1", PARITY to "Even", and XON/XOFF PACING to "On". Set remaining fields in the left column to "Ignore".

For use with HP-IL/RS-232-C converter, set PRINTER INTERFACE to "HP82164A" and set right column of DATACOM CONFIG menu to the above choices.

Q: I am going traveling to Europe and would like to use The Portable's modem. The European phones do not have cords that fit into the 110. Is there an HP acoustic coupler that can be used with The Portable?

A: Yes. The HP-IL Acoustic Coupler (HP 82168A) can be used by The Portable, and is approved for international use.

To use the coupler with the Terminal program, connect it to The Portable with HP-IL cables and set the DEVICE field to "HP 82164A" "HP 82164A" in the Terminal program's Terminal configuration menu.

Q: Can I connect an Epson Centronics printer to The Portable?

A: No. At this time The Portable does not have the software driver to communicate with Centronics printers. HP supplies an HP-IL/GP-IO converter (HP82165A) that does connect a Centronics printer to The Portable. You must also set the PRINTER INTERFACE field in the SYSTEM CONFIG menu to "HP-IB:08". If your printer still does not work with this configuration, there is probably a hardware handshaking problem between the interface and the printer.

Q: What are the configurations for connecting an Epson RX-80 Printer to The Portable?

A: Configuring the printer: Remove the front cover and find two circuit boards. The bottom board is the main circuit board. The smaller board, above the main circuit board, is the RS-232-C board.

There are two sets of switches on the main circuit board which are under the RS-232-C board, and they should be set as follows:

Switch	Setting	Description
SW 1 1	off	Compressed mode off
2	off	Zero font
3	off	Paper-out sensor active
4	off	RAM memory user-default character
5	off	Normal print mode
6	on	International character
7	on	International character
8	on	International character
SW 2 1	off	Slashed zero
2	on	Printer select
3	off	Auto line-feed off
4	off	Skip over perforation

There are two more sets of switches on the smaller RS-232-C board. These switches should be set as follows:

Switch	Setting	Description
SW 1 1	off	Word length: 8
2	on	Parity disabled
3	off	Odd parity
4	off	Flag positive polarity
5	off	Baud rate (9600)
6	on	Baud rate (9600)
7	off	Baud rate (9600)
8	off	Baud rate (9600)

SW 2 1	*on*	*I/F board enable*
2	*on*	*Buffer enable*
3	*off*	*Flag reset timing 1: Off*
4	*off*	*Flag reset timing 0: Off*
5	*off*	*Self-test disable*
6	*off*	*Self-test mode selection*

Configuring The Portable: If you're using the built-in serial port, you will need an HP92221P cable. In SYSTEM CONFIG menu, set PRINTER INTERFACE to "Serial", and in left column of DATACOM CONFIG menu, set fields: SERIAL PORT to "RS-232", BAUD RATE to "9600", WORD LENGTH to "8", STOP BITS TO "1", PARITY to "None", and XON/XOFF PACING to "On". For use with HP-IL/RS-232-C converter, set PRINTER INTERFACE to "HP82164A" and set right column of DATACOM CONFIG menu to the above choices.

□

Q: How can I log on to the HP3000 using the Terminal Emulator in P.A.M. and the internal modem?

A: The user can log on to the HP3000 either manually or automatically using the TERMINAL Emulator program and the built in modem.

To log on manually:

- *Select TERMINAL in the P.A.M. screen to invoke the TERMINAL Emulator program.*
- *Press [RETURN] to see the Configurations screen. Then press [F5] to select the TERMINAL CONFIG menu.*
- *In the TERMINAL CONFIG menu, type in the computer access telephone number in the PHONE NUMBER field, set HANDSHAKE to "Enq/Ack", EOL SEQUENCE to "CR", DEVICE to "Modem", No parity, No XMIT/RECV Pacing, 300 baud, 7 data bits, Echo Off.*
- *Press [F8] EXIT CONFIG to return to Configurations screen.*
- *Press [F2] DIAL to dial up the HP3000.*

To log on automatically:

- *Follow the steps outlined above until you are in the TERMINAL CONFIG menu.*
- *Type the following line in the LOGON STRING field:*

  W3EE{:}W5"HELLO USER.ACCOUNT"E{:}W5"<your password>"E

  (Refer to sections 1-12 through 1-20 in the Terminal Emulator User's Manual for an explanation of characters in the log-on string.)
- Put the computer access telephone number in the PHONE NUMBER field and set the rest of the fields as stated previously for manual log-on.
- Press [F2] STORE FILE and enter a valid file name in which to store this Configuration menu. Then press [RETURN].
- Press [F8] EXIT CONFIG to return to Configurations screen.
- Press [F8] EXIT TERMINAL to return to P.A.M.

- To log-on automatically through TERMINAL Emulator program, enter the filename in which you stored the Configuration menu for the HP3000 when prompted by "Enter Configuration File Name:" when you first enter the Terminal program.

NOTE: If you consistently log on to the HP3000 using the same log-on sequence, The Portable can dial up the HP3000 automatically when you invoke the TERMINAL Emulator program from P.A.M. Name the Terminal Configuration file "AUTOLOG.CNF".

Q: I put an automatic log-on string in my Terminal Config menu, but it doesn't seem to work. Why?

A: The automatic log-on only works when you first enter the Terminal program, either entering manually or through the use of an AUTOANSR.BAT file, rather than when you Dial or Connect.

Once you have filled out all of the fields in the Terminal Configuration menu, store the file and exit back into P.A.M. Rerun Terminal, and enter the Terminal Configuration file name at the first prompt. Make sure that when you put command letters (E or W) in the string, they are capitalized.

Q: I am using a logon string when connecting to CompuServ. The Portable gives me the message that it is executing a logon string, but nothing happens until I hit the return key manually. Why is this happening?

A: Sometimes the 110 sends the log-on string faster than the host computer can interpret it. This is especially true if you are sending your EOL sequence first. To help the host system understand the logon sequence, start with a wait of two seconds, "W2", and separate all EOL's with more "W1" 's. If this doesn't help, check to see that all of the fields in the Terminal Config are set correctly.

Q: How do I connect two Portables to one another via the telephone?

A: To have one Portable call and talk to another Portable, you must do the following:

- *Turn the local echo on in both systems so that the characters that you type will be displayed on the screen.*

- *Set the EOL sequence to CR/LF to force the cursor to go to a new line when you hit the return key.*
- *Turn the handshake to "NONE" and Xmit and Recv Pacing to "XON/XOFF".*
- *Set all other fields the same for both systems, except that the phone number field for the calling Portable should have the answering Portable's phone number and the answering Portable should have an "A" for answer in the phone-number field.*

When the phone rings, you can make the answering Portable answer the phone by pressing the DIAL key. Another way to answer automatically is to be in P.A.M. and have an AUTOANSR.BAT file on your A: drive. This invokes the terminal program and answers the phone.

Q: Can I use the Terminal program to send files with escape sequences to other systems?

A: Yes. Though the Terminal program does not process any escape sequences, it does interpret control characters, such as Control-Z (ASCII 26, an end-of-file marker).

Q: How can I get the Terminal program to send to the printer everything I see on the screen?

A: Once you are in the Terminal program and have communication set up with the remote host system, do the following:

- *Go into the DOWNLOAD CONFIG menu [F4]*
- *Set the "TO LOCAL FILE:" to PRN*
- *Set "PROTOCOLS:" to Off*
- *Leave all other fields at their default value and hit EXIT CONFIG*
- *Once back in the main Terminal menu, press the "USER SYSTEM" key to display the Terminal softkey labels.*

When you want to have the screen contents sent to the printer, press the "FROM HOST" key. You will then get a printed copy of anything that subsequently appears on your screen. You can only use printers that can be connected to the HP-IL interface, since the hardware that controls the modem also controls the serial port and only one can be used at a time.

The Portable's Terminal buffer is 2K, so unless the document you are printing out takes up more than buffer size, the document will not be printed until you exit the download mode.

Q: I am using the Terminal program, and keep getting stray characters on the screen. What are they, and how can I get rid of them?

A: The characters on the terminal screen are probably left over from the last operation that you did in the Terminal program. To get rid of them, home the cursor to the top of the screen and press the "Clr Dsp" key.

□

Q. What languages are currently available for the HP 150 and HP 110?

A. With the exception of Cobol, and FORTRAN, all language packages below are available for use on both the 150 and 110.

DESCRIPTION:	*PRODUCT NO.*
BASIC by Microsoft.	*45445D*
COBOL by Microsoft.	*45448A*
Compiled BASIC by Microsoft.	*45446D*
FORTRAN by Microsoft.	*45449A*
GW-BASIC by Microsoft.	*45450D*
Lattice C Compiler.	*45452D*
Pascal by Microsoft.	*45447D*

Q. What manuals are available to aid in programming on the HP 150 and the HP 110?

A. The following manuals and utilities are helpful programming aids:

The HP 150 PROGRAMMERS TOOLKIT, part number 43435A, contains:

- *HP 150 Programmer's Reference Manual*
- *Series 100 MSDOS User's Guide (from Microsoft)*
- *Series 100 MSDOS Macro Assembler Manual (Microsoft)*
- *Series 100 MSDOS Programmer's Reference Manual (Microsoft)*
- *IAPX 88 Book (Intel)*
- *A 3.5" disc with the Assembler, Linker, Debugger, File Compare, Sort, Cross-Reference, Library, Find, File Conversion, and Edlin.*

The HP 150 TECHNICAL REFERENCE MANUAL, part number 45625A, describes:

- *Hardware and Firmware of the HP 150.*
- *Firmware Alpha and Graphic calls, AGIOS.*
- *System Software, Memory organization and maps.*

The HP 150 MS-DOS USER'S GUIDE, part number 45624A, describes:

- *MS-DOS command descriptions.*
- *HP 150 terminal capabilities.*
- *Graphics and touch commands.*
- *Graphic escape sequences included.*

The BASIC PROGRAMMER'S LIBRARY, part number 45310A, contains:

- *A collection of time saving HP 150 routines that can be compiled into your BASIC program.*

FORMS MASTER software, part number 45443A, is a:

- *Display manager to use with your Pascal, Compiled BASIC, or FORTRAN programs to simplify screen design.*

The HP 110 PROGRAMMERS TOOLKIT, part number 45419C, contains:

- *Series 100 MS-DOS User's Guide (from Microsoft)*
- *Series 100 MS-DOS Macro Assembler Manual (Microsoft)*
- *Series 100 MS-DOS Programmer's Reference Manual (Microsoft)*
- *HP 110 System Reference Manual.*
- *A 3.5" Disc with the Assembler, Linker, Find, File Conversion, and Edlin.*

Q. How can I programmatically clear the alphanumerics from the screen?

A. *With the exception of GW-BASIC and COBOL, you must use an escape sequence. The general sequence is* Esc h Esc J. Esc h *will home the cursor, and* Esc J *will clear the display screen from the current cursor location.*

Some examples:

From BASIC:
```
10 PRINT CHR$(27) + "h" +
CHR$(27) + "J"
```

From GW-BASIC:
```
10 CLS
```

From Cobol:
```
SCREEN SECTION.
   01 CLEAR_SCREEN.
      03 BLANK SCREEN.
   .
   .
   .
   MAIN.
   DISPLAY CLEAR_SCREEN.
   DISPLAY(1,1)ERASE.
```

From FORTRAN:
```
WRITE(*,*) CHAR(27), 'h',
CHAR(27), 'J'
```

From Pascal:
```
WRITE (CHR(27), 'h', CHR(27),
'J');
```

From Lattice C:

Q. What are softkeys and how can I programmatically define them?

A. The HP 150 has three sets of softkeys: System, Application, and User Defined function keys.

The system set of function keys are the ones displayed when you hit the "User System" key. They are built into the HP 150's firmware and control access to the configuration and terminal control functions. The System keys can not be programmatically redefined.

The Application set of softkeys can be displayed by hitting the SHIFT and the USER SYSTEM keys simultaneously. These keys can be programmed by using the 150's AGIOS calls from assembler.

The User Defined function keys are those that can be programmed through escape sequences, and are displayed by pressing the CONTROL and the USER SYSTEM keys simultaneously. The User defined keys can be programmed, using escape sequences, from most languages.

The escape sequence below defines your softkeys, and is also in the HP 150A terminal guide, and the HP MS-DOS User's Guide:

Ec &f <attribute>a <key>k
<enhancement>v<label half>x
<label length>d <string length>l <label>
<string>

First define the function keys, and then activate them with the sequence Ec&jB. *To avoid locking up your terminal, set the terminal configuration fields,* InhHndShk(G) *and* Inh DC2(H) *to* YES.

Q. How do I intercept and redefine the keyboard?

A. On the 110, you can redefine some of the keys using Assembler. More information is available in the HP 110 Programmer's Tool Kit.

On the 150, you can programmatically redefine all of the keyboard keys using the AGIOS calls from Assembler, or you can redefine a limited number of keys using calls built into GW-BASIC, and COBOL.

Certain keys are intercepted programmatically by altering the XmitFnctn(A) *field in your terminal configuration menu. These keys are the arrow cursor keys, the insert char, delete char, insert line, and delete line keys. The following BASIC example sends an escape sequence to change the setting.*

```
  10 REM  Example to intercept the [clear line]
key
  20 REM  Run this example, if the [clear line]
key
  30 REM  is hit it will perform the operation.
If
  40 REM  any other key is hit, it will be
printed out.
  50 ESC$ = CHR$(27)
  60 DEF FNCURSOR$(R,C)=ESC$+"&a"+STR$(C)
        +"c"+STR$(R)+"R"
  70 PRINT CHR$(27);"&s1A" 'enable XmitFnctn(A)
  80 CH$=INPUT$(1)
  90 IF CH$ <> ESC$ THEN 1000
 100 CH$=INPUT$(1)
 110 IF CH$="K" THEN 500
 120 GOTO 80
 500 PRINT FNCURSOR$(34,16)
 510 PRINT ESC$;"K"
 520 GOTO 80
1000 PRINT CH$;
1010 PRINT CHR$(27);"&s0A"    'seq to disable
XmitFnctn(A)
```

Q. The HP 150 Terminal User's Guide doesn't offer very clear examples of using graphic escape sequences. Can you help me understand the principles? (1.19.85)

A. *The HP 150 Terminal User's Guide only explains the graphic capabilities of the 150. The HP MS-DOS User's Guide has a chapter dedicated to giving the escape sequences to execute those graphic capabilities, as well as providing some examples. An example of drawing a line on the screen would be:*

Ec * p a 100,300 300,300Z

Check the section in this manual pertaining to your language to see how to write this escape sequence to the screen.

Q. Can I take programs written in BASIC, GW-BASIC, Pascal, Cobol, and FORTRAN on my 150 and run them on the IBM PC?

A. *Assuming that all of the above are Microsoft languages, you can generally take your programs and run them on the IBM PC. Keep in mind that hardware differences such as screen size, color and sound may prevent total compatibility. Our GW-BASIC is equivalent to BASIC A on the IBM PC.*

Q. How do I install my own program onto the P.A.M. menu?

A. A special file must be created with a text editor. The contents of the file is different for each system. When you have created the below mentioned file, run the INSTALL *program and install the program you created.*

For the 150A:

- *Refer to page 6-22 of the HP 150 Owner's Guide. That describes the procedure necessary to create an IN$ file. There is also an application note and an article in the Communicator, issue #9, that gives step by step instructions for installing an application.*
- *When installing a compiled program, simply put the full name of your program on the third line. If you are installing an Interpretive BASIC program, you will need to put BASIC.COM on the third line, and your programs full name will then go on the fourth line.*

For the 150B:

- *See pg. 9-17 of the HP 150 Personal Computer Owner's Guide. The process is similar to the HP 150A method described above.*

For the 110A:

- *See pg. 2-24 of your HP 110 Portable Computer Owner's Manual. You must create a* PAM.MNU *file. The* PAM.MNU *file requires 2 lines for each application that is to appear in the main P.A.M. screen. The first of the two lines will be your label and the second line will be your program's full name.*

Q. Where is MS-LINK? Are the two link files on my master compiler disk MS-LINK? Which one do I use and why?

A. If you do not already have a file named LINK.EXE *on your Series 100 language disk, you should have two files named* LINK.V1 *and* LINK.V2 *Rename* LINK.V2 *to* LINK.EXE LINK.V1 *is made to run with MS-DOS version* 1.25 *and below.* LINK.V2 *will run with MS-DOS version* 2.0 *and above.*

Q. I have problems compiling my program. I always get "bad or missing command file" when I try to link. What's wrong?

A. That error means that the system can not find an appropriate linker. You must rename LINK.V2 *to* LINK.EXE *in order to execute it.*

Q. When I type in 9.9, I get 9.88888889. Why?

A. Computers store numbers in a predefined, limited, amount of space. The number actually stored may not be as precise as we might expect it to be. If a more thorough explanation is desired, an application note is available.

Q. Is there a way to dump the graphics and alpha display concurrently onto my printer?

A. The graphics and alpha display are in different sections of memory. They cannot both be dumped onto your printer at the same time. You will need to write your own printer to do this.

Q. How can I programmatically access the printer?

A. To send to direct output to the printer, you will need to open the printer as a file, in a similar manner to opening a disc file. See the section that pertains to the language you are using for the exact implementations.

Q. How can I access the plotter?

A. The plotter 'file' must be opened the same way a disc file or the printer must be opened. In order to send commands to the plotter, you will need to use HPGL (HP Graphic Language) commands.

Q. What are those four blank keys on the upper right hand side of the keyboard. Can I define and use them?

A. The four blank keys on the upper right hand side of the keyboard can be defined using assembly language. The HP 150 Programmer's Tool Kit has the information you need.

Q. The HP 125 has escape sequences to handle device mapping. Are there any such sequences for the HP 150 and HP 110?

A. The HP 150 has limited device mapping capabilities compared to the HP 125. Using escape sequences and the terminal firmware keys, you can map data from the screen or a host system to the display or to a printer. The necessary escape sequences are outlined in your HP MS-DOS User's Guide.

The HP 110 does not have any device mapping capabilities.

Q. Which of the HP languages comes with a built-in editor?

A. Series 100 BASIC (Interpreted BASIC) and GW-BASIC (Interpreted) come with their own editors. If you have any of the other HP compilers, you will need to purchase a separate editor. HP supplies text editors such as MemoMaker and WordStar, and a line editor, Edlin. Other editors can be purchased from third party vendors.

Q. How can I write programs that use Touch?

A. Touch features can be programmatically accessed through escape sequences, AGIOS function calls, or through GW-BASIC. The escape sequences are all listed in the HP 150 MS-DOS User's Guide, and can be accessed from most languages. The AGIOS calls can only be accessed from assembly language, but could also be made into subroutines and called from other languages. More information on using the assembler is in the HP 150 Programmer's Toolkit.

Q. Is there a password procedure to protect my program?

A. There is no set command to protect your program. If you want to protect a particular file or disk, the Programmer's Tool Kit has a utility called the Debugger that allows you to change attributes of each file. If you would like to try and protect your system, you can create your own security program, and run it as your system shell, or initially run program, instead of P.A.M.

Q. How do I label the graphs I drew using graphic escape sequences?

A. You must use graphics text escape sequences to label your graphs.

Q. How do I read an application data file such as a Lotus, Condor, or a dBaseII data file into my program?

A. If you have saved these data files in ASCII format, (check your respective application manuals for the right command), these data files can usually be read directly by any Microsoft language.

Q. How do I dump the graphics display onto a printer?

A. *If your printer has the capability to print out raster graphics, you can use the following escape sequence:*
Ec &p7s5dM
where the parameter 5 is used assuming you have an HPIB printer. (Replace 5 with 4 for a serial printer, or 6 for the internal printer) GW-BASIC also has a command that will do this for you. The command is LCOPY 1.

Q. What do I have to do to make my program read and write to the serial ports?

A. *Only GW-BASIC Lattice C, and Assembly allow functional access to the serial ports. The other HP Series 100 languages do not allow you to easily read and write to the serial ports.*

The problem you will encounter while reading from the ports if buffering. Since data is buffered, it will not be available to the program until the buffer (128 character default) is filled or the file is closed. The OPEN *statements were designed for data transfers, not time-critical device control handling.*

If you are using BASIC, try using The Basic Programming Library (BPL). The BPL supplies routines that perform read/write functions that can be compiled into your program.

Q. How can I access the HP-IB interface?

A. *If you are programming in BASIC, you can use the routines supplied in the BASIC Programmers Library. The device function access will allow you to access the HPIB interface.*

Q. How can I run my program and send the output to the printer?

A. *If you are interested in having a hard copy of your output from your running program, select the* Log Bottom *function key.* Log Bottom *will send whatever is on coming across your screen to the printer.*

Other methods are incorporated in the programming language itself, using directed I/O commands such as LPRINT, WRITE *and such.*

Q. I have accidentally deleted files from my disk. Is there a program I can use to recover them?

A. *No. However, if you are very familiar with MS-DOS disk format, you may be able to recover your lost file, by changing the file attribute using the Debugger Utility. The MS-DOS disk format is described in the Technical Reference Manual, and the Debugger is in the HP 150 Programmer's Toolkit.*

Q. I have noticed that some of the compiled languages have practically the same program names for each of the passes. Are they the same ones?

A. *Yes. FORTRAN and Pascal Compiler Versions* 3.13 *have the same files for the two last passes and linking. The first compiler pass for each is different. The BASIC Compiler Version* 5.35 *has no similar files.*

Q. How can I programmatically build a full screen menu?

A. *A full screen can be built either using escape sequences, Cobol's screen section commands, or using Forms Master software.*

Escape sequences can be used to activate the Format mode where you can define fields on the screen for data entry. Block mode, can be set to tell the system not to transmit information to the processor until a signal, usually the ENTER key, is given. More information on these two modes is available in Issue No. 7 of the Communicator.

Q. Can I tell a BASIC program from a FORTRAN, a Pascal, or a GW-BASIC program?

A. *No. The internals are different.*

Q. The default for each record for random files is 128 bytes. How can I increase this limit?

A. *For Series 100 Interpretive BASIC, you must invoke BASIC from MS-DOS by typing this statement:* BASIC /S:256, *which will set a record length of 256 bytes.*

Chapter two contains more information on other "switches" that can be added as well.

You do not have to set any switches for the BASIC Compiler.

Q. Is there a memory limitation in BASIC. If there is what is it and how can I work around it?

A. Yes. Your program and data together must reside in less than 64Kbytes of memory. The BASIC interpreter itself has its own memory. To work around this limitation, you may CHAIN *your programs together or use the* FRE *command to free up unused blocks of data.*

Q. How can I use a variable datafile name in the OPEN statement?

A. This sample program demonstrates opening a file with a variable datafile name:

```
 10 INPUT "PLEASE INPUT YOUR FILE NAME"; F$
 20 OPEN "O", #1, F$
 30 INPUT "PLEASE TYPE IN YOUR NAME"; A$
 50 PRINT #1, A$
 60 CLOSE #1
 65 REM Now let's see what we have created
 70 OPEN "I", #1, F$
 80 INPUT #1, E$
 90 PRINT "Your name is "; E$
100 CLOSE #1
110 END
```

Q. How can I increase the number of datafiles which I can open?

A. The Series 100 Interpretive BASIC must be invoked from MS-DOS with this statement:
BASIC /F:15

Chapter two of the BASIC manual outlines other switches.

You do not need to set any switches for the BASIC Compiler.

Q. What does the INKEY$ function do?

A. The INKEY$ *function looks for one character of keyboard input. If a character has been pressed and is waiting to be input,* INKEY$ *will return it to a string variable. If there is not a character to be input,* INKEY$ *will return the null string to a character string variable.*

Q. What's the difference between HP's GW-BASIC, Compiled BASIC and Interpreted BASIC?

A. The Series 100 BASIC is the HP 150 adaption of the industry's standard Microsoft Interpretive BASIC. The Series 100 Compiled BASIC, also from Microsoft, has a BASIC compiler and linker to make

stand alone programs. GW-BASIC is an enhanced version of the Series 100 Interpretive Basic, which utilizes HP 150 specific hardware features.

The Series 100 BASIC's are both essentially the same language. The difference is how programs are developed and run in each. In Compiled BASIC, programs must be written with a separate editor, or from within Interpretive BASIC, neither which are supplied with Compiled BASIC. Once written, the code is compiled and linked prior to being run. Interpreted BASIC is much simpler. Programs are written in the editor that is part of the BASIC environment, and can be run immediately. Programs developed in Compiled BASIC run faster and can more easily be linked to assembly language than in its interpreted counterpart.

GW-BASIC comes only in the interpreted flavor. This BASIC has been enhanced to include commands that handle softkey, touch programming, graphics, and bidirectional port communications. Unfortunately, the tradeoff is that GW-BASIC runs about five times slower than Series 100 BASIC code, and does not fully support the passing of escape sequences to the terminal. If you wish to exceed GW-BASIC's terminal control you may have problems.

Q. The only trigonometric functions intrinsic to BASIC are SIN, COS, TAN and ATN. How do I get the remaining functions?

A. *All of the other trigonometric functions can be derived from these basic functions. For instance,* SECANT(x) = 1/COS(x). *For a complete listing of these definitions, see any of the BASIC manuals under "Derived Functions."*

Q. How do I output to the plotter from BASIC?

A. *In GW-BASIC you can use the* OPEN "COM.." *command for two-way communications, provided you have a serial plotter. Otherwise, use the* OPEN *statement in all versions of BASIC, writing to the* PLT *device. The following example initializes the plotter and then writes out* COMMUNICATIONS OK *on the plotter.*

```
10 OPEN "O", #1, "PLT"
20 PRINT#1,"IN";SP1;PA500,500;"
30 PRINT#1,"LB COMMUNICATIONS OK"+CHR$(3)
40 PRINT#1,"PA0,0;SP0;"
50 END
```

Q. How do I compute LOG base 10?

A. LOG base 10 can easily be computed using LOG base e, which is provided in BASIC.

For example,

```
10 LOG.10.OF.X = LOG(X)/LOG(10)
```

Q. How do I send an escape sequence from BASIC?

A. Although, the escape character can be typed directly from the keyboard, it has no representation for display (i.e., you can't see it). To make life easy, use the BASIC function CHR$ to produce the escape character as in the sequence below:

```
 5 WIDTH 255
10 PRINT CHR$(27)+"d"; 'issues a block transfer
```

Note: Most escape sequences require PRINT *or* LPRINT *statements to end with a semicolon to suppress the carriage return/line feed that usually is printed at the end of a line. Hence, the* WIDTH 255 *statement should be included prior to printing any escape sequence to avoid exceeding the line width.*

Q. When I print numbers with the standard PRINT command, a blank character is always printed before the first digit of the number. How can I get rid of this blank?

A. The leading blank is produced with all numbers so that they are automatically separated in printing, without having to go to the extra trouble of including blanks in your PRINT *statements. One instance where these blanks can cause problems is in printing escape sequences on the HP 110. Getting rid of them requires first converting your numbers to string form with the* STR$ *function. Once converted, use the* RIGHT$ *function to remove the leading blank character.*

For example:

```
10 N=12.34                      'Define the number
20 PRINT "The number is:";N     'Blank put in
                                automatically
30 N$=STR$(N)                   'Convert to a
                                string
40 N$=RIGHT$(N$,LEN(N$)-1)      'Get rid of the
                                blank
50 PRINT "No blank here:";N$    'No blank is
                                printed
```

Q. Occasionally, my program stops for up to ten minutes and then resumes execution again. What is wrong?

A. Most likely you are extensively operating on character data. If not, there are other problems you're having.

What you have come across is the phenomenon of "garbage collection". This is the way BASIC manages memory for the storage of character string data, and does save time, overall, while your program executes. After repeated manipulation of character strings, memory gets cluttered and requires cleaning to free up precious memory. This process is called garbage collection, and can take as long as ten minutes. Nothing destructive is happening and your program will eventually resume.

If you cannot live with garbage collection, you can reduce the amount of time it takes each time by forcing it to happen more often. This is done with BASIC's FRE *command. See the manual for a more detailed explanation of the use of this command.*

Q. How do I program control codes?

A. Control codes are typed by pressing the CONTROL key and an alphabetic (A–Z) key, simultaneously. The ASCII code that results ranges from 1, for CONTROL A *to 26, for CONTROL* Z.

These codes can be included in a BASIC PRINT *statement with the* CHR$ *function. For example* CHR$(3) *is equivalent to CONTROL* C.

Control codes cannot be input to a BASIC program with the standard INPUT *command. The* INKEY$ *and* INPUT$ *functions will accept control codes as input, however. These commands are explained more in the manual.*

Q. How do I call an assembly language program from BASIC?

A. Any one intending to link substantial assembly language routines to BASIC programs should have two products: Series 100 Compiled BASIC and the Touchscreen Programmers Tool Kit, which includes documentation for assembly language programming, as well as the Macro Assembler.

Once an assembly language routine is created with the Macro Assembler, it can be called by the BASIC program with the CALL *command.*

```
10 CALL MYROUTINE( <parm1>, <parm2>, . . .
<parmN>)
```

The above line of BASIC code would be used to call an assembly language routine called MYROUTINE *Parameters, enclosed in parentheses and separated by commas, are optional. If included, their addresses in memory are pushed on the system stack for access by your assembly language routine.*

MYROUTINE *in the BASIC program, is actually a variable that will be assigned the memory location of the assembly language routine. This assignment is performed automatically by the linker when linking the assembly language routine to your compiled BASIC program. This is one important advantage of using Compiled BASIC.*

Q. I edited one of my programs using WordStar, and now I get all sorts of errors when I try to compile it. What could be causing those errors?

A. *Most likely you did not save your file as "Non-Document" when you exited Wordstar. This causes your code to have Wordstar formatting control codes embedded within it. Those codes will not be recognized by BASIC and will cause errors. To strip those control codes from your file, you can run it through the following program:*

```
 10  PRINT
 20  'Wordstar file conversion program. This
program
 30  'changes a WordStar "Document" file into a
standard
 40  'ASCII file. Any characters which are
greater than
 50  'ASCII value 128 (bit 8 set) are stripped
of bit 8.
 60  INPUT "Enter the name of your Wordstar
     file";W$
 70  INPUT "enter the name of the new file";N$
 80  IF W$=N$ THEN PRINT "No, you can not use
     the same name":GOTO 10
 90  OPEN "I",1,W$
100  OPEN "O",2,N$
110  INPUT #1,A$
120  FOR A=1 TO LEN(A$)
130  IF ASC(MID$(A$,A,1))<128 THEN 150
140  MID$(A$,A,1)=CHR$(ASC(MID$(A$,A,1))-128)
```

```
150  NEXT A
160  PRINT #2,A$
170  IF NOT EOF(1) THEN GOTO 110
180  CLOSE
```

To avoid any problems in the future, save all documents in non-document format.

Q. You say GW-BASIC will allow me to read and write to the ports. Can you give me an example?

A. There is an application note available which extensively outlines a process for communicating through the ports.

Q. What are the memory limitations for Microsoft's GW-BASIC?

A. GW-BASIC by Microsoft has a data segment limitation of 64K.

Q. Why am I having so many problems with GW-BASIC and escape sequences?

A. In general, sending escape sequences with GW-BASIC is not recommended because results can be unpredictable. GW-BASIC keeps track of cursor positioning and escape sequence programming will disturb this tracking. However, there do not seem to be any problems when using graphics escape sequences.

Q. Can I use the graphics command in GW-BASIC to plot directly to my plotter?

A. No.

Q. How do I dump graphics display programmatically?

A. Use the LCOPY 1 *command in your program.*

Q. How can I label my graphs that I've created with GW-BASIC?

A. There are two ways to label graphs. Use the DRAW *command to label your graphs or you may use graphics text escape sequences which are outlined in the HP MS-DOS User's Guide.*

Q. When I try to use the SORT command mentioned in the Cobol manual, why do I get an error message?

A. *The* SORT *utility is a separate utility supplied by Microsoft that HP has not included on the Cobol language disk. Therefore, when you try to call Sort, Cobol cannot find it, and gives you an error message. HP is now investigating ways to make a sort command available for customers.*

Q. Are there any major differences between Microsoft's Cobol and the HP 3000 Cobol?

A. *Yes, Microsoft Cobol has had the* ACCEPT *and* DISPLAY *statements rewritten to support the 150 terminal functions. These enhancements allow the user to send escape sequences which control terminal functions, and to accept characters from the screen. The Microsoft Cobol compiler is also designed differently to support micro computer processing.*

Q. How do I define escape sequences in Cobol?

A. *In your Working Storage Section create the escape variable as follows:*

```
01  ESC      PIC 99 COMP 0 VALUE 27.
```

Then when you are ready to send the sequence, DISPLAY *or* WRITE ESC "&dDThis is underlined", *or fill the area within the quotes with whatever escape sequence you desire.*

Q. How do you send escape sequences to a printer attached to the 150 from Cobol?

A. *You will need to use the* SELECT *statement in your Input Output and assign a file to* "PRINTER". *Then* OPEN *that file and* WRITE *your escape sequence to the file.*

Q. How can I create 150 screen graphics from Cobol?

A. *By using escape sequences you can create graphic images and touch fields that are documented in the HP MS-DOS User's Guide.*

Q. How does Microsoft Cobol handle overlays?

A. *There are two types of Cobol subroutines: "chained" and "called". When the user uses either of these, the subroutine code is swapped into memory, and the main program code is "overlayed" or replaced. By using subroutines, a user is capable of creating code that takes up more than the 64K limit Microsoft imposes.*

Q. When I am doing some programming in the screen section and I define a field in reverse video or underline, the enhancement seems to run off through to the end of the screen. Is there a way to get around this?

A. *The present work around is to define two small fields following the specially enhanced field. The problem occurs because Cobol turns on the line enhancements, but doesn't turn them off again at the end of the field. To turn off the enhancement within the Cobol program, defining a normal* PIC X *field after the enhanced field tells Cobol to turn the normal enhancements on for the following fields.*

Q. When I am compiling one of my Cobol programs, the system seems to hang up and I can not get the control back without doing a hard reset. What causes this?

A. *The reason the system locks up is because the system is running out of memory. To prevent this, break up your program into smaller subprograms and compile them separately.*

Q. How do I program escape sequences in FORTRAN?

A. *Here is an example program:*

This program homes the cursor, clears the screen, moves the cursor down 20 lines and prints in inverse.

```
character homeup, clr, esc
data homeup/'H'/, clr/'J'/
esc=char(27)
write(*,*) esc, homeup
write(*,*) esc, clr
write(*,*) esc, '&a10c20R'
write(*,*) esc, 'dBthis is inverse', ESC, '&d@'
end
```

Q. How can I send output to the primary or secondary printer?

A. *Here is a sample program:*

```
    character line*60
    line='this is a very long line'
    open(3, file='prn')
    write(3, 10) line
10  format(A)
    end
```

If you want to send output to your secondary printer, change the file *from* 'prn' *to* '1st'.

Q. The manual says I should have MS-LINK on my disc, but I can't find it. Where is it?

A. MS-LINK is called LINK.V2 on your compiler disc. Rename LINK.V2 to LINK.EXE before you use it.

Q. Can I call BASIC from FORTRAN? What about Pascal?

A. No. You cannot call Microsoft BASIC from FORTRAN. However, you can call Pascal procedures from FORTRAN.

Q. Can I access the datacomm ports with FORTRAN?

A. No. The only languages that will allow you to programmatically communicate with the ports are GW-BASIC, Series 100 BASIC and the BASIC Programmers Library (BPL), Lattice C, and Assembler.

Q. FORTRAN will not install into the P.A.M. menu. Why not?

A. FORTRAN is not an installable application. Use the COPY/BACKUP utility to make backups of the master.

Q. How can I write FORTRAN programs that use Touch?

A. You can write programs that use touch by using the touch escape sequences that are outlined in the HP 150 MS-DOS User's Guide.

Q. How do I declare an indexed array of character type?

A. Here is a sample program:

```
      character nname
      dimension nname(20)
      write(*,*) 'please enter a name'
      read(*,10) (nname(i),i=1,20)
10    format(20A1)
      end
```

Q. Are substring functions available in FORTRAN?

A. Version 3.13 does not have instrinsic substring functions. You will have to write your own.

Q. What are the limits on program size using the FORTRAN compiler?

A. You can have a program with total source code size up to 354K. However, each module cannot exceed 64K. The data segment is also limited to 64K. For more information, check Chapter 6 of your FORTRAN User's Guide—Compiling and Linking Large Programs.

Q. What's the difference between direct mode and sequential mode? How do I declare direct mode in Pascal?

A. Direct (random access) files, accessible using the SEEK *procedure is a feature of Microsoft Pascal.*

*Below is an example; '*datafile*' is assumed to be a file containing only characters.*

```
Program directaccess(input, output);

var
      f: file of char;
      c: char;

  begin
      assign(f, 'datafile');
      f.mode := DIRECT;
      reset(f);              { Go to record 1 }
      c := f              { Assign record 1 value }
      writeln('Record 1 value =', c);
      seek(f,5);           { Seek to record 5 }
      get(f);              { get value at record 5 }
      c := f       { Assign record 5 value }
  writeln('Record 5 value =', c);
  seek(f,10);     { Seek to record 10}
  get(f);       { Get value at record 10}
  c := f      { Assign record 10 value}
  writeln('Record 10 value =',c);
end.
```

Q. Can you show me an example using modules and units in Pascal?

A. Separate compilation of portions of a program (units and modules) again is a special feature of Microsoft Pascal.

A small example follows: the following main program is contained in a file named ALPHA.PAS:

```
program alpha(input,output,a_file,parameter);
procedure gamma;extern;        { gamma will be
                                 in another file}
procedure delta;extern;       { delta will be
                                in another file}
```

```
var a_file;text;
   parameter:string(10);

begin
 gamma;                { call gamma }
 rewrite(a_file);          { open a disk file
                           call a_file}
 writeln(a_file,parameter);   { store value of
                                prmtr in file}
 delta;              { call delta }
 gamma;                { call gamma again }
end.
```

The following portion is contained in a file called BETA.PAS:

```
module beta[public];

procedure gamma;
 begin
  writeln('This is procedure alpha');
 end;

function delta:word;
 begin
  delta :=123;
 end;
```

You can now compile the two files separately and then link them together later, using the linker.

Q. How do I call the time, date and tics functions?

A. Here is an example:

```
Program date_time (input,output);

procedure date (var s: string); EXTERN;

procedure time (var s: string); EXTERN;

var
 buf: string(80);

begin
 date(buf);
 writeln(buf);

 time(buf);
 writeln(buf);

end.
```

An example of the tics function is not available because at this time there appears to be a problem with the tics implementation on the HP 150.

Q. How can I set up a procedure that would accept the value of any key that I've pressed without pressing R?

A. To do this, you must take advantage of the following implementation addition in version 3.13 *of Microsoft Pascal:*

```
program keyin(input,output);

function dosxqq(command,parameter:word):
byte; EXTERN;

var
 cascii : byte;

begin
 write('Please hit a key-any key');
 cascii := dosxqq(1,0);
 writeln('The hit key was',chr(cascii));
end.
```

Q. How can you programmatically assign a file name in your program without having the program prompt you for the file name?

A. Use the ASSIGN *statement. See the example at the beginning of this section outlining direct mode access.*

Q. How can I access assembly language routines from Pascal?

A. First you will need the Programmer's Tool Kit for the Macro Assembler. Then you will need to create and compile the assembly language routine. In your Pascal program, declare the assembly language routines as EXTERN. *The final step is to link your Pascal program and your assembly language routine together during the link phase.*

Here's an example; the first part is the Pascal program:

```
program asm_interface(input,output);  {PASCAL
PROGRAM}

function add(var a:integer; b:integer):
integer; EXTERN;

var
 i,total:integer;

begin
 i := 10;
 total := ADD(i,15);
 writeln('The total value =',total);

end.
```

And here is the assembly language program:

```
{ The Assembly Language Program }

DATA    SEGMENT  PUBLIC  'DATA'
                         ;PUBLIC AND EXTERN
                         DATA
                         ;DECLARATIONS GO HERE
DATA    ENDS
DGROUP  GROUP DATA
        ASSUME      CS:ADDS,DS:DGROUP,SS:DGROUP
ADDS    SEGMENT 'CODE'
PUBLIC  ADD
ADD     PROC FAR
        PUSH BP          ;SAVE FRAMEPOINTER ON
                         STACK
        MOV BP,SP        ;ADDRESS PARAMETERS
        MOV AX,6[BP]     ;AX := VALUE OF B
        MOV BX,8[BP]     ;BX := ADDRESS OF a
        ADD AX,[BX]      ;AX :=INTEGER
                         A+INTEGER B
        POP BP           ;RESTORE FRAMEPOINTER
        RET 4            ;RETURN, POP 4 BYTES
ADD     ENDP
ADDS    ENDS
        END
```

Compile each of these programs separately, and then link them together later at link time.

Q. How can I write to the printer?

A. *In the MS-DOS operating system environment, you can treat the printer device almost like a disk file. If you* OPEN *or* RESET *a file called* 'prn' *and write to the* 'prn' *device, you can send output to the printer.*

Q. When I request status information, it is displayed on the screen. How can I stop this?

A. *As yet, we have not found a command or escape sequence that will inhibit the echo. However, a work around would be to send the escape sequence to clear the screen after the request for status has been made.*

□

Q: Can I retrieve data from Dow Jones and bring it into my Lotus 1-2-3 spreadsheet?

A: Yes. You can also retrieve Dow Jones data for MultiPlan and VisiCalc spreadsheets. (VisiCalc available on the 150B only.)

Q: Once I have obtained my Dow Jones data and incorporated it into my spreadsheet, can I then read that file into another spreadsheet package?

A: You can read a VisiCalc (.VC) file into Lotus 1-2-3 using the Translate utility.

Q: Once I have obtained the data for my spreadsheet, can I stay logged onto the Dow Jones service and access other information?

A: Yes. On the Retrieval Setup [F1] menu in Dow Jones Spreadsheet Link, specify a Y in the field "Continue Terminal Connection". You can then issue the appropriate // commands (i.e. //NEWS). Press [F8] when you want to return to Spreadsheet Link.

Q: What modems does HP support for use with Spreadsheet Link?

A: The following modems are supported for use with Dow Jones Spreadsheet Link:

The HP PORTABLE's built-in modem
HP 4560A–HP 150 internal (plug-in) modem (Ven-tel)
92205A–Hayes Smartmodem 1200

Q: How do I configure the modem connected to my 150B computer for use with Dow Jones Spreadsheet Link?

A:
1. *Use the terminal configuration. Touch or press the System key, then Config Keys [F8], and then Global Config [F1].*
2. *To configure the port (PORT1 or PORT2) used with the modem to the appropriate baud rate (usually 1200 or 300, depending on the modem), change the "Remote/Serial" field on the Global Config menu so that "Remote" refers to the port to which the modem is connected. Press [F1] to save the configuration.*

3. *In Dow Jones Spreadsheet Link, make sure that the Data Comm Device Number field on the Set Up Hardware menu [F4] is "1" (if you are using COM1) or "2" (if you are using COM2), as specified by the Touchscreen Device Config program.*

Q: Is Dow Jones Spreadsheet Link available on both The Portable and the 150B computers?

A: Yes. The product number is 45511D.

□

Q: Since the limit to the size of a PFS: Write document is approximately 16 pages, how can I use the product when I need to make larger documents.

*A: You can use the *JOIN filename* command to link several portions of your document together. For example, if you are going to write a document that you think will be about 50 pages, you might first break it up into 4 sections and make each a separate document file. You would then create another main document file, which links the sections (in this case doc1 through doc4) together; the main document file might look like this:*

JOIN doc1
JOIN doc2
JOIN doc3
JOIN doc4

When you print the main document file, the different sections will print one after the other.

Q: How can I count the number of lines in my PFS:Write document?

A: Use the automatic search/replace function, specifying ". ." (the wild card) as the search word and " " (blank) as the replace word. PFS:Write will then display the total number of words in your document.

Q: How can I use special characteristics of my printer (e.g. compressed print) when printing PFS:Write documents?

*A: You can send printer control codes within a PFS:Write document by embedding a *PRINT * command within the document. For example, to set up the HP150 internal printer so that it prints a section of your document in compressed print, precede the section of text with the command *PRINT 27, 38, 107, 50, 83*. After the section of text put *PRINT 27, 38, 107, 48, 83* to return the printer to its normal print size. The codes after the *PRINT * command are decimal equivalents of the escape control codes that are recognized by the printer. Refer to your specific printer manual for capabilities and escape codes appropriate to your printer. Note that you can only send 10 printer control codes per *PRINT * statement.*

Q: How do I include a PFS:Report in my PFS:Write document?

A: 1. *Design your report in PFS:Report and print it to a disk file by specifying a file name for the PRINT TO option. Make sure that you specify a page width corresponding to the page width of the document in which it is going to be included. Also specify a page length of 0, so that the report does not include page numbers.*

2. *To incorporate the report into the document only at print time, use the *JOIN * command specifying the print file name. (You may want to use the *PRINT * command before the *JOIN * to specify compressed print.)*

   To incorporate the actual text of the report into your current document, use the append file function of PFS:Write.

Q: How do I put a Visicalc spreadsheet in my PFS:Write document.

A: 1. *Print the desired section of the spreadsheet to a print file by using the /PF command and specifying a name for the print file. Be sure to set your printer configuration first using /PC, setting the first set of configuration values to NO and setting the margins appropriate to the margins of your PFS:Write document.*

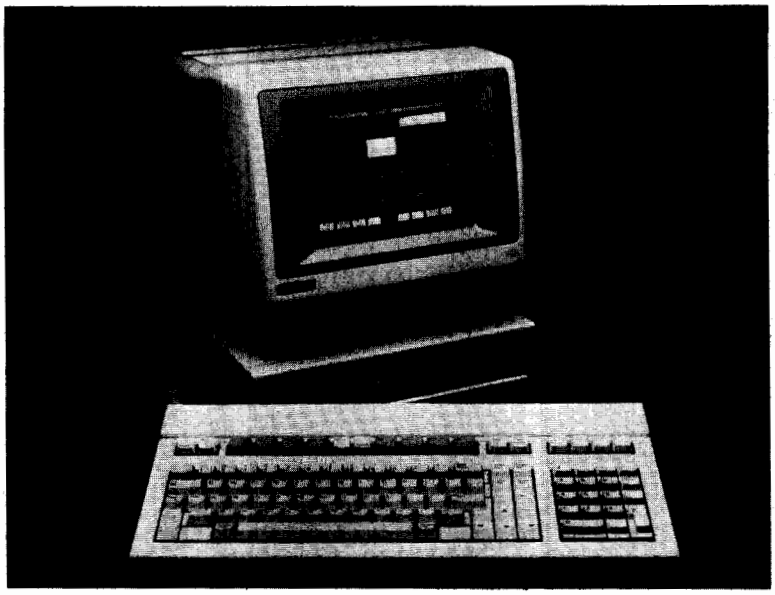
2. *To incorporate the spreadsheet into the document only at print time, use the *JOIN * command specifying the print file name. (You may want to use the *PRINT * command before the *JOIN * to specify compressed print.)*

   To incorporate the actual text of the spreadsheet into your current document, use the append-file function of PFS:Write.

□

Current Information

Current Information



The level of capability provided by advanced personal computer software—together with the rapid evolution of this field—means that you may sometimes have questions that are not answered in the product manuals. Depending on where you purchased the specific software or hardware product, the best source of assistance for that product may be your own organization, your dealer, an independent vendor, or Hewlett-Packard.

This section is designed to guide you through the process of obtaining the most rapid resolution of any question that you have. It is organized in a series of steps:

Step 1: Is the answer in the *Communicator?*
Step 2: Is the answer available through CompuServe?
Step 3: Is support provided from within your own organization?
Step 4: Was this product purchased from a dealer?
Step 5: Was this product provided by an independent vendor?
Step 6: Telephone assistance from Hewlett-Packard
Step 7: Training or consulting

By following these steps, you can rapidly and inexpensively get the answer you need.

Step 1: Is the answer in the *Communicator?*

The *Communicator* is the heart of our support program. This magazine brings you applications information, operational tips, programming techniques, information on software updates, manual corrections, and data on known software problems and their solutions.

The new Encyclopedia section, initiated with Issue #9, provides detailed, easily-accessed information on each major hardware and software product. Many of these sections are written by people from the HP HelpLine Response Center, reflecting the most common questions and problems.

Refer to the article "Ordering Communicator Subscriptions" in the Current Information section of this issue for ordering details.

Step 2: Is the answer available through CompuServe?	HP maintains a database on the CompuServe™ on-line information service called HP OnLine—it contains product news, answers to frequently-asked questions, and other information. HP also facilitates user interaction by hosting an open forum where users may post messages for general user response. Periodically, HP may respond to selected user questions. To gain access to HP OnLine, you must have an account with CompuServe (you are billed for connect time to CompuServe) and you must have a 300- or 1200-baud modem. The "Standard-Plus" class of membership in Interex, the International Association of Hewlett-Packard Computer Users, includes a subscription to CompuServe's Executive Information Service. For details on Interex, refer to the article "User Group: Interex" in this *Communicator.*
Step 3: Is support provided from within your own organization?	If you work in an organization which has several HP personal computers, there is often one person who coordinates the purchase, set-up, and training for the company or institution. In a large organization, this function is often provided by the central MIS, office-automation, or data-processing department. (For example, each Hewlett-Packard division or office has an Office Automation Coordinator, usually part of the finance department, who provides personal computer training and assistance.) Your internal support personnel have full knowledge of your organization's overall system: your internally developed programs, your particular operating and networking procedures ... and your specific hardware and software configuration. Your experts, in turn, have access to special resources within Hewlett-Packard. HP support services, such as training courses, may be purchased to supplement your internal capabilities. With centralized support within your organization, your support is localized and customized to your particular needs. If you do not have an internal support capability, support for a product generally comes from the organization that sold you the product—the dealer or Hewlett-Packard.

Step 4: Was this product purchased from a dealer?	If this product was purchased from a dealer or independent system supplier, they have worked with you to define your application and configure your system—perhaps selecting software or hardware not supplied or supported by Hewlett-Packard. Here, your dealer is the best source of assistance—knowing you, your needs, and your configuration well. Authorized dealers are backed up by special support resources within HP ... and, of course, the full range of Hewlett-Packard software and hardware support services may be purchased as a supplement to those provided by your dealer. By buying your hardware, software, accessories, and supplies from an Authorized Hewlett-Packard Dealer who provides full support, you build up a continuing relationship—providing a local, personal, and uniquely-responsive support program customized for your business.
Step 5: Was this product provided by an independent vendor?	Many products which run on HP personal computers are developed and marketed by independent organizations—referred to in the personal computer industry as "Independent Software Vendors" (ISVs) or "Independent Hardware Vendors" (IHVs). Hewlett-Packard publishes catalogs and directories listing software and hardware products that the ISVs and IHVs have tested for operation on our systems. We refer to these as "verified" or "listed" products. Because of the specialized knowledge required, your support for one of these products comes either directly from the original developer or through the dealer from whom you purchased it.
Step 6: Telephone assistance from Hewlett-Packard	Telephone assistance is available from the worldwide network of Hewlett-Packard Response Centers for most products distributed by HP. (For certain specialized non-HP-developed products which are distributed by HP under our product number, we have made arrangements for support to come directly from the original developer. This is indicated in the product data sheet and the documentation supplied with the product.) For telephone assistance outside the U.S., call your HP Sales and Service Office and ask for the Personal Computer Response Center.

In the U.S., the telephone assistance program is called HP HelpLine. The key to this program is that users who need startup assistance from Hewlett-Packard receive it through call certificates shipped with new Touchscreen systems; users whose needs go beyond startup assistance can purchase the specific per-call telephone assistance or HP training/consulting services that they need.

Here is how the U.S. HP HelpLine program works:

- The toll-free HP HelpLine number is:

  1-800/858-8867

  HP HelpLine is open Monday through Friday from 7 A.M. to 9 P.M. Eastern Standard Time (to 6 P.M. Pacific Standard Time).
- Calls to the HP HelpLine are paid for by one of three means:
  - By quoting a unique "certificate number" from a Call Certificate. Certificate books are ordered by mail or telephone from HP's computer supplies distribution center.
  - By providing a VISA, Master Charge, or American Express charge authorization.
  - By identifying yourself as the Authorized Caller under a specific annual Software Support Agreement.
- Startup assistance is provided for certain HP products through the inclusion of Call Certificates at no additional charge.
- When you call, a coordinator arranges for the appropriate HP support representative to return your initial call within two hours. Using a full set of software and documentation—together with computer knowledge, problem-solving skills, and access to further assistance via HP's worldwide telecommunications network—the support representative works with you to answer your question.
- A call-incident is defined as a discussion of moderate duration focusing on one specific topic to resolve an inquiry or problem. A call-incident includes the time on the telephone discussing the question, time to research the solution, plus any additional call-backs required to clarify the question.

- The actual charge for a call-incident is not initiated until the call is closed. There is no charge if the call is the result of a specific documentation defect or software design problem ... or if an answer cannot be found.

[Of course, this is only a summary of the new Personal Computer Assistance program. For details, please call the National Response Center at (800) 858-8867.]

Step 7: Training or consulting

Perhaps your need for support is most efficiently and economically met by training or consulting:

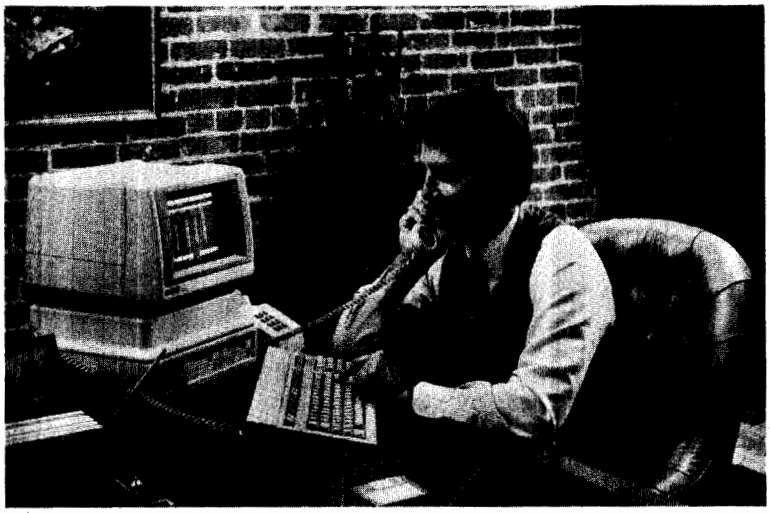
- Classroom training is available to supplement the documentation that accompanies your product. Courses can help first-time computer users rapidly build confidence and gain new skills away from the distractions of the day-to-day job. As HP training courses are developed, they are listed in the Communicator.

  These courses can be taught at your facility using your own systems. Also, training to suit your specific needs can be designed and given through HP's computer consulting service.

  Many dealers teach similar courses or can arrange for Hewlett-Packard to teach a course in your area. To discuss training, call your local dealer or HP office.

- Consulting service, available from Hewlett-Packard by the hour or by the day, provides personalized assistance in system operation, recommendations for improved performance, or suggestions on application design. Your dealer or system house may also have consulting services available. To discuss consulting, call your local dealer or HP office.

□



User Group: Interex

Curt Gowan, Dena Stein

Get in Touch

To get in touch with HP 150 Touchscreen, HP 120/125, and Portable owners in your area—and worldwide—join Interex, the International Association of Hewlett-Packard Computer Users. Interex is an independent group of HP computer users, with chapters and regional groups in 21 countries.

Start a Local Chapter

Local Interex Personal Computer chapters are now forming. For details on joining or starting a group in your area, contact Interex headquarters and ask for the pamphlet "Starting a Regional User Group."

Membership

Two levels of membership are available:

- **Standard Membership** includes a subscription to the magazine *Professional Computing*, a subscription to *Intercom* (the Series 100 newsletter), and one disc from the Interex Contributed Software Library.

  Standard Membership:
  North America $70
  Outside North America $120

- **Standard-Plus Membership,** available to users in North America, includes all the Standard Membership services *plus* a subscription to CompuServe's Executive Information Service.

  CompuServe's electronic communication network allows you to access an on-line Special Interest Group for HP users—which includes a bulletin board, online conferencing, and the Intercom newsletter.

  Your Standard-Plus Interex Membership gets you started with a CompuServe Executive Information Service account and documentation . . . plus 2 hours of free connect time on the network. CompuServe bills you directly for additional on-line time. (If you already subscribe to CompuServe, then you should order the standard membership.)

  Standard-Plus Membership
  (not available outside North America). . . $120

How to Join

To join, fill out the form on the next page.

For more information, contact:

Interex Membership Department
Fourth Floor
2570 El Camino Real West
Mountain View, CA 94040
U.S.A.
(Telephone 415/941-9960)

U.K. residents can contact the HP 100 Users Group in England:

Tim Cullis
HP 100 Users Group
Trafalgar House
Grenville Place
Mill Hill
London, NW7 3SA
England

Interex

The International Association of Hewlett-Packard Computer Users

Application for Series 100 Membership

Enclosed is my full payment for:

Standard Membership
____ North America $70*
____ Outside North America $120*

Standard-Plus Membership (not available outside North America)
____ North America $120*
**Of this fee, $15 is allocated for a subscription to* Professional Computing.

Payment Method:

☐ Check Enclosed Check Number _____ (if a company check)

☐ Bill Visa # _____ Expires _____

☐ Bill MasterCard # _____

Interbank # _____ Expires _____

Member Information:

Name _____

(Title) _____

(Company) _____

Address _____

City _____ State _____ ZIP _____

Country _____

Telephone _____

Computer: ☐ The Portable (HP 110) ☐ HP 120 or HP 125 ☐ HP 150A or HP 150B (Touchscreen PC)

Disc Format: ☐ 3½" single-sided ☐ 3½" double-sided ☐ 5¼"

(over)

Are you currently an HP 1000 or HP 3000 Interex member?

☐ No ☐ Yes: Membership # _____

Please send more information about Interex's other activities:

____ HP 1000 ____ HP 3000

I understand that no membership dues will be refunded after the contributed software library disc has been sent from Interex.

Signature _____ Date _____

Send this page with your full payment to:

Interex
Bank File #61054
P.O. Box 60000
San Francisco, CA 94160
U.S.A.

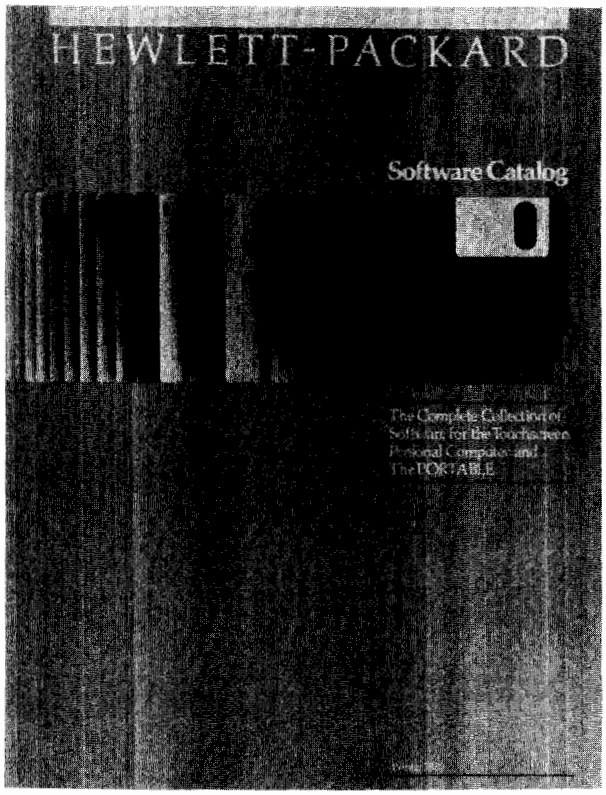
The HP Software Catalog

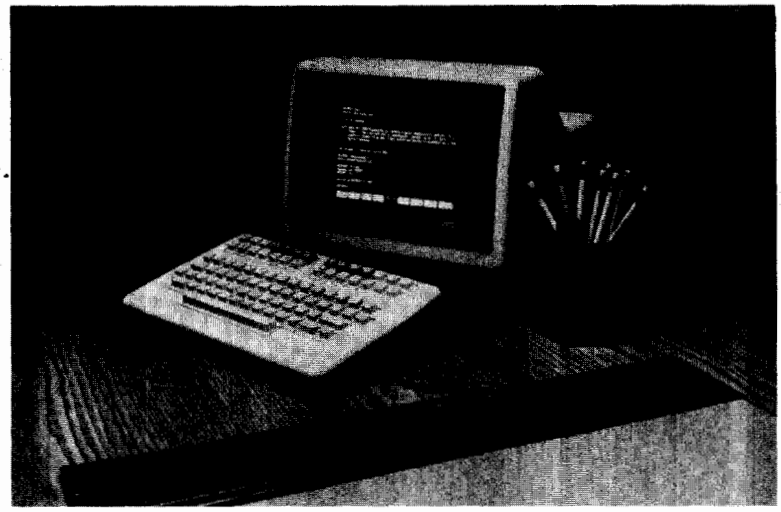
Carla Klein

The *Hewlett-Packard Software Catalog* describes more than 500 of the software products that are currently available for HP 150 Touchscreen personal computers and the HP 110 (The Portable).

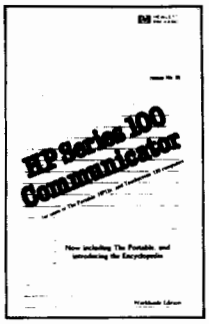
Because most of these products come from independent software vendors, the catalog also tells you how to order the software, explains how the products are supported, and describes the training that the vendor offers.

The catalog (HP part number 5953-5880) is available through HP's Direct Marketing Division (DMK). To order your copy, please refer to the "How to Order" information that appears at the back of this issue. If you are located outside the continental U.S., please note the telephone order number for your country or region.





Ordering *Communicator* Subscriptions — Russ Gordon



The *Series 100 Communicator* is the heart of the support program for The Portable, the HP 150 Touchscreen, and the HP 12x.

This publication contains articles on how to best use your system—plus each issue includes sections of the "Series 100 Encyclopedia."

The "Series 100 Encyclopedia" brings together all the current information you need, in addition to the manuals, for each of the software packages that you use. New and revised Encyclopedia articles are sent to you as part of the *Communicator.*

You can order a subscription just as you order supplies and accessories—through your dealer, by using HP's special telephone orderlines, or through your local HP office. (See the "How To Order" section in this insert for the special HP telephone number for your area.)

Series 100 *Communicator*—
U.S. Edition 45530A
Series 100 *Communicator*—
Canada/Mexico 45530B
Series 100 *Communicator*—
International 45530C
(Subscriptions outside the U.S. are sent by accelerated mail.)

Note: We are unable to start your subscription with an issue which has already been mailed; to complete your set of Communicator *issues, order individual copies as described in the next section.*

Address Corrections for *Communicator* Subscribers

Change the information on the mailing label by sending us the Change of Address form which appears at the end of this Current Information Insert. Allow 6 to 8 weeks for the change to take effect.

HP Internal Users

Have your purchasing department enter an I2 order on HP division A5 (CSO).

HP Employees

Check with the Employee Computer Program Coordinator in your personnel or purchasing department for Computer Supplies (CSO) ordering instructions.

Ordering *Communicator* Back Issues

The application information, operational tips, and programming techniques included in the *Communicator* make back issues valuable—to increase your productivity and improve your system knowledge.

To order, refer to the "How to Order" section at the end of this insert.

HP 120 and HP 125

Issues #1 through #6 cover primarily the HP 12x. (8½" x 11" page size.)

Issue #1 includes the following major articles:

–"Single and Multi-line Page Headings with Word"
–"Searching for Enhanced Text in Word"
–"Making Invisible Characters Visible in Word"
–"Directory Scrolling in VisiCalc"
–"Sending Escape and Control Codes to a Printer from VisiCalc"
–"Warning: PASCAL"
–"Things you should Know About Random Access Files"
–"HP 9895 to HP 9135 File Transfer"
–"Electronically Reading a Disc Reference Number"

Communicator Issue #1 . . . . . 5955-3937*

Issue #2 includes the following major articles:

–"Making Graphs from VisiCalc Worksheets"
–"Word and VisiCalc Go Together"
–"Printing Formulas from VisiCalc Worksheets"
–"Printing Multiple Copies From Word"
–"More on Search and Replace in Word"
–"Chaining from One Executable Program File to Another"
–"A BASIC Subroutine Library"
–"Sort and Back Up Operations with Large Data Bases"
–"Using COPY DISC to Back Up Data Files on Drive B"
–"Computing Internal Rate of Return in VisiCalc"

Communicator Issue #2—U.S. 5955-3943*
Communicator Issue #2—Intl. 5955-3947*

Issue #3 includes the following major articles:

–"Disc Formats on the HP Series 100"
–"Non-HP 12x CP/M Programs—Will They Run?"
–"Long Documents with Series 100/Word"
–"Series 100/Word: Y Table Gymnastics"
–"Using Graphics to Your Advantage"
–"Condor Tips"
–"Adding Your Application Program to the WELCOME Menu"
–"Using Softkeys on Non-HP Systems"
–"Changing Printer Characters"
–"Using The HP 2121 Disc Drive with Your HP 125A"

Communicator Issue #3 . . . . . 5957-6213*

Issue #4 includes the following major articles:

–"International System Summary"
–"Condor News"
–"Comparing BPI and Peachtree Accounting"
–"Printing Mailing Labels from Condor"
–"More on HPMAIL and the Series 100"
–"File Transfers Using PIP"
–"Accessing a Plotter from BASIC"

Communicator Issue #4—U.S. 5957-6204*
Communicator Issue #4—Intl. 5957-6214*

Issue #5 includes the following major articles:

–"Enhanced Installation Program Available"
–"Video Display Interface for the HP 125"
–"Comparing Condor and dBASE II"
–"Sending Escape Codes to Printers from WordStar and Condor"
–"Interchangeability of Word and WordStar Text"
–"Two-Column Print in WordStar"
–"WordStar Quick Tips and Defaults"
–"Getting VisiCalc to Round Dollar Values to Two Places"
–"Word: Wandering HP 2601A Printer Margins with the Sheet Feeder"
–"DSN/Link: Enhanced File Transfer Capabilities over Link/125"
–"Connecting Two Series 100 Systems for ASCII File Transfer"
–"Transferring IMAGE/3000 Data to a Condor Database"
–"Transferring Data to the HP 2700 Color Graphics Terminal"
–"Installing the Operating System on Your Fixed Disc"
–"Using the HP 2631B HP-IB Printer with Series 100"

–"Programming Challenge—Bypassing WELCOME"

Communicator Issue #5—U.S. 5957-6205*
Communicator Issue #5—Intl. 5957-6215*

Issue #6 includes the following major articles:

–"CSC Graphics Available on the Series 100"
–"New Auto Shutter for 3½ inch Micro Flexible Discs"
–"Introducing Enhanced DSN/Link"
–"Microsoft BASIC Compiler"
–"Using Block/Format on the Series 100"
–"Correction—Printing Mailing Labels From Condor"
–"WordStar/100 Multiple Column Print Update"
–"Remote Access to the HP 125"
–"Using the 92911A Bar Code Reader on the HP 125"
–"Configuring the Series 100 for use with the Diablo 630 Printer"
–"An Alternative to ALPHASORT for Series 100/Word"

Communicator Issue #6—U.S. 5957-6206*
Communicator Issue #6—Intl. 5957-6216*

HP 150 Touchscreen and HP 12x

Issues #7 and #8 cover primarily the HP 150 Touchscreen and HP 12x. (5½" x 8½" page size.)

Issue #7 includes the following major articles:

–"Transferring Files Between the HP 12x and HP 150"
–"Data Compatibility Between HP 12x and HP 150 Applications"
–"HP 12x: PIP, COPY, and BACKUP"
–"Comparing VisiCalc and MicroPlan"
–"WordStar Microspace Justification"
–"Configuring WordStar/150 for your Printer"
–"Condor Tips"
–"Correction: Remote Access to the HP 120/125"
–"BASIC/150: Block Mode Transfers"
–"HP 12x BASIC Compared to HP 150 BASIC"
–"Subtle Difference: HP 12x/150 BASIC and Other BASICs"

Communicator Issue #7—U.S. 5957-6207*
Communicator Issue #7—Intl. 5957-6217*

Issue #8 includes the following major articles:

–"HP 150 Goes Worldwide"
–"HP 12x Fixed Disc Support Now Available"
–"Future Plans for the HP 120 and HP 125"
–"Using Plotters with the HP 150"
–"Installing dBASE II on the HP 150"
–"Three-Column Print in Word/12x"
–"Plotting Condor Data with HP Graphics"
–"Transferring Data Between a Series 100 Computer and an IBM PC"
–"Accessing Plotters from BASIC/150"
–"BASIC: How Do You Make RND More Random?"
–"Install Your BASIC/150 Application in PAM"
–"Decrease BASIC/150 Debugging Time with Cross Reference Utility

Communicator Issue #8 . . . . . 5957-6218*

Portable, HP 150 Touchscreen, HP 12x

Issues #9 and onward cover the Portable, HP 150 Touchscreen, and HP 12x. (5½" x 8½" page size.)

Issue #9 includes the following major articles:

–"PIPping Files on Your HP 12x"
–"From Numbers to Charts on the HP 150: dBASEII to Series 100 Graphics"
–"HP 150 Graphics: From the Screen to Your Printer"
–"Using Lotus/150 1-2-3 with the 7475A Plotter and B-size Paper"
–"Running Applications from MS-DOS on Your HP 150"
–"Word/12x: Rapid Returns"
–"Localizing Your HP 150"
–"Using Record Mode on the HP 150"
–"Escaping in High-Level Languages"
–"Access to the Touchscreen via MS-Pascal/150"
–"So You Want to Write Programs for the HP 150"
–"Introducing PFS:File and PFS:Report for the HP 150"
–"GraphPlan: New Integrated Spreadsheet and Graphics Software"
–"New Simulations—and a Chess Game—for the HP 150"
–"Challenging New Recreational Software for Series 100 PC Users"
–"The Portable: Desktop Capability in a Notebook-Sized Package"
–"The Portable: Compatibility with the HP 150"
–"Battery-Powered Peripherals for The Portable"
–"dBASEII for The Portable ... and a New Version for the HP 150"

Communicator Issue #9 . . . . . 5957-6219*

Issue #10 includes the following major articles:

–"Removing Soft Hyphens in WordStar/12x"
–"Adding Data Points to Linear Charts in Graphics/12x"
–"Internal Rate of Return: Using the Iteration Option in Multiplan"
–"Lotus 1-2-3: Disc Drives, Peripherals, and Data Bases"
–"Setting User-Defined Function Keys in dBASE II"
–"A 'Help' Menu for CP/M Utilities"
–"Transferring Fixed-Length ASCII Records via DSN/Link"
–"A Feature-by-Feature Comparison of the HP 150 and HP 2623A Terminals"
–"Saving HP 150 Screen Graphics"
–"BAT/150: A Fast, Easy Way to Obtain an .EXE File"
–"Graphics on the HP 150: Filling Polygonal Areas"
–"The Newest Members of the HP 150 Family"
–"Two New Programming Tools for HP 150 Users"
–"Double-Sided Disc Drives for the HP 150B"
–"Announcing the EtherSeries/150 Local-Area Network"
–"The HP 150B and the IBM PC Speak to Each Other"
–"Enhanced Condor Software Now Available for the HP 150"
–"Enhanced MicroPlan for the HP 150"

Communicator Issue #10 . . . . . 5958-0250*

Issue #11 includes the following major articles:

–"Inverting the Order of Items on Lists in Word/12x"
–"Using Memory Effectively in Lotus 1-2-3"
–"Moving Blocks of Text in MemoMaker"
–"Headings and Footings in Word/12x"
–"Installing the ThinkJet Printer with WordStar"
–"Writing Your Own Menu Routines"
–"Using Escape Codes to Create Function Keys in COBOL"
–"Reads with Handshaking in HP 150 BASIC"
–"Double's No Trouble"
–"Precision Problems in Microsoft Languages"
–"Presenting The Graphics Gallery"
–"Introducing Dow Jones Spreadsheet Link"
–"The BPI Family of Accounting Packages"
–"Turbo Pascal: A Hot Item"
–"Special Upgrade for Word/12x"
–"From Keyboard to Printer with Type-a-Line"

–"PFS: . . . Everything for the HP 150 Touchscreen PC"
–"MultiMate and Friends"
–"HP 125 Software Obsolescence"

Communicator Issue #11 . . . . . 5958-0251*

Additional copies of this current issue are available:

Communicator Issue #12 . . . . . 5958-0252*

Binders

Three-ring binders are available to organize your *Communicator* back issues.

8½" x 11" page size; 1½" capacity 5955-3982
5½" x 8½" page size; 1¼" capacity; with slipcover 5958-0209

**If 10 or more copies of a single* Communicator *issue are ordered from HP at the same time, the price is discounted by 25%.*

Books on Personal Computing

Russ Gordon

This section lists several personal computer books which we have found helpful.

For ordering information, refer to the "How to Order" section at the end of this Current Information Insert.

Applications

VisiCalc Programs Made Easy
Castlewitz; Osborne-McGraw Hill, 1983

For first-time users of VisiCalc, this step-by-step tutorial uses a series of "hands on" lessons that introduce the program's format and its many commands. In the final section, advanced uses and special tricks are covered that extend the capabilities of VisiCalc programs.

HP Product Number 92233Q

VisiCalc: Home and Office Companion
Castlewitz and Chisausky with Kronberg;
Osborne-McGraw Hill, 1982

A book for both beginners and experts. For the novice, it contains 50 models that can be used immediately for personal and business applications. For the experienced user, it is a source of new ideas and techniques. Arranged by application, the book provides models for loans and investments, advertising and sales, inventory control, personnel, household aids, and more. Each model includes the VisiCalc entry grid, a descriptive narrative, and sample printed report.

HP Product Number 92233Z

Writing in the Computer Age: Word Processing Skills and Style for Every Writer
Fluegelman and Hewes;
Anchor Press/Doubleday, 1983

This book demystifies word processing and explains how it can be the ultimate tool in creating and refining your work. Topics include: hardware and software—what they are and what they do; the mechanics of working on word processors; screen and print formatting; setting up, organizing, and maintaining file systems; techniques for editing and polishing; styles and strategies; and more. This is a generic book on word processing that thoroughly covers the subject without being directed at any one word processor.

HP Product Number 92233N

	Everyman's Database Primer: Featuring dBASE II *Byers;* Ashton-Tate, 1982 Written for the novice, this book is a tutorial on relational database management systems on a personal computer. It features dBASE II™ as the database management system used to illustrate the main points. HP Product Number 92233R
	Data Base Management Systems: A Guide to Microcomputer Software *Krugliniski;* Osborne-McGraw Hill, 1983 This book provides an introduction to data bases on personal computers. It presents information which will enable you to select a data base management system to meet your requirements. A number of packages are examined in detail—including Condor and dBASE II. HP Product Number 92234A
HP 12x System Management	**CP/M User Guide** *Hogan;* Osborne-McGraw Hill, 1981 Written for all levels of expertise, this book introduces the reader to CP/M's function within a microcomputer system as well as the use of built-in and transient commands, assembly language utilities, high-level languages and applications programs. HP Product Number 92233Y
Networking	**Touring Datacomm: A Data Communications Primer** Hewlett-Packard, 1983 This is an introductory text which guides you through the basic concepts of data communications. It begins with a discussion of simple communications concepts and gradually introduces increasingly more complex topics. Topics include hardware and software; transmission methods and channels; line configurations and interfaces; signal conversion; multiplexing; common carrier services; and networks. Designed for readers with little or no previous knowledge of data communications. HP Product Number 5957-4622

Computer Networks
Tenanbaum; Prentice-Hall, 1981

This introduction to computer networks emphasizes network architectures and protocols from the physical layer to the application layer, and from local networks to satellite networks. No prior background in computer networks is assumed, though a general familiarity with computer systems and programming is desirable.

HP Product Number 92233V

Programming

BASIC For Home Computers
Albrecht, Finkel, and Brown; Wiley, 1978

Teach yourself Microsoft™ BASIC with this step-by-step self-teaching guide. (Series 100/BASIC is a version of Microsoft BASIC.) This book is suitable for the novice who has never programmed before. Commands are explained using a short working program and then illustrated in a variety of applications.

HP Product Number 92234D

Microsoft BASIC
Knecht; Dilithium Press, 1983

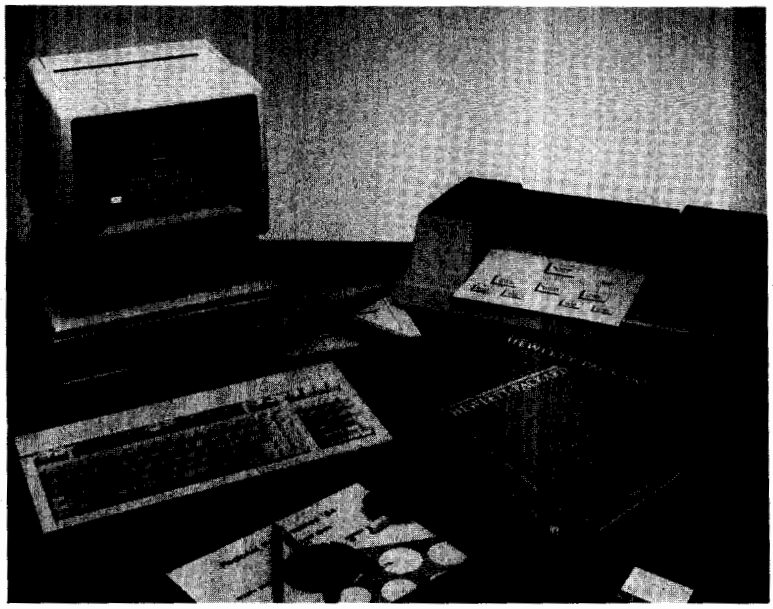
This book is appropriate for a person who already programs in another version of BASIC or another language and who wants to learn this version of BASIC. This book is not as elementary as *BASIC for Home Computers* and it covers more of the advanced features of Microsoft BASIC.

HP Product Number 92234E

The Investor's Computer Handbook
Packer; Hayden Books, 1982

This book gives programs and examples directed toward the stock market, which are transferable to other types of dynamic markets and portfolios. Types of programs explained: portfolio management and trading, research filing and retrieval, chart generation and portfolio management. The demonstration programs are written in Microsoft BASIC.

HP Product Number 92234G



Training Courses

Hewlett-Packard personal business computers and their application programs are designed for ease of use and ease of learning. Classroom training courses can help first-time computer users rapidly build confidence and gain new skills in a supportive environment away from the day-to-day job.

HP-Conducted Introductory Courses

Hewlett-Packard provides Series 100 training courses at HP Customer Training Centers using HP-provided equipment; they can also be taught by HP at your facility using your own systems. To order, call your HP Sales and Service Office.

- *Introduction to Personal Computers*

  For managers and professionals with limited knowledge of personal computers. Content: General personal computer usage including basic computer literacy, lots of hands-on use of VisiCalc®, hands-on use of word processing and graphics; summary of how PCs can work for you.

  35119A (1 day)

- *Getting Started With the Portable*

  If you're a novice computer user interested in learning how to use the HP Portable, this workshop is for you. It includes instruction on P.A.M., MemoMaker, and Terminal, along with an introduction to Lotus™ 1-2-3™ and Personal-Desktop Link. You'll get hands-on experience with the computer, the built-in applications, and HP-IL peripherals.

  35036C (1 day)

- *Getting Started with your HP 150*

  This workshop was created especially for beginners—so your first experience with your new computer will be a positive one. You'll learn how to define basic computer terms, start up the system, handle discs properly, prepare new discs, and install application software.

  35036A (1 day)

  This course, or equivalent knowledge, is a prerequisite for all applications and programming training on the HP 150.

- *HP 12x User Course*

  For any user of the HP 120/125. Content: Introduction to the HP 12x and the use of Word/12x; second day covers Graphics/12x, VisiCalc/12x, and DSN/Link/12x.

  35042B (2 days)

  This course, or equivalent knowledge, is a prerequisite for all applications and programming training on the HP 12x.

HP-Conducted Application Courses

We have structured the curriculum for maximum flexibility. You can attend whatever functional area course you want—spreadsheet analysis, word processing, data base management, or integrated software—without having to go through material you are not interested in. For further efficiency, *WordStar/150* and *Condor/150* are each divided into two modules, allowing you to choose the depth of understanding you wish to attain.

All of these classes stress hands-on work with the HP 150 during class time for maximum effectiveness.

- *Introducing Lotus 1-2-3*

  This introductory workshop familiarizes you with the features, worksheet, and command structure of Lotus 1-2-3. Using hands-on practice, you will learn how to create and format a spreadsheet; save a worksheet and print a report; create and use a database; and create, print, and plot a graph.

  45688A (one day)

- *VisiCalc/150*

  A solid introduction to the elements of a VisiCalc worksheet is provided in this workshop. Participants will learn to create, edit and print worksheets, identify and use 16 commands, activate the function keys, and store and load worksheets.

  35125A (1 day)

- *WordStar®/150*

  The WordStar® workshop will help you get started with word processing and its many capabilities. By the end of the workshop you will know how to start WordStar, create a new document, and then edit, save and print documents.

  35123B (½day)

- *MailMerge and SpellStar/150*

  As a follow-on to WordStar, this workshop shows you how to merge files with MailMerge™ as well as proof your text using the SpellStar™ 20,000 word dictionary. In practice sessions, you will learn how to create a mailing list database and then combine this with text files to print customized letters and memos. The majority of WordStar's dot commands are explained and illustrated.

  35123C (½ day)

- *WordStar/150 and MailMerge/SpellStar/150* are available as a single unit.

  35123A (1 day)

- *Condor/150 20-1*

  This workshop will introduce you to Condor™—an easy-to-use, yet powerful database management system. After you understand what a database system is you'll learn how to use one by designing a form for entering data, creating a simple dataset, editing information, sorting and creating simple reports, and reorganizing a dataset.

  35124B (1 day)

- *Condor/150 20-3*

  The Condor 20-3 workshop will provide you with in-depth experience using Condor's advanced database management and report writing capabilities including indexing a new or existing dataset, joining unlike datasets, creating, printing and revising reports, and creating and running a help screen and command procedure.

  35124C (½ day)

- *Condor/150 20-1 and 20-3* can be ordered as a single unit.

  35124A (1½ days)

- *HP 150 Applications: Sharing Information*

  Because you may use the same information in different ways, this workshop was created to teach you how to pass information from one software application to another. The following applications are covered: Condor, PCF, MailMerge, MemoMaker, SpellStar, WordStar, Graphics, and WordStar.

  35037A (½ day)

HP-Conducted Programming Courses	*Refer to "Books on Personal Computing", just before this section, for self-study texts on programming.* ■ HP 12x Programmer training is provided by the *HP 12x Program Development Course*, which covers CP/M®, the specifics of Series 100/BASIC, and the assembly language. This course is designed for those who have programming experience in both BASIC and an assembly language. 34043A (5 days)
HP Customized Training	These courses can be taught at your facility using your own systems—or training to suit your specific needs can be designed and given through HP's Personal Computer Applications Engineering Consulting Service. Contact your HP Sales and Service Office for details.
Dealer-Conducted Courses	Many HP Personal Computer Dealers teach similar courses or arrange for a Hewlett-Packard instructor to teach courses in your area. Contact your dealer for details.

Software Available from HP

Suzy Pollock
Marilyn Ruel

Here are lists of the software packages currently available from HP. There are two tables:

- Portable and HP 150 Touchscreen
- HP 120/125

Hewlett-Packard Software Catalog

The *Hewlett-Packard Software Catalog* describes more than 500 of the software products that are currently available for HP 150 Touchscreen personal computers and the HP 110 (The Portable).

Because most of these products come from independent software vendors, the catalog also tells you how to order the software, explains how the products are supported, and describes the training that the vendor offers.

The catalog (HP part number 5953-5880) is available through HP's Computer Supplies Operation (CSO), now known as Direct Marketing Division (DMK). To order your copy, please refer to the "How to Order" information that appears at the back of this issue. If you are located outside the continental U.S., please note the telephone order number for your country or region.

Portable and HP 150 Touchscreen Software Available from HP

Disc size
This software is provided on 3.5" microfloppy discs.

U.S. software on localized systems
To determine which U.S. products are recommended for use with localized HP 150 systems, check with your dealer or HP office.

Multinational versions
For most products that are distributed in several languages, the standard "A" product supports 8-bit operation and the international keyboards. For international products that do not support 8-bit operation directly, we provide a version with a "B" second suffix. For instance, a multinational company which wants to exchange WordStar documents between HP 150s located in the U.S. and the U.K. should order 45400AB.

Name	Product Number	System: Portable	System: HP 150 Touchscreen	Notes*
Word Processing:				
WordStar®	45400D	●	Touch	
	45400AB U.K. (8-bit)		Touch	3
	45400AD German		Touch	
	45400AF French		Touch	
	45400AH Dutch		Touch	
	45400AN Norwegian		Touch	
	45400AS Swedish		Touch	7
	45400AU (order HB)		Touch	2
	45400AX Finnish		Touch	
	45400AY Danish		Touch	
MailMerge™	45401AB U.K. (8-bit)		●	8
	45401AD German		●	
	45401AF French		●	
	45401AH Dutch		Touch	
	45401AN Norwegian		Touch	
	45401AS Swedish		●	7
	45401AU (order AB)		●	2
	45401AX Finnish		Touch	
	45401AY Danish		Touch	
WordStar Professional™	45427D	●	Touch	
WordStar Professional™ Options	45429D	●	Touch	
Executive MemoMaker	45418A		Touch	
Microsoft® Word	45474D	●	Touch	
MultiMate™	45424A		Touch	
PFS®:Write	45489A		Touch	
Type-a-Line	45680A		Touch	
MemoMaker	45420A	Built-in	Touch	8
	45420AA Afrikaans		Touch	
	45420AD German		Touch	
	45420AE Spanish		Touch	
	45420AF French		Touch	
	45420AH Dutch		Touch	
	45420AN Norwegian		Touch	
	45420AS Swedish		Touch	
	45420AU (order A)		Touch	3
	45420AX Finnish		Touch	
	45420AY Danish		Touch	
	45420AZ Italian		Touch	
HPWORD/150	27505A		Touch	
	27505AB (U.K. English)		Touch	

*See notes at end of table

Name	Product Number	System: Portable	System: HP 150 Touchscreen	Notes*
Electronic Spreadsheets:				
Microplan™	45465A		Touch	1
Microplan Consol.	45466A		•	1
Multiplan™	45473D	•	Touch	
	45473A International		Touch	
Lotus™ 1-2-3™	45482A	Built-in	•	1
VisiCalc®	45405A		Touch	4
	45405AA Afrikaans		Touch	4
	45405AD German		Touch	4
	45405AE Spanish		Touch	4
	45405AF French		Touch	4
	45405AH Dutch		Touch	4
	45405AN Norwegian		Touch	4
	45405AS Swedish		Touch	4
	45405AX Finnish		Touch	4
	45405AY Danish		Touch	4
	45405AZ Italian		Touch	4
Deluxe VisiCalc®	45405A		Touch	4
Computation and Analysis:				
Financial Calculator	45423A		Touch	
	45423AE Spanish		Touch	
	45423AF French		Touch	
	45423AX Finnish		Touch	
Data Bases:				
Personal Card File	45422A		Touch	8
	45422AA Afrikaans		Touch	
	45422AD German		Touch	
	45422AE Spanish		Touch	
	45422AF French		Touch	
	45422AH Dutch		Touch	
	45422AN Norwegian		Touch	
	45422AS Swedish		Touch	
	45422AU (order A)		Touch	3
	45422AX Finnish		Touch	
	45422AY Danish		Touch	
	45422AZ Italian		Touch	

*See notes at end of table

Name	Product Number	System: Portable	System: HP 150 Touchscreen	Notes*
Condor 1	45415A		Touch	1
Condor 3	45416A		Touch	1
Condor Upgrade	45417A		Touch	1
dBASE II®	45468D	●	●	
	45468AD German		●	5
	45468AF French		●	5
PFS:®File & Report	45488A		Touch	
DataFax™	45408C	●		
Accounting Systems:				
BPI General Accounting	45455A		●	
BPI A/R	45456A		●	
BPI A/P	45457A		●	
BPI Job Cost	45461A		●	
BPI Inv. Control	45460A		●	
BPI Payroll	45458A		●	
BPI Personal Accounting	45459A		●	
Rags to Riches Ledger	45520C	●		
Rags to Riches Sales	45521C	●		
Rags to Riches Receivables	45522C	●		
Rags to Riches Payables	45523C	●		
Programming:				
BASIC Programmer's Library	45310A		●	
ICON Design System	45311A		●	
Forms Master	45443A		●	
BASIC by Microsoft	45445D	●	●	
Compiled BASIC by Microsoft	45446D	●	●	
Pascal by Microsoft	45447D	●	●	
COBOL by Microsoft	45448A		●	
FORTRAN by Microsoft	45449A		●	
GW™-BASIC by Microsoft	45450D	●	●	
Cross Reference Utility	92248BA		●	
Lattice-C Compiler	45452D	●	●	
Programmer's Tools for The Portable	45419C	●		
Programmer's Tools for the HP150	45435A		●	

*See notes at end of table

Name	Product Number	System: Portable	System: HP 150 Touchscreen	Notes*
Graphics:				
Picture Perfect™	45462A		Touch	
Diagraph™	45463A		Touch	
S/100 Graphics	45410A		Touch	8
	45410AA Afrikaans		Touch	
	45410AD German		Touch	
	45410AE Spanish		Touch	
	45410AF French		Touch	
	45410AH Dutch		Touch	
	45410AN Norwegian		Touch	
	45410AS Swedish		Touch	
	45410AU (order A)		Touch	3
	45410AX Finnish		Touch	
	45410AY Danish		Touch	
	45410AZ Italian		Touch	
GraphPlan™	45467A		Touch	
GraphWriter®	45484A		Touch	
PFS®:Graph	45490A		Touch	
Charting Gallery	45513A		Touch	
Drawing Gallery	45411A		Touch	
Gallery Picture Library, Vol. II	45433A		Touch	
The Gallery Collection	45437A		Touch	
Communications:				
Advance Link	45431A		Touch	
DSN/Link	45425AB U.K. (8-bit)		Touch	8
	45425AD German		Touch	
	45425AE Spanish		Touch	
	45425AF French		Touch	
	45425AH Dutch		Touch	
	45425AS Swedish		Touch	
	45425AU (order AB)		Touch	2
	45425AX Finnish		Touch	
EtherSeries™ Local-Area Networking Products:				
EtherLink™/150	45644A		●	
EtherMail™/150 Touchscreen MAX Server Software	45647A		●	
EtherMail™/150 User Software	45639A		●	
EtherPrint™/150	45646A		●	
EtherShare™/150	45645A		●	
EtherStart™/150	45649A		●	

*See notes at end of table

Name	Product Number	System: Portable	System: HP 150 Touchscreen	Notes*
The Extended I/O Accessory	45643A	•	•	
HP-IL Interface for the IBM PC/XT	82973A	•		
Monitor/IBM PC	45439A		•	6
Touchscreen 3278 Emulation Accessory with File Transfer	45641B		Touch	
Touchscreen Internal Modem	45640A		•	
Transend COMplete	45414A		Touch	
Dow Jones SpreadSheet Link™	45511D	•	•	
VT 100 Terminal Emulator	45412A		•	
Software for the IBM PC:				
Personal Card File/ IBM PC	45422E			
TextCharts/IBM PC	45406E			
AdvanceLink/IBM PC	45431E			
MemoMaker/IBM PC	45420E			
HP Message/IBM PC	36569E			
Monitor/IBM PC	45439A			
Entertainment:				
Adventure: The Original by Crowther and Woods	92243D	•	Touch	
BARON: The Real Estate Simulation™	92243KA		Touch	
Cutthroats™	92244AA	•	•	
Cyborg	92243NA		Touch	
Deadline™	92243VA	•	•	
Enchanter™	92243UA	•	•	
The Hitchhiker's Guide to the Galaxy™	92244BA	•	•	
Infidel™	92243WA	•	•	
Milky Way Merchant	92243BA		Touch	
MILLIONAIRE: The Stock Market Simulation™	92243JA		Touch	
Planetfall™	92243PA	•	•	

*See notes at end of table

Name	Product Number	System: Portable	System: HP 150 Touchscreen	Notes*
Ricochet™	92243GB		Touch	
SARGON III	92243MA		●	
Sea Stalker	92243ZA	●	●	
Sorcerer	922434A	●	●	
Spelbound™	92243SA		Touch	
Starcross™	92243DA	●	●	
Suspect™	92244CA	●	●	
Suspended™	92243FA	●	●	
Temple of Apshai™	92243GA		Touch	
Touch Games I	92248AA		Touch	
TYCOON: The Commodity Market Simulation™	92243HA		Touch	
Type Attack™	92243EA		Touch	
Winning Deal	92248CA		Touch	
The Witness™	92243QD	●	●	
Zork® I	92243CA	●	●	
Zork® II	92243RA	●	●	
Zork® III	92243TA	●	●	
Personal Business Management:				
The Calendar	35151D	●	●	
The List Manager	35152D	●	●	
The Writer	35153D	●	●	
The Speller	35154D	●	●	
The Planner	35155D	●	●	
The Personal Correspondence Pack	35156D	●	●	
The Personal Organizer Pack	35157D	●	●	
ExecuDesk	45444A		Touch	
The ExecuDesk System	45442A		Touch	

*See notes at end of table

Notes

1—Not available in international languages. Product supports 7-bit ASCII character set.

2—Product renumbered. No change to the software. Order with "AB" suffix.

3—Product renumbered. No change to the software. Order with "A" suffix.

4—Total 512K memory recommended.

5—Product is available with international language manuals and screen messages and works with the character set of that language.

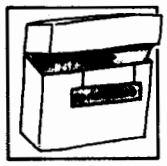
6—Monitor/IBM PC works with either 45425A, 45425AB, or 45425AU, and also with DSN/Link for the HP 120/125 computers, 45534B. Supplied on a 5.25" IBM-formatted disc. Requires 128K of RAM on the IBM PC.

7—Supplied with English reference manual and translated self-paced training manual.

8—Recommended for multi-national data exchange between 7-bit and 8-bit systems.

Software Exchange Kits— Upgrades, Updates, and Replacements for Damaged Discs

Willi McDowell



This section lists the software exchange kits available for The Portable, the HP 120/125, and the HP 150. These kits contain the latest software and any manual updates issued since the original release. **Exchange kits are provided at a nominal charge.** You return your original master disc as proof of purchase and continue operating as usual with your work copy of the software.

Software Exchange Kits are provided for several different purposes:

- **Updates.** Software is revised to add new features, to let it work with new peripherals, or to correct problems. You can update your program and manuals at a nominal cost by ordering the appropriate Software Exchange Kit.

  The Encyclopedia article for your product explains the capabilities added or problems fixed in the latest version.

- **Upgrades.** When major features are added to a software product, you can order a Software Exchange Kit at a low cost—"trading in" your older version for one with the latest capabilities and documentation.

  The Encyclopedia article for your product gives the details of new features.

- **Media Replacement.** The master-copy/work-copy technique used by the Series 100 is designed to minimize the risk of damage to your master software due to handling or human error. If this happens, Software Exchange Kits are available at a nominal charge. If the product has been updated since your original purchase, the Exchange Kit contains the latest version and any manual updates issued since the original release.

Ordering

To order:

- In the U.S., Software Exchange Kits are available through your HP dealer or by mail from HP's Computer Supplies Distribution Center, using the form given later in this magazine.
- Outside the U.S., contact your HP dealer or HP sales and service office for details.

For each kit ordered, along with your payment submit one corresponding original master disc. This is the disc with the HP software product number and description printed on the label. **Be sure to make working copies before sending your master disc.**

To determine the price for a kit, contact your dealer or HP office—or call the HP telephone order number for your country. (See the "How to Order" section later in this Current Information Insert.) HP cannot accept orders submitted without the correct master disc.

Refer to the tables on the next pages for Exchange Kit part numbers.

HP Internal Orders

For HP Internal Orders of Software Exchange Kits, return the original master discs to:

Software Product Marketing, Building 78

or Hewlett-Packard
Attn: Software Product Marketing
P.O. Box 60008
Sunnyvale, CA 94088

Reference your HP Internal Order number on the package.

Products not Listed

Because entertainment software packages are low-priced, there are no exchange kits for these products. Re-order the original product to replace damaged discs.

For information on other products not listed, contact your dealer or HP Sales and Service Office.

HP 12x Software

HP will continue to replace damaged HP 12x media, even though these products have been discontinued, through April 1990.

□

Portable and HP 150 Touchscreen Software Exchange Kits

Product	Version	Order Part Number†	System: Portable	System: HP 150 Touchscreen	Notes
HP 150B Operating System		45626-63007		•	
Op Sys	B.02.02				
Applications	B.02.02				
Utilities	B.02.02				
Sys Master Disc	B.02.02				
P.A.M.	B.02.02				
HPBIOS	B.02.02				
MS-DOS	B.02.02				
MS-DOS COMMANDS	B.02.02				
FORMAT	B.02.00				
DEV CONFIG	B.02.00				
Appl Master Disc	B.02.02				
COPY/BACKUP	B.02.02				
INSTALL	B.02.02				
SET UP P.A.M.	B.02.02				

Product	Version	Order Part Number†	System: Portable	System: HP 150 Touchscreen	Notes
Advance Link	A.01.02	45431-63002		•	
BASIC Interpreter	A.01.01	45445-63002	•	•	
BASIC Compiler	A.01.01	45446-63002	•	•	
BPI General Acctg.	A.01.11	45455-63001		•	
BPI Personal Acctg.	A.01.11	45459-63001		•	
BPI Accounts Rec.	A.01.11	45456-63001		•	
COBOL	A.01.00	45448-63001		•	
Condor 3	*A.02.11	45416-63002		•	1
CorrectStar (hard-disc upgrade)	B.31	45429-63002		•	
*Data Fax	A.01.00	45408-63001	•		
dBASE II	*A.2.41	45468-63001	•	•	
Diagraph	A.03.00	45463-63001		•	
Financial Calculator	n/a	n/a		•	2
Forms Master	A.01.00	45443-13001		•	
FORTRAN	A.03.13	45449-63001		•	
FORTRAN Upgrade	A.03.02	45499-63003		•	

Product	Version	Order Part Number†	System: Portable	System: HP 150 Touchscreen	Notes
Graphics (bar disc, pie disc, line disc, text disc, examples disc)	*A.03.00	45410-63001		•	
GraphPlan	1.00.T2	45467-63001		•	
GraphWriter	A.01.00	45484-63001		•	
GW BASIC	A.01.00	45450-63001		•	
Lattice C Compiler	Contact DMK for special instructions				
Lotus 1-2-3:					
System Disc	1.A	45482-63001		•	
System Disc	1.A	45482-63004		•	
Printgraph/Util	1.A	45482-63002		•	
Tutorial 1&2	1.A	45482-63003		•	
MailMerge	A.03.30	45401-63001		•	
MemoMaker	B.01.01	45420-63001		•	
MicroPlan	4.04.T2	45465-63001		•	
MicroPlan Consol.	4.04.T2	45466-63001		•	
MultiMate					
System Disc	3.29	45424-13001		•	
Dictionary	3.29	45424-13003		•	
Utilities	3.29	45424-13004		•	
MultiPlan	A.01.00	45473-63001		•	
Pascal	A.01.00	45447-63001		•	
PCF	B.01.02	45422-63001		•	
Picture Perfect	A.03.00	45462-63001		•	
PFS: Graph	Contact DMK for special instructions				
PFS: File & Report	A.2.41	45488-63001		•	
PFS: Write	Contact DMK for special instructions				
Prog. Tools/Portable	A.01.00	45419-63001	•		
Prog. Tools/150	A.01.00	45435-63001		•	
SpellStar	A.03.30	45402-63001		•	
Transend COMplete	1.0	45414-63001		•	
Type-a-Line	A.01.00	45680-63001		•	
VisiCalc	B.01.02	45405-63004		•	
VT100 Terminal Emulator	A.01.00	45412-63001		•	
Winstall	4.0	45400-13074		•	

WordStar	*A.03.3B	45400-63001		•
WordStar	3.34	45400-13072		•
WordStar	3.34	45400-13072	•	
WordStar Professional Options				
MailMerge	3.0	45401-13001		•
StarIndex	1.03	45403-13001		•
CorrectStar	3.31	45429-13001		•

*Revised since original release

†For each kit ordered, along with your payment submit one corresponding original master disc. This is the disc with the HP software product number and description printed on the label. Be sure to make working copies before sending your master disc.

To determine the price for a kit, contact your dealer or HP office, or call the HP telephone order number for your country. (See the "How to Order" section later in this Current Information Insert.) Orders submitted without the correct master disc cannot be accepted. If you want a kit with 5.25" discs, please indicate this preference on your order. Otherwise 3.5" disc will be shipped, regardless of the size of your returned master disc.

Notes

1—Either a Condor 20-3 disc or a Condor-20-1-to-Condor-3 Upgrade disc can be exchanged for the Condor 3 disc.

2—Low-priced package. Re-order the original product to replace damaged media.

Replacements for Damaged Media for Discontinued HP 12x Software

Product (Notes)	Version	Order Part Number† 3.5" Disc	5.25" Disc
Op Sys/Util (1)	*A.02.00	45900-13810	45900-15810
Op Sys/Util (2,8)	*A.02.00	45900-13800	45900-15800
VisiCalc (8)	*A.02.01	45531-13800	45531-15800
Graphics (8)	*A.01.03	45532-13800	45532-15800
Word/12x (8)	*A.02.03	45533-13800	45533-15800
Link/125 (3)	A.02.00	45534-13800	45534-15800
DSN/Link (4)	A.01.01	45534-13820	45534-15820
DSN/Link (5)	A.01.01	45534-13810	45534-15810
BASIC	A.05.21	45535-13800	45535-15800
Programming	A.01.00	45536-13800	45536-15800
Condor 20-1 (7)	A.02.00	45550-13800	45550-15800
Condor 3 (6,7)	*A.02.01	45550-13802	45550-15802
BPI G/A	A.01.00	45552-13800	45552-15800
BPI Payroll	A.01.00	45553-13800	45553-15800
WordStar	A.01.00	45560-13800	45560-15800
SpellStar	A.01.00	45561-13800	45561-15800
MailMerge	A.01.00	45562-13800	45562-15800
MicroPlan	A.01.00	45670-13800	45670-15800
MicroPlan Cons.	A.01.00	45671-13800	45671-15800

See notes on next page.

*Revised since original release.

†For each kit ordered, along with your payment submit one corresponding original master disc. This is the disc with the HP software product number and description printed on the label. Be sure to make working copies before sending your master disc.

To determine the price for a kit, contact your dealer or HP office—or call the HP telephone order number for your country. (See the "How to Order" section later in this Current Information Insert.) Orders submitted without the correct master disc cannot be accepted.

Notes

1—This kit is to *update* a Series 100 Op Sys. This kit contains the current Operating System disc, the current Utility Disc, the current Computer Tutor Disc, and all Owner's and Installation manual updates issued since the initial 5½ x 8" editions. (An *upgrade* kit to move from earlier HP 125 versions is available as part number 45900-13800 or 45900-15800.)

For each kit ordered, return one original **Series 100** A.01.20 Operating System disc. (This kit includes the current Utility and Computer Tutor discs—but only the Op Sys disc will have to be returned.)

2—This kit is to *upgrade* an A.01.10 version or an A.01.20 Operating System labeled **"HP 125"** (rather than "**Series 100**").

This kit contains:

—The new 5½" x 8½" Owner's Manual, with slipcase.

—The new 5½" x 8½" HP 125B Installation Manual, with slipcase.

—Current Operating System disc, which includes the improved WELCOME utility, the single-disc COPY utility, and the single-disc INSTALL utility.

—A Utility Disc, containing the new fixed-disc BACKUP utility.

—The new Computer Tutor Disc (a computer-aided introducton to the 120/125 system for the first-time user).

(If you have an A.01.20 Operating System labeled "*Series 100*", order part number 45900-13810 or 45900-15810.)

For each kit ordered, return one original **HP 125** Operating System disc. (This kit includes the current Utility and Computer Tutor discs—but only the Op Sys disc will have to be returned.)

3—This kit is to exchange your Link/125 disc for a Link/125 disc. (If you want to *upgrade* to Series 100 DSN/Link, order part number 45534-13810 or 45534-15810.)

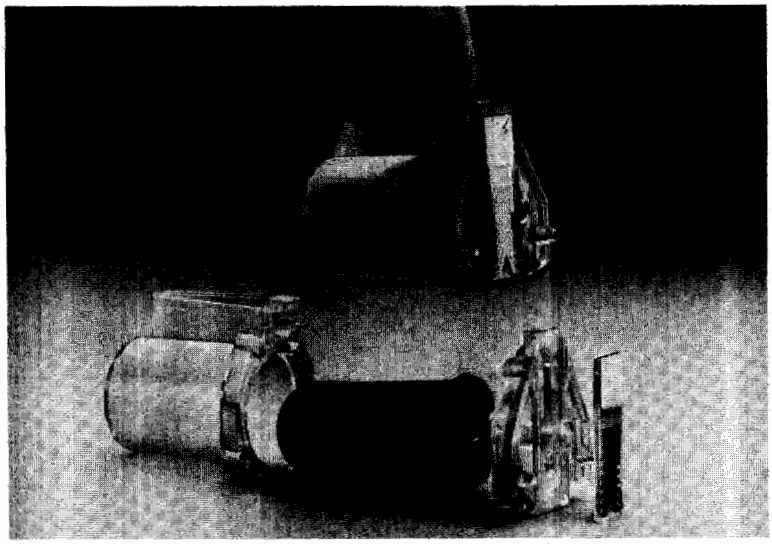
4—This kit is to exchange your Series 100 DSN/Link disc for a Series 100 DSN/Link disc. (If you currently have Link/125, order part number 45534-13810 or 45534-15810 to upgrade to Series 100 DSN/Link.) For each kit ordered, return one original **Series 100/DSN/Link** disc.

5—This kit is to *upgrade* Link/125 to Series 100 DSN/Link—including a second disc containing DSN/Monitor. For each kit ordered, return one original **Link/125** disc.

6—A Condor 3 disc, a Condor 20-2 or 3 Upgrade disc, or a Condor 20-1 to 3 Upgrade disc may be exchanged for the Condor 3 disc.

7—To *upgrade* to Condor 3, order product 45550K, 45550N, or 45550P.

8—Exchange Kit includes complete new 5½" x 8½" manuals.



Supplies and Accessories

Audrey Stroub,
Russ Gordon

Here is a list of the most popular Series 100 supplies and accessories.

A full list of HP computer supplies matched to your system for optimum performance appears in the *HP Computer User's Catalog*.

For ordering information—or to obtain a copy of the *User's Catalog*—refer to the "How To Order" section in this Current Information section.

Binders

5955-3982	8½" x 11" page size; 1½" capacity
5958-0209	5½" x 8½" page size, 1¼" capacity; with slipcover

(5½" x 8½" filler paper is available at your office supply store. The part numbers for one brand, National Blank Book, are 14-250 and 14-251—for plain and ruled paper, respectively.)

For Computers

■ The Portable

13269K	Vinyl replacement case
13269U	Carrying case
13269V	System carrying case
13269W	Attaché case
92221P	RS232C printer cable (1.5 meters)
92221M	RS232C modem cable (1.5 meters)
92222F	RS232C gender converter (female)
92222M	RS232C gender converter (male)

■ HP 120 Personal Computer

13242H	RS-232C cable (use 13242-60011 for replacement)
13269P	Carrying case (for HP 120 with short keyboard plus 9121 disc drive; or HP 120 with extended keyboard)
92171C	Keyboard drawer park
92171J	Keyboard park
92171T	System turntable
92240A	Display tilt unit
92240B	Display swivel unit
92250D	Dust cover
92220R	Right-angle HP-IB cable (0.3 meters long)
92251P	"Stacked" dust cover (for computer and disk drive)

■ HP 125 Personal Computer

92160A	Thermal paper, blue print (box of 24 rolls)
92160B	Thermal paper, black print (box of 24 rolls)
92171C	Keyboard drawer park
92171R	Keyboard palm rest (for extended keyboard)
92171T	System turntable
92207A	Anti-glare filter
92250B	Dust cover

■ **HP 150 Touchscreen Personal Computer**

92160A	Thermal paper, blue print (box of 24 rolls)
92160B	Thermal paper, black print (box of 24 rolls)
92160C	Thermal paper, (page-perforated, box of 24 rolls)
13242H	RS-232C cable (use 13242-60011 for replacement)
13269C	Carrying case (for HP 150 and 9121 disc drive)
92250F	Dust cover
92171C	Keyboard drawer park
92171J	Large (extended) keyboard park
92240A	Light-gray tilt unit
92240B	Light-gray swivel unit
92220R	Right-angle HP-IB cable (0.3 meters long)

For Disc Drives

■ **HP 82901M/S, 82902M/S, 9130A, 9135A 5.25-inch Disc Drives**

92190A	5.25-inch flexible discs, double-sided (box of 10 discs)
92190L	5.25-inch flexible discs in Flex Files
92193K	5.25-inch flexible-disc drive-cleaning kit
92251A	Dust cover (82901M/S)
92251B	Dust cover (82902M/S)

■ **HP 9121D/S, 9133A/B, 9133V/XV, 9134 3.5-inch Disc Drives; 9114A, 9122D, 9122S, and 9133D Disc Drives**

92191A	3.5-inch micro flex discs—single-sided (box of 10)
92192A	3.5-inch micro flex discs—double-sided (box of 10)
92191D	3.5-inch micro flex disc desktop file (capacity 50)
92191C	3.5-inch micro flex disc album (capacity 20)
92191R	3.5-inch micro flex disc roll-top file (capacity 50)
92251D	Dust cover (9121 D/S)
13269T	Disc-drive case (for 9121)

For Printers

■ **HP 2225A/B/C ThinkJet**

92261A	Individual printhead ink cartridge
92261L	Fan-folded ink-jet paper (1000 sheets)
92261M	Cut-sheet ink-jet paper (Four 500-sheet packs)
92261N	Fan-folded ink-jet paper (five 500-sheet packs)
92261S	Desktop ThinkJet printer stand
92250V	Dust cover

■ **HP 2601A Daisywheel Printer**

92151C	Multi-strike ribbon cartridges (box of 12 cartridges)
92151D	Fabric ribbon cartridges (box of 12 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated fan-folded (box of 2400 sheets)
92177Q	Sheet-feeder
92252 Series	Plastic print wheels, 96 character (box of 6 wheels)
92153 Series	Metal print wheels (1 each)

■ **HP 2602A Daisywheel Printer**

92151H	Multi-strike ribbon cartridge (box of 12 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)

92157C	Printer paper, microperforated fan-folded (box of 2400 sheets)
92177R	Sheet-feeder
92262 Series	Plastic print wheels, 98-character, USASCII
92263 Series	Plastic print wheels, 98-character, International
92264 Series	Plastic print wheels, HP 150 International Keyboard Support

■ **HP 2932A/2934A Dot-Matrix Printer**

92154B	Print head (average life of 200 million characters)
92155L	Ribbon cartridges (box of 3 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated, fan-folded (box of 2400 sheets)

■ **HP 2671A/G and 2673A Thermal Printers**

92160A	Thermal paper, blue print (box of 24 rolls)
92160B	Thermal paper, black print (box of 24 rolls)
92160C	Thermal paper, blue print, page perforated (box of 24 rolls)
92160D	Thermal paper, black print (box of 4 rolls)
92160E	Thermal paper, black print (box of 330 fan-folded sheets)
92160M	Thermal paper, blue print (box of 1320 fan-folded sheets)
92160N	Thermal paper, black print (box of 1320 fan-folded sheets)

■ **HP 2686A LaserJet Printer**

92219H	RS232C cable to HP 150 (5 meters)
92219J	RS232C cable to IBM PC (5 meters)
92215F	RS232C extension cable (15 meters)
92215T	RS232C extension cable (30 meters)
92285A	Toner (EP) cartridge
92285B	8.5" x 11" paper tray
92285C	8.5" x 14" paper tray
92285D	Metric A4-size paper tray
92285E	Metric B5-size paper tray
92286A	Plug-in type-font cartridge (Courier and Line Printer, compressed)
92286B	Plug-in type-font cartridge (Proportional Spacing)
92286C	Plug-in type-font cartridge (International Courier)
92286D	Plug-in type-font cartridge (Prestige Elite)
92286E	Plug-in type-font cartridge (Letter Gothic)
92286F	Plug-in type-font cartridge (Proportional Spacing II)
92286G	Plug-in type-font cartridge (Legal Elite)
92286H	Plug-in type-font cartridge (Legal Courier)
92286L	Plug-in type-font cartridge (Courier and Line Printer)
92286U	Plug-in type-font cartridge (Forms, "portrait"-style)
92286V	Plug-in type-font cartridge (Forms, "landscape"-style)

■ **HP 82905A/B Dot-Matrix Printer**

92156A	Ribbon cartridges (box of 2 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated, fan-folded
92154P	Print head
92171S	Desktop printer stand
92250T	Dust cover

■ **HP 82906A Dot-Matrix Printer**

92156A	Ribbon cartridges (box of 2 cartridges)
92154N	Print head
92171N	Forms tractor unit
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated, fan-folded (box of 2400 sheets)
92171S	Desktop printer stand

For HP 7470A and 7475A Plotters

■ **Paper**

9280-0589	Fifty A-size sheets (blank)
9280-0517	Three hundred A-size sheets (blank)
9280-0588	Fifty A4-size sheets (blank)
9280-0519	Three hundred A4-size sheets (blank)
9280-0614	Fifty B-size sheets (blank)
9280-0518	Three hundred B-size sheets (blank)
9280-0615	Fifty A3-size sheets (blank)
9280-0610	Three hundred A3-size sheets (blank)
9280-0640	Fifty A-size sheets (gloss-finish heavy-weight)
9280-0642	Fifty A4-size sheets (gloss-finish heavy-weight)
9280-0641	Fifty B-size sheets (gloss-finish heavy-weight)
9280-0643	Fifty A3-size sheets (gloss-finish heavy-weight)

■ **Paper-and-Pen Kits**

5061-5070	Three hundred A-size sheets; pen holder; 20 fiber-tip pens (10 colors, 2 line-widths)
5061-5071	Three hundred A4-size sheets; pen holder; 20 fiber-tip pens (10 colors, 2 line-widths)

■ **Transparency Film**

9270-1126	Fifty A-size sheets (for the 7470A plotter)
9270-1181	Fifty A-size sheets (for the 7475A plotter)
9270-1182	Fifty A4-size sheets (for the 7475A plotter)

■ **Transparency Kits**

5061-7561	Fifty sheets of paper-backed A-size transparency film; 16 pens (7 colors, 2 tip-widths) (for the 7470A plotter)
5061-7583	Fifty sheets of paper-backed A-size transparency film; 16 pens (7 colors, 2 tip-widths) (for the 7475A plotter)
5061-7584	Fifty sheets of paper-backed A4-size transparency film; 16 pens (7 colors, 2 tip-widths) (for the 7475A plotter)

■ **Fiber-Tip Pens (for use with paper)**

5060-6784	Narrow line-width (0.3-mm) red pen (package of 5)
5060-6785	Narrow line-width (0.3-mm) blue pen (package of 5)
5060-6786	Narrow line-width (0.3-mm) green pen (package of 5)
5060-6787	Narrow line-width (0.3-mm) black pen (package of 5)
5060-6890	Wide line-width (0.7-mm) black pen (package of 5)
5060-6891	Wide line-width (0.7-mm) blue pen (package of 5)
5060-6892	Wide line-width (0.7-mm) green pen (package of 5)
5060-6893	Wide line-width (0.7-mm) red pen (package of 5)

5060-6810	Narrow line-width (0.3-mm) pens (package of 4: one each red, blue, green, and black)
5060-6858	Wide line-width (0.7-mm) pens (package of 4: one each red, blue, green, and black)
5060-6894	Narrow line-width (0.3-mm) pens (package of 6: one each orange, brown, violet, turquoise, gold, lime green)
5060-6895	Wide line-width (0.7-mm) pens (package of 6: one each orange, brown, violet, turquoise, gold, lime green)

■ **Transparency Pens (for use with film)**

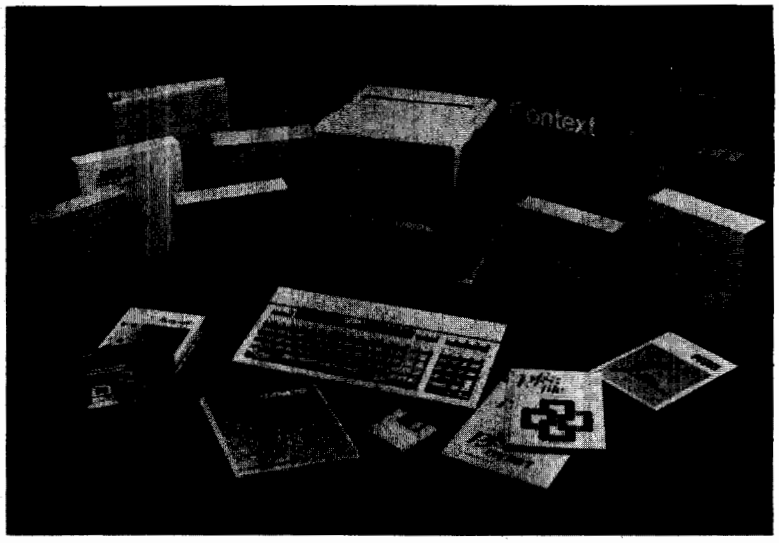
5061-5010	Narrow line-width (0.3-mm) black pen (package of 5)
5061-5012	Narrow line-width (0.3-mm) red pen (package of 5)
5061-5015	Narrow line-width (0.3-mm) green pen (package of 5)
5061-5016	Narrow line-width (0.3-mm) blue pen (package of 5)
5061-5020	Wide line-width (0.7-mm) black pen (package of 5)
5061-5022	Wide line-width (0.7-mm) red pen (package of 5)
5061-5025	Wide line-width (0.7-mm) green pen (package of 5)
5061-5026	Wide line-width (0.7-mm) blue pen (package of 5)
5060-6818	Narrow line-width (0.3-mm) pens (package of 4: one each red, blue, green, and black)
5060-6819	Wide line-width (0.7-mm) pens (package of 4: one each red, blue, green, and black)
5060-6834	Narrow line-width (0.3-mm) pens (package of 4: one each orange, brown, violet, and black)
5060-6835	Wide line-width (0.7-mm) pens (package of 4: one each orange, brown, violet, and black)

■ **Solvent**

5060-6828	One ounce (29.6 ml) of solvent for refreshing dry transparency pens

■ **Accessories**

92171S	Desktop stand (7470A)
92177T	Plotter-pen organizer (for short pens)
92177U	Plotter-pen organizer (for tall pens)
92250N	Dust cover (7470A)



All of the items listed in this issue, except software update/upgrade kits and HP-conducted training courses, are available from your dealer or HP:

- Your local HP Dealer can often provide immediate delivery. (To locate a dealer, call 800/FOR-HPPC in the U.S. or contact your local HP office—ask for "Personal Computer Dealer Sales.")
- Your HP Sales and Service Office will transmit your order to the appropriate HP distribution center.

Ordering by Telephone from HP

Except for systems, peripherals (such as disc drives and printers), and training courses, the items listed in this issue are also available by telephone from Hewlett-Packard:

- Austria ..... (0222) 2500615/616
- Australia ..... (03) 895-2645
  (03) 895-2615
  (02) 888-7712
  (02) 888-4444
- Belgium/Luxembourg ..... (02) 762 32 00
- Canada
  Toronto local ..... (416) 671-8383
  Ontario and Quebec 1-800-387-3417
  British Columbia 112-800-387-3154
  other provinces 1-800-387-3154
- Denmark ..... (02) 816640 (ext. 258)
- Finland ..... (80) 4550211
- France ..... (6) 928 32 64
- Italy ..... (02) 923 69437
  (02) 923 69478
- The Netherlands 020-470639
- Norway ..... (02) 171180
- South Africa 802-5111
  53-7954
  28-4178
- Spain ..... (01) 6374013
- Sweden 08-7502027
  08-75020208
- Switzerland ..... (057) 31 22 54
  or 31 22 59
- United Kingdom 0734-792868
  0734-792959
  0734-697201
- United States 800-538-8787
  California 408-738-4133

	■ West Germany ..... 07031-142829 07031-223133 (0130) 3322 For countries not listed, call your local HP Sales and Service Office.
Ordering HP-Conducted Training Courses	Hewlett-Packard provides personal computer training courses at HP Customer Training Centers using HP-provided equipment; they can also be taught by HP at your facility using your own systems. To order, call your HP Sales and Service Office.
Ordering Software Update and Upgrade Kits	Your original master disc must accompany an order for software update or upgrade kits. Therefore, they are available only through your local dealer or from HP by mail. For ordering instructions, refer to the article "Software Exchange Kits" elsewhere in this Current Information section.
HP Internal Users	Have your purchasing department enter an I2 order on the supplying entity shown for the item on the Corporate Price List or the Parts Price List. If you are ordering a Software Exchange Kit, return the original master disc to: Software Administrator/Internal Orders, Building 78/5 or to: Hewlett-Packard P.O. Box 60008 Sunnyvale, CA 94088 Attn: Software Administrator/ Internal Orders Reference your HP Internal Order number on the package.
HP Employees	Check with the Employee Computer Program Coordinator in your personnel or purchasing department for ordering instructions.

Mail Order Form
for HP Personal/Desktop Computer Software Update Kits

Use this form only for HP Personal/Desktop Computer Software Update Kits. Supplies matched to your HP Computer System can be ordered with update kits.

Ordering instructions:

1. Print or type all requested customer information.

2. Order software update kit(s) for your HP Personal/Desktop Computer. The original disc must be sent to HP with your order for the software update kit; see instruction 7.

3. You may also order computer supplies using this form. Obtain current prices by calling toll-free 800-538-8787. In California, Alaska and Hawaii call (408) 738-4133 collect.

4. Compute state/local taxes on the total cost of items ordered (HP is required to collect taxes; their omission delays your order). If tax exempt, you must provide your tax exemption/resale number.

5. Fill in any special shipping instructions, as required. HP pays freight to U.S. addresses on mail orders, EXCEPT you will be charged extra for special expedited shipping methods; and you will be charged freight on heavy, bulky items weighing more than 30 lbs., such as furniture or printer paper.

6. Fill in credit card information or enclose cashier's check for fastest shipment. Payment by personal or company check will delay shipment up to 10 days. Make check payable to **Hewlett-Packard Co.** All orders subject to credit approval. **Do not send currency, coin, stamps or purchase orders.**

7. Before your software update kit(s) can be shipped, you must send with your order one original disc (containing the software being updated) for each update kit ordered. This is the disc with the HP software product number and description printed on the label. Be sure to make a working copy before sending the original.

8. Mail this form, along with credit card information (or check), and the original disc to:

HEWLETT-PACKARD
Mail Order Dept., P.O. Box 60008, Sunnyvale,CA 94088

Thank you for your order!

ur Name	Phone ( ) –	Date

Disc Size:
_____ 5.25" _____ 3.5"

Line	Product Number	Description	Quantity	Unit Price	Amount
1				.	.
2				.	.
3				.	.
4				.	.
5				.	.
				Subtotal	.
				State/Local Taxes	.
				TOTAL	.

Tax Exempt? ☐ No ☐ Yes

Tax Exempt or Resale Number _____

Ship To

Company _____

Attn Of _____ Bldg/Room _____

Street Address _____

City _____ State _____ Zip _____

Standard Shipping Method Is UPS Surface

Special Shipping Instructions

_____

_____

_____

Payment Method

☐ Purchase Order (Number _____)

☐ Check Enclosed (Payable to Hewlett-Packard Co.)

☐ Credit Card (Check one, provide all information, and sign)

☐ MasterCard ☐ [illegible] ☐ VISA

Account No.

Expiration Date __ – __

Name on Card _____

Address _____

Signature _____

Use this form for prepaid U.S. orders only

POD 1/84

Change of Address Form for *Communicator* Subscribers

If the information on your *Communicator* mailing label is no longer correct, please let us know. Fill in this form and mail it to **Hewlett-Packard, Subscriptions Marketing Department, P.O. Box 60008, Sunnyvale, CA 94088 U.S.A.** Allow 6–8 weeks for change to take effect.

(please print)

Old Address:
(attach mailing label or fill in information as it appears on mailing label)

Name _____ (Title) _____

(Company) _____

Address _____ (Bldg No./Mail Stop) _____

City _____ State _____ Zip _____

Country _____

New Address:
(exactly as it should appear on the mailing label)

Name _____ (Title) _____

(Company) _____

Address _____ (Bldg No./Mail Stop) _____

City _____ State _____ Zip _____

Country _____

Hewlett-Packard computer-equipment care—expert service for your peace of mind

You have acquired a powerful tool in the engineering excellence of your new Hewlett-Packard product. By boosting your operation's productivity, this high-quality equipment will help you achieve the success you desire in your business.

But investing in productive hardware isn't enough. To realize the potential of your investment, you should select the proper care and maintenance program for your product. Just as a championship racing driver depends on the pit crew for help in reaching the checkered flag, you can count on the skill of HP's service engineers to help you win in the business world. Hewlett-Packard maintenance will protect your investment and ensure productivity in the long run.

Discover the lasting value of HP product-care agreements

By selecting a service program that meets your needs, you can maximize the return on your hardware investment. HP maintenance agreements combine assured response and long-term economy. In fact, in most cases, the annual cost of a maintenance agreement is much less than the charge for the parts and labor involved in a single service call.

Hewlett-Packard product-care agreements offer the following features:

Economy through quality
The reliability built into HP products lets you obtain maintenance agreements at the lowest possible cost.

Guaranteed cost
The price of contractual maintenance is fixed for twelve months. This guaranteed cost lets you plan your budget with the assurance of no unexpected expense for product care.

Flexibility
HP offers the broadest range of maintenance options in the computer industry. You can select a service that meets your needs for convenience and response—and that also fits your budget.

A product-care program that meets your needs	Learn more about the range of HP product-care services by filling in and mailing the attached card, or by calling: **800-835-HPHP (408-741-3033 outside the continental U.S.)** An HP support specialist will explain the types of product-care agreements that are available and will help you plan a package of support services that meets your needs.
Plan for your success today with the help of Hewlett-Packard product-care services	**Hewlett-Packard provides the right service options** **The on-site product maintenance agreement** This service offers next-day service performed at your location for sites located within 100 miles of an HP Service-Responsible Office. **The field-repair-center maintenance agreement** This service offers substantial savings for returning your products to a nearby HP Field Repair Center. Engineers make the repairs and ship the products back to you within three days. **The volume on-site repair agreement** This economical service provides regular weekly maintenance visits to sites with at least 25 eligible products. Hewlett-Packard has 96 Service-Responsible offices and 15 Field Repair Centers throughout North America. Furthermore, your local authorized HP Personal Computer Dealer may provide similar product-care services. Call 800-835-HPHP (408-741-3033 outside the continental U.S.) to locate the nearest HP service office or for information about care services from your local HP personal computer dealer.

'lease use the convenient perforated postpaid reply card on following page

Effective and economical support from Hewlett-Packard

I would like further information about HP product-care services.

☐ Please contact me by telephone

☐ Please send me a quotation based on the following products:

	Product Number	Options
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Name _____

Position _____

Company _____

Address _____

_____

Telephone _____

45530/5958-6252

From _____

_____

_____

_____

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Cupertino, CA 95014

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