HEWLETT-PACKARD

The Touchscreen Personal Computer Systems

Sales Guide

HP Computer Museum
www.hpmuseum.net

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Chapter 1—Breaking the Ice

Chapter 1
Breaking the Ice

Friendly and Professional: A Touchscreen System Overview

We had a dream. We wanted to build a desktop personal computer that would be so easy to use and compact that it would become an instant friend to anyone who used it. We would like to introduce you to the Touchscreen and Touchscreen MAX Personal Computers.

On the Touchscreen system, even your most inexperienced customers can be working away in an hour. We have put a lot of time into making the Touchscreen and Touchscreen MAX very easy to use. And now, our Instant Productivity Pack makes it even easier for your customers to get up and running. We also include with every system three of the most popular software applications: Memo-Maker for word processing, Personal Card File for data base management, and Winning Deal for when your customer needs to get

away from the daily grind. These packages and our adaptation of the industry standard MS™-DOS operating system, the Personal Applications Manager, are designed to take full advantage of the many special features of the Touchscreen system, including HP Touch. Among other things, we have practically done away with complex and confusing commands. The Touchscreen system's features translate into very tangible benefits that all your customers will want to know about.

The Touchscreen system is so compact that the entire package, including a printer, will fit in a space the size of an "in" box. In creating this small computer, our designers remained true to our high standards of power and quality. They created new disc drives, printers, a 9-inch monitor, and a special keyboard. As they worked, they found ways to put some really big ideas, like HP Touch, into small packages.

We wrote this guide to be a working tool to help you sell your customers on the Touchscreen systems. The guide is organized into nine chapters which cover the basics of what you need to know. If you have a specific question, go to the index and you can quickly find your answer.

The Touchscreen and Touchscreen MAX At A Glance

The Touchscreen comes standard with 256K of RAM memory (150K of which is usable after the operating system is loaded); CPU; two double-sided, double-density, 3½-inch disc drives (710K bytes each); keyboard; 9-inch display; HP Touch; operating system including the Personal Applications Manager; cables; documentation; three I/O ports; MemoMaker; Personal Card File and Winning Deal. The entire system has one ordering number, so it's easy for you to order the right configuration the first time around.

The Touchscreen MAX is exactly the same system as the Touchscreen, except for one important item: It comes standard with a combined 15M byte fixed disc and single double-sided microfloppy disc drive. The Touchscreen MAX is geared for the executive or small businessperson who has the need for large mass storage space. This computer also has one ordering number assigned to the entire system.

We assigned these two essentially identical computers different names and ordering numbers to make the job of matching the right system with the right customer easier for you. We hope this will give you and your customers time to get to know the Touchscreen and Touchscreen MAX. See Chapter 5 for more information on matching the right system with the right customer.

Hardware Features

- HP Touch.
- Intel 8088 8Mz 16-bit processor.
- Small footprint.
- 9-inch CRT display with 80 x 27 character resolution and 512 x 390 pixel (picture element) graphics resolution.
- Choice of dual microfloppies or a Winchester/microfloppy combination.
- Standard 256K byte (RAM) program memory expandable to 640K bytes.
- 160K bytes of (ROM) read-only memory.
- 1 HP-IB, 1 RS-232C, 1 RS-422 port.
- 12 function keys, 8 screen labeled softkeys.
- Low profile keyboard with numeric pad.
- Real time clock with battery.
- Optional internal printer.

Software Features

- MS-DOS operating system.
- Work discs (utilities) including Copy/Backup, Set-up P.A.M., Easy Config, Device Config, Format, Install/Remove, and MS-DOS commands.
- P.A.M.—Personal Application Manager—a friendly way to "talk" to the Touchscreen system.
- Memo writer (MemoMaker), information management system (Personal Card File) and electronic card game (Winning Deal) included with the system.
- A full selection of software available from HP and leading software vendors (see the Software List for more information).

The HP Family of Personal Business Computers

The Touchscreen and Touchscreen MAX computers are high performance, sophisticated machines which, because of their flexibility, will retain their value for years to come. These computers represent the state of the art in desktop computer options.

The newest member of the HP personal computer family is a little charmer named The PORTABLE. This notebook-sized computer is an excellent choice for the customer on the go. And because The PORTABLE is compatible with the Touchscreen and Touchscreen MAX, it makes a lot of sense for owners of these computers who need to compute away from the office. Many HP software packages will run on either the Touchscreen, the Touchscreen MAX, or The PORTABLE. (Please note: HP holds licenses for its software and software produced by other vendors. These licenses require that a software package be used on only one machine.) When selling any member of the HP personal computer family, it is important to keep in mind the relationship, and specific functions, of each computer. There is certain to be something in this family that will fit any customer's needs.

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Chapter 2—Hands-on Hardware

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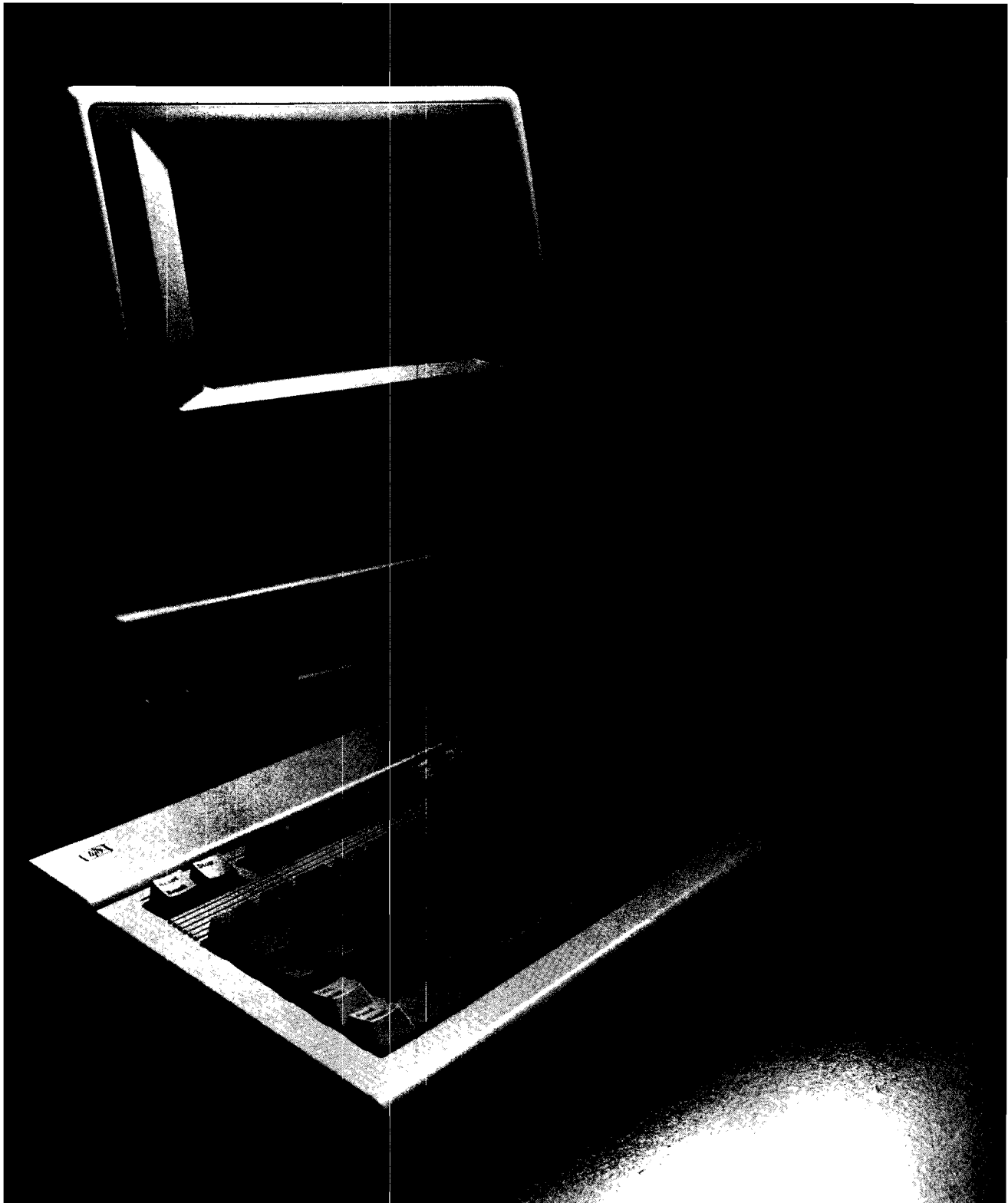
Chapter 2
Hands-on Hardware

HP Touch: Pointing the Way

Pointing to what we want is a basic human impulse. We at Hewlett-Packard saw this and set out to make a computer that was as easy to use and as intuitive as pushing a button. HP Touch is the key to letting your customers trust their fingers instead of a confusing series of complicated commands. Choose a function, touch, and it's done. Moving text, drawing graphs, and giving commands all happen with a few light touches of the finger. HP Touch is the easiest, most direct touch sensitive system in the industry today, and it puts the Touchscreen light years ahead of the competition.

For the Beginner, It's Touch and Then Go

Customer surveys have shown that HP Touch is the most recognizable feature of the Touchscreen. For computer novices, this feature quickly and easily puts them on-line to computer confidence. HP Touch gives your customers an immediate sense of control over the computer, which is a crucial element in their quest to become computer literate.

The ease of use which HP Touch offers means that your customer will be able to use even the most complex programs more quickly. Built into most HP software packages is an HP Touch activated HELP system. At many points in most programs, your customer can touch the HELP key on the screen and a menu with instructions will appear. This facility means that customers can get their hands on, literally, from the first hour. This is particularly true for Personal Card File, MemoMaker and Winning Deal, the software packages that come bundled with the system.

For the Computer Sophisticate

HP Touch lets your advanced customers work even faster. Their eyes never need to wander to the keyboard, as all the function keys (in the form of softkeys) and commands are on screen waiting to be touched. The customer's full concentration can be directed to the screen where their work is happening. Programs that are easier to use and less likely to demand interruptions result in better concentration.

How It Works

HP Touch is a series of light beams, or light emitting diodes (LEDs) with corresponding photosensitive detectors which criss-cross the screen. When the system is turned on, these LEDs form a grid across the screen. The grid measures 27 rows by 40 columns, giving the user 1080 possible touch points. This means your customer can touch every line and every other character on the screen. When your customer's finger breaks the grid the Touchscreen can "sense" the finger's position. The usefulness of HP Touch has been incorporated into hundreds of major software packages. (See the Monthly Software List for further details.)

Clean and Easy

We haven't forgotten practical considerations. The screen has a special matte finish that won't show smudges. And, if your customers should choose not to use HP Touch, they can turn it off with a few simple strokes on the keyboard. Simple? You bet.
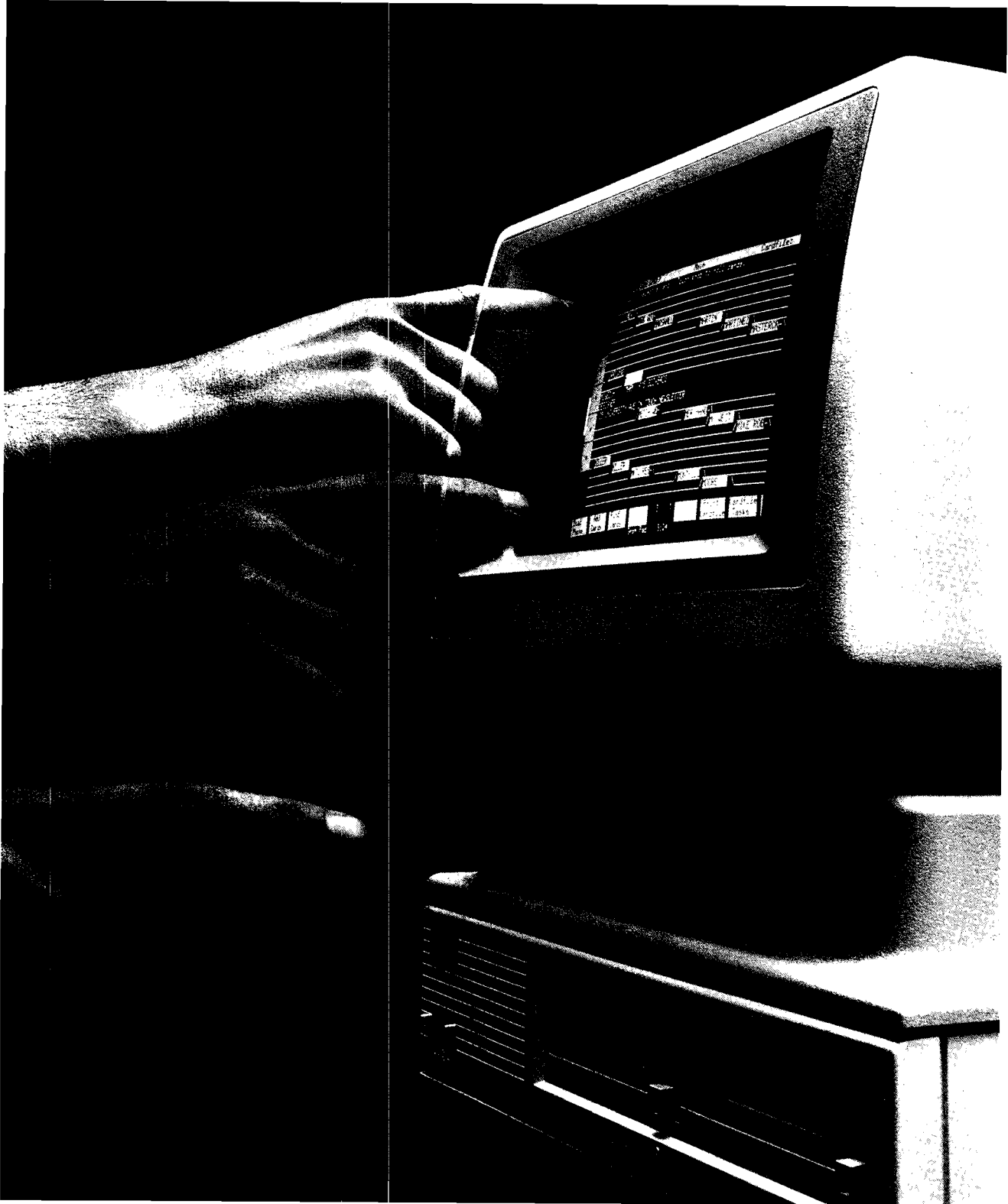
Design: Good Things In a Small Package

The Touchscreen and Touchscreen MAX give new meaning to the words "personal computer." These computers have the most compact and attractive design in computing today. They are designed to fit comfortably into your customer's lifestyle; not be clunky, space-eating machines whose every whim must be catered to.

The Touchscreen and Touchscreen MAX fit a monitor, disc drive, central processing unit, and user-installable internal printer into an elegant, one-square-foot package. (Including the keyboard, it measures less than two square feet.) Either system takes up about as much room on your desk as an open notebook. This compactness is one of the Touchscreen system's strongest selling points. For the first time, power, speed, and flexibility are not compromised by size. The Touchscreen and Touchscreen MAX are as much as half the size of their major competitors.

Keyboard

The Touchscreen system keyboard is a superb combination of sophisticated styling and utilitarian design. Its typewriter-style layout is a real plus in a market inundated by unfamiliar keyboards. Touch typists can make the transition to the Touchscreen keyboard in no time. Separate cursor and number-pad keys, 12 programmable function keys, and a return key where you expect it, are big features of this keyboard.

Research has resulted in 107 well-spaced, responsive, sculpted keys. The touch of this keyboard makes it hard to accidentally add unwanted characters. The familiar and comfortable keyboard design is now our standard for terminals and personal computers.

The concept behind the keyboard is that it should be instantly easy to use and fully functional with or without HP Touch. The eight HP Touch-activated softkeys that appear on the screen can also be controlled from the function keys on the keyboard. This feature maximizes your customer's options.
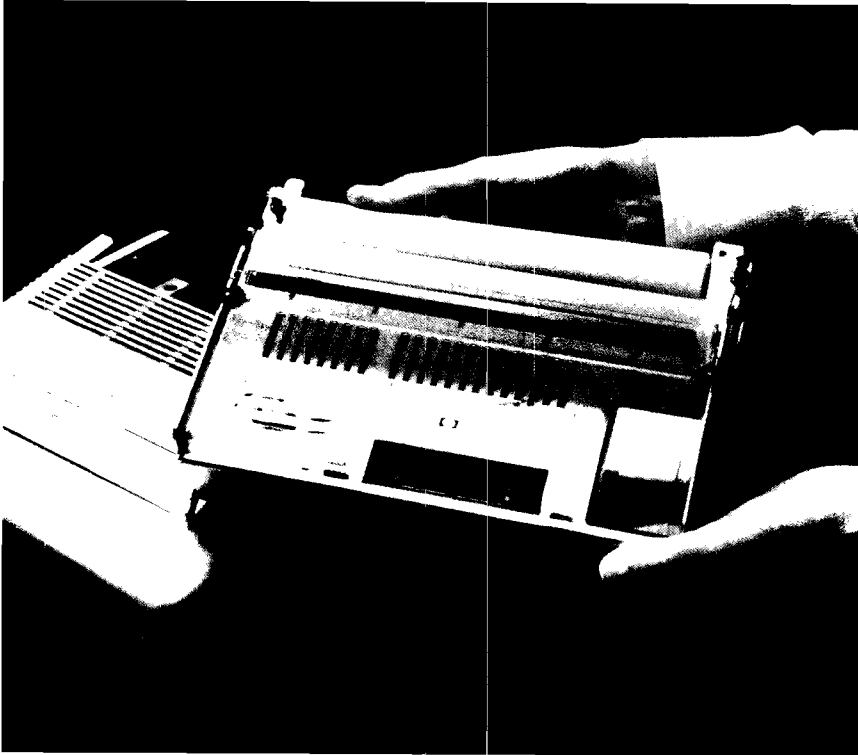
The Internal Printer

The internal thermal printer is a big contributor to the Touchscreen system's overall compactness. This easy to install (just one connection), low cost, thermal printer gives your customer hard copies without eating up more desk space. The printer can quickly and quietly print anything that the user sees on the screen, including text and graphics. (For other printer options see Chapter 4.)
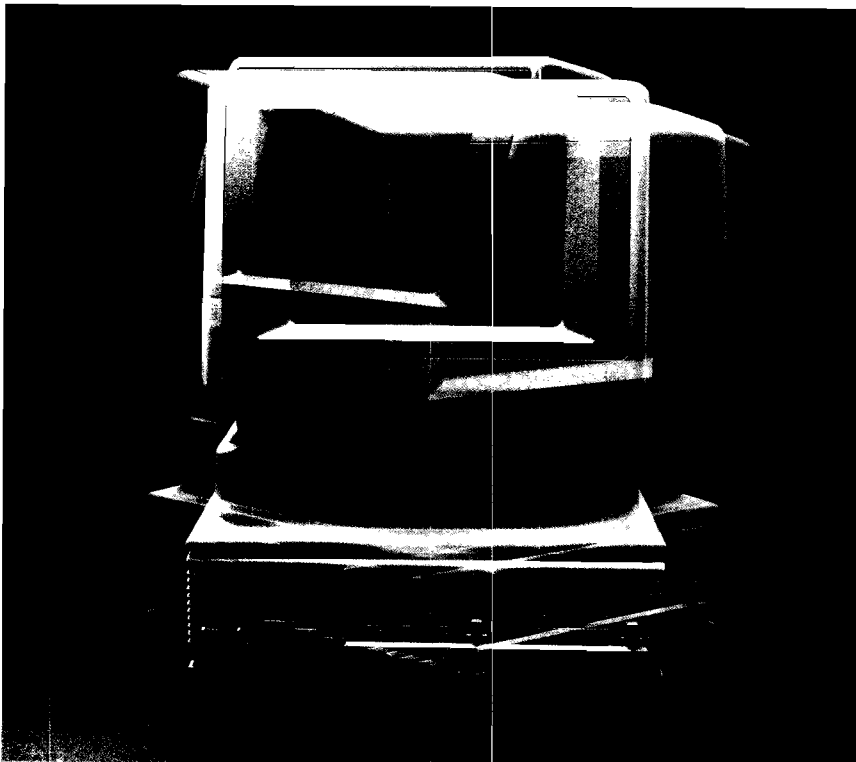
Tilt and Swivel

We realize that not all people are created the same. Some of us are short and some of us are tall. So we designed a special tilt and swivel mechanism that lets your customers rotate the system, and tilt the display, to fit their own needs.

The Monitor: Sharp Circles

The Touchscreen and Touchscreen MAX use a 9-inch monitor that has among the sharpest resolution in the industry today. The green phosphor display has more pixels (picture elements) in 9-inches than the IBM PC does in 12. 512 horizontal by 390 vertical pixels give the HP screen an aspect ratio of 1:1. Translation: Circles look like circles. The display shows 27 lines (including one status and two soft-key lines), by 80 columns. All this comes in the crispest picture ever. The clearer picture means fewer headaches, less eye strain, more productivity, and sharper graphics. Small really is beautiful with this display.

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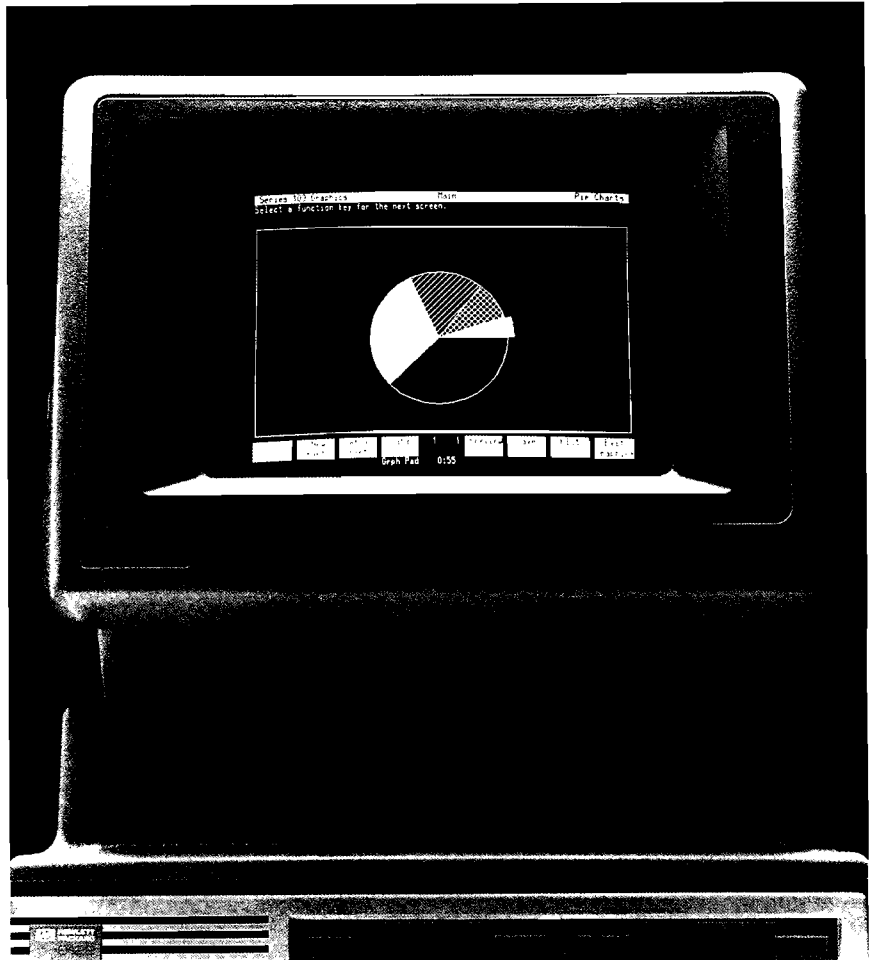
The 8088 Processor: The Best Bit In the Business
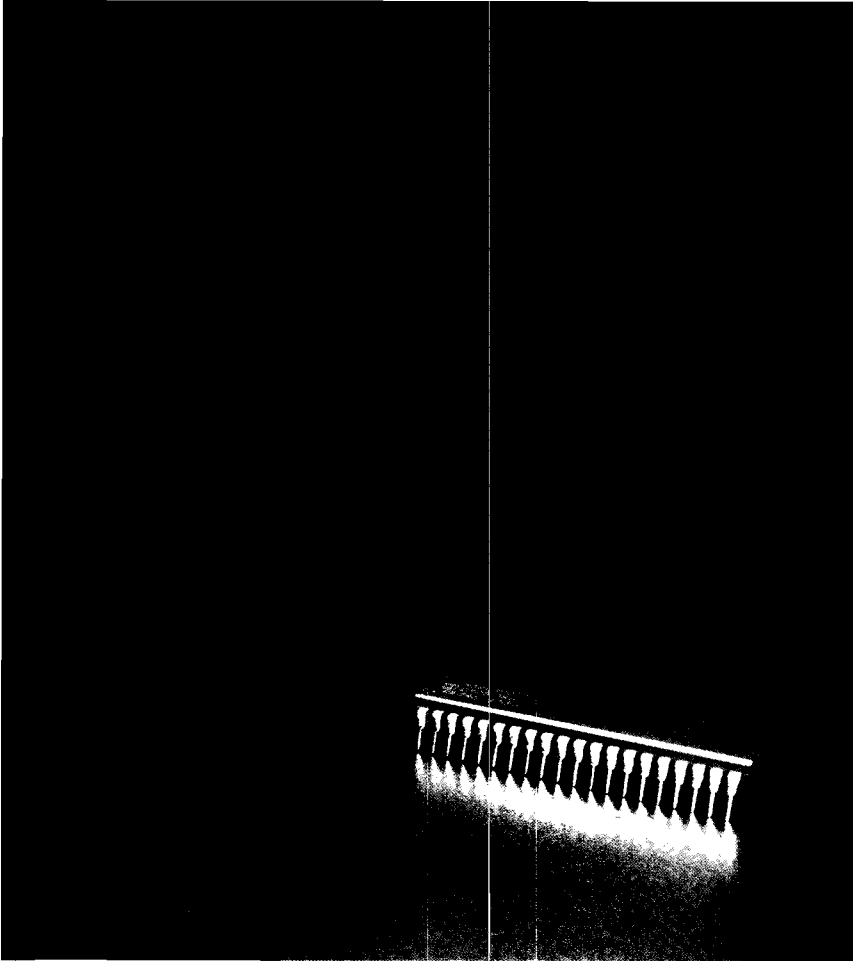
We put the popular 8088 microprocessor into the Touchscreen and Touchscreen MAX. The Intel 8088-2 is a 16-bit microprocessor which runs at 8 megahertz. Compared to the usual 5 megahertz, the Touchscreen or Touchscreen MAX can run larger programs faster. This processor puts the Touchscreen and Touchscreen MAX on par with the most powerful personal computers on the market, and makes it better than most industry standards.

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Expandability:
No Growing Pains

The Touchscreen and Touchscreen MAX are versatile systems, so they can grow up easily. All the expansion your customer needs can be done without your help. Accessories, such as additional memory, can be added in about 5 minutes by even a complete novice. Add-ons can happen at any point so your customers won't have to plan today for what they may, or may not, need tomorrow. The following are the major areas for expansion:

Internal Thermal Printer

The internal thermal printer (2674A) slips into the top of the Touchscreen or Touchscreen MAX and can be added by your customer in a matter of minutes. The paper loads automatically, making it very easy to use.

Ports

The Touchscreen and Touchscreen MAX come standard with an RS-232C, RS-422, and an HP-IB port. The HP-IB port can support up to 14 peripherals in a daisy-chain configuration. Your customers can run printers, plotters, modems, and other peripherals all on the power of one Touchscreen Personal Computer. And you don't have to worry about ordering the wrong peripheral, as the Touchscreen and Touchscreen MAX support both Centronics and HP-IL interfaces with an optional plug-in card (product number 45643A).

Memory

The standard 256K of RAM memory can be expanded to a maximum of 640K. The one expansion slot designated for memory will support any of the three expansion accessories: 128K, 256K, or 384K.

These options leave your customers a whole range of choices. The Touchscreen system will never force them into tailoring their needs to their computer's abilities, which is a crucial selling point in the fast-changing world of the computer industry. For more information about other peripherals, modems, and data communications accessories, see Chapters 4 and 6.

Mass Storage: Keeping
Good Memories Intact

We have designed some of the smallest, most reliable high capacity disc drive systems on the market today. The HP 9122D is a double-sided, dual microfloppy drive system that offers 710K bytes of storage per drive—more than twice the capacity of the IBM disc drives. The same microfloppy drive is also included in the HP 9133D. This drive is a combination double-sided microfloppy and 15M byte Winchester. The HP 9122D comes standard with the basic Touchscreen Personal Computer, while the 9133D is the standard system for the Touchscreen MAX Personal Computer. These new drives were designed specifically for the Touchscreen system, and are major contributors to its overall small size and high reliability.

The 3½-inch Disc

The foundation of these disc drives is a compact 3½-inch disc. Extensive testing has proven that this pocket-sized disc is one of the most reliable on the market today. It comes encased in a hard plastic shell with a metal shutter which covers the actual media. The shutter opens and closes only when the disc is inserted into the drive. This gives the data unprecedented protection. The media revolves on a steel hub for more accurate centering. Every disc comes with a special Media Monitor which alerts your customer when the disc is nearing the end of its useful life, eliminating fears of disc failure. This disc is four times more reliable than its predecessor, the 5¼-inch disc, and is being used by increasing numbers of manufacturers. We were just ahead of the pack.

Size

The 3½-inch disc allowed us to design disc drives that are not only reliable but compact. Each drive is designed to stack under the computer, and measures one square foot. For a computer of such power and capacity, this is a remarkable achievement. Your customers will appreciate the fact that their computers don't have to take over their desks to give them the mass storage they need.

The Dual 3½-inch Disc Drive (9122D)

This dual disc drive, the basis for the Touchscreen system, is the most standard and inexpensive choice for a single user or a small business. This drive uses two double-sided 3½-inch microfloppies. Each of these discs will hold a remarkable 710K bytes of (formatted) information. This is the equivalent of about 175 pages of single-spaced text, or 3,500 data base entries (200 characters each). This drive is reliable—four times more reliable than a conventional 5¼-inch drive—and very fast. It also offers your customer the crucial advantage of having a highly transportable mass-storage media: the 3½-inch disc.

Specifications for this drive are located in Appendix A, page 80.

3½-inch Microfloppy Plus Winchester Fixed Disc (9133D)

This drive is the mass storage standard for the Touchscreen MAX. It uses a 15M byte Winchester disc coupled with a single double-sided microfloppy. The 9133D has the advantage of having both a portable microdisc and high storage capacity. Fast, efficient, and flexible, this drive is an excellent choice for large applications such as integrated spreadsheet/word processing/graphics functions, data base management, or general accounting.

For specifications please see Appendix A, page 79.

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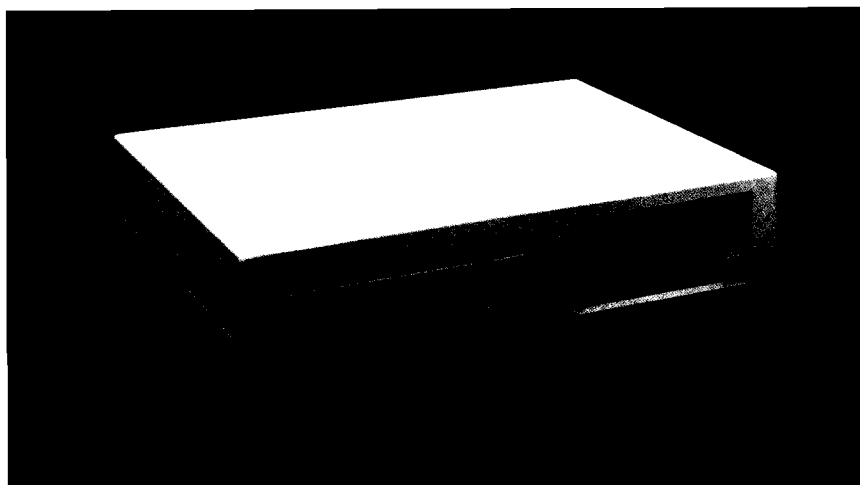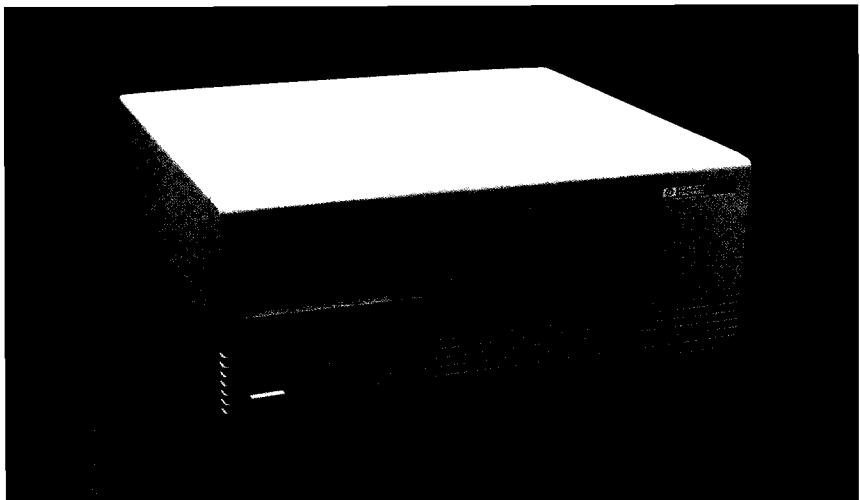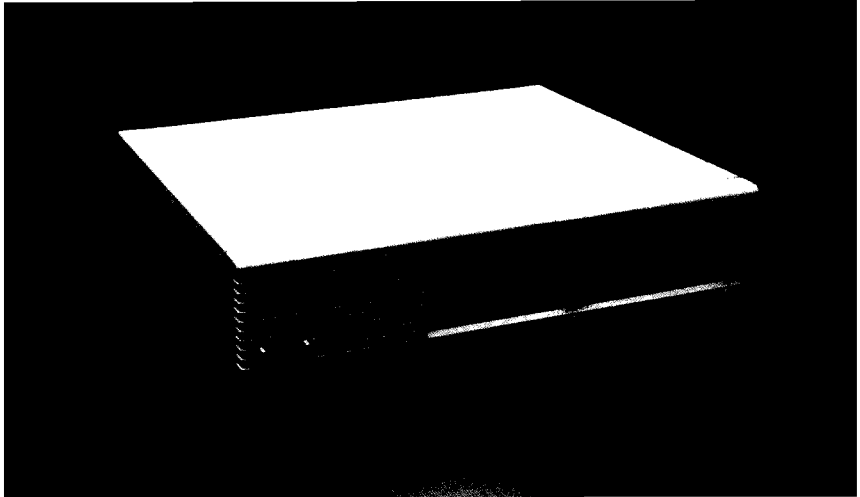
Portable Disc Drive (9114A)

We make a portable, battery operated disc drive for use with The PORTABLE. This drive uses the same media as the Touchscreen and Touchscreen MAX. Your customers can use this drive to transfer files between the Touchscreen and The PORTABLE. This is an important selling point for customers who may eventually have the need for both a desktop and a portable computer.

The 9114A is also the key to transferring files between a Touchscreen and an IBM PC. First hook a 9114A to an IBM PC and format your discs in the HP format. Then, file your data from the IBM PC to the disc which is loaded in the 9114A. This disc can then be read by either a Touchscreen, Touchscreen MAX or The PORTABLE. Please note that this disc drive is *not* supported on the Touchscreen systems.

Compatibility

For the customer who owns a Touchscreen that uses the earlier single-sided disc drives, you will want to explain about double-sided and single-sided compatibility. The double-sided drives (9122D and 9133D) are "intelligent," meaning they can read both double-sided and single-sided formatted discs. If your customer formats either a single-sided or a double-sided disc in a single-sided format, the disc can run on the Touchscreens or The PORTABLE.

For everyday use, you should remind your customer that it is wise to use corresponding discs and drives. The appropriate use of discs and drives will give optimum wear. In light of this, single-sided discs should be used in double-sided drives for information exchange only. Information should be copied to the appropriate disc as soon as possible.

We have come up with a simple system for distinguishing between single-sided and double-sided discs. Hewlett-Packard single-sided discs come encased in a blue jacket, while the double-sided versions wear gray. Most software will be released on media that can be used in single or double sided drives.

IBM PC/Touchscreen Compatibility Via 5¼-inch Discs

If your customers have the need to exchange information with an IBM PC via 5¼-inch discs, the HP 9125S is a single 5¼-inch disc drive that formats, reads, and writes discs in an IBM PC format. And because it can format in either single or double sided PC-DOS, this drive will give your customers maximum flexibility. The 9125S plugs into the Touchscreen or Touchscreen MAX and has the same footprint as our 3½-inch microfloppy drives. This means it will stack up nicely.

This drive opens up new markets for you. Businesses and major accounts that depend on IBM PCs will not consider other computers unless they have 5¼-inch disc compatibility. With this drive, you can confidently present your customers with a simple and thorough solution to this problem.

Tape Backup

The HP 9144A is a compact, ¼" cartridge tape subsystem designed for easy-to-use backup of HP fixed discs with capacities of 15–132M bytes. The tape drive operates in streaming mode for fast backup. Using a tape utility, the tape drive can backup the disc at up to 2M bytes/minute—a 15M byte Winchester can be backed up in just eight minutes on one 16M byte cartridge. The tape drive has the capability, depending on the system, for both selective file and image backup.

HP reliability is designed into the tape drive. Read after write capability offers immediate data verification. An integral media monitor warns when media wear may become a concern. Extensive internal diagnostics pinpoint potential problems for faster repair. The HP 9144A interfaces to the host using a Hewlett-Packard Interface Bus (HP-IB). Plus, its compact size allows it to be stacked on top of the other HP disc drives. See pub #5953-6834 for additional information.

Uses Double-Sided 3½-inch Microfloppies

9122S—This double-sided 3½-inch microfloppy is a single disc drive. It can only be used as an add on to existing disc drives.

Winchester Fixed Disc

9134D—This stand alone Winchester allows your customers to add the advantages of a 14.8M byte fixed disc to their existing floppy disc drive systems. This drive can also be added to systems with existing fixed discs, like the Touchscreen MAX. This drive is an excellent add-on for a customer who has greater storage needs.

Chapter 3—Focus on Software

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Chapter 3
Focus on Software

A Smooth Operator:
MS-DOS

P.A.M.: Softly Guiding
the Way

We believe in instant productivity. This means that any new user should be up and running on a Touchscreen within an hour. When it comes right down to it, for your average customer, the element of the system that makes this belief a reality is easy-to-use software and high quality documentation.

The newly designed disc utilities and a new version of our Personal Applications Manager make the Touchscreen and Touchscreen MAX easier than ever before to configure and operate. Plus, every Touchscreen system comes with easy to follow, full-color manuals which will help your customer get started.

Learn By Doing

Three of our best software packages now come with every Touchscreen system. These packages are MemoMaker, Personal Card File and Winning Deal. With these packages, your customer really can learn by doing. When the Touchscreen first comes out of the box, your customer is instructed to load the System Master disc and a software package.

When designing the Touchscreen system, we wanted to assure our customers that the computer would be able to run a large selection of software. The decision to use MS-DOS (version 2.11) by Microsoft was based on both the excellence and popularity of the operating system. MS-DOS has quickly become the industry standard for 16-bit microcomputers. Judging by the large number of third-party software vendors that are writing for HP personal computers, we made the right choice.

Once we chose the operating system, our engineers began to add to it the special features of the Touchscreen system like HP Touch, the softkeys, and graphics. The advantages of these special features are readily apparent in much of the software that has been produced for the Touchscreen system by us and by third-party vendors. Because of the special features that have been incorporated into Touchscreen software, we can offer packages for our computers that your customers can't get anywhere else for any price.

The enhancements that we made to MS-DOS have been well documented, and we ask that all third-party software vendors utilize the Touchscreen's unique features in their software packages. The many current software offerings can be found in the latest edition of the Software List

One word of caution: Non-generic MS-DOS software will not necessarily run on the Touchscreen or Touchscreen MAX. Please consult the HP software publications to make sure that the programs are applicable before your customer buys.

P.A.M., or the Personal Applications Manager, is part of what makes the Touchscreen and Touchscreen MAX so easy to use. When customers turn on the Touchscreen or Touchscreen MAX, P.A.M. greets them with softkeys naming all of the applications that are currently installed in the computer. Touch the application you want, and the softkey labeled START APPLICATION, and your program is loaded. If your customers get stumped, they can touch the softkey or screen-labeled HELP key and P.A.M. will come to the rescue. They don't have to remember complicated codes for common operations; P.A.M. does it for them.

What all this means is unprecedented ease of use. P.A.M. is an intuitive application that lets even a complete novice get on-line in minutes. More advanced users will appreciate not having to enter tedious series of codes for common operations.

One of the most common operations that P.A.M. simplifies is file management. The File Manager option lets your customers check and change file directories, or create, name, re-name, and copy files. P.A.M. will also format discs, and even change the internal time and date clock. A touch of the screen will also let your customers enter the terminal mode (see Chapter 5 for more information on this option).

Personal Card File

This innovative personal filing system, which comes with the Touchscreen and Touchscreen MAX, takes full advantage of HP Touch. Based on the metaphor of a Rolodex card file, your customers can find any card they desire with a simple touch of a finger.

Work Discs: Hard-Working Managers

This program is more than just easy to use: It is very powerful. Each card holds from one to 1,600 characters, and each file will hold 550 cards. PCF can find cards for you based on any piece of information. For example, if you want to find all your customers who have made a purchase of more than $50.00 in the last six weeks, PCF will quickly find them for you.

PCF is an excellent tool for the customer who is just getting started on the Touchscreen. Its many capabilities will make it an often-used source of lasting value.

MemoMaker

MemoMaker is a very simple, HP Touch-activated word-processing program that comes with every Touchscreen system. Because of its powerful editing features and WordStar® compatibility, it is ideal for customers who don't need sophisticated and complex word-processing solutions.

The cursor can be moved, and text moved or erased with a touch of a finger, giving your customer the formatting capabilities of many fancy word processors. And, with MemoMaker, what you see on the screen is what you get on paper. So, your customer can begin to use MemoMaker almost as soon as their new Touchscreen system is out of the box.

High Quality Documentation

Both MemoMaker and Personal Card File come with our new two-part documentation *Setting You Free*. Both booklets are full color and easy to use. The first booklet is a tutorial to help your customer get started. The second is a well-organized reference guide to help your customer find quick answers to questions. This documentation will make our software packages even easier to learn and use than ever before.

Four work discs come with each Touchscreen system. Two of these are the major work discs. The first contains the software packages discussed previously, Memo-Maker, Personal Card File, and Winning Deal. This disc is called the Applications Work Disc.

The second disc is called the Systems Work Disc. (The final two discs are simply copies of the programs contained on the Systems Work Disc.) This crucial disc does all your dirty work for you. It includes programs for formatting discs, making copies of discs, configuring the system, altering P.A.M., and MS-DOS commands. The following are summaries of the major functions of the Systems Work Disc.

Easy Config

Anyone who has struggled to configure the old Touchscreen system will greet this application with pleasure. Easy Config lets you set the default configurations for the Touchscreen system by touching pictures on the screen. This application is a major reason for the new Touchscreen's instant productivity.

MS-DOS Commands

This application lets the user exit P.A.M. and work directly with MS-DOS. Customers who are computer experts or programmers will want to know about this capability.

Install/Remove

This program allows the user to alter the names of the various applications that appear on P.A.M. when the computer is first turned on. For example, your customer has a Touchscreen MAX, and just bought a copy of WordStar. In order for P.A.M. to know that

WordStar is now on the fixed disc, your customer must "install" WordStar with the Install/Remove disc. This program also lets customers make copies of software so that they don't have to use their master discs for daily operation.

Set Up P.A.M.

Perhaps your customer uses one application, like VisiCalc,® most of the time. This program lets the user make VisiCalc the first choice on the menu, or automatically run VisiCalc when the computer is turned on, in a sense "bypassing" P.A.M. This utility lets you alter P.A.M. to fit your own needs.

Format

This crucial program lets your customer format either Winchester fixed discs or microfloppies without ever touching the keyboard. Your customers won't have to worry about memorizing complicated formatting commands every time they want to use a new disc.

Copy/Backup

This disc allows the user to make backup copies of their micro-floppies, and to copy one or more files from one disc to another. The "Backup" facility of this disc can also select files by date, and store them in a compact, space-saving format.

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Chapter 4—Peripheral Visions

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Chapter 4
Peripheral Visions
Printers: Hard Copies Made Easy

We offer a wide range of printers for the Touchscreen and Touchscreen MAX. These printers vary in performance and cost so it is wise to listen carefully to your customers' needs and desires to determine the best one for them. Among the many listed below, there is certainly one that will fit the bill.

The ThinkJet Personal Printer (2225)

The ThinkJet Printer is a unique new printer, quite unlike any other printer on the market. It is small, high quality, low cost, and whisper-quiet.

In addition to all of the above, The ThinkJet Printer is fast. It prints at 150 characters per second and is bidirectional. This means it will print about a page a minute. And because it can underline or print boldface without overstriking, it can print anything at jet speed.

The ThinkJet Printer is an "ink-jet" printer. This means that the ink is actually sprayed on the page by tiny ink-jets. This is why it is so quiet. Unlike an impact printer, the print head never touches the paper, so there is no pounding to disturb you while you work. What is really revolutionary about The ThinkJet Printer, aside from its low price, is the disposable print head cartridge. This little cartridge simply snaps into the printer, prints for about 500 pages, and is very inexpensive to replace. Say good-bye to messy ink and ribbons at last.
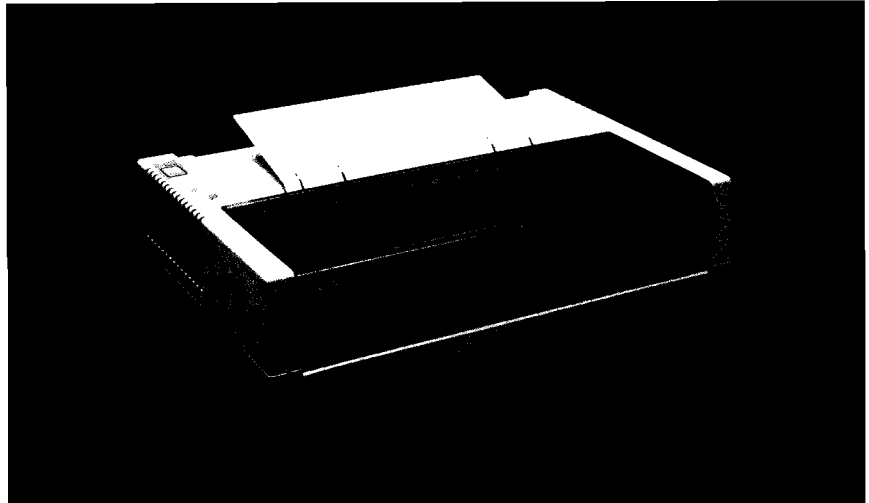
To ensure your customers are sufficiently impressed by this fast, silent, and affordable printer, let them give it a whirl. They will be amazed at the crisp results. This dot-matrix type printer is of such high quality, that most people find it sufficient for letter printing. At 11 x 12 dots per character, it is hard to believe that this is a dot-matrix printer.

The ThinkJet Printer is the all-purpose printer for the Touchscreen systems. It is the most logical choice for customers who need a low-cost, fast printer. The ThinkJet Printer covers a large range of potential customers, from small businesspeople to corporate customers.

Specifications

Print Method—ink-jet dot-matrix.

Resolution
—graphics—96 x 96 dots per inch or 192 x 96 dots per inch.
—text—   11 x 12 dots per character.

Speed—150 characters per second (bidirectional, logic seeking).

Buffer Size—1K byte.

Noise—less than 50 decibels.

For further information, please refer to *The ThinkJet Printer Sales Guide*, publication #5953-7944D, or call (800) 648-8004 for instant help.

The LaserJet Professional PC Printer (2686A)

This remarkable new letter quality, high speed printer is designed for customers who use their printers extensively. You might suggest it to your Touchscreen MAX customers. The LaserJet Printer will barely wince at printing in excess of 2,000 pages a month, or more than 100 pages a day. This type of heavy-duty capacity turns the Touchscreen or Touchscreen MAX from a personal computer into a personal business miracle.

The LaserJet Printer actually prints with light, a laser to be exact, and works much like a standard office copier. It is quick, quiet, and efficient. Any paper that will run through a copy machine will work with The LaserJet Printer. (Please note: Letterhead should be heat sealed so that it won't bleed.)

The LaserJet Printer prints a remarkable eight pages per minute, which translates into 300 characters per second, or up to ten times faster than a daisywheel printer. This kind of speed will give your customer whole new realms of productivity to explore.

Because The LaserJet Printer doesn't rely on print heads or daisywheels, it can produce mixed text (numbers and words), mixed fonts, and graphics on a single page. Any customer that has had to cut and paste a graph in place will know the benefit of this feature. The LaserJet Printer does all this with a whisper. It prints at less than 55 decibels, which is about the noise level produced by turning a page in this manual.
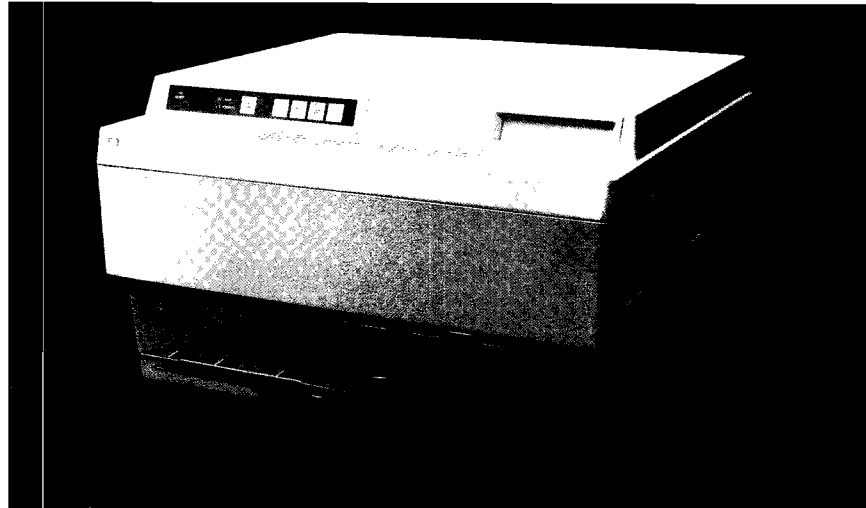
The print resolution of The LaserJet Printer is a remarkable three times better than the standard dot matrix. It prints 300 dots per inch. The result of this precision is a print that is as good as the best high-end daisywheel.

The LaserJet Printer is the choice for the customer who needs a very fast, very durable, letter quality printer. The fact that it is also quiet, attractive, and flexible can only help to clinch your sale.

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Specifications

Print method—Laser with heat seal.

Resolution—300 dots per inch.

Speed—300 characters per second.

Noise—less than 55 decibels (very quiet).

Throughput—500–3,000 pages per month.

For more information, please refer to *The LaserJet Printer Sales Guide* (part #5954-1120D).

The Internal Thermal Printer (HP 2674A)

The Internal Thermal Printer was designed exclusively for the Touchscreen. It can be easily installed by your customer in a matter of minutes. Just slip it in its special compartment, hook up the one simple connection, configure the system, and you're off and printing.

A printer that fits in the top of a one-foot square computer isn't going to fill up your desk. Imagine needing a hard copy of something quickly. With this printer and your Touchscreen or Touchscreen MAX, all you do is touch the screen and, presto, your copy emerges from the top of the computer. Sound almost too good to be true? It gets better.

This printer prints 150 characters per second. That's fast. And because it is a thermal printer, it is also quiet. It prints in a high resolution dot-matrix configuration (90 dots per inch), so graphics are sharp and bold. Its standard operation uses roll paper, but your customers can use fan fold paper if they prefer.

All this means that this printer is ideal for the customer who needs a quiet, convenient, and compact printing option.

Specifications

Print method:—Dot-matrix/90 dots per inch.

Print Modes:—Strike out, underline, double strike, and boldface.

Speed:—150 characters per second.

Paper type:—Thermal roll-paper.

Other Printer Choices

HP 2932A and HP 2934A
These two choices print text and graphics very quickly (220 characters per second) and quietly. They both have the advantages of last form tear-off which means reduced paper waste. 136 column printing, ease of use, and graphics capabilities make these printers excellent single-printer choices for data and word processing. Feature selection is simple with nine resident languages, two fonts (serif and sans serif), selectable print pitches, line spacings, and margins.

The 9 x 12 character cell will handle overprint character, overprint line, strike out, underline, and double strike. The HP 2934A also supports boldface, superscript, and subscript.

Daisywheel printers
The HP 2601A and 2602A daisywheel printers offer excellent print quality for both low and high end word processing. Both printers come with proportional spacing, bold and shadow printing, and underlining. The 2601A prints at 25 characters per second and is best suited for the low-volume single user. The 2602A, with its 40 character per second print speed, is a good choice for the high volume or multiple-user customer. Both printers have tractor and sheet feed accessories, a selection of print wheels, and will handle paper up to 15.25-inches wide.
2601A—Daisywheel serial printer
242—RS-232C interface
26010A—Bidirectional tractor feed for 2601A
26010D—Dual-bin sheet feeder for 2601A
2602A—Low cost daisywheel serial printer
std—RS-232C interface
046—HP-IB option

Other Printers To Suggest:

If your customers require:	Have them look at:	
	HP DEALER	HP SALES REP
An inexpensive general-purpose printer	ThinkJet ink-jet printer	
	HP 2225	HP 2225
A printer that uses tractor-feed paper	Any of the impact printers	
	HP 82906A	HP 82906A
	HP 2602	HP 2601
		HP 2602
		HP 293X Series
A printer that uses paper narrower than 8.5 inches	Any of the impact printers	
	HP 82906A	HP 82906A
		HP 293X Series
A printer built-in to a Touchscreen	Thermal printer	
	HP 2674	HP 2674
The ability to do color graphics	Plotters	
	HP 7470	HP 7470
	HP 7475	HP 7475
A printer that prints multi-part forms	Any of the impact printers	

Plotters: Color My World

Known throughout the industry as experts in the area of graphics, we have devoted a great deal of research and resources to bring you the best plotters on the market. In fact, we have been making digital plotters for 14 years. Combine the quality of our products with their ease of use, and you have plotters that the competition will find tough to beat.

Professionals are coming to depend more and more on graphics to get their messages across. Graphics help to highlight trends and relationships, and analyze data. Even the most complex information becomes easy to grasp when translated into a clear visual image. Recent studies show that graphic information reaches people up to 60,000 times faster than written information. With our plotters and a Touchscreen or Touchscreen MAX, your business customers can produce state of the art graphics quickly and easily.

Features

Both our 2-pen personal and 6-pen professional plotters come with a phenomenal set of features. Very high resolution (0.025m or 0.001 inches) means that the plotters can draw perfectly straight lines and smooth curves. All lines meet exactly, every time, forming superior characters and circles.

Automatic pen-capping and pen damping mean your customer's pens will last longer, draw brightly every time, and be ready whenever they are. These pens come in two line widths and a rainbow of colors. Both plotters can draw on either paper or overhead transparency film. And they are fast. With a velocity of up to 15 inches per second, your customer won't have to wait long for beautiful results.
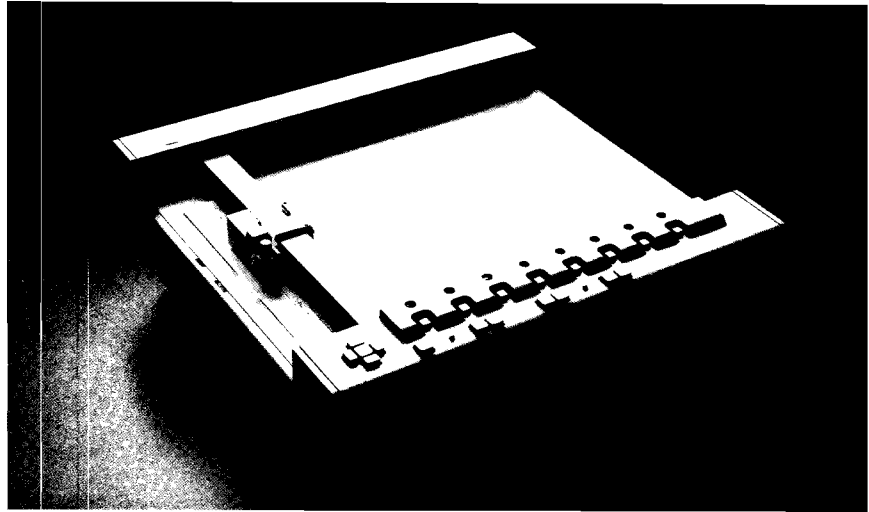
HP plotters are very easy to use. The Touchscreen or Touchscreen MAX run a number of excellent software programs including Series 100/Graphics, Picture Perfect, Diagraph, 1-2-3™ from Lotus,™ Graphwriter, GraphPlan, and Context MBA. These plotters are intelligent: Your customer doesn't have to understand how to select characters or govern pen movement to use them. The plotter takes care of all that. All your customer has to do is make choices through the friendly front panel controls. And, best of all, HP plotter documentation is so good and easy to understand that the 7470A manual was awarded recognition for its excellence.

2-pen Personal Plotter: The HP 7470A

Two-color plotting is automatic with the HP 7470A. To add more colors, just stop the plotter, snap in new pens, and keep plotting along. Five internal character sets, including three European sets, make the HP 7470A a smart plotter. Paper or transparencies are perfectly positioned by the flip of a lever. This plotter is an excellent choice for the small business-person who wants the capability to make excellent graphic presentations.

6-pen Professional Plotter: The HP 7475A

The 6-pen plotter is the answer for professional customers who need a high quality, flexible plotter. This plotter has all of the features of the 2-pen plotter and more. The HP 7475A will plot on two sizes of paper, 8½ x 11-inch or 11 x 17-inch, which allows your customer to make graphs for either reports or presentations. Just drop in a carousel, load a sheet of transparency film, and your customers can quickly create overhead transparencies. The six pen stalls allow your customer to employ a wide range of colors in both thick and thin pen widths.

A built-in demonstration plot lets your customer test colors before beginning the operation. A special view button lets them see the chart in mid-plot. Touch another button, and the chart can be rotated 90 degrees, easily incorporating vertical charts into a horizontal format, and vice-versa.

See page 82, Appendix A, for plotter specifications.

For more information about any of these plotters, or to order manuals, additional information, or sales aids, contact your HP rep, or call (800) 574-3400.

Chapter 5—The Terminal Option

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Chapter 5
The Terminal Option

The Touchscreen offers a crucial option for businesses that own mainframe computers: It can function as a block mode terminal. When functioning as a terminal, the Touchscreen offers more features than either the popular HP 2622A or the HP 2623A terminals. More importantly, it can also be used as a fully functional personal computer just by adding a disc drive.

Here are two lists that tell you at a glance what the Touchscreen shares with other HP block mode terminals. Your customer may be familiar with, or currently using, these other terminals.

What It Shares With the HP 2622A

■ Character or block mode data transmission.

■ 8 user- or program-defined soft-keys with screen labels.

■ Friendly on-screen menus.

■ Built-in local editing (insert/delete character or line).

■ Control characters that can be displayed.

■ Inverse video, blinking, underline, half-bright.

■ Memory lock (lock part of the screen and scroll under it).

■ Flexible datacomm (110 to 9600 baud, various handshakes).

■ Optional internal thermal printer with system control via escape sequences.

■ Cursor sensing and positioning.

What It Shares With the HP 2623A

■ 512 x 390 pixels (picture cells) on screen.

■ Accepts vector escape sequences at 4800 baud without handshake.

■ Tektronix 4010 emulation mode—runs PLOT 10 software.

■ Hard copy in 30 seconds.

In addition to the above features, the Touchscreen Terminal has a lot more that your customer will want to know about. Its small size, HP Touch, sharp picture, speed, power, and flexibility all make it more advanced than other HP terminals.

Additional Features of the Touchscreen Terminal

In Forms Mode

■ Line drawing and math character sets standard.

■ Transmit-only fields.

■ Non-display or security fields.

■ More efficient thanks to a data-modify tag.

■ Edit checks (alpha, numeric, and alpha-numeric).

In Graphics Mode

■ Tektronix 4014 emulation.

■ Complex polygonal area (up to 105 vector perimeter).

■ Rubber-band line.

In Datacomm

■ Speed (19,200 baud transmission rate).

■ Synchronous capability standard on port 1.

■ RS-232C datacomm port standard.

■ HP-IB port standard.

Easy To Use

■ Smooth scrolling text is easy to read.

■ Clock maintains time and date even when terminal is unplugged.

■ Brightness and focus easily accessible.

Software

One important selling point for the Touchscreen Terminal is that Software that runs on other HP terminals will run on the Touchscreen. This includes such favorites as Precision Visual's DI-300 and GRAF-MAKER; TELL-A-GRAF; and HPDRAW, EASYCHART, HP DESK, and HP MAIL.

Advantages over the HP 2382A

For the HP 2382A user, the Touch-screen Terminal offers these advantages: green phosphor screen, graphics, integral printer, second datacomm port, and the option to expand to a personal computer.

The benefit of all this is that the Touchscreen will give your customers a smaller, sharper terminal without forcing them to train employees on new software.

International Character Sets

Every Touchscreen Terminal contains all the international character sets. The characters are transmitted in either seven-bit mode, which uses ISO replacement character sets, or in eight-bit mode, which uses HP Extended Roman ASCII. (See the *Touchscreen User's Reference* for more information.)

Upgrading To a Personal Computer

The Touchscreen Terminal comes with everything you need to run it as a Touchscreen or Touchscreen MAX personal computer. The cables and operating system are all in the original package. All you need to add is a disc drive. Adding a dual, double-sided microdisc drive will convert the Touchscreen Terminal into a standard Touchscreen Personal Computer. The addition of the combined 15M byte Winchester/double-sided microfloppy will give your customer a Touchscreen MAX.

Should your customer prefer to upgrade using 5¼-inch discs, this is slightly more difficult, but possible. It would be wise to find out why he has this need, as the 3½-inch discs are more reliable, portable, and offer a wider range of software offerings. Ordering information for the necessary parts is in Appendix C.

Some Words of Caution

Graphics and Alpha
The Touchscreen Terminal has 27 lines of alpha. This includes 24 lines of text, 2 lines for softkeys, and the status line. Thus, the graphics field does not line up exactly as with the HP 2623A which operates with 26 lines. This will only be a consideration for a customer who wants to use graphics and alpha simultaneously.

Multipoint
The Touchscreen Terminal has no multipoint. Your customer will have to use an HP 2333A in an MTS installation.

The Clock
Your customer can set the 24-hour, military format clock at any time, but the host system cannot set or read it.

Bold and Italics
The bold, italics, and bold italics character sets are only usable when the Touchscreen Terminal is upgraded to a personal computer.

How It Compares

Feature	2622A	2623A	2382A	2624A	2625A	2628A	Touchscreen Terminal
Footprint	std.	std.	small	std.	std.	std.	small
Screen	12"	12"	9"	12"	12"	12"	9"
Graphics	No	Yes	No	No	+ $600	+ $600	Yes
Smooth Scroll 19,200 Baud	No	No	No	No	Yes	Yes	Yes
Limited edit checks, transmit fields, data mod.tag	No	No	No	Yes	Yes	Yes	Yes
Advanced edit checks, forms cache	No	No	No	Yes	No	No	No
HP WORD	No	No	No	No	+ $500	Yes	No
Multipoint	No	No	No	+ $400	+ $50	+ $50	No
IBM 3278	No	No	No	No	Yes#	No	No*

Notes:

\# The 2625A terminal emulates an IBM 3276 controller (bisync only), whereas the Touchscreen emulates an IBM 3278 display station.

* The Touchscreen requires a disc drive and the IBM 3278 Emulation Accessory to emulate an IBM 3278-2 terminal. See Chapter 6 for more information.

Chapter 6—Networking and Data Communications

6

Chapter 6
Networking and Data Communications
Sharing With Others

A Meeting of the Minds

The first part of this chapter explains *networking*. Networks link computers together so they can talk to each other. The latter part describes *data communications* products which move electronically coded information around over wires or cables. These products will let a Touchscreen talk to other personal, mini-, and mainframe computers, as well as outside information sources.

Hewlett-Packard offers a family of communications products that make sharing information and resources as simple as arranging a business lunch.

Personal computers should be able to quickly and freely transfer data to other computers. Otherwise, it's the Tower of Babel revisited. Every person and machine in the office may be doing a fine job individually, but no one is talking to each other.

The Pay Off

At the end of this chapter, a pot of gold awaits you: The potential customers networking and data communications products can attract. You'll be rapidly repaid many times over for the time you take to read the few following pages.

6

The Local Area Network: Making Good Connections

Coming to Terms: A Quick Definition

Hewlett-Packard Personal Computers are now supported on a popular local area network (LAN) from 3Com Corporation. LANs are groups of personal computers linked to one another within a localized area.

We are offering the third-party network because it is a widely accepted personal computer networking solution that will fill the needs of a broad range of Touchscreen customers.

Since it is a third-party solution, customers should not be sold the 3Com product with the expectation that the LAN will link to networks HP will develop in the future.

Instead, the 3Com network represents a stand-alone solution that addresses the needs of HP personal computer customers who don't need to network with HP minicomputers. For those customers, the 3Com LAN can be sold, with excellent results, to link Touchscreens or to tie into existing 3Com networks made up of other brands of personal computers.

Hewlett-Packard is currently developing a LAN that will offer a more HP-product oriented solution, particularly for customers who need to network with our minicomputers.

The Day of the Network

Many network "solutions" have come and gone. In the 1950s and 1960s, one mainframe meant a handful of highly-trained technicians had access to computing power. With the introduction of minicomputers in the 1970s, a few more people, usually data-processing technicians, had terminals. Now, with micro- and personal computers, millions of people, for the first time, can afford computing power. The goal of a computer in every building has evolved into a computer on every desk.

Before networks, personal computer customers had to have their own disc drives, printers, and plotters. Talking to neighboring personal computers, a common need in business environments, meant transporting floppy discs from office to office, a time-consuming process at best.

LANs solve these problems, allowing peripherals and information to be easily and quickly shared. Many businesses are now investigating the advantages of LANs, because they make sense and save dollars.

Wide Open Markets

Conservative estimates project that 20% of today's personal computer customers will want to network in the near future. As the personal computer market grows, so will the demand for LANs.

Right on Target: Your Best Market

The LAN market is made up of businesses or institutions that own two or more personal computers. This is a large potential market.

The most efficient place to focus your sales energies will be towards businesses with good growth potential.

One of the big advantages of selling networks lies in their expandability. Often, businesses will test the waters with a pilot network. Once this pilot is up and running, add-on sales come easily. As the businesses grow, more sales just keep coming in. It is analogous to selling a life insurance policy. You only have to sell the policy once, but the profits keep coming in for years.

Out with the In Box

A network means savings of time and money. Mail and memos can be sent and received in a split second. No more stacks of paper cluttering desks and mail rooms. Group projects can be shared more easily. Misplaced files and reports become a thing of the past. And, perhaps the biggest plus, high-performance peripherals can be shared. High-quality printers such as the LaserJet Professional PC Printer can be used by up to eight simultaneously active personal computers. Large-capacity fixed discs can also be shared, allowing users the substantial speed and storage advantages of fixed discs at a fraction of the cost.

To summarize, installing a LAN means:

- Each personal computer can access group information.

- Your personal computer customers can communicate with one another faster and more efficiently.

- Peripherals can be shared.

Unveiling 3Com's LAN: Meet the EtherSeries™

"If 3Com's Ethernet has the features you need in a network, you can purchase it without reservations; you're buying a Cadillac ... any feature will work flawlessly."
—*P C Age, September 1983*

The third-party networking solution which we are currently offering was developed by 3Com Corporation. (This is short for *computer communication compati-bility*.) This next section will give you a working understanding of 3Com's EtherSeries, and show you why your customers will want this product. EtherSeries is based on something called the Ethernet.

Ethernet

"Ethernet" is a term that refers to a type of LAN. Ethernet was developed in the late '70s by Xerox, and became an early leader in defining industry standards for LANs.

An Ethernet is simply a way of hooking personal computers together with cables. Ethernet is a "bus" topology. The cable runs in a straight line, passing once through each personal computer.

Think of it as a string of decorative outdoor lights, with every bulb being a personal computer. You can loop the lights around your garden in any pattern, just as you can put your personal computers anywhere you want in an office. The only requirement is that all your personal computers be connected to a common cable.

Or think of an Ethernet as a party-line telephone system. All the phones, or personal computers, are connected to one line, or cable. Every phone has its own number. To place a call or send information, a caller first picks up the phone and listens to see if the line is busy. If it is free, the caller places the call, which can be heard by all the phones, but is only answered by the appropriate party.

Sometimes two callers hear a quiet line and send their messages at the same time. When this happens, both calls are garbled. An Ethernet solves this problem with what has been termed the "cocktail-party" solution (the official name is "colli-sion-detection"). Both callers back off for a random amount of time, and then send their messages again, just like two people at a cocktail party who start to speak at the same time.

But Ethernet is to a telephone party-line what the space shuttle is to a propeller-driven airplane. Information passes from personal computer to personal computer along the common cable at the remarkable rate of 10 million bits per second. This means that even on a heavily used network, communication is ultra fast.

Now that you understand how a basic Ethernet works, you are ready to hear the formal term for the way a number of personal computers can share one wire. It is called "carrier-sense, multiple access with collision detection", or CSMA/CD. This simple concept with the complicated name, as outlined in the telephone example above, is the basis for 3Com's Ethernet system, EtherSeries.

An EtherSeries Overview

EtherSeries is a family of hardware and software products. The hardware lets you physically link the personal computers. The software gives the personal computers rules for talking to one another and for managing the shared peripherals.

The 3Com EtherSeries products for the Touchscreen make extensive use of HP Touch so they get going with the touch of a finger. Getting into and out of the network is as easy as pushing a button. Even new personal computer customers will find EtherSeries a quick and simple networking solution.

What EtherSeries Does

EtherSeries has four major components:

- *EtherLink™*/150—the hardware that hooks the Touchscreen or other personal computers to the network—an easy-to-install plug-in accessory board. EtherLink also includes the software that allows the customer to get on the system. Every personal computer must have an EtherLink package to use the network.

- *EtherShare™*/150—the network server software that runs the system. This program lets personal computers share fixed discs and thus data, text, and programs. It includes built-in security devices so you can determine who will see what. Each network must have at least one EtherShare user software package.

- *EtherMail™*/150—network server software that creates the electronic mail system for the network. Your customers need at least one EtherMail user software package per network.

- *EtherPrint™*/150—the network software that allows customers to share printers. Your customers will need at least one EtherPrint user software package per network.

- Other types of software such as single-user data bases, spreadsheets, and word processors will run on a LAN. Network software which is truly designed for multi-user applications is under development.

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How it Works

The EtherSeries network supported by HP links from 2 to 100 personal computers. Each network is made up of pieces of cable linked into one long chain, like several strings of outdoor lights plugged together. The total length of network cables supported by HP is 300 meters.

The Hot Link: A Basic Network

Let's say you have five personal computers that you want to network. Every personal computer on the network is called a node. The cable that links the network passes through each node once. Returning to the example of the outdoor lights, each personal computer is like a bulb. (In this analogy, if one bulb is removed, the rest will still work.) In order for your string of lights to operate, you need a socket for each bulb. In the EtherSeries network, the "socket" is the EtherLink card.

The first step in building your network is to install the EtherLink card in each personal computer, and then connect the card to the cable. Once you have all the personal computers connected to the cable, you set them up so they can talk to each other.

The Network Server

Now all your personal computers are hooked up, but they can't communicate. What your network needs is something to manage the flow of information. It needs a brain.

The network server is the "brain" of the LAN. You need to choose a Touchscreen MAX to be a network server. This is a personal computer that will have your system fixed disc and shared peripherals attached to it. A network server controls which personal computers go into and out of the system.

The way a network server operates is simple. Every personal computer on the network must be assigned a network server. This is because all information that travels in the network must pass through a network server.

For example, if I want to send an electronic letter to another personal computer, the letter goes from my personal computer, into the server, and *then* into the other personal computer. In this way, the network server is the logical center of the system. (Remember, all the personal computers are linked in a long string, so there is no physical center.)

As another example of what the network server does, let's say that I want to get a file from Jim, a personal computer user in another group. Jim's file will be stored on his server's fixed disc. I would enter Jim's name and the file name on my personal computer through a simple series of HP Touch commands and keyboard entries. My signal goes from my personal computer to my server. Then, my server searches the network for a personal computer user named Jim. It finds that Jim is linked to Server3. So, my server sends my request to Server3, who finds the file on its fixed disc. Then it gets sent to my server, which loads the file into my personal computer.

The Touchscreen MAX becomes a server by using EtherShare server software. As I set up my five personal computers, the only difference between my server and the others is that the server has a fixed disc loaded with EtherShare software in addition to the EtherLink card. While the Touchscreen MAX is used as a server, it can't be used as a personal computer.

The 3Com LAN will work with other personal computers as network servers, such as the IBM PC-XT and the 3Com server. HP provides full support for networks that use a Touchscreen MAX as the server. See the network support section, page 49, for more information.

A network server can accommodate up to 50 personal computers. In practice, this many personal computers would not be efficient. Assuming that all the personal computers were using the network simultaneously, the maximum number the network could handle would be eight. For more about how to determine the best load for each server, please see page 48.

Summary

In order to set up a network, your customer will need an EtherLink card for each personal computer, and enough cable to hook them together. For the system to function effectively, your customer should choose at least one Touchscreen MAX or other computer for every group of up to eight simultaneously active personal computers to be a network server. This server will act like a switchboard connecting your customer with other personal computers on the network.

Now that you understand the basic set-up of an EtherSeries network, let's examine the components.

6

Cabling

Cabling is the step that takes the most planning. The best thing to do is to draw a diagram of the area you want to network. Find out how many personal computers your customer has. It is also important at this point to allow for future expansion. We'll go into more detail about planning on page 48.

EtherSeries uses a thin coaxial cable. This thin cable runs along the baseboards of any room as unobtrusively as a telephone cord.

Thin Ethernet cable comes in a series of standard lengths. Segments of cable can easily be plugged together with push-on/twist-to-lock connectors, making installation safe and easy. This cable also comes in custom lengths so any area can be easily accommodated. Cables and accessories are available through HP's Computer Supplies Operation.

EtherLink

EtherLink is the interface that allows personal computers to connect to the EtherSeries network. It consists of an easy-to-install plug-in board, and software that allows the hardware to talk to the network. (The technical term for this software is the "Ethernet driver.")

The EtherLink plug-in board runs at 10 Megabits per second. It can be installed in any personal computer in about 5 minutes even by a novice. The only tool you need is a screwdriver.

Once the board is installed in your personal computer, simply connect it to the thin Ethernet cable with a plug-in (BNC) connector.

An EtherLink package is required for every personal computer on the network, including the network servers.

Blueprint for the Automated Office

You and your customer should create a layout of the office where the network will be installed. This is an important part of planning for the client's current—and future—networking needs.

6
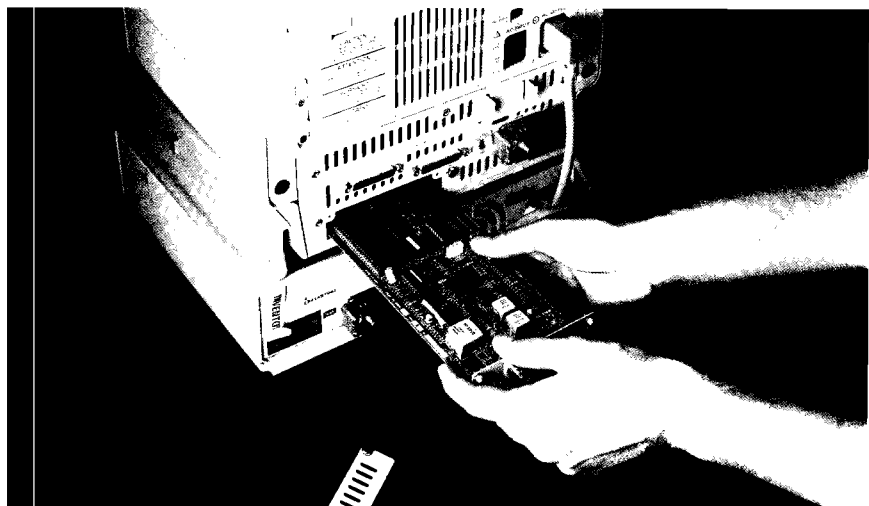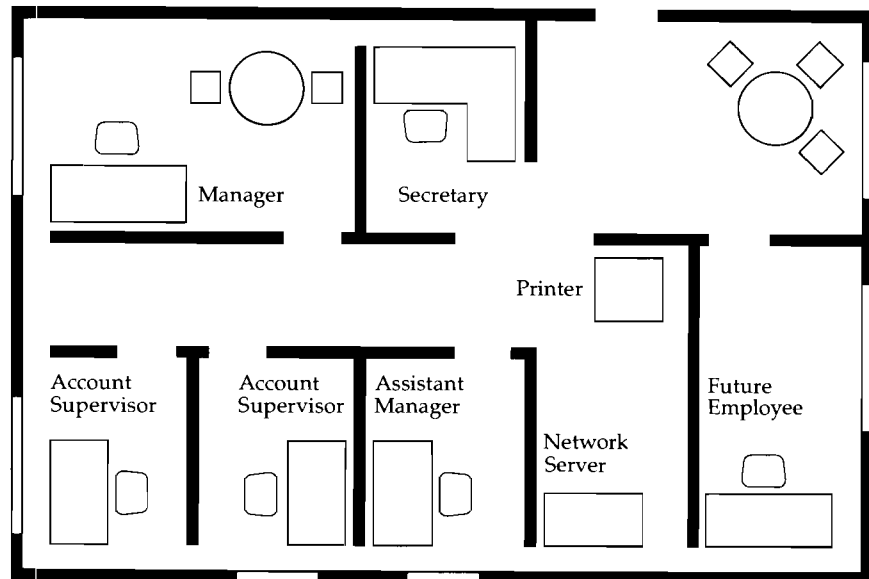
EtherLink cards are also available from 3Com for the IBM PC, IBM PC compatibles, and Texas Instruments personal computers. This allows you to sell the 3Com EtherSeries into an environment which uses many types of computers. But keep in mind that Hewlett-Packard only supports HP-based networks with either IBM PCs or HP Touchscreen Personal Computers as nodes. We also support Touchscreen computers that are operating in a multi-vendor environment.

EtherShare

EtherShare is the software of the EtherSeries that allows your network server to share its fixed disc with other personal computers. (The software that allows personal computers to access the server is included with the EtherLink card.) The ability to share mass storage, and thus files, is what a network is all about. If EtherLink lets the personal computers "talk" to each other, then EtherShare gives them something to talk about. It gives them common access to data.

Shared files, reduced numbers of fixed discs, and increased speed of communication are also results of EtherShare.

EtherShare acts as the manager of the fixed disc. It keeps track of files, doles out space to users, and determines who has access to what.

Sharing Information and Data Storage

EtherShare™/150 allows all the personal computers on the network to share the network server's Winchester fixed-disc drive.

Touchscreen Personal Computer

IBM PC

Touchscreen Personal Computer

Touchscreen MAX Server

Speaking Volumes

EtherShare keeps track of what information belongs to whom through the use of *system volumes.* A volume is simply a space on the fixed disc that belongs to a particular network user. It acts just like a disc would on a stand-alone personal computer. Through the use of volumes, EtherShare stores each user's personal data. Each server has a limit of 100 volumes. A volume can be any size from 64K bytes to 32M bytes in 1K byte increments.

Each system user can link, or "load," a volume into any one of four imaginary "drives." This process is just like loading your disc into a drive and closing the door. The EtherShare drives are completely dynamic, meaning your customers may use any one they want to. The drives are lettered C, D, E, and F. (These letters are assigned so your customers will not confuse the system's "drives" with their own personal computer's drives, A and B.)

Let's say your customer wants to file a letter into the volume where they store their letters. They have, for example, named this volume Volume 5. They would instruct EtherShare to link Volume 5 with, say, drive C. EtherShare would link the volume and they could start working. It's that easy.

Security Devices

There are three kinds of Ether-Share volumes. They are public, private, and shared. Each type of volume can have a special password assigned to it, restricting access. These types of volumes are designed to give system users as much or as little security as they need. EtherShare makes it possible to keep data confidential without any additional software.

Private Volumes

When a volume is created it is automatically created as a private volume. What this means is that the volume's owner, or creator, has exclusive read-write access to that volume. If the owner doesn't give the volume a password, then only he can get into that volume. This is a crucial security measure. If a password is assigned, then anyone who wants to use that volume must first give the password. Private volumes can only be used by one person at a time. Once a private volume is created, it can be changed to either public or shared.

Public Volumes

A public volume can be read by anyone on the network, but it can only be written on by its owner. If the owner gives the public volume a password, then all users must give the password to have access to the volume. If no password is assigned, then anyone can have free access to the volume. Public volumes are useful for files or programs that many users need.
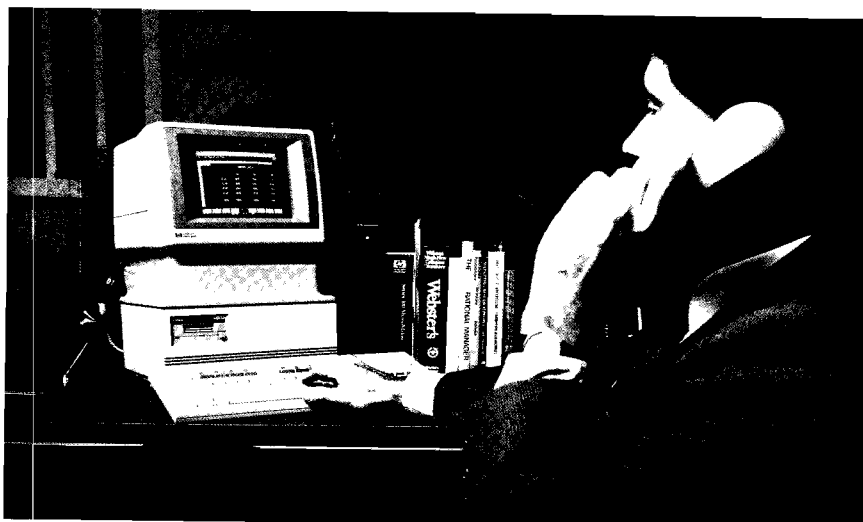
Shared Volumes

A shared volume gives multiple users both read and write access. This type of volume is particularly suitable for files that many users must be able to change, like inventory files. If a password is assigned to a shared volume, all users must give the password to use the volume. With a shared volume, many users can be using the file at the same time. As you can imagine, this could get sticky if multiple people were changing the files simultaneously. For this reason, EtherShare has a file locking system which uses "semaphores," which are protection devices. These devices let the software know when a file can and cannot be modified. Semaphores usually come in software packages that are designed to be used on a network. Your average customer will not be able to add them to the network software.

It is recommended that shared volumes always use semaphores, or locks. What these locks do is make sure that no two people can work on a file at the same time. For example, let's say a network is set up

in a towel factory. A salesman is on the phone with a customer who needs more green washcloths. So, the salesman calls up the green washcloth file, and sees that there are only 2 dozen left in the warehouse. He sells them, and then changes the file, so that the next person will know that all the green washcloths are gone.

The entire time that he has the washcloth file loaded into his personal computer, semaphores are locking other users out of that file. If there was no method for locking files, these washcloths could have been sold many times over by different salespeople.

In Short: An EtherShare Summary

EtherShare is the software that allows the server to share its fixed disc, and thus data, with the network. Without at least one server using EtherShare software, the network will not operate. Ether-Share also contains the security devices required for daily use.

The Power of the Printed Word

EtherPrint™/150 allows all the personal computers on the network
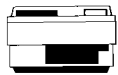to share one or two high-performance printers.

Touchscreen
Personal
Computer

IBM PC

Touchscreen
Personal
Computer

LaserJet Professional
PC Printer

Touchscreen MAX
Server

6

EtherPrint

With EtherPrint software, the
waiting game is over. EtherPrint
lets the personal computers on the
network use common printers.
Once you have established a net-
work server and loaded it with the
EtherShare software, you can add
EtherPrint. Each server can sup-
port one or two printers.

EtherPrint lets several people
share high-quality, fast printers,
which means reduced costs. With
this function, a printer such as The
LaserJet Printer makes sense for
any size business.

EtherPrint also saves time. When
your customer sends a file to the
printer to be printed, it frees them
to continue working. The file is put
"in line," or spooled-up, on the
server's fixed disc until the printer
is free. EtherPrint prints a banner
on each page, so that each cus-
tomer can easily find their job
when it is printed out.

Things to Remember

EtherPrint will only support The
LaserJet Printer and the dot-matrix
HP printers, 2932A and 2934A.
Multiple servers on a network can
run EtherPrint at the same time. A
new EtherPrint software package
must be purchased for each server.
EtherPrint will work with only se-
rial printers. HP will only support
the above mentioned printers with
serial interfaces on the 3Com
network.

EtherMail

Fast and friendly are the trademarks of EtherMail, the award-winning electronic mail software package. With HP Touch and EtherMail, your customers can be sending and receiving letters in minutes.

Electronic mail means less paper-clutter, faster communications, and a quieter work-environment. EtherMail lets you send files attached to messages, has a built-in editor, and will handle distribution lists.

EtherMail comes with user and server software. The server software is like the post office for the system, while the user software is like the mailbox. But, unlike the post office we know, distribution with EtherMail is instantaneous.

Messages can be created, edited, deleted, forwarded, and saved with EtherMail. All this happens with a very easy series of HP Touch commands. The on-screen editor includes automatic word-wrap, block-move, copy, and delete. EtherMail is a mini-word processor, and can also be used to write short reports and documents.

LAN Delivers

EtherMail™/150 can open—and dramatically speed up—the lines of communication in your office.

Touchscreen
Personal
Computer

IBM PC

Touchscreen MAX
Server

Touchscreen
Personal
Computer

Who Needs Them?

HP's EtherSeries can provide a network solution for businesses of all sizes and shapes. From old established firms to start ups, there is an EtherSeries network that will fit most businesses. That is because EtherSeries is, by definition, made to order.

Two Big Advantages

For you as a salesperson, EtherSeries opens up markets in two crucial ways. Because EtherSeries can network computers from many manufacturers, including TI, IBM, and IBM compatibles, you can break into new markets. With EtherSeries, you are no longer limited by compatibility questions. Many different computers can share, for example, the fixed disc on a Touchscreen MAX. You can begin by selling a customer one or two Touchscreen MAXs to act as network servers, and go from there. Once customers see how easy to use and sophisticated the Touchscreen systems are, they will come back for more.

The second big advantage is EtherSeries' expandability. The time and energy it takes to sell a small EtherSeries or a pilot network will reward you again and again as your customers' businesses grow. They will come back to add more personal computers to their network. Every addition means easy software and hardware sales. And, it is a very efficient and reliable network.

6

Picking up the Pieces: Designing a Network

There are two things to find out about any potential customer before you can advise them about the right EtherSeries network for them. These steps will work for any customer, regardless of the size of their business.

Step One

The most common bottleneck in any network is each server's fixed disc. The network is slowed down by too many simultaneous users. So, the first step is to find out how many simultaneous users each server can handle. You figure this out by asking your customer what kind of operations they perform on their system. Network activity falls into three categories.

1 *Heavy use*—This refers to customers who manage large amounts of data, such as software developers, scientists, or mathematicians. For these people, you should suggest no more than *two to three simultaneously active personal computers per server.*

2 *Sporadic but heavy*—A system that supports data-base applications or word-processing customers falls into this category. For this customer, you should recommend no more than *four to five simultaneously active personal computers per server.*

3 *Low sporadic*—Spreadsheet applications and graphics are examples that fall into this category. This customer may have the maximum number of simultaneously active personal computers per server: *eight.*

Many customers have needs that fall into more than one of the above catagories. With Ether-Series, this is not a problem. Each server on the network can support a different number of personal computers. It is easy to create a network that fills all of your customers' needs.

Step Two

The next thing to determine is how dependent your customer is on his computer system. If your customer has a business, or an area in a business, like accounting, where computer failure could mean big trouble, it is wise to recommend that they link their personal computers to two servers. Then, in the event that one goes down, the system can keep going by using the other server if the two servers have identical software and files. If a server goes down, all the personal computers linked to it will not be able to access the network.

As Easy As One-Two

To summarize the steps:

1 Find out the system uses

2 Find out about importance of continuous use

Now let's go through these steps with a real situation.

Sizing Up a Small Network

Patty Brown manages a small law firm. Her office had four personal computers that she wanted to network. Two of the personal computers, IBM PCs, were used by legal secretaries for word processing. One, an HP Touchscreen, sat with the receptionist who entered the data for billing. The fourth, another IBM PC, was in Patty's office and helped her keep track of supplies, employee records, and the office budget.

With the help of her local dealer, Patty began to set up her network. She decided to buy a Touchscreen MAX to be the network server, and a LaserJet Printer.

Before she ordered the software for the network, she drew a diagram of her office, and decided where to run the cable. She put the server and the printer in the storeroom to keep them out of the mainstream of activity. The order Patty placed looked like this:

Item	Quantity
Thin Ethernet cable (30 m)	1
Thin Ethernet cable (15 m)	2
Thin Ethernet cable (7 m)	1
EtherShare	1
EtherLink	5
EtherPrint	1
EtherMail	1
Terminator kit (one for each end)	1
Loopback plug (for diagnostics)	1

Sizing Up a Big Network

Scott Bradley started his advertising agency 12 years ago. In the last two years it has really taken off, and he decided that he had to do something about making things more efficient. Scott decided to create a network.

Before he installed his network, Scott had 6 IBM PCs and 12 Touchscreen Personal Computers. Two of his newer account executives had Touchscreens that they brought from home, and swore by. He decided to use Touchscreen MAXs as his network servers, and to buy seven more Touchscreens, and three LaserJet Printers to fill in his computing needs.

Scott's agency has six departments which each handle a major account. Each department has an account executive, an assistant account executive, and a secretary. Each one of these people has a personal computer. He also has an accounting office which has six personal computers, and a receptionist who has one.

Scott's salesperson helped him calculate that each department's workload was such that one server could handle two departments, or six personal computers. They figured that his accounting office would need two servers which could handle three personal computers each. His receptionist could plug-in to the departments with the smallest workload. His final network consists of five servers and 25 personal computers. Scott's order looked like this:

Item	Quantity
Thin Ethernet cable (7 m)	20
Thin Ethernet cable (15 m)	7
Thin Ethernet cable (30 m)	3
EtherLink	30
EtherShare	5
EtherPrint	5
EtherMail	5
Terminator Kit	1
Loopback plug	1

Support: We're There When You Need Us

EtherSeries networking products from 3Com cover a lot of territory in the computer market. HP, IBM, IBM-compatible, and TI personal computers can all network via the Ethernet networking standard using the appropriate EtherSeries hardware and software.

The broad offering from 3Com includes the use of both "thick" (0.4") and "thin" (0.2") Ethernet cable, as well as the ability to link different cable segments with devices called *repeaters*, which amplify the signals so they can travel further.

In addition, 3Com supports their own high-performance AP server, as well as network servers from IBM, TI, and, of course, Hewlett-Packard.

EtherSeries/150 products will function in all of these 3Com-supported network systems, and you can add them to existing 3Com networks with excellent results.
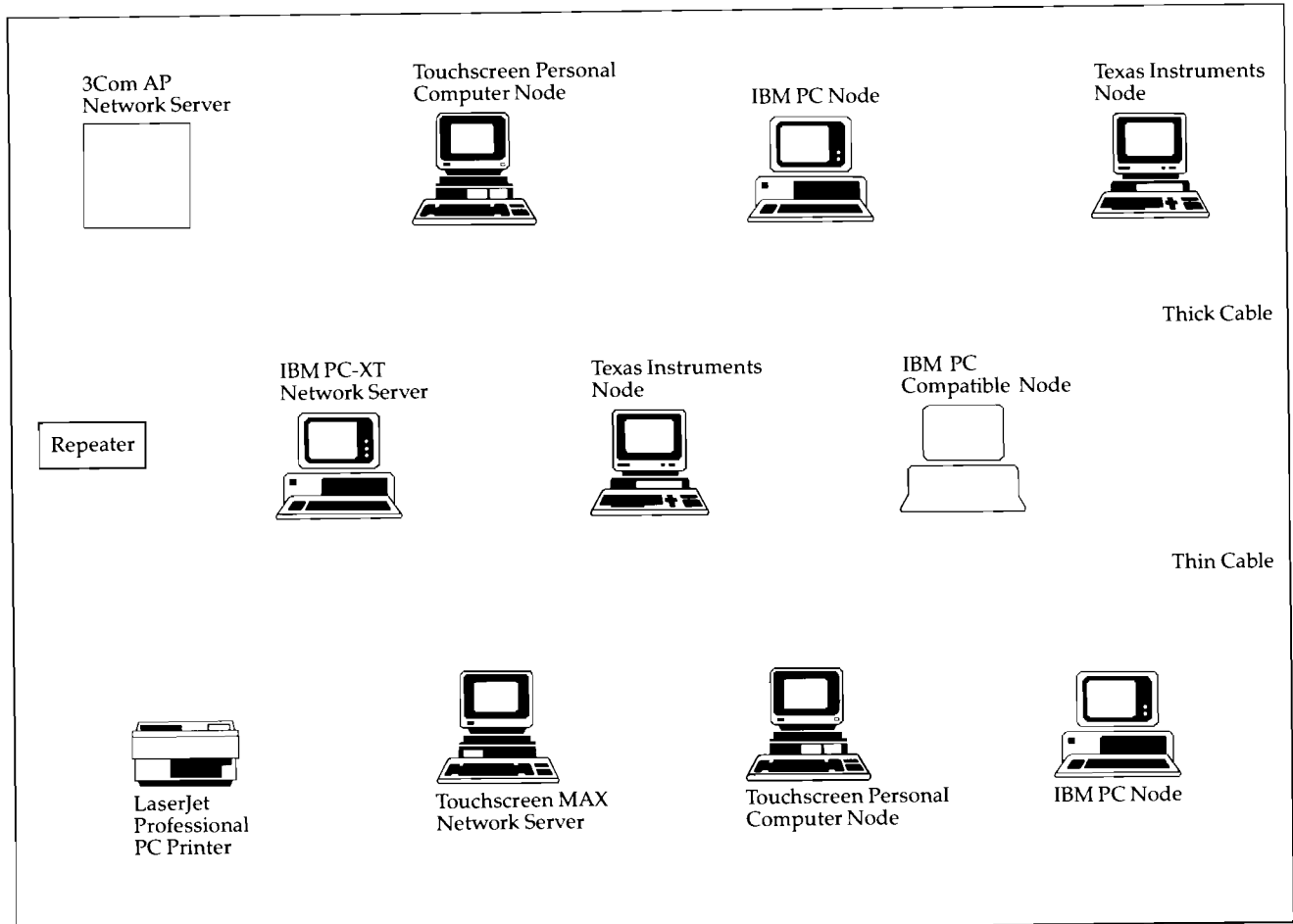
Support for 3Com products is provided by 3Com or through Xerox's Americare service organization.

Hewlett-Packard is the exclusive distributor of EtherSeries/150 products. In order to provide the best possible support, HP supports only a subset of the possible EtherSeries network configurations.

This doesn't limit the range of useful applications available to Ether-Series/150 customers. It simply allows Hewlett-Packard to provide the high level of support people have come to expect.

6

The Support Story

The broad offering of EtherSeries/150 networking products provides a wide variety of LAN configurations. Support alternatives are available from both Hewlett-Packard and 3Com.

3Com AP
Network Server

Touchscreen Personal
Computer Node

IBM PC Node

Texas Instruments
Node

Thick Cable

Repeater

IBM PC-XT
Network Server

Texas Instruments
Node

IBM PC
Compatible Node

Thin Cable

LaserJet
Professional
PC Printer

Touchscreen MAX
Network Server

Touchscreen Personal
Computer Node

IBM PC Node

3Com Supported LAN

We will support the following:

■ We will only support networks that use Touchscreen MAXs as servers, and that have Touchscreens and IBM PCs as nodes. However, all the personal computers mentioned so far will work on the network.

■ A network that is connected with thin (Thin Ethernet) cable.

■ The maximum length of a network that we will support is 300 meters which allows up to 100 personal computers to be networked.

■ To facilitate network support and provide diagnostic help, make sure that a loopback connector is purchased with each system.

If your customers want HP support, the network you design must conform to the above specifications. These specifications will allow you a great deal of room to move when designing a network. Both of the sample networks discussed previously would be fully HP supported.

Training and Support For Networking Products

To help your organization get started with 3Com's EtherSeries, a one-day on-site training visit to the customer site by a Hewlett-Packard Systems Engineer may be purchased. This provides:

- Training of customer network administrator on management of the network. Topics include: Start up, adding users, disc backup, network control, and problem resolution.

- Training of customer on operation of EtherShare, EtherPrint, and EtherMail, as appropriate to the installation.

Telephone software assistance is available for networks which have one or more Touchscreen MAX servers, and have Touchscreen, IBM PC, or IBM PC-XT user systems. This service is provided to your network administrator by Hewlett-Packard under a Response Center Support Contract.

Hardware service contracts are available from Authorized HP Personal Computer Dealer Repair Centers for Touchscreen systems—including coverage for Etherlink/150 cards.

We're there when you need us.

Questions, Answers, and Objections

It's too complicated.

This is a common objection that is raised about LANs in general. This objection probably stems from the many highly technical articles that have come out about networking in the last few years. The insides of EtherSeries may be complicated, but so are the insides of any personal computer. The crucial thing to remember is that the part of EtherSeries that you have to understand in order to use or sell it is very simple. All the comings and goings of the data over the cable are invisible to the user, as they should be. For the every day user, EtherSeries is very easy to use and very logical. Plus, help is always available on the computer's screen. And commands can be had in three skill levels: menu, prompted, and terse.

It's too expensive.

Setting up a network can be fairly expensive. The best way to approach this issue is through the idea of long-run cost benefits. In the case of EtherSeries, these benefits are very real. Shared peripherals and the advantages of electronic mail mean companies will realize tremendous savings of time and materials from day one. And any smart businessperson with an eye to the future will understand that a pinch in the short run that pays off in the long run is well worth their while.

The installation is too complex.

Installing EtherSeries is as easy as setting up a new stereo system. The majority of customers install networks themselves. All you need is a screwdriver and about five minutes per personal computer. The most difficult part about putting in a network is running the cable, and all that takes is planning. If your customers seem unconvinced, show them how easy it is to install the EtherLink board.

The shared data is not secure.

It is true that when volumes are created in the shared volume mode, they can be read by many people. This is one of the main reasons for a network. EtherSeries has made sure that confidential data can be secured through the private and public volume modes. Data on the EtherSeries is as safe as anything that depends on access codes, like instant bank tellers or combination locks. It is up to the network users to make sure that secret passwords stay secret.

Using it is too complicated.

With HP Touch and P.A.M., logging on to the network and linking to volumes is just a matter of a few simple touches. The whole process takes about the same amount of time as loading software and calling up a file on a non-networked personal computer. And this needs to be done only once. After that, it's invisible.

EtherSeries also gives your customer the option of creating batch files from MS-DOS. Batch files let your customer enter a common series of functions, like logging on, and then assign them a single command. This command will perform all the functions in the file. Batch files save a lot of time and are a recommended process. Advanced customers will want to know about this function. Beginners will be glad to know that EtherSeries is very easy to learn and use.

Laying cables is costly and difficult.

Laying thin Ethernet cables can be done in a variety of ways. The easiest and most common is to lay them along the baseboards of the office, like telephone cords. This process is neither costly nor difficult.

Some businesses prefer to make their cabling more permanent. One way to do this is to run the cable through the ceiling, or inside the walls.

I like using discs.

With HP's EtherSeries, individual work stations can still use 3½-inch microdiscs. What you get are the advantages of shared data and peripherals.

How do I know I have the right operating system?

All you need to run EtherSeries software on your personal computer is an unmodified MS-DOS master disc, version B.01.00 or later.

What is a terminator?

Every EtherSeries network needs to be terminated at each end of the cable. Terminators are small devices that simply plug on to the end of the cable and are then grounded. Every network requires a terminator kit, which includes two terminators.

How do I add more computers to my network?

Adding computers to an established network is very simple. First, make sure that no one is using the net. Then, install your EtherLink card in the personal computer, and attach a T-adaptor to the card. This adaptor is standard for every computer on the network and allows you to run cable into and out of the personal computer. Attach one end of your cable to the T-adaptor, and the other end to the T-adaptor in the next personal computer in the chain. That's all there is to it.

Why doesn't HP support the whole EtherSeries network?

This decision was based on a common-sense approach to our customers' needs. The configuration that we support will be appropriate for the vast majority of your customers who need a local area network. In order for us to provide you and your customers with the best support we can, we decided to concentrate our energies where they would be most effective for everyone involved.

How do I backup my fixed disc?

The HP 9144A ¼-inch cartridge tape drive provides low-cost, compact backup capability for the Touchscreen systems. This product can backup the network server's Winchester fixed disc as easily as it can backup a non-networked personal computer. For more information about the 9144A, see Chapter 2 or HP publication #5953-6834. In addition, third-party products are available with tape backup.

The least expensive method is to backup data onto floppy discs. This is easier than it sounds for a number of reasons. The first is that the floppy discs that come with the Touchscreen and Touchscreen MAX will hold 710K bytes each. This means that your customer will be able to fit a large amount of data on a single disc. Secondly, using the Copy/Backup utility that comes with the system, your customer can easily select files by date or title. Backing up files regularly will greatly simplify the process.

Long-distance Relationships: The Touchscreen Ven-Tel Internal Modem

This plug-in accessory card lets your customers talk to distant computers. The internal modem is an industry-standard, 1200/300-baud, intelligent modem. It is compatible with HP software such as Personal Card File and Advance-Link, and utilizes the popular "AT" command set. And you can install this handy card yourself in minutes.

Not only can your customers talk to other Touchscreens, but with its auto-dial, auto-answer capability, they can talk to just about any personal computer, minicomputer, or mainframe. The internal modem also gives you access to on-line information services such as The Source[SM] and Dow Jones News Retrieval,[TM] among others.

The modem has a built-in speaker that lets you hear if your call has gone through. It also has a telephone connector that lets you use your telephone when you are not on-line. This space-saving, fast and flexible modem is the ideal solution for Touchscreen customers who need to set up long-distance relationships over phone lines. This product uses one accessory slot and one datacomm port.

Hooking in to IBM: The Touchscreen 3278 Emulation Accessory

The 3278 Emulation Accessory lets a Touchscreen or Touchscreen MAX act like an IBM 3278 display station. This means new markets for Touchscreens because with this product you can begin to sell to customers who depend on IBM mainframe computers.

The 3278 gives your customer the best of both worlds: An IBM-type terminal ready at all times, and the power and convenience of a personal computer. Your customers can access IBM data bases and existing software, then load it into their Touchscreen. After that, they can take advantage of the Touchscreen's many features to make the job easier. And all this can happen without having to wait in line for the nearest terminal.

Common access to data bases makes group projects easier. And because this access eliminates the possibility of loading incorrect information into individual personal computers, it ensures greater accuracy.

A terminal and a personal computer on one desk leaves no room for anything else. The Emulation Accessory eliminates this problem as it packs both into the small and efficient Touchscreen or Touchscreen MAX package.

The Touchscreen Emulation Accessory comes with an accessory card, emulation software, user's guide, and three keyboard overlays. This product will let your customers connect to an IBM integrated controller or a Memorex controller. The accessory card itself has a high-speed microprocessor and an 8K character buffer.

The emulation software package is what tells the Touchscreen to act like an IBM 3278-2 display station. It will configure the Touchscreen keyboard so that it works like a 75-key ASCII typewriter keyboard. Screen dumps to the printer or the disc are also a result of the emulation software.

This product will work with the following controllers:

Controller	Model Number
3278	21C, 21D, 31C, 31D, 41A, 41C, 41D, 51C, 1A, 1C, 1D
3276	01, 02, 03, 04, 11, 12, 13, 14
IBM Integrated Controller	IBM 4331 and 4341
Memorex:	2076

For more information about this product, contact your HP sales representative or call the dealer hot line. Training is available for the Emulation Accessory. All on-line support groups, including HP Coach, have been trained on this product.

Chapter 7—Key Selling Points

7

Chapter 7
Key Selling Points

This chapter is intended to show you at a glance the key features of the Touchscreen system and how they translate into tangible benefits. As you know, it is these benefits that your customers will be most interested in. A working knowledge of these benefits will make sales easier for you. For more information on any of the following points, please refer to the Index and then turn to the appropriate section.

Instant Productivity

When we say instant productivity, what we mean is that any customer should be able to be up and running on the Touchscreen system in under an hour. The features that let us make a claim like this are the following:

■ Thorough and easy to understand documentation for all hardware and software in the system including two easy-to-use *Setting You Free* brochures.

■ The three very easy to use software packages that come with the Touchscreen system: MemoMaker, Personal Card File, and Winning Deal.

■ The new "Easy Config" program makes configuring the system a breeze.

■ The special touchscreen system (HP Touch) which lets your customers get "hands-on" contact with the computer from the first moments they use it. HP Touch lets your customers work more intuitively and faster.

■ Our HP Touch activated adaptation of the operating system (MS-DOS version 2.11) the Personal Applications Manager. P.A.M. lets your customer talk to the Touchscreen without having to remember confusing MS-DOS commands.

■ The eight on-screen function or softkeys which, at the touch of a finger, will perform sets of complicated functions that are invisible to the user.

Ease of Use

Once your customer is up and running, the Touchscreen system will give them years of easy to use computing power. Many of the features mentioned above will provide very convenient shortcuts for more advanced users. Ease of use translates into big savings in time and energy for any customer.

■ HP Touch.

■ Personal Applications Manager.

■ Function Keys.

■ HP COACH is our toll-free service number. This group of specialists will handle any questions within four hours. The service offered by HP COACH is a real plus. From simple start-up questions to complex software queries, HP COACH is there. HP COACH makes owning and operating a Touchscreen very easy. No other hardware dealer provides such excellent free support.

■ The 3½" discs that the Touchscreen uses for mass storage are very reliable. Their hard plastic shell makes it difficult to damage them. A special Media Monitor lets the user know when the disc is ready to be discarded.

■ Touch typists can use the full ASCII typewriter-style keyboard right away. The keys are where one expects them to be, making the keyboard easy to use.

A Wide Number of Solutions

The Touchscreen system is very flexible and can fit virtually any customer's needs. The large selection of hardware and software options available mean that systems can be tailored to individual needs. This is a real benefit for any customer.

■ Because we chose to use the industry standard MS-DOS operating system, we can offer a large number of software packages. These include:

–90% of the current best-selling business packages.
–Over 200 specific vertical market and listed software packages.
–Games and educational packages.
–High resolution on-screen graphics.

■ The two distinct systems, the Touchscreen and the Touchscreen MAX, make fitting the right system to the right customer very easy.

■ A wide number of peripherals ranging from low-cost to high-performance cover all the bases.

■ A built-in terminal option for businesses who need both a personal computer and a terminal comes with every system.

■ Development tools including fully documented languages, Programmer's Tools, and the Technical Reference Manual are available.

7

It Grows With Your Customer

The Touchscreen system is very powerful and adaptable. It offers your customers the benefit of being able to change and expand over time. Here are the major reasons why:

- The HP-IB port allows the user to daisy-chain up to 14 peripherals all on the power of one Touchscreen system. Printers, plotters, modems, etc., can all be added at any point.

- The large selection of peripherals make growing easy.

- Our local area network (developed by 3Com) and many data communications products make talking to other computers a reality.

- Both our independent hardware vendor and independent software vendor programs are working to bring the latest technological developments to the Touchscreen system as soon as possible.

The Power to Solve Your Customers' Problems

The Touchscreen is a very powerful system in terms of its speed, memory capacity, and mass storage potential.

The Touchscreen system can support up to 105M bytes of mass storage by adding several fixed discs to the system. Although very few customers will ever have the need for such large capacity with a personal computer, it's nice to know that the potential is there. The average customer will want to know that each microdisc will hold 710K bytes of formatted information, and that our fixed disc will hold 14.8K bytes of formatted information.

- The Touchscreen can access data very quickly, making filing and retrieving documents a snap. This is an important benefit in terms of daily use.

- 256K of RAM which is expandable to 640K means that the chances of your customer's needs being limited by the Touchscreen's memory are very small.

- For customers who need to set up networks or access other computers, we have a wide selection of data communications products.

- Our development tools (see above) will suit more advanced computer-user needs.

Open Communications

Our many data communications products offer your customers a large range of real benefits. From products that let them exchange information with an IBM PC to full local area networks, our products are easy to use and well-documented.

- The local area network from 3Com lets your customer link up to 1,024 personal computers of all makes.

- With the terminal option and AdvanceLink, a Touchscreen can talk to and exchange information with HP mainframes.

- Your customer can talk to IBM and DEC mainframes, personal computers, or exchange discs with the help of our many data communications products. See Chapter 6 for more information.

- The PORTABLE/Desktop link lets the Touchscreen talk to The PORTABLE.

- Our internal and external modems let the Touchscreen talk to computer services or other computers.

Value That Lasts

When we say "lasting value" we mean that the Touchscreen is a computer system that will keep working hard and thoroughly for many years to come. The following reasons allow us to make this claim:

- A lifetime of toll-free support from HP COACH for every Touchscreen owner.

- Hewlett-Packard, a $5 billion company, is in the personal computer industry to stay.

- Our products have an industry-wide reputation for reliability and excellence.

- The Touchscreen system will grow with your customer's needs.

- We are staying on the leading edge of technology.

A Comfortable Computer

The Touchscreen system will fit easily into your customer's lifestyle. With a personal computer, this is a very tangible benefit.

- The compact size makes it easy to live with either in the office or at home.

- The well-researched comfort decision such as the gently angled keyboard, the tilt and swivel mechanism, and the high-resolution display make it easy to work with.

- The full typewriter-style keyboard makes data entry simple.

- 3½" discs which are highly portable (you can even mail them), and reliable.

8

Chapter 8—In Search of Excellent Markets

8

Chapter 8
In Search of Excellent Markets

The Target Customer: Bull's Eye

"The Touchscreen represents real progress toward the goal of putting high technology at the disposal of ordinary people."
— Byte, October 1983

The Touchscreen and Touchscreen MAX will appeal to a wide and eclectic variety of people. From seasoned computer users (who want a compact, powerful tool), to complete neophytes (who want a computer that will be easy to learn), the Touchscreen and Touchscreen MAX are excellent choices. The following categories are intended as guidelines to give you some marketing ideas. They will help you to target and fill each customer's specific needs.

The Touchscreen Market

Small Businesses

Small businesses, from farmers to retailers, to service businesses such as plumbers and painters, can handle all their computer needs with the Touchscreen. It is powerful enough to manage the bookkeeping, the payroll, and various mailing lists, as well as other data base applications. You will also want to remind these customers about the ability of the HP-IB port to daisy-chain up to 14 peripherals simply by connecting cables. This means that the Touchscreen can grow as the business does, adding printers, plotters, and additional disc drives. The compact size of the Touchscreen is also a major selling point in this market.

HP Touch may also be stressed to the small businessperson who is intimidated by computers. Use the demo, or Personal Card File, and show your customer how easy it is to learn to use the Touchscreen.

You should also consult the vast offering of listed software (in the Software List pub #5953-7935D) and pinpoint packages tailored for each customer's particular business needs. Remember, we offer a lot more than just the best-selling packages (although we have 90% of those up and running). We have almost 300 software packages that cover many specific needs and vertical markets.

Professionals at Home

The best customers in the home personal computer market will be professionals working out of their homes who need a high powered, sophisticated computer. The Touchscreen will be the logical choice for them. It offers a compact, high capacity computer that won't take over their living room or den. It is wise to point this customer to a total package that includes The ThinkJet Printer. This will keep the cost of the system down, yet give the customer a fast, quiet, reliable printer.

People in this category include professional consultants; freelance writers or graphic artists (remember both WordStar and HP Graphics are significantly improved with HP Touch); business people who have compatible computers in the office; students; and families who are looking for a sophisticated yet easy to use computer to learn on. And to put to rest any lingering fears, stress the excellence of our support system, including our excellent consumer help-line, HP COACH. Keep in mind that the software for the Touchscreen includes everything from accounting to educational programs and games.

The Touchscreen MAX Market

Professional Firms

Lawyers, doctors, accountants, architects, and other professionals will find the Touchscreen MAX to be an invaluable tool. Text editing, graphics, and complex calculations can all be easily learned with the help of HP Touch and the Personal Applications Manager.

These professionals will appreciate that the Touchscreen can sit comfortably on their desktop, at their fingertips, without intruding on their work area. Many of these customers may not be aware of the many advantages of a local area network. A word or two about the excellent local area network we offer would be wise. (For more information, see Chapter 6.) Our

reputation for excellence, and for supporting what we sell, will also be important selling points in this market.

The Software List (pub #5953-7935D) will be a crucial tool in your dealings with these customers. It will show you the many "vertical market" software offerings, such as dental, legal, and accounting packages, that we have running on the Touchscreen and Touchscreen MAX. Keep in mind that either the HP ThinkJet or LaserJet printers are good choices for this market. LaserJet will be a particularly good choice if they opt for a local area network, as many users can share one printer.

Corporate Users

The corporate customer will have many of the same concerns as the professional firm. They may not be as concerned with vertical market software but will probably opt for the best-selling business packages and large storage capacity. The Touchscreen MAX will easily fit their needs. With the corporate customer you should stress the Touchscreen MAX's ability to be a very powerful, sophisticated, compact, professional tool, as well as a highly "personal" personal computer.

The flexibility and large capacity of the Touchscreen MAX put it in the same market as the IBM PC-XT, but HP Touch and the small, elegant styling make it much friendlier and easier to use. With the addition of a modem, or a local area network, the Touchscreen MAX can be an invaluable tool for rapid information exchange. This is an important factor to most corporate clients. Support for this client will depend largely on the size of the operation. Many large customers have on-site support contracts. See Chapter 9 for more information on support options.

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Chapter 9—HP's Customer Support Network

Chapter 9
HP's Customer Support Network

Software Support

We are very proud of our support services and have put together a total program that surpasses any other in the personal computer industry. We know that this is a big claim, and this chapter is designed to show you why we feel confident making it.

The HP Personal Computer support program is a key selling point for the Touchscreen. For the advanced user, who may well have some first-hand knowledge of the frustrations of mechanical problems, it is important that they know about the 24-hour a day on-site repair program. For the new user, the training courses, and the toll-free problem solving hotline, HP COACH, will be a plus. For both customers it is wise to stress the total HP support network.

A crucial thing to keep in mind when explaining the support network is its ability to meet any customer's support problems. Whether your customers are large accounts, or single users, we have a support alternative that will provide a solution. From on-site repair with four-hour response (within 100 miles of a primary support responsible office), to mail-in repair, to setting up an on-site software/network support center, we have an option that will work.

The Individual Customer

For all software *distributed by HP,* every customer has access to HP COACH. This remarkable service has helped untold numbers of HP customers over common hurdles.

HP COACH will answer any software and hardware configuration questions your customer might have. And they will respond within four hours. From set-up questions to complex data-base queries, HP COACH is there to hold hands and allay fears. No other computer company offers such a successful and thorough service. HP COACH is a very important selling point for the Touchscreen system. For more about HP COACH, or to get a first-hand impression, call (800) HP COACH.

The Major Account

For major accounts who have bought a large number of Hewlett-Packard computer systems, the best source of help is their own central MIS or data processing department. They should be able to deal with both hardware configurations, installations, and software problems which include software programs that have been internally developed, and their specific operating and networking procedures. This in-house support system is in turn backed-up by HP through HP COACH and various Hewlett-Packard consulting services.

Hardware Support:
Nuts and Bolts

We offer two basic kinds of support: support by a dealer, or support by HP. One of these will fit your customers' needs.

Support by Dealers

We do not require that all dealers who sell our computers offer their own service on them; however, they may want to enter a contractual support agreement with HP.

The Dealer Cooperative Support (DCS) contract is validated by successful completion of "core" product classes, purchase of specified parts kits, and performance of warranty maintenance.

Dealers who want to become authorized to repair the Touchscreen and Touchscreen MAX should contact their sales representative for help in planning a service program.

In *all* cases, dealers should offer their customers front-line hardware support. HP Field Repair Centers can be used as a "back up" until the dealer decides to participate in the DCS program. A Dealer Repair Center program is another available HP service. It offers weekly on-site repair visits to eligible dealers.

Remember, a service program can and should be a continued source of customer satisfaction and this means a source of profit for a well-organized dealer. Please contact your HP sales and support team for more information. They will be happy to help you find the best program for you.

Support by HP

For the multiple system user:
For this user, a Volume On-Site Maintenance Agreement provides weekly repair visits to a central location. This agreement can cover any combination of 25 or more HP products under one low-cost volume repair center agreement. This program is unique to HP, and will give your customer the most service for the lowest cost.

We offer several different On-Site Maintenance Agreements. For example, a customer who is located within a hundred miles of a primary service office can choose from next-weekday response to four-hour response. The latter is available 24-hours a day, seven days a week. Customers can choose a plan to suit their system and needs. Plus, if the customer buys an On-Site Maintenance Agreement within ten days of purchase, the warranty will be upgraded from Return-to-HP and On-Site free of charge.

HP Maintenance Services

System #	On-site Service (per mo.)	Volume Repair Service (per mo.)	Field Service Center (per mo.)	Per-incident Service
45610A	$18	$ 9	$ 9	$240
45650A	$25	$13	$13	per-module
45655A	$34	$17	$17	per-module
45660A	$36	$18	$18	per-module
45640A	$ 5	$ 2	$ 2	$270

Sub-system

9121D				$450
9133V				$470
9133XV				time and materials only

Prices effective May 1984; subject to change without notice.
These are U.S. prices only; international sales people should contact their local HP offices.

Special Services

Training For First-Time Customers

Regardless of how easy to use a computer is, and the Touchscreen is among the easiest, we understand that some training may be desirable for a first-time user. This is why we offer courses in both spreadsheet analysis and word processing.

Introduction to Personal Computers

A day-long course (product number 35119A) has been designed for managers and professionals who do not have any personal computer experience. It is designed to de-mystify computers and build confidence through hands-on use. Computer terminology, spreadsheets, word processing, graphics, and a non-technical discussion of how a computer works, are all included.

The half-day *WordStar/100 Introduction Course* (35123B), and the *SpellStar/100 and MailMerge/100 Course* (35123C) give the first-time user an excellent hands-on overview of these popular programs. The two courses can be taken as one day-long course (35123A).

Customized Training

Customized training is also available. This is taught at a customer's location using their systems. Or, we will devise a training program to fit your customer's needs through the SE Consulting Service.

Consulting

Our Personal Computer Consulting Service gives your customer personal help in improving systems operation, performance, suggestions on software design, or customized training. This service can be purchased by the hour or by the day (Part nos. 35065D, 35066D, 45686A, or 45687A).

HP Communicator

We rely on the *Communicator* to provide the Touchscreen owner with an on-going source of vital information. Published bi-monthly, it contains everything from software updates, to operational tips and programming techniques. The *Communicator* keeps your customers in touch with the latest developments and makes sure that they know that we are there with continued support.

Every Touchscreen system comes with a card to subscribe to the *Communicator*. It might be wise to have some extra copies around as hand-outs. No other computer manufacturer has anything like it.

It demonstrates HP's hard-working support services, and will help instill confidence in the potential customer. Subscriptions (product number 45530N) and back issues are available from Computer Supplies Operation.

Software and Manual Updates

We revise manuals and software to correct problems and to work with new peripherals. As any customer who has had experience with computers can tell you, this is a crucial service.

When software gets updated, the customer can, for a nominal fee, turn in the old disc and receive a new one—with manual updates—in short order. The updates are called Software Update Kits and can be ordered through the dealer or HP. The *Communicator* gives current ordering information.

Manual corrections are usually listed in the *Communicator*. For extensive revisions, a change package can be obtained through HP or dealers.

If by any chance a customer harms a master software disc, a Software Update Kit can be ordered which will replace any HP software. Many software packages include a pocket-sized Quick Reference Guide in addition to the User Manual. Extra copies of the small guide are sold by dealers and by HP Computer Supplies Operation. Extra manuals are restricted in an effort to discourage software piracy.

How To Keep In Touch

For Customers

In the U.S.:
- For assistance before buying call (800) FOR-HPPC.
- For help after the fact call (800) HP COACH.
- To subscribe to the *Communicator*, or to order back issues, software and manual updates, supplies, or accessories, call (800) 538-8787. In California, Alaska, and Hawaii, call (408) 738-4133.
- To discuss training or consulting, call the local HP office.
- To discuss Maintenance Agreements, or to locate the nearest Dealer Repair Center or HP Field Repair Center, call (800) 835-HPHP.
- To locate an HP dealer call (800) FOR-HPPC.

Outside the U.S., call the local HP Sales and Service Office.

For You

Dealers
- In the U.S. call (800) 648-8004, the dealer hotline.
- Outside the U.S., contact your Area Personal Computer Center.

HP Sales Representatives
- Contact your sales center representative.

Training
- See the current issue of the *Communicator* for the course descriptions and current schedule.
- Check the current North American Customer Training Schedule.
- Contact your Area Personal Computer Center or Area Training Center.

The Communicator
- See the current issue for subscription instructions, back issue contents, and part numbers.
- Computer Supplies Operation toll-free number: (800) 538-8787. In California, Alaska, or Hawaii, call (408) 738-4133.
- Contact Computer Supplies Operation (CSO) to order subscriptions, to get back issues, or to change an address.

Consulting
- Contact your Area Personal Computer Center or CSO.

Supplies
- See the current issue of the *Communicator.*

Software and manual updates
- See the current issue of the *Communicator* for prices and ordering information.
- Call CSO Sales Development.

Hardware repair
- Contact your district CE Manager.

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Appendix A—Technical Specifications At a Glance

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Appendix A
Technical Specifications
At A Glance
The Touchscreen
Personal Computer

Microprocessor/CPU

Intel 8088 running at 8 MHz.

Memory

256K RAM (random-access memory) expandable to 640K.
160K ROM (read-only memory).

Display

24 lines by 80 columns.
Inverse video, underline, blinking, half-bright, security, and other combination enhancements.

Character Set

Roman 8, line drawing, math standard, bold and italic depending on application.
Total of 896 characters.
9 x 14 dot cell character.

Keyboard

Detachable with 8-foot coiled cable.
Full ASCII code.
8 screen-labeled function keys.
Auto repeat, N-key rollover, cursor controls.
18-key numeric pad.

Size and Weight

27.04 lbs (12.29 Kg.) including keyboard.
Display/Monitor: 12 x 12 x 11.3-inches (305 x 305 x 287 mm).
Keyboard:
Flat: 18 x 8.9 x 1.4-inches (456 x 225 x 35 mm).
Standing: 18 x 8.9 x 2.5-inches (456 x 225 x 63 mm).

Data Communications

Data channels: 1 HP-IB, 1 RS-232C port, 1 RS-422 or RS-232C port (general asynchronous and synchonous).
Data rate (RS-232C): 110, 150, 300, 600, 1200, 2400, 4800, 9600, 119200 baud.

Environmental Constraints

−40° to +167°F (−40° to 75°C) while in storage.
+32° to +131°F (0° to 55°C).

Safety Approvals

U.L. Listing.
FCC Level B.

A

Disc Drive Specifications

Facts At A Glance—9133D

Formatted capacity	
Winchester	14.8M bytes
Floppy	710K bytes
Bytes per sector	256
Sectors per track	32
Tracks per surface	303
Recording surfaces per disc	2 (3 platters)
Tracks per inch	345
Max sustained transfer rate	45 Kb/sec
Average access time	85 msecs
Max access time	205 msecs
Rotational speed	3600

Power requirements

Source (selected by rear panel switch)	90–127 (115 Vac line) 195–253 (230 Vac line)
Line frequency	48–66 Hz
Power consumption (max)	125 W

Environmental range

Operating temperature	10°C to 40°C (50°F to 104°F)
Storage temperature	−40°C to 60°C (−40°F to 140°F)
Operating humidity (non-condensing) 25.5 max wet bulb temperature	20%–80%
Storage humidity (noncondensing)	5%–90%
Operating altitude	0 to 4572 meters (0 to 15,000 ft.)
Storage altitude	−304 to 15,240 meters (−1,000 to 50,000 ft.)

Size and weight

Weight	125 mm (4.9 in.)
Width	325 mm (12.8 in.)
Depth	285 mm (11.2 in.)
Net weight	10 kg (22 lbs.)
Shipping weight	16.8 kg (37 lbs.)

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Facts At A Glance—9122D

Formatted capacity

Bytes per unit (dual)	1,420K bytes (710K bytes per disc)
(single)	710K bytes
Bytes per sector	512
Sectors per track	9
Tracks per surface	80
Recording surfaces per disc	2
Tracks per inch	135
Recording format	double density
Max sustained transfer rate	12.4 Kb/sec
Average access time	485 msec. (motor on)
	885 msec. (motor off)
Rotational speed	600 RPM
Media part number	92192A

Power Requirements

Source (selected by rear panel switch)	86–127 Vac (115 Vac Line)
	195–253 Vac (230 Vac Line)
Line frequency	48–66 Hz
Power consumption (max.)	67 W

Environmental range

Operating temperature	10°C to 40°C (50°F to 104°F)
Storage temperature	−40°C to 60°C (−40°F to 140°F)
Operating humidity (non-condensing) 25.5°C maximum wet bulb temperature	20%–80%
Operating altitude	0 to 4572 m (0 to 15,000 ft.)
Storage altitude	−304 to 15240 m (−1000 to 50,000 ft.)

Size/Weight

Weight	76 mm (2.99 in.)
Width	325 mm (12.8 in.)
Depth	285 mm (11.2 in.)
Net weight	
Dual	4.5 kg. (10 lbs.)
Single	3.6 kg. (8.5 lbs.)
Shipping Weight	
Dual	7.7 kg. (17 lbs.)
Single	6.9 kg. (15.4 lbs.)

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Facts At A Glance—9125S

Formatted capacity

Bytes per unit (varies with format)	512 (MS-DOS, PC-DOS) 256 (LIF)
Sectors per track (varies with format)	8 (PC-DOS 160K, 320K) 9 (PC-DOS 180K & 360K) 16 (LIF)
Tracks per surface	40 (LIF 35)
Recording surfaces per disc (varies with format)	1 or 2
Tracks per inch	48
Recording format	Double-density (MFM)
Average access time	187 msec.
Rotational speed	300
Command Set	Subset 80

Power Requirements

Source (selected by rear panel switch)	86–127 Vac (115 Vac line) 195–253 Vac (230 Vac line)
Line frequency	48–66 Hz
Power consumption (max.)	50 W

Environmental Range

Operating temperature	10°C to 40°C (50°F to 104°F)
Storage temperature	− 40°C to 60°C (− 40°F to 140°F)
Operating humidity (non-condensing) 25.5 max. wet bulb temperature	20% to 80%
Storage humidity (non-condensing)	5% to 95%
Operating altitude	0 to 4572 m (0 to 15,000 ft.)
Storage altitude	− 304 to 15,240 m (− 1000 to 50,000 ft.)

Size and Weight

Height	100 mm (3.9 in.)
Width	325 mm (12.8 in.)
Depth	285 mm (11.2 in.)
Weight	35.2 Kg (16 lbs.)

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Plotter Specifications

Plotter Specifications		HP 7475	HP 7470
Media Sizes		210 x 297 mm (ISO A4) 8½ x 11 in. (ANSI A) 297 x 420 mm (ISO A3) 11 x 17 in. (ANSI B)	210 x 297 mm (ISO A4) 8½ x 11 in. (ANSI A)
Pens	Number	6, automatic pen changing	2, automatic pen changing
	Type	fiber tip	fiber tip
Media		Paper or overhead transparency film.	
Resolution	Smallest addressable step size	0.025 mm (0.001 in.)	0.025 mm (0.001 in.)
Repeatability	With a given pen	0.1 mm (0.004 in.)	0.1 mm (0.004 in.)
	From pen to pen	0.2 mm (0.008 in.)	0.2 mm (0.008 in.)
Pen Velocity, Each Axis	Pen down	Maximum—38.1 cm/s (15 in./s) Programmable—1 to 38 cm/s in 1 cm/s increments	Maximum—38.1 cm/s (15 in./s) Programmable—1 to 38 cm/s in 1 cm/s increments
	Pen up	50.8 cm/s (20 in./s)	50.8 cm/s (20 in./s)
Acceleration		Approximately 2 gs	
Character Sets		19—ANSI ASCII, HP 9825 Character Set, French/German, Scandinavian, Spanish/Latin American, JIS ASCII, Roman 8 Extensions, Katakana, ISO IRV, ISO Swedish, ISO Swedish for Names, ISO Danish/Norwegian, ISO Danish/Norwegian for Names, ISO German, ISO French, ISO United Kingdom, ISO Italian, ISO Spanish, ISO Portuguese.	5—ANSI ASCII, HP 9825 Character Set, French/German, Scandinavian, Spanish/Latin American.
Maximum Plotting Area	Pen Axis	258 mm (10.2 in.) for A/B 275 mm (10.8 in.) for A4/A3	191 mm (7.5 in.) for A 191 mm (7.5 in.) for A4
	Paper Axis	414 mm (16.3 in.) for B 402 mm (15.8 in.) for A3 198 mm (7.80 in.) for A 192 mm (7.56 in.) for A4	257 mm (10.2 in.) for A 272 mm (10.7 in.) for A4

Plotter Specifications		HP 7475	HP 7470
Interfaces	HP-IB (IEEE 488-1978)	Implements the following HP-IB functions as defined in IEEE 488-1978: SH1, AH1, T2, TE0, LE0, SR1, RL0, DC1, DT0, L2, PP0, (listen only or address less than 7, otherwise PP2).	Same as 7475
	RS-232C/CCITT	Asynchronous serial ASCII with switch selectable baud rates of 75, 110, 150, 200, 300, 600, 1200, 2400, 4800, 9600. External clock input capabilities with intermediate baud rates of up to 9600 baud. 1024 byte buffer. (Eavesdrop cable must be ordered separately.)	Same as 7475 except 255 byte buffer.
	HP-IL	Not available	Hewlett-Packard Interface Loop for use with portable systems.
Power Requirements	Source	100, 120, 220, 240 V~ −10%, +5%	100, 120, 220, 240 V~ −10%, +5%
	Frequency	48–66 Hz	48–66 Hz
	Consumption	35 W maximum	25 W maximum
Environmental Range	Operating	0 C to 55 C	0 C to 55 C
	Non-operating	−40 C to 75 C	−40 C to 75 C
Size	Height	127 mm (5 in.)	127 mm (5 in.)
	Width	568 mm (22.4 in.)	432 mm (17 in.)
	Depth	367 mm (14.5 in.)	343 mm (13.5 in.)
Weight	Net	7 kg (16.0 lb)	6 kg (13.5 lb)
	Shipping	Approx. 11 kg (25.0 lb)	Approx. 10 kg (22.0 lb)
FCC		FCC certified to conform to limits set for radio frequency interference when used with a Class B computing device.	

A

B

Appendix B—Glossary

Appendix B
Glossary

Access time: This is the time it takes to get data from either your computer's main memory or your storage device, such as your Winchester or floppy disc drive.

Accessory board: An electronic circuit board that plugs in to your computer to give you more computing functions or power, such as an internal modem or a memory expansion board.

Application: A specific problem which can be solved with a computer solution.

Application program: A computer program which is designed to target a certain application. These are often custom software solutions.

ASCII: This stands for the American Standard Code for Information Interchange. It is a standard 8-bit information code that is used by most computers and data terminals. The code assigns each alphanumeric character a binary number so that your computer can talk to printers and other communication devices.

ASCII keyboard: A keyboard that sends signals in ASCII code.

Asynchronous transmission: A mode of operation where data is sent continuously, as opposed to synchronous where data is sent in pre-determined packages.

Backup: The process of copying files onto an extra storage disc in case the original is lost or damaged.

Batch files: A group of similar files or commands that are processed at the same time.

Baud: A unit which measures data flow; commonly measured in bits per second.

Baud rate: The transmission speed of data between computers and/or peripherals.

Bidirectional: A single circuit, or bus, which can transmit data or signals in either direction between peripherals and the central processing unit.

Bit: Short for binary digit. In the binary system, only two digits are used, 0 or 1. All data transmitted by computers is reduced to a series of binary digits (bits), or 0s and 1s.

Buffer: A temporary storage area for data as it passes from a computer to, usually, a printer which operates at a different speed.

Bus: A circuit over which data is sent.

Byte: The number of bits that it takes to make up a character. A byte is usually eight bits.

Cathode-ray tube (CRT): An electronic vacuum tube containing a fluorescent screen which displays characters or graphics.

Central processing unit (CPU): The primary circuitry of any computer system. Usually contained on one microcomputer chip.

Character resolution: The sharpness with which a character appears on the computer CRT or screen.

Coaxial cable: A small conducting wire enclosed in a larger insulated conductor.

Circuit: A system of semiconductors and electrical elements which electricity flows through.

Compatibility: 1) The ability of one computer to accept and process information from another computer without modification; 2) The ability of an instruction to work on more than one computer.

Controller: A specific device which operates automatically to regulate a specific system.

CPU: Central processing unit, see above.

Daisy-chain configuration: A string of electrical devices attached in a single line. Each unit can modify the signal before passing it on.

Data communications: The movement of data by electrical transmissions. A combination of developments in the fields of computer and telecommunications technology.

Disc: See "Floppy disc."

Disc applications: Programs or software for various computer functions stored on discs.

Disc drive: A hardware unit which houses a read/write head which can read data from or write data to a disc.

Disc utilities: Programs which take care of some of the housekeeping functions which the computer needs, such as formatting discs, or configuring the system.

Display station: A unit which displays data; see cathode ray tube.

Documentation: The material which explains computer hardware or software.

Ergonomics: The science of human engineering which combines body mechanics and industrial psychology.

Expansion slot: A slot in a computer into which expansion boards are plugged.

Fixed disc: A disc that is not flexible and that is capable of storing more data, such as a Winchester fixed disc.

Floppy disc: A thin flexible circular platter permanently enclosed in a plastic or paper envelope. A magnetic coating stores information.

Footprint: The part of the computer which comes into direct contact with a surface such as a desk.

Font: A complete set of letters, numbers, and symbols in the same type style and typeface.

Formatting: Preparing a magnetic disc to accept information from a given computer system.

Formatted information: Information which has been entered onto a formatted disc.

Function keys: A key that makes a computer perform a specific function, like format a disc, or execute a program.

Green phosphor: A fluorescent medium used in a cathode ray tube (see above).

HP Touch: A grid of light emitting diodes and photosensitive receivers which cover the display on a Touchscreen Personal Computer. When an object breaks the grid, HP Touch can inform the computer of the point of contact.

Hard disc: See "Fixed disc."

Handshaking: The exchange of predetermined signals when a connection is established.

Hardware: A generic term used to include all physical parts of a computer system.

B

Hardwired: A direct physical wire between a computer and a terminal or between two computers.

Icons: Pictorial representations.

Impact printer: A printer which prints by striking an inked ribbon with a hardware element.

Ink-jet: A method for applying ink to paper through a small spray-type head.

Input/output: Relating to the equipment or method used for transmitting information into or out of the computer.

Internal character sets: Character sets which are built-in to a piece of hardware.

K byte: 1,024 bytes.

Letter quality printer: A printer which produces hard copy that is as high quality as that produced by an electric typewriter.

Local area network: A way of hooking up computers and terminals that are located physically close to each other so that they can communicate.

MS-DOS: The industry standard operating system that controls the basic functions of the computer.

Mass storage: A device which can store large amounts of data which will be readily available to the CPU.

M byte: 1,048,576 bytes.

Media: The substance upon which data is recorded, usually a magnetic medium.

Memory: A general term for equipment which stores machine readable information.

Menu: A list of options that the user can perform at a given point in a program.

Microprocessor: A single chip central processing unit. Usually contains anywhere from 1,000 to 10,000 electrical circuits on a single chip.

Modem: Acronym for modulator/demodulator. A device which modulates and demodulates signals from digital to analog and back. Used over telephone lines.

Multipoint: A single line which can have one or more terminals connected.

Network: A series of points connected by communication channels. These points can be computers, terminals, and peripherals.

Node: A computer, terminal, or peripheral on a network.

Operating system: Software that gives the computer instructions for operation. Consists of programs that make the computer run, such as MS-DOS.

P.A.M.: Personal Applications Manager. An HP adaptation of the MS-DOS operating system. P.A.M. lets the user operate the computer using a simple series of English-language, HP Touch activated commands. Makes the computer easy to learn and use.

Parallel port: A port through which data passes in a parallel mode.

Paralleled transmission: Sending more than one bit at a time.

Peripheral: A device that is separate from the CPU and the main memory but that is attached through electrical connections.

Pixels (picture elements): Locations on a display screen which are used to form images.

Port: A physical place where data passes from the CPU to peripherals.

Processor: That part of the computer system that reads, interprets, and executes functions.

Program: A complete set of instructions designed to solve a problem or execute directions. Often referred to as software.

Random access memory (RAM): The memory that can be read into or written on while using the computer. It is the memory that holds data currently loaded into the computer.

B

Read only memory (ROM): Memory that is permanently loaded into the computer during the manufacturing process.

Recording surface: The surface on a floppy or fixed disc that records data.

Resolution: The clarity of the image on a computer monitor.

Rubber-band line: A line used in computer graphics which has constraints placed on either end.

Sector, disc: A triangular section on a disc where data is stored. Each piece of data is assigned a sector and a track.

Serial port: A port that sends data in a serial sequence.

Serial transmission: Sending one bit at a time.

Softkeys: A special HP feature. These are keys on the screen which are activated by HP Touch. They act like function keys. (See function keys.)

Status line: A line reserved on the screen which tells the user the status of his or her operation.

Synchronous: A type of transmission where the information is sent in a timed environment.

Terminal: A piece of hardware connected to the computer which is used for sending and receiving information.

Throughput: Refers to an amount of information that passes through a printer. Usually measured in pages.

Track: The segment of a disc which is accessible to the read/write head.

Transfer time: How long it takes to send data to or receive it from a storage device.

Winchester disc: A fixed disc which is permanently sealed in a drive unit. This prevents contamination and greatly reduces the possibility of damage to the read/write head. This disc is capable of storing large amounts of data.

Word wrapping: A feature which automatically shifts words from one line to the next if the line is too long.

B

Appendix C—Ordering Information

Computer
Museum

Appendix C
Ordering Information

Product Description

Touchscreen Personal Computer (# 45650B)

Hardware:

The Touchscreen comes with a CPU, dual double-sided 3½-inch microfloppy disc drive (710K storage per drive), a 9-inch green phosphor monitor, extended keyboard, 256K RAM, 160K ROM, HP Touch, one HP-IB port, one RS-232C port, one RS-422 or RS-232C port, 8-foot coiled cable to connect keyboard to computer, a system to disc-drive cable, a 30 cm. HP-IB cable, two expansion slots, an Owner's/Installation Guide Manual, and a Terminal Manual.

Software:

Included with the Touchscreen system are a system master disc (containing MS-DOS, P.A.M., and the disc utilities), three backup copies of the disc utilities, Memo-Maker, Personal Card File, Winning Deal and a computer-aided instruction course.

Touchscreen MAX Personal Computer (# 45660B)

The Touchscreen MAX comes standard with everything that the Touchscreen has except that it uses a combined 14.8K (formatted capacity) fixed disc and a 3½-inch microfloppy disc drive.

Accessories

Tilt	92240A
Swivel	92240B
Carrying case (Touchscreen and 9121D/S drive)	13269C
Carrying case (9121D/S drive)	13269T
Dust cover	92250F
Keyboard park	92171J
Box of ten 3½-inch microdiscs	92191A
Box of ten 5¼-inch discs	92190A

Disc Drives

Dual 3½-inch double-sided microfloppy disc drive	9122D
14.8M byte (formatted capacity) Winchester drive	9134D
14.8M byte (formatted capacity) Winchester drive with 3½-inch double-sided flexible disc drive	9133D
Single 5¼-inch disc drive which allows the Touchscreen to read and write IBM PC format discs	9125S

Printers

Internal Thermal Printer	2674A
ThinkJet Personal Printer with HP-IB interface	2225A
with HP-IL interface	2225B
with Centronics interface	2225C
LaserJet Professional PC Printer with RS-232C interface	2686A
Low-cost Daisywheel Serial Printer with RS-232C interface	2602A

Plotters

2-pen Personal Plotter with RS-232, HP-IB, or HP-IL interface	7470A
6-pen Professional Plotter with RS-232, HP-IB, or HP-IL interface	7475A

Memory Expansion Boards

128K RAM expansion board	45630A
256K RAM expansion board	45631A
384K RAM expansion board	45632A

Note: Only one slot may be used for additional memory

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Data Communications Products

1200/300 baud internal modem	45640A
Touchscreen 3278	45641B
Emulation Accessory for output through Centronics or HP-IL interfaces	45643A
EtherLink™ for the Touchscreen	45644A
EtherShare™ for the Touchscreen	45645A
EtherPrint™ for the Touchscreen	45646A
EtherMail™ for the Touchscreen	45647A
Thin Ethernet Cables with Connectors	
–7m	45691A
–15m	45692A
–30m	45693A
–custom lengths	45694A
Terminator kit	45695A
Barrel connector	45696A
"T" connector	45697A
Loopback plug	45698A
Insulated connector	45699A
Advance Link	45431A
Monitor IBM PC	45439A

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