□ Symphony

□ The Vectra PC

□ Data Transfer

For users of the Portable,
HP 12x, Touchscreen/150,
and Vectra computers

HEWLETT PACKARD

HP Computer Museum
www.hpmuseum.net

Box 2

The HP PC Newsline

Late-breaking news on HP personal computer products

Touchscreen/150 News

Lotus Symphony is now available on the Touchscreen/150. Symphony integrates five functions -- spreadsheet, graphics, word processing, data base management, and communications. The Touchscreen/150 version of Symphony is Release 1.1 -- the improved product which has just been released by Lotus ... and it uses HP Touch! For a limited time, you can upgrade your Lotus 1-2-3 through a special upgrade program. *[For details, see the article in the "Product News" section of this issue.]*

The new Executive Card Manager is a **card-file-like information manager** with built-in report writer, simple form-letter generator, and data base capabilities. *[Refer to the "New Products" section of this issue for a full description of this product and the templates available for it.]*

The data base management system of choice for HP PCs, **R:Base 5000**, is now available for the Touchscreen/150. We have found that R:Base is easy to use yet powerful enough for the most demanding applications. The package includes: application generator, programming language, compiler, forms manager, and report writer. The file import facility allows you to bring in dBase II, PFS:File, DIF, and ASCII files. (HP Product 45563A)

With Painter, you can **draw freehand**, using a variety of pen shapes, borders, fill patterns and eraser nibs -- producing pictures on the ThinkJet, LaserJet, HP 82905, or HP 82906 printers. *[Because Painter outputs in raster format, the program does not support plotters -- which require vector data.]* (HP 45540A)

Microsoft Spell, a **spelling correction program for Microsoft Word**, is now available for the Touchscreen/150 (and Portable) computers. It locates misspelled words, displays the text in which they occur, proposes alternative spellings, and makes your selected correction. (HP 45556D)

The new **HP 150 Technical Reference Manual** is available. It includes the original manual, which provides detailed technical information on the HP 150A and Touchscreen ... plus a new supplement, which covers the Touchscreen II. If you already have the manual, order the supplement (HP 45625-90002); otherwise, order the manual and supplement together (HP 45625A). See "How to Order" in the green pages of this issue for ordering instructions.

A free **newsletter for Condor users** is available from Condor Computer. Send the reply card included at the end of this issue to be added to their subscription list.

Add extra memory and HP-HIL to your HP 150A or Touchscreen with the new HP-HIL/384 Kbyte RAM Accessory Board. This means that you can add HP-HIL devices such as a mouse and graphic tablet -- plus memory -- using only one expansion slot. *[Not appropriate for the Touchscreen II, since the HP-HIL interface is already built into the system.]* (HP 45915A)

For details on these Touchscreen/150 products, contact your dealer or HP office.

Continued ...

Portable News

A new **Video Interface Module** for the Portable PLUS duplicates your display on a monochrome composite video monitor. The video monitor provides an alternate display when the computer is being used at a desk... and a display for classroom demonstrations, training, and presentations. Supported monitors include the HP 82912A and HP 82913A, or any other monitor compatible with an HP 86 or Apple II. *[High resolution monitors, such as the Vectra monitor, and monitors which are not composite video, such as standard IBM monitors, are not compatible with the Module.]* (HP Product 82985A)

Microsoft Spell, a spelling correction program for Microsoft Word, is now available for the Portable and Portable PLUS (and Touchscreen/150) computers. It locates misspelled words, displays the text in which they occur, proposes alternative spellings, and makes your selected correction. (HP 45556D)

Your dealer or HP representative has details on these and other remarkable Portable products.

Vectra News

As described in a "Product News" article in this issue, HP has introduced the Vectra PC -- a new line of modular personal computers which offer IBM PC/AT compatibility. Here is some additional late-breaking news on Vectra ...

Popular software for Vectra available from HP. We have arranged with several major independent software vendors to market and fully support their products for the Vectra PC -- to provide you with a complete solution from one source.

Available now to HP direct customers:

o From MicroRim ... R:Base 5000 (HP Product 68336F)

o From Lotus Development ... Symphony (HP 68339F) and 1-2-3 (HP 68340F)

o From MultiMate International ... MultiMate (HP 68338F) and MultiMate Advantage (HP 68343F)

o From Micropro ... WordStar (HP 68345F), WordStar Professional, (HP 68346F), WordStar 2000 (HP 68341F), and WordStar 2000 Plus (HP 68342F)

These packages available directly from HP are in addition to the hundreds of popular software packages available for the IBM PC/AT and the HP Vectra.

The Executive Series, the HP-developed easy-to-use personal productivity packages for business professionals and managers is now available for the HP Vectra and IBM personal computers:

o Executive MemoMaker -- a simple, versatile word processor. (HP Product 68330F)

o Executive Card Manager -- a card-file-like information manager with built-in report writer, simple form-letter generator, and data base capabilities. (HP 68331F) *[The Touchscreen version is described in the "New Products" section of this issue.]*

o Executive Card Manager: Templates -- 21 modifiable card file and report layouts for use with Executive Card Manager. (HP 68335F)

o Executive Spreadsheet -- a touch-driven full-function spreadsheet . . . with data transfer to and from VisiCalc/3000. (HP 68332F)

o AdvanceLink 2392 -- an advanced, easy-to-use communications software package with full HP 2392 terminal emulation capabilities. (HP 68333F)

The Executive Series of products work together: information can be transferred from program to program . . . and the standard file formats allow information to be exchanged with the most popular non-HP software products.

TextCharts helps you create professional typeset-quality text illustrations on paper and overhead transparencies on the Vectra or IBM AT/PC/XT. (HP 45406E)

HP Access -- a PC-based information retrieval tool for mainframe data bases. It uses a single interface to provide a window to many data sources and structures . . . it allows you to access information stored in an IMAGE/3000 database and to move a subset of the information to R:Base 5000, d:Base II, Executive Card Manager, or Condor on your PC without re-entering the data. (HP 36898F; already available for the Touchscreen/150 -- HP 36898A)

For information on the Vectra PC, contact your Authorized HP Dealer or HP Sales and Service Office.

INTEREX User Group News

When you join INTEREX, the independent international association of HP computer users, as a Personal Computer member, you will receive *Professional Computing* magazine (regularly $30 per year) and the *Interrupt* newsletter, entrance to meetings at local chapters in 21 countries, and one disc of **programs for your system** from the INTEREX Contributed Software Library:

o If you select Touchscreen/150, among the items you receive are three communications programs: a Kermit-protocol program, an IBM PC communications package, and a CompuServe download program.

o The most popular programs on the disc that Portable members receive are: the UNWS WordStar-to-ASCII file converter and a CompuServe download program.

o Among the programs that HP 12x members receive are a version of the MODEM7 communication program and two programs which facilitate reading and writing multiple Word/12x files.

For a limited time, INTEREX will also send new members an assortment of the *Communicator* back issues which cover your system.

See the INTEREX membership application in the "Current Information" section (green pages) of this issue for more details.

The Final Touch ...

The Touchscreen PC, which has made guest appearances on the American TV shows *Simon and Simon* and *Knight Rider* has now made its **film debut** this summer in *Real Genius*. It survived the staging of a laboratory explosion ... and, as in real life, the Touchscreen was instrumental in the success of the heroes.

See you in two months ...

Welcome to the *HP PC Communicator*

The *HP PC Communicator* is the backbone of HP's support program for personal 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 HP PC family.

This publication was formerly called the *Series 100 Communicator*—the new name, *HP PC Communicator*, reflects the increased breadth of the Hewlett-Packard personal computer product line.

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, *HP PC 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 HP PC users throughout the world.

☐

Contents

Current Information

viii

Condor/150: Computations Against Computed Values

Josh Salans

One of the limitations of creating reports in Condor is in the area of manipulating computed values to get other computed values, for example, computing a ratio using totals from two separate fields. Condor has no problem computing the totals on any one field, but to take this total and use it in another equation is somewhat beyond Condor's limits.

Here is an example of how to work around this limitation.

In the example we have a database called FACTORY, which contains a field for the factory number called FACTORY.NO, a field for the order dollars received by the factory called ORDER.DOLLARS, and a field called EXPENSES for the expenditures of the factory. We want to create a report where total order dollars, total expenses and a ratio of total order dollars to total expenses for all concerned factories is reported.

Step 1: REORG

The first thing we need to do to our database is add two new fields using the REORG command. The first field we need is a one character field that contains the same character for every record; we'll call this UNIT.

The second field will be a numeric field which will eventually contain our final computed value; so we'll call this field RATIO. RATIO must be defined as N.2 as we would like this final value to be a number with two decimal places (define as $ for Condor 2.10 fans).

Step 2: CHANGE

After REORGanizing the database, we add an identical character to our new UNIT field. The CHANGE command does this in one move. The command looks like this:

CHANGE FACTORY ST UNIT IS Z

Step 3: TABULATE

Then the TABULATE command is used. What we want to create is a one-record RESULT dataset which contains not only the total order dollars and total expenditures of all factories but which also contains the RATIO field. The following TABULATE command will do just that:

TABULATE FACTORY BY UNIT AND COMPUTE TOTAL ORDER.DOLLARS TOTAL EXPENSES TOTAL RATIO [S]

The [S] option creates the RESULT file and, because we are using a COMPUTE statement with the TABULATE command, the number of occurrences of the field called UNIT will not be kept. (Without the [S] option, the number of occurrences of the UNIT field would be listed to the screen or printer.)

Because the UNIT field has only one value (Z), the TABULATE command will create only one record. Within that one record will be a field called ORDER.DOLLARS, a field called EXPENSES, and a field called RATIO with the totals for each in their respective field. The RATIO field will of course be zero as each record in the database had zero in the RATIO field. (Condor will override any blank numeric field with a zero.)

Step 4: COMPUTE	We can now compute the RATIO of ORDER.DOLLARS to EXPENSES with the COMPUTE command. It looks like this: COMPUTE RESULT ST RATIO = ORDER.DOLLARS/EXPENSES
Step 5: PRINT	Now a report can be created tying the FACTORY database together with the RESULT file that has our RATIO value. For this we could use the TITLE command to create a suitable title and then the PRINT command to list the items in the FACTORY database. Finally, PRINTing the RESULT file by the ORDER.DOLLARS, EXPENSES, and RATIO will show our totals and the computed RATIO.
Example	The command sequence below shows one way of creating this report.

```
TITLE TOP, "ORDER DOLLARS AND EXPENSES BROKEN DOWN BY FACTORY" LINE (CR)

PRINT FACTORY BY FACTORY.NO ORDER.DOLLARS EXPENSES AND COMPUTE TOT
ORDER.DOLLARS,EXPENSES SUBTOT USING FACTORY.NO (CR)

TITLE "THE RATIO FOR TOTAL ORDER DOLLARS VS. TOTAL EXPENSES IS" (CR)

PRINT RESULT BY RATIO (CR)
```

****

```
ORDER DOLLARS AND EXPENSES BROKEN DOWN BY FACTORY
FACTORY.NO      ORDER.DOLLARS       EXPENSES
         4          23455.11         7359.72
         4          64723.56        29595.27
         4           1234.56         1026.30
         4           1298.95          299.97
         4           2367.78          571.62
         4           2435.65          599.97
         4          21334.87         3666.00
         4        1232345.56        69672.00
Subtotal         13491956.04       112790.85

         5          12345.67         8306.55
         5          19834.56         9026.55
         5        2347645.67        35781.75
         5          34323.34        21112.02
         5          23234.56        17888.13
Subtotal          2437383.80        92115.00

Total             3786579.84       204905.85
THE RATIO FOR TOTAL ORDER DOLLARS VS. TOTAL EXPENSES IS
  RATIO
  18.48
```

Other TABULATE Alternatives

Using the TABULATE command to get our results allows for some flexibility in creating reports. For instance, we can use the TABULATE command to compute total ORDER.DOLLARS and total EXPENSES for both factory 4 and factory 5 and then compute the RATIOs for each of the factories—as opposed to all factories combined. For this, we won't need the UNIT field because we will TABULATE by the FACTORY.NO field.

```
TABULATE FACTORY BY FACTORY.NO AND COMPUTE TOTAL ORDER.DOLLARS TOTAL EXPENSES
TOTAL RATIO [S]
COMPUTE RESULT ST RATIO = ORDER.DOLLARS/EXPENSES
```

This set of commands leaves us with a RESULT file that contains two records, one for each factory. Each record contains the total ORDER.DOLLARS, total EXPENSES and the RATIO of ORDER.DOLLARS to EXPENSES for each factory.

Our report can also contain the RATIOs broken down by factory:

```
TITLE "THE FOLLOWING IS THE BREAKDOWN OF RATIOS PER FACTORY" (CR)
PRINT RESULT BY FACTORY.NO RATIO (CR)
        THE FOLLOWING IS THE BREAKDOWN OF RATIOS PER FACTORY
FACTORY.NO           RATIO
         4           11.96
         5           26.46
```

There are other ways that the TABULATE command can come in handy when computing values using other computed values. We have looked at the basic commands that enable you to complete this task. Now, let your imagination go!

□

Communicator Issue #10 stated that escape sequences cannot be sent to your printer directly from Condor/150. Here is a suggested set of keystrokes that work with a ThinkJet and LaserJet printer. (It may work with others also.) The sequence is similar to what was stated in the *Communicator,* but it works with Condor loaded.

The sequence presumes that Condor has been loaded and you are at the Condor prompt ">>".

1. Press the "User System" key on the keyboard.

2. Take the asterisk out of REMOTE MODE.

3. Press the "Home Cursor" key and then the "Clear Display" key.

4. Turn on DISPLAY FUNCTIONS.

5. Type your escape code (ESC*&k2S for the ThinkJet and ESC*&l1OESC*&k2S for the LaserJet with the font cartridge 92286A)

   Note: "l" is a small "L" and "O" is the capital letter and not zero; "ESC*" is "DEL ESC" key.

6. Press the PRINT/ENTER key.

7. Turn off the DISPLAY FUNCTIONS and turn on REMOTE mode.

8. Press the RETURN key and you are back at the Condor prompt.

☐

Our thanks to readers Jeff Peone and Gene Weinstine of Boise, Idaho for their letter.

Diagraph and Picture Perfect: Positioning Multiple Pictures

Vicky Spillman

Here's how to position multiple pictures on a page in Diagraph™ or Picture Perfect.™

The menus for Picture Perfect and Diagraph are slightly different, so we'll discuss them separately.

For Diagraph, from the PRIMARY screen hit "Plot Diagraph," which brings up another set of softkeys. Hit "Plot Format" to bring up the plotting format screen.

For Picture Perfect, from the PRIMARY screen hit the "MENUS" softkey, which brings up another set of softkeys. Hit the "Format" softkey to bring up the plotting format screen.

Set and Re-Set Plotting Format

Once in the format screen, tab over to (or touch) any of the margins you want to change. There is also a help menu that will come up when you hit the "HELP" softkey. This will display important information on plotter margins. For certain plotters, the margins must be a certain distance. If your picture is plotting at full size, check this plotter information.

Now, for an example. Say you want two charts on one page, side by side. Load in the first diagraph or picture, then go to the plot format screen, as described above. For a side-by-side format, you will leave the top, bottom, and left margins as is. Change the right margin to be, say, 5.75. This will allow the picture or diagraph to be plotted on the left half of the paper.

Once you have set the margins, plot out your first picture, and then load in your second picture or diagraph. This time set the left margin to 6, and the right margin back to .5 (or .6), and leave the top and bottom margins alone. When you plot this time, the chart will be on the right half of the paper.

Here are examples for margins to plot more than one picture on a page. These examples are for uniform size charts on a page. If you want one chart larger than another, you will have to adjust accordingly.

Horizontal Chart Examples

The first examples are for horizontal charts:

Two per page:

	Left	Top	Right	Bottom
#1	.5	.75	5.75	.5
#2	5.75	.75	.5	.5

Four per page:

	Left	Top	Right	Bottom
#1	.5	.75	5.75	4.25
#2	5.75	.75	.5	4.25
#3	.5	4.50	5.75	.5
#4	5.75	4.50	.5	.5

Six per page:

	Left	Top	Right	Bottom
#1	.5	.75	7.9	4.25
#2	4.2	.75	4.2	4.25
#3	7.9	.75	.5	4.25
#4	.5	4.50	7.9	.5
#5	4.2	4.50	4.2	.5
#6	7.9	4.50	.5	.5

Vertical Chart Examples

The following examples are for vertical charts. For vertical charts, the height and width need to be switched. This is done in the plot format screen. Height should be 11, and width should be 8.5.

Two per page:

	Left	Top	Right	Bottom
#1	.5	.75	.5	5.75
#2	.5	6.0	.5	.5

Four per page:

	Left	Top	Right	Bottom
#1	.5	.75	4.75	5.75
#2	4.75	.75	.5	5.75
#3	.5	6.0	4.75	.5
#4	4.75	6.0	.5	.5

Plotting Notes: The HP7470 will not plot vertically. You can plot vertically on an HP7475A by hitting the "FAST" and "ENTER" keys (on the plotter) simultaneously.

What else can be done?	Besides changing the margins, you can also specify a larger size paper, and whether you want the border or not. There are additional options for both Picture Perfect and Diagraph. All the options are set from the plot format screens.

□

Series 100/Personal Card File has many useful features, and it is convenient to use. Sorting is done automatically, records can be searched for particular data, labels can be printed directly, and Mailmerge data files can be prepared. However, revising a card format is difficult, and fields cannot be rearranged easily.

Lotus 1-2-3™ offers many data sorting capabilities that PCF lacks. The order of fields can be rearranged easily, fields can be expanded or contracted with data in place, and sorting can be done easily on multiple criteria.

A procedure has been developed for translating files between PCF and Lotus 1-2-3 on the Touchscreen/150 that enables files to be moved from one program to the other for performing data manipulations. The Transfer Out feature of PCF is used to prepare files for moving into Lotus 1-2-3, and 1-2-3 Translate is used to create a .DIF file from a .WKS file. The .DIF file is modified as a non-document file in WordStar to form a quoted Basic file that can be entered into PCF.

PCF to Lotus

Translation from PCF to Lotus 1-2-3 is straight-forward. Use Print Cardfile and Transfer Out to create a file in quoted Basic format. The file name must be given a .PRN extension to be entered into Lotus 1-2-3. Read the file into Lotus using /File Import with the number format. Each card of a PCF file will be entered into a row of the 1-2-3 worksheet, and each field of the card will be in a separate cell on the row.

Lotus to PCF

Translation from Lotus 1-2-3 to PCF requires the creation and modification of a .DIF file. The .DIF format is a text file with many extra characters added. Fortunately, the extra characters exist in a form that readily can be removed using WordStar.

Put the worksheet into a compact rectangular form.

Erase all macro commands and sections of the worksheet containing data not to be transferred. Borders can be retained since they will be printed at the beginning of the file where they can be erased easily.

Use 1-2-3 Translate to translate the worksheet from a .WKS to a .DIF form. Exit 1-2-3 Translate.

Edit the .DIF file in the non-document mode of WordStar.

Delete the lines at the beginning of the file before the first field, which will be enclosed in quotation marks.

Use Find and Replace to prepare the end of each record. Find ^N-1,0^NBOT^N1,0^n and replace with ^N, using options NG. Press ESC to speed processing.

Delete all lines at the end of the file after the last field, which will be enclosed in quotation marks.

Return to the beginning of the file.

Now edit the file to provide the proper separation between fields. Use Find and Replace. Find ^N1,0^N and replace with a comma. Use options NG.

The file now should be in quoted Basic format, which can be entered into PCF using Transfer In.

□

Our thanks to J.S. McKnight of Raleigh, North Carolina for this article.

Here is how to save a dBASE II datafile and use MS™ Word to PRINT MERGE the file. (Refer to Appendix C in the MS Word manual for additional information on PRINT MERGE.)

Step 1: Save	Saving a dBASE II file as an ASCII file:
	From dBASE II, save your data to a file using the following commands:
	–USE DATABASE (where DATABASE is the name of your Database) –COPY TO TEMPFILE DELIMITED WITH " –QUIT
	Load MS-DOS COMMANDS
	At the prompt (A>) select the drive where your TEMPFILE resides and type in the following:
	A>COPY TEMPFILE.TXT + CON DATAFILE.DOC (Press RETURN)
	(Note: dBASE II automatically adds a .TXT extension to your file.)
	Press the CONTROL (CTRL) key and Capital Z at the same time. You will see ^Z appear on the screen.
	Press RETURN, and the message "One file(s) copied" will appear on the screen.
	(Note: This procedure writes the ASCII data in your TEMPFILE.TXT file to a new file called DATAFILE.DOC, and adds an END OF FILE (EOF) marker to the file. dBASE II does not do this automatically on files less than 256K, and it is required in order to PRINT MERGE the file with MS Word.)
	Type in EXIT to return to the PAM screen.
	You have now created an ASCII file called DATAFILE.DOC. This is the file you will PRINT MERGE with MS Word.
Step 2: Set Up PRINT MERGE	Setting up PRINT MERGE for MS Word:
	Three files are used to PRINT MERGE in this example. They are:
	The Header File. The header file should contain the names of the fields in the data records in the same order as they appear in the datafile. (See **Example 1**)
	The datafile. The datafile contains the text to be inserted in each copy of the document. In this example, it is the file "DATAFILE.DOC". (See **Example 2**)

13

	The Main Document. The main document is the form to be merged. (See **Example 3**)
Step 3: Do It!	Executing the PRINT MERGE command in MS Word:
	–Select TRANSFER LOAD to load the main document (DBASE.DOC). –Select PRINT MERGE to execute the merge command.
	This should complete the execution of PRINT MERGE in MSWORD using a datafile from dBASE II. (See **Example 4**)

Example 1: B:ORDERHF.DOC

 NAME, ADDRESS, NUMBER

Example 2: B:DATAFILE.DOC

 "BYERS, ROBERT A.","222 SPLENDID AVE, ESCONDIDO","222-6461"
 "JONES, JOHN","123 MAPLE AVE, SAN FRANSICO","223-6565"
 "SMITH, HENRY","333 AMERICA ROAD, SANTA CLARA","333-3434"

Example 3: B:DBASE.DOC

 <<DATA B:ORDERHF.DOC,B:DATAFILE.DOC>>
 <<NAME>>
 <<ADDRESS>>
 <<NUMBER>>

Example 4: PRINT MERGE Sample Output

 BYERS, ROBERT A.
 222 SPLENDID AVE, ESCONDIDO
 222-6461

□

14

Here is how to save a Condor™ datafile and use MS Word to PRINT MERGE the file. Refer to Appendix C in the MS Word manual for additional information on PRINT MERGE.

Step 1: Save

Condor set up procedure:

1. Create a customer address file in Condor. The database below is an example of a "CUSTOMER" database.

Example Database:		Example Entry:
[First.Name]	_____	John
[Last.Name]	_____	Smith
[Company]	_____	Hewlett-Packard
[Street]	_____	3300 Scott Blvd.
[City]	_____	Santa Clara
[State]	___ [ZipCode] ___	CA 95051
[Date]	_____	05/01/85

When all the information in the CUSTOMER database is to be used in MS Word, no projection of the data fields is needed. In this example, however, only certain fields are required (First.Name, Last.Name, Street, City, State and ZipCode). These fields may be pulled from the records and stored in a Result database. This Result database is a subset of the original database and contains only that information which will be used in MS Word.

2. When the ">>" is present on your screen, type:

   >>Project CUSTOMER by First.Name Last.Name Address City State ZipCode <CR>

   This PROJECT command pulls the specified fields (First.Name. . .ZipCode) from the CUSTOMER database and stores them in a database called RESULT.

3. Type the following: >>Write RESULT DATAFILE.DOC [B] <CR>

   The WRITE command with the [B] option (Note: Must be a capital B) writes the information in the RESULT database to the DATAFILE.DOC file in an ASCII format. (See **Example 2**)

4. To exit Condor, type the following: >>SYS <CR>

   You have now created an ASCII file called DATAFILE.DOC. This is the file you will PRINT MERGE with MS Word.

15

Step 2: Set Up **PRINT MERGE**	Setting up PRINT MERGE for MS Word: Three files are used to PRINT MERGE in this example. They are: The Header File–The header file should contain the names of the fields in the data records in the same order as they appear in the datafile. (See **Example 1**) The Datafile–The datafile contains the text to be inserted in each copy of the document. In this example, it is the file "DATAFILE.DOC". (See **Example 2**) The Main Document–The main document is the form to be merged. (See **Example 3**)
Step 3: Do It!	Executing the PRINT MERGE command in MS Word: –Select TRANSFER LOAD to load the main document (CONDOR.DOC). –Select PRINT MERGE to execute the merge command. This should complete the execution of PRINT MERGE in MS Word using a datafile from Condor. (See **Example 4**)

Example 1: B:ORDERHF.DOC

FNAME,LNAME,ADDRESS,CITY,STATE,ZIP

Example 2: B:DATAFILE.DOC

"John","Smith","3300 Scott Blvd.","Santa Clara","CA","95051"

Example 3: B:CONDOR.DOC

```
<<DATA B:ORDERHF.DOC,B:DATAFILE.DOC>>
<<FNAME>> <<LNAME>>
<<ADDRESS>>
<<CITY>> <<STATE>> <<ZIP>>
```

Example 4: PRINT MERGE Sample Output

```
John Smith
3300 Scott Blvd.
Santa Clara CA 95051
```

☐

Many users have asked about the possibility
of having different WINSTALLed versions of
WordStar on PAM when using a fixed disc. This is
desirable if you have different printers which have
different parameters in WINSTALL. This article
tells you how to do this; another article in this
issue describes how to install multiple copies on a
single *flexible* disc.

Example

This example assumes that you have WordStar™
on the fixed disc WINSTALLed for the HP 2934
printer and you want another copy of WordStar
on PAM WINSTALLed for the internal printer.
Note, however, that you must modify these
instructions accordingly if you desire a different
mode or printer.

1. Insert a blank formatted disc in drive B (flexible
   disc drive).

2. Load WINSTALL.

   a. When prompted for MicroPro product to
      install, enter: WS

   b. When prompted for disc drive name, enter:
      A:

   c. When prompted for name of file to install,
      enter: A:WS.COM

   d. When prompted for name of file for
      installed WordStar, enter: B:WSINT.COM

      Note: The file name for the installed
      WordStar file must begin with "WS" and
      end with ".COM". You can input 3 alpha
      characters to recognize the file-mode/
      printer.

   e. Once in the installation menu, go through
      the WINSTALL procedures for any
      modifications that you desire for your
      printer.

   f. Save the changes and exit WINSTALL.

      Note: You now have a file named
      WSINT.COM on the B drive (flexible disc
      drive).

3. Load WordStar.

4. Create a Non-Document file and name it:
   B:WSINT.IN$

   Enter the following six lines of information into
   this file. Note: If you desire a different mode or
   printer, the information in this program should
   be modified accordingly.

17

1. INTERNAL (Label that will appear on PAM menu)
2. VERSION 3.3B (Version of WordStar)
3. WSINT.COM (Name of installed WS.COM file.)
4. <RETURN> (Leave blank)
5. <RETURN> (Leave blank)
6. WSINT. COM (Same as #3 above.)

5. Save this file and exit WordStar.

6. Load the INSTALL program.
   a. Install from drive B to drive A.
   b. Press the "SHOW APPLICS" function key.
   c. Light up the "Internal" label and press START INSTALL.

After exiting the INSTALL program, you should have a WordStar label in PAM with the name: INTERNAL. Pressing this label will enable you to access WordStar and print on the internal printer.

□

Many users have asked about the possibility of having different WINSTALLed versions of WordStar on a single flexible disc. This is desirable if you have different printers which have different parameters in WINSTALL. This article tells you how to do this; another article in this issue describes how to install multiple copies on a single *fixed* disc.

Note: A maximum of three WINSTALLed versions of WordStar plus MailMerge™ and SpellStar™ will fit on a single-sided disc—they will take all but about 4K of the available space on the disc.

Example

First, we will assume that you have WordStar on a single flexible disc WINSTALLed for Portrait Mode and you want another copy of WordStar on PAM WINSTALLed for Landscape Mode. Note, however, that you must modify these instructions accordingly if you desire a different mode or printer.

1. Insert current WordStar work disc in drive A.

2. Load WINSTALL (installed onto a work disc) in drive B.

   a. When prompted for MicroPro product to install, enter: WS

   b. When prompted for disc drive name, enter: A:

   c. When prompted for name of file to install, enter: A:WS.COM

   d. When prompted for name of file for installed WordStar, enter: B:WSLAN.COM

      Note: The file name for the installed WordStar file must begin with "WS" and end with ".COM". You can input three alpha characters to recognize the file-mode/printer.

   e. Once in the installation menu, go through the WINSTALL procedures to get Landscape on the LaserJet. (Modify for preferred mode or printer.)

   f. Save the changes and exit WINSTALL.

      Note: You now have a file named WSLAN.COM on the B drive. (This file is on the same disc as your working copy of WINSTALL.)

3. Load WordStar in drive A.

4. Create a Non-Document file and name it:
   B:WSLAN.IN$

   Enter the following six lines of information into this file. Note: If you desire a different mode or printer, the information in this program should be modified accordingly.

   1. INTERNAL (Label that will appear on PAM menu)
   2. VERSION 3.3B (Version of WordStar)
   3. WSLAN.COM (Name of installed WS.COM file)
   4. <RETURN> (Leave blank)
   5. <RETURN> (Leave blank)
   6. WSLAN.COM (Same as #3 above)

5. Save this file and exit WordStar.

6. Load the INSTALL program.

   a. Install from drive B to drive A.
   b. Press the "SHOW APPLICS" function key.
   c. Light up the "LANDSCAPE" label and press START INSTALL.

After exiting the INSTALL program, you should have a WordStar label in PAM with the name: LANDSCAPE. Pressing this label will enable you to access WordStar and print in Landscape Mode on the LaserJet.

The above method may be used to WINSTALL for two different printers, such as the ThinkJet (HP-IB) and the HP 2601 (RS-232). If you use two different printers, modify the Device Configuration printers under the PRN device each time you change from the ThinkJet to the HP 2601 and again each time you go back to the ThinkJet.

□

Helpful Hints for Compiling BASIC Programs   Brian Rainie

Straps You Should Be Aware Of	There are several options available to you when you compile your BASIC program. Rather than prompting you for each one, the compiler expects you to specify changes to the default compilation options by including "straps" in your responses. As an example, a "/E" appended to the source file name would tell the compiler to include **ERROR** trapping code.
	Although the straps are well documented, many programmers are still unsure of which ones to use. I hope you will find the following sections useful when trying to select compile options for your software.
Choosing One Of The Two Libraries	If you read the description of the /0 strap, you will notice there are two libraries to choose from. The choice of which library to implement is dependent upon your program and the way it operates. Read the following two descriptions carefully. The correct library selection is very important.
The Compile-Time Library	This library is implemented if the /0 strap is specified. The program produced will be completely self contained and executable under any environment which supports EXE programs (MS-DOS commands and most shell programs). Although it is not the default, it should be your primary choice; it is a much simpler scheme to deal with.

Method of compilation:

- BASIC initialization code is used as a base
- Compiled source code (with calls to general library routines) is added
- Any calls to assembly language subroutines are listed as "externals"
- Final object file is created

Method of linking:

- BASIC object file is loaded
- Any assembly language object files listed are added, resolving externals
- Compile-time library (BASRUN.LIB) is accessed and routines are loaded
- Final program file is created

Method of execution:

- Program is loaded and starts to execute
- BASIC init code sets up data-segment and starts main code

21

- Main code consists mostly of CALLS to general routines defined by BASIC
- Upon program termination, transfer is passed back to loader program

As you can see, it is a very straight-forward execution process which matches most MicroSoft language products. The only drawback to this method is that it cannot support program CHAINing. It will however allow a limited form of CHAINing by use of the **RUN** statement. A compiled **BASIC** program can **RUN** another compiled **BASIC** program, but cannot pass data through **COMMON.**

The Run-Time Library

The run-time environment is the default selection when compiling programs. Although it is the ideal choice for an application which must **CHAIN** between many programs, the execution scheme is something else!

Method of compilation:

- Enhanced **BASIC** initialization code is used as a base
- Compiled source code with **INT**s for accessing library routines is added
- Any calls to assembly language subroutines are listed as "externals"
- Final object code is created

Method of linking:

- **BASIC** object file is loaded
- Any assembly language abject files listed are added, resolving externals
- A minimal amount of code is loaded from the Run-Time-Library **(BASRUN.LIB)**
- Final program file is created, but does not contain the general routines

Method of execution:

- Program is loaded and starts to execute
- **BASIC** init code sets up data-segment
- The **BASRUN.EXE** program is overlayed (searches default drive, then A:)
- General routines are loaded and can be accessed through **INT**errupts
- Control is transferred to main code
- Main code consists mostly of **INT**s to general routines defined by **BASIC**

22

- Upon program termination, transfer is passed back to loader program

If a **CHAIN** is requested:

- **BASRUN.EXE** code and **COMMON** are retained
- New program overlays old
- Control is transferred to new program
- New program can also access general routines through **INT**s

Why does this scheme access the general routines through processor **INT**errupts instead of **CALL**s? For the main code to be able to **CALL** a routine, the routine must have been linked with it, fixing its location in memory. With the above scheme, the library routines are loaded seperately and the main code has no idea where they are in memory. When the **BASRUN.EXE** code is loaded, it alters the **INT**errupt table; a list of addresses which will be executed by a processor **INT**errupt with a specific index. When the main code executes **INT**errupts with specific indexes, the processor will use the index to look up the address of the routine in the table.

To give you an idea of the difference between **CALL**ing a routine and **INT**errupting to one, I will use the example of printing a string. With the compile-time library, the main code would consist of loading the address of the string into a register and **CALL**ing the routine directly. With the run-time environment, the address of the string is loaded, a subfunction index is specified, a very generic routine is accessed through a processor **INT**errupt, and it in turn finds the appropriate routine.

The run-time environment makes the generic routines relocatable, supports **CHAIN**ing, and takes up less disc space if multiple programs are used (because only one copy of the large library is required). On the other hand, it is also a night- mare to debug. Many software engineers like to execute their programs under the watchful eye of a **DEBUG** utility, which displays the actual code and register values in a step by step fashion. While **CALL**s are easily traced, **INT**errupts are not!

Using Straps To Include ERROR Trapping Code

If you have written your **BASIC** program using an interpreter, have tested each section thoroughly, and have had production copies running for at least a year, then, and only then, should you even consider compiling your program without error trapping code. Trust me on this one. Error trapping is definitely worth the extra code space required. If you are not sure how to use error trapping properly, please refer to my article entitled **"BASIC General Purpose Error-Handling Routines."**

The /E strap is required if **ON ERROR** is used anywhere in your program. Even if you do not use **ON ERROR,** please consider /E anyway. Besides supporting error trapping, it automatically adds extra code which 1) displays error messages with line numbers instead of memory addresses, and 2) handles fatal errors such as "Return Without Prior Gosub", instead of simply locking up the system.

If you include an error handling routine, and it contains a **RESUME, RESUME0,** or **RESUME NEXT,** you must specify /X instead of /E. The /X strap handles everything /E does, with the addition of extra code to support the special versions of **RESUME.**

The final error trapping strap you should consider is /D. Although /D generates additional code and makes for somewhat slower program execution, its error checking is extremely valuable. Although the manual contains a complete explanation of this option, I would like to note one thing not included in the text. The book informs you the /D will perform array bounds checking, but does not tell you about the problems associated with erroneous indexing when /D is not used. Without /D, an illegal index can cause any of the problems listed below, and probably a lot more:

■ Alteration of other array or simple variable values

■ Destruction of string pointers

■ Corruption of string space

■ Alteration of numeric constants or string phrases

■ Disruption of file buffers and file control blocks

■ Disruption of user/BASIC input and output buffers

■ Disruption of program control values causing erroneous branching

24

Which Straps Do I Use When I Compile BASIC Programs?	The **Batch** file I use to invoke the **BASIC** compiler automatically adds /O/E to the end of the file name. I do not use /X because my **ON ERROR** routine terminates program execution instead of allowing a **RESUME.** Even though I am well aware of the problems associated with excluding /D, I seldom use it. If my program starts doing strange things, I will include /D to test it. I will admit that there have been a few occasions where I wish I had included it at the start.
Enough About Compiling, Let's Talk About The Linker	When **BASIC** creates its **OBJ**ect files, it includes specifications for the **LINK**er. This makes your job a whole lot easier. For the most part, all you have to do is tell it the name of your file and make sure it can find the right library (**BASIC** also tells it what library name to look for). Although its limited instruction set makes it easier to use, I have found a serious problem with the **LINK**er.

Along with the miscellaneous load-control values placed at the beginning of the **EXE** file created by the **LINK**er, there exists minimum and maximum memory allocation values. The minimum allocation value tells the loader routine how many paragraphs of memory are required, in addition to the space for code and data in the file, for the program to load and execute properly. The maximum allocation value tells the loader how many paragraphs of memory it should try to allocate if at all possible. When the loader is commanded to execute the program, it calculates the total size required by adding the lengths of the code and data areas to the minimum. If the program will not fit in the memory, the error message "Program too big to fit in memory" is displayed. If there is sufficient memory, the program is loaded and additional memory is allocated, up to the maximum value specified.

Here is the problem: Although the minimum is set correctly, the maximum value is always **FFFF** hex. This means that any program created by the **LINK**er will automatically allocate all of memory to itself upon execution. There are three effects from this:

- Any assembly language call to allocate a block of memory will fail

- Any assembly language call to execute a sub-process will fail

- The memory resident part of **COMMAND.COM** will always be destroyed

25

The first two are a result of insufficient memory (the **BASIC** program has it all), limiting the capability of the application. The last one is more of an annoyance. Each time your compiled **BASIC** program terminates, **COMMAND.COM** must be reloaded. If it is not available, you receive the message "Insert **COMMAND.COM** disk in default drive and strike any key when ready".

What can be done? I, for one, wrote an **EXEPATCH** program which uses **RANDOM** access to read the first record of the **EXE** file and alter the maximum value to 1000 hex. This insures that the compiled **BASIC** program will still have a 64K data segment, without taking over the entire system. If you wish to create an **EXEPATCH** program of your own, the value you want to change is in the seventh word of the **EXE** file.

□

Double Referencing Variables in Compiled BASIC

Brian Rainie

Did you know that arrays and simple variables can point at the same location in memory?

If you compile your BASIC program without specifying the /D option, the executable code will not perform array bounds checking. This can be useful to the more advanced programmer.

As an example, let us assume you had a group of variables (all the same type) which you would like to be able to reference not only by name but also by a computed index. This is usually accomplished by an ON GOTO or multiple IF THENs which would branch to LET statements referencing each variable in the list. A more efficient method exists if bounds checking is not being performed; define an array of one entry just prior to the definition of the list of variables. Then, by passing an index greater than zero, you can reference the same area of memory as one of the variables in the list. A program example follows:

```
10 DIM VARLIST (0)                        'Set up dummy array
11 LET DOLLARS = 100                      'Define first variable
12 LET PURCHASE = 76.2                    'Define second variable
13 LET STORES = 5                         'Define third variable
14 LET EMPLOYEES = 15                     'Define last variable
20 PRINT "NUMBER OF STORES: ";STORES      'Output number of stores
30 PRINT "NUMBER OF STORES: ";VARLIST (3) 'Output number of stores using index
```

Keep in mind that the trade-off for efficiency is often costly. This may not work in future versions of BASIC, and turning off bounds checking may hide mistakes which can cause anything from wierd answers to string space corruption.

□
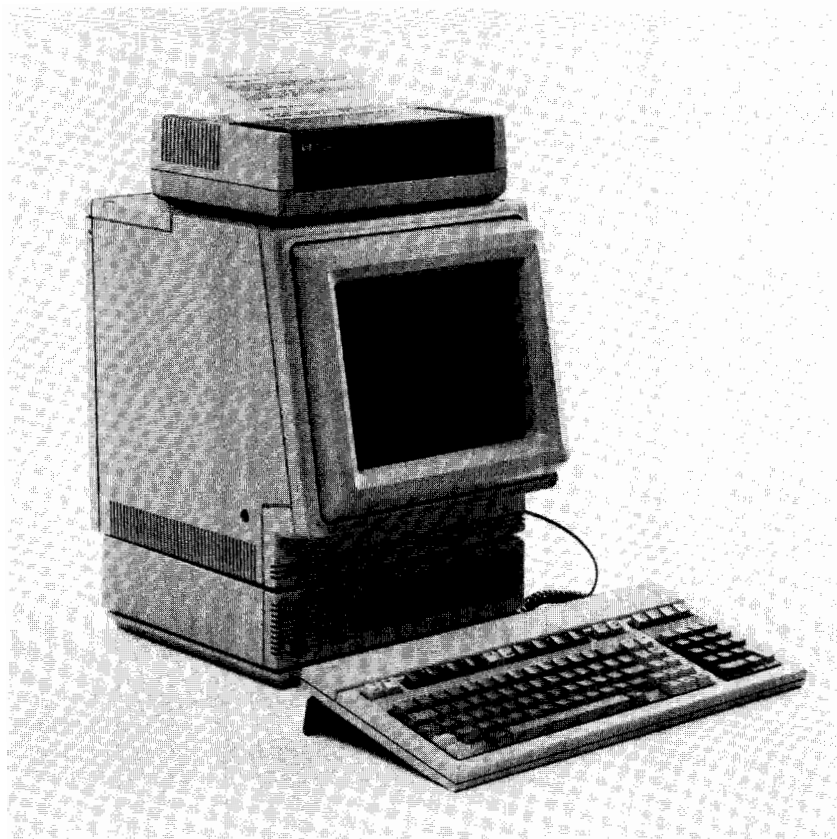
Why do the BASIC Language Packages Limit the Data Segment to 64K?

This question seems to be on the lips of many programmers. Although I cannot give you an exact answer, I believe I can speculate.

First, where did the magic number 64K come from? This is simple. A one-word address is capable of selecting any location within 64K of memory (16 bits can represent values of 0 to 65535). To select any given location throughout a system, you must specify which 64K of memory you wish along with the actual address.

Older hardware required that banks of 64K, also called "pages", were of fixed length and could be selected by an index number. To select a location outside your current page, you specified the page index and the one-word address. A blank area between the end of one page and the start of another, which can range from 1 to 64K bytes, is wasted.

On the HP 150, pages are called "segments" and can vary in length from 16 to 64K bytes. Since segments can start at any even 16 byte boundary, the maximum amount of space wasted between the end of one segment and the start of another is only 15 bytes, not 64K bytes. This is much more efficient. To select the segment desired, a one-word segment starting address is specified. This address is the equivalent of the actual address divided by 16. To select any given location in memory, the segment address is multiplied by 16 and the one-word offset address is added.

In both of the above cases, accessing an area outside of the current page, or segment, requires a two-word address, not a one-word address. If BASIC used two-word addressing for all variables in the data segment, all of memory could become usable. The drawback to double-word addressing is the cost in execution speed and extra memory taken up by the additional word for each address.

Although the Microsoft BASIC languages use single-word addressing for efficiency, a programmer can still write assembly language routines designed to allocate and access additional memory if it is available. This is not too difficult when using the compiler, but can be quite involved if using an interpreter.

If you're not comfortable with writing assembly language subroutines, maybe you should try changing from BASIC to Pascal. Although Pascal stores general purpose variables in the same way as BASIC (using a single-word addressing scheme), it does allow the creation of special arrays by allocating space outside the 64K data segment.

□

Understanding the standard BASE 10 floating point value	Most programmers easily grasp the concept of floating point values with exponents; you have a sign, a fixed value with a single digit to the left of the decimal point, and an exponent (either positive or negative). An example would look like this: -3.1E+9
	To convert this back to the notation most people are familiar with, you would 1) take the decimal value, 2) use the exponent to determine how many places to shift the digits (either left or right), and 3) preceed this value with the appropriate sign. The value from above would become: -3100000000
The internal representation is not much different	Internally, the binary equivalent is stored in a very similiar fashion. If you look at it as a long string of bits, you will find it is broken up into three parts. First, you have eight bits to represent the exponent, allowing values from -128 to +127. The next single bit denotes the sign of the value. The remaining bits contain the fractional value, similiar to the 3.1 in the example above.
	Although the two formats look a lot alike, there are a couple of differences. If you re-examine the BASE 10 notation you will notice that the single digit to the left of the decimal point will always be greater than zero (unless the entire value is zero); a value of 0.3E+8 would be shown as 3.0E+09. In binary, you only have the two digits zero and one. This means that the single digit to the left of the decimal point would always have to be one. To be efficient, the binary representation assumes the one, and does not include it as part of the fractional value. To show the difference mathematically, you can take a look at the following two equations:
	BASE 10 value = sign * (value * 10 ^ exponent) Binary value = sign * (1 + value * 2 ^ exponent)
	With this assumed "one", comes a problem. How do you represent zero if you always have that "one" as a given. Zero is now defined as a special case where all bits in the entire field are set to zero. Internally, a test for this is made before any calculations are performed.

Passing floating point values to Assembly Language subroutines

If you are calling Assembly Language subroutines, my first suggestion is not to pass floating point values; pass integer values only. This will make coding much easier. For those of you who are die-hard bit-twiddlers, like myself, you can create routines to convert from floating point to integer/double if you use the following guidelines:

- Place the value into registers

- If all bits are zero, skip the rest of this routine

- Strip out the sign bit and save it somewhere

- Set this bit in the value, it is now the assumed "one"

- Strip out the high byte; this is the exponent

- Clear the high byte in the value

- Subtract 129 from the exponent to get the actual exponent

- Determine the number of bits in the remainder (23 for short)

- Subtract this value from the exponent to determine the number of shifts

- You now have the sign, the exponent, and the value

- Shift the bits left or right using the exponent

- Multiply the final result by the original sign

If you are not familar with shifting bits across registers, it requires the Rotate With Carry instructions. Do not shift multiple bits at one time. Build a loop to shift a single bit at a time. Clear the Carry bit upon starting the loop. Perform a Rotate With Carry on the first register so the bit rotated out is moved into Carry. The Rotate With Carry operation on the next register uses the bit moved out of the previous register. Perform this process for each register used to hold the final value. This effectively shifts bits across multiple registers.

□

BASIC General Purpose
Error-Handling Routines

Brian Rainie

Advantages To ON ERROR Trapping	If you are writing any form of major application, I highly recommend error-handling with an ON ERROR trap procedure. This type of routine is not at all difficult to write and can save you hours of debugging. It can also make for a friendlier interface between your software and its users.
What Are The Most Common Types Of Errors?	Errors can usually be broken down into one of the following categories:
	■ User error (easily recoverable)
	■ Problems with data encountered (usually recoverable)
	■ Illegal condition, e.g. integer overflow (sometimes recoverable)
	■ Program becomes confused (seldom recoverable)
	■ Program runs out of memory (not recoverable)
	■ Fatal system error encountered, e.g. disc failure (not recoverable)
	From reviewing numerous programs in the past, I have seen many interesting methods of handling these types of error conditions. Typically, if the error is recoverable a warning is displayed and the user either aborts from the program or asks it to continue. For errors from which it is impossible to recover, the program usually displays an error message and tries to terminate.
	The common method of coding error handling routines is to insert error messages and STOP statements throughout the package to handle user/data mistakes, and totally ignore the possibility of program error. This leads to software packages which appear to blow up for no reason, are difficult to debug, and impossible to clean up (error messages are never written in English on the first pass).
A General-Purpose Error-Handling Routine	To aid you in your struggle for clean and friendly error handling, I give you the subroutine enclosed in this article. I do not claim it will solve all of your problems, but it is a place to start. Here are some of its features:
	■ Both system and user errors are handled
	■ Both fatal errors and warnings are possible
	■ Messages are equated to a single variable for easy reference later

33

- The message displayed notes the type and location of the error
- The user must respond before the program continues or terminates

After you include the routine with your program, use an ON ERROR statement to activate it. To invoke the routine to handle a user error, follow the outline below:

- Place the error message into the variable ERM$
- If an error value is involved, load it into the variable ERV
- Determine the type of error from the documentation in the subroutine
- Use the ERROR statement with the correct value to invoke the error routine
- Recoverable errors will return to the statement immediately after ERROR

```
10000 REM
10010 REM PROGRAM ERROR ENCOUNTERED
10020 REM
10030 REM The following is a list of user-defined error codes:
10040 REM 255: Fatal error, message in ERM$
10050 REM 254: Fatal error, message in ERM$, error value in ERV
10060 REM 253: Warning, message in ERM$, RESUME NEXT on user's ok
10070 REM 252: Warning, message in ERM$, RESUME NEXT after user hits RETURN
10080 REM
10090 REM Error codes below 250 are system defined and should be treated as
10100 REM fatal error conditions
10110 REM
10120 PRINT : ERLN=ERL
10130 IF ERR <250 THEN ERM$="Program internal error discovered"
10140 IF ERR=253 OR ERR=252 THEN PRINT "WARNING"; ELSE PRINT "ERROR";
10150 PRINT " (";MID$ (STR$(ERR),2);"/";MID$(STR$(ERLN),2) ;"): "ERM$;"."
10160 IF ERR=254 THEN PRINT "Error status value: ";ERV
10170 IF ERR <> 253 THEN 10210
10180 PRINT "Continue (Y/N)?";
10190 ERINCHARS$=CHR$(13)+"NY"
10200 GOTO 10270
10210 IF ERR <>252 THEN 10250
10220 PRINT "Hit return to continue>";
10230 ERINCHARS$=STRING$(2,0)+CHR$(13)
10240 GOTO 10270
10250 PRINT "Hit return to terminate>";
10260 ERINCHARS$=CHR$(13)
10270 REM Get response from user, upshift it and branch accordingly
10280 IF INKEY$ <> THEN 10280
10290 ERIN$=INKEY$
```

```
10300 IF ERIN$="" THEN 10290
10310 IF ERIN$>="a" AND ERIN$<="z" THEN ERIN$=CHR$(ASC( ERIN$)-32)
10320 ON INSTR(ERINCHARS$,ERIN$) GOTO 10350,10350,10340
10330 PRINT CHR$ (7); : GOTO 10290
10340 PRINT ERIN$ : RESUME NEXT
10350 PRINT ERIN$ : END
```

□

How Are Strings Handled in BASIC?	All string variables, simple or subscripted, are actually pointers. Unlike the numeric variables which refer to a location containing the current numeric value stored, a string variable refers to a small section of memory containing a String Descriptor Block. The SDB consists of a length followed by a pointer into the data segment where the text can be found. When the string is referenced, BASIC uses the SDB to determine the length and location of the text.
String Equates Using LET	If a string variable is equated to a string constant (e.g. A$ = "text"), the SDB will point directly at the phrase; it is pointing right into the program source! This is why you will see warnings concerning passing strings equated to constants to Assembly Language subroutines. If the subroutine were to use the SDB to change the contents of the variable, it will effectively ALTER THE PROGRAM.
	If a string variable is equated to some sort of expression, or used in a read/input operation, the text must be stored in a temporary area until the string is equated to something new. This is where String Space comes into play. After BASIC allocates sections of the data segment for code, data, arrays, SDBs, stack, etc., the remaining area is allocated to String Space. This is where all temporary text will be stored.
Modifying A String With The MID$ Statement	Unlike LET, which points a string variable at a new string item, the MID$ statement actually modifies the text of a string. If a string is equated to a constant, and therefore pointed at source code, will modifying the string with the MID$ statement change the source code? No. BASIC is smart enough to copy the constant into String Space before it is modified.
String Space and Garbage Collection	The best analogy to String Space I have come up with so far is a box of balloons. At the start of program execution, String Space (the box) is empty. Each time a new string is required, space is allocated (a balloon, blown up to the correct size, is added) and the SDB is pointed at it. When a string variable is equated to something new, its original text is left in String Space, classified as Garbage, and a new string is allocated (another

balloon is added). Eventually, string space is exhausted (the box fills up) and String-Compaction/Garbage-Collection is initiated (the old balloons are removed, letting the valid ones settle into new positions). All SDBs must then be modified to point to the new locations.

The amount of time it takes to perform Garbage-Collection depends on how many string variables exist in the program (note that a string array of 100 entries would count as 100 strings).

Due to the design of the BASIC interpreters and the way they dynamically allocate variables space, String Space entries do not backreference their SDBs. This can cause long pauses for Garbage-Collection. The compiler is much more efficient and its variables area is fixed format. I have yet to see one of my compiled programs pause for Garbage-Collection.

What Kind Of Control Does The Programmer Have Over Garbage-Collection?	The control is very limited. If Garbage-Collection is hurting you, try to limit your strings or store your data using a different approach. Your best bet is to code the program in such a way as to limit the creation of temporary strings. One way to do this is to use the MID$ statement to replace text within a string instead of equating it to new text. Another method of limiting the waste of string space is to perform limited string addition. Do not add 10 strings together at once, and do not use string addition in PRINT statements when a semicolon separator will work just as well (e.g. PRINT ESC$;TEXT$ instead of PRINT ESC$ + TEXT$).

Since most people do not understand the internals of string operations, they use FRE(") to periodically force Garbage-Collection in an attempt to limit its effect. This will not help. The time it takes to perform any type of Garbage-Collection is not dependent upon how much garbage is present, but how many string variables exist. The only advantage to forcing a Garbage-Collection by calling FRE(") is to insure that an upcoming routine will not be interrupted by the system. |

String Space Errors	The two most common system errors concerning strings are 1) "Out of string space" (too many balloons, or too small of a box), and 2) "String space corrupt" (a balloon was found to be missing in action). When you're out of string space, there isn't much you can do. If your string space has been corrupted, something is definitely wrong!
String Space Corruption	BASIC is very good about protecting the box of balloons. There are, however, techniques beyond BASIC's control. Any direct memory access to String Space through BLOAD, POKE, or an assembly language subroutine is equivalent to inserting a knife into the box of balloons. If the knife misses the balloons entirely, or punctures an old balloon without disturbing the rest, BASIC probably won't notice. If a balloon is popped and forces others out of position, bye-bye String Space!
	Altering a SDB's pointer into String Space is another way to corrupt the area; the Garbage-Collection routine will think a balloon has been mislaid. Again, this is possible if you are using POKE, or BLOAD, or if an assembly language routine alters either the length or pointer values of a SDB.
	Please be aware of a problem concerning complied BASIC programs and bounds checking. The default conditions of the compiler denote no bounds checking. If the /D strap is not used, indexing outside of a string array will not be trapped by the code and will most likely corrupt String Space. As an example, if you were using a string array of 100 items and a variable index were to exceed that maximum, a SDB in an illegal part of memory would be created and pointed at String Space. The /D strap is always the safest way to go.
String Pointers Can Be Extremely Useful	Now that I have convinced you that SDBs and String Space entries are extremely fragile, let me let you in on a little secret. As long as a string variables's SDB is not pointed at an entry in string space, it can be manually re-pointed at any location in the Data Segment not reserved for String Space use. This turns it into a very powerful tool for reading from and writing to different areas of memory. I believe some examples are needed here, and you will find them in the following three sections.

Return Strings For Assembly Language Subroutines

When passing parameters to subroutines written in assembly language, strings can usually be somewhat troublesome. Although you can pass any string you want to the routine for processing, the passing back of text is difficult. If the string variable's text is to be altered, it must first be defined and sized to hold the maximum amount of information which can be passed back. It must also be defined in such a way as to force it to point to a temporary string. The typical approach is to use the SPACE$ function to define a string of specific length (e.g. LET A$ = SPACE$(40)). The subroutine, which is not allowed to alter the SDB, must then pass back the correct length so the BASIC program can use LEFT$ to shorten the text to what it should be.

There **is** an easier way. The string variable is equated to a null string (e.g. LET A$ = "") and passed to the subroutine. The subroutine, which has placed the information to be returned in one of its local buffers, alters the string variable's SDB to point at that buffer. Upon returning to the BASIC code, the string can now be used as a source of information; it will have the correct text at the appropriate length. BASIC will not be disturbed by this because the string is NOT pointed into String Space.

In the above example, I mentioned that the returned string can be used as a source of information. This means that you can print it, copy it to another string, etc. If you alter it with LET or MID$, it will react just like any other string and there will be no problem (see previous sections on "String Equates Using LET" and "Modifying A String With The MID$ Statement"). If you would like to write information to the buffer it is pointing at, these statements will not work; they alter the SDB to point to a new entry. What you need here is LSET. LSET will copy text into the string's buffer without re-equating the variable.

Searching And Manipulating Numeric Arrays With String Pointers

From the previous example you can see the usefulness of using a string as a "pointer", and pointing it at different locations in memory. Not only can you pass information more easily, you can also move/copy information from one location of memory to another VERY quickly; the system processor supports a single instruction for string copies of up to 64K. Although altering a string variable's SDB is easier in an assembly language subroutine, it is possible to do this directly from

40

BASIC. By determining the memory location of the variable's SDB by using VARPTR and altering it with POKE, you can effectively point it at anything in the data segment. Just remember to keep away from String Space!

One excellent application of this is in the manipulation of numeric arrays. The typical approach to copying one array to another is to build a loop and move values one at a time. An alternate method is string pointers. Using VARPTR to access the location of the source array, point the first string at its first entry. Use the same approach to point the second string at the destination array. By performing an LSET, you can copy the entire contents of the source array to the destination array in a single statement. Note: This method is approximately 60 times faster.

Example	The example which follows demonstrates this technique of copying data. You will notice that each pointer I defined has a separate "SDB$" pointer associated with it. It takes a few POKE statements each time you want to point a string into a memory location. To make this easier, a secondary string pointer can be defined and pointed at the main string's SDB. Now an LSET of length and memory position values into the secondary string ("SDB$") will point the main string at any location desired.

```
1000 REM
1010 REM Define two string pointers to be used for copying data
1020 REM
1030 PTR1$=''''                          'Define pointer #1
1040 PTR1.VPTR=VARPTR(PTR1$)             'Get address of pointer
1050 PTR1.SDB$=''LAA''                   'Define pointer SDB variable
1060 PTR1.SDBV=VARPTR(PTR1.SDB$)         'Get address of pointer's SDB
1070 POKE PTR1.SDBV+1,PTR1.              'Point SDB var at pointers SDB
     VPTR MOD 256
1080 POKE PTR1.SDVB+2,PTR1.VPTR\256
1090 PTR2$=''''                          'Define pointer #2
1100 PTR2.VPTR=VARPTR(PTR2$)             'Get address of pointer
1110 PTR2.SDB$=''LAA''                   'Define pointer SDB variable
1120 PTR2.SDBV=VARPTR(PTR2.SDB$)         'Get address of pointers SDB
1130 POKE PTR2.SDBV+1,PTR2.VPTR          'Point SDB var at pointers SDB
     MOD 256
1140 POKE PTR2.SDBV+2,PTR2.VPTR\256
1150 REM
1160 REM Define all vars to be used to insure VARPTR values remain constant
1170 REM
1180 K=0
```

```
1190 DIM X(4) 'Source array
1200 DIM Y (4) 'Destination array
1210 REM
1220 REM Fill X array with values 100-104
1230 REM
1240 FOR K=0 TO 4
1250 X(K)=K+100
1260 NEXT K
1270 REM
1280 REM Point first pointer at X array and second printer at Y array
1290 REM
1300 LSET PTR1.SDB$=CHR$(20)+MKI$(VARPTR(X(0)))'Define length and position
1310 LSET PTR2.SDB$=CHR$(20)+MKI$(VARPTR(Y(0)))'Define length and position
1320 REM
1330 REM Copy entire X array into Y array as a single string move
1340 REM
1350 LSET PTR2$=PTR1$                'Must use LSET instead of LET
1360 REM
1370 REM Print contents of Y array to verify move
1380 REM
1390 FOR K=0 TO 4
1400 PRINT Y(K)
1410 NEXT K
```

Comments on the Example	You may have noticed that all variables were defined before VARPTR was used to determine the starting address of the arrays. This is required if the program runs under an interpreter. Interpreters dynamically allocate variables, therefore array VARPTR addresses can change as more simple variables are defined. You should always define all simple variables before accessing an array's location using RPTR.
Copying Numeric Arrays To/From Random File Buffers	Efficient storage of numeric values involves the use of random access files, they support binary information. In order to output array values to the file, they must be converted to string format one by one and loaded into a random file buffer. Using an approach similar to the one in the previous section, a string pointer can be used to transfer multiple entries at a time. All you have to do is point a string at the array and use LSET to move the information into the buffer (e.g. LSET BUF$ = PTR1$). To move the information from the buffer into the array, simply switch the parameters (e.g. LSET PTR1$ = BUF$).
	If the array is so large that it must be moved in blocks, you can either repositon the string pointer to the start of each block by adding an offset to the location in its SDB, or use the MID$ functon to access a subsection of it (e.g. LSET BUF$ = MID$ (PTR1$,129,128)). Keep in mind that the second approach (using MID$) is not allowed when copying from the buffer to the array (e.g. MID$ (PTR1$,129,128) = BUF$).

□
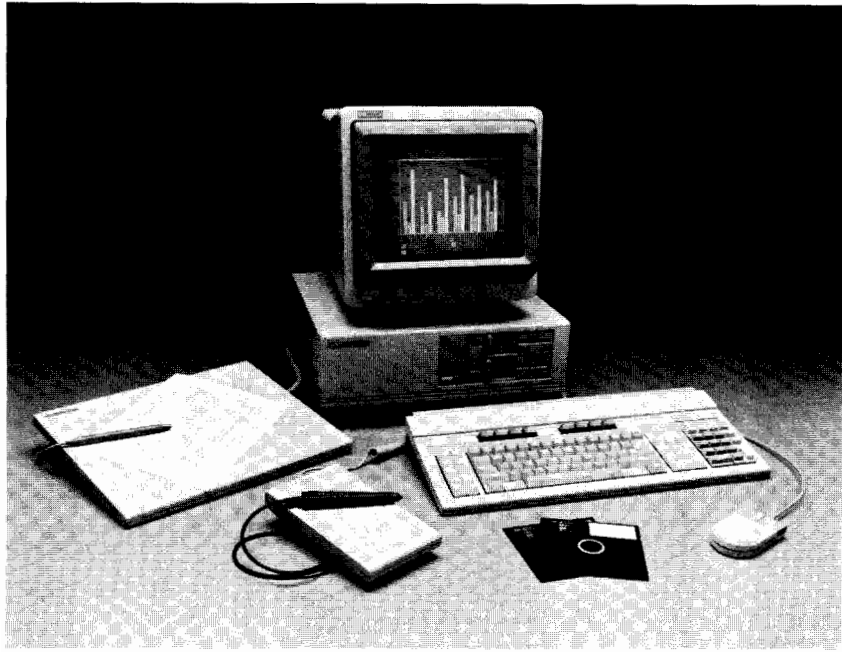
Introducing the Vectra Personal Computer   Lisa Byrne

The new Vectra line of modular personal computers offer IBM PC/AT compatibility in addition to improved computer performance. The Vectra PC, using the Intel 80286 microprocessor, is designed to be fully hardware and software compatible with the IBM PC/AT and to run any off-the-shelf application software available for the AT.

Vectra's key features include:

■ 30% faster processing speed than the IBM PC/AT.

■ High-resolution text and graphics for both color and monochrome monitors.

■ Monitors that tilt and swivel.

■ A keyboard with a separate cursor, numeric keys and extra function keys.

■ 30% lighter and 30% smaller system.

■ Optional 80287 Numeric Co-Processor for number-intensive applications.

Custom Tailored to Meet Your Needs

The broad selection of compatible peripherals, accessories and software available for the Vectra PC make it possible to customize solutions for a wide variety of users.

The Vectra PC includes PAM, HP's Personal Applications Manager, which lets you press a single function key, instead of typing in complex DOS commands. Also featured is HP's exclusive HP-HIL (Human Interface Loop) which allows the use of alternative input devices such as the keyboard, HP Touch, graphics tablets, bar code readers, and the HP Mouse without using any accessory slots. The Vectra PC also supports a full range of HP peripherals, including external disc and tape drives, the ThinkJet and LaserJet Printers, and the HP family of plotters.

There are three models:

■ Vectra Model 25—includes 256K-bytes of memory and a single 5¼-inch 360 Kb flexible disc drive.

■ Vectra Model 35—256K-bytes of memory and a 5¼-inch 1.2M-byte internal flexible disc drive.

■ The high-performance Vectra Model 45 includes 640K-bytes of memory and a 5¼-inch 1.2M-byte flexible disc drive.

45

Each of the three Vectra models can be expanded to meet additional memory and storage requirements. The memory can be expanded to a full 640 Kbytes without using any of the seven available accessory slots. If more memory is needed, the Vectra PC can be expanded to 3.64 Mbytes, leaving more room for RAM discs that let programs run even faster.

Vectra and Touchscreen II	While the Vectra PC emphasizes high performance and can be tailored to meet the needs of a wide variety of users, the Touchscreen II PC is ideally suited as a lower-priced workstation. It combines the power of a built-in graphics terminal with a full-function PC which runs more than 2,000 software packages.
	The Vectra PC and the Touchscreen II can be used together in the same office—either as terminals on the HP 3000 departmental computer or as resource and data-sharing nodes on the new HP OfficeShare local area network.
	Both systems have versions of the same HP user interface—PAM. This enables users to easily access either workstation.
For More Information	For more information, contact your Authorized HP Dealer or your HP Sales and Service Office. In the U.S., call 800/FOR-HPPC (800/367-4772) for a brochure.

☐

Upgrading Your HP 150A or Touchscreen to a Touchscreen II

Curt Gowan, Kevin Folan, Gayle Dixon-Randall

The Touchscreen II PC Upgrade Kit enables an HP 150A or Touchscreen PC (HP 150B) to have many Touchscreen II capabilities. The upgrade process involves five firmware ROMs, the latest Operating System, manual update pages, and an HP 150A hardware modification to ensure compatibility with the new double-sided disc drives.

Touchscreen Enhancements

If you have a Touchscreen (HP 150B), here is what you will gain from this upgrade:

- **Support of High-Capacity Fixed Disc Drives.** You will be able to add these fixed disc drives: 9153A/9154A (10mB), 9133H/9134H (20mB), and 9133L/9134L (40mB).

- **Support of Tape Backup.** You will be able to add the 9142A Streaming Tape Backup Unit.

- **New SAVERAM Utility.** Allows you to save and restore the contents of the Touchscreen RAM disc in a more user-friendly manner.

- **EtherStart Discless PC Support.** You can add a Touchscreen/150 without a local disc drive to an EtherSeries™ network—sharing the fixed disc on your network server. This requires an EtherLink™ interface and software with an EtherStart™ ROM on the interface.

Additional Enhancements for 150A

If you have an HP 150A, this upgrade will give you all of the Touchscreen enhancements, plus:

- **Support of High-Capacity Flexible Disc Drives.** The 3¼" double-sided flexible discs hold 710 Kb of data—more than twice the capacity of the single-sided discs.

- **Support of IBM-Compatible Flexible Disc Drive.** The HP 9125S 5¼" disc drive reads, writes, and initializes PC-DOS discs.

- **Fast New P.A.M.** The new P.A.M. runs faster and occupies less space in the computer's memory; the new INSTALL utility lets you install applications into sub-directories.

- **Easy System Configuration.** The new EasyConfig utility lets you select the one or more printers, plotters, disc drives, or host computers you want to connect—all by touching pictures of these devices on the screen.

- **RAM Disc.** Gives you the option of configuring additional memory as a RAM disc for storing data and running programs, thereby increasing the speed of many applications.

47

■ **EtherSeries Local Area Network Support.**
Allows you to add an EtherSeries interface
board to your system—so that you can connect
to a local area network of Touchscreen/150s and
other personal computers.

How to Order Your Upgrade	Please contact your Authorized HP Dealer or local HP Sales Office to arrange for your upgrade. Refer to the Touchscreen II PC Upgrade Kit, part number 45849-63006. The Upgrade Kit is not orderable by end-users because the installation must be performed by Hewlett-Packard or a qualified dealer.

□

Independent Software Vendor Program Update   Julian Elliott

The ISV Program	Since the introduction of the HP 150, HP has managed an extensive independent software vendor (ISV) program to ensure the availability of software applications for the Touchscreen 150 Personal Computer. To date, over 2200 software products have been written worldwide ... and more are on the way.
	We have been, and will continue to be, active in the recruitment and listing of ISVs for the Touchscreen family of products. Key attractions that HP offers include access to a large, yet focused installed base of Touchscreen 150 customers, and the opportunity to take advantage of key product features such as high resolution graphics and the touchscreen.
Vectra	With the introduction of Vectra, we are expanding our program to attract high quality vendors for our new product as well. Our strong emphasis will be to seek qualified ISVs who will utilize Vectra's "compatibility-plus" features, thereby providing an enhanced solution to the end customer. These extended features include higher resolution graphics, use of HP-HIL input devices (including the touchscreen), and use of the additional keys on the Vectra keyboard. In most cases, software written for the IBM PC-AT can be easily enhanced for Vectra, and can be ported such that a single version runs on both systems.
Benefits	Several benefits are immediately available to the ISV who qualifies for our listed program.

- Added product enhancements can give the ISV unique feature advantages in an extremely competitive software market.
- By listing with HP, the ISV begins a long-term business relationship as we unfold our future product strategy. Those in our program will be better able to quickly take advantage of product enhancements.
- HP gives the ISV access to our field, dealers, and customer base through HP software catalogs, dealer lists, and other promotions.
- HP provides extensive support in the development effort including equipment discounts, technical support, and other activities as required.

| **For More Information** | Interested ISVs for the Touchscreen or Vectra who have the qualifications and desire to join the HP team should call our ISV Administrator at (408) 720-4003 for additional information. |

□

Ever since HP introduced the HP 150, Personal Card File has been the demonstration software product of choice, and understandably so—not only does PCF make extensive use of touch, but it also broke new ground by featuring an intuitive rotary-card-file style user interface. PCF's ease of use, coupled with some unique features, such as the autodialing capabilties, made it one of the best selling Touchscreen/150 software products.

In designing the next generation product, customer feedback was of primary importance. We carefully listened to your requests and called a large number of PCF users. We created a new generation product that we believe will meet your information management needs to perfection— Executive Card Manager and its companion product, Executive Card Manager: Templates.

Executive Card Manager

Executive Card Manager provides business professionals and managers with an information management solution that uniquely combines a simple interface with numerous powerful features.

While Executive Card Manager offers the familiar desktop cardfile on-screen representation (that allows you to view and scroll your cardfile by moving the electronic "knobs"), its sophistication goes beyond that of a typical file manager. For instance, Executive Card Manager can store up to 64,000 records per cardfile, and each card may contain up to 11 screens of information.

The software also provides a complete built-in report writer that lets you present your information in columnar fashion. It even lets you generate simple form letters and their address labels for your mailing needs. And, with Executive Card Manager, it's easy to perform such data base operations as sorting your cardfile or "marking" a subset of your card file for report generation. Executive Card Manager is also file-compatible with the most popular spreadsheets and data bases.

A Highly Visual and Intuitive Interface	Executive Card Manager has been carefully designed to meet the needs of business professionals and managers. On-screen representations of common business items—such as the Rotary Card File, the index card and report sheet—and precisely-worded softkey labels make the product easy to learn and to use. With little training you can perform information management tasks and be immediately productive. For instance, you can create a columnar report simply by selecting the fields you want on a card; Executive Card Manager automatically places them as columns on the report sheet.
Supports LaserJet and ThinkJet Printers	Using Executive Card Manager with the HP LaserJet printer helps you generate high-quality reports that can be incorporated in executive documents. With the LaserJet, you can generate up to eight form letters per minute for your mailing needs. And with the HP ThinkJet printer you can output report summaries quietly and efficiently right at your desk.
A Guided Tour	Executive Card Manager provides a set of impressive features: **Cardfile Features** Executive Card Manager makes it easy for you to create a cardfile by providing on-screen design for your card layout. You just paint the fields on the screen. Or, adapt an existing cardfile layout and tailor it to your needs. The large cardfile capacity gives you the flexibility to manage your 50 most important business contacts or the 10,000 capital assets of your division. ■ Free-form cardfile creation. ■ Up to 64,000 cards per cardfile. **Card Features** With Executive Card Manager you can keep track of complete records for your customers, clients, or patients. For tracking and security reasons, ECM automatically stamps the time and date on a card each time it is updated. ■ Up to 11 screens of information. ■ Up to 2,600 fields per card.

52

Report Features

Whether you want a list of the top 10 sales representatives for each of the regions your company covers or need to compare the average salaries of your division's departments, with Executive Card Manager you are only a few keystrokes away from a tabular summary of your cardfile.

- Built-in report writer.
- Unlimited number of saved report formats per cardfile.
- Extensive formatting capabilities (break fields, right justify, page breaks, hidden fields, access to escape sequences).
- Arithmetic (counts, totals, subtotals, averages).
- Report width: Up to 255 characters (windowing capability).

Mailing Features

Executive Card Manager assists you in generating your personal or business mailings. Just use the line editor to create the form letter and place the fields on the letter. Executive Card Manager will then print as many letters as there are records in the cardfile.

- Simple form letter generation.
- User-definable formats for labels and form letters.
- Several labels across.

Sort Features

Executive Card Manager lets you organize your cardfile the way you want. For example, you can at any time arrange your employee file by last name, employee number, increasing or decreasing salary, or by department.

- Three reassignable sort keys.
- Temporary or permanent sort.
- Numeric sort.
- Ascending/descending order.

Search Features

Searching for a particular subset of your cardfile, your Texas customers, for instance, is as easy as entering "Texas" in the "State" field.

- Search criteria include: "less than," "greater than," "equal to," "not equal to," and all logical combinations.
- Literal and numeric search.
- Wildcard search.
- Grouped fields search.
- Toggle mark of resulting subsets.

Merge Feature

A sales manager can merge sales representatives' updated customer records into a cardfile: Executive Card Manager will automatically replace the old records with the updates.

- Merges cardfiles.
- Appends cardfiles.

Telephone Features

To call a business contact, just position the cursor on a "telephone" field, and Executive Card Manager will automatically dial the phone number.

- Unlimited number of autodial fields.
- Pre-definable telephone macros for long distance access codes.
- Functions with any modem.

Integration Features

Executive Card Manager was designed to provide maximum integration with the most popular productivity software—you can easily have your cardfile read into spreadsheets, or exchange information with other databases.

- Runs with HP Access.
- Runs under ExecuDesk.
- Includes a conversion utility for Personal Card File cardfiles.
- Produces DIF™ and ASCII outputs for compatibility with the most popular spreadsheets, databases, and word processors—including dBase II™ and III, R:BASE™ 5000, 1-2-3™ from Lotus,™ Wordstar,® and Mailmerge.™

Executive Card Manager: Templates	Executive Card Manager: Templates consists of a collection of modifiable cardfile and report overlays representative of 21 business environments for which Executive Card Manager provides an effective solution.
	The templates provide fill-in-the-blank instant productivity. With the templates provided you no longer have to spend time developing the information requirements and formats you need, specialists from various fields have already done it for you:

General Business
- Business Contacts*
- Task and Appointment Scheduler*
- Message Taker*
- Stock Portfolio*
- Social Organizer*
- Capital Equipment Management*

Management/Personnel
- Employee Record*
- Job Description File*
- Applicant Tracking File*
- Payroll*

Sales/Business Travel
- Customer Records/Product Information*
- Travel Expense Report*

*Report format(s) also provided

Accounting
- Invoice/Purchase Order*
- Inventory*

Specialized Businesses
- Membership Organizations
- Real Estate:
  Client Information*
  Tour Scheduler
- Doctor: Patient Information*
- Lawyer: Client Information*
- Accounting: Client Information
- Education: Instructor Scheduler

Hardware Requirements	Minimum Memory Configuration: 256K RAM HP Touchscreen/150
	Supported Printers:

|	
HP ThinkJet (Serial)	Epson FX80
HP ThinkJet (Centronics)	Epson MX80
HP LaserJet	Epson MX100
HP 2601A	Okidata 93
HP 2602A	Okidata 92
HP 2934A	Diablo 630
HP 82906A	M-T Spirit 80
	NEC 7710
	NEC 7720
	Qume 1140
	Brother HR-15
	IBM 80 CPS

Ordering Information	To order Executive Card Manager (Product 45421A) or Executive Card Manager: Templates (45441D), contact your local HP dealer or HP office.

□

Symphony,® release 1.1, is now available for the
Touchscreen/150. Symphony is a versatile
business tool for managers and professionals,
integrating five powerful functions—spreadsheet,
graphics, word processing, data base manage-
ment and communications. And Symphony for
the Touchscreen PC uses HP Touch.

**Lotus
1-2-3 Upgrade**

In cooperation with Lotus Development
Corporation, HP is offering owners of Lotus 1-2-3
for the Touchscreen PC an opportunity to upgrade
to Symphony for the Touchscreen PC. Please note
that this is a *limited time offer—from November 1,
1985 through April 30, 1986.* See the ordering
details given at the end of this article.
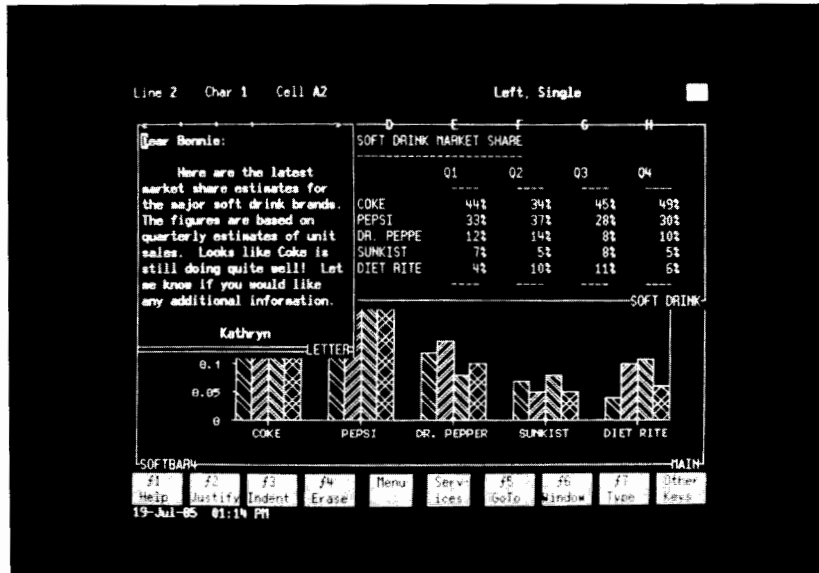
More About Symphony	Symphony is easy to learn and easy to use. Included with Symphony is an on-line tutorial, with 36 lessons covering eight different Symphony functions. These short, interactive lessons let you learn as much as you want about Symphony, and then move on. You can even leave Symphony's tutorial to practice on your own, and then return with just two keystrokes. An on-line help facility is also included with Symphony. Every help screen is context-sensitive, so that you receive only the information that you need. Even the error messages have help screens. And you can get help while using Symphony's Install or Printgraph programs.
	A new, streamlined installation procedure, included in release 1.1 of Symphony, enables you to get up and running quickly. And if you are using specific HP equipment, you can use Symphony as is. The new release of Symphony also has improved documentation, that makes it easy to know where to look for answers. A Getting Started booklet familiarizes you with Symphony. The How-To Manual steps you through tasks and procedures. The Reference Manual, complete with glossary, provides in-depth information as necessary. And all are fully indexed and cross-referenced.
	For advanced users, Symphony has many powerful capabilities. A more efficient memory management system lets you build bigger and more complex spreadsheets. Intel 8087 co-processor support makes for faster mathematical calculations. Symphony's Command Language helps you to customize Symphony to fit your needs, and Symphony's LEARN mode allows you to capture frequently used keystrokes as you type them. Symphony also has a built-in Macro Library Manager add-in, so that you can use stored macros with any Symphony file, and a DOS add-in, that enables you to exit from Symphony and go directly into MS-DOS.
Does it All	Need to test assumptions or perform complex "what if" calculations? Draw a graph with the results? Write letters, reports, or proposals using your data? Set up a filing system that allows you to sort using up to three different criteria? Receive information from other computers and incorporate it into your spreadsheets? Send files to your associates in distant locations in a fast, efficient manner? Symphony does all of this and more.

58

Symphony is the first complete, all-in-one business software system. Symphony's easy-to-use interface, combined with its advanced performance features, make it the perfect software package for large corporations and small businesses alike. It's all you'll need to manage in today's complex world.

Spreadsheet	Symphony's spreadsheet builds on the popular 1-2-3 spreadsheet by adding many powerful, new features. Some useful additions are: a range table command that lists existing range names and their corresponding ranges, and a range transpose command that transforms rows of data to columns and vice versa; password protection and hidden cells that limit access to certain parts of the worksheet; and a copy command that allows for copying of current data, instead of formulas, into a given range.
	Symphony also has many new functions, including a whole new group of "string" functions. These string functions, such as: CHAR, CLEAN, CODE, EXACT, FIND, LEFT, LENGTH, LOWER, MID, PROPER, REPEAT, REPLACE, RIGHT, TRIM, UPPER, and VALUE, will manipulate text and/or character strings. Date and time functions open up new possibilities for keeping track of data records: SECOND, MINUTE, HOUR, DAY, MONTH, YEAR, NOW, TIME, TIMEVALUE, DATE, and DATEVALUE. Other logical (ISNUMBER, ISSTRING, IF, ISNA, ISERR), mathematical (ACOS, ASIN, ATAN, RAND, ROUND, SQRT, TAN), financial (PV, FV, NPV, PMT, IRR) and statistical functions (AVG, MAX, MIN, STD, SUM, VAR) help you save time figuring and entering complex formulas.
Word Processor	Symphony's word processor allows for easy creation, editing and printing of letters, memos and reports. Although the word processing display screen is essentially a large blank spreadsheet, Symphony incorporates many advanced word processing features, such as: special printing attributes (underline, boldface, italics, superscript, and subscript), forward and backward search and replace, multiple text formats, and range naming. The program will print with single, double or triple spacing, and with headers and footers using page numbers, dates and/or user-defined titles. Another impressive feature is Symphony's ability to name, store and merge boilerplate paragraphs for use in multiple documents.

The benefit of this underlying spreadsheet structure is that there is a high level of interaction possible between the various Symphony environments. For example, you can take advantage of Symphony's mail merging capabilities by using a data base file to create numerous copies of a personalized word processing document. Or, you can use Symphony's communications and word processing functions to send and receive electronic mail. You can even incorporate spreadsheet data into your documents, and if you choose to change the values or the formulas, the numbers in your document are automatically updated.

Data Base	Symphony's data base environment is different from 1-2-3 in that it is oriented around forms. Once you have created a list of fields for your data base, you can input and edit these fields via the form. Each form has a number of highlighted areas on the screen, where you input your text or data. Once you have completed a form, Symphony automatically stores the information in a related spreadsheet. The spreadsheet is where you perform all of the data base manipulations, such as searching, sorting, extracting, and editing.

Important features in the Symphony data base function include: edit checking, which checks to make sure that the entered data falls within a pre-specified range; user-definable data entry prompts that are displayed on the command line at the top of the screen; a wild card search capability; data sorting of up to three criteria; and report generation that allows for sophisticated field computations and calculations. With Symphony, you can create multiple data bases within a single spreadsheet and use an unlimited number of entry, query and report forms for each data base. And like 1-2-3, Symphony performs data base searches and sorts very quickly.

Graphics	Symphony's graphics environment is a sophisticated business analysis tool that is very similar to the 1-2-3 graphics environment. The graphs you create within Symphony are intimately tied to your spreadsheet data. Symphony's windowing capabilities, however, offer you an important new benefit. When you change the data in your spreadsheet, you can see the change in the graph at the same time you enter the new data. You can even have multiple graphs on the screen, in order to view how changing the data effects numerous other variables.

With Symphony, you can create six graph types: shaded and exploding pie charts, line charts, bar charts, stacked bar charts, XY charts, and high-low-close-open charts. Through Symphony's graphics settings sheet, you can define the title, legend, scale dimension, origin, format, and colors of a graph. And, you can store frequently used graph options under the name of your choice. |
| **Communications** | Symphony's communications environment is a full-function, asynchronous communications program. While in the communications mode, you can capture data into either a spreadsheet or a word processing document, or have it printed out as it is transmitted. It is even possible to temporarily suspend a communications session to analyze the incoming data in your spreadsheet. Once you have defined the capture range and given Symphony the necessary communications information about another computer, you can communicate with most any other computer in the world.

With Symphony's communications settings sheet, you can store a full range of transmission parameters (phone number, user name, password, baud rate, parity, stop bits, etc.) under a specific name for each commonly used remote computer site. The settings sheet provides for Symphony's auto-dial, auto-answer, and auto-log-on capabilities. It will even let you store the amount of time you want it to spend trying to connect to any given host computer before it gives up. Symphony supports the XON/XOFF handshaking and X-modem protocol standards, which you can enable or disable through the settings sheet, and most standard ANSI-type terminals. |

System Requirements	To use Symphony (release 1.1) for the Touchscreen PC, you must have the following HP equipment:
	■ A Hewlett-Packard 150 Personal Computer (150A), or a Touchscreen Personal Computer I (150B) or II (150C).
	■ A Hewlett-Packard dual 3½" or 3½" + hard disc drive supported by the Hewlett-Packard Touchscreen Personal Computer family.
	■ A minimum of 512K bytes of RAM.
	■ A printer, plotter and/or modem is optional.
Ordering Symphony	Symphony is available as HP product 45498A from your authorized HP Dealer, your HP Sales and Service Office, or through HP's direct telephone order lines. See "How to Order" in the Current Information section for details.
Ordering the Lotus 1-2-3 Upgrade	In cooperation with Lotus Development Corporation, HP is offering owners of Lotus 1-2-3 for the Touchscreen PC an opportunity to upgrade to Symphony for the Touchscreen PC. Please note that this is a *limited time offer—from November 1, 1985 through April 30, 1986.*
	In the U.S., to order the Lotus 1-2-3 to Symphony Upgrade, contact your HP dealer, call your local HP sales office, or call the HP Direct Marketing toll-free number, (800) 538-8787. If you are in California, Alaska or Hawaii, call (408) 738-4133 collect.
	Order these two items together:
	Symphony Upgrade Box 45564A Symphony Upgrade Kit 45565A
	You must order both the Symphony Upgrade Box and Symphony Upgrade Kit at the same time. You will receive the Symphony Upgrade Box, complete with instructions. Fill out the enclosed coupon, place your complete Lotus 1-2-3 manual, system master disc, and coupon into the Upgrade Box, and send the Upgrade Box to the address that is pre-printed on the box.

Once your returned Upgrade Box is received, HP will inspect it to make sure that the manual is complete and that the system master disc and coupon have been enclosed in the box. A Symphony Upgrade Kit will then be sent back to you. (Expedited shipping is available at an additional charge.)

Outside the U.S., contact your HP dealer or HP sales office for details of the Symphony upgrade program for your country.

□

Encyclopedia

The Encyclopedia

*In This Issue

*In This Issue

The HP PC Bugline

Latest information about HP PC questions, problems, and solutions

Problem: You define a form using the line drawing character set, print it using the HP 2627A **Internal Thermal Printer**, and discover the printed form has broken vertical lines.

Solution: Before printing the form or running the application which prints the form, enter the escape sequence ESC&18D (print eight lines per inch).

* * *

Problem: You can't seem to load either **Memomaker for IBM** or **PCF for IBM**.

Solution: Because of the software protection scheme used on these applications, you must load them from a 1.2 mb drive.

* * *

Problem: You are using the **Drawing Gallery** application on a Touchscreen II under the Version B operating system, and your mouse will not work.

Solution: You must run the application under the Version C operating system.

* * *

Problem: You are using the **Drawing Gallery** application on a Touchscreen (HP 150B) under the Version C operating system, and your mouse will not work.

Solution: You need to run the application using the HP-HIL interface board with the Version B operating system.

* * *

Welcome to the "Encyclopedia" section of the *Communicator*—bringing together all the news you need on each of the software packages and systems that you use.

Coupled with the manuals, your *Communicator* back issues and subscription provide everything you need to make the best use of your personal computer.

What's in the Encyclopedia?

For each major product, there is an Encyclopedia entry containing all or part of this information:

- Product Description—a one- or two-sentence explanation of what the product does.
- Encyclopedia Articles—a reference to any Encyclopedia articles in previous *Communicator* issues covering this product.
- News items about the product.
- Program Updates or Upgrades—how to obtain the new version of the program, if it has been revised. (New items since the last issue are marked with a "New" symbol.)
- Most Frequent Questions—with answers, based on the experience of HP's Phone-In Software Assistance Centers around the world. (New question listings since the last issue are marked with a star.)
- Software Problem Reports—a cumulative list of the major problems which have been reported. If you have a problem, check the "Encyclopedia" entry for the product. (New problem listings since the last issue are marked with a star.)
- Manual Corrections or Updates—a cumulative list of corrections to the manuals for the product. Check the products you use, write in any new corrections since the last issue (marked with a star), and your manuals are up-to-date.
- Related HP Publications—any Quick Reference 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.)
- Data Files—a description of the files used by the product, to aid in data transfer.
- Integration Features—a summary of any features built into the product to facilitate data transfer to other products.

■ Data Transfer Procedures—specific techniques which have been discovered for data transfer to specific products.

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 issues containing the latest articles for each product.
Contributors	The Encyclopedia is a result of effort by many people. The key contributors for this issue are:
	Mary Jo Blakenship
	John Callendar
	Paula Dieli
	Kelly Fox
	Noni Kaufman
	Leonard Knapp
	Rich Moyer
	Margaret Price
	Ron Reimert
	Martha Seaver
	Hal Sindler
	Vicky Spilman
	Tore Strong
	Also, we would like to send a special thanks to the OPD Support Team.
	If you have an item which you would like to share, please send it to the *Communicator* editor.

□

AdvanceLink ... for the Touchscreen PC

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	AdvanceLink (Product 45431A) allows verified file transfers, in both directions, for ASCII or binary files between the Touchscreen/150 and a "host"— the HP3000, IBM PC or another Touchscreen. The file transfer portion of AdvanceLink is completely menu-driven and easy to use.
Operation	AdvanceLink transfers files in conjunction with a "Monitor" program located on the host. The Monitor program for the HP3000 is included in AdvanceLink product. Monitor/3000 must be installed on the HP3000 before any file transfer can take place. Monitor for the IBM PC (Product 45439A) is an accessory product and is not included in the AdvanceLink product. With MonitorPC, files can be transferred to/from an IBM PC, XT or AT just as easily as with the HP3000.

Transferring a file is achieved by running AdvLink on the Touchscreen and then:

1. If the host is another Touchscreen/150 or an IBM PC, run the appropriate Monitor application. If the HP3000 is the host, log on (this can be done from the AdvLink main screen).

2. Choose a 7 bit transfer, if that is necessary (see the "7/8 Bit Option" section that follows for more description on this).

3. Select either the "Transfer to Host" or "Transfer from Host" softkey depending on which direction the file should be transferred. (Remember, the Host in this case is the remote computer.)

4. When the Transfer Menu comes up, fill in the host file name and local file name. If a disc drive designator (i.e. A:) is not designated for the local file, AdvLink will assume the disc drive from which AdvLink was run. Subdirectories, if applicable, can be specified. Select whether this should be an ASCII or binary transfer using the ASCII/Binary softkey. Transfers to another Touchscreen or the IBM PC are always binary. Finally, override the default record size if necessary (usually not required).

5. Press the Start Transfer softkey. AdvanceLink will check whether the destination file exists or not. If it does, the user will be asked if it is okay to purge it. The transfer should proceed, giving a character count in all areas except when transferring a file down from the HP3000 where the count is a record count.

6. When the transfer is complete, press the AdvLink Main softkey to return to the AdvLink main screen (terminal emulator mode).

7/8 Bit Option

There are many places in this Atlas where a 7 bit transfer is referred to. When a file is transferred in "7 bit mode", the eighth bit is zeroed, essentially making the file transferred a straight ASCII file. This process will strip the formatting from a MemoMaker or WordStar file, for instance, as well as destroy any foreign character designations if the Roman8 extension characters are used. The 7/8 bit "switch" is located in Command level of softkeys. The defult value of this switch is 8 bits. If 7 bits is desired, it must be set prior to selecting "Start Transfer." The 7/8 bit setting only applies to ASCII files transferred to the HP3000; binary transfers and all transfers to another Touchscreen or the IBM PC are 8 bits.

Strip-It

Strip-It was a small utility program included in the initial version of the AdvanceLink package that performed two functions. The first was the zeroing (stripping) of the eighth bit of each byte in a file. This allowed WordStar and MemoMaker document files to be useable within most other processors that can accept ASCII files.

In addition, Strip-It was also capable of changing control characters that can be imbedded in a file (and are not displayable) into a format that is displayable. For example, WordStar or MemoMaker precede a bolded character with the character "control B". Control B (ASCII 2) is a single character that is not displayable. Strip-It converted the single character "control B" to two displayable characters. Unfortunately, there is a bug in this portion of Strip-It that produces a fatal error if your file is greater than 1KB in length. Saying "no" to the displayable character question when running Strip-It will avoid the bug.

	Due to the above bug, Strip-It was only in Revision A.01.02 of AdvanceLink. Strip-It has been dropped from the AdvanceLink product in later revisions. The Strip-It functionality of zeroing the eighth bit is already included in the AdvLink program using the 7/8 bit option key.
X.25	Transferring files over X.25 requires a few special AdvanceLink commands to make the transfer function correctly. These commands, executed before trying the file transfer, are: &TERMINATOR OFF &HOSTCOPY 'RUN MONITOR.PUB.SYS INFO = "HEX" ' &HP3000 OFF &HEX ON
DSN/Link 150	For the purposes of transferring files, DSN/Link 150 and AdvanceLink work the same. The 7/8 bit setting is not available in DSN/Link; all files are transferred 8 bits wide. In addition, the Monitor/3000 program included with DSN/Link (called Link100 in the DSN/Link package) does not work correctly on MPE-VE.
Eavesdrop Plotters	File transfer will not work with an eavesdrop plotter present. Communication errors will result. If the user has an eavesdrop plotter on the communication line being used to the HP3000, it must be disconnected during the actual file transfer. It may be reconnected after successful completion of the file transfer.
SD to DIF File Conversion	AdvanceLink will automatically convert a HP3000 Self Describing (SD) file format to a DIF format when the SD file is transferred down to the Touchscreen. A small message appears in the file transfer screen announcing that this is occurring, but otherwise the user is unaware of this process and doesn't need to take any action.
MonitorPC	As mentioned in the "Operations" section, MonitorPC runs on an IBM PC, XT or AT and provides file transfer between these units and the Touchscreen. When using the current version of MonitorPC with AdvanceLink, the following AdvanceLink command must be issued prior to file transfer: &HOSTCOPY "RUN LINK100.PUB.SYS" This is accomplished by selecting the "Command" softkey, the "Enter Command" softkey and then typing in the above command.

Datacomm Configuration	The datacomm port config in the Touchscreen for communications with the HP3000 is done by setting the Enq/Ack field to Yes while the Xon/Xoff setting in RecvPace and XmitPace fields is used for file transfers between AdvanceLink PC and another Touchscreen or IBM PC.

□

AdvanceLink ... for the IBM PC Family

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	AdvanceLink for the IBM PC (Product 45431E) is the same functionally as AdvanceLink for the Touchscreen. AdvanceLink PC runs on the IBM PC, XT or AT. Files can be transferred directly from the IBM PC to another IBM PC, HP3000 or Touchscreen in exactly the same manner as is explained in the section on the Touchscreen version of AdvanceLink. MonitorPC (Rev. A.02.02) is included in AdvanceLink PC rather than the Touchscreen version.
X.25	Transferring files over X.25 requires a few special AdvanceLink commands to make the transfer function correctly. These commands, executed before trying the file transfer, are: &TERMINATOR OFF &HOSTCOPY 'RUN MONITOR.PUB.SYS INFO = "HEX" ' &HP3000 OFF &HEX ON
Eavesdrop Plotters	File transfer will not work with an eavesdrop plotter present. Communication errors will result. If the user has an eavesdrop plotter on the communication line being used to the HP3000, it must be disconnected during the actual file transfer. It may be reconnected after successful completion of the file transfer.
SD to DIF File Conversion	AdvanceLink will automatically convert an HP3000 Self Describing (SD) file format to a DIF format when the SD file is transferred down to the Touchscreen. A small message appears in the file transfer screen announcing that this is occurring, but otherwise the user is unaware of this process and doesn't need to take any action.
MonitorPC	Revision A.02.02 of MonitorPC is included with the AdvanceLink package. This is a newer revision than the revision shipped as the accessory product 45439A which is Rev. A.02.00. With the Rev. A.02.02 included in AdvanceLink PC, the tip given in the AdvanceLink Touchscreen/150 section for Monitor PC can be disregarded as it no longer applies.

Terminal Emulator	The terminal emulator contained in AdvanceLink PC is a line mode (TTY) emulator only. It does not support block mode. Any HP3000 application that uses special HP terminal features will not run correctly through AdvanceLink PC.
8 Bit Characters	The IBM PC doesn't support Roman8 characters. In any file transfer from an HP system to the IBM PC, care has to be taken that any Roman8 extension characters are stripped from the data files before transferring the file. (Otherwise you will get strange characters for your extension characters!)
Datacomm Configuration	Since the IBM PC doesn't have terminal configurations to control the datacomm, the datacomm configuration settings are done within AdvanceLink PC. Communications with the HP3000 are done using Enq/Ack for Handshake while the Xon/Xoff setting is used for file transfers between AdvanceLink PC and a Touchscreen or another IBM PC. Note the maximum setting of baud rate for the IBM PC is 9600 while the Touchscreen supports 19.2K baud.

□

Graphics ... for the Touchscreen/150

Encyclopedia Articles	This is the second Encyclopedia article on this product. Use this article with the Encyclopedia entry in Issue #9.
Product Description	Series 100 Graphics is a chartmaker on the Touchscreen/150 that lets you easily create line, pie, bar, scatter and text charts. Charts can be plotted to the HP747x and HP7550 plotters; additionally, a screen dump of the graphics screen lets you get a printed copy of your chart.
Data Files	Series 100 Graphics stores its charts in two files, a chart file with suffix ".GPH" and a binary data file with suffix ".GPD". It can also read data from .DIF files and simple ASCII print files. These files do not need to be converted to binary.
Integration Features	The line, bar, and pie chart programs of Series 100 Graphics let you get data from DIF™ and simple ASCII files. The format for these files has the following limitations.
	–Data must be in a columnar format with no blank lines (no blank columns for DIF files).
	–For ASCII data, blanks or commas are used as delimiters between columns; no non-numeric symbols can be used for numeric data (e.g. %).
	–Data must be oriented such that x-axis data (if desired) is in the first column and next five columns of data contain data desired for five y-axis variables; i.e., x axis data such as years should be in the first column (not row).
	To bring in data from a DIF or ASCII print file into Series 100 Graphics:
	1. Choose the chart type you want to use and run the appropriate program.
	2. Go to the CHARTS menu and specify the TRANSFER DATA.
	3. Enter the ASCII or print the file name for Data File Information and press DATA to retrieve the data and see it displayed on the DATA menu.
Data Transfer Procedures	**To Charting Gallery:**
	Bar, line, and pie charts made in Series 100 Graphics can be used in Charting Gallery; text charts cannot. In Series 100 Graphics, save the chart on the SAVE menu, specifying a chart name. This chart can be used automatically in Charting Gallery by specifying it on the GET AND SAVE menu.

To Drawing Gallery:

Bring the Series 100 Chart into Charting Gallery. Then, save it as a picture file (.GAL). This file can be brought into Drawing Gallery. Text Charts from Series 100 Graphics cannot be brought into Charting or Drawing Gallery.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

□

HPDraw ... Data Transfer to the Touchscreen/150

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	HPDraw is a presentation graphics tool on the HP3000 that lets you create drawings composed of text, lines, circles, figures, and charts. A figure library is provided with hundreds of figures that can be used in the business enviornment. Drawings can be plotted to any HP plotter, to a variety of HP3000 graphics printers, and to a Dicomed format that can be used for 35mm slides.
Data Files:	HPDraw stores drawings in MPE files with filecode DRAW. It can also save drawings as figures, with filecode FIG. HPDraw can read a figure into a drawing and can read a DSG/3000 chart file with filecode GRAPH into a drawing.
Integration Features	HPDraw lets you read in figures from HP3000 figure files (with filecode FIG) that have been created in HPDraw, DSG/3000, HPEasyChart, or FIGMAKER. You specify the figure and figure file name on the Figure Menu.
	HPDraw also lets you read HP3000 chart files (file code GRAPH) into drawings. You specify the chart and chart file name on the chart menu.
	Conversion between HP3000 graphics files and HP150 graphics files is not available.
Data Transfer Procedures	**To HPWord:**
	HPDraw figures can be included in HPWord documents. Save your HPDraw drawing as a figure on the Save Figure menu, specifying a figure and figure file name. Use the Figure Space in HPWord to include the saved figure.

To TDP:

HPDraw figures can be included in TDP documents. Save your HPDraw drawing as a figure, specifying a figure and figure file name on the Save Figure menu. Use the \illustration command in TDP to include the saved figure in your document.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

□

HPWORD ... Data Transfer to Touchscreen/150

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	HPWORD is a secretarial word processor on the HP 3000.
Data Files	The bulk of HPWORD files are specific to HPWORD. A LISTF,2 will display them as such, or they can be displayed in HPWORD with the DISPLAY CATALOG function key.
	HPWORD also uses Self Describing files as user-variable input to standard documents and letters.
	HPWORD can also access files produced by graphic products (i.e. figure files and raster files).
	HPWORD uses IPC files (Inter Process communication) files during printing. If printing is to a system printer, then spoofles are used. Again during printing, HPWORD will access printwheel description files and environment files.
	There is also a configuration file used by HPWORD to define the HPWORD configuration.
	Full details of the files used can be found in the installation instruction file GUWORD1.HP32120.HPPL85
Integration Features	HPWORD will either automatically or manually create a user-variable SD file as described above.
	Standard ASCII files can be converted into HPWORD documents by invoking the built converter.
	If you have HPSPELL, the spelling checker can be invoked from within HPWORD.
	When printing to a suitable printer, HPWORD will automatically convert figure files (produced by HPDRAW etc.) to raster files. These raster files are temporary.
Data Transfer Procedures	**To Wordstar:**
	Copy document into HPDeskManager and use the CONVERT command to convert the document to MemoMaker format. Use HPMessage to transfer the file to the Touchscreen PC. Bring file into Wordstar.
	To MultiMate:
	Use WordUtil to K(eep) a copy of the document as as ASCII file. Transfer the file to the Touchscreen PC using AdvanceLink. Convert to MultiMate format using FILECONV.

To MemoMaker:

Copy document into HPDeskManager and use the CONVERT command to convert the document to MemoMaker format. Use HPMessage to transfer the file to the Touchscreen PC. Bring file into MemoMaker.

To Executive MemoMaker:

Same as HPWord to MemoMaker.

To MS Word:

Same as HPWord to MemoMaker. Then use the Wordstar to MSWord Convert Utility to convert to MSWord format.

To HPSLATE:

Use WordUtil entry into HPWord and select the K(eep) option to keep a copy of the HPWord document in as ASCII file. Bring ASCII copy into HPSlate. HPSlate will convert from ASCII to HPSlate format automatically.

To TDP:

TDP documents can be brought into HPWORD via HPWORD convert function. HPWORD documents can be converted to ASCII files by running HPWORD with the WORDUTIL entry point.

■ Graphics conversion is invisible to the user, and is invoked where necessary by HPWORD's print processes.

To DSG/3000:

Use WordUtil to K(eep) a copy of data as an ASCII file. Bring into DSG/3000. Data must be in columnar format with no blank lines and no titles.

To IBM PC MemoMaker:

Same as HPWord to MemoMaker.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

□

Lotus 1-2-3 ... on the Touchscreen/150

Encyclopedia Articles	This is the second Encyclopedia article on this product. Use this article with the Encyclopedia entry in Issue #11.
Product Description	Lotus™ 1-2-3™ incorporates three popular functions into one application; (spreadsheet, business graphics, data management).
Data Files	.WKS- A worksheet file stores the spreadsheet and its settings. The user can use 1-2-3 to edit this file again and again. The /File Save commands generates a .WKS file.
	.PRN- A print file stores a report for subsequent printing or for use by another program. Settings are NOT saved and therefore cannot be brought into 1-2-3 and edited. The /Print File command generates a .PRN file.
	.PIC- A picture file stores an image of a graph for use with the Lotus PrintGraph utility. A .PIC file cannot be brought back into 1-2-3. The /Graph Save command generates a .PIC file from the graph settings in 1-2-3. (Note: The /Graph Name command saves the graph settings for later editing within 1-2-3. No special file is generated, the settings are associated with the .WKS file).
Integration Features	Translate- The Lotus Translate utility modifies certain files for exchanging data among 1-2-3 and other programs.

The following table lists files that can be converted using this utility.

Source File			Destination File	
VisiCalc	.VC	to	1-2-3	.WKS
DIF	.DIF	to	1-2-3	.WKS
dBASE-II	.DBF	to	1-2-3	.WKS
1-2-3	.WKS	to	DIF	.DIF
1-2-3	.WKS	to	dBASE-II	.DBF

Data Transfer Procedures	**To WordStar:**
	Save the desired range as a .PRN file (/Print File).
	To MultiMate:
	Save the desired range as a .PRN file (/Print File). Use MultiMate's file conversion routine, FILECONV, to convert the ASCII file (.PRN) to MultiMate format.
	To MemoMaker:
	Save the desired range as a .PRN file (/Print File).

To Executive MemoMaker:

Save the desired range as a .PRN file (/Print File).

To MS Word:

Save the desired range as a .PRN file (/Print File). Use the .PRN extension when doing a Transfer Load.

To HPWORD:

Save the desired range as a .PRN file (/Print File). You may need to do some clean-up in HPWord after you use the HPWord convert utility.

To HPSlate:

Save the desired range as a .PRN file (/Print File).

To TDP:

Save the desired range as a .PRN file (/Print File). You may want to use the Unformatted option to strip header and footer margins.

To Series 100 Graphics:

You can use a .PRN (/Print File) or a .DIF (Translate) file.

.PRN Considerations–Orientation of the Lotus file is important. The x axis information Graphics for the Graphics application must be in the first column of the Lotus file.

–Data must not contain non-numeric characters (e.g. %, $) and/or blank rows and columns.

–Save the Lotus file unformatted (/Print File Options Other Unformatted).

–You can only bring six columns of data across.

.DIF Considerations –The Translate Utility will convert the numeric formats (e.g. %,$) to fixed decimal.

–You can only bring six columns of data across.

To Charting Gallery:

Same as 1-2-3 to Series 100 Graphics.

To Picture Perfect:

Same as 1-2-3 to Series 100 Graphics EXCEPT more than six columns can be brought into Picture Perfect.

To DSG/300:

See the .PRN Considerations under 1-2-3 to Series 100 Graphics.

To VisiCalc/3000:

1. Use the Translate Utility to convert the .WKS file to .DIF format. The VisiCalc file needs to be saved in a column-wise or row-wise orientation. Use the/Worksheet Global Recalculation command to specify the orientation.

2. Use AdvanceLink to transfer the file to the HP3000. You can then bring it into VisiCalc/3000 with the/S#L VisiCalc command.

To Series 100 VisiCalc:

Translate DOES NOT convert 1-2-3 files to .VC files. You can use Translate to generate a .DIF file and bring it into VisiCalc.

To IBM PC Lotus 1-2-3:

Use Monitor PC to bring either a .WKS, .PRN, or .PIC file across. Note: The 150 has a 19 line display, the IBM PC has a 20 line display. If you have created your file to be displayed nicely in pages, the pages will be a little off.

To Personal Card File

Refer to article "Translation of Files Between Lotus and PCF" in *Communicator* Issue #13.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

☐

MemoMaker ... for the Touchscreen/150

Encyclopedia Articles	This is the second Encyclopedia article on this product. Use this article with the Encyclopedia entry in Issue #11.
Product Description	MemoMaker is a simple yet powerful word processor. Because it is so easy to use MemoMaker, it is perfect for managers and other writers who don't have time to master a complex word processing system. It is not intended, however, for full time writers or word processing professionals.
Most Frequent Questions	**Q. How can I set up my user function key in Memomaker to read the file A:MEMO.TPL?**

A. *Program your f2 User Function key with the file A:MEMO.TPL. Follow these steps to program your f2 key.*

1. *Load Memomaker and press GET MEMO.*
2. *Hold CTRL key down and press MENU (white key in center of keyboard).*
3. *Move with arrow key to f2, (the small square that contains the letter T) and using the press NEXT CHOICE change to N.*
4. *Tab to blank square on this line, type MEMO.TPL and press <RETURN>.*
5. *Press f7 key (DISPLAY FUNCTIONS). Asterisk appears on key.*
6. *Type A:MEMO.TPL.*
7. *Press f7 key (DISPLAY FUNCTIONS). Asterisk will disappear from key.*
8. *Press <RETURN>.*
9. *While holding CTRL key down press J. Continue this step until cursor reaches the blank portion of your screen.*
10. *While holding CTRL, press USER SYSTEM key (white key in center of keyboard).*
11. *Press f2 <RETURN>.*

Use the following steps each time you enter Memomaker to load the file A:MEMO.TPL.

1. *Load Memomaker.*
2. *Press Get Memo.*
3. *While holding CTRL press USER SYSTEM key.*
4. *Press f2 key MEMO.TPL AND <RETURN>.*
5. *Press Shift and USER SYSTEM key to return your Memomaker function keys.*

Data Files:	MemoMaker uses and produces files which use the 8th bit for formatting, similar to WordStar files.

Integration Features	Executive MemoMaker, WordStar, and straight ASCII files from other word processing applications, or .PRN files from Spreadsheet applications can be integrated.
	MemoMaker (150 version) does not have an ASCII conversion function. However, documents can be converted by this method: read the MemoMaker file into Executive MemoMaker as a document file. Save it to disc as an ASCII file.

Data Transfer Procedures	**To Lotus 1-2-3:**
	No conversion necessary. If file contains text as well as columns of figures, each cell (or line) of text must be enclosed in quotes.
	To WordStar:
	No conversion necessary.
	To MultiMate:
	Convert to ASCII (see instructions above), then use FILECONV to convert from ASCII to MultiMate format.
	To Executive MemoMaker:
	No conversion necessary.
	To MS Word:
	Use WordStar to MS Word conversion utility—see WordStar to MS word article, or convert to ASCII. Rename with .DOC extension.
	To HPWord:
	Follow instructions for WordStar to HPWord– must transfer as "MemoMaker" file with HPMessage.
	To HPSlate:
	Follow instructions for WordStar to HPWord (substituting HPSlate for HPWord). Must transfer as "MemoMaker" file with HPMessage.
	To TDP:
	1. Use HP Message to transfer as "MemoMaker" file to HPDesk. In Desk, copy to work area and convert to "1 Text." "Copy x to (MPE filename)." Bring into TDP. No further conversion necessary.
	— or —
	2. Use AdvanceLink to transfer as 7-bit ASCII file to HP3000. Bring into TDP. No further conversion necessary.

To Series 100 Graphics:

Convert to ASCII. Data must be in columnar format, with no blank lines and no titles. First column must contain x axis data; you may have up to 5 columns of y axis data.

To Charting Gallery:

Same as MemoMaker to Series 100 Graphics.

To DSG/3000:

1. Use HP Message to transfer to HPDesk as MemoMaker file. In HPDesk copy to Work Area, open item number, CONVERT document (e.g. CONVERT 2), choose "1 Text." "Copy x to (MPE filename)." Bring into DSG/3000.

— or —

2. Use AdvanceLink to transfer as 7-bit ASCII file to HP3000. Bring into DSG/3000.

   In either case, data must be in columnar format, with no blank lines and no titles.

To Picture Perfect:

Convert to ASCII. Data must be in columnar format with no blank lines and no titles.

To IBM PC MemoMaker:

Same as from WordStar to WordStar IBM PC.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

□

MS Word ... for the Touchscreen/150

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	MS Word is a powerful word processing tool for producing a variety of documents, including letters, memos, brochures, pamphlets, and even book length manuscripts. MS™ Word combines the use of labeled function keys and an on-screen command menu.
Data Files	MS Word uses and produces MS Word files. Unlike WordStar and MemoMaker, the 8th bit is used to access the extended character set, rather than for formatting.
Integration Features	MS Word has a WordStar to MS Word conversion utility. Straight ASCII files from other word processing applications, and .PRN files from spreadsheet applications can also be integrated. Files must be named with a three character alphanumeric extension; .DOC is most commonly used.

There are two ways to create an ASCII file with MS Word:

1. From the Command Menu, Transfer Save your document—choose "no" in the "formatted" field. With this method, enhancements (i.e., bold, italics, etc.) will be lost, as will basic formatting (centering, indents, etc.). However, there will be a hard carriage return only between paragraphs rather than at the end of every line. This method can be used to create ASCII files for integration into other PC applications, but it is not suitable for files to be transferred for integration into HP 3000 applications).

2. Copy the PLAIN.PRD driver to the MS Word application disc using File Manager or MS-DOS. In MS Word from the Command Menu, choose Print Options; type in "PLAIN" at the "Printer:" prompt. From the Print command menu, choose "File." Name and save your file. With this method, enhancements (bold, italics, etc.) will be lost; basic formatting (centering, indents, etc.) will be maintained. A hard carriage return will be placed at the end of each line (this is essential for files that are to be transferred for integration into HP 3000 applications).

If the file is to be transferred to the HP 3000 and it is more than one page long, be sure to change the "Margin Top:" and "Margin Bottom:" settings to "0" in the MS Word Format Division command menu, so that your file will be transferred as one continuous document without spacing between divisions.

Data Transfer Procedures	**To Lotus 1-2-3:** Convert to ASCII (see above). If file contains text as well as columns of data, each cell (or line of text) must be enclosed in quotes.

To WordStar:

Convert to ASCII.

To MemoMaker:

Convert to ASCII.

To Executive MemoMaker:

Convert to ASCII.

To MultiMate:

Convert to ASCII, then use FILECONV to convert from ASCII to MultiMate format.

To HPWord:

Convert to ASCII.

1. Use HP Message—transfer ASCII file to HPDesk. From IN Tray, open item no., then "Copy x to (MPE filename)." Bring file into HPWord and convert to HPWord format using Convert Document option.

—or—

2. Use AdvanceLink to transfer to the HP 3000 as ASCII (8 bit) file. Convert to HPWord format using Convert Document option.

To HPSlate:

Convert to ASCII. Otherwise, same as from MS Word to HPWord. Bring file into HPSlate—HPSlate will automatically convert to proper format.

To TDP:

Convert to ASCII. Otherwise, same as from MS Word to HPWord. Bring file into TDP—no further conversion necessary.

To Series 100 Graphics:

Convert to ASCII. Data must be in columnar format with no blank lines and no titles. First column must contain x axis data. You can have up to five columns of y axis data.

To Charting Gallery:
Same as from MS Word to Series 100 Graphics.

To DSG/3000:
Convert to ASCII. Then, same as from MultiMate to DSG/3000.

To Picture Perfect:
Convert to ASCII. Data must be in columnar format with no blank lines, and no titles.

To MS Word for IBM PC:
Same as from WordStar to WordStar IBM PC.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

□

Picture Perfect ... for the Touchscreen/150

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	Picture Perfect™ is a very powerful chartmaking program on the HP150 that lets you make line, pie, bar, and scatter charts. You have a great deal of flexibility in changing the chart look by specifying title locations, bar types and placement, axis type and scaling, etc.
Data Files	Picture Perfect stores its charts in a chart file that contains the chart specifications and the data, using the chart name with extension ".CSC". You can also store the chart as a graphics file, with extension ".CSG", that can be used when you want to quickly display the chart on the screen.
Integration Features	Picture Perfect lets you get data from DIF and simple ASCII files. The format for these files has the following limitations:

- Data should be in a columnar format with no blank lines.
- For ASCII data, any delimiters can be used between variables; no non-numeric symbols should be used for numeric data (e.g. %).
- Data must be oriented such that x-axis data is in its own column (not a row), since you specify columns of data for each of the x axis, and y axis variables—not rows.

1. Go to the Data Access menu by pressing USER AIDS and Load Row-DIF.
2. To access data from DIF files, you specify on the Data Access menu the file name and column numbers you want to use for labels and lines or bars or pie segments. Then Load Data and go to the Data menu to see the retrieved data.
3. To access data from ASCII files, you can specify variable or fixed format data.
   a. For variable format, you specify the starting record, number of records, and column numbers for the labels, bars, etc; you also specify the delimiter (what delimits the columns of data). Then Load Data and go to the Data menu to see the retrieved data.

b. For fixed format data files, you specify the starting record, number of records, and position and length of variables within the record that are to be used for the labels, bars, lines, etc. Then Load Data and go to the Data menu to see the retrieved data. To determine the exact layout of the data in the ASCII file so that you can adequately specify it to Picture Perfect, you may need to browse the file with File Manager.

☐

TDP/3000 ... Data Transfer to Touchscreen/150

Encyclopedia Articles	This is the first Encyclopedia article on this product.
Product Description	TDP/3000 is a text processing system, for advanced text formatting. It consists of an editor for producing text files, and a formatter for producing final output.
Data Files:	A TDP/3000 text file is a standard MPE ASCII file. The TDP work file (used by the TDP editor) is called Kdddhhmm. TDP Spooler files are called Sdddhhmm. TDP also uses MPE spool files.
Integration Features	Remember that TDP source files will contain TDP commands. Getting rid of these AFTER conversion can be tedious. A useful trick is to FINAL to a disc file and use the new file as input to the conversion techniques. This achieves a two-fold advantage: first, all the TDP commands are gone; second, margins, page lengths etc. will be correct as defined by the source document.

It is possible to include FIGURE files (for example, produced by HPDRAW) within a TDP document by using the ILLUSTRATION command. |
| **Data Transfer Procedures** | **To WordStar:**

Transfer file from the HP3000 to the Touchscreen PC using AdvanceLink or HPDeskManager/ HPMessage. Bring into WordStar.

To MultiMate:

Same as TDP to WordStar, except use FILECONV to convert from ASCII to MultiMate format.

To MemoMaker:

Same as TDP to WordStar.

To Executive MemoMaker:

Same as TDP to WordStar.

To MS Word:

Same as TDP to WordStar, then use WordStar to MSWord Convert utility to convert from ASCII to MSWord format.

To HPWord:

Use HPWord CONVERT function to bring TDP file into HPWord. |

To HPSLATE:

The TDP formatter can be accessed from HPSLATE (see HPSLATE section). HPSlate will automatically convert TDP files of less than 80 character record length to HPSlate format.

To HPDRAW:

FIGURE files may be included in a TDP document using the ILLUSTRATION command.

To HPEasy Chart:

FIGURE files may be included in a TDP document using the ILLUSTRATION command.

To DSG/3000:

ASCII data from TDP can be read into DSG/3000. Data must be in columnar format with no blank lines and no titles. FIGURE files may be included in a TDP document using the ILLUSTRATION command.

To IBM PC MemoMaker:

Same as TDP to WordStar.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

☐

WordStar ... for the Touchscreen/150

Encyclopedia Articles	This is the second Encyclopedia article on this product. Use this article with the Encyclopedia entry in Issue #11.
Product Description	WordStar® is a document processing tool. It provides the ability to create and format documents, and to use the capabilities of most printers. With the associated packages, CorrectStar,™ MailMerge,® and StarIndex,™ it is possible to:
	■ Check for spelling errors.
	■ Merge other documents into one printed report, or produce individual letters by merging the contents of a database.
	■ Create tables of contents, lists of figures, and indexes.
Data Files	With WordStar you can create and store both Document and non-Document files. A Document or WordStar file uses the eighth bit for formatting purposes. A non-Document file is a straight ASCII file.
Integration Features	Executive MemoMaker and MemoMaker files can be brought into WordStar with no conversion. Straight ASCII files from other word processors and .PRN files from spreadsheet applications can also be integrated.
Data Transfer Procedures	**To Lotus 1-2-3:**
	Can be either a Document or non-Document file. If the file contains both text and columns of numbers, each cell (or line) of text must be enclosed in quotes.
	To MultiMate:
	Must be WordStar non-Document (or ASCII) file. Then use MultiMate FILECONV utility to convert from ASCII to MultiMate format.
	To MemoMaker:
	No conversion necessary. MemoMaker will read WordStar Document files and carry out the commands that it understands, such as bold and underline. Other control characters will be kept and displayed. MemoMaker is limited to a 79 character line length. If you have lines longer than 79 characters, MemoMaker will split them and reformat the document.
	To Executive MemoMaker:
	Same as from WordStar to MemoMaker.

To MS Word:

WordStar non-Document (or ASCII) files need no conversion. After being renamed with .DOC extension, they can be loaded for editing using the MS Word TRANSFER/LOAD command. WordStar Document files must be converted using MS Word's WordStar Conversion Utility. The Convert program will convert most WordStar formatting information to the equivalent MS Word format. The exception is dot commands. MS Word will not process dot commands, but will flag them with *** Again, rename with .DOC extension.

To HPWord:

1. Use HP Message to transfer to HPDesk. Transfer non-Document files as ASCII; Document files as MemoMaker (to maintain enhancements). In Desk:

   MemoMaker File: Copy to Work Area open item no., then you can "Edit" or "Convert" the document (e.g. EDIT no.). Either way, you will be given three choices–Text, HPSlate, and HPWord. With Edit and HPWord you can edit the file in HPWord within HPDesk. With Convert and HPWord the file will be converted, then you can copy it as an MPE file "Copy x to (MPE filename)." Bring it into HPWord and edit it (independent of HPDesk).

   ASCII File: From IN Tray open item no., "Copy x to (MPE filename)," bring into HPWord, use convert document option to convert to HPWord format.

—or—

2. Transfer a Document or non-Document file using Advance Link, selecting 7-bit ASCII option. Bring into HPWord and use the HPWord Convert Document option to convert to from ASCII to HPWord format.

To HPSlate:

1. Same as WordStar to HPWord (substitute "HPSlate" for "HPWord" in all cases).

—or—

2. Transfer a Document or non-Document file to the HP3000 using Advance Link 7-bit ASCII option. Bring into HPSlate. HPSlate will automatically convert to the appropriate format.

To TDP:

1. Use HPMessage to transfer Non-Document (as ASCII file) or Document (as MemoMaker file) to HPDesk.

   ASCII: From IN Tray, open item no., "Copy x to (MPE filename)."

   MemoMaker: Copy to Work Area, open item no., convert x, choose "1 Text," then "Copy x to (MPE filename)." Bring into TDP.

—or—

2. Transfer a Document or non-Document file to the HP3000 using Advance Link. Select 7-bit ASCII option. Bring into TDP. No other conversion necessary.

To Series 100 Graphics:

Must be non-Document (ASCII) data in columnar format with no blank lines, and no titles. First column must contain the x axis data, with up to five columns of y axis data.

To Charting Gallery:

Same as WordStar to Series 100 Graphics.

To DSG/3000:

1. Use HPMessage to transfer Non-Document (as ASCII file), or Document (as MemoMaker file) to HPDesk.

   ASCII: From IN Tray, open item no., "Copy x to (MPE filename)."

   MemoMaker: Copy to Work Area, open item no., convert x, choose "1 Text" option, then "Copy x to (MPE filename)." Bring into DSG/3000.

—or—

2. Transfer Document or non-Document to the HP3000 as a 7-bit ASCII file, using AdvanceLink. Bring into DSG/3000.

Data must be in columnar format with no blank lines and no titles.

To Picture Perfect:

Non-Document (ASCII) file, data must be in columnar format with no blank lines and no titles.

To IBM PC WordStar:

Transfer (as a binary file) to the HP3000 using AdvanceLink for the Touchscreen. Transfer from the HP3000 (as a binary file) to the IBM using AdvanceLink PC. Or, transfer the file directly from the Touchscreen to the IBM PC using AdvanceLink and Monitor PC.

Or, on a local area network, save the file to the file server disc using the HP Touchscreen. Retrieve the file from the file server using the IBM PC.

Note: To use these procedures, you need to be an experienced user of both software packages involved in the data transfer. You should also be aware that these procedures are *not* supported by Hewlett-Packard. They were developed to work with existing products—not included in the original product designs. These procedures may not work under all circumstances or with all version combinations.

Please send your additions or updates for this article to the *Communicator* editor—so that we may share them with other users in future issues.

□

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 our HP HelpLine Response Centers, 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 CompuServe connect time and network services) 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 your 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, are 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. and Canada, call your HP Sales and Service Office and ask for the Personal Computer Response Center.
	In the U.S. and Canada, the telephone assistance program is called HP HelpLine.

Here is how the U.S./Canada 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 packs are ordered by mail or telephone from HP's Direct Marketing Division.

   –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.

■ 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.

■ HelpLine support does not extend to program development, program coding, isolation of coding errors, and implementation assistance. These areas are most economically resolved through on-site consulting and training, as described in Step 7, below.

■ 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.

☐

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. If you join Interex, you will receive, at no cost, an assortment of *HP Communicator* back issues which pertain to your computer model.
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:

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). . . $100

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 $100*
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 120 or HP 125   ☐ HP 150A or HP 150B
                (HP 110)   (Touchscreen PC)
Disc Format: ☐ 3½" single-sided ☐ 3½" double-sided ☐ 5¼"
Please send my free *Communicator* back issues ☐

(over)

Are you currently an HP 1000 or HP 3000 Interex member?

☐ No   ☐ Yes: Membership # _____

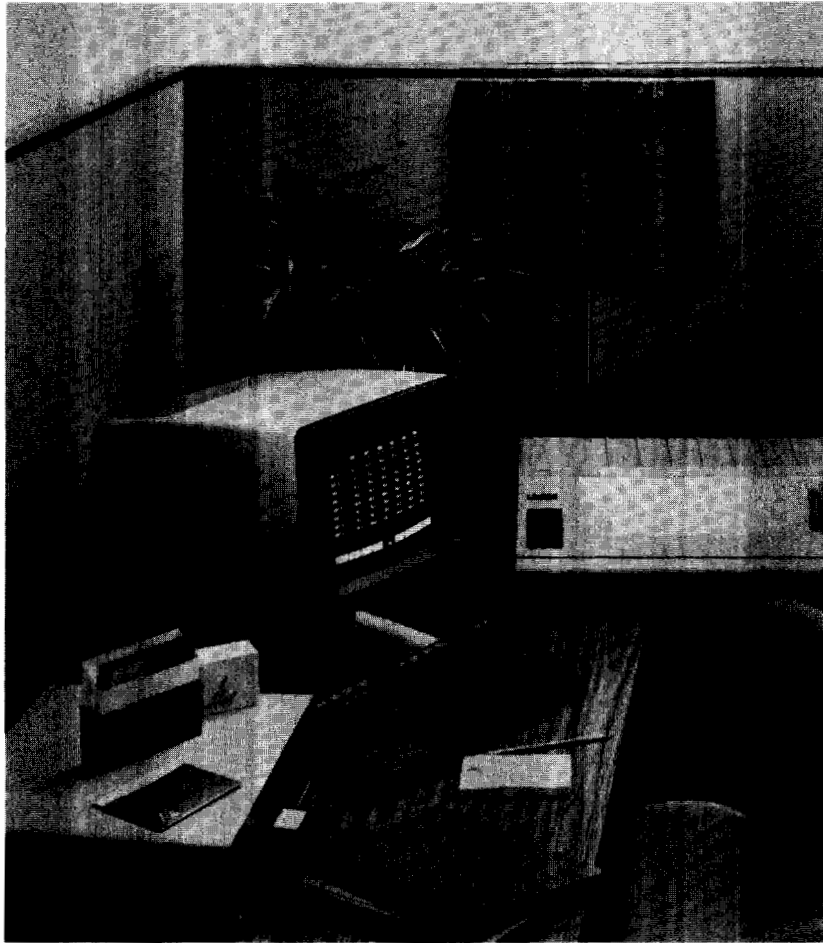Please send more information about Interex's other activities:

_____ HP 1000   _____ HP 3000

I understand that no membership dues will be refunded after the contributed software library disc has been sent from Interex.
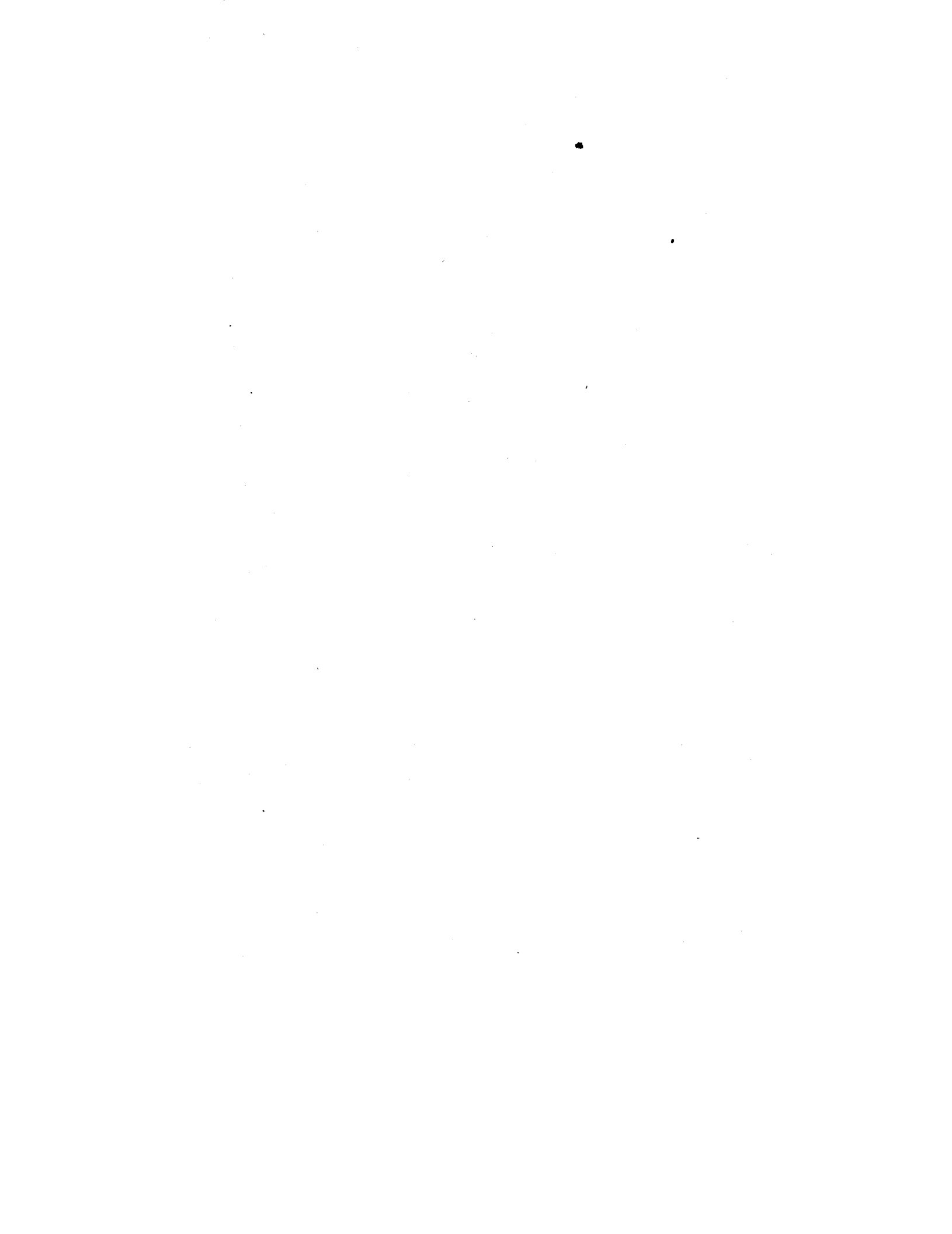
Signature _____ Date _____

Send this page with your full payment to:
Interex
Bank File #61054
P.O. Box 60000
San Francisco, CA 94160
   U.S.A.

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"

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"

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: . . . for the HP 150"
–"MultiMate and Friends"
–"HP 125 Software Obsolescence"

Communicator Issue #11 . . . . 5958-0251*

Issue #12 includes the following major articles:

–"The HP Personal Computer Assistance Program"
–"How to Use Diagraph"
–"Transferring Files from Condor to dBASE II"
–"File Transfers—Every Which Way—with The Portable"
–"MemoMaker on The Portable: Differences"
–"LaserJet Support under MultiMate and WordStar"
–"HP 120/125 Word and WordStar with the LaserJet"
–"Macros in WordStar"
–"File Transfers from VisiCalc to Condor"
–"What's So Special about BASIC?"
–"Useful Functions in BASIC"
–"General-Purpose Input Routines"
–"BASIC Relational and Logical Operations"
–"Fun with the Calendar"
–"Introducing the Touchscreen II"
–"ExecuDesk and the ExecuDesk System"
–"New Personal Productivity Center Release"
–"Introducing Print Central"
–"HPWORD/150—HP 3000 Word Processing"

-"HPAccess/Touchscreen and HPAccess Central"
-"Data-Storage Solutions for HP PCs"
-"Microsoft Word"
-"MS-DOS Manual Update for Touchscreen II
  Owners"
-"Announcing Deluxe VisiCalc"
-"Introducing VT100 Emulation for the HP 150B"
-"The Touchscreen 3278 Emulation Upgrade"

Communicator Issue #12 . . . . 5958-0252*

Additional copies of this current issue are available:

Communicator Issue #13 . . . . 5958-0253*

| **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

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

Software Exchange Kits—
Upgrades, Updates, and Replacements
for Damaged Discs
<div align="right">Willi McDowell</div>

This section lists the software exchange kits available for The Portable, the HP 120/125, and the Touchscreen/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 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 Direct Marketing Division, 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.

Replacement Media for Discontinued Software

We are committed to sustain support for Hewlett-Packard products well after technology advances and market demand cause us to discontinue offering a product for sale.

It is HP corporate policy to ensure availability of parts and full support services for your computer for five years beyond discontinuance. Specifically, this means:

- Replacement Media Exchange Kits available for five years from date of last HP shipment, as indicated for each product in the "Discontinued Software" table in this section.

- Availability of telephone assistance through Hewlett-Packard Help Line Response Centers.

- Continuing coverage in this magazine—the *HP PC Communicator*. (By the way, you can help —share your tips and ideas with other users— just send a note to the *Communicator* editor.)

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.

Portable and Touchscreen/150
Software Exchange Kits

Product	Version	Order Part Number†	Portable	HP 150 Touchscreen	Notes
Touchscreen (HP 150B) Operating System and Utilities		45626-63007		●	3
Sys Master Disc					
MS-DOS	B.02.02				
MS-DOS COMMANDS	B.02.02				
P.A.M.	B.02.02				
HPBIOS	B.02.02				
FORMAT	B.02.00				
DEV CONFIG	B.02.00				
Appl Master Disc					
COPY/BACKUP	B.02.02				
INSTALL	B.02.02				
SET UP P.A.M.	B.02.02				
MS-DOS UTILITIES	B.02.03				
Touchscreen II Operating System and Utilities		45847-63004		●	4
MS-DOS	2.11				
MS-DOS COMMANDS	2.11				
P.A.M.	C.01.00				
HPBIOS	C.01.02				
FORMAT	C.01.00				
DEV CONFIG	C.01.00				
EASY CONFIG	C.01.00				
COPY/BACKUP	C.01.00				
INSTALL	C.01.00				
SET UP	C.01.00				
SAVERAM	C.01.01				
MS-DOS UTILITIES	C.01.00				

Product	Version	Order Part Number†	Portable	System HP 150 Touchscreen	Notes
Advance Link	A.03.02	45431-63002		●	
BASIC Interpreter	A.01.01	45445-63002	●	●	
BASIC Compiler	A.01.01	45446-63002	●	●	
BPI General Acctg.	A.01.00	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)	3.31	45429-63002		●	
CorrectStar to SpellStar Upgrade	3.31	45429-63001		●	
DataFax	A.01.01	45408-63001	●		1
dBASE II	*A.02.41	45468-63001	●	●	
Diagraph	A.03.00	45463-63001		●	
Financial Calculator	n/a	n/a		●	2
DSN/Link	A.01.01	45424-63001		●	
Forms Master	A.01.00	45443-63001		●	
FORTRAN	A.01.00	45449-63001		●	
FORTRAN Upgrade	A.01.00	45449-63003		●	
Graphics (bar disc, pie disc, line disc, text disc, examples disc)	*A.03.01	45410-63001		●	
GraphPlan	1.00.T2	45467-63001		●	
GraphWriter	A.01.01	45484-63001		●	
GW BASIC	A.01.00	45450-63002		●	
HP Word	A.00.00	27505-63001		●	
Lattice C Compiler	A.01.00	45452-63001		●	
	A.01.00	45452-63002		●	
	A.01.00	45452-63003		●	
	A.01.00	45452-63004		●	
	A.01.00	45452-63005		●	
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		●	

Product	Version	Order Part Number†	Portable	System HP 150 Touchscreen	Notes
MailMerge	A.03.30	45401-63001		●	
MemoMaker	B.01.02	45420-63001		●	
MicroPlan	4.04.T2	45465-63001		●	
MicroPlan Consol.	4.04.T2	45466-63001		●	
MS Word					
Prog. disc	B.01.00	45474-63001		●	
Utility disc	B.01.00	45474-63002		●	
MultiMate	3.29	45424-63001		●	
MultiPlan	A.01.10	45473-63001		●	
Pascal	A.01.00	45447-63001		●	
PCF	B.00.02	45422-63001		●	
Picture Perfect	A.03.00	45462-63001		●	
PFS: File & Report	A.02.41	45488-63001		●	
Prog. Tools/Portable	A.01.00	45419-63001	●		
Prog. Tools/150	A.01.00	45435-63001		●	
SpellStar	A.03.30	45402-63001		●	
Transend COMplete	A.01.00	45414-63001		●	
VisiCalc	B.01.02	45405-63004		●	
VT100 Terminal Emulator	A.01.00	45412-63001		●	
WordStar	*A.03.3B	45400-63001		●	
WordStar Upgrade	3.3.3	45400-63031		●	

*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.

3—Three double-sided discs, written in single-sided format, to exchange for damaged HP 150A or Touchscreen (HP 150B) media. To upgrade an HP 150A to the **Touchscreen (HP 150B)** operating system, order this kit. To update an HP 150A or Touchscreen to the **Touchscreen II** operating system, order the Touchscreen II Upgrade Kit (45849-63006) from your dealer or HP office. The upgrade kit includes the new operating system disc and the ROM integrated circuits required by the new disc; it is not user-installable. (Refer to the article "Upgrading Your HP 150A or Touchscreen to a Touchscreen II" in *Communicator* Issue #13 for details).

4—Double-sided exchange disc for damaged Touchscreen II media. To upgrade an HP 150A or Touchscreen (HP 150B) to the Touchscreen II operating system, order the Touchscreen II Upgrade Kit (45849-63006) from your dealer or HP office. The upgrade kit includes the new operating system disc and the ROM integrated circuits required by the new disc; it is not user-installable. (Refer to the article "Upgrading Your HP 150A or Touchscreen to a Touchscreen II" in *Communicator* Issue #13 for details.)

**Discontinued Software
Replacement Media Exchange Kits**

| Product (Notes) | Version | Order Part Number† | | Exchange Available Through |
		3.5" Disc	5.25" Disc	
HP 12x:				
Op Sys/Util/12x (1)	*A.02.00	45900-13810	45900-15810	April, 1990
Op Sys/Util/12x (2,6)	*A.02.00	45900-13800	45900-15800	April, 1990
VisiCalc/12x (6)	*A.02.01	45531-13800	45531-15800	April, 1990
Graphics/12x (6)	*A.01.03	45532-13800	45532-15800	April, 1990
Word/12x	*A.02.03	45533-13800	45533-15800	April, 1990
Link/12x (3)	A.02.00	45534-13800	45534-15800	April, 1990
DSN/Link/12x	A.01.01	45534-13810	45534-15810	April, 1990
BASIC/12x	A.05.21	45535-13800	45535-15800	April, 1990
Programming/12x	A.01.00	45536-13800	45536-15800	April, 1990
Condor 1/12x (5)	A.02.00	45550-13800	45550-15800	April, 1990
Condor 3/12x (4)	*A.02.01	45550-13802	45550-15802	April, 1990
BPI G/A/12x	A.01.00	45552-13800	45552-15800	April, 1990
BPI Payroll/12x	A.01.00	45553-13800	45553-15800	April, 1990
WordStar/12x	A.01.00	45560-13800	45560-15800	April, 1990
SpellStar/12x	A.01.00	45561-13800	45561-15800	April, 1990
MailMerge/12x	A.01.00	45562-13800	45562-15800	April, 1990
MicroPlan/12x	A.01.00	45670-13800	45670-15800	April, 1990
MicroPlan Cons./12x	A.01.00	45671-13800	45671-15800	April, 1990
Touchscreen/150:				
Condor 1/150	A.02.11	45415-63002	n/a	April, 1990
Context MBA/150	A.02.03	45481-63001	n/a	April, 1990

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—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.

5—A Condor 2 disc or a Condor 1 to 2 upgrade disc may be exchanged for the Condor 2 disc.

6—Exchange Kit includes complete new 5½" x 8½" manuals.

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 DIRECT MARKETING
Mail Order Dept., P.O. Box 60008, Sunnyvale, CA 94088

For carriers other than U.S. Mail, the address is:

HEWLETT-PACKARD DIRECT MARKETING
Mail Order Dept., 1320 Kifer Road, Sunnyvale, CA 94086

Thank you for your order!

Your Name		Phone ( ) —	Date	Disc Size: ___ 5.25" ___ 3.5"

	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 _____

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)   ☐ (logo)   ☐ VISA

Account No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Expiration Date ☐☐ — ☐☐

Name on Card _____

Address _____

Signature _____

Standard
Shipping
Method Is
UPS Surface

Use this form for prepaid U.S. orders only

POD 1/84

(Over)

The *HP PC Communicator* is the heart of the support program for The Portable, the HP 150 Touchscreen, the HP 12x, and the Vectra PC.

This publication contains articles on how to best use your system—plus each issue includes sections of the "HP PC Encyclopedia."

The "HP PC 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.)

HP PC Communicator—
  U.S. Edition 45530A
HP PC Communicator—
  Canada/Mexico .45530B
HP PC 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 (DMK).
HP Employees	Check with the Employee Computer Program Coordinator in your personnel or purchasing department for Direct Marketing Division (DMK) ordering instructions.

□

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

Direct Marketing Division
P.O. Box 60008
Sunnyvale, CA 94086

ADDRESS CORRECTION REQUESTED