□ Portable PLUS

□ Lotus 1-2-3 Rel. 2

□ BASIC Graphics

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

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PACKARD

Staff		
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The HP PC Newsline

Late-breaking news on HP personal computer products

The **HP Vectra PC Customer Utility** disc, which adds to the base feature set of the PC, is now available. You will want this disc if you are using Version A.01.02 of the operating system and are running any of the following:

o An 80287 co-processor with Lotus 1-2-3 or Ryan McFarland FORTRAN

o A parallel port if three or more serial ports are installed

o The Ungermann-Bass network card and AST SNA 3270 card--if used with default configuration (IRQ2)

o IBM PC-Net SNA 3270 software

Please note that this utility will attempt to locate the 80287 co-processor. If the system does not have one, a message to that effect will be displayed--you may disregard the message.

The Customer Utility consists of two files. The executable file should be added to the AUTOEXEC.BAT file on your operating system disc. (The instructions are included in the README.BAT file. To read the instructions, just type README at the MS-DOS command prompt.)

We will send one copy of the customer utility to you free of charge; if you need more than one copy, you may duplicate the disc. This offer is good until August 1, 1986.

If you are inside the United States and would like a copy of this utility, please call the toll-free HP HelpLine number 1-800-858-8867 and ask for the HP Vectra PC Customer Utility (part number 45935-15008). If you are outside the United States and would like a copy of the utility, please send a written request for the HP Vectra PC Customer Utility (part number 45935-15008) to:

> Hewlett Packard POD
> HP Vectra PC Customer Utility
> 974 E. Arques Ave.
> Sunnyvale, CA 94086 USA
>
> ATTENTION: Support Manager, 72LP

* * *

In this issue you will find several articles describing new **Portable PLUS** offerings. The Portable PLUS itself has an impressive new display and more built-in memory. This and other new advancements, including new ROM-based and disc-based software and a video interface, are marked with a star in the summary of Portable PLUS products shown below.

PORTABLE PLUS:
```
*Portable PLUS with 256K memory, modem................. 45711C
*Portable PLUS with 256K memory........................... 45711D
*Portable PLUS with 512K memory, modem................. 45711E
*Portable PLUS with 512K memory......................... 45711F
```

ROM-BASED SOFTWARE:
```
1-2-3 by Lotus (Version 1A)........................ 45548K opt 400
Series 100 BASIC .................................... 82862K opt 400
*Executive Card Manager ........................... 45555K opt 400
*REFLECTION 1 (replaces PC2622) ................. 82863K opt 400
*MemoMaker/Time Management (A.02.01).......... 45504K opt 400
*MultiMate ......................................... 45554K opt 400
Microsoft Word .................................... 45549K opt 400
*Localization Kits:
   French.........................................82866KF opt 400
   German......................................... 82866KD opt 400
   Italian ........................................ 82866KZ opt 400
```

DISC-BASED SOFTWARE:
```
YTERM (to IBM mainframes)........................ 82867K opt 630
Microsoft Spell (150/110/Portable PLUS)................... 45556D
Compiled BASIC by Microsoft ............................. 45446D
FORTRAN by Microsoft.................................... 45449D
Lattice C Compiler....................................... 45452D
Pascal by Microsoft ...................................... 45447D
```

MISCELLANEOUS:
```
Portable PLUS Video Interface--US charger ................. 82985A
Portable PLUS Video Interface--no charger............... 82985AK
Portable PLUS Video-receptacle panel only ............82985-60006
Portable PLUS Technical Reference Manual................. 45559K
Portable Programmer's Toolkit.............................. 45419C
```

For more information contact your HP Dealer or HP Sales Representative.

* * *

MultiMate Advantage 3.60 for the HP Vectra PC is now available. Version 3.60 offers a new 40,000 word thesaurus, a typewriter mode that lets you send text directly from the keyboard to a printer, increased cursor speed, and allows up to eight columns on the screen. Expanded proportional spacing supports HP LaserJet P and V cartridges, and search mode now includes the ability to search for footnote symbols, section numbers and double underscores. Plus, you still have all the features of Version 3.5, including On-File Information Manager.

Anyone that purchased MultiMate Advantage 3.5 after December 1, 1985 is eligible for a free Version 3.60 upgrade. To get the upgrade, provide, on company letterhead, your name, MultiMate version presently licensed and serial number, and proof of purchase. Proof of purchase can either be a copy of the bill of sale or purchase agreement. If proof of purchase is not available, mail the master MultiMate Boot/System diskette--be sure to

Continued . . .

make a backup copy before mailing the master. (You should also mail your MultiMate registration if you have not already done so.) Send your MultiMate upgrade request to:

MultiMate Advantage 3.60 Upgrade
Multimate International
52 Oakland Avenue
Hartford, CT 06106

If you are not eligible for the free upgrade but would like to order MultiMate Advantage 3.60, contact your local HP Dealer or HP Sales Representative.

* * *

Interex's second North American conference for **HP Vectra/100/9000/1000/3000** users is being held September 28 through October 3, 1986 in Detroit, Michigan.

Interex members should have received registration information the last week of May. Non-members may request registration information by calling Interex at (408) 738-4848 or writing the Interex Conference Department, 680 Almanor Ave., Sunnyvale, California 94089. The registration material provides the schedule of events and includes the titles of the papers which have been selected for presentation.

The conference is being held at Detroit's Cobo Hall Convention Center. For registrants, hotel accommodations are available at the Westin Renaissance Hotel which is within a block of Cobo Hall.

For more general information on the Interex organization, see the article "User Group:Interex" in the green pages of this issue.

* * *

Those of you wanting to use LaserJet PLUS or Graphics Gallery Products on your **HP 150 3Com Network** can now obtain a special EtherPrint exchange disc. This exchange disc not only enables you to accurately transfer data, but also allows EtherPrint to run at any baud rate in addition to working with most RS-232 printers (HP does not support use of this product with non-HP printers).

To obtain this exchange disc, order Part #45649-63200 from HP's Direct Marketing Division by following the exchange instructions given in the "Software Exchange Kits" article in the green Current Information section of this issue.

* * *

Vectra users: The **R:BASE 5000 Program Interface** (formerly HP# 68337F) should be ordered from its original vendor, Microrim--not from HP. Because Microrim is in a better position to provide technical support for this complex product, Program Interface is being removed from HP's corporate price list.

The Program Interface contains a set of libraries which allow a programmer to access R:BASE 5000 data from a FORTRAN, Pascal or C program.

Continued . . .

Since HP has not made any shipments, the normal five year support period for a product discontinued from the price list will not be in effect.

To order the Program Interface, please contact a Microrim distributor. To find your nearest Microrim distributor, you can contact Microrim by calling 206-885-2000 or writing to: Microrim, 3925 159th Ave. NE, Redmond, WA 98052.

<p style="text-align:center">* * *</p>

HP's Portable Computer Division has announced availability of a Software Status Bulletin for each line of computer products manufactured in Corvallis. Each Software Status Bulletin (SSB) documents all known problems for the product line.

The SSB for the MS-DOS portable product line covers the **Portable and the Portable PLUS**: the most current issue will always have the same part number--5955-8625, the part number for a subscription is 5955-8625Y. Individual copies are $15 inside the United States (US) and $20 outside the US. Subscriptions (four issues a year) are $60 inside the US and $80 outside the US.

To order one of the SSBs (subscription or individual copies), send payment in US funds to the Users' Library, Hewlett-Packard, 1000 NE Circle Blvd., Corvallis, Oregon 97330 USA or call (503) 757-2000. These products are not on the Corporate Price List and cannot be ordered through any other means.

<p style="text-align:center">* * *</p>

Major enhancements to the **HP9114 3 1/2 inch Portable microfloppy** have resulted in a "B" version of this product which became available in February. Longer battery life, faster access to data, and a "fuel gauge" to take the guesswork out of battery life add much value without adding a penny to the old price.

Other features include IBM compatibility--you can easily share data via discs between the HP Touchscreen II, Portable or Portable PLUS and the IBM PC and PC/XT via the 9114B using the 82973A Portable Desktop Link.

You can accomplish data exchange between single and double-sided drives, and have up to 710,000 bytes (formatted) of storage capacity in a compact five pound package. The 9114B is designed to stack neatly under your ThinkJet Printer or travel easily with you on the road. It is supported on the HP Portable and Portable PLUS, and Series 40 and 70.

HP 88014B is the product number for the battery pack for both the HP 9114A and 9114B products.

For more information or to order the HP 9114B or HP 88014B, contact your Authorize. HP Dealer or HP Sales Office.

<p style="text-align:center">* * *</p>

REFLECTION 1 is a trademark of Walker Richer and Quinn Incorporated.

Welcome to the *HP PC Communicator*

WELCOME

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.

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Condor/150: Sending Escape Sequences to Your Printer

Richard G. Lefebvre

I recently purchased a LaserJet for my office and found it necessary to convert my Condor/150 reports to print out on this printer. As part of this conversion, I had to solve several problems, such as sending escape sequences to the printer in the middle of a Condor macro or command file or from a Condor help menu. The solutions worked so well that I installed them into PAM, and use the procedures for most of my other printer setups as well.

Below are examples of what you can do to send escape sequences (1) to a printer routinely from within Condor and (2) to a printer routinely from the PAM menu.

Both solutions involve writing simple programs which send the proper escape sequences to the printer. I used Turbo Pascal™ to write these programs, primarily because the compiled Turbo Pascal programs took up less space on the disk than would a BASIC program and interpreter. However, thinking that many of you may be unfamiliar with Turbo Pascal and do have access to BASIC, I rewrote some of the programs into BASIC and these all worked well.

Sending Escape Sequences from Within Condor

Certain system files can be called from within Condor. This Condor feature can be used to easily and accurately send complex escape characters to your printer.

A non-Condor program containing the proper escape sequences and callable by Condor must first be written. Programs written in Turbo Pascal (which produces compiled program files ending in ".COM") and programs written in Series 100/BASIC were both found to work successfully. For example, the following TURBO PASCAL program, when called from Condor, will change the ThinkJet or LaserJet Plus to compressed print:

```
Program CompressPrint;
Var
  OutFile : Text;
Begin
  Assign(OutFile,'PRN');
  Rewrite(OutFile);
  Write(OutFile,#27'&k2S');
  Close(OutFile);
End.
```

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The following program in BASIC will produce the same result. Note line 1030 is necessary for program control to exit BASIC and return to Condor:

```
1000 OPEN "O" ,#1 , "PRN"
1010 PRINT#1 ,CHR$(27)+"&k2S";
1020 CLOSE #1
1030 SYSTEM
```

To call these programs from within Condor, enter the name of your program preceded by a dollar sign ($). Two dollar signs ($$) must precede your program name if calling from within a Condor command file or macro (Condor files ending in ".CMD"). For example, from the Condor prompt ">>" enter

```
      >>$PRNCTRL        (for Turbo Pascal program file called "PRNCTRL.COM")
or    >>$BASIC PRNCTRL  (for BASIC program file called "PRNCTRL.BAS")
```

To call a program from within a Condor Help Menu (Condor files ending in ".HLP") enter the following on your help menu using the FORMAT command:

```
      [$PRNCTRL]        (for Turbo Pascal program file called "PRNCTRL.COM")
or    [$BASIC PRNCTRL]  (for BASIC program file called "PRNCTRL.BAS")
```

To call a program from within a Condor command or macro file, enter the following as a line in your command file using the EDIT command. This procedure is especially handy to change print pitches, orientation, and other printer features automatically when running Condor reports:

```
      $$PRNCTRL         (for Turbo Pascal program file called "PRNCTRL.COM")
or    $$BASIC PRNCTRL   (for BASIC program file called "PRNCTRL.BAS")
```

These programs can also be run prior to entering Condor by entering the name of the program you want to run at the operating system prompt using MS-DOS or by installing your Turbo Pascal or BASIC program into PAM.

These programs will send escape sequences to the printer configured as PRN on your MS-DOS Configuration Menu. The printer you use with Condor should also be configured as PRN.

However, if you must use printer LST with Condor, substitute LST for PRN in your TURBO or BASIC program and, before printing, enter the following additional command from the Condor prompt, command file, or help menu:

```
PRINTER FILE LST
```

Answer "Y" to the Condor warning that LST already exists. Printer output will now be directed to printer LST by Condor rather than printer PRN.

Sending Escape Sequences from PAM

Escape sequences can be sent to your LaserJet or ThinkJet printer from the PAM menu, but a simple computer program must first be written. For example, the following BASIC program, when installed into PAM, will change the ThinkJet or LaserJet to compressed print:

```
1000 OPEN "O" ,#1 ,"PRN"
1010 PRINT#1 ,CHR$(27)+"&k2S";
1020 CLOSE #1
1030 SYSTEM
```

LST can be substituted for PRN in the program to control your secondary printer.

To install this program into PAM, first create an installation file ending in .IN$ (for example, PRNCTRL.IN$) as described in the manual that came with your HP150 Touchscreen; then using the INSTALL utility that came with your HP150 system discs, install your program into PAM. An "IN$" file to install the BASIC program above follows:

```
PRN COMPRESS
VERS 1
BASIC.COM
PRNCTRL.BAS
10000
BASIC.COM
PRNCTRL.BAS
```

A series of such simple programs, all installed into PAM on your operating system or boot disk, provides an effective and elegant PAM menu to control your ThinkJet or LaserJet printer.

It is also possible to create a program in PAM to control several features of your printer at one time. The following programs provide the user with menu choices for sending escape characters to the printer. The menu and related escape sequences can be tailored to your system's particular applications.

```
                    ThinkJet Printer[PRN] Control Menu
                    ********************************


        1 = Normal Print, 80 cpl              2 = Compressed Print, 142 cpl

        3 = Expanded Print, 40 cpl            4 = Expanded-Compressed Print, 71 cpl

        5 = Perforation Skip On               6 = Perforation Skip Off

        Q = Quit(Return to PAM)               B = Break(Stay in BASIC)



        Enter 1 thru 6, Q or B:




1000 'The following program, written in Series 100/BASIC, provides the
1100 'user with several menu choices for sending escape sequences to
1200 'the ThinkJet.  One menu choice permits you to stay in BASIC and
1300 'either modify the program or use BASIC's Direct Mode to send
1400 'additional escape sequences not on the menu to the printer
1500 WIDTH 255
1600 ESC$=CHR$(27)
1700 PRNTR$="PRN" 'Select printer
1800 'The following function positions the cursor and defines a menu string
1900 DEF FNCURSOR$(C,R,A$)=ESC$+"&a"+STR$(C)+"c"+STR$(R)+"R"+A$
2000 'The following function homes the cursor and clears the screen
2100 DEF FNCLS$=ESC$+"h"+ESC$+"J"
2200 'The following function clears the line from the cursor position
2300 DEF FNCLRLN$=ESC$+"K"
2400 PRINT FNCLS$; 'Clear Screen
2500 PRINT ESC$+"&j@"; 'Clear softkeys from bottom of screen
2600 'The following writes the printer control menu to the screen
2700 'and requests a user response
2800 PRINT " "+DATE$+"   "+TIME$
2900 PRINT FNCURSOR$(18,2,"ThinkJet Printer["+PRNTR$+"] Control Menu");
3000 PRINT FNCURSOR$(18,3,"********************************");
3100 PRINT FNCURSOR$(2,6,"1 = Normal Print, 80 cpl");
3200 PRINT FNCURSOR$(40,6,"2 = Compressed Print, 142 cpl");
3300 PRINT FNCURSOR$(2,8,"3 = Expanded Print, 40 cpl");
3400 PRINT FNCURSOR$(40,8,"4 = Expanded-Compressed Print, 71 cpl");
3500 PRINT FNCURSOR$(2,10,"5 = Perforation Skip On");
3600 PRINT FNCURSOR$(40,10,"6 = Perforation Skip Off");
3700 PRINT FNCURSOR$(2,12,"Q = Quit(Return to PAM)");
3800 PRINT FNCURSOR$(40,12,"B = Break(Stay in BASIC)");
3900 PRINT CHR$(7); 'Bell
4000 PRINT FNCURSOR$(2,16,"Enter 1 thru 6, Q or B: ");
4100 PRINT FNCLRLN$;
4200 INPUT " ",B$
4300 'Menu Actions
4400 OPEN "O",#1,PRNTR$  'Directs output to printer selected above
4500 IF B$="B" OR B$="b" THEN STOP  'Stop program execution, stay in BASIC
4600 IF B$="Q" OR B$="q" THEN GOTO 5500 'Quit, return to PAM or MS-DOS
4700 IF B$="1" THEN PRINT#1,ESC$+"&k0S"; 'Set Normal Print
4800 IF B$="2" THEN PRINT#1,ESC$+"&k2S"; 'Set Compressed Print
4900 IF B$="3" THEN PRINT#1,ESC$+"&k1S"; 'Set Expanded Print
5000 IF B$="4" THEN PRINT#1,ESC$+"&k3S"; 'Set Expanded-Compressed Print
5100 IF B$="5" THEN PRINT#1,ESC$+"&l1L"; 'Set Perforation Skip On
5200 IF B$="6" THEN PRINT#1,ESC$+"&l0L"; 'Set Perforation Skip Off
5300 CLOSE #1
5400 GOTO 4000
5500 SYSTEM
```

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1 = Portrait Courier 10   2 = Landscape Courier 10

3 = Portrait Compressed   4 = Landscape Compressed
                                               "L" Cartridge Required

5 = Portrait Elite 12   6 = Landscape Elite 12
   "M" Cartridge Required   "M" Cartridge Required

M = Set Margins   C = Set # of Copies

R = Reset Printer   F = Formfeed

Q = Quit

Enter Number 1 thru 6, M,C,R, F, or Q:

```
{The following program, written in Turbo Pascal, provides the user with}
{several menu choices for sending escape characters to the LaserJet+   }

program printcontrol;
label strt, res, done ;
const  {assign escape sequences to defined constant values}
  line1 = #27'&l00'#27'(8U'#27'(s0p10h12v0s0b3T';  {Portrait Courier 10}
  line2 = #27'&l10'#27'(8U'#27'(s0p10h12v0s0b3T';  {Landscape Courier 10}
  line3 = #27'&l00'#27'(8U'#27'(s0p16.66h8.5v0s0b0T';  {Portrait Compressed}
  line4 = #27'&l10'#27'(8U'#27'(s0p16.66h8.5v0s0b0T';  {Landscape Compressed}
  line5 = #27'&l00'#27'(8U'#27'(s0p12h10v0s0b8T';  {Portrait Elite 12}
  line6 = #27'&l10'#27'(8U'#27'(s0p12h10v0s0b8T';  {Landscape Elite 12}
  conR = #27'E';        {Reset Printer}
  conF = #12;           {Send LineFeed to Printer}
var
  response : char;

procedure Margins;  {Subsidiary Program within Main Program to set Margins}
label strt, done1, done2, done3 ;
var
  response : string[2];
begin
  strt:
  ClrScr;

  GotoXY(2,5);
  write('    Set # of Lines for Top Margin = ');
  ClrEol;
  readln(response);
  if (length(response)<1) then goto done1;
  if (length(response)=1) then if (response[1] < '2') then goto strt;
  if (length(response)=2) then if (response[1] > '2') then goto strt;
  write(lst,#27'&l',response,'E'#27'&a0R');  {Set # of lines for top margin}
  done1:
```

```
    GotoXY(2,7);
    write(' Set # of Columns for Left Margin = ');
    ClrEol;
    read(response);
    if (length(response)<1) then goto done2;
    if (length(response)=1) then if (response[1] < '1') then goto done1;
    if (length(response)=2) then if (response[1] > '2') then goto done1;
    write(lst,#27'&a',response,'L'); {Set # of columns left margin}
    done2:

    GotoXY(2,9);
    write('Set # of Columns for Right Margin =  ');
    ClrEol;
    read(response);
    if (length(response)<1) then goto done3;
    if (length(response)=1) then if (response[1] < '1') then goto done2;
    if (length(response)=2) then if (response[1] > '2') then goto done2;
    write(lst,#27'&a',response,'R'); {Set # of columns right margin}
    done3:
end; {end of procedure Margins}

procedure Copies; {Subsidiary Program within Main Program to set # of Copies}
label strt, done ;
var

  response : string[2];
begin
  strt:
  ClrScr;
  GotoXY(2,5);
  write('Set # of Copies to Print = ');
  ClrEol;
  read(response);
  if (length(response)<1) then goto done;
  if (length(response)>1) then goto strt;
  if (response[1] > '9') or (response[1] < '1') then goto strt;
  write(lst,#27'&l',response[1],'X'); {Set # of copies to print}
  done:
end; {end of procedure Copies}

begin                    {Main Program}
  strt:
  ClrScr;
  write(#27,'&j@'); {removes softkeys from bottom of screen}

                  {write menu selections}
  GotoXY(2,5);
  write('1 = Portrait Courier 10');
  GotoXY(40,5);
  write('2 = Landscape Courier 10');
  GotoXY(2,7);
  write('3 = Portrait Compressed ');
  GotoXY(40,7);
  write('4 = Landscape Compressed');
  GotoXY(40,8);
  write('  "L" Cartridge Required');
  GotoXY(2,10);
  write('5 = Portrait Elite 12');
  GotoXY(40,10);
  write('6 = Landscape Elite 12');
  GotoXY(2,11);
  write('  "M" Cartridge Required');
  GotoXY(40,11);
  write('  "M" Cartridge Required');
```

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```
    GotoXY(2,13);
    write('M = Set Margins');
    GotoXY(40,13);
    write('C = Set # of Copies');
    GotoXY(2,15);
    write('R = Reset Printer');
    GotoXY(40,15);
    write('F = Formfeed');
    GotoXY(2,17);
    write('Q = Quit');

                    {request and read user response to menu selections}
    res:
    GotoXY(2,23);
    write('Enter Number 1 thru 6, M,C,R, F, or Q:   ');
    ClrEol;
    read(response);

                    {menu action}
    if (response = 'Q') or (response = 'q') then goto done;  {Quit}
    if (response = 'R') or (response = 'r') then begin


    write(lst,conR);          {Reset Printer}
    goto res;
    end;
if (response = 'F') or (response = 'f') then begin
    write(lst,conF);          {Send FormFeed to Printer}
    goto res;
    end;
if (response = 'M') or (response = 'm') then begin
    Margins;              {go to subprogram for setting margins}
    goto strt;
    end;
if (response = 'C') or (response = 'c') then begin
    Copies;              {go to subprogram for setting # of copies}
    goto strt;
    end;
if (response > '6') or (response < '1') then write(#7);  {bell}
case response of
'1': write(lst,line1);  {Set Portrait Courier Font, 10 Pitch}
'2': write(lst,line2);  {Set Landscape Courier Font, 10 Pitch}
'3': write(lst,line3);  {Set Portrait Compressed Font, 16.66 Pitch}
'4': write(lst,line4);  {Set Landscape Compressed Font, 16.66 Pitch}
'5': write(lst,line5);  {Set Portrait Elite Font, 12 Pitch}
'6': write(lst,line6);  {Set Landscape Elite Font, 12 Pitch}
end;
goto res;
done:
end. {end of Main Program}
```

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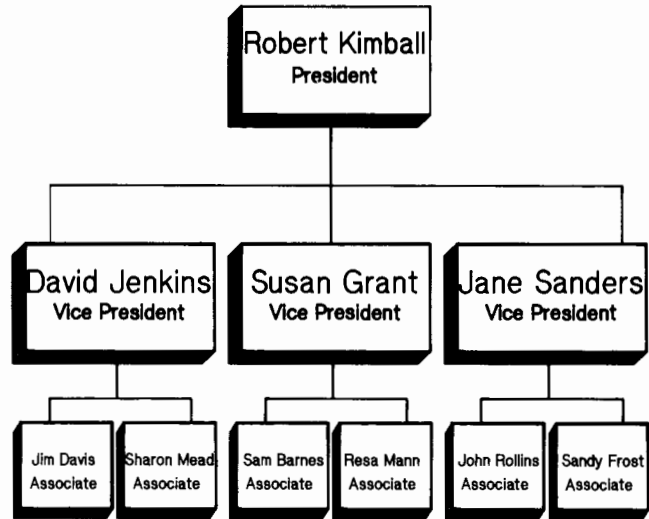
Recommendation: Reorganize the
Aerospace Division to better serve
our customers' needs

Dave Obershaw
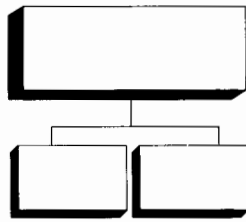
Drop shadow boxes, like the samples shown here, can be very effective in organization charts or other drawings or charts where you want special emphasis. Creating these drop shadow boxes with Drawing Gallery is easy—just follow the steps outlined below.

1. Turn on Snap Grid (in Settings Menu)

2. Select Connect Points
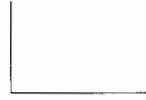
   What you want to create is an L shaped object, much like two sides of a rectangle. Click your mouse at the top of the "L." Now, move the mouse down to the base of your "L" and click again. You now have a straight vertical line. Move the mouse at a 90 degree angle to the end of your "L" and click again. You should see the inside of your drop shadow created.

   Next move the mouse directly down one grid point, and to the left one grid point, and click. You should now see a line moving down and to the left.

   Next, from your short angled line, draw a new line which is parallel to the base of your "L," but stretches one grid point to the left of the end of the upper line. You should now see your shadow beginning to take shape.

   Next, draw a vertical line from the end of your lower base line, parallel with your inside vertical line, ending one grid point before the top of your inside line. Now, you need only draw another short 45 degree line connecting your inside and outside vertical lines.

3. De-select Connect Points

4. From the textures menu, select the solid texture

   You should now see your completed drop shadow! One more point: Make sure that your shadow outline and texture are made from the same pen.

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**Terminal to System
Connections RS-232 vs. RS-422**

Art Newman
Lisa Watanabe
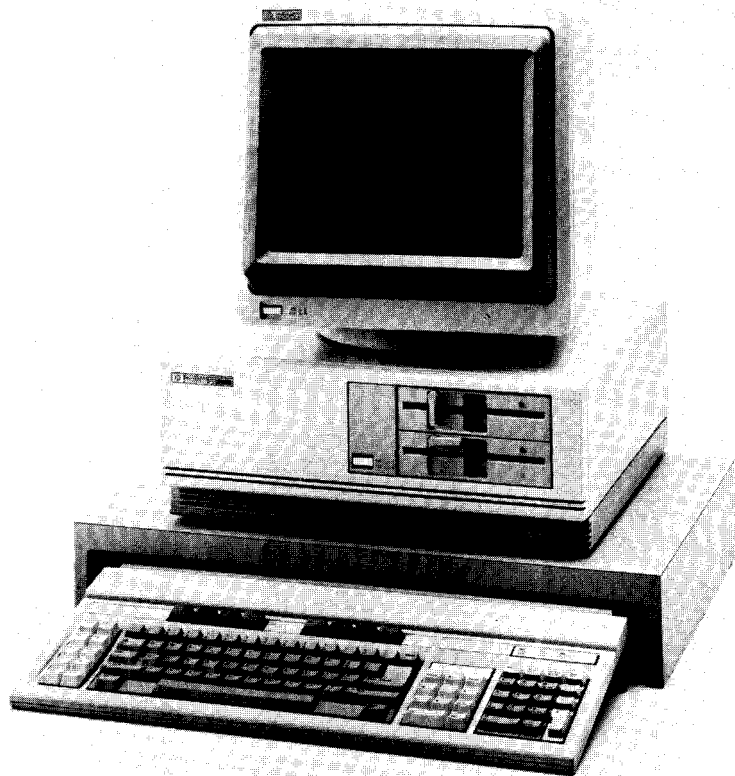
You may have questions about the differences between RS-232 and RS-422 system connections to terminals. This article describes the properties of each and suggests when to use each.

**RS-232
Properties**

RS-232C is an electrical and physical specification drawn up by the Electronics Industries Association (EIA), a group made up of representatives from the electronics industry. It details what signals should appear on what pins of a specific type of connector as well as the voltage levels, termination resistance, and capacitance values associated with a connection. These specifications pertain to data rates up to 20,000 bits per second.

To most of us, RS-232 means a connection limited to 50 feet, even though we also know many people who have successfully exceeded this distance by a large margin. The distance specification is based primarily on total capacitance of the connection. The maximum capacitance allowed is 2500 picoFarad (pF). Depending on the capacitance per foot of the cable being used, the limit on allowable distance can vary widely. At the time the RS-232 specification was written, cable commonly available was rated at 50 pF/foot. Dividing this into the total capacitance limit resulted in the 50-foot line limit. The table below shows some examples using cable commonly available today. The cable shown is 24 AWG, twisted pair, with an overall shield.

	Capacitance (pF/ft.)	Relative Cost	Distance Limit (feet)
Belden 9502	30	1	83
Belden 9829	15.5	1.9	161
Belden 8162	12.5	2.1	200

The RS-232 distance limit can be stretched to allow up to 20,000 bps operation at 200 feet with proper cable. At slower speeds, the capacitive effect on the signal quality is less and will allow a terminal to work at even greater distances even though the spec is not met. This is how some customers are able to attain distances of up to 1,000 feet. We must caution you, however, that distances this great are unsupported.

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RS-422 Properties	Unlike RS-232, RS-422 details electrical specifications only. Physical specifications are detailed by the RS-449 spec. RS-422 specifies a balanced differential interface for data lines. This consists of two separate wires for each connection. An "on" or "off" condition is determined by the difference between these two lines, positive or negative. The lines switch from $+6V$ to $-6V$, with the receiver triggering when the difference is 2 Volts. RS-422 allows data rates to 100,000 bps at up to 4,000 ft. This extended distance is due to the noise immunity of a differential connection. Therefore, terminal to system distances of up to 4000 feet can be supported.
What Choice Is Right?	The choice between these two connection methods must be made before ordering and installation of customer cabling. HP-RS-232 uses three wires per connection where RS-422 uses five.
	Minicomputer (HP 3000, HP 1000) system interfaces need to be specified for RS-232 or RS-422 when ordered. The table below summarizes which personal computers have RS-232/RS-422 capabilities.

	RS-232	RS-422
HP Portable (110)	Yes	No
HP Portable Plus	Yes	No
HP 120/125	Yes	No
HP Touchscreen PC (150)	Yes	Yes (Port 1)
HP Vectra PC	Yes	Yes*

*Requires the 25-pin interface of the Dual Serial RS-232/422 Interface card.

In summary, if you require a connection that is greater than 100 feet, it is highly recommended that you consider an RS-422 connection. Although it is possible, as shown, to run 200 feet at 19.2K bps with RS-232 and the proper cable, the closer you get to the limit, the more likely you are to have problems. If your cable were to pass by a large motor, for example, errors could still occur. And RS-422 costs little or no more if implemented up front. For a terminal with RS-422 capability, all you need to do is select the correct cable, 13242P/17855A for HP-422, and 13242X/17355A for RS-232.

□

HP Touchscreen/150 and
Graphics Escape Sequences

Brian Rainie

Two-character and Multi-character Sequences	First I'd like to talk about escape sequence programming in general. Escape sequences fall into one of two categories. The first is the very simple two-character flavor, where the ESCape character is followed by a single letter. Two-character escape sequences historically handled most of the typical terminal features, e.g. HOME CURSOR, CLEAR, and DELETE-CHARACTER.
	As more and more terminal features were added, more and more escape sequences were programmed into the terminals. At one point, someone came to the realization that eventually, given the limited number of character combinations, we would run out of possibilities. That is when the second category, multicharacter escape sequences, were developed. By using some of the special characters, primarily the ampersand and asterisk, as a starting point for "major category," following them closely by another character to specify "sub-category," and using additional characters to specify "options and values," the number of possibilities became infinite.
	Here are a few examples of escape sequences:

ESC h	Home cursor to top left of screen	
ESC J	Clear the display	
ESC & d B	&:	Primary category = Display/device control
	d:	Sub category = Alpha display enhancement
	B:	Option = Turn on inverse video
ESC & a 1 r 12 C	&:	Primary category = Display/device control
	a:	Sub category = Move alpha cursor
	1r:	Option = move to row #1
	12C:	Option = move to col #12

Capitalize Last Character in a Multi-character Sequence	The most important thing to remember about multi-character escape sequences, which also happens to be the rule most programmers do not get from the manuals, is that you use LOWER-CASE letters throughout the sequence to specify your options, but change the very last character to UPPER-CASE! Consider how the escape sequence parser (the terminal firmware in charge of handling escape sequences) must perform its function. With the flexibility of multi-character escape sequences, how does the terminal determine where the sequence ends and normal text continues? It's very simple. After it determines the major or minor category, it processes on an option by option basis until an UPPER-CASE letter appears, or it finds something it does not understand.

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Many people have programmed for years not knowing that they are not terminating their sequences properly (e.g. using ESC*mr instead of ESC*mR), and have never noticed a problem. They have been lucky. The escape sequence parser has been processing their sequences more or less properly, but terminating on the character which follows the sequence, whatever that character may be. This can cause unpredictable results, lost text, and even minor terminal failures.

In my opinion, the misunderstanding may be due to the documentation concerning graphics escape sequences. You must understand, these sequences can be very complex. A single sequence is designed to handle numerous options, and can be separated into several separate sequences or combined all together as one:

Separate: ESC*m1A ESC*m3B ESC*m5M ESC*m5Q
Together: ESC*m1a3b5m5Q

As you can see, a letter performs the same operation independent of whether it is upper or lower case; it is simply changed to upper case when, in addition to performing its function, it terminates the sequence. The manuals list all the function letters in LOWER-CASE only, which may be why programmers forget to change the last character to upper case. No matter, please mark down in your books "I will ALWAYS remember to change the last letter to upper case." This will insure a peaceful co-existence between your software and the terminal firmware.

Graphics Escape Sequences

Now, back to the matter at hand. What can you do with graphics escape sequences? Just about anything you can do with a pen and pad. The escape sequences are very powerful as well as versatile. That can make for some really fancy graphics, but also for some pretty strange looking code:

```
100 PRINT CHR$(27);"*mR";
110 PRINT CHR$(27);"*dA";
120 PRINT CHR$(27);"*pa150,100 50,100Z";
130 PRINT CHR$(27);"*pa100,100Z";
140 PRINT CHR$(27);"*m1m5Q";CHR$(27);"*1Centered Text";chr$(13)
```

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What a mess! It functions well, but is extremely difficult to read. You are also prone to making syntactical mistakes within your sequences if you write your entire program this way. What can you do? Use string variables and functions! Try the following:

```
10 ESC$=CHR$(27)
20 RESET.GRAPHICS$=ESC$+"*mR"
30 CLEAR.GRAPHICS$=ESC$+"*dA"
40 DEF FNDRAW.LINE$(X1,Y1,X2,Y2)=ESC$+"*pa"+
      STR$(X1)+STR$(Y1)+STR$(X2)+STR$(Y2)+"Z"
50 DEF FNMOVE.PEN$(X,Y)=ESC$+"*pa"+STR$(X)+STR$(Y)+"Z"
60 DEF FNLABEL$(TEXT$,SIZE,JUST)=ESC$+"*m"+STR$(SIZE)+"m"+
      STR$(JUST)+"Q"+ESC$+"*1"+TEXT$+CHR$(13)

100 PRINT RESET.GRAPHICS$;
110 PRINT CLEAR.GRAPHICS$;
120 PRINT FNDRAW.LINE$(150,100,50,100);
130 PRINT FNMOVE.PEN$(100,100);
140 PRINT FNLABEL$("Centered text",1,5);
```

Using variables and functions means you have to figure out a sequence only once, instead of having to fight with it forever. Now that you know how to make your code more readable, where do you go from here? Subroutines! Just as you would use a function to handle very complex expressions, you can use subroutines to perform very complex graphics procedures, such as drawing objects.

As a training example for one of my college courses, I distribute the following program. It includes some predefined variables, functions, and subroutines which can introduce programmers to escape sequences. Each student has the task of including sufficient main code to draw/sketch a picture on the screen. For your benefit, I added some simple code here to make the program a bit more complete. Enjoy.

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```
100 REM *****************************************************************
110 REM *   Graphics Variables/Functions list:                          *
120 REM *   ESC$                    Escape character used by functions   *
130 REM *   FNINITIALIZE$           Clears/resets the graphics display area  *
140 REM *   FNMOVE$(x,y)            Moves pen to x,y (without drawing a line) *
150 REM *   FNDRAW$(x,y)            Draws a line from previous x,y to new x,y *
160 REM *   FNDRAWLINE$(x1,y1,x2,y2) Draws a line from x1,y1 to x2,y2    *
170 REM *   FNLABEL$(text$,x,y)     Moves pen to x,y and prints a label there *
180 REM *   FNLABELSIZE$(newsize)   Defines how big upcoming labels should be *
190 REM *   FNPENNORMAL$            Sets pen to normal mode (default)     *
200 REM *   FNPENERASE$             Sets pen to erase mode (dots are erased) *
210 REM *****************************************************************
220 REM
230 REM *************** Graphics Variables/Functions Definition ***************
240 REM
250 LET ESC$=CHR$(27) ' Place the special escape char into the variable ESC$
260 REM   Define function which initializes graphics and alpha areas
270 DEF FNINITIALIZE$=ESC$+"*wR"+ESC$+"h"+ESC$+"J"
280 REM   Define function which moves graphics pen to x,y
290 DEF FNMOVE$(X,Y)=ESC$+"*pa"+STR$(X)+STR$(Y)+"Z"
300 REM   Define function which draws from current pen position to x,y
310 DEF FNDRAW$(X,Y)=ESC$+"*pb"+STR$(X)+STR$(Y)+"Z"
320 REM   Define function which draws a line from x1,y1 to x2,y2
330 DEF FNDRAWLINE$(X1,Y1,X2,Y2)=FNMOVE$(X1,Y1)+FNDRAW$(X2,Y2)
340 REM   Define function which places a label starting at x,y
350 DEF FNLABEL$(TEXT$,X,Y)=FNMOVE$(X,Y)+ESC$+"*l"+TEXT$+CHR$(13)
360 REM   Define function which sets the current label text size
370 DEF FNLABELSIZE$(NEWSIZE)=ESC$+"*m"+MID$(STR$(NEWSIZE),2)+"M"
380 REM   Define function which sets pen to normal operation
390 DEF FNPENNORMAL$=ESC$+"*m2A"
400 REM   Define function which sets pen to erasure operation
410 DEF FNPENERASE$=ESC$+"*m1A"
420 REM
430 REM
500 REM *****************************************************************
505 REM *                         MAIN CODE                            *
510 REM *****************************************************************
515 REM
520 PRINT FNINITIALIZE$ 'Clear/initialize the graphics display area
525 PRINT FNLABELSIZE$(2)
530 PRINT FNLABEL$("Comet passing through star-gate",27,360)
535 PRINT FNLABEL$("  and heading toward shield",27,335)
540 PRINT FNMOVE$(0,0);                    ' Draw border
545 PRINT FNDRAW$(0,389);
550 PRINT FNDRAW$(511,389);
555 PRINT FNDRAW$(511,0);
560 PRINT FNDRAW$(0,0);
565 PRINT FNMOVE$(0,-20);                  ' Draw energy shield
570 LET RADIUS.SIZE=140
```

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```
575 LET TOTAL.POINTS=50
580 GOSUB 1000
585 PRINT FNDRAWLINE$(220,104,210,80)     ' Draw ship
590 PRINT FNDRAWLINE$(220,104,230,80)
595 PRINT FNDRAWLINE$(220,87,210,80)
600 PRINT FNDRAWLINE$(220,87,230,80)
605 PRINT FNMOVE$(420,260)                ' Create star-gate
610 LET RADIUS.SIZE=55
615 LET TOTAL.POINTS=3
620 FOR ROTATION=0 TO 110 STEP 10
625    GOSUB 1000
630 NEXT ROTATION
635 PRINT FNMOVE$(330,221)                ' Draw comet
640 LET RADIUS.SIZE=15
645 LET ROTATION=204
650 GOSUB 2000
655 END

1000 REM **********************************************************************
1010 REM *  Subroutine:  Draw circle                                         *
1020 REM *                                                                   *
1030 REM *  Use the following calling sequence to draw a circle:             *
1040 REM *                                                                   *
1050 REM *  PRINT FNMOVE$(___,___)   'Move pen to center of circle to be drawn*
1060 REM *  LET RADIUS.SIZE=___       'Define the size of the radius          *
1070 REM *  LET TOTAL.POINTS=___      'Define the number of points            *
1080 REM *  LET ROTATION=___          'For non-circles, degrees to rotate left *
1090 REM *  GOSUB 1000                'Call this subroutine to draw a circle   *
1100 REM *                                                                   *
1110 REM *  NOTE:  A 50 point circle gives a fairly smooth curve.  A 3 point *
1120 REM *         circle gives you a triangle.  An 8 point circles gives you *
1130 REM *         a Hexagon...                                              *
1140 REM **********************************************************************
1150 PRINT ESC$;"*peha"; 'Set reloc origin to pen position and raise the pen
1160 FOR ANGLE.COUNTER=0 TO TOTAL.POINTS
1170   ANGLE=360*(ANGLE.COUNTER/TOTAL.POINTS)      'Compute angle in degrees
1180   ANGLE=ANGLE+90+ROTATION                     '90 degree offset + rotation
1190   RADIANS=ANGLE/45*ATN(1)                     'Change to radians
1200   CIRCLE.X=CINT(RADIUS.SIZE*COS(RADIANS))     'Compute new x value
1210   CIRCLE.Y=CINT(RADIUS.SIZE*SIN(RADIANS))     'Compute new y value
1220   PRINT CIRCLE.X;CIRCLE.Y;                    'Plot the new point
1230 NEXT ANGLE.COUNTER
1240 PRINT "a0,0Z" 'Terminate ESCape sequence
1250 RETURN
2000 REM **********************************************************************
2010 REM *  Subroutine:  Draw Comet                                          *
2020 REM *                                                                   *
2030 REM *  Use the following calling sequence to draw a comet:              *
```

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```
2040 REM *                                                              *
2050 REM *    PRINT FNMOVE$(___,___)   'Move pen to center of comet to be drawn *
2060 REM *    LET RADIUS.SIZE=___       'Define the size of the radius          *
2070 REM *    LET ROTATION=___          'Degrees to rotate tail to the left
2080 REM *    GOSUB 2000                'Call this subroutine to draw a comet    ~
2090 REM ****************************************************************************
2100 PRINT ESC$;"*m1G" 'Define area fill pattern
2110 PRINT ESC$;"*pehsa"; 'Set reloc origin to pen position and raise the pen
2120 FOR ANGLE.COUNTER=0 TO 60
2130    ANGLE=360*(ANGLE.COUNTER/60)                'Compute angle in degrees
2140    RADIANS=ANGLE/45*ATN(1)                     'Change to radians
2150    CIRCLE.X=CINT(RADIUS.SIZE*COS(RADIANS))     'Compute new x value
2160    CIRCLE.Y=CINT(RADIUS.SIZE*SIN(RADIANS))     'Compute new y value
2170    PRINT CIRCLE.X;CIRCLE.Y;                    'Plot the new point
2180 NEXT ANGLE.COUNTER
2190 PRINT "T" 'Area fill this
2200 PRINT ESC$;"*m10G" 'Define area fill type
2210 PRINT ESC$;"*phsa"; 'Start of tail
2220 TAIL.ANGLE=180+ROTATION                   'Angle for tail
2230 RADIANS=TAIL.ANGLE/45*ATN(1)              'Change to radians
2240 TAIL.X=CINT(8*RADIUS.SIZE*COS(RADIANS))   'Compute new x value
2250 TAIL.Y=CINT(8*RADIUS.SIZE*SIN(RADIANS))   'Compute new y value
2260 PRINT TAIL.X;TAIL.Y;                       'Move pen to tip of tail
2270 FOR ANGLE=ROTATION+90+40 TO ROTATION+270-40 STEP 10
2280    RADIANS=ANGLE/45*ATN(1)                     'Change to radians
2290    CIRCLE.X=CINT(1.3*RADIUS.SIZE*COS(RADIANS))'Compute new x value
2300    CIRCLE.Y=CINT(1.3*RADIUS.SIZE*SIN(RADIANS))'Compute new y value
2310    PRINT CIRCLE.X;CIRCLE.Y;                     'Plot the new point
2320 NEXT ANGLE
2330 PRINT TAIL.X;TAIL.Y;                       'Move pen to tip of tail
2340 PRINT "T" 'Area fill this
2350 RETURN
```

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Brian Rainie

Vera M. Britto submitted a request for additional information about labeling graphics when in GW BASIC. There was also a plea for help with copying the graphics from the screen to a printer. Taking this one step at a time...

GW BASIC Does NOT Like ESCape Sequences

It is a well known fact that GW BASIC and ESCape sequences do not mix. The reason is really not hard to fathom. GW BASIC has a full-screen editor built right in. It uses all 80 columns of each line as a constant input device so you can move your cursor to any position on the screen and modify lines easily without having to retype them. With this friendly feature comes a catch; the screen must be reserved for the use of GW BASIC interpreter EXCLUSIVELY. What it places on the screen in the way of output from PRINT statements, or even source LISTings, it expects to find unaltered later. Any ESCape sequence which modifies the screen does so without informing GW BASIC. Thus, confusion can set in and, with it, inconsistant results and system failures.

GW BASIC And Graphics ESCape Sequences

Although the GW BASIC interpreter's full-screen editor is very particular about its housekeeping when it comes to the alpha display, it couldn't care less about the graphics display, which is an entirely different area of memory. This means that you can use the HP150 graphics ESCape sequences as much as you like, as long as they do not alter the alpha display in any way (e.g. you could not use an escape sequence to request graphics status).

This sounds all well and good, but when you try PRINTing your ESCape sequences, GW BASIC still does not react properly. Why? It is trying very hard to protect itself, so you have to outsmart it. You can sneak around its front line of defense by opening the CONsole (screen) as an output file, printing the ESCape sequences to the file, then close the file to dump your buffer. Below is a sample subroutine which draws graphics text on the screen. Please feel free to use it as a guide.

```
1000 REM  Subroutine:  Output GRAPHICS.LABEL$ to graphics location X,Y.

1010 REM               With text size of GRAPHICS.LABEL.SIZE:

1020 REM                1=Small...9=Big

1030 REM               With text orientation of GRAPHICS.LABEL.ORIENT:

1040 REM                1=Left justified above X,Y

1050 REM                2=Left justified on top of X,Y

1060 REM                3=Left justified below X,Y

1070 REM                4*Centered above X,Y

1080 REM                5=Centered on top of X,Y

1090 REM                6=Centered below X,Y

1100 REM                7=Right justified above X,Y

1110 REM                8=Right justified on top of X,Y

1120 REM                9=Right justified below X,Y

1130 REM

1140 OPEN "O",3,"CON"

1150 PRINT #3,CHR$(27);"*pa";X;390-Y;"Z";

1160 PRINT #3,CHR$(27);"*m";GRAPHICS.LABEL.SIZE;"m";GRAPHICS.LABEL.ORIENT;"Q";

1170 PRINT #3,CHR$(27);"*l";GRAPHICS.LABEL$

1180 CLOSE 3

1190 RETURN
```

**Printing Graphics
From GW BASIC**

The Print key on the lower-left of the keyboard is the manual method of copying the alpha or graphics display to your currently selected printer (the current "to" device). Shift-Print copies the alpha display, while CTRL-Print copies the graphics display. But you can also perform the same functions programmatically. From all programming languages other than GW BASIC, you can print an ESC&p sequence to perform a copy from screen/graphics to the printer. The bad news is that GW BASIC does not like that sequence. The good news is that it supports a statement which performs the same function. The statement is called LCOPY, and is documented in the later releases of the GW BASIC manual. If it is not included in your manual, make a note:

LCOPY 1 will print the graphics display
LCOPY 2 will print the alpha display

Date Functions for
Series 100 BASIC Revisited   Brian Rainie

I received a letter from Mr. Kevin F. Chambers, refering to syntax errors within the sample date-conversion code listed in Communicator Issue #12. He's right, there is a problem with two of the BASIC statements.

The original code was thoroughly tested, but at the time of that particular publication all source listings were being retyped by hand for submission to the printer. Due to the complexity of the code, it is understandable that some errors could creep in. We have since moved to a more direct approach, designed to eliminate this possibility in future articles.

Along with my apologies, I submit to you a reprint of the code, less the errors. Thank you Kevin for bringing it to my attention.

```
10 REM  NOTE:  WITH THE EXCEPTION OF THE DIF VARIABLE IN THE LAST

20 REM         ROUTINE, ALL VARIABLES CAN BE EITHER TYPE SHORT

30 REM         OR TYPE INTEGER.

40 REM

50 DEF FNDAYS(M)=INT((M-1)*31-.65*((M-2)\2)+3*(M>2))-(M=4 OR M=6)

60 DEF FNJULIAN(M,D,Y)=FNDAYS(M)-(M>2 AND Y MOD 4=0 AND Y MOD 100>0)+D

100 REM

110 REM  CONVERT MONTH,DAY,YEAR TO JULIAN DATE

120 REM

130 INPUT "Enter month, day and year > ",M,D,Y

140 PRINT "Julian date: ";FNJULIAN(M,D,Y);"/";Y

150 REM

160 REM  CONVERT JULIAN DATE TO MONTH,DAY,YEAR

170 REM

180 INPUT "Enter julian day, year > ",J,Y

190 M=J\30+1 : IF J<FNJULIAN(M,1,Y) THEN M=M-1
```

```
200 D=J-FNJULIAN(M,0,Y)

210 PRINT "Gregorian date ";M;"/";D;"/";Y

220 REM

230 REM  DETERMINE DAY OF THE WEEK FROM JULIAN DATE (4-digit year)

240 REM

250 INPUT "Enter julian day, year > ",J,Y

260 DW=(Y+(Y-1)\4-(Y-1)\100+J+4) MOD 7+1

270 PRINT "Day of the week: ";DW;

280 PRINT "(";MID$("SATSUNMONTUEWEDTHUFRI",DW*3-2,3);")"

290 REM

300 REM  COMPUTE DIFFERENCE BETWEEN TWO JULIAN DATES (D1,Y1 D2,Y2)

310 REM   (DIF VARIABLE MUST BE TYPE SHORT IF DAYS EXCEED 32767)

320 REM

330 INPUT "Enter first julian date (d,y) > ",D1,Y1

340 INPUT "Enter second julian date (d,y) > ",D2,Y2

350 DIF=(Y2-Y1)*365+((Y2-1)\4-(Y2-1)\100)-((Y1-1)\4-(Y1-1)\100)+(D2-D1)

360 PRINT "Difference (in days): ";DIF
```

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Introducing the Enhanced Portable PLUS

Jim Martin

Next Generation Liquid Crystal Display	The Portable PLUS just got better! Until now, the primary objection to portable computers has been the difficult-to-read displays. No longer! The Portable PLUS now has an enhanced "next generation" liquid-crystal display which offers significantly greater contrast and over twice the viewing angle. And this greater readability comes at no sacrifice to existing battery life, size, or ruggedness of the product.
Larger Internal Memory	In addition, the internal memory has been increased from 128K to either 256K or 512K. This means that with one additional drawer of memory the Portable PLUS can now be configured with 896K of memory or with two full memory drawers, an incredible 1.25 megabytes of memory is possible. All existing accessories, software, and peripherals are compatible with the enhanced product.
Upgrade Program Available	For current Portable PLUS users, an upgrade program is now available from the factory to take advantage of either of these new enhancements. Please contact your Dealer or HP Sales Representative for details.
Warranty Now One Year	The Portable PLUS has proven itself to be the most convenient to use and the most durable portable computer available. The enhanced display and increased memory capacity now make the Portable PLUS an even more convenient and powerful product. And to back up the claim of durability, effective April 1, the warranty was increased from 90 days to one year.
	All in all, the enhanced Portable PLUS is a product you should see for yourself. Please contact your Authorized HP Dealer or HP Sales Representative and take a look.

□

Update on HP's Personal Computer Software Support

Sharon Stricker

HP has expanded its line of PC software support services to better match the support environment of PC users.

Telephone Assistance for Internal Support	HP offers two contractual alternatives for internal support staff:
	If you are a System Manager in an HP3000 environment, you may add telephone assistance for PC application software to your existing system coverage. The PC Applications Family includes stand-alone application software for HP business PCs and several PC application software packages from HP's Personal Productivity Center.
	For centralized staff who support PC users in a non-system environment, HP offers Workgroup Coordinator Assistance. This service provides telephone assistance for software groups used on various HP personal computers.
Telephone Assistance for the End-User	End-users may choose between contractual coverage and per-call services:
	PC users with high productivity requirements can obtain direct access to HP PC specialists through PC User Assistance. This service provides unlimited call coverage for software supported on a particular personal computer.
	Users that require assistance infrequently may prepay for five calls by purchasing a HelpLine Call Certificate pack. Individual calls to HP HelpLine may also be charged to personal or company credit cards.*
	*Per-call services are available in the U.S. and Canada only.
Assistance from Your Dealer	If you purchased your PC 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.

| **For More Information** | To obtain more information on HP's software support services, contact your local HP Sales Office. All services are not available in all countries. |

MicroPro.

HP is proud to announce the availability of WordStar 2000, Release 2 for the HP Vectra PC. Offering the industry's most advanced features and clear, easy-to-use menus, WordStar 2000 is MicroPro's state-of-the-art word processor. See the article "MicroPro Products for HP Vectra PC" in Issue 14 for details on the features of WordStar, WordStar Professional, WordStar 2000 (Release 1.01) and WordStar 2000 Plus (Release 1.01). These products are available through HP's direct sales force.

Release 2 Enhancements

WordStar 2000, Release 2, is the only word processor which enables users to directly read Lotus 1-2-3 files while editing. Release 2 offers improved performance, a document content architecture (DCA) conversion capability, expanded printing capabilities, newspaper style columns, simplified installation, document history screen, on-screen right justification, plus many new editing and formatting features.

Update Policies

Current users of WordStar 2000 and WordStar 2000 Plus, Release 1.01, can upgrade to Release 2.0 by contacting MicroPro's Update Department at (800) 227-5609. Users who purchased WordStar 2000 or WordStar 2000 Plus after November 1, 1985, will receive Release 2 at no charge. Customers who bought WordStar 2000 or 2000 Plus on or before November 1, 1985 can receive the upgrade for a nominal charge of $60.

Customers must provide proof of purchase or proof of ownership to qualify for the upgrade.

Ordering Information

MicroPro Products for the HP Vectra PC:

68341F	WordStar 2000, Release 2
68342F	WordStar 2000 Plus, Release 2
68345F	WordStar
68346F	WordStar Professional

For more information contact your HP Sales Office.

□

Personal Computer Software
Corporate Site Licensing Program
Now Available

Marc Burch

A Corporate Site Licensing Program offering up to 75 percent savings on quantities of personal computer software has recently been introduced by Hewlett-Packard. HP is the first of the major computer manufacturers to announce such a program.

This worldwide program is part of HP's personal productivity center office strategy, the focus of which is to provide you with software solutions at a reasonable cost.

Site licensing provides...

With this new program, you are allowed to produce a specified number of copies of a software package from a master disc provided by Hewlett-Packard. The right to reproduce the software may be purchased in increments starting at 50 and going over 5,000 copies.

For each group of 50, you receive:

- 1 master disc
- 1 right to reproduce agreement
- 5 sets of documentation
- 50 right-to-use agreements—one for each end user
- 50 serialized labels with customer name

The serialized labels enable the MIS manager to record the name of the person using each copy of the software, this makes it easier to implement updates. Adherence to the right-to-use agreement protects users from the possibility of illegal-copying lawsuits.

A site is defined as a corporation, not just as a physical location. For example, if you have facilities in California and Ohio, both sites may qualify for the program when they have been specified in the site license agreement with HP.

For those of you who don't have the capability or desire to reproduce software, HP offers a price reduction and supplies copies for a fixed price. Customers who have purchase agreements with HP for hardware and software qualify for the reductions. HP warrants and supports the software per the support contract the customer has with HP.

You also may purchase additional documentation as part of this program.

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Software products included are...	The following Touchscreen/150 and Vectra personal computer products are included in the Corporate Site Licensing Program.

For the Touchscreen PC:	For the Vectra PC:
HP Access	HP Access
AdvanceLink	AdvanceLink 2392
Executive MemoMaker	Executive MemoMaker
Executive Card Manager	Executive Card
Gallery Collection	Manager
Print Central	Print Central
HPWord	Executive Spreadsheet
HPMessage	R:Base 5000™
R:Base 5000™	

In addition, MemoMaker and Executive Card Manager will be available on the Portable Plus under the Corporate Site Licensing Program.

Reductions range from 15 to 75%	Depending on the software selected, reductions range from 15 to 75 percent of the U.S. list price. The total reduction is a combination of the site licensing discount percentage and the customer's purchase agreement discount.

For example, a customer desiring 400 copies would receive 30% off the list price. The customer then would be given his or her purchase agreement discount, typically 33%, off this new list price for a total reduction of 53%.

Ordering Information	Product Name	Part # for Touchscreen/150	Part # for Vectra
	■ Customer Reproduces the Software on Discs		
	HP Access	36927Q	36898Q
	Executive MemoMaker	45418Q	68330Q
	Executive CardManager	45421Q	68331Q
	Executive Spreadsheet	—	68332Q
	AdvanceLink 2392	—	68333Q
	AdvanceLink	45431Q	—
	The Graphics Gallery Collection	45437Q	—
	Print Central	32590Q	32591Q
	HP Message	36568Q	36569Q
	HP Word/150	27505Q	—
	R:BASE™	45563Q	68336Q

Product Name	Part # for Touchscreen/150	Part # for Vectra
■ HP Reproduces Software on Discs		
HP Access	36927S	36898S
Executive MemoMaker	45481S	68330S
Executive CardManager	45421S	68331S
Executive Spreadsheet	—	68332S
AdvanceLink 2392	—	68333S
AdvanceLink	45431S	—
The Graphics Gallery Collection	45437S	—
Print Central	32590S	32591S
HP Message	36568S	36569S
HP Word/150	27505S	—
R:BASE™	45563S	68336S
■ Documentation only (Quantity: 1 = 5 Sets)		
HP Access	36927T	36898T
Executive MemoMaker	45481T	68330T
Executive CardManager	45421T	68331T
Executive Spreadsheet	—	68332T
AdvanceLink 2392	—	68333T
AdvanceLink	45431T	—
The Graphics Gallery Collection	45437T	—
Print Central	32590T	32591T
HP Message	36568T	36569T
HP Word/150	27505T	—
R:BASE™	45563T	68336T

For more information on the Corporate Site Licensing Program contact your HP Sales Representative.

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***M*ultimate**™
International Corporation

MultiMate™ is now available on the Portable PLUS as a ROM-based application. MultiMate is a page-oriented word processor based on the Wang word processor. Its editing and formatting features are very powerful, although the keyboard commands take a while to learn.

The Portable PLUS version of MultiMate is not related to the HP 150 version, but rather is based on the IBM PC version. While it lacks the softkey menus of the 150 version, it can more easily share files with an IBM PC because the IBM character set is used. The features are not identical to one particular IBM version; it shares some of the features of the current version (Multimate Advantage) and some of the features of the previous version (3.30).

Like 1-2-3, MultiMate on the Portable PLUS executes directly from ROM. This allows it to run in 152K of memory, instead of 256K or 384K as on the IBM PC or HP 150 respectively. This means the program begins almost instantly, and with your document on edisc, page changes are equally fast.

MultiMate for the Portable PLUS includes:

- A MultiMate manual, modified for this version
- Two ROMs, containing the editor and two printer drivers: THINKJET and TTYCRLF
- A dictionary disc for the spelling checker
- A utilities disc, with:
  - README.DOC, an application note on using printers (especially LaserJet)
  - 98 printer drivers, plus sheet feeder drivers and character width tables
  - A utility for editing printer drivers
  - A file conversion utility (Caution, this utility requires additional memory beyond 152K, and usually beyond 200K, depending on the type of conversion being done.)

MultiMate for the Portable PLUS, HP 45554K option 400, can be ordered through your HP Dealer or HP Sales Office.

□
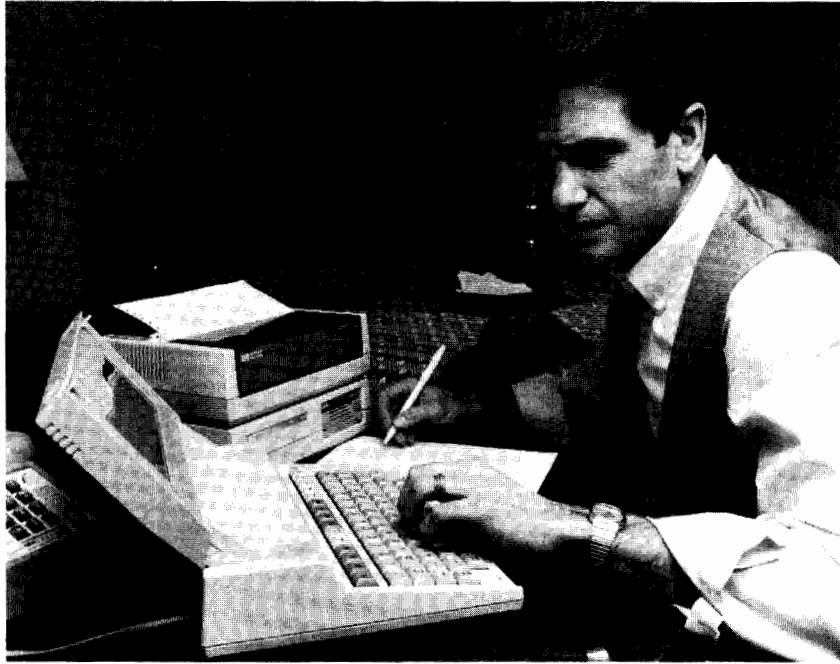
If your native tongue is French, German, or Italian you may want to convert your Portable PLUS applications software to that language. Simply install the appropriate localization ROM in your Software Drawer along with Executive Card Manager, Reflection 1, and/or Version A.02.00 of MemoMaker/Time Management. Those applications will then run with local-language menus, messages, and help.

Localization kits consist of a Localization ROM plus local-language manuals for the three supported applications. The applications ROMs will always ship with English-language manuals.

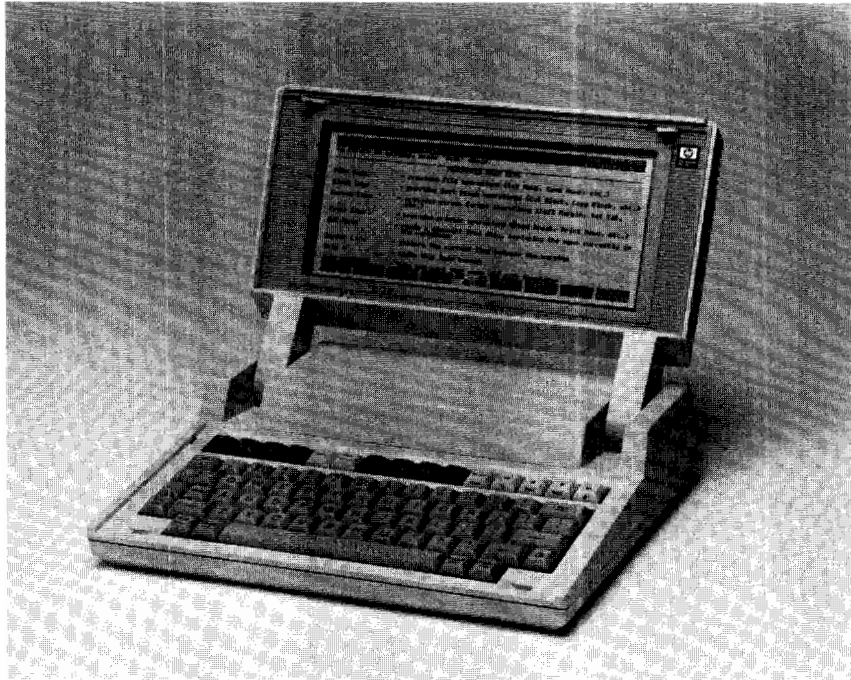French Localization Kit   HP 82866KF opt 400
German Localization Kit HP 82866KD opt 400
Italian Localization Kit   HP 82866KZ opt 400

The localization kits can be ordered through your HP Dealer or HP Sales Office.

□

A revised Portable PLUS MemoMaker/Time Management ROM, HP 45504K, is now available. For those of you who had the previous version, a low-cost upgrade, HP 45504-64002, can be ordered from HP's Direct Marketing Division. You will need this upgrade if you plan to use a Localization Kit. Or, you may wish to upgrade because of several problems which were fixed by the new version. The most serious of these are listed below.

In order to prove ownership of the old version ROM, A.01.00, upgrade orders must be accompanied by the back cover from the Time Management manual—it is the heavy three-color sheet with nine index items down the left side and the number 45504-90002 on it.

What Has Changed?

Here are some of the problems which were fixed with the new version. Workarounds are given for those of you who will continue to use the old version.

1. Problem: You run Series 100 BASIC (or a few other less-common programs) and then run MemoMaker; the MemoMaker program aborts the first time the Tab key is held down. You find yourself back in P.A.M., and any unsaved memo is lost.

   Workaround: Always reboot after running BASIC, or before running MemoMaker.

2. Problem: After you use MemoMaker's Help key, the memo is partially overwritten by help messages, a sector of electronic disc has been destroyed (resulting in "Data Error Reading Drive A"), or other unpredictable results occur. A copy of the help messages is being written to an unknown memory location. Often no damage is done, but the likelihood of damage is higher in certain memory configurations or when the memo is very large.

   Workaround: Don't use Help.

3. Problem: Time Manager fails to find a match while searching a Notes file.

   Workaround: Never leave blank lines in the Notes file, and always save the file as an ASCII (not Document) file. This can be done automatically if you have a STARTUP.FMT file which puts MemoMaker in ASCII file mode.

4. Problem: MemoMaker is suddenly unable to save or print the document.

   Workaround: Don't use the Get Format key repeatedly, and don't attempt to print when the HP-IL printer is not properly connected and on-line. Doing either of these things five times causes the problem.

□

Now available in ROM for the Portable PLUS is HP's most popular information management program, Executive Card Manager.

Executive Card Manager works like a rotary cardfile, storing up to 64,000 cards per cardfile. You can design your own card format (with up to 255 lines of information per card) or choose one from over 20 available when you purchase "The Executive Card Manager: Templates" (part number 45441L).

This software product is the same Executive Card Manager product that runs on the Vectra PC and the Touchscreen/150 (described in Issue 13 of The HP PC Communicator). File management capabilities include:

- Sorting
- Searching
- Telephone dialing (requires Modem)
- Report writing
- File merging
- Form letter generation

Executive Card Manager, product number 45555K, option 400, can be ordered from your HP Dealer or from HP.

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A product of Hewlett-Packard and Walker Richer & Quinn, Reflection 1 offers HP 2392 and DEC VT 102 terminal emulation. It is designed to replace PC 2622.

All of the features of PC 2622 have been incorporated into Reflection 1, including configuration menus and command files. New features include:

- Roman 8 character support

- Text file transfer using 8-bit word length

- HP 82164A (HP-IL/RS-232 converter) and HP-IL Acoustic Modem support

- File transfers between the Portable PLUS and UNIX systems using CRC error checking (in addition to transfers with HP 3000 and VAX/VMS systems)

- Program execution from the command line or command files

Although a disc drive is only required to initially upload the host transfer program, there are several useful files on the supplemental disc for which a disc drive is necessary. These include sample command files, additional documentation, and a help file.

Reflection 1, product number 82863K, option 400, can be ordered from your HP Dealer or from HP.

□

R:BASE 5000:
Application Express
in Depth

Randy Kahle

The focus of this article is Application EXPRESS,® one of the most advanced features of R:BASE 5000.

ⓜ MICRORIM®

NO MORE CODING!

Application EXPRESS allows a user to build data bases and complete applications, without writing a single line of code. All other data base systems which support application development require the user to program the application by writing source code.

Novice data base users will find that EXPRESS makes R:BASE 5000 easy to use giving them the best of both worlds: ease-of-use and access to a full powered DBMS. Intermediate level users will find that EXPRESS can handle either a complete application or provide the foundation for larger applications. Expert users will find EXPRESS useful for quickly prototyping very large systems.

A Closer Look

To understand how EXPRESS works, let us examine the steps you would take to build an application.

You would first build a data base using EXPRESS's graphical data base design tool. After EXPRESS draws a picture of the table being defined, you name the table and define each column. After a column is named, EXPRESS prompts for the column's data type. (The allowable types are: Real, Integer, Date, Time, Dollar, Text). If you specify a column name that has been previously defined in another table, the system automatically fills in the corresponding data type. It only takes a few minutes to define a complete database. Next, turn to the application generator portion of EXPRESS. The application generator will allow you to define (or redefine) a complete application.

As EXPRESS guides you through the definition of an application, the menus, help screens and all associated actions are specified. The operations that may be invoked in an application:

- LOAD enters data into a table
- EDIT modify data in a table
- DELETE removes rows from a table
- BROWSE allows user to view data in a table
- SELECT displays specific information from a table
- PRINT prints a custom report
- CUSTOM allows the user to build a macro procedure

- MACRO selects an existing macro procedure and brings it into EXPRESS
- MENU builds a submenu in the application
- EXIT adds an exit option to the application

With the custom and the macro options, you may define new actions, using EXPRESS to build very large applications. Any custom code which a user enters into EXPRESS will be maintained within the system. EXPRESS supports a tree structured, menu driven application with up to three levels of menus and their associated actions. EXPRESS remembers the flow of menus and will draw a picture of the menu hierarchy at any time. With the custom option you may build an application that is much larger than three levels deep, however EXPRESS will not automatically keep track of the additional levels.

After an application has been defined, EXPRESS will maintain all of the code. Changes can be made to the application or menu structure at any time. When the definitions or changes are complete, EXPRESS will automatically write bug free source code and then recompile the application.

An advanced user may wish to use the source code generated by EXPRESS as the basis for a much larger application, expanding the application beyond the limits of EXPRESS. However, once changes are made to the source code outside of EXPRESS, the application must be maintained manually.

Ordering Information	R:BASE 5000 for Touchscreen/150*—HP 45563A R:BASE 5000 for Vectra—HP 68336F For more information contact your HP Sales Office. *Available from HP only, not from dealers.

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🔲Lotus

Many Hewlett-Packard customers have made requests for the new and enhanced version of 1-2-3,® from Lotus Development Corporation, for the HP Touchscreen PC family. As part of HP's continuing support for the Touchscreen PC, we are pleased to announce that HP will make this popular Lotus product available in late summer, 1986. At this time, HP will also announce how current users of 1-2-3 for the Touchscreen PC can upgrade to the new release of 1-2-3.

**Key Features
of Release 2:**

This latest release of 1-2-3, Release 2.0, was recently rated by InfoCorp as one of the "clear choices" for success in 1986. Release 2.0 has all the features and benefits of the original 1-2-3 product, including the familiar menu-driven commands, yet offers many new enhancements over 1-2-3 Release 1A. One of the most important improvements, unique to the Touchscreen PC version, is the incorporation of a "Touch" interface. Users with the HP Touchscreen accessory will be able to make menu, file name and soft key selections simply by touching the appropriate part of the screen.

Other important enhancements to 1-2-3 Release 2.0 are:

- A larger spreadsheet size, with 8,192 rows and 256 columns

- An improved memory management system, that allows you to build bigger more complex spreadsheets

- Support of the Lotus/Intel/Microsoft Expanded Memory Specification, for access of up to four megabytes of random access memory (RAM)

- Intel 8087 co-processor support, enabling 1-2-3 to perform mathematical calculations more rapidly

- 40 powerful new macro capabilities that can make tedious tasks easier

- 39 new @ functions, including date and time format and string functions

- Data regression, for computing a line from a series of data points

- A tutorial book that lets you practice using 1-2-3 at your own pace

- A menu-driven install procedure with an extensive library of peripheral and other drivers

- The ability to execute DOS commands without exiting 1-2-3

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- Improved graphics features, such as the exploding pie chart and background and fill pattern options
- Data base enhancements, including editing of records during queries and user-controlled alpha or numeric sorts
- Context sensitive help screens, so that only relevant information is presented on the screen

For customers who already own 1-2-3 Release 1A or Symphony® (Release 1.0 or 1.1), 1-2-3 Release 2.0 will automatically read files created within these products. In addition, by using the Translate utility included with 1-2-3, Release 2.0 can read and write Jazz,® dBase II, and DIF files. This utility also allows you to convert Release 2.0 (.WK1) files into Release 1A (.WKS) files. 1-2-3 Release 2.0 for the Touchscreen PC will require a minimum of 384K RAM.

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Encyclopedia

The Encyclopedia

*In This Issue

*In This Issue

The HP PC Bugline

Latest information about HP PC questions, problems, and solutions

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Vectra users: If you have purchased the HP 45816A 20M byte Internal Hard Disc Subsystem or the HP 45816M 20M byte Internal Hard Disc (this is an add-on hard disc to the HP 45816A to give you up to 40M bytes of hard disc storage), **DO NOT** use the installation and formatting instructions outlined in the *Setting Up Vectra* manual: Use the installation and formatting instructions that come with the hard disc or you will not be able to set up your equipment correctly

<div align="center">✦ ✦ ✦</div>

If you are interested in the background documentation for the article "**Programming Screen Enhancements on the HP Vectra PC**" in Issue 14, this is for you!

Information on setting up ANSI.SYS is described in the manual *Vectra MS-DOS User's Reference* on pages 7-17 and 7-8. The specific escape sequences are documented in Appendix B, which contains a complete list of escape sequences available on the HP Vectra PC. The *Vectra MS-DOS User's Reference* manual is part number 45951-90003.

<div align="center">✦ ✦ ✦</div>

Some copies of **Lotus 1-2-3 for HP Vectra or IBM AT** recently shipped by Hewlett Packard contained a disc labeled "Install Library" which should contain the Install Library file but instead contains a copy of PrintGraph. If you received one of these discs, you have two alternatives for getting the Install Library file.

One solution entails sending in the Replacement Order Card included in the Lotus 1-2-3 Customer Assurance Plan document. This document is in the grey box included with 1-2-3. The Card explains the replacement procedure, but here is a summary:

1. Complete and return Warranty Registration Card if you have not already done so.

2. In an envelope, enclose the defective disc, the Replacement Order Card, and the receipt (invoice) showing that purchase was made within the 90 day Limited Warranty period (if beyond the warranty period include payment of $15), and send to:

> Lotus Development Corporation
> 55 Cambridge Parkway
> Cambridge, MA 02142
> Attn: Customer Service Dept.

Your second alternative is to copy the Install Library from a good copy of Lotus 1-2-3 (the disc is not copy protected). The name of the file to copy is INSTALL.LBR. It is the only file that is on the INSTALL disc.

* * *

Vectra and ThinkJet: The instructions in the *Connecting Peripherals to Vectra* manual (part number 45934-90002) in Figure 4B-5 on page 4B-11 for setting RS-232 ThinkJet printer switches are incorrect. Please refer to the *ThinkJet Manual* (part number 02225-90034) page 1-3 Table 1-1 for the correct settings.

* * *

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 Response 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.

**LaserJet
Questions and Answers** Joe McDonough

Following are corrections/updates to some of the Questions and Answers which appeared in the LaserJet Encyclopedia article in Issue 12 of the *HP Series 100 Communicator.* The original questions and answers are followed by the correction/ update.

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

A: *Currently, MemoMaker on the HP 110 does not support embedded escape sequences.*

Update: PrinterTalk, from Personalized Software, P.O. Box 869, Fairfield, Iowa 52556, is a utility which allows the user to send HP escape sequences to a printer from the Portable and Portable Plus. It supports any ASCII or extended character codes and allows the user to customize the strings sent.

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

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

Correction: The escape sequence ESC&100 should be ESC&l0O, which is Escape Ampersand Lowercase-ell Zero Capital-oh

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

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

Correction: The string \027E\027&184plo2H \027&k2S should be \027E\027&l[lowercase-ell]84p1[one]o2H\027&k2S

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

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

Correction: The Capital-Oh's in these escape sequences should be Zeros.

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

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

Correction: The escape sequence should be: ESCEESC&l14c1[one]e7.64c66F

Vectra: Keyboard Sequences

Mike Hachigian

Encyclopedia Articles	This is the first Encyclopedia article covering keyboard sequences for Vectra users.
	There are several keyboard sequences on Vectra that few people know about. After reading this article you shall become one of those people who know how to get a little bit more out of the Vectra keyboard.
Another Warm Boot	**Press "CTRL" "Alt" "Sysreq"** This sequence is a relative of the warm boot ("CTRL" "Alt" "DEL"). It will often reboot the machine when the warm boot does not seem to function—you can use it instead of powering down the machine. This sequence also causes the self test to be executed. Compared to the warm boot, this sequence operates more reliably and clears the machine more effectively, but takes a little more time to work.
ASCII	**Hold down "Alt", Type a number between 0 and 255 (numeric keypad), Release "Alt"** This sequence allows you to generate any ASCII character by entering it's numeric equivalent on the numeric keypad. To try an example, when Vectra asks for input, hold down the "Alt" key, enter 86 on the numeric keypad, and release the "Alt" key. When the Alt key is released the letter "R" will appear. This is because 86 is the ASCII numeric code for "R." For a complete list of all of the ASCII codes, look in the Vectra BASIC Manual, HP 45952A.
Key Click Volume	**Hold down "CTRL" "Alt" and Press " + "** This sequence will gradually increase the volume of the key click until the maximum volume is achieved. **Hold down "CTRL" "Alt" and Press " − "** This sequence will gradually decrease the volume of the key click. It can be used to turn off the key click.

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Vectra ... Manual
Corrections and Updates

Ralph Woodley

Encyclopedia Articles	This is the first Encyclopedia article covering corrections to the *Connecting Peripherals to Vectra* and the *Setting Up Vectra* manuals.
Connecting Peripherals	If you have the First Edition (8/85) of *Connecting Peripherals to Vectra*, please note the following correction.

Page 5-37: The plotter test program shown on the lower half of the page has an incorrect character in it that will prevent the program from running correctly. The character is Ñ.

In order for the program to be executed correctly, you must change the "Ñ" to a "#" as shown below:

```
10 OPEN "COM1:2400,N,8,1,RS,CS65535,DS,CD" AS #1
20 PRINT #1, "IN;SP1;PA500,500;"
30 PRINT #1, "LBCOMMUNICATION OK," +CHR$(3)
40 PRINT #1; "PA0,0;SP0;"
50 END
```

Setting Up

If you have the First Edition (8/85) of *Setting Up Vectra*, please note the following corrections.

Page 4-53: Figure 4-51 shows two possible settings for the HP 88500A Disc Tape Interface Card. Disregard the left half, or "with 40 MB" part, of the illustration. You do NOT need to change the factory-set ROM address of the card when you have both the Disc Tape Interface Card and the 40 MB Internal Hard Disc installed in your HP Vectra PC.

Page 4-86: Figure 4-81 shows two possible settings for the HP 45816A 40 MB Hard Disc Controller Card. Disregard the right-most, or "with Disc/ Tape Interface" part, of the illustration. You do NOT need to change the factory-set ROM address of the card when you have both the 40 MB Internal Hard Disc and the Disc Tape Interface Card installed in your HP Vectra PC.

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Manual Correction:
Setting You Free with
Executive MemoMaker/150

Denise Lau

Encyclopedia Articles	This is the second Encyclopedia article on Executive MemoMaker/150. The first Encyclopedia article, in Issue 14, provides information on data files, integration features, and data transfer procedures.
Other *Communicator* **Articles**	In Issue 10 of the *HP PC Series 100 Communicator,* there is an article on MemoMaker titled "Moving Blocks of Text in MemoMaker on the 150."
Product Description	Executive MemoMaker, like MemoMaker is a simple, easy to learn word processor. It combines the familiar MemoMaker features with new features, such as: ■ The option to read and store documents in either ASCII or MemoMaker format ■ MemoSpeller—a spelling checker/corrector ■ Used in conjunction with the Graphics Gallery products, the ability to merge text and graphics
Manual Correction to *Setting You Free...*	*Setting You Free with Executive MemoMaker/150,* pgs. 1/4–1/5, states that you can install the Master + Gold + Dictionary discs on the same double-sided disc. That is incorrect. For the correct information refer to the copying instructions in the *Setting Up Your Software* Executive MemoMaker manual.

□

WordStar:
Article Correction   Joe McDonough

Encyclopedia Articles	This is the third Encyclopedia article on the WordStar.® Use this article in conjunction with articles in Issue #11 and #13.
Other *Communicator* **Articles**	–"LaserJet Support under MultiMate and WordStar" .... Issue #12 –"WordStar: Installing Multiple Copies on One Fixed Disc" .... Issue #13 –"WordStar: Installing Multiple Copies on One Flexible Disc" .... Issue #13 –"WordStar: Letter Quality Printing with an Okidata Printer" .... Issue #14 –"WordStar: Underlining with an Okidata Printer" .... Issue #14
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.
Article Correction	In Issue #13, there is an error in the article "WordStar: Installing Multiple Copies on One Flexible Disc." On page 20, step #4 part #1 reads **INTERNAL (Label that will appear on PAM menu).** That is incorrect. It should read **LANDSCAPE (Label that will appear on PAM menu).**

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Computer
Museum

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.
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.

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Get in Touch	To get in touch with Vectra PC, Touchscreen/150, HP 12x, 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	**Standard Membership** includes a subscription to the magazine *Professional Computing*, a subscription to the *Interrupt* newsletter, and one disc from the Interex Contributed Software Library. Standard Membership: 　North America . . . . $70 　Outside North America $120
How to Join	To join, fill out the form on the next page. For more information, contact: 　Interex Membership Department 　680 Almanor Ave. 　Sunnyvale, CA 94089 　U.S.A. 　Telephone 408/738-4848 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*

**Of this fee, $15 is allocated for a subscription to* Professional Computing.

Payment Method:

☐ Check Enclosed   Check Number _____
                      (if a company check)

☐ Bill Visa # _____ Expires _____

☐ Bill MasterCard # _____

    Interbank # _____ Expires _____

Member Information:

Name _____

(Title) _____

(Company) _____

Address _____

City _____ State _____ ZIP _____

Country _____

Telephone _____

Computer: ☐ The Portable (HP 110)   ☐ HP 120 or HP 125
                    ☐ HP Touchscreen/150   ☐ Vectra 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 _____ HP 9000/Series 200

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.

Touchscreen/150 Software Available from HP

Marilyn Ruel
Suzy Pollock

To determine which U.S. products are recommended for use with localized computers, check with your dealer or HP office.

Name	Product Number	Uses HP Touch	Special Requirements
ACCOUNTING:			
BPI General Accounting	45455A		
BPI Accounts Receivable	45456A		
BPI Accounts Payable	45457A		
BPI Inventory Control	45460A		
BPI Job Cost/150	45461A		
BPI Payroll	45458A		
BPI Personal Accounting	45459A		
COMMUNICATIONS:			
AdvanceLink—U.S.	45431A	●	
—German	45431AD	●	
Dow Jones Spreadsheet Link	45511D		
DSN/Link—German	45425AD	●	
—Spanish	45425AE	●	
—French	45425AF	●	
—Dutch	45425AH	●	
—Latin American	45425AM	●	
—Swedish	45425AS	●	
—Finnish	45425AX	●	
HPMessage	36568A	●	Corresponding 3000 software required
IBM 3278 Term. Emul. Acces.	45641B	●	
OfficeShare Network Server	50902A		Dedicated PC Plus User S/W Network Server
OfficeShare Network User	50903A		
Transend COMplete	45414A	●	
VT100 Terminal Emulator	45412A		
DATA BASE MANAGEMENT:			
Condor3	45416A	●	
dBASEII—U.S.	45468D		
—French	45468AF		
—German	45468AD		
Executive Card Manager	45421A	●	
ECM: Templates	45441D	●	
HP Access	36898A	●	Corresponding 3000 software required
Pers. Card File—Afrikaans	45422AA	●	
—German	45422AD	●	
—Spanish	45422AE	●	
—French	45422AF	●	
—Dutch	45422AH		

Name	Product Number	Uses HP Touch	Special Requirements
—Latin Amer.	45422AM	●	
—Norwegian	45422AN	●	
—Swedish	45422AS	●	
—Finnish	45422AX	●	
—Danish	45422AY	●	
—Italian	45422AZ	●	
PFS:File and PFS:Report	45488A	●	
R:Base 4000*	45545A		
R:Base 5000*	45563A		512K

ENGINEERING DESIGN:

AutoCAD	47956A		512K

GRAPHICS:

Name	Product Number	Uses HP Touch	Special Requirements
Diagraph	45463A	●	
Charting Gallery—U.S.	45513A	●	
—German	45513AD	●	
Drawing Gallery—U.S.	45411A	●	384K
—German	45411AD	●	384K
Gallery Pic. Library, Vol. II	45433A		
Gallery Collection—U.S.	45437A	●	384K
—German	45437AD	●	384K
—Italian	45437AZ	●	384K
GraphPlan by Chang Labs	45467A	●	
Graphwriter Basic Set	45484A	●	
Painter	45540A	●	
Picture Perfect	45462A	●	
PFS:Graph	45490A	●	
S/100 Graphics—Afrikaans	45410AA	●	
—Spanish	45410AE	●	
—French	45410AF	●	
—Dutch	45410AH	●	
—Latin Amer.	45410AM	●	
—Norwegian	45410AN	●	
—Swedish	45410AS	●	
—Finnish	45410AX	●	
—Danish	45410AY	●	
—Italian	45410AZ	●	

INTEGRATED SOLUTIONS:

Name	Product Number	Uses HP Touch	Special Requirements
ExecuDesk—U.S.	45444A	●	
—German	45444AD	●	
—Danish	45444AY	●	
—Italian	45444AZ	●	
ExecuDesk System	45442A	●	384K
Symphony from Lotus*	45498A	●	

Name	Product Number	Uses HP Touch	Special Requirements
PROGRAMMING LANGUAGES AND DEVELOPMENT TOOLS:			
BASIC by Microsoft	45445D		
BASIC Programmer's Library	45310A		
COBOL by Microsoft	45448A		
Compiled BASIC by Microsoft	45446D		
Cross Reference Utility	92248BA		
Forms Master	45443A	●	
FORTRAN by Microsoft	45449D		
GW-BASIC by Microsoft	45450D	●	
ICON Design System	45311A	●	
Lattice C Compiler	45452D		
Pascal by Microsoft	45447D		
Programmer's Tools	45435A		
SPREADSHEETS:			
1-2-3 from Lotus*	45482A		
Financial Calculator	45423A		
MicroPlan	45465A	●	
MicroPlan Conso. Module	45466A		
Microsoft Multiplan	45473D	●	
Deluxe Visicalc/150—U.S.	45405A	●	
—French	45405AF	●	
Visicalc/150—Afrikaans	45405AA	●	
—German	45405AD	●	
—Spanish	45405AE	●	
—Dutch	45405AH	●	
—Latin American	45405AM	●	
—Norwegian	45405AN	●	
—Swedish	45405AS	●	
—Finnish	45405AX	●	
—Danish	45405AY	●	
—Italian	45405AZ	●	
UTILITIES:			
HP PLCPak	33406A		
Print Central/150	36890A		Corresponding 3000 software required

Name	Product Number	Uses HP Touch	Special Requirements
WORD PROCESSING:			
HPWORD/150 U.S. English	27505A	●	512K
HPWORD/150 U.K. English	27505AB		
Executive MemoMaker U.S.	45418A	●	
Executive MemoMaker— German	45418AD		
Executive MemoMaker— Italian	45418AZ		
MemoMaker—Afrikaans	45420AA	●	
—German	45420AD	●	
—Spanish	45420AE	●	
—French	45420AF	●	
—Dutch	45420AH	●	
—Latin Amer.	45420AM	●	
—Norwegian	45420AN	●	
—Swedish	45420AS	●	
—Hebrew	45420AT	●	
—Arabic	45420AV	●	
—Finnish	45420AX	●	
—Danish	45420AY	●	
—Italian	45420AZ	●	
Microsoft SPELL	45556D	●	
Microsoft WORD	45474D	●	
MultiMate*	45424A	●	
PFS:Write	45489A	●	
WordStar—U.S.*	45400D	●	
WordStar Professional*	45427D		384K + dual double sided disk drive
WordStar Professional Options*	45429D		384K + dual double sided disk drive
European WordStar/MailMerge Combo:			
—U.K. English	45313AB		
—German	45313AD		
—Spanish	45313AE		
—French	45313AF		
—Dutch	45313AH		
—Norway	45313AN		
—Swedish	45313AS		
—Finnish	45313AX		
—Danish	45313AY		
—Italian	45313AZ		

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*Available only from HP, not from dealers.

**Vectra PC Software
Available from HP**

Marilyn Ruel, Suzy Pollock
Audrey Stroub, Patty Brenner

To determine which U.S. products are recommended for use with localized computers, check with your dealer or HP office.

Name	Product #	Uses HP Touch	Special Requirements
COMMUNICATIONS:			
AdvanceLink 2392	68333F		
HP IRMA IBM3278/79 Term Emul	50920A		
HPMessage	36569E		Corresponding 3000 software required
OfficeShare Network Server	50902F		Dedicated PC Plus user software
OfficeShare Network User	50903F		Network Server
DATA BASE MANAGEMENT:			
Executive Card Manager (ECM)	68331F	●	
ECM: Templates	68335F	●	
HP Access	36898F	●	Corresponding 3000 software required
R:Base 5000	68336F		
GRAPHICS:			
TextCharts	45406E		
INTEGRATED SOLUTIONS:			
Symphony from Lotus	68339F		
PROGRAMMING LANGUAGES AND DEVELOPMENT TOOLS:			
MS BASIC Compiler	35190B		
MS BASIC Interpreter	35190A		
MS C Compiler	35186E		
MS COBOL Compiler	35186B		
MS FORTRAN Compiler	35186C		
MS Pascal Compiler	35186D		
SPREADSHEETS:			
1-2-3 from Lotus	68340F		
Executive Spreadsheet	68332F	●	
UTILITIES:			
HP PLC PAK	33406B		
Print Central/Vectra	36890F		Corresponding 3000 software required
Laser Control 100	35190J		

Name	Product #	Uses HP Touch	Special Requirements
WORD PROCESSING:			
AdvanceWrite I	27506F		
AdvanceWrite II	27507F		
AdvanceWrite III	27508F		
Executive MemoMaker	68330F	●	
MS Word	35190D		
MultiMate	68338F		
MultiMate Advantage	68343F		
WordStar	68345F		
WordStar Professional	68346F		
WordStar 2000	68341F		
WordStar 2000 Plus	68342F		
MISCELLANEOUS:			
Millionaire: Stock Market Simulation	922458A		
Sargon III	35182F		
Teach Yourself WordStar	35190G		
ThinkTank	35190H		
Tycoon: Commodities Market Simulation	92245EA		
Typing Tutor III	35190F		
Zork I	35180F		
Baron: Real Estate Simulation	92245AA		
Flight Simulator	35183F		
Harvard Project Manager	35190E		
Hitchhiker's Guide: Interactive Fiction	35181F		

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Jane Blando

To determine which U.S. products are
recommended for use with localized computers,
check with your dealer or HP office.

Name	Product Number	Portable	Portable Plus
ACCOUNTING:			
Rags to Riches Ledger	45520C	●	
Rags to Riches Sales	45521C	●	
Rags to Riches Receivables	45522C	●	
Rags to Riches Payables	45523C	●	
COMMUNICATIONS:			
Dow Jones Spreadsheet Link	45511D	●	
PC2622 for Portable PLUS	82861K		
	Opt.400		ROM
Reflection 1	82863K		
	Opt.400		ROM
DATA BASE MANAGEMENT:			
d:BASEII	45468D	●	●
Executive Card Manager	45555K		ROM
	Opt. 400		
PROGRAMMING LANGUAGES AND DEVELOPMENT TOOLS:			
BASIC by Microsoft	45445D	●	
BASIC by Microsoft	82862K		
	Opt. 400		ROM
Compiled BASIC by Microsoft	45446D	●	●
FORTRAN by Microsoft	45449D	●	●
GW-BASIC by Microsoft	45450D	●	
Lattice C Compiler	45452D	●	●
Pascal by Microsoft	45447D	●	●
Programmer's Tools	45419C	●	●
SPREADSHEETS:			
1-2-3 from Lotus	45548K		
	Opt. 400		ROM
Microsoft Multiplan	45473D	●	

Name	Product Number	Portable	Portable Plus
WORD PROCESSING:			
MemoMaker/Time Management	45504K		
	Opt. 400		ROM
Microsoft SPELL	45556D	●	●
Microsoft WORD	45474D	●	
Microsoft WORD	45549K		
	Opt. 400		ROM
WordStar	45400D	●	
WordStar Prof.	45427D	●	
WordStar Prof. Opts.	45429D	●	
MultiMate	45554K		ROM
	Opt. 400		
PERSONAL SOLUTIONS:			
The Calendar	35151D	●	
The List Mgr.	35152D	●	
Correspondence Pac	35156D	●	
Mind Prober	35161C	●	
Organizer Pac	35157D	●	
The Planner	35155D	●	
The Speller	35154D	●	
The Writer	35153D	●	
GAMES:			
Adventure	92243D	●	●
Baron	92243KA	●	●
Cutthroats	92244AA	●	●
Deadline	92243VA	●	●
Enchanter	92243VA	●	●
Hitchhikers Gde.	92244BA	●	●
Infidel	92243WA	●	●
Planetfall	92243PA	●	●
Seastalker	92243ZA	●	●
Sorceror	92243YA	●	●
Starcross	92243DA	●	●
Suspect	92244CA	●	●
Suspended	92243FA	●	●
The Witness	92243QD	●	●
Zork I	92243QA	●	●
Zork II	92243RA	●	●
Zork III	92243TA	●	●

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Product Name	Touchscreen/150: Product #	Superseded by:
DATABASES:		
DSN/Link—U.S. English	45425A	AdvanceLink/150—45431A
—U.K. English	45425AB	AdvanceLink/150—45431A
Condor 1	45415A	Condor 3—45416A
Condor 1 to 3 Upgrade	45417A	Condor 3—45416A
dBASE II/150	45468A	dBASE II—45468D
Personal Card File/150	45422A	Executive Card Manager—45421A
GRAPHICS:		
Charting Gallery/Executive MemoMaker Bundle	45440A	Sold separately: Charting Gallery—45513A and/or Executive MemoMaker—45418A
Series 100 Graphics—U.S.	45410A	Charting Gallery—45513A
—German	45410AD	German Charting Gallery—45513AD
PROGRAMMING:		
BASIC by Microsoft/150	45445A	BASIC by Microsoft—45445D
Compiled BASIC/150	45446A	Compiled BASIC—45446D
FORTRAN by Microsoft/150	45449A	FORTRAN by Microsoft—45446D
GW-BASIC by Microsoft/150	45450A	GW-BASIC by Microsoft—45450D
Pascal by Microsoft/150	45447A	Pascal by Microsoft/150—45447D
SPREADSHEETS:		
Context MBA/150	45481A	None
Microsoft Multiplan/150	45473A	Microsoft Multiplan 45473D
VisiCalc/150—U.S. English	45405A	Deluxe VisiCalc/150—45405A
—French	45405AF	French Deluxe VisiCalc/150—45405AF
WORD PROCESSING:		
MemoMaker/150—U.S. English Touchscreen	45420A	Executive MemoMaker/150—45418A

Product Name	Product #	Superseded by:
WordStar/150—U.S. English	45400A	WordStar—45400D
—U.K. English	45400AB	U.K. WordStar/MailMerge Combo—45313AB
—German	45400AD	German WordStar/ MailMerge Combo— 45313AD
—Spanish	45400AE	Spanish WordStar/MailMerge Combo—45313AE
—French	45400AF	French WordStar/MailMerge Combo–45313AF
—Dutch	45400AH	Dutch WordStar/MailMerge Combo—45313AH
—Norwegian	45400AN	Norwegian WordStar/ MailMerge Combo— 45313AN
—Swedish	45400AS	Swedish WordStar/ MailMerge Combo—45313AS
—Finnish	45400AX	Finnish WordStar/MailMerge Combo—45313AX
—Danish	45400AY	Danish WordStar/MailMerge Combo—45313AY
—Italian	45400AZ	Italian WordStar/MailMerge Combo—45313AZ
MailMerge—U.S. English	45401A	Included in WordStar Professional—45427D or Professional Options— 45429D
—U.K. English	45400AB	U.K. WordStar/MailMerge Combo—45313AB
—German	45400AD	German WordStar/ MailMerge Combo— 45313AD
—Spanish	45400AE	Spanish WordStar/MailMerge Combo—45313AE
—French	45400AF	French WordStar/MailMerge Combo–45313AF
—Dutch	45400AH	Dutch WordStar/MailMerge Combo—45313AH
—Norwegian	45400AN	Norwegian WordStar/ MailMerge Combo— 45313AN
—Swedish	45400AS	Swedish WordStar/ MailMerge Combo—45313AS
—Finnish	45400AX	Finnish WordStar/MailMerge Combo—45313AX

Product Name	Product #	Superseded by:
—Danish	45400AY	Danish WordStar/MailMerge Combo—45313AY
—Italian	45400AZ	Italian WordStar/MailMerge Combo—45313AZ
SpellStar	45402A	SpellStar has been superseded by CorrectStar which is included in WordStar Professional—45427D and/or Professional Options—45429D. An Upgrade kit is available from CorrectStar to SpellStar for users with a dual single-sided disc drive.
WordStar/MailMerge/ SpellStar Combo	45404A	Superseded by WordStar Professional—45427D.

HP Vectra PC and/or IBM PC/XT/AT:

Product Name	Product #	Superseded by:
DATA COMMUNICATIONS:		
AdvanceLink	45431E	AdvanceLink 2392—68333F
Monitor/IBM PC	45439A	AdvanceLink 2392—68333F
DATABASES:		
Personal Card File	45422E	Executive Card Manager—68331F

The Portable or the Portable Plus:

Product Name	Product #	Superseded by:
DATABASES:		
DataFax	45408C	None

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Here is a list of the most popular HP PC supplies and accessories.

A full list of HP computer supplies matched to your system for optimum performance appears in the *HP Computer User's Catalog*.

For ordering information—or to obtain a copy of the *User's Catalog*—refer to the "How To Order" section in this Current Information section.

For Computers

■ The Portable

13269K	Vinyl replacement case
13269U	Carrying case—Leather
13269V	System carrying case
13269W	Attaché case
13269Z	Leather briefcase
92221P	RS232C printer cable (1.5 meters)
92221M	RS232C modem cable (1.5 meters)
92222F	RS232C gender converter (female)
92222M	RS232C gender converter (male)
82167A	HP-IL cable (0.5 meters)

■ HP 120 Personal Computer

13242H	RS-232C cable (use 13242-60011 for replacement)
13269P	Carrying case (for HP 120 with short keyboard plus 9121 disc drive; or HP 120 with extended keyboard)
92171C	Keyboard drawer park
92171J	Keyboard park—large
92171T	System turntable
82167B	HP-IL cable (1.0 meter)
92240A	Display tilt unit
92240B	Display swivel unit
92250D	Dust cover
92220R	Right-angle HP-IB cable (0.3 meters long)
92251P	"Stacked" dust cover (for computer and disk drive)

■ HP 125 Personal Computer

92160A	Thermal paper, blue print (box of 24 rolls)
92160B	Thermal paper, black print (box of 24 rolls)
92171C	Keyboard drawer park
92171R	Keyboard palm rest (for extended keyboard)
92171T	System turntable
92207A	Anti-glare filter
92250B	Dust cover

■ HP 150 Touchscreen Personal Computer

92160A	Thermal paper, blue print (box of 24 rolls)
92160B	Thermal paper, black print (box of 24 rolls)
92160C	Thermal paper, (page-perforated, box of 24 rolls)
13242H	RS-232C cable (use 13242-60011 for replacement)
13269BB	Carrying case for Touchscreen

13269C	Carrying case (for HP 150 and 9121 disc drive)
92250F	Dust cover for 150
92250K	Dust cover for Touchscreen
92171C	Keyboard drawer park
92171J	Large (extended) keyboard park
92171X	ThinkJet printer stand for top of display
92208A	Mobile PC Centre
92240A	Light-gray tilt unit
92240B	Light-gray swivel unit
92220R	Right-angle HP-IB cable (0.3 meters long)

■ HP Vectra PC

24542D	Parallel printer cable for the Vectra PC (2 meters)
24542G	Serial printer cable for the Vectra PC (3 meters)
24542H	Serial plotter cable for Vectra PC to 7550 plotter
24542M	U.S./European modem cable (3 meters) for the Vectra PC
35178A	Vectra PC three-piece carrying case
45741A	Monochrome video extension cable
45742A	Color video extension cable
45986A	Security System Lock
45989A	Floor Stand
92171X	ThinkJet printer stand for top of display
92171Z	Vectra PC keyboard park
92190X	High-capacity 5.25-inch flexible discs, 1.2 MB formatted capacity for use on the Vectra PC's high capacity internal disc drive (box of 10 discs)
92190A	5.25-inch flexible discs, 360 KB formatted capacity (box of 10 discs)
92208A	Mobile PC Centre
92259A	Vectra PC dust cover for monochrome monitor and keyboard
92259B	Vectra PC dust cover for color monitor and keyboard

For Disc Drives

■ HP 82901M/S, 82902M/S, 9130A, 9135A 5.25-inch Disc Drives

92190A	5.25-inch flexible discs, double-sided (box of 10 discs)
92190L	5.25-inch flexible discs in Flex Files
92193K	5.25-inch flexible-disc drive-cleaning kit
92194N	5.25-inch rolltop file (capacity 120 discs)
92251A	Dust cover (82901M/S)
92251B	Dust cover (82902M/S)

■ HP 9121D/S, 9133A/B, 9133V/XV, 9134 3.5-inch Disc Drives; 9114A, 9122D, 9122S, and 9133D Disc Drives

92191A	3.5-inch micro flex discs—single-sided (box of 10)
92192A	3.5-inch micro flex discs—double-sided (box of 10)
92191D	3.5-inch micro flex disc desktop file (capacity 50)
92191H	3.5-inch micro flex disc album (capacity 20) (replaces 92191C)
92191R	3.5-inch micro flex disc roll-top file (capacity 50)
92251D	Dust cover (9121 D/S)
13269T	Disc-drive case for 9121

For Printers

■ HP 2225A/B/C/D ThinkJet

92261A	Individual printhead ink cartridge
92261D	Accessory Kit (2 print heads, 500 sheets fanfold paper, 500 sheets cut paper, 1 dust cover & 1 printer stand)
92261L	Fan-folded ink-jet paper (1000 sheets)
92261M	Cut-sheet ink-jet paper (four 500-sheet packs)
92261N	Fan-folded ink-jet paper (five 500-sheet packs)
92261S	Desktop ThinkJet printer stand
92171X	Terminal top ThinkJet printer stand for 239X series terminals
92250V	Dust cover
13269TT	Carrying case

■ HP 2601A Daisywheel Printer

92151C	Multi-strike ribbon cartridges (box of 12 cartridges)
92151D	Fabric ribbon cartridges (box of 12 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated fan-folded (box of 2400 sheets)
92177C	Sound enclosure
92210P	Printer stand
92177Q	Sheet-feeder
92252 Series	Plastic print wheels, 96 character (box of 6 wheels)
92153 Series	Metal print wheels (1 each)

■ HP 2602A Daisywheel Printer

92151H	Multi-strike ribbon cartridge (box of 12 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92177D	Sound enclosure
92157C	Printer paper, microperforated fan-folded (box of 2400 sheets)
92177R	Sheet-feeder
92262 Series	Plastic print wheels, 98-character, USASCII
92263 Series	Plastic print wheels, 98-character, International
92264 Series	Plastic print wheels, HP 150 International Keyboard Support

■ HP 2932A/2934A Dot-Matrix Printer

92154B	Print head (average life of 200 million characters)
92155L	Ribbon cartridges (box of 3 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated, fan-folded (box of 2400 sheets)
92155M	OCR ribbon cartridge—for bar code applications (box of 3 cartridges)
92214P	Mobile printer stand

■ HP 2671A/G and 2673A Thermal Printers

92160A	Thermal paper, blue print (box of 24 rolls)
92160B	Thermal paper, black print (box of 24 rolls)
92160C	Thermal paper, blue print, page perforated (box of 24 rolls)
92160D	Thermal paper, black print (box of 4 rolls)
92160E	Thermal paper, black print (box of 330 fan-folded sheets)
92160M	Thermal paper, blue print (box of 1320 fan-folded sheets)
92160N	Thermal paper, black print (box of 1320 fan-folded sheets)

■ HP 2686A LaserJet Printer

92219H	RS232C cable to HP 150 (5 meters)
92219J	RS232C cable to IBM PC (5 meters)
92214P	Mobile printer stand
92215F	RS232C extension cable (15 meters)
92215T	RS232C extension cable (30 meters)
92285A	Toner (EP) cartridge—black
92285G	Toner (EP) cartridge—brown
92285B	8.5″ x 11″ paper tray
92285C	8.5″ x 14″ paper tray
92285F	LaserJet forward collator
92285D	Metric A4-size paper tray
92285E	Metric B5-size paper tray
92285P	Font Organizer
92286A	Plug-in type-font cartridge (Courier and Line Printer, compressed)
92286B	Plug-in type-font cartridge (Proportional Spacing)
92286C	Plug-in type-font cartridge (International Courier)
92286D	Plug-in type-font cartridge (Prestige Elite)
92286E	Plug-in type-font cartridge (Letter Gothic)
92286F	Plug-in type-font cartridge (Proportional Spacing II)
92286G	Plug-in type-font cartridge (Legal Elite)
92286J	Plug-in type-font cartridge (Math Elite)
92286H	Plug-in type-font cartridge (Legal Courier)
92286L	Plug-in type-font cartridge (Courier and Line Printer)
92286M	Plug-in type-font cartridge (Prestige Elite P + L)
92286N	Plug-in type-font cartridge (Letter Gothic P + L)
92286P	Plug-in type-font cartridge (Tms Rmn P + L)
92286Q	Plug-in type-font cartridge (Memo 1)
92286T	Plug-in type-font cartridge (Tax)
92286U	Plug-in type-font cartridge (Forms, "portrait"-style)
92286V	Plug-in type-font cartridge (Forms, "landscape"-style)

■ HP 82905A/B Dot-Matrix Printer

92156A	Ribbon cartridges (box of 2 cartridges)
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated, fan-folded
92154P	Print head
92171S	Desktop printer stand
92250T	Dust cover

■ HP 82906A Dot-Matrix Printer

92156A	Ribbon cartridges (box of 2 cartridges)
92154N	Print head
92171N	Forms tractor unit
92157A	Printer paper, fan-folded (box of 2400 sheets)
92157C	Printer paper, microperforated, fan-folded (box of 2400 sheets)
92171S	Desktop printer stand

For HP 7470A and 7475A Plotters

■ Paper

9280-0589	Fifty A-size sheets (blank)
9280-0517	Three hundred A-size sheets (blank)
9280-0588	Fifty A4-size sheets (blank)
9280-0519	Three hundred A4-size sheets (blank)
9280-0614	Fifty B-size sheets (blank)
9280-0518	Three hundred B-size sheets (blank)
9280-0615	Fifty A3-size sheets (blank)
9280-0610	Three hundred A3-size sheets (blank)
9280-0640	Fifty A-size sheets (gloss-finish heavy-weight)
9280-0642	Fifty A4-size sheets (gloss-finish heavy-weight)
9280-0641	Fifty B-size sheets (gloss-finish heavy-weight)
9280-0643	Fifty A3-size sheets (gloss-finish heavy-weight)

■ Paper-and-Pen Kits

5061-5070	Three hundred A-size sheets; pen holder; 20 fiber-tip pens (10 colors, 2 line-widths)
5061-5071	Three hundred A4-size sheets; pen holder; 20 fiber-tip pens (10 colors, 2 line-widths)

■ Transparency Film

17700T/9270-1126	Fifty A-size sheets (for the 7470A plotter)
17701T/9270-1181	Fifty A-size sheets (for the 7475A plotter)
17702T/9270-1182	Fifty A4-size sheets (for the 7475A plotter)

■ Transparency Kits

5061-7561	Fifty sheets of paper-backed A-size transparency film; 16 pens (7 colors, 2 tip-widths) (for the 7470A plotter)
5061-7583	Fifty sheets of paper-backed A-size transparency film; 16 pens (7 colors, 2 tip-widths) (for the 7475A plotter)
5061-7584	Fifty sheets of paper-backed A4-size transparency film; 16 pens (7 colors, 2 tip-widths) (for the 7475A plotter)

■ Fiber-Tip Pens (for use with paper)

5060-6784	Narrow line-width (0.3-mm) red pen (package of 5)
5060-6785	Narrow line-width (0.3-mm) blue pen (package of 5)
5060-6786	Narrow line-width (0.3-mm) green pen (package of 5)
5060-6787	Narrow line-width (0.3-mm) black pen (package of 5)
5060-6890	Wide line-width (0.7-mm) black pen (package of 5)
5060-6891	Wide line-width (0.7-mm) blue pen (package of 5)
5060-6892	Wide line-width (0.7-mm) green pen (package of 5)
5060-6893	Wide line-width (0.7-mm) red pen (package of 5)
5060-6810	Narrow line-width (0.3-mm) pens (package of 4: one each red, blue, green, and black)
5060-6858	Wide line-width (0.7-mm) pens (package of 4: one each red, blue, green, and black)
5060-6894	Narrow line-width (0.3-mm) pens (package of 6: one each orange, brown, violet, turquoise, gold, lime green)
5060-6895	Wide line-width (0.7-mm) pens (package of 6: one each orange, brown, violet, turquoise, gold, lime green)

■ Transparency Pens (for use with film)

5061-5010	Narrow line-width (0.3-mm) black pen (package of 5)
5061-5012	Narrow line-width (0.3-mm) red pen (package of 5)
5061-5015	Narrow line-width (0.3-mm) green pen (package of 5)
5061-5016	Narrow line-width (0.3-mm) blue pen (package of 5)
5061-5020	Wide line-width (0.7-mm) black pen (package of 5)
5061-5022	Wide line-width (0.7-mm) red pen (package of 5)
5061-5025	Wide line-width (0.7-mm) green pen (package of 5)
5061-5026	Wide line-width (0.7-mm) blue pen (package of 5)
5060-6818	Narrow line-width (0.3-mm) pens (package of 4: one each red, blue, green, and black)
5060-6819	Wide line-width (0.7-mm) pens (package of 4: one each red, blue, green, and black)
5060-6834	Narrow line-width (0.3-mm) pens (package of 4: one each orange, brown, violet, and black)
5060-6835	Wide line-width (0.7-mm) pens (package of 4: one each orange, brown, violet, and black)

■ Solvent

5060-6828	One ounce (29.6 ml) of solvent for refreshing dry transparency pens

■ Accessories

92171S	Desktop stand (7470A)
92177V	Personal Plotter-pen organizer (for fiber-tip pens)
92177T	Plotter-pen organizer (for short pens)
92177U	Plotter-pen organizer (for tall pens)
92177W	ColorPro (7440A) graphics organizer
92177X	7475A graphics organizer
92250N	Dust cover (7470A)
92214P	Mobile support stand (7475)

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Hewlett-Packard personal business computers and their application programs are designed for ease of use and ease of learning. Classroom training courses can help first-time computer users rapidly build confidence and gain new skills in a supportive environment away from the day-to-day job.

HP-Conducted Introductory Courses

Hewlett-Packard provides Series 100 training courses at HP Customer Training Centers using HP-provided equipment; they can also be taught by HP at your facility using your own systems. To order, call your HP Sales and Service Office.

■ *Introduction to Personal Computers*

For managers and professionals with limited knowledge of personal computers. Content: General personal computer usage including basic computer literacy, lots of hands-on use of VisiCalc® hands-on use of word processing and graphics; summary of how PCs can work for you.

35119A (1 day)

■ *Getting Started With the Portable*

If you're a novice computer user interested in learning how to use the HP Portable, this workshop is for you. It includes instruction on P.A.M., MemoMaker, and Terminal, along with an introduction to Lotus™ 1-2-3™ and Personal-Desktop Link. You'll get hands-on experience with the computer, the built-in applications, and HP-IL peripherals.

35036C (1 day)

■ *Getting Started with your HP 150*

This workshop was created especially for beginners—so your first experience with your new computer will be a positive one. You'll learn how to define basic computer terms, start up the system, handle discs properly, prepare new discs, and install application software.

35036A (1 day)

This course, or equivalent knowledge, is a prerequisite for all applications and programming training on the HP 150.

- *HP 12x User Course*

  For any user of the HP 120/125. Content:
  Introduction to the HP 12x and the use of
  Word/12x; second day covers Graphics/12x,
  VisiCalc/12x, and DSN/Link/12x.

  35042B (2 days)

  This course, or equivalent knowledge,
  is a prerequisite for all applications and
  programming training on the HP 12x.

**HP-Conducted
Application Courses**

We have structured the curriculum for maximum
flexibility. You can attend whatever functional area
course you want—spreadsheet analysis, word
processing, data base management, or integrated
software—without having to go through material
you are not interested in. For further efficiency,
WordStar/150 and *Condor/150* are each divided into
two modules, allowing you to choose the depth of
understanding you wish to attain.

All of these classes stress hands-on work with
the HP 150 during class time for maximum
effectiveness.

- *Introducing Lotus 1-2-3*

  This introductory workshop familiarizes you
  with the features, worksheet, and command
  structure of Lotus 1-2-3. Using hands-on
  practice, you will learn how to create and
  format a spreadsheet; save a worksheet and
  print a report; create and use a database; and
  create, print, and plot a graph.

  45688A (1 day)

- *VisiCalc/150*

  A solid introduction to the elements of a
  VisiCalc worksheet is provided in this
  workshop. Participants will learn to create,
  edit and print worksheets, identify and use
  16 commands, activate the function keys,
  and store and load worksheets.

  35125A (1 day)

- *WordStar®/150*

  The WordStar® workshop will help you get
  started with word processing and its many
  capabilities. By the end of the workshop you
  will know how to start WordStar, create a new
  document, and then edit, save and print
  documents.

  35123B (1 day)

- *MailMerge and SpellStar/150*

  As a follow-on to WordStar, this workshop shows you how to merge files with MailMerge™ as well as proof your text using the SpellStar™ 20,000 word dictionary. In practice sessions, you will learn how to create a mailing list database and then combine this with text files to print customized letters and memos. The majority of WordStar's dot commands are explained and illustrated.

  35123C (½ day)

- *WordStar/150 and MailMerge/SpellStar/150 are available as a single unit.*

  35123A (1½ days)

- *Condor/150 20-1*

  This workshop will introduce you to Condor™—an easy-to-use, yet powerful database management system. After you understand what a database system is you'll learn how to use one by designing a form for entering data, creating a simple dataset, editing information, sorting and creating simple reports, and reorganizing a dataset.

  35124B (1 day)

- *Condor/150 20-3*

  The Condor 20-3 workshop will provide you with in-depth experience using Condor's advanced database management and report writing capabilities including indexing a new or existing dataset, joining unlike datasets, creating, printing and revising reports, and creating and running a help screen and command procedure.

  35124C (1 day)

- *Condor/150 20-1 and 20-3* can be ordered as a single unit.

  35124A (2 days)

- *HP 150 Applications: Sharing Information*

  Because you may use the same information in different ways, this workshop was created to teach you how to pass information from one software application to another. The following applications are covered: Condor, PCF, MailMerge, MemoMaker, SpellStar, WordStar, Graphics, and WordStar.

  35037A (½ day)

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HP-Conducted Programming Courses	■ HP 12x Programmer training is provided by the *HP 12x Program Development Course,* which covers CP/M®, the specifics of Series 100/BASIC, and the assembly language. This course is designed for those who have programming experience in both BASIC and an assembly language. 34043A (5 days)
HP Customized Training	These courses can be taught at your facility using your own systems—or training to suit your specific needs can be designed and given through HP's Personal Computer Applications Engineering Consulting Service. Contact your HP Sales and Service Office for details.
Dealer-Conducted Courses	Many HP Personal Computer Dealers teach similar courses or arrange for a Hewlett-Packard instructor to teach courses in your area. Contact your dealer for details.

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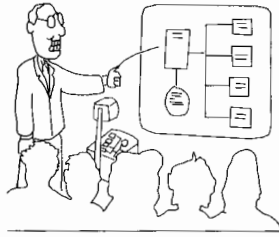
The Classroom Learning Pack is a new concept expressly designed for the instructor of a classroom course on personal computer software. We've developed ready-to-use materials—an instructor's guide, overhead transparencies, and student activity sheets—so that you can quickly prepare for a course. And the course is easy to teach because the focus is on extensive hands-on practice with the software. In some cases, computer based training (CBT) has also been developed and integrated with the learning program.

The first three Packs offered are Classroom Learning Pack for **Executive MemoMaker** on HP Vectra and IBM PC/XT/AT–product number 89912F, Classroom Learning Pack for **Executive Card Manager** on HP Vectra and IBM PC/XT/AT— product number 89913F, and Classroom Learning Pack for **HP Access** on the Touchscreen/150 PC— product number 89914A.

Each course may be taught in approximately four hours. During most of this time the students will be actually using the software and the instructor will be serving as a coach, not a lecturer.

To help you prepare for your role in leading the class, each Classroom Learning Pack includes the corresponding HP FastTrak Guide for expert users. FastTrak is self-study, modular training on such topics as installation, configuration, demonstrations, software features, and integration with other software. You'll be well prepared to answer any questions that come up during class.

Not only will the students practice with the software, they'll also practice using the documentation that accompanies the product. After they leave the class they will be able to find valuable information in the manuals when they need it.

Executive MemoMaker

The Executive MemoMaker Learning Pack covers creating and revising memos, printing documents, using the keyboard, and using MemoSpeller with MemoMaker on Vectra or an IBM PC/XT/AT. Computer based training is used for several lessons and one student training disc (CBT) is included with the Pack. Each workstation in the class will require one training disc. Additional training discs are available in a pack of five as product number 89919F. The CBT may also be given to students to take with them after class for use as a review tool.

Executive Card Manager	The Executive Card Manager Learning Pack includes lessons on creating a cardfile; adding, updating and deleting cards; finding cards; and creating reports. This course may be used for teaching Executive Card Manager on the HP Vectra PC or an IBM PC/XT/AT.
HP Access	The HP Access Learning Pack covers basic database concepts, retrieving data, performing a query, sorting, summarizing, and placing a table in a document. Computer based training is incorporated in this course and one student training disc (CBT) is included with the Pack. Additional training discs are available in packs of five as product number 89921A. The CBT may also be given to students to take with them after class for use as a review tool.
Ordering Information	To order Classroom Learning Packs or Student Training Discs, contact your local HP dealer or HP office.

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HP FastTrak is comprehensive self-study training for user support personnel and expert users. Developed for Hewlett-Packard support personnel, FastTrak guides are now available for any user that desires information beyond the scope of the software documentation.

If you provide support services for personal computer users in your organization, HP FastTrak will make your job easier by helping you learn the ins and outs of the software quickly. Topics covered in each guide include product overview, supported configurations, features and uses, demo tips, integration with other personal computer applications, installation, performance, and technical tips. And, FastTrak is completely modular so you can learn what you want, when you want.

FastTrak can help you provide several software services: product evaluation, installation, configuration, and user support. Experienced end-users will also appreciate a copy for handy reference. The format is consistent with the software documentation to simplify the learning process.

HP FastTrak guides are now available for four software applications:

> Executive MemoMaker (89915F)
> Executive Card Manager (89916F)
> HP Access (89917A) and
> AdvanceLink/AdvanceLink 2392 (89918F).

Each guide covers the Touchscreen/150 and Vectra versions of software. FastTrak for Executive MemoMaker and Executive Card Manager also include diskettes—one in 3½" format and one in 5¼" format—of demonstration files.

To order HP FastTrak, contact your local HP dealer or HP office.

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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"

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"

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

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"

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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"

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"

Issue #13 includes the following major articles:
–"Condor/150: Computations Against Computed
  Values"
–"Condor/150: Sending Escape Sequences to Your
  Printer"
–"Diagraph and Picture Perfect: Positioning
  Multiple Pictures"
–"Lotus 1-2-3: Transferringt Files to and from
  PCF"
–"MS Word: How to PRINT MERGE Data from
  dBASEII"
–"MS Word: How to PRINT MERGE Data from
  Condor"
–"WordStar: Installing Multiple Copies on One
  Fixed Disc"
–"WordStar: Installing Multiple Copies on One
  Flexible Disc"
–"Helpful Hints for Compiling BASIC Programs"
–"Double-Referencing Variables in Compiled
  BASIC"
–"The 64 Dollar/K Question"
–"BASIC Floating Point Internal Representation"
–"BASIC General Purpose Error-Handling
  Routines"
–"A Complete Guide to BASIC Strings"
–"Introducing the Vectra PC"
–"Upgrading Your HP 150A or Touchscreen to a
  Touchscreen II"
–"Independent Software Vendor Program
  Update"
–"Introducing Executive Card Manager"
–"Symphony for the Touchscreen/150"

Issue #14 includes the following major articles:

–"Word/12x: Printing the Unique Spanish
 Characters"
–"WordStar: Letter Quality Printing with an
 Okidata Printer"
–"WordStar: Underlining with an Okidata
 Printer"
–"Running the Vectra SETUP Program"
–"Programming Screen Enhancements on HP
 Vectra PC"
–"Video and the HP Vectra PC"
–"Graphing Data from Your BASIC Program"
–"Assembly Language Subroutines for BASIC
 Programs"
–"Introducing HP OfficeShare PC Local Area
 Network"
–"Introducing the New 1-2-3 for HP Vectra PC"
–"The Executive Series"
–"MicroPro Products for Hp Vectra PC"
–"New Supplies and Accessories"

Issue #15 includes the following major articles:

–"Condor and BASIC: Automatic Processing"
–"The Portable and the COPY CON Command"
–"The Portable: Creating a Backspace/Erase Key"
–"Condor: Using *End in V2.11 Command Files"
–"Using Lattice C with the Portable"
–"Touchscreen/150: Serial Communications"
–"Introducing MultiMate for HP Vectra PC and
 IBM PC/XT/AT"
–"HP Graphics Curator/3000: Touchscreen/150
 and Host Based Graphics"
–"Introducing Classroom Learning Packs"
–"Introducing HP FastTrak Self Study Packs"
–"Touchscreen/150: Upgrade from R:BASE 4000 to
 R:BASE 5000"

Additional copies of this current issue are available:

□

Software Exchange Kits—
Upgrades, Updates, and Replacements
for Damaged Discs

Willi McDowell

This section lists the software exchange kits available for The Portable, HP 120/125, Touchscreen/150, and HP Vectra PC. 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 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.

Touchscreen/150
Software Exchange Kits

Product	Version	Order Part #	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		
OP SYS MASTER:			
European Spanish		45847-63005	
French		45847-63006	
German		45847-63007	
Dutch		45847-63008	
Norwegian		45847-63010	
Swedish		45847-63011	
UK		45847-63012	
Finnish		45847-63013	
Danish		45847-63014	
Italian		45847-63015	

Product	Version	Order Part #	Notes
AdvanceLink	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	
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	
Lotus 1-2-3:			
System Disc	1A.2	45482-63001	
System Disc	1A.2	45482-63004	
Utility	1A.2	45482-63002	
Tutorial 1&2	1A.2	45482-63003	
Printgraph	1A.2	45482-63005	

Product	Version	Order Part #	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	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	
R:Base 4000	1.1	45545-63001	
R:Base 5000	1.1	45563-63002	
SpellStar	A.03.30	45402-63001	
Symphony	1.1		
Prog. Disc, Tutorial, Help		45498-63001	
Printgraph, Utility Discs		45498-63002	
Install Prog., Library Discs		45498-63003	
Tutorial1, Tutorial2 Discs		45498-63004	
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.)

Vectra PC
Media Replacement

Product	Version	Order Part #	Notes
Op Sys Disc		45951A	1
BASIC Interpreter	.	45952A	1
MS-DOS Macro Assembler		45953A	1

Notes

1—Because an exchange kit would be priced at approximately the same price as the original product, the order number is for the original product.

Portable
Software Exchange Kits

Product	Version	Order Part #	Notes
BASIC Interpreter	A.01.01	45445-63002	
BASIC Compiler	A.01.01	45446-63002	
DataFax	A.01.01	45408-63001	
dBASEII	*A.02.41	45468-63001	
Prog. Tools	A.01.00	45419-63001	

*Revised since original release.

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	*A.02.00	45900-13810	45900-15810	April, 1990
Op Sys/Util/12x (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

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:

- Australia . . . . (03) 895-2645
  (03) 895-2615
  (03) 895-2815
  (03) 895-2861

- Austria . . . . (0222) 2500-615
  (0222) 2500-616

- Belgium/Luxembourg . . . . (02) 762 32 00

- Canada
  Toronto local . . . . (416) 671-8383
  Ontario. 1-800-387-3417
  Quebec. 1-800-387-3417
  British Columbia 112-800-387-3154
  Other Provinces 1-800-387-3154

- Denmark . . . . (02) 816640-258

- Finland . . . . (90) 887 2361

- France . . . . (1) 692 83 264
  (1) 690 77 825

- Greece . . . . (81) 6471673

- Italy . . . . (02) 9236 9437
  (02) 9236 9478
  (02) 9236 9585

- Middle East
  Athens . . . . (01) 6828811

- Norway . . . . (02) 171180

- South Africa
  Johannesburg . . . . (011) 8025111
  Cape Town . . . . (021) 537954

- Spain 91-6374013
  91-6370011

- Sweden . . . . (08) 7502028
  (08) 7502027
  (08) 7502204

- Switzerland . . . . (057) 31 22 54
  (857) 31 22 53
  (057) 31 22 59
- The Netherlands . . . . (020) 547 6606
- United Kingdom . . . . (0734) 697201
- United States 800-538-8787
  Alaska, California, and Hawaii . . . 408-738-4133
- West Germany . . . . (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.

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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. 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.

□

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 [   ]

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 _____

Ship To

Company _____

Attn Of _____ Bldg/Room _____

Street Address _____

City _____ State ____ Zip ____

Special Shipping Instructions

_____
_____

Standard
Shipping
Method is
UPS Surface

Use this form for prepaid U.S. orders only

POD 1/84

HEWLETT PACKARD

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

ADDRESS CORRECTION REQUESTED