HEWLETT-PACKARD

The HP Touchscreen Personal Computer Systems Configuration Guide

Working Together: The Touchscreen Personal Computer Systems Configuration Guide

SECTION	PAGE	CONTENTS
	2	Working Together
One	3	Meet the Touchscreen Computer Systems
Two	4	Expanding the Touchscreen System
	5	■ Memory
	6	■ Disc Drives
	7	■ Printers
	8	■ Plotters
	8	■ Accessories
Three	9	Touchscreen Network Capabilities
Four	10	Application Software
Five	11	Moving on Up: Upgrade Options
Six	11	Identifying ROMs and the Operating System

This guide, designed for HP sales and support people and dealers, will help you work together with your customers to develop better business and computer solutions.

The HP Touchscreen Personal Computer offers a wide array of hardware, software, and networking solutions. The HP-supported elements are designed to work together and grow as the customer's needs grow. The result is a friendly, flexible and powerful personal computer system.

The Configuration Guide at a Glance

The guide has been organized to assist you in configuring different elements of the Touchscreen Personal Computer System for everyone from first-time buyers to experienced customers with special requests.

The first four sections of the guide will help you:

- Choose the right Touchscreen system for the customer's needs.
- Expand the system by adding memory, disc drives, printers, plotters, or accessory cards.
- Develop a networking solution.
- Determine the right hardware to go with the top-selling applications software.

Section Five, "Moving on Up," shows how to upgrade the HP 150 to the Touchscreen Personal Computer.

There have been four revisions of the firmware (ROMs) and two revisions of the MS™-DOS operating system. You must identify the ROMs and operating system in order to determine which peripherals the customer's personal computer will support. Refer to the "Identifying ROMs and the Operating System" section for more information.

For More Details

To learn more, refer to the appropriate Hewlett-Packard product literature. If you need further help, consult your HP support representative.

NOTE: All peripherals and accessories included in this guide are supported on the HP Touchscreen Personal Computer unless otherwise noted.

Meet the Touchscreen Computer Systems

Computer Museum

There are three configurations available.

Touchscreen Personal Computer (45650B)

The Touchscreen system consists of:

- The HP 9122D 3½-inch Microfloppy Disc Drive

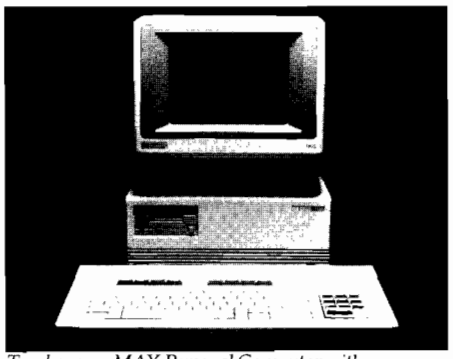
The HP 9122D includes two double-sided, microfloppy disc drives. Each disc provides 710K bytes (formatted capacity) mass storage.

- *Instant Productivity Pack*

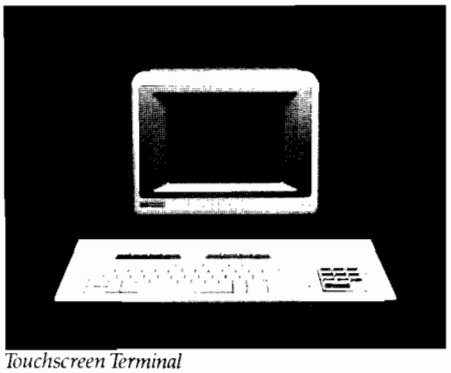
Includes easy-to-use owner's guides, MS-DOS 2.11 operating system, plus Utilities, MemoMaker and Personal Card File application software. So your customer is up and running in minutes! Winning Deal entertainment software is also included.

- HP Touchscreen CPU and keyboard
- 9-inch green phosphorous display
- 256K bytes of memory
- One asynchronous RS-232C/RS-422 port
- One RS-232C port
- One HP-IB port
- Two I/O accessory slots
- Power cords
- HP-IB cables

Touchscreen Personal Computer with 9122D Disc Drive



Touchscreen MAX Personal Computer with 9133D Disc Drive



Touchscreen Terminal

Touchscreen MAX Personal Computer (45660B)

The Touchscreen MAX is the Touchscreen Personal Computer without the HP 9122D but *with*

The HP 9133D Winchester Fixed-Disc Drive

The HP 9133D includes a 14.8M byte (formatted capacity) fixed-disc drive, plus a 3½-inch, double-sided microfloppy drive which provides 710K bytes (formatted capacity) of storage.

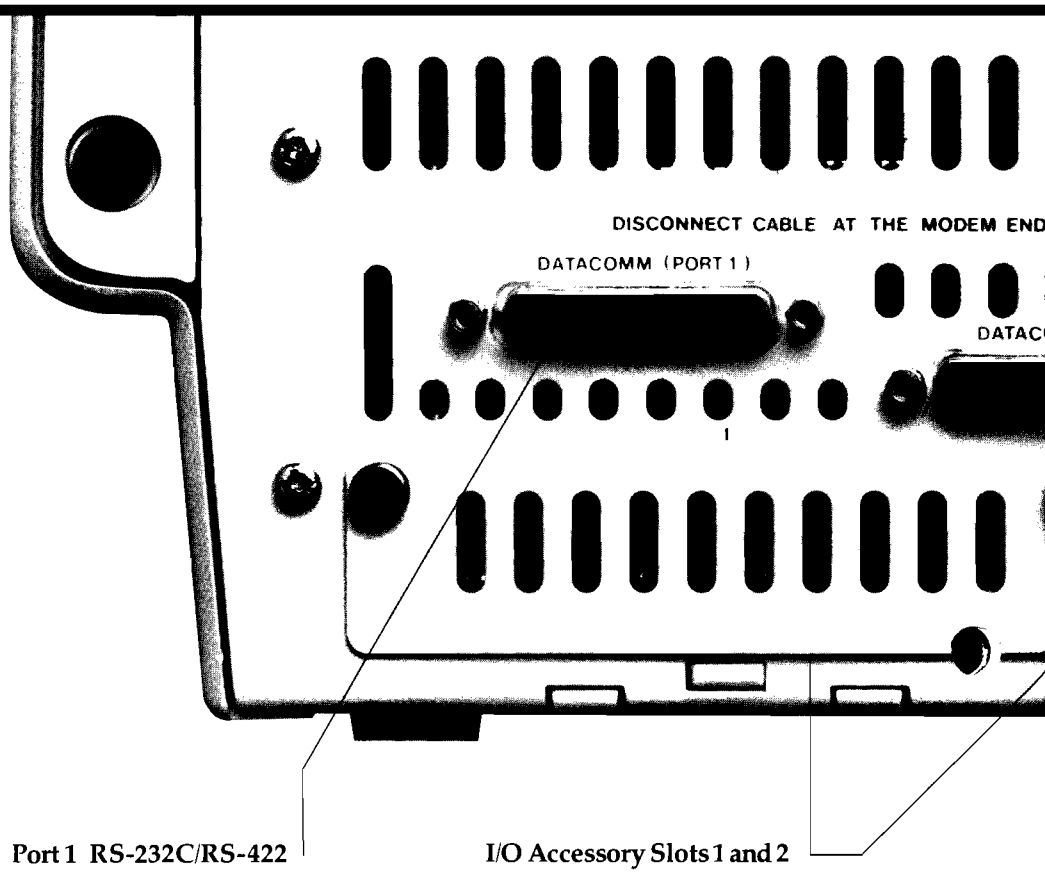
Touchscreen Terminal (45610B)

The standard Touchscreen is a computer system without disc drives. It can be used as a terminal connected to an HP minicomputer or information services, and can be upgraded for use as a personal computer by simply adding a drive.

Expanding the Touchscreen System

Touchscreen Personal Computer systems come standard with one HP-IB port, one RS-232C port, one RS-232C/RS-422 port, and two I/O accessory slots.

The three ports and two slots allow you to extend the capabilities of your system.



Port 1 RS-232C/RS-422

RS-232C and RS-422 are standard EIA serial interfaces. RS-232C supports a cable length of up to 50 feet; RS-422 supports a cable length of up to 1,000 feet.

Use Port 1 (RS-232C/RS-422) to connect:

- HP-supported printers and plotters with an RS-232C interface.
- Cable to a host computer.*
- Touchscreen Internal Modem. (45640A) requires one I/O accessory slot and one RS-232C port.*
- External modem.*

I/O Accessory Slots 1 and 2

Hewlett-Packard I/O accessory slots provide access to the address and databus on the microprocessor. Accessory cards are put in I/O slots for expanding the system.

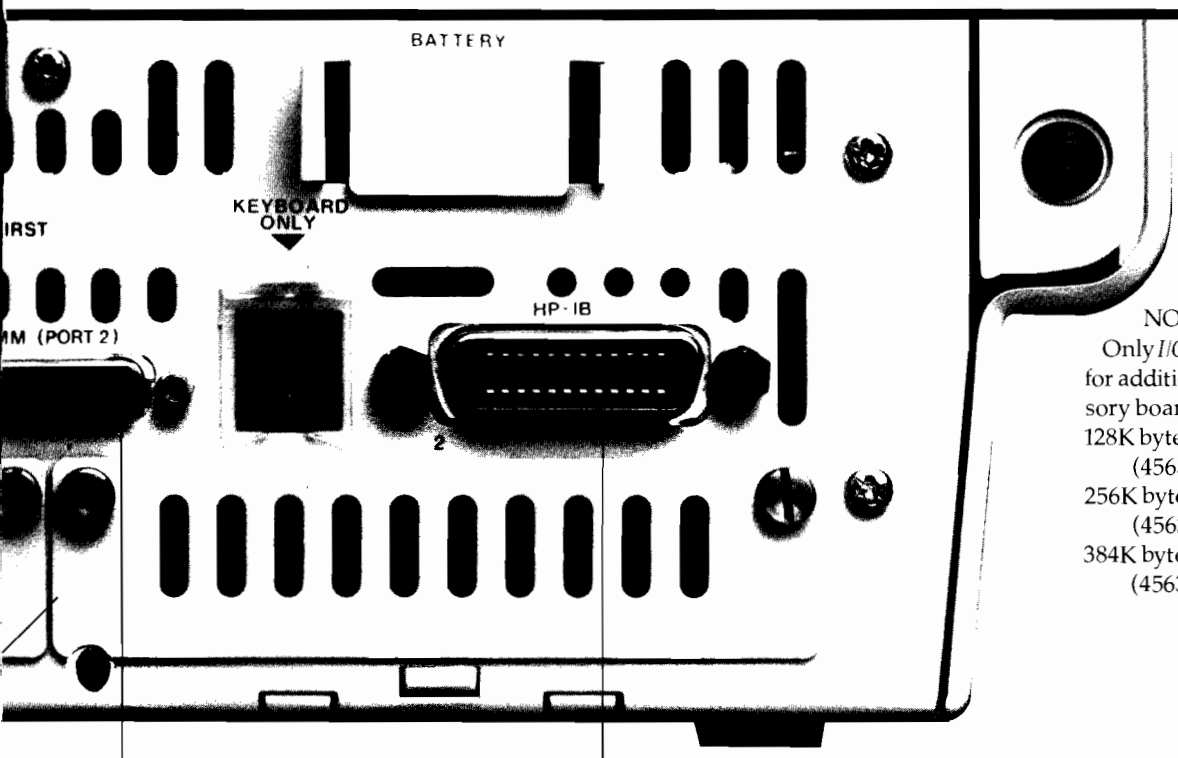
Use *I/O accessory slots 1* and 2 for:

- Additional memory.
- Touchscreen Internal Modem requires one I/O accessory slot and one RS-232C port.
- EtherLink™/150 Card.
- Touchscreen 3278 Emulation Accessory With File Transfer.
- Extended I/O Accessory.
- Language cards.
- Additional memory must be placed in I/O slot 1.
- Language card must be placed in I/O slot 1.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

Additional Memory



Additional memory can be added to Touchscreen Personal Computer systems for applications such as 1-2-3™ from Lotus™ or VisiCalc®. See Section Four, "Application Software," for the recommended memory requirements for specific applications.

NOTE:
Only *I/O accessory slot 1* can be used for additional memory (i.e., only one accessory board can be used).

128K bytes RAM Memory Option Board (45630A)
256K bytes RAM Memory Option Board (45631A)
384K bytes RAM Memory Option Board (45632A)

Port 2 RS-232C

The RS-232C is the standard serial interface.

Use Port 2 (RS-232C) to connect:
- All HP-supported printers and plotters with an RS-232C interface.
- Cable to a host.*
- Touchscreen Internal Modem. (45640A) requires one I/O accessory slot and one RS-232C port.*
- External modem.*

HP-IB Port

The Hewlett-Packard interface bus (HP-IB) is a high-speed parallel interface which uses multiple parallel lines.

Use the HP-IB port to connect:
- All HP-supported disc drives
- All HP-supported printers and plotters with an HP-IB interface.

HP-IB supports up to eight peripherals through one port.

**When the Touchscreen is used as a terminal, only one port can be used for data communications. The other is a peripheral port. They can be switched through the global configuration menu.*

Disc Drives

Hewlett-Packard offers a wide range of disc drives which can be added to your Touchscreen through the standard HP-IB interface, including:

- Flexible-disc and fixed-disc drives.
- Double-sided and single-sided, flexible disc drives.
- 3½-inch and 5¼-inch flexible disc drives.

With the introduction of new double-sided disc drives and double-sided 3½-inch media, Hewlett-Packard will begin shipping System Master and Application Master Discs, and double-sided discs in single-sided format.

You can use a double-sided disc on a single-sided drive *if* the disc is in single-sided format.

Touchscreen Personal Computer Disc Drive Support

DISC DRIVE	*FIXED*	*FLEXIBLE*	*DOUBLE-SIDED (D) VS. SINGLE-SIDED (S)*	*NUMBER OF HP-IB ADDRESSES USED**	*CABLE REQUIRED***	*ROM RELEASE REQUIRED +*	*OPERATING SYSTEM REQUIRED +*	*COMMENTS*
9122D		Dual 3½"	D	One	92220R	D	Two	
9133D	14.8Mb	3½"	D	One	92220R	D	Two	
9122S		3½"	D	One	92220R	D	Two	Add-on drive only
9134D	14.8Mb		n/a	One	92220R	D	Two	Add-on drive only
82901M		Dual 5¼"	D	One	92220R	All	All	
82902M		5¼"	D	One	92220R	All	All	Add-on drive only
9121D		Dual 3½"	S	One	92220R	All	All	
9133V	4.8Mb	3½"	S	Two	92220R	All	All	
9133XV	14.8Mb	3½"	S	Two	92220R	All	All	
9134XV	14.8Mb		n/a	One	92220R	All	All	Add-on drive only
9121S		3½"	S	One	92220R	All	All	Add-on drive only
9125S		5¼"		One	10833A,B,C	D	Two	IBM PC-DOS 1.0 & 1.2 compatible Add-on drive only
9144A			¼ Mag. tape	One	10833A,B,C	D	Two	Provides fixed-disc backup

* *The Touchscreen supports up to eight HP-IB addresses.*

***The 92220R is the 1/2M HP-IB cable included with the Touchscreen system. For add-on drives, order 10833A (1 meter) or 10833B (2 meters).*

\+ *See Section Six for required ROM and operating system.*

The following matrix indicates which Hewlett-Packard printers are supported on the Touchscreen Personal Computer. Included are specifications for interface, cables, the firmware (ROM) release, operating system, and comments.

Touchscreen Personal Computer Printer Support

PRINTER	OPTION	INTERFACE	CABLES*	ROM RELEASE REQUIRED +	OPERATING SYSTEM REQUIRED +	COMMENTS
Internal 12674A		Internal		All	All	For Rev. A ROMs, Compress Print prints only 96 characters
Letter Quality 2601A	242	RS-232C	13242G	All	All	
2602A		RS-232C	13242G	All	All	
	046	HP-IB	10833 A,B,C	All	All	
LaserJet 2686A		RS-232C	13242G	D		
ThinkJet 2225A		HP-IB	10833 A,B,C	B and later	All	For ROMs B and C, printer must be turned off until system booted
ThinkJet 2225B		HP-IL	HP-IL cable 82167B (included)	B and later	All	▪ Supports Personal Computer Software only ▪ Requires HP45643A for Hardware installation ▪ Overrides Dev. Config Printer in Rev 1.2 of Op. Sys.
ThinkJet 2225C		Centronics	13242D	B and later	All	
2932A		RS-232C	13242G	All	All	
	046	HP-IB	10833 A,B,C	All	All	
2933A		RS-232	13242G	All	All	
	046	HP-IB	10833 A,B,C	All	All	
2934A		RS-232C	13242G	All	All	
	046	HP-IB	10833 A,B,C	All	All	
82906A	002	HP-IB	10833 A,B,C	All	All	For Rev. A ROMs, a 7475A plotter must be turned off when printing.
82905B		RS-232C	13242G	All	All	For Rev. A ROMs, a 7475A plotter must be turned off when printing.
	001-004	HP-IB	10833 A,B,C	All	All	No enhancements

* *The Touchscreen supports up to eight HP-IB addresses.*

***The 92220R is the 1/2M HP-IB cable included with the Touchscreen system. For add-on drives order 10833A (1 meter) or 10833B (2 meters).*

\+ *See Section Six for required ROM and operating system.*

Plotters

The following matrix indicates which Hewlett-Packard plotters are supported on the Touchscreen Personal Computer. Included are specifications for interface, cables, the firmware (ROM) release, operating system, and comments.

Touchscreen Personal Computer Plotter Support

PLOTTER	*OPTION*	*INTERFACE*	*CABLES**	*ROM RELEASE +*	*OPERATING SYSTEM +*	*COMMENTS*
7470A Two Pen	001	RS-232C	13242G-Stand alone 17455A and 13242N for terminal mode (eavesdrop)	All	All	
	002	HP-IB	10833A,B,C or 45529A,B,C	All	All	Stand alone only
7475A Six Pen	001	RS-232C	13242G-Stand alone 17455A and 13242N for terminal mode (eavesdrop)	All	All	
	002	HP-IB	10833A,B,C or 45529A,B,C	All	All	Stand alone only
7550A Auto Sheet Feed		Dual Interface HP-IB/RS-232C	For HP-IB Interface use 10833A,B,C or 45529A,B,C For RS-232C Interface, use 17755A for stand alone 13242N for terminal mode eavesdrop			

* *All cables must be ordered separately.*

\+ *See Section Six for required ROM and operating system.*

Accessories

Language Cards

Hewlett-Packard language cards translate firmware messages in terminal mode into nine different languages.

Because both language cards and additional memory cards must go in I/O slot 1, HP offers the option to buy additional memory and the language card on one card.

Language card (45635A)
Language card with 128K bytes additional RAM (45636A)
Language card and 256K bytes additional RAM (45637A)

Extended I/O Accessory

The Extended I/O Accessory card provides an HP-IL interface and software for Touchscreen-to-PORTABLE communications, plus a Centronics parallel interface that allows the Touchscreen to communicate with popular Centronics printers. The Extended I/O Accessory can be used in I/O accessory slot 1 or 2.

Extended I/O Accessory (45643A) (includes accessory card, HP-IL cable, owner's guide and software)

Bar Code Readers

The Hewlett-Packard Bar Code Reader provides bar code decoding for all widely used bar code symbologies.

Bar Code Reader (92915A)

Other data communications accessory cards are listed in the "Touchscreen Network Capabilities" section.

Touchscreen Network Capabilities

Hewlett-Packard's personal computer network capabilities include terminal emulation, file transfer, and local area networks.

Terminal Emulation

Touchscreen to HP Host

Capability:
Functions as HP 2623A terminal to HP 3000/HP 1000/HP 9000.

Requires:
- Touchscreen (RS-232C/RS-422).
- For direct connection to HP 3000, use appropriate data communications cable* (and consult your system owner's guide).
- For connection via internal modem, order Touchscreen Internal Modem (45640A) (cables included).
- For connection via external modem, see your modem owner's guide.

Touchscreen to IBM Host

Capability:
IBM 3278 terminal emulation.

Requires:
- Accessory card (HP 45641A) (cable included).
- Any HP-supported disc drive.
- 3270 Control Unit.

File Transfer

Touchscreen to HP Host

Capability:
File transfer, creation, and execution of command files between Touchscreen and HP 3000.

Requires:
- AdvanceLink (45425A).
- For direct connection to HP 3000, use appropriate data communications cable* (and consult your system owner's guide).
- For connect via internal modem order Touchscreen Internal Modem (45640A) (cables included).
- Any HP-supported disc drive.

* ■ *U.S. modem cable (13242N)*
■ *European modem cable (13242M)*
■ *RS-232C Interface cable for HP 3000 (13242X)*
■ *Advanced Terminal Processor (ATP)*
■ *RS-422 Interface Cable for HP 3000 (13242P)*

Touchscreen to PORTABLE

Capability:
File transfer between Touchscreen and The PORTABLE.

Requires:
- Extended I/O Accessory (45643A) (includes card, cable, manual, and software).
- Any HP-supported disc drive.

Touchscreen to Touchscreen

Capability:
File transfer between two Touchscreen Personal Computers.

Requires:
- AdvanceLink (45425A) for each system.
- Any HP-supported disc drive.
- For direct connection, use cable 13242G, or two 13242N cables with 13232U cables between them.
- For connection via Touchscreen Internal Modem, order 45640A for each Touchscreen Personal Computer (cables included).
- For connection via external modem, see the modem owner's guide.

Touchscreen to IBM PC

Capability:
File transfer from the Touchscreen to IBM PC.

Requires:
- AdvanceLink (45431A).
- Monitor/IBM PC (45439A).
- Any HP-supported disc drive.
- Asynchronous data communication card.
- For connection via Touchscreen Internal Modem, order 45640A for each Touchscreen Personal Computer (cables included).
- For connection via external modem, see your modem owner's guide.

Local Area Networks

3Com EtherSeries™/150 Local Area Network

Capability:
HP Touchscreens and IBM PCs share information, storage, work space, peripherals, certain applications, and electronic mail.

The Network Server

Requires:
- Touchscreen MAX Personal Computer, with 14.8M byte (formatted capacity) Winchester fixed-disc drive and revision B.01.00 operating system (45660B).
- Additional 128K bytes memory (45630A).
- EtherLink™/150 accessory card (45644A).
- EtherShare™/150 server software (45645A).

In addition, the following server software may be purchased:
- EtherPrint™/150 server software (45646A).
- EtherMail™/150 server software (45647A).

The server supports up to seven Winchester fixed-disc drives.

The HP-supported local area network can connect to the LaserJet Professional PC Printer, and the 2932A and 2934A dot-matrix printers. Requires one RS-232C port for each printer.

For information about non-HP servers, contact 3Com Corporation.

The Network Nodes

Require:

- Touchscreen Personal Computer with 3½-inch dual, double-sided, microfloppy disc drives, with operating system revision B.01.00 or newer (45650B).

or

- Touchscreen MAX Personal Computer with 14.8M byte (formatted capacity) Winchester fixed-disc drive, with operating system revision B.01.00 or newer (45660B).
- EtherLink™/150 (includes a BNC "T" connector) (45644A).
- Loopback connector. One per network for diagnosing problems (45698A).

Application Software

User software required to operate with EtherShare/150 and EtherPrint/150 is supplied with the EtherLink/150 accessory card. The EtherMail/150 server software package includes user software.

The Touchscreen can also be used in 3Com local area networks with non-HP servers. The required EtherShare and EtherPrint user software is supplied with the EtherLink/150 accessory.

However, the EtherMail user software required for networks not using Touchscreen MAX network servers must be purchased separately. Order:

- EtherMail user software for the HP Touchscreen, required when used with non-HP Touchscreen servers (45639A).

To complete an EtherSeries installation, order cables and connectors. Refer to the "Installation" section of the EtherLink/150 owner's guide for details.

Below are comments on support for some of the more popular application software packages.

HP Graphics

- Printers must be configured through terminal device control. See the HP Graphics owner's guide for specific instructions.
- Plotters must be configured as "PLT" device.
- Performance improvements can be achieved with an additional 128K bytes memory board.
- HP 82905B dot-matrix printer does not offer graphics.

WordStar®

- Does not support proportional spacing on printers.
- Does not support subdirectories on discs.
- HP 2934A dot-matrix printer – you need to turn off default reset to achieve letter-quality print.
- HP LaserJet Printer – the following functions are not supported:
  Variable line height and pitch.
  Microjustification.
  Variable height on super-/subscripts.
  Bi-directional printing.
- HP 82906A dot-matrix printer doesn't support line height.

Personal Card File

- Configure non-HP printers as "Special" in Device configuration. For more information, see your printer owner's guide.

VisiCalc®

- The LST device in VisiCalc allows for a secondary printer. This is selected on the printer configuration menu (/PC).
- It can't be installed into subdirectories on HP 150s or on new Touchscreen Personal Computer systems.
- Escape sequences can be sent to the printer through the Printer Configuration menu. Refer to the printer owner's guide for a specific list of escape sequences.

1-2-3™ from Lotus™

- Does not use HP Touch.
- Recommend 128K bytes additional memory.
- 82905B dot-matrix printer does not support graphics.
- For printing, printer option number in Lotus must correspond to MS-DOS device configuration menu setting.
- Plotters must be configured using "AUX," not "PLT" section of MS-DOS device configuration menu.

MemoMaker

- HP 82905B dot-matrix printer doesn't support boldface and underlining.
- HP 2934A dot-matrix printer doesn't support boldface.
- HP 2602 letter-quality printer – boldface is double strike.

Condor

- HP Touch softkeys cannot be programmed.
- Does not interface with plotters. Using the WRITE command with the [G] option, data can be written in a format HP Graphics can read.
- Condor can read data from other applications if written in the "BASIC" format. Personal Card File is one of the applications that can create such files.
- Condor files cannot be transferred into VisiCalc.

dBASE II™ (version 2.41)

- Does not recognize subdirectory files.
- Program disc must reside in drive A.

AdvanceLink (supercedes DSN/Link)

- Printer can be logged "to" in command file by specifiying PRN, INT, or LST as logfile name.
- File transfer not supported when plotter connected in eavesdrop mode.
- Upload requires NONE to be set for Parity in port configuration.

NOTE: Section Four is based on testing of the HP 150 prior to the release of the Touchscreen and Touchscreen MAX Personal Computers.

Moving on up:
Upgrade Options

Identifying Firmware (ROMS) and Operating System

For current Touchscreen computer system (product numbers 45610A, 45650A, 45655A, or 45660A) owners, Hewlett-Packard provides a Touchscreen Upgrade Kit. The kit provides updated ROMs and operating system, updates to the owner's guide, and master discs.

Touchscreen Upgrade Kit

Order No. 45626-63003

- Revision D* Firmware (ROMs)
- System Master Disc
  MS-DOS 2.11
  FORMAT
  DEVCONFIG
  EZCONFIG
- Application Master Disc
  Copy/Backup
  Install
  Setup P.A.M.
- Utility Master Disc
  MS-DOS UTILITIES
- Manual Update
  Updates to HP 150 Owner's Guide

NOTE: 1) Discs are double-sided media in single-sided format.
2) CE or Dealer installation required for Firmware ROMs.

Since introduction of the HP 150, Hewlett-Packard has made four revisions of the firmware (ROMs) and two revisions of the MS-DOS 2.0 operating system.

To determine which peripheral your Touchscreen will support, you must identify the firmware (ROMs) and operating system on your Touchscreen system.

Here's how:

To Identify the Firmware (ROMS)

- Turn on your system.
- Press the "user" key located on your keyboard.
- Touch "Service Function" label, or press function key f3.
- Touch "IDENTIFY ROMS" label, or press function key f6.

Appearing on the left side of your screen, you will see the first eight numbers listed below. The lists correspond to the revision indicated:

FIRMWARE IDs		*FIRMWARE IDs*	
1818-3296		1818-3325	
1818-3295	*REV.*	1818-3324	*REV.*
1818-3294	A	1818-3323	B
1818-3293		18183322	
1818-3292		1818-3321	

FIRMWARE IDs		*FIRMWARE IDs*	
1818-3325		1818-3325	
1818-3324	*REV.*	1818-3324	*REV.*
1818-3439	C	1818-3437	D
1818-3438		1818-3436	
1818-3321		1818-3435	

To Identify Operating System

There are two ways:

- On your System MSTR DISC there are a series of numbers on the third row of text that indicate *one* of the following:

I.D. NO's		*I.D. NO's*	
A.01.03* or A.01.04	*REV.* 1	B.01.00	*REV.* 2

- If you do not have your system Master Disc, you can also identify these numbers on the P.A.M. screen when you boot your system. The numbers appear on the top left corner of the screen after the word "HPBIOS."

The peripheral support matrices in Section Two of this guide contain columns labeled "ROM RELEASE REQUIRED" and "OPERATING SYSTEM REQUIRED." These columns indicate which ROMs and Operating System are required to support the corresponding peripheral.

The word "ALL" means that *all* combinations of the Firmware and of the Operating System are acceptable *except* where indicated:

ROM	*OPERATING SYSTEM VERSION 1*	*VERSION 2*
A	YES	NO
B	YES	NO
C	YES	NO
D	YES	YES

*Some customers may have Revision A.01.03P, which was a patch version of Rev. 1. It was released as a temporary patch to resolve HP 2602A HP-IB time out problems. See service note 2602A-5 for printer firmware upgrade information.

See Section Six (in next column).

1-2-3™ and Lotus™ are U.S. trademarks of Lotus Development Corp.

VisiCalc® is a U.S. registered trademark of VisiCorp.

3Com™, EtherSeries™/150, EtherLink™/150, EtherShare™/150, EtherPrint™/150, and EtherMail™/150 are U.S. trademarks of 3Com Corporation.

WordStar® is a U.S. registered trademark of MicroPro International Corp.

Condor™ is a U.S. trademark of Condor Computer Corp.

dBASE II™ is a U.S. trademark of Ashton-Tate.

Hewlett-Packard
Personal Computer Group
11000 Wolfe Road
Cupertino, CA 95014
(800) FOR-HPPC

HEWLETT
PACKARD

Printed in U.S.A. 8/84
5954 – 1176D