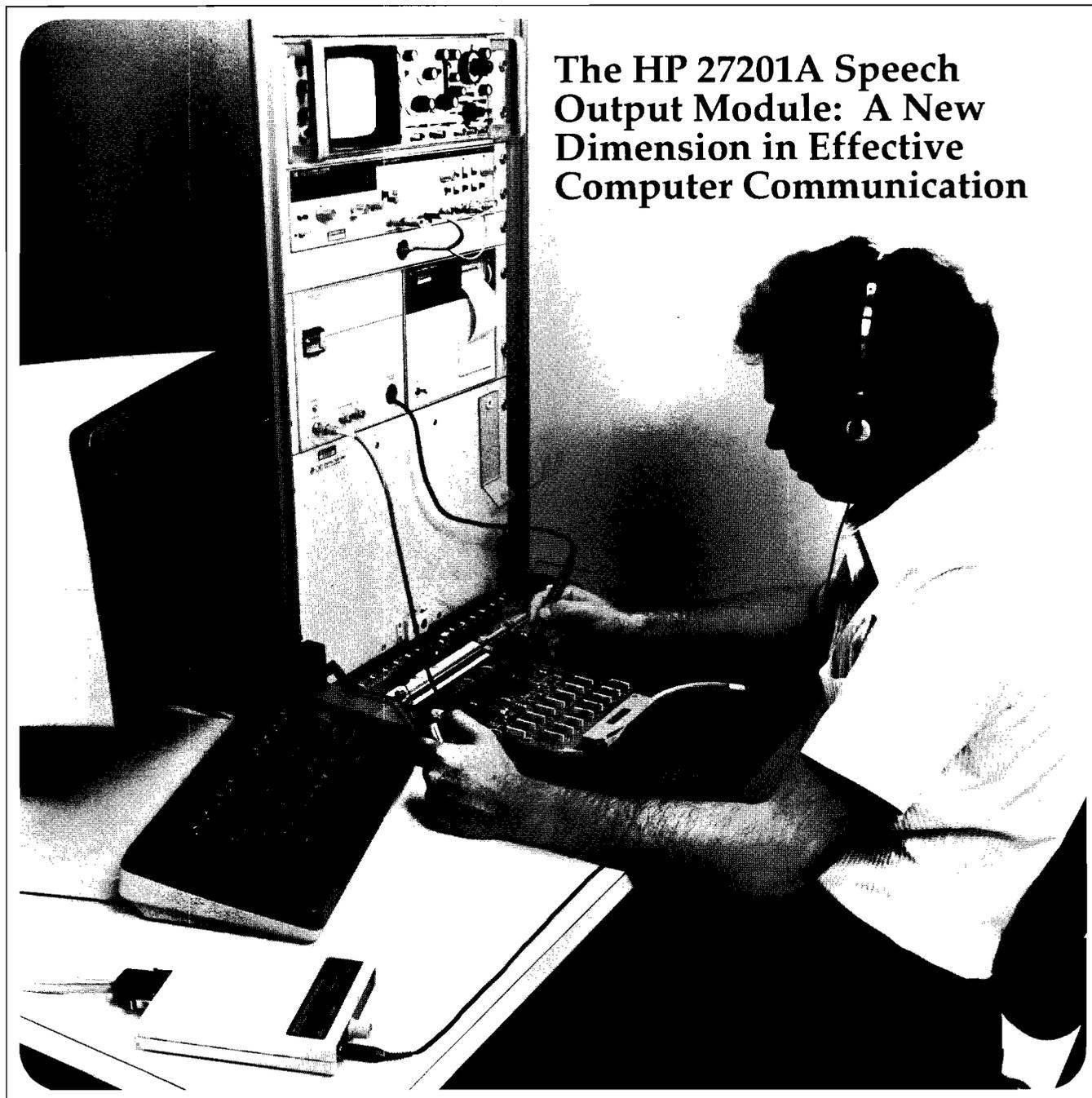


# Computer News

# ENM

edition

International/April, 1983



**The HP 27201A Speech  
Output Module: A New  
Dimension in Effective  
Computer Communication**



**HEWLETT  
PACKARD**

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### On the Cover:

*Hewlett-Packard's new HP 27201A Speech Output Module for HP 1000s and HP 3000s has a wide variety of applications in both technical and office environments. For more information, see the article on page 24.*



## Selling Successfully to Top Executives

Business has never been more complex than it is today. One consequence of this fact is that in many industries it is important for you to be able to sell on all levels. Some sale reps who feel comfortable selling to a middle or line manager get the shakes when they have to deal with a high-level executive. What is the best way for you to approach top executives? What strategies can you use to be more effective?

### Nine Action Guidelines

**Keep in mind that the chief executive is approachable.** The larger the company and the bigger the person's job, the easier he or she is to see and sell. It's often easier to start high and move down than it is to start low and work up. Because a good high-level executive delegates, he or she usually has more time than lower-level managers to meet sales representatives and evaluate their ideas.

**Decide when to go to the top.** In selling, there's a time to strike high, and a time to strike low. When should you bypass the bottom line of the organizational chart and shoot for the top?

- When the way is clearly blocked at the lower echelons
- When there is an unusually large corporate investment involved
- When you have already failed to interest lower-level managers and have nothing to lose
- When you can produce hard, documented evidence of substantial savings potential
- When you have an idea that's so unique and far-reaching that only the person at the top could deal with it
- Where there is a potentially large gain to be made, with a heavy risk factor involved

**Upgrade your perspective.** You should find out as much as you can about the prospect before calling on him. It's vitally important that you be able to speak his language. When the buyer is a high-level executive, it's twice as important to appear sure of yourself and competent. If the buyer spots a gap in your knowledge or a tendency toward vagueness or uncertainty, interest will wane quickly.

**Be armed with the facts.** Transmit as much information as possible in advance. Involve lower-ranked personnel before attempting to set up an appointment at the top. This preliminary fact-gathering chore frequently pays off. If you can come up with an idea or solution that ties into what occupies the top executive's mind, the chances of striking a responsive chord

will be greatly enhanced. You will have greater knowledge and mobility within the company than most of the people in the executive's organization. The problems and opportunities you uncover from your unique perspective are often significant enough to justify a meeting, where you then outline how you can help to solve the problems or take advantage of the opportunities.

**Know when to bring in the brass.** Sometimes it takes the brass to sell the brass. More high-level executives at the selling end — the president, marketing vice president, sales manager, regional sales director — are getting into the sales act than ever before. And it is becoming commonplace for lower-ranking managers to shore up reps in the field.

It is the salesperson who initiates the upper echelon's involvement. You are the quarterback, ring master and master of ceremonies. When you sense that all it would take to close a major sale is a word from someone with more authority, make sure you get high-level help.

**Aim high if a shakeup is involved.** One reason high-level executives make it to the top is that their horizons are broader than lower-ranking managers. A successful sales rep often possesses a sixth sense which tells you "Hey, this concept I'm trying to sell is too big for the person down the line; there's too much of a shakeup and too much responsibility involved." The more important the buying decision, the more likely it is that you will have to go to very top to get the final purchasing authority. Trust this feeling.

**Hit the economic buyer with an idea that's refreshingly different.** Sometimes an idea is too offbeat to sell to the low- or middle-ranked manager. One difference between high-level executives and middle managers and supervisors is that the top person has more freedom and flexibility to consider unique ideas. The line manager is often inhibited by entrenched work patterns and boundaries.

**Before giving up, always try the president.** If you can't sell the first buyer, go higher. After all, what do you have to lose? If you are in the position of either giving up the sale or going over the buyer's head, choose the latter alternative. You will be surprised at the results this extra effort can bring.

**Get leverage from "major account" status.** If you are calling on one of your company's established top accounts, make sure the people you talk to are aware of the special priority you give to their business. This fact alone will often get you the attention you deserve and help you effectively reach high-level decision makers.

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There is no reason to shy away from calling on top executives, when effective use of these strategies might help you close an important sale. You have nothing to lose and a great deal to gain.

## Handling Objections from Prospective Customers

Objections from your prospective customers can be broadly grouped into three types: real, phony, and banter.

### Real Objections

These objections are raised when the prospect believes that your concept or product has some deficiency that prevents him from purchasing it. Real objections can result from misconceptions, from poor past performance by your company or from competitive influence. When you can successfully answer a real objection, you can usually make the sale.

### Phony Objections

These are vague statements that usually mean the prospect wants a socially acceptable way of telling a salesperson to go away. Phony objections are often the prospect's learned reaction to "pushy" salespeople who have not demonstrated they can make a contribution to solving his problem. Such objections are also used by amiable prospects who are reluctant to tell salespeople about any real complaints about the product. And they are used by uncertain prospects to stall a decision. If you answer one phony objection, your prospective customer will usually raise another. This can be an unending exercise.

### Banter

Banter is the teasing or complaining sort of conversation that people who know each other well sometimes trade back and forth. Friendliness is communicated nonverbally despite a hostile verbal comment. Banter offers an acceptable way of expressing unpleasant or negative feelings without a direct confrontation. And, in fact, it serves to reduce tension between people. Your prospect's friendly abuse is simple banter and should be treated lightly.

**Key Point:** The prospect often uses the same verbal message as an objection, relying upon the nonverbal message to show that it is not intended seriously. He does not expect a serious response, and you should not give one or you will confuse him. If you misread the banter and treat kidding complaints too seriously, they may grow into genuine ones as you dwell on the

problem. You may also leave the prospect with the impression that you are overly serious and tiresome to banter with. A serious response can trigger a longer conversation about things you cannot control, such as costs and prices, while reinforcing the prospect's negative feelings about your company.

On the other hand, if you misread the banter and joke about genuine complaints, you can also get into trouble. If the prospect actually has been irritated, the joking response will be completely inappropriate and it will further irritate him.

Generally speaking, your natural sensitivity to nonverbal communication will let you sort the cues correctly. But if you see you have misread the situation and are getting into difficulty, apologize and talk about something else.

### Phony and Real Objections

These two remaining types of objections require very different treatment. If you answer a phony objection well, your prospective customer will often merely substitute another one. He may either be stalling or using these objections to separate persistent professionals from salespeople who really cannot benefit him. An effective response to a real objection, however, should satisfy the prospect's doubt and result in a purchase.

Some objections require further investigation before you can properly address them. For others, you need to assess the nonverbal content of the message to make a determination. The nonverbal communication will enable you to sense the prospect's intentions. If he intends to resolve the factual questions, he has a real objection. If he intends to stall, he has a phony objection. The ultimate test for whether an objection is phony or real is to ask, "If I could satisfy you on this point, would you go ahead and purchase the product?"

But, recognize that an objection is an invitation to argue. Do not accept that invitation and make a direct contradiction. All objections from prospective customers are potentially risky because they can turn into confrontations if poorly handled. In the remainder of this article we will discuss techniques that can help you take the tension out of prospect objections. These techniques will not answer the objection for you, but will enable you to make a safe transition from the prospect's objection to your answer.

There are several different ways of handling objections, but all of them begin with the same two steps:

1. **Listen** patiently to what the prospective buyer is saying, so you will be certain that you are going to address the true objection. An objection is one statement you must be very careful not to step on.

2. **Acknowledge** the prospect's right to feel the way he does with a human relations statement. Do not make a direct contradiction and accept the invitation to argue. Instead, use human relations statements such as these:

"I can understand why that concerns you."

"That's a legitimate point you've brought up."

## Handling Real Objections

Almost every time a prospective buyer is close to making a purchase decision, he will object to something. The product does not do all he wants it to do, or it is overdesigned, or it costs too much or cannot be expanded later. Real objections such as these may stop the momentum of a sale if you cannot counter them effectively. These objections can, however, be a very promising sign — even good news. People who have no intention of buying do not seek assurances, do not anticipate possible future problems, and do not try to confirm that the value of their purchase is greater than the price. So when your prospects offer objections indicating that they are doing any of these things, they may also be saying they are seriously considering purchasing the product.

In fact, a prospect with a real objection may be hoping that you will effectively overcome that objection because he wants to buy your product. People like to buy. Perhaps they are even anticipating objections from their bosses and want you to provide a good rebuttal.

Having listened for the true objection and cushioned it with a human relations statement, you can choose from four basic techniques for answering real objections:

1. Feel — Felt — Found
2. Convert to a Question
3. Ricochet
4. How Would You Do It If You Had to?

## Feel — Felt — Found

This is probably the easiest technique to remember, and you should therefore watch the tendency to rely on it excessively. You simply use these three words, beginning with the human relations statement, and refer to the favorable experience of third parties.

"I can see why you feel that way." (cushion with human relations)

"Several of our company's other customers felt that might be a problem also."

"And they found after evaluating our equipment and software carefully that . . ."

One of the benefits of "Feel — Felt — Found" in answering objections is that it puts your rebuttal in the mouths of third parties. Then, if your prospective buyer wants to contest it, he is arguing with other people who are not present rather than with you. You can remain neutral.

## Convert to a Question

Prospects will often raise objections that could readily be addressed if the same point had been asked as a question. "It costs too much" is very similar to "Why does it cost so much?" But it is easier to respond to the question. Unfortunately, prospective buyers are not always so considerate as to ask questions. So you may need to convert their objections to questions for them. This technique uses the following steps:

- **Listen** in order to get some insight as to the true objection.
- **Cushion** the objection with a human relations statement.
- **Restate** as a question.
- **Check** to confirm that you have the prospect's true objection.
- **Answer** the question.

For instance, if the customer objects to a long delivery quotation:

"That's a question many of our customers are asking in today's economy. I guess the question is, can you tolerate this delay before your computer is delivered? (Convert to a question and seek confirmation through feedback.)"

Here are some other phrases that readily convert objections to questions:

"I think I understand how you feel about that capability. To be sure I understand your question, are you concerned about . . .?"

"I think you've hit the question right on the head. What I hear you asking is . . .? Am I correct?"

Note that you are trying to restate the prospect's true objection in the most accurate form possible. This technique will be very effective if the prospect sees that you are honestly trying to answer his question. If the buyer feels that you are trying to answer **your** favorite question instead of his, he will see this technique as being manipulative and will resent it.

## Ricochet

The objective of the ricochet technique is to restate the prospect's "no" as a "yes" and return it to him. The ricochet can be especially powerful when supported by inconsistent facts already given to you by the prospect. If done properly you will convert his objection into the reason to buy rather than not to buy.

Customer: "Your computer systems tested very well, but they cost too much."

Salesperson: "It's true that our price is higher than some of our competitors, but value costs more. When you say 'no' to our higher price, you're saying 'yes' to less speed for computation and 'yes' to higher maintenance costs over the life of your system. Isn't there some truth to that?"

## How Would You If You Had to?

This particular technique can be very useful when the prospect has decided that he personally wants to buy your product but feels constrained by his environment. People often want to do something but believe it cannot be done. That belief can be self-limiting. Your objective is to get the prospect mentally to change that belief so he will plan around his self-limiting constraint. You can sometimes do this by asking how he would overcome his own objection if it was necessary to do so. For instance:

Customer: "Pat, I'm sure that over time this computer will save us money in time-sharing expenses. But we simply haven't got the budget for this sort of capital expenditure."

Salesperson: "I'm glad to hear you're satisfied with the machine, and I agree that the financial analysis looks very good. But tell me, how would you go about getting the extra budget for the purchase of the computer if you had to get it? How would you get the budget if the success of your company depended on it?"

Customer: "Well, of course, this late in the year, it would be impossible to get any more budget. But if I had to do it, I suppose that I would draft a purchase justification for my department head showing how the computer can do everything we are now doing via timesharing. Then I would check with our finance staff to see which purchase option is most advantageous after tax considerations. Next, I would go see . . ."

Salesperson: (after the prospect finishes) "Are you willing to try to do all of that?"

In a few minutes of thinking out loud, this prospect will plan how to get the extra budget. Then he may see that it can, in fact, be done.

## Handling Phony Objections

Until the nature of the objection is clear, ambiguous objections should be handled as phony objections. And phony objections should be handled in the following manner:

Step 1. Make a human relations statement and move on in your presentation. Offer no resistance. Give it a chance to go away.

"Of course, our company has high prices. It's also true we give good value. Look at how much you will benefit from having . . ."

Step 2: If the objection is repeated, acknowledge it as a real objection, test for its strength, and treat it appropriately. This is the place to use active listening techniques.

"Apparently the price of this product concerns you more than I thought, George. You feel then that price is the thing that prevents you from going ahead?"

Step 3: If you have encountered a succession of phony objections, there may very well be an unspoken real objection. One way to get at this hidden real objection is to put the responsibility for some past poor performance on your firm, ask what happened, and then ask an undirected, open-ended question.

"George, I'm confused. You seem to have had a whole string of objections to this product. We have resolved all of them, but you are still not satisfied. Is there something else? Perhaps either my company or I have let you down in the past in some way?"

Naturally, he will deny it.

"No, of course not. Your company has done a fine job."

"And yet . . ."

Then be quiet and let him fill in what comes after your question. This should bring out the real objection so you can deal with it.

## Be Prepared

Experience is the best teacher of how to handle objections, primarily because they tend to be repeated. There are, after all, only a limited number of possible objections, and eventually you will encounter all of them often enough to have ready responses. But as a professional salesperson, don't wait for your territory to educate you. Anticipate objections in advance and plan how to respond to them.

## What If You Cannot Answer the Objection?

Being realistic, this will occasionally happen. But it need not kill the sale. It is certainly best if you can satisfy every one of the prospect's objections. But what the prospect needs are more reasons to buy rather than not to buy your proposal. For instance, the prospect may want a product that does not exist, and then he must settle for one that best meets his criteria.

People tend to want to answer easy questions and avoid hard ones. Thus, they will often try to make a complex decision dependent upon an easier component question. You will see this in prospects, for instance, when they try to base the purchase of a computer system upon an obvious, quantifiable factor such as price while avoiding the more subtle intangible of price/performance. When your prospective customers lock onto a single objection you cannot satisfy, force them to address the entire purchase decision. If necessary, list reasons to buy against reasons not to buy. Keep their attention on the reasons to buy.

If you can identify these three types of objections and learn to deal with them effectively, you should be able to close the majority of your sales.

## Queen Elizabeth II Visits Hewlett-Packard

During their recent visit to California, Queen Elizabeth II of England and Prince Philip, Duke of Edinburgh, visited Hewlett-Packard's computer manufacturing facility in Cupertino to observe state-of-the-art technology developed on the San Francisco Peninsula.

The tour consisted of four major components: a 10-minute briefing on computer technology; an overview of the process of manufacturing microchips; a stop on the factory floor where computers are assembled and a working demonstration of both the HP 2700 and HP 250 computers. In between these stops, the Queen and her party observed work environments typical of peninsula electronic companies, including open offices, technical training rooms, a technical library and recreation facilities. David Packard, chairman of the board and co-founder of the company, led the tour.

The initial briefing explained the evolution of computer technology and how computers are used in business data processing, office automation, engineering design and factory automation. Also included was an explanation of how microchips are fabricated and are then used as the central elements in HP computers.



David Packard led the royal party through the manufacturing plant, past the yellow-lighted "clean rooms" where workers could be seen wearing their white clean-room suits. Through windows, the Queen could observe the employees carrying silicon wafers on trays from one processing device to another, inspecting completed chips through microscopes and bonding chips to their packages. The entourage then visited an assembly area where they observed employees loading the chips onto printed circuit boards and followed the process through the soldering operation.

In the product demonstration area, specially programmed HP 250 and HP 2700 systems were demonstrated. (See page 17 for more information on the HP 250 demonstration.) On the HP 2700 screen, a colorful scene was "painted" for the royal audience, including an animated flying dragon which swooped past an old English castle. The demonstrations were of special interest to the royal couple because they are to receive an HP 250 system as a gift from U.S. President Ronald Reagan.

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## Choosing a Support Program: Ongoing Software Support Services

Software support services are designed to fulfill most of your customer's technical assistance needs. HP's program consists of several fundamental features which are packaged in various ways. Selection of a particular package depends upon three primary factors:

- Ongoing technical needs
- Size and organization of the staff
- Number of systems being supported

### Filling Technical Needs

The level of technical support provided by HP is critical to the productivity and success of your customer's system activity. In order for the staff to work efficiently, they must have the right technical information at their fingertips on a timely basis. This is especially critical during periods of active application development and implementation.

Your customer's support program will be managed by an HP Systems Engineer, who is not only highly trained in the product, but can also help communicate to the staff HP's experience with HP computer systems and applications. Systems Engineers are available by telephone or at the customer's site to help manage system development, operation and maintenance.

Another key element of software support is HP's commitment to improve HP software products continually while maintaining compatibility. While these improvements are constantly being developed, it is convenient to issue them periodically in new versions or updates.

Various other elements of software support, such as documentation updates and status information, are related to software updates.

### Customer Support Service

Customer Support Service (CSS) is HP's most comprehensive software support service. Key features include:

- Account-Assigned Systems Engineer manages your customer's software support program. This continuous involvement with the account familiarizes him or her with system performance and applications. Such familiarity is a key element of the superior level of support customers receive.
- Phone-In Consulting Service (PICS) provides rapid assistance with questions relating to HP software.

The System Manager receives a response within four hours to calls made between 8 a.m. and 5 p.m., Monday through Friday (excluding HP holidays). To fill such needs rapidly, the solution may consist of work-around techniques or interim patches. PICS centers are located within the local HP Area Organization so your customer's Systems Engineer can stay up-to-date.

- On-Site Systems Engineering assistance assures that a software problem covered by the Customer Support Service is resolved without requiring the purchase of additional services. On-site assistance is available whenever a problem is of a critical nature or cannot be resolved by telephone.
- Software Problem Reporting. If a discrepancy or problem is found in HP software or documentation, the System Manager may submit a Service Request to the local HP office. HP will acknowledge receipt of the Service Request and inform the System Manager of its disposition as soon as this information is available.
- Software/Firmware Updates maintain the system at an up-to-date level. They protect and increase the value of the software by correcting inconsistencies.
- A *Software Status Bulletin*, published regularly, contains timely information on the reported operational status of HP software and documentation.
- *The Communicator* is a valuable and interesting periodical containing operational tips, programming techniques and items of general interest relating to the type of HP system the customer owns.
- Reference Manual Updates. One copy of any updates or revisions to your customer's reference manuals is sent as it becomes available.

### Optional Extensions to Customer Support Service

#### Additional Phone-In Consulting Caller

In the case of a large or departmentalized programming staff, it may be beneficial to make PICS available to callers other than the System Manager. This option provides for the authorization of additional callers to the same PICS telephone number used by the System Manager.

#### Off-Hours Software Update Installation (HP 3000 only)

This off-hours service is designed for those customers who find that a planned interruption of their system operation during normal business hours is undesirable. Installation assistance is provided between the hours of 6 a.m. to 8 a.m. and 5 p.m. to 9 p.m., Monday through Friday.



## Remote Support Program (HP 3000 only)

This program offers enhanced software support capabilities through the use of a telephone link between your HP 3000 and a Hewlett-Packard office. The increased efficiency in providing support using this link is reflected in a lower monthly support charge.

## Installation Support Service (HP 3000 only)

This program offers a high level of support during the critical period between system order and installation. It enhances system development productivity both before and after installation. Features include monthly account reviews, Phone-In Consulting, *The Communicator*, *Software Status Bulletins*, and manual updates.

## Multiple System Support

Under certain conditions, the support of additional systems may be shared between your customer and HP. This helps assure a consistent, cost-effective approach to the support of your customer's entire system network. By sharing service responsibilities, HP provides all support through your customer's central site, and direct support of additional systems is handled by the customer. This support environment is shown on page 10.

The most common application of this support structure is found where there are multiple computers of one type at a single site. Extending this structure to multiple sites can be successful only if the data-processing function is strongly centralized and additional systems are dedicated primarily to end-user applications. For this shared-support relationship to work successfully, the following characteristics must be present:

- All HP computers must be of the same type, and all must execute the same operating system.
- All systems must have compatible peripherals in order to allow copying from one peripheral to another. Note that in some cases media options are available to circumvent this requirement.
- Ideally, all systems should be at the same site.
- Where multiple sites are involved, strong central control is required to support the additional systems through the central site.
- Program development activity at secondary sites should be minimal.

## Software Subscription Service

This service supplies the updates and documentation required for the staff to maintain HP software at the current level.

The Software Subscription Service provides the following:

- Software/Firmware Updates
- Software Problem Reporting
- *Software Status Bulletin*
- *The Communicator*
- Manual Updates

If the customer selects the Software Subscription Service, he or she should plan to use Time and Materials for SE assistance in resolving software difficulties when needed.

## Additional Services for Large Staffs

In addition to the backup PICS caller option available through Customer Support Service, two documentation services are available to supply the needs of a large or departmentalized systems staff:

- Software Notification Service provides additional copies of the *Software Status Bulletin* and *The Communicator*.
- Manual Update Service provides additional copies of the associated manual updates as they become available.

## System Information Service

The System Information Service is a software and firmware support service designed specifically for desktop and personal computers. It provides the technical and applications assistance needed by customers for the effective and productive use of their HP computers.

The System Information Service provides the following:

- Phone-In Consulting Service
- Software Problem Reporting
- *The Communicator*
- *Software Status Bulletin*
- Manual Updates

# Personal Computers



## New HP Model 20 Offers Series 200 Power in a Flexible, Configurable Package

HP's new Model 20 packages the capabilities of Series 200 desktop computers into modular components. The modules include a box computer, a card set for alphanumeric and graphics video output, a choice of two HP-supplied CRTs, a keyboard and a card for interfacing a custom keypad or switches to the computer. Modularity means that a systems integrator can choose the modules, interfaces, and peripherals that are right for the application. A system consisting of the computer, video output, CRT, and keyboard becomes a powerful engineering workstation with the addition of soft language system, memory cards, flexible disc drive, and printer.

### HP 9920 Box Computer

The heart of the Model 20 is the HP 9920A Box Computer, which is rack-mountable. The computer features an 8 MHz 68000 CPU, the 3.0 Boot ROM and 128Kb of RAM resident on the processor board. The computer's card cage has 15 free card slots, seven of which can be used for I/O cards. A card that contains an HP-IB interface, an interface for the keyboard and a 20 millisecond resolution clock is standard.

The 3.0 Boot ROM allows the Model 20 to boot up from EPROM, bubbles and external mass storage devices, including the Shared Resource Manager.

### Model 20 Accessories

The HP 98204A Composite Video Card set outputs 80-character by 25-line alphanumeric and 400 x 300 resolution graphics to an external CRT. The card set consists of two cards, which take up an I/O card slot and an adjacent accessory slot. An option (Opt. 090) is available to eliminate the graphics

capability, thus saving some money and eliminating one card from the set. The 98204A comes with a 1.5m (5 ft) coaxial cable for CRT interfacing.

The video output from the 98204A is compatible with many commercially available CRTs. Most Model 20 customers, however, will choose to buy the HP-supplied 82913A 12-inch or 82912A 9-inch CRTs. They are the same CRTs that are featured with the HP-86. A rack-mount kit being developed for the 12-inch CRT will be available in the summer of 1983.

The HP 98203A keyboard is the same one that is featured with the Model 16. A large keyboard that contains all of the 98203A features plus a numeric keypad, additional system control keys and a palm rest will be available in the summer of 1983.

The HP 98201A Custom Keypad Interface enables the systems integrator to easily interface a custom keypad or simple switches to the computer. It consists of a card containing a subset of the keyboard electronics, a cord that attaches to the computer's keyboard interface and a connector that interfaces to the custom-designed keypad or switch assembly. Each pin of the connector corresponds to one key of the keyboard. All keys are represented except for the alpha keys.

### Model 20S Development System

HP has bundled the 9920A Box Computer, video card set, keyboard and keyboard extension cord and added a 2m HP-IB cable, two 98256A RAM boards, Pascal 2.1 and BASIC 2.0, plus BASIC Extensions 2.1 to form the Model 20S. The price of the Model 20S is much less than the sum of the prices of the individual pieces. The Model 20S with the HP 82913A CRT, a printer and a mass storage device form an attractive system to develop software for Model 20-based "target" systems.

## Model 20 Software

Pascal and BASIC language systems will be supported on the Series 200 Model 20. Although HPL appears to run on the Model 20, there are no current plans to support it.

Programs developed on the Models 16, 26 and 36 using Pascal 2.0, Pascal 2.1, BASIC 2.0, BASIC Extensions 2.0 and BASIC Extensions 2.1 are directly transportable to the Model 20.

## Markets and Applications

The Model 20 market includes instrument automation OEMs who seek a flexibly configurable and durable computer for instrument control applications such as production test, incoming inspection, quality assurance, facilities monitoring and environmental test.

A sizeable market will be those who are interested in using Series 200 power in applications outside of instrument control. Such applications may include CAD, Datacomm, machine monitoring and control and robotics.

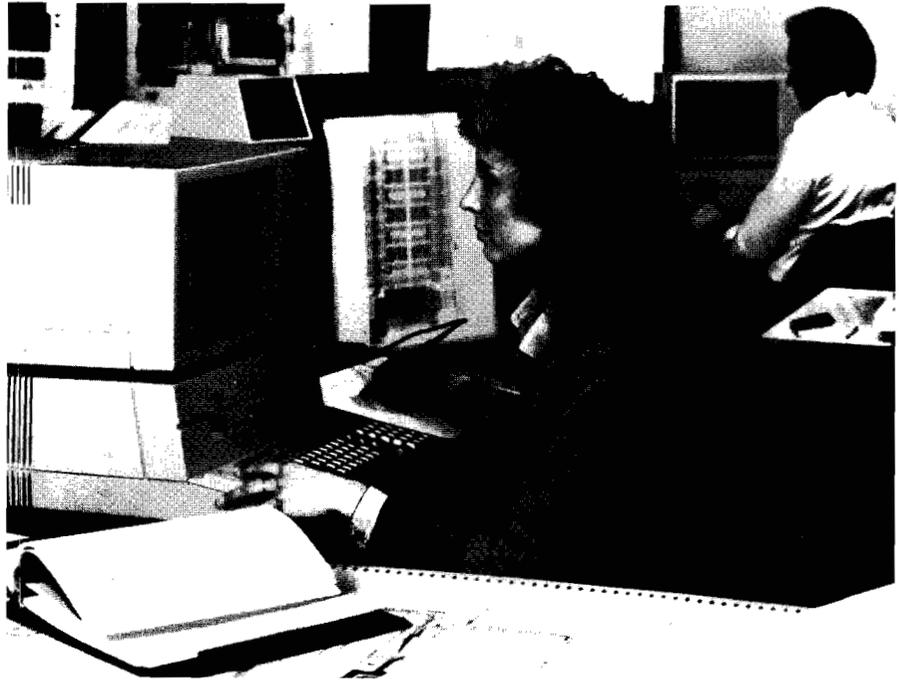
## Ordering Information

### P/N

9920A Box Computer  
98201A Custom Keypad Interface  
98203A Keyboard  
98204A Video Card Set  
Opt. 090 Delete Graphics  
9920S Development System

82912A 9-inch Monitor  
82913A 12-inch Monitor

The 82912A is offered with a 230V option for Europe (Opt. 001). The 82913A is offered with 230V and 100V options (Opts. 001 and 002, respectively). The 100V option is available in Japan only.



## New Color Personal Computer-Aided Design Workstation Available

A low-cost, color version of the high-powered HP Series 200 68000-based technical computers is now available for a system configuration including 640Kb of RAM, dual 5¼" flexible discs, BASIC and Pascal languages.

Designed as a personal computer-aided design workstation, the HP Model 36C offers the individual engineer affordable color enhancements for slightly more than the HP Model 36A monochromatic version, and less than half the cost of many similarly configured competitive systems.

Features include four graphics memory planes, gray scale and a color map easily accessible through HP's powerful, enhanced BASIC or Pascal graphics language extensions. In addition, the HP Model 36C provides the high performance

of the Motorola 68000 microprocessor and the convenience of integrated mass storage, excellent I/O, and a range of supported peripherals.

Several engineering software packages that fully use the color graphics capabilities of the Model 36C are available through the HP Third Party Program: 2-D drafting, finite element, and noise and vibration packages. An HP general technical artwork generation system, which allows the user to design printed circuit boards, schematics and other 2-D drawings, is planned for Summer 1983.

## Color Enhancements

The HP Model 36C offers two ways of producing colors. It allows selection of 16 true colors from a palette of 4096 colors for lines or filled images simply by controlling the intensity of the CRT guns. Or the Model 36C can generate 4913 dithered area shades for color compatibility with existing HP products, including the HP 9845C desktop computer.

Four graphics memory planes (four bits per pixel) provide more flexibility than more typical three-plane systems. Up to 16 colors can be displayed at once. The extra plane can also be used as a working plane or for customized cursors.

The gray scale and color map provide the palette of 4096 true colors, programmable for quick color selection. Gray shading allows realistic image reproduction.

The HP Model 360 12-inch CRT screen features an 80-character by 25 line display and a resolution of 512 x 390. Compared to 30 Hz interlaced displays, the 36C features a 60 Hz noninterlaced display, eliminating line flicker or ghost images. An antiglare filter reduces reflections from ambient lighting, improving contrast and producing more vivid colors.

## Networking

Through the HP Shared Resource Management network, the Model 36C can be linked to other Series 200 models and to the 32-bit HP 9000 family to share data and program files, as well as high-performance, costly disc drives and printers. The HP Series 200 models include the 26A/S instrument controllers and the HP Model 16 personal technical computer. All Series 200 products are software compatible in BASIC and Pascal.

## EPROM, Magnetic Bubble Memory and HP-IL Now Available on Series 200 Computers

Four exciting new cards are available for all Series 200 computers: an EPROM card, a Programmer card to program EPROMs, a magnetic bubble memory card and an HP-IL interface card.

### HP 98253A EPROM Development Kit

An EPROM card and EPROM Programmer card are packaged together to form the HP 98253A EPROM Development Kit.

The EPROM card, which can be ordered separately as the 98255A, contains 16 sockets for either 64K-bit (Intel 2764 or equivalent) or 128K-bit (Intel 27128 or equivalent) EPROMs. A board loaded with 128K-bit EPROM ICs contains storage space for 256Kb of code.

The EPROM Programmer card is used to program the EPROM ICs on the EPROM card. Programming is as simple as attaching the Programmer to the EPROM card via a ribbon connector, inserting both cards into adjacent card slots in the Series 200 computer, and entering two simple commands in BASIC.

EPROM code storage capability will allow Series 200 customers to store programs or data files permanently onto a mass storage medium that is reliable, nonvolatile, compact, economical and secured from accidental erasure.

Systems with the 3.0 Boot ROM will be able to autostart a program out of EPROM. These systems now include the Series 200 Models 16, 20 and 36C. Models 36A and 26 will be upgraded with the 3.0 Boot ROM soon.

### HP 98259A Bubble Memory Card

The HP 98259A features 128Kb of nonvolatile, solid-state mass storage on one card. The bubble card is similar to a disc in that you can store code and read code from it. Also, like a disc, if power should go down, data stored in bubbles is not lost or altered.

Advantages of bubbles over flexible disc drives include greater reliability, the ability to withstand harsher environments, smaller size and reduced maintenance costs. With bubbles, there are no moving parts to wear out and fail, and there are no read/write heads that can become misaligned or damaged.

Since the magnetic bubble is totally encased, it is not subject to contaminants, such as dust, grime, or oil vapors, which can wreak havoc to flexible disc drives. Also, bubbles are not as vulnerable to shock and vibration and can operate over a wider temperature and humidity range.

Systems with the 3.0 Boot ROM will be able to autostart a program out of bubbles.

### HP 98634A HP-IL Interface

The HP 98634A is the Series 200 interface to the new Hewlett-Packard Interface Loop (HP-IL). Customers will now be able to exchange data from an HP handheld computer, such as the HP-41 or HP-75, with any Series 200 computer. In addition to this capability, the 98634A will enable Series 200 computers to interface with HP-IL compatible instruments, such as the HP 3468A Digital Multimeter.

The HP-IL card is supported by the same Series 200 BASIC I/O commands as those for HP-IB.

### Software for the New Cards

Software that supports EPROM and bubbles is contained in the AP Binary of BASIC Extensions 2.1. In order to use EPROMs or bubbles,

therefore, a system must have loaded into it BASIC 2.0 and the binary.

BASIC 2.0 and most of BASIC Extensions 2.1 will be offered on one ROM language system card (98602A) soon. It generally does not make sense to use EPROMs or bubbles if a soft language system is being used, since soft language systems require a disc drive. In most applications that call for EPROMs or bubbles, therefore, the ROM language system will be used.

The software that supports the 98634A card is also contained in a short binary that is included with BASIC Extensions 2.1. That binary also contains software for the BCD card. In order to use the 98634A card, a system must have loaded into it BASIC 2.0 and the binary.

This binary will not be included as part of the 98602A ROM-based BASIC Language System. Customers who wish to have the HP-IL/BCD software in a hard system can program the binary into EPROM by using the 98253A EPROM Development Kit.

Pascal support for EPROMs and bubbles will be available in the summer of 1983. Currently, there are no plans to develop Pascal software for the HP-IL card. Pascal support will depend on further assessment of market demand.

### Software Support Services

Software support services for EPROMs, bubbles and HP-IL will be covered as part of the BASIC Extensions support services. These services include Software Information Service (SIS), Software Subscription Service (SSS), and the Right To Copy for BASIC Extension updates.

## Compiled Subprograms Available for HP Series 200 BASIC

The Compiled Subprogram (CSUB) utilities are now available that allow compiled subprograms written in Pascal or Assembly language to become subprograms in BASIC programs. This allows speed-tuning of BASIC code by calling high-speed subprograms.

The CSUB utilities are sophisticated programs for knowledgeable users. The level of expertise required to use these utilities effectively is greater than that required to program in BASIC. Customers should be proficient in Pascal and have a working knowledge of BASIC.

This article will explain the capabilities and restrictions of CSUBs so you will know where they should and should not be used.

### Capabilities

- Ability to call subprograms written in Pascal or Assembly from BASIC.
- Parameter passing from BASIC to Pascal.
- Linkable with subprogram libraries. There is no code size restriction, and code is relocatable.
- Compiled subprograms have access to BASIC common.
- Pascal global variable space is allowed, so Pascal global variables can be used.
- A fixed amount of HEAP space can be specified by the user.
- Simple READ(LN) from the keyboard and WRITE(LN) to the printer-is device can be done.

### Restrictions

- Pascal device, file and graphics I/O are **not** supported.
- Not all Series 200 Pascal language capabilities are supported. Procedure variables and Interrupt service routines (ISRs) are not available. The GOTO statement in Pascal cannot be used to jump to another procedure.
- Pascal 2.0 and BASIC 2.0 with 2.0 Extensions are required. Earlier systems are not supported. In addition, the CSUBs utility package (P/N 09800-10 x 40, where X corresponds to the media option) is required.

### Advantages

The CSUBs utilities are generally used to speed-tune computational routines. They are also useful as a security mechanism, because source code does not have to be released with the compiled portions of code. The third advantage of CSUBs is that your Pascal routines can be used in the BASIC environment so that routines need to be written only once to work in both the BASIC and Pascal environments. 



## Suggestion Box

Dear HP 250 OEMs:

This month's suggestion comes from Burton W. Goode, President of Business Computer Specialists, Inc. of Deerfield, Illinois, and Chairperson of the mid-west P.O.E.M organization. Burt has some interesting ideas on how "Lower Memory Cost Makes the HP 250 Easier to Use and Even Easier to Support":

HP 250 OEMs can now encourage users to buy two or three partitions of memory for each terminal in use (for 1 - 4 terminal systems) to enhance the end users' productivity and your own. With multiple partitions per user, regular operating programs are run in background partitions. The background partitions (tasks) are accessed via a foreground partition autostart program which includes the following lines:

```
50 REQUEST # X
60 ATTACH # X
70 DISP "RELEASE # X";
80 END
```

(X = Partition Number)

This routine calls up background memory and displays the release command to be executed upon return to foreground (if desired).

If, while operating a program in background memory, additional information is required that would normally mean exiting the current program cycle (such as calculations, catalogs, listings, print label, query info, or immediate inquiry or use of another program), the operator can detach to foreground

memory and attach another background partition or execute to required function in foreground memory.

The operator can detach by pressing Control Execute and by pressing enter on the release# line displayed in foreground (if desired).

When the special procedure is completed, the background partition can be reentered exactly where it was left by performing the following sequence:

```
REQUEST # X   Enter
ATTACH # X    Enter
```

(Only if #X has been released)

Then continue where you left off.

This procedure will save time when additional data or calculation is needed without having users run from terminal to terminal or constantly exit programs to complete a task.

In addition, OEMs can also be more productive using background memory. If the OEM supports an HP 250 user via remote terminal over a modem, the OEM can provide an additional service (at additional cost to the user) to give faster and better response in solving program support problems.

If a user running in background memory is halted by a program error, the operator can detach to foreground and release the background partition in which the error occurred. Then the OEM can call in to the user's HP 250 via a modem and the OEM's Remote Terminal into a foreground partition reserved for Remote Terminal access on the user's computer. The OEM then requests and attaches the background partition in which the error occurred. The OEM can now try to determine the problem and restart the program without interrupting the normal operating cycle of the user's program. The OEM sees the exact screen the user did and can examine variable and status values (if programs are not

run-only). Often such situations are hard to duplicate, or communication between the parties is not clear as to what has happened, but with this method it is as if the OEM is there. This saves time and travel for the OEM and the user and is certainly efficient for all parties. The OEM can then finish the operating cycle or end the program properly if the error cannot be recovered. The OEM then detaches to foreground memory and releases the background partition for the original user to access. He can then disconnect from the computer without fear of any harm.

The HP 250 background partition system leaves opportunity for other creative and money-saving uses as well.

Did you know that if a program is running in a background partition created by a remote user over the phone, the user can detach and release the background partition and hang up the phone without interrupting the program? Furthermore, the remote user can call up the HP 250 periodically, access the background partition which is running, see its status (it is helpful to have your program display which item or page is currently processing), and disconnect again. The result is a phone cost for only a few minutes and not hours while a report may be running. Note: You still will not know if the paper has jammed, but you may know when it's time to get back to the office.

Another feature that may be helpful when running remotely is the beeper in the printer. Via program control codes (see example below), the printer beeper can be activated to send messages or to request someone to change the printer paper type without having to call the computer location on a second line. Data files can also be used to send messages to other users or to indicate when the paper has been changed.

10 PRINTER IS 0  
40 PRINT"GC";  
(GC = Control G)

Whatever system or use you may choose, lower memory cost makes extra background partitions a requirement for any site.

Do you have ideas and suggestions to share with other HP 250 OEMs? Send your input to:

Lynne Ovington  
Hewlett-Packard  
19447 Pruneridge Avenue  
Cupertino, CA 95014

or in Europe to:

Thomas Lang, BGD  
Hewlett-Packard GMBH  
Postfach 1430  
D-7030 Boeblingen  
West Germany

## Memories of a Royal Demo

On Thursday, March 3, Hewlett-Packard Company enjoyed the honor of showing "Silicon Valley" high technology to Her Majesty Queen Elizabeth II and His Royal Highness The Prince Philip, Duke of Edinburgh. Just prior to leaving the Cupertino site, David Packard showed Her Majesty the gift she was receiving from President Ronald Reagan, the HP 250 Small Business Computer System. HP's Lynne Ovington was asked to demonstrate the new HP 250/Model 25 with the integrated 9.7 Mb Winchester Disc Drive. DSG/250 with its easy, user friendly orientation was selected as the software to demo. A "pie chart" of projected grain output from the Queen's Sandringham Farm brought a smile from Her Majesty. Prince Philip seemed to find the demo too simple and immediately questioned the actual capability of the system and the procedure for data entry and retrieval. He clearly intends to learn more about the HP 250 and is anticipating the arrival of the User's Manuals. The HP 250 will no doubt occupy a special place on the royal grounds and have at least two eager users to test its capabilities and potential for information management.

## New HP 250 Sales Aids Available

Have you been looking for a way to effectively present the HP 250 strategy and product features? Look no further! A new overhead slide show has been created to explain the strategy and features of the HP 250. It also gives details of the major HP 250 enhancements introduced in February 1983. In addition, an extensive demo program is available, which runs on the HP 250. This demo program can either be set to run automatically (e.g., at shows or fairs), or it can be used interactively. It explains hardware, configuration, database management, utilities and business basic. Both the slide show and the demo program are on the same floppy disc. All you need is an HP 9845 with floppy drive to plot your slide show and, of course, an HP 250 to run the live demo.

For ordering information, contact your HP sales rep. 

## Diagnostic Load Device for HP 1000

All HP 1000/Series E,F,M,L, and A box computers are now supplied with the appropriate Loader ROM for loading diagnostics to the CPU. This means that a device to be used specifically for diagnostic loading is no longer required. However, what is still required is a system console and a device for loading software and software updates. The system console can be either an HP Service System or any of the HP compatible terminals. As for the software and software updates loading devices, please refer to the table below, which specifies the compatible devices according to the operating system:

Operating System	Load Device
RTE-M	264X w/OPT. 007 (req'd), 9885A
RTE-IV	264X w/OPT. 007 (req'd), 7970B/E
RTE-IVB	264X w/OPT. 007 (req'd), 7970B/E
RTE-6/VM	264X w/OPT. 007 (req'd), 7908/11/12 w/Linus, 7970B/E
RTE-L	9895A, 7970E, Integral Dual Flexible Disc Drive
RTE-A.1	9895A, 7970E, 7908/11/12 w/Linus, Integral Dual Flexible Disc Drive

With this new policy, maintenance contracts may be purchased for HP 1000 box computers, which were previously unserviceable by HP. This applies both for new purchases as well as for customers who already own such computers. In the latter case, the Loader ROM should be installed in the computer as part of the normal precontractual inspection and upgrade. For customers currently on a hardware support contract (BMMC, SMMC) or on warranty, HP will, at no charge, install the ROM at the time of the service call. Customers re-

ceiving Time and Material service should be encouraged to purchase and install the Loader ROM (HP12992C). In this situation, it should be stressed that HP will be able to provide more rapid service, thereby decreasing the cost of each service call. In the future this will benefit the customer by lowering the overall maintenance costs.

This new policy should increase overall customer satisfaction with the support of HP 1000 computers.

## Be Careful with Memory Configurations on A900

The HP 1000 A900 superminicomputer sales have been terrific. However, a number of orders specifying additional memory have been incorrectly configured. When ordering your A900s, please remember to include the proper memory connector P/N 12222A-H to fit the exact number of 3/4Mb array boards in the system.

For example, a 3Mb Model 19 requires Option 014 to delete memory, a 12220C 3Mb memory package, and a 12222D four-array memory connector.

Also, remember that you should not order a larger memory connector than the one specifically required. A connector capable of supporting more cards than are being connected will interfere with installation of I/O interfaces in some A900 card cage slots.

## Warranty Waiver for HP 1000s

This is to correct information given in the article on Warranty and Installation that appeared under the same title in the issue of November 1982.

It was mentioned that "HP will allow OEMs of HP 1000s a waiver of site preparation, installation, and on-site warranty services for a 5% discount when they purchase 50 or more functional units on a B1 or B2 price clause."

The number of functional units required, however, is 25 or more and *not* 50.

We apologize for the delay in correcting this information, but we believe that it's never too late for announcing good news!

## Symbolic Debug Reminder

Symbolic Debug/1000 (92860A) is shipping! Look for programmer productivity to increase.

Just a reminder about Symbolic Debug/1000 (92860A) requirements. It requires the 2226 PCO of FORTRAN 77 (92836A) and either the 2226 PCO of RTE-A.1 (92077A) or the 2226 PCO of RTE-6/VM (92084A). Be sure your customer has the 2226 (also called C.82) revision of the operating systems and FORTRAN 77 so that symbolic debug will work correctly.

## 7914TD Support on E/F

The 7914TD Disc/Tape Subsystem is now supported on the HP 1000 E/F-Series systems and is RFI certified.

The addition of the 7914TD to E/F-Series systems is significant. In the past, you have had to buy both a tape drive and a disc drive; now you can buy a 1600 bpi tape drive and a large capacity (132Mb) disc drive in a single attractive package at a bargain price.

RFI qualification of the 7914TD is important since the E/F diagnostic media is 1600 bpi mag tape or minicartridges, and there are no RFI-qualified minicartridge tape units. Also, the 1600 bpi mag tape is much faster than minicartridges.

The only shortcoming is that you can't rack the E/F CPU in the 7914TD cabinet because of air flow and cooling problems. (By the way, remember that an A-Series CPU can be mounted in the 7914TD cabinet.)

## M/E-Series Power Supply Upgrade

In 1978, a new and improved power supply for the HP 1000 M/E-Series product line was introduced (all F-Series computers have the new supplies). The old power supply, known as the "A" power supply, was then discontinued. In 1983, the "A" power supply will complete its support life and HP will no longer guarantee repair of the "A" power supplies.

However, those of you on service contracts will continue to have your "A" power supplies repaired or have a new "B" power supply installed at no cost. If you are not on a service contract, you can purchase an upgrade kit which consists of a "B" power supply and a new chassis. A key feature of the

kit is that you get a substantial credit for your old "A" power supplies.

There are four upgrade kits for M/E-Series Computers, the 12979A I/O Extender and the 12990A Memory Extender, as follows:

Upgrade Kit	Upgrade for:
12796A	2108A; 2109A CPUs
12796B	2112A; 2113A CPUs
12796C	12979A (I/O Ext)
12796D	12990A (Mem Ext)

The 12796A, 12796B, and 12796D kits also have an option to add a power fail recovery system. The power fail recovery system for the "A" power supply does not work with the "B" power supply. By ordering option 001 to the 12796A, 12796B or 12796D, you will get the correct power fail recovery system.

While there is an upgrade kit for the memory extender, you should consider HP's new high density memory boards:

- The 12749H contains 512Kb of memory.
- The 12699H is a 256Kb memory module.
- The 12666H is a 1Mb fault control module.

The 12749H, 12699H, and 12666H can be mixed and matched with any combination of older memory boards. The new boards are extremely reliable, and it may prove more economical for you to replace memory boards than to buy an upgrade kit for the memory extender.

The 12990B Memory Extender will not be offered for sale after October 1983, while the upgrade kit will continue to be offered for some time after that.

### Remember

- Four power supply upgrade kits.
- Credit for return of old power supply.
- For service contract customers, continued repair of the "A" power supply or a no-cost upgrade to a "B" power supply.
- Power Fail Recovery option available.

## RTE-II Soon to Be Inactive

The last opportunity to order the 92001B RTE-II operating system original license will be May 1983. Due to lack of demand, the product will go into the inactive state of the product life cycle on June 1, 1983, and only the support products will remain on the price list. The product life cycle guidelines define the inactive state as follows:

For a period of **five** years, inactive software receives maintenance as **necessary** to correct **serious** software problems and to maintain compatibility with other software products with which they were defined to be compatible when sold.

At the end of that five-year period, RTE-II will become obsolete, and support will be available on a time and materials basis only.

## A-Series Diagnostics Now Work on L-Series

The following A-Series diagnostic packages have been updated to work on the L-Series processor as of the 2301 (A.83) PCO:

24612A — A/L-Series System Diagnostics

24613A — A/L-Series Measurement & Control Diagnostics

These diagnostics will replace the following L-Series products in systems as of the 2326 (B.83) PCO:

24397A — L-Series System Diagnostics

24601A — L-Series Measurement & Control Diagnostics

Customers on support services for the existing L-Series diagnostics will be able to upgrade to the new A/L-Series products via option 002 at no charge, and those not on services can upgrade at a discount via option 001. The existing L-Series diagnostics mentioned above will be mature at the 2326 (B.83) PCO and eventually obsolete. There will continue to be two separate products for the peripheral diagnostics; specifically, the 24398A package for the L-Series and the 24398B package for the A-Series processors.

The new A/L diagnostic packages are much easier to use, as well as more comprehensive. Diagnostics will also be added to the new packages as new interfaces are added.

## HP Announces DSN/MRJE for the HP 1000

HP 1000 Technical Computer Systems can now use Distributed Systems Network/Multileaving Remote Job Entry (DSN/MRJE) to interface to IBM or IBM plug compatible systems.

- DSN/MRJE introduces for the first time communication software that enables an HP 1000 A-Series computer to communicate with an "IBM Host" system.
- DSN/MRJE at the same time expands your IBM communication product offerings on the E and F family.
- DSN/MRJE is supported under RTE-A.1, and RTE-6/VM, the current operating systems for the HP 1000 A/E/F family.
- DSN/MRJE is orderable now. DSN/MRJE was listed on the February 1 price list.

### DSN/MRJE: What Is It?

DSN/Multileaving Remote Job Entry, also known as a "HASP" workstation emulator allows concurrent HP 1000 users the ability to transmit batch jobs to and receive output from an IBM or IBM plug compatible host system. Jobs may be submitted to the "IBM host" from any supported HP 1000 input device. Similarly, job output may return from the "IBM host" to any supported HP 1000 output device. DSN/MRJE supports connections to "IBM host" systems that use JES2, JES3 or HASP II (Version 4 or later) job entry systems.

### Why?

DSN/MRJE broadens the market appeal of the HP 1000 because it allows users to couple an HP 1000 to their IBM EDP center. Data can be collected on the factory floor by the HP 1000 then transferred to the IBM host for further processing, storage and reporting. Batch processing, file transfer and data trans-

fer can take place back and forth from the factory floor to the corporate administrative department. In addition, customers can choose to process extensive CPU batch jobs on their IBM host thus freeing the HP 1000 for real-time critical applications.

### DSN/MRJE Customer Course Included with Every Product

A DSN/MRJE customer course entitled "A Guide for New Users" is a self-paced course that provides instruction on the operation, structure and capabilities of DSN/MRJE. An overview of basic data communications concepts is provided along with practice exercises and review quizzes. This course is provided to your customer at no additional charge.

### Ordering Information

DSN/MRJE is ordered for the HP 1000 by ordering:

- One DSN/MRJE software product (91782) and
- One MRJE PSI hardware card (12043A or 12260A).

### DSN/MRJE Hardware

Must Order HP 12043A or HP 12260A

12043A MRJE PSI card for the A-series. Includes RS-232C cable.

12260A MRJE PSI card for the E/F-series. Includes RS-232C cable.

To order, contact your HP sales rep. 

## HP 9000 Unsupported Peripherals

Unsupported Peripherals are those that may work with the system, but HP cannot *guarantee* that they will work. They may not pass RFI/EMI/safety testing and, consequently, may not be legal to sell with new systems. They may not have been QA tested to ensure that in all cases they function correctly (in fact, they may or may not have actually been hooked up to the 9000). However, they are *expected* to work correctly.

There may be no diagnostics for these peripherals that run on the 9000. If a customer wants to use the peripheral, diagnostics must be run on a machine that has a diagnostic. These peripherals are not supported on service contracts; repair is on a time-and-materials basis only.

### Unsupported Peripherals

#### Hard Discs

7908/11/12R	RFI/EMI testing
7906M/MR (HP-IB)*	no diagnostics; RFI
7906S/SR*	no diagnostics; RFI
7920M/MR (HP-IB)*	no diagnostics; RFI
7920S/SR*	no diagnostics; RFI
7925M/MR (HP-IB)*	no diagnostics
7925S/SR*	no diagnostics

\*Cannot be system boot disc.

#### Flexible Discs

82901St	not QA tested
82902St	not QA tested
9121D/St	not QA tested
9133A†	not QA tested
9134A†	not QA tested
9135A†	not QA tested
9138A†	not QA tested

†Cannot be system boot disc.

#### Magnetic Tape

7970E (HP-IB)*†	does not pass RFI
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\*Master or master/master only; slaves do not work

†Not system distribution media

#### Terminals

2382A	does not pass RFI
2621B	not QA tested
2645x (all)	not QA tested
2648x (all)	not QA tested
2649x (all)	not QA tested

Note: Generic terminals under HP-UX must support tab setting, lower case and xon/xoff handshaking.

#### I/O Cards

27130A (MUX)	not QA tested under BASIC
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#### Peripherals which do not work with the HP 9000

7221C/T	1350A/S
7906/10/20/25 H	1351A/S
7906M/MS (16-bit)	82905B
7920M/MS (16-bit)	2611A
7925M/MS (16-bit)	2613A
7970B	2619A
7970E/71A (16-bit)	2680A
98775A (under HP-UX)	7976A

#### Printers

2601A	not QA tested
2602A	not QA tested
2631B/G (RS-232C)	not QA tested
9876A*	not QA tested

\*Not under HP-UX, BASIC only

#### Graphics Devices

7220C/T*	not QA tested
7225A (HP-IB)	not QA tested
7240A*	not QA tested
7245B	not QA tested
7270A (RS-232C)*	not QA tested
7580A (RS-232C)*	not QA tested
7585A (RS-232C)*	not QA tested
9874A†	does not pass RFI

\*Requires RS-232 setup software for BASIC; with HP-UX, use terminal driver

†Not under HP-UX, BASIC only

## Part Number Correction for HP 9000 Manual

A typographical error in the February issue resulted in the wrong part number listing for an HP 9000 Manual. On page 27 the part number for the Service Documentation Package should be 09020-80030, rather than 09020-80020 as listed. Please note this change when placing your order.

## Customers and Finstrates

Many customers will be curious about the technology of their new HP 9000 and will be tempted to remove finstrates from the Memory Processor Module (stack). Although customers have been casually handling interface and memory cards for years, handling a finstrate without proper antistatic procedures is almost certain to result in damage to the ICs. Such damage is not covered by warranty.

To discourage unnecessary handling of finstrates, a seal is placed on the stack door prior to shipment. Breaking the seal may void the warranty on the finstrates. If your customer wants to examine the "innards" of the computer, have him or her order HP CE installation of the computer. The CE has static handling equipment (and new seals) and can conduct a safe "technology tour." 

## Keypunch Layout for HP 2624B and 2622A Now Available

Special Option K29 provides a keyboard layout similar to the 029 keypunch, including alpha shift, numeric shift and shift lock. This special option is very useful in customer applications that are in the process of converting from card input to their first HP computer system. The modifications to the terminals for this option include new firmware, keycaps, and a manual supplement.

Call your HP sales rep for more information today!

## A Printer Port for the HP 2622A

The HP 2622A terminal now has an option that adds a serial printer port. Special Option P03 adds a serial printer port that is fully compatible with the printer port on the HP 2623A terminal. The combination of the 2622A Option P03 and an HP printer provides the lowest cost data entry terminal printer solution for the HP 262X series of terminals.

## ATP Product Description

(When giving this data to a customer explain that prices are stated only to compare the configuration possibilities.)

### DSN/Advanced Terminal Processor (ATP Subsystem)

The ATP Subsystem is composed of one SIB (System Interface Board), one or more AIBs (Asynchronous Interface Board), and a motherboard which accepts various Mini Boards to deal with several types of direct connect or modem ports (modem ports only on the Series 64).

Given the following convention: HP-DCA = RS-422/5 Pin Compact Connector, HP-DCB = RS-232/3 Pin Compact Connector, ordering an AIB (30145A) with no option will get you (3) mini boards, each handling (4) RS-422 5 Pin Compact Connectors. Each Option 002 ordered will replace one mini board (4 ports) with the RS-232 3 Pin Compact Connectors.

### Sales Picture

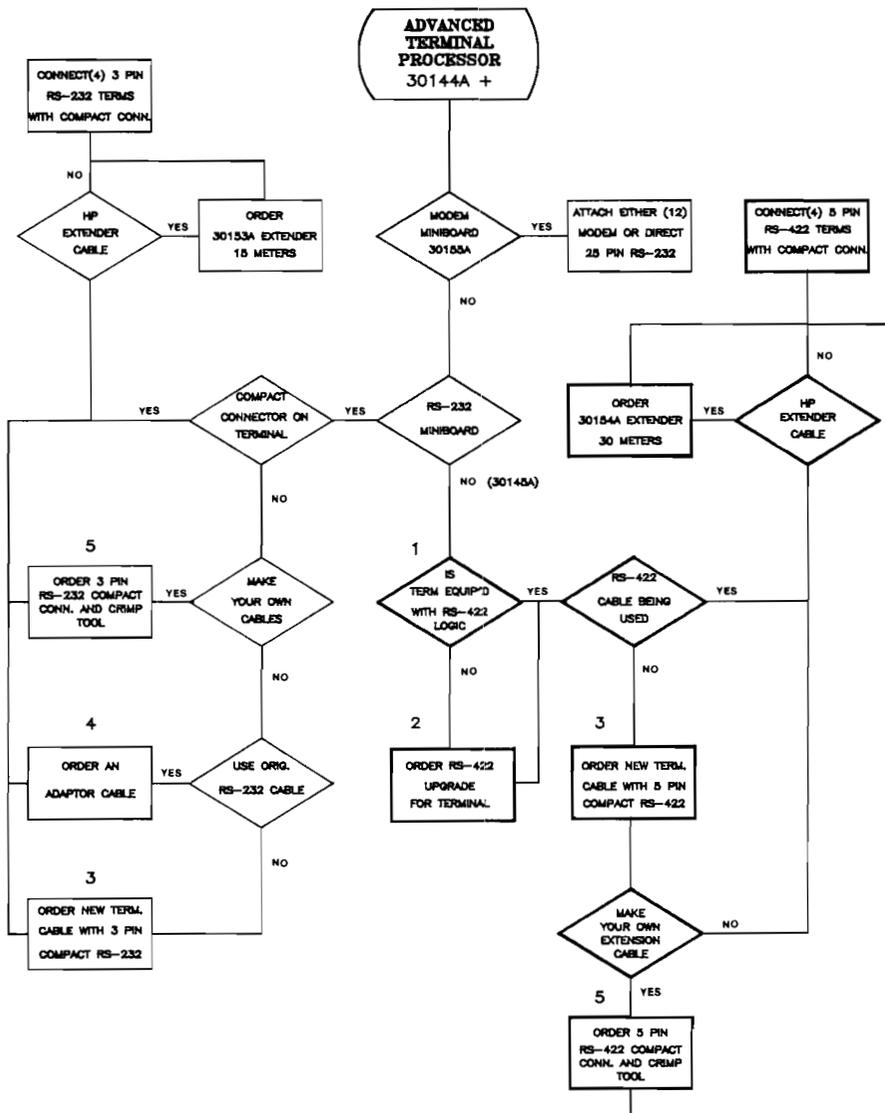
30144A	DSN/ATP System Interface Board (SIB)
30145A	DSN/ATP Direct Connect Port Cntrlr
001	First Port Cntrlr on Series 64
002	Replace 4 RS-422 ports with 4 RS-232 ports
30155A	DSN/ATP Modem Port Cntrlr
001	First Port Cntrlr on Series 64

### Technical Specifications

RS-449 is an EIA (Electronic Industries Association) Recommendation which defines the mechanical and functional characteristics of the digital interface between terminal equipment and modems. RS-449 is divided into low speed (RS-423 — unbalanced circuits) and high speed (RS-422 — balanced circuits). The full implementation of RS-449 would necessitate two connectors (37 pin and a 9 pin). HP has decided to only partially implement the RS-449 recommendation. Our offering uses RS-422 and only 5 pins (balanced or twisted pairs for receive and transmit lines plus a ground).

### Benefits

- Line lengths up to 4000 feet (1220 meters)
- Data rates up to 19.2k bps (future capability)
- Noise immunity against RFI (Radio Frequency Interference), EMI (Electromagnetic Interference) and ESD (Electro-Static Discharge)
- Performance improvements (micro/port with buffering).



## Flowchart Options

- 1) Ordering a 262X (except 2621B) or 264X with Option 035 adds RS-422 receivers and drivers to the terminal.
- 2) Terminal Upgrades (except 2621B):
  - 2621A/P, 2622A, 2623A order 13266E
  - 2624A/B, 2626A/W order 13266E Option 001
  - 264XS order 13260E (Option 003 for 2648A and Option 006 for 2647A)
- 3) Terminal Cables (terminating into 3 or 5 pin male compact connector, all 5 meters long):
  - 13222P (262X/RS-422)
  - 13222X (26X/RS-232)
  - 132321 (264X/RS-422)
  - 13232X (264X/RS-232)
  - 13242X (262X Port Two/RS-232)
- 4) Adaptor Cable (30152A) used to convert any standard 25 pin male cable to the new compact 3 pin RS-232 connector (5 meters)
- 5) Building your own 3 or 5 pin Compact Connectors:

RS-422: 92225A - 5 pin male  
 92225B - 5 pin female  
 92179D - shielded 5 wire/24 AWG (sold by the meter)

RS-232: 92224A - 3 pin male  
 92224B - 3 pin female  
 92179C - shielded 3 wire/24 AWG (sold by the meter)

Crimp Tool: 92229A (used for all compact connectors to connect shield) 49



## Hewlett-Packard Announces HP 27201A Speech Output Module for HP 1000s and HP 3000s!

The first speech output peripheral designed by a major computer company is now available from Hewlett-Packard. The HP 27201A Speech Output Module (SOM) combines high quality speech, low price, and flexible configurability, making speech synthesis a viable technology for a wide variety of computer-based OEM applications.

### Where Can Computer Speech Be Used?

The Speech Output Module is most useful for applications where **prompting, warning, or error messages** are required, or where a person's hands, eyes or attention are focused on something other than the computer. Almost every computer system uses prompting,

warning or error messages. In the office environment, a businessperson can use the 27201A to announce the receipt of an electronic mail message. Another application would be an Electronic Data Processing center where the Speech Output Module prompts for the loading of a magnetic tape or notifies the operator that a printer is out of paper. In these instances, the advantage of speech output is unlike a bell or buzzer; information is provided about what action to take.

In Computer-Aided Design, a CRT filled with schematic information does not have to be overwritten with error messages that clutter the screen! For Computer-Aided Test, a technician will not have to look at the CRT for results of a probe test. He can keep total concentration on the circuit board being tested and listen to the Speech Output Module for pass or fail information. Other prime applications include facilities monitoring, process control, graphics, inventory management and computer-aided manufacturing.

### Product Overview

The Speech Output Module is a small ( $6\frac{1}{4}'' \times 4\frac{3}{4}'' \times 1\frac{1}{4}''$ ), complete peripheral device that can connect directly to a host computer or interconnect between the host and another peripheral (such as a terminal, printer or plotter). It communicates via a 3-wire RS-232-C hardwired line at speeds up to 19,200 bits per second. The vocabulary can be downloaded from a host computer file to the Speech Output Module or it can be resident on the HP 27201A in a customer-supplied EPROM. EPROM-based vocabularies can include up to 200 words, while the downloaded vocabulary is limited only by host memory.

### How It Works

The vocabulary is produced using a technique called Linear Predictive Coding (LPC). LPC is a speech compression technique that uses actual human voices or sounds as a basis for synthesis. The natural redundancies of this speech are removed and particular parameters are extracted to compress the bit rate of speech. In essence, the entire synthesis process resembles a digital tape recorder with a very low bit rate. The major difference here, however, is that tape recorders can only play back and cannot synthesize. The result of this process is high quality speech output, with a reduction in the number of stored bits per spoken word of 97 to 98.5 percent over purely digitized speech.

The speech chip used in the Speech Output Module is the TMS 5220, the latest generation chip from Texas Instruments. The 5220 takes LPC input from RAM or EPROM data located on the Speech Output Module and creates an analog signal as output. Chip output is filtered, amplified and sent to a standard audio jack mounted on the front panel. To get your customer "up and speaking", a pair of headphones is enclosed with every product to plug directly into the front panel.

## Software to Make It Easy

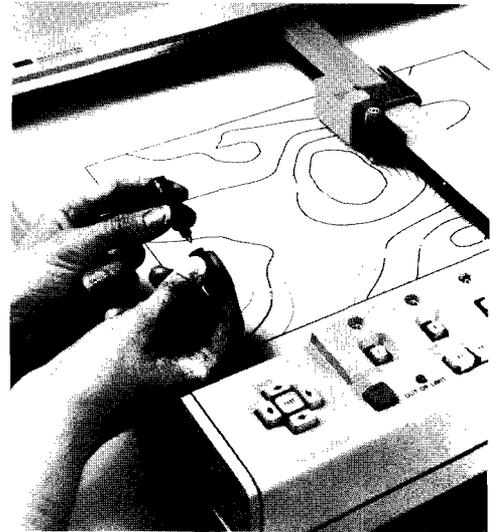
The Speech Output Module is easy to get "up and speaking" through a software package available for the HP 1000 and HP 3000 computer systems. The software products are the 27203A for the HP 1000 and the 27205A for the HP 3000. Software for the HP 9000 and the HP Series 200 will follow! The software package consists of three parts: A start-up library of 1500 English words and sounds\*, the Voice Exerciser

program that creates an interactive environment and the Voice Manager program, which is essentially a database manager.

## Sales Aids

Contact your HP sales rep for promotional materials, including a four-color brochure containing a recorded sample of speech quality. (The record currently available is in English, but other languages will follow soon.)

\* Other languages will be available soon.



## Drafting Pens Enhance Capabilities of HP 7220, HP 7221 and HP 9872 Plotters

Have you told your A3/B-size plotter customers about drafting pens for the HP 7220, 7221 and 9872 plotters? Now these customers can use their plotters for mechanical part drawings, electrical schematics, and camera-ready plotter art.

Order P/N 5061-5060 to obtain two pen bodies and boots and complete instructions on care and installation.

Plotter points are available in six widths:

- 0.18 mm — P/N 9300-0955
- 0.25 mm — P/N 9300-0956
- 0.35 mm — P/N 9300-0957
- 0.50 mm — P/N 9300-0958
- 0.70 mm — P/N 9300-0959
- 1.00 mm — P/N 9300-0960

For most applications, your customers will need just the wider points from 0.35 to 1.00 mm. Recommend fine points (0.18 and 0.25 mm) only when the application requires very narrow lines.

For special applications and more information, see your HP sales rep.



## InteGraL/60 Software Updated for Pascal 2.0 Users

Hewlett-Packard has recently released an upgraded version of InteGraL/60 (52113A) for use with the Pascal 2.0 upgrade. Users can determine their level of InteGraL/60 by using the Pascal librarian and listing the import text of any module in the library "INTEGRAL.LIB." The first release has the revision code 2217 and the new 2.0 version has a revision code of 2307.

In addition to compatibility with Pascal 2.0 programs, certain features and enhancements have been integrated into the 2307 revision of InteGraL/60:

- There are 12 text fonts to choose from, with a maximum of 4 accessible at any one time.
- The 7470A and 7585A plotters are now supported devices.
- Text generation is generally faster, especially in cases of origin justifications.
- The file management structure has been redesigned, resulting in reduced times to store InteGraL/60 segment files to disc. The amount of reduction is based on the structure of the segment being stored, as well as the type of storage media being used. A typical configuration has shown at least a two-thirds reduction in the amount of time taken to store a complex segment to the internal minifloppy.
- The polygon fill algorithm has been redesigned to run faster, in most cases.

The following are considerations for using the 2307 release of InteGraL/60 in graphics applications:

- The user application program must be compiled with the Pascal 2.0 release software. Existing applications must be recompiled

with Pascal 2.0 in order to use the 2307 release of InteGraL/60. The 2217 version of InteGraL/60 is *not* compatible with Pascal 2.0, and the 2307 version of InteGraL/60 is *not* compatible with Pascal 1.0.

- The segment file structure of the 2307 release of InteGraL/60 is different from the structure of the segment file with the 2217 release of InteGraL/60. For customers with existing segment files, Hewlett-Packard will provide an unsupported utility that will modify 2217 segment files into 2307 compatible files.

Hewlett-Packard is making the 2307 release of InteGraL/60 available to existing customers free of charge, along with some additional utilities if desired. These unsupported utilities include:

- A conversion routine that will modify 2217 release segment files into 2307 compatible files.
  - Some Pascal procedures that will allow the user to programmatically move segment files to another area on the disc to provide for larger segment file space.
- A set of Pascal procedures that will allow the user to fill polygons with variable angled fill patterns and even make the fill a permanent part of the polygon.
- A learning and diagnostic aid called TUTOR, which allows the user to utilize InteGraL/60 commands without having to write Pascal programs.

If you or your customers are interested in these utilities or wish more information on this new release of InteGraL/60, please contact your HP sales rep.

## New Parts Kits for Series 40 Peripherals

For those who manufacture customized peripherals for the HP-41, HP now offers two interfacing parts kits. Now you can design and build specialized, dedicated card readers or printers with HP-41 connectors. And, development costs will be minimized with the use of these parts kits.

Only OEMs may purchase these kits, since both products offer direct access to the HP-41 bus. Improper interfacing with the HP-41 could easily result in damage.

### Cable Assembly Kit (HP 82506A)

The Cable Assembly Kit consists of the printer shell, cables and contacts for units like the HP 82143A Thermal Printer, but without the printer components. Each kit contains 100 sets of parts. (The parts in this kit cannot be purchased separately.)

### Card Reader Part Kit (HP 82507A)

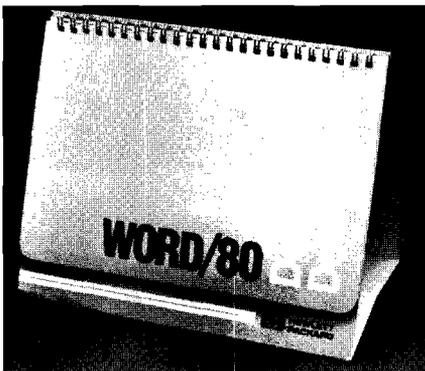
The Card Reader Kit contains 50 sets of parts for the shell and contacts to build card readers similar to the HP 82104A Magnetic Card Reader. (The parts in this kit cannot be purchased separately.)

Because the use of these HP-41 kits will deviate from the uses traditionally covered by HP's support policies, your sales representative will ask you to sign a Letter of Understanding. The purpose of this form is to specify the terms of the sale.

More information on any of the kits and samples of the Cable Assembly Kit (HP 82506A) and the Card Reader Kit (HP 82507A) may be obtained from your HP sales rep.

## Series 80 Demo Guides and Dealer Kits Now Available

Now you can easily and economically demonstrate Series 80 software — WORD/80, FILE/80, VisiCalc® PLUS (HP-86/87), and Graphics Presentations (HP-86/87) — using PCD's's new Demo Guides and Dealer Demo Kits.



### Demo Guides

- Attractive, easy-to-use flip-charts
- Interactive and self-guiding
- Learn major features of software in 30 minutes or less
- Ideal for point-of-sale demonstration
- Great for self-training, too

### Dealer Demo Kits

- Include everything a dealer needs for customer demonstrations:
  - Fully functional software package
  - Demo guide
  - Selling guide
  - Data sheet
- Economical means for dealer to acquire software for demos
- LIMIT — one of each kit per dealer outlet

Dealer Demo Kits and Demo Guides are available — contact your HP sales rep. Dealers may apply coop funds toward their purchase.

## A New Winchester . . . Right on Target!

Hewlett-Packard recently announced the new HP 7914, a 132.1 Mb Winchester disc drive with an integral 67-Mb, 1/4" cartridge tape drive. The Winchester disc provides reliable, on-line mass storage, while the optional cartridge tape drive provides a convenient solution for cost effective backup, software distribution or data interchange between systems.

By utilizing state-of-the art manganese-zinc Winchester read/write heads and modified read/write and servo circuitry, HP was able to double the capacity of the HP 7912 for a modest increase in price. Targeted at strengthening HP's position in the mid-range market, the 7914 is at the top of HP's family of Winchester disc products, with capacities now ranging from 16.5 Mb to 132.1 Mb. (Add that to the full line of entry-level Winchester discs and you've got quite a product lineup!) With similar features and comparable performance to the 7912, the 7914 is the ideal solution for those customers with growing mass storage requirements.



	<b>Part No.</b>
WORD/80 Demo Guide	5953-7844
FILE/80 Demo Guide	5953-7845
VisiCalc PLUS Demo Guide	5953-7846
Graphics Presentations Demo Guide	5953-7847

WORD/80 Dealer Kit (3.5")	CVO8716-031D3
WORD/80 Dealer Kit (5.25")	CVO8716-031D5
FILE/80 Dealer Kit (3.5")	CVO8716-032D3
FILE/80 Dealer Kit (5.25")	CVO8716-032D5
VisiCalc PLUS Dealer Kit (3.5")	CVO8716-033D3
VisiCalc PLUS Dealer Kit (5.25")	CVO8716-033D5
Graphics Pres. Dealer Kit (3.5")	CVO8716-034D3
Graphics Pres. Dealer Kit (5.25")	CVO8716-034D5

VisiCalc is a registered trademark of VisiCorp.

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If you work for a company that is an OEM for Hewlett-Packard and want to receive your own copy of **OEM News**, call your Hewlett-Packard sales representative.

For further information on any of the products and services discussed in **OEM News**, please contact your HP sales rep.

**Note:** Not all HP computer products are sold and supported in all countries. Please check with your local HP Sales Office.

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If you have any suggestions, comments, or letters about **OEM News**, please send them to:

**Editor: Sheri Bebb Godshall**  
Hewlett-Packard Company  
Computer Marketing Group  
19320 Pruneridge Avenue  
Cupertino, California 95014 USA

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