

REINHARDT, HELMUT
FRANKFURT
HPSA.

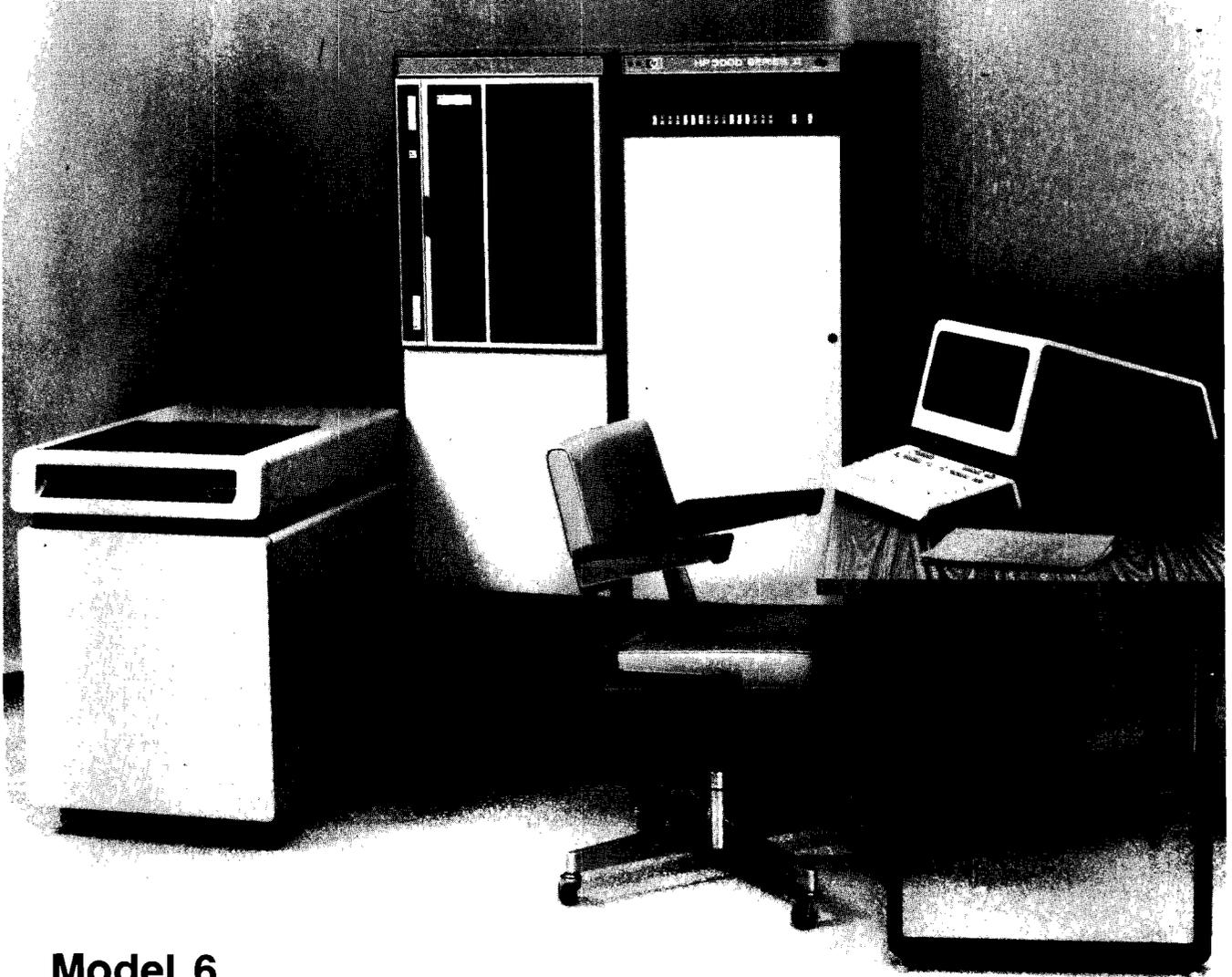
COMPUTER SYSTEMS NEWSLETTER

For HP Field Sales Personnel

HEWLETT  PACKARD

Vol. 2, No. 9
Mar. 15, 1977

ANNOUNCING... SERIES II MODELS 6 & 8



Model 6

DATA SYSTEMS NEWS

Product News

Input Requirements for RJE/1000 - A Short Review

By: Bill Stevens/DSD

RJE/1000 emulates the IBM 2780 Data Transmission Terminal. While input can come from cartridge disc files, mini-cartridge tapes, punched tape readers, 9-track mag tape units, operator terminals and card readers, that input must be formatted by the user as described below.

RJE/1000 transmits data in two modes: non-transparent and transparent. Non-transparent mode is typically used to transmit data files or source program files. In non-transparent mode the maximum record length RJE/1000 can accept is 80 characters. Each record must be delimited by the device's standard end-of-record character. Transparent mode, on the other hand, is used to transmit binary data; transparency allows totally random bit patterns to be transmitted without any specific bit pattern being incorrectly interpreted as a control character. In transparent mode the maximum record size is 82 characters, the first of which must contain the record length and the second of which is ignored.

Suppose, for example, a user wants to transmit a binary relocatable program file between two HP 1000's equipped with RJE/1000. The user must write an applications program to add two characters (the first of which contains the record length, the second of which is ignored) to every 80 character binary record in the file before submitting it to RJE/1000 for transmission. Upon receiving the data at the other end, the user must write another applications program to recover the original binary relocatable program file. This is done by stripping out the two characters added to the beginning of each record. To summarize: *RJE/1000 does not format binary data files for transparent transmission nor does it reformat them upon reception; this is a user responsibility.*

Sales Aids

Program of the Month

By: Jim Bridges/DSD

The purpose of this column is to document, on a monthly

basis, a program from the Contributed Library which may be a factor in influencing a sale. If you find this column useful or would like to nominate the Program of the Month, please let me know. This month's selection is one I have made in response to questions about upgrading from DOS to RTE:

Program of the Month # 2:

NAME: TFER

PART # 22682-18921 (mini-cartridge) \$35.00

PURPOSE: Allows user to read/write DOSM/DOS III files while running in an RTE II/III system. The DOS file may be any type: relocatable binary and source files taken from a DOS disc are converted into RTE file types 5 and 3, respectively. All other file types taken from a DOS disc are written as type 1 RTE files. It is also possible to transfer RTE files to a DOS disc: however, the transfer from DOS to RTE is more commonly desirable. For example, if your customer has an IMAGE data base on a DOS disc, he can transfer it to an RTE disc by using this program. Knowing the format of the EFMP files, he can then break out the records and put them into a file suitable for input to RTE IMAGE-1000. Of course, if a mag tape is available, an easier (and recommended) approach is to use DBULD and DBL0D.

NOTE: I have personally checked out this program using a 7900 disc. The program should also work with a DOS 7905 cartridge - if the 7905 cartridge has been broken into subchannel layouts recognizable by the RTE system.

Someone acquainted with the Contributed Library might notice that there are other utilities there which do some of the same operations as TFER. I have looked at some of these and now feel that TFER is the easiest to use and provides the most flexibility. TFER is written in HP ALGOL.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

DATA TERMINALS NEWS

Division News

In-Service Training Course

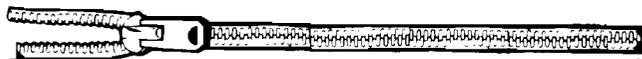
By: Rich Ferguson

O.K., you terminal tigers — here's what you've been waiting for! For those of you who missed the Terminal Specialists Training Class held in February in Cupertino, we have just the thing — the training materials and lab sessions used in that class have now been put into an In-Service Training Course. Here you can learn the terminal and its operation in the convenience of your own office.

This In-Service training course is designed for those who wish to become expert in terminal operations and who do not have an opportunity to come to Cupertino. To go through the course, you will need two 2645A's with display enhancements, and line drawing set, minimum. Also, two 13232A cables, one 13232H cable and a 13232U modem bypass cable.

So, now you can learn at your own pace and become a terminal expert in your own office!

To get a copy of this In-Service Training Course, fill out the form below and send it to DTD.



**TO: Data Terminal Division
Sales Development
Bldg. 43, Cupertino
Attn: Carl Flock**

Please send me my personal copy of the DTD In-Service Training Course for 2645A terminals.

NAME _____

OFFICE _____

SIGNATURE _____

Restatement of DTD Discount Policy*

By: Carl Flock/DTD

Discounts Without Agreements

An 8% discount is available if 5-9 terminals are ordered at one time without an agreement, as described in Volume Discounts below. All Volume Discounts are available, without an agreement, if all terminals are ordered at one time: (i.e., 10 terminals — 11%, etc.) Delivery must be at one time also.

HP Agreement Discounts

Discounts with signed agreements are available in three ways:

1. Volume Discount — All DTD products and accessories identified as "purchase agreement discountable" on the CPL are discounted according to Schedule E. That's everything but the 13248A Service Kit, 13294A Class and "Specials."
2. HP CPU OEM Discount — A 15% discount is available to HP CPU OEM's (must buy CPU) for all discountable DTD products and accessories. That's everything but the 13248A Service Kit, 13249A Class and "Specials." This discount is not based on the number of terminals — flat 15% for all quantities. Above 50, the CPU OEM should use the volume discount to his advantage.
3. HP 2649 OEM Discount — The 2649A (and only the 2649A terminal) and all discountable accessories (except the 13246A/B and 13349A) are discounted according to Schedule F for OEM's. The 13246A/B, 13349A are discounted according to Schedule E (Volume Discount). Remember, the 13248A, 13249A and "Specials" are not discountable. For example, a 2649 OEM who signs an agreement to buy fifty 2649A's is entitled to a 31% discount on all DTD products except the 13248A, 13249A and specials which are not discounted; and the 13246A/B and 13349A which are discounted at 18%.

*NOTE: The discount is determined by the number of 264X numbered items, in all cases except the HP CPU OEM discount.

2640B Made in Japan

By: Eric Grandjean/DTD



YHPM has just completed their first production run of 2640B Display Terminals. Shown below is No. 1, handsomely decorated with white camellias to celebrate the occasion.



Around the first production run are, from left to right: *Engi-San*, Production 1 Manager; *Kuramoto-San*, *Yadomaru-San*, *Yamada-San* (QA Manager), *Kajiya-San*, *Murase-San*, and *Iwasaki-San* (PE Manager).

These units and many more to come will be ready for shipment to our customers in Japan starting March 1.

Congratulations to *Kiyoshi Murase* and his group for a job well done.

The First 2645R Shipment

By: Dave Goodreau/DTD

On February 28, DTD's very happy shipping team *Ted Lodge*, *Bill Pearson*, *Larry Belcher* and *Kee Jeon* shipped our first 2645R Arabic terminal.

The 2645R displays both standard Roman characters and 31 Arabic characters. It operates in two modes, Roman and Arabic. In Arabic mode, characters are displayed from right to left. The display is fascinating to watch. If you have a customer who needs Arabic, send him the 2645R data sheet (P/N 5952-9979).

To help remind you what 2645R is all about, we gave it the letter "R". Can you guess why? Give up? *Ruben Galleguillos* (DTD-Q.A.) came up with the answer just before the 2645R was shipped. His answer was simple — "R" means it operates from right to left.



Ted Lodge, Bill Pearson, Larry Belcher and Kee Jeon

Product News**Product Safety at DTD**

By: Eric Grandjean/DTD

Today's topic is EMI (electro-magnetic interference.) I am sorry we missed the last issue due to circumstances beyond our control.

- Q. *Benny*, as I understand it, EMI is another area where compliance with certain national standards is required. Would you please tell me what this is all about?
- A. Yes, *Eric*, EMI, or for that matter, RFI (radio frequency interference) is an area subject to requirements and approvals. RFI is electromagnetic noise or radiation produced by electrical and electronic equipment, as a by-product of its internal functions. This radiated noise, if allowed to propagate much beyond the enclosure of the unit can possibly disturb other sensitive equipment. As a consequence, many governments require RFI noise to be controlled, and some countries require actual testing and approvals for such products. By the way, this radiation is similar to that produced by your home radio sets and other appliances.
- Q. How do we insure that our terminals comply with RFI requirements?
- A. A modification which consists of a cable and silver paint inside shields the top and bottom assemblies, and brings them into compliance with the RFI requirements which prevail in Europe. In the United States and Canada, we are still in the formulation stage of RFI standards; for this reason, our terminals are not yet subject to mandatory requirements in these two countries.
- Q. Where do we have EMI approval; in other words, where do we comply with these regulations?
- A. We have approvals in Germany and in Switzerland, where it is part of VDE and SEV standards. In both countries, we were successfully tested to an international standard. This means that in all other European countries, and Asia, we should not have any EMI problems. However, we need and welcome any information on situations which may still exist in the areas of safety and EMI.

Benny, thanks for this clarification on EMI (RFI). We'll see you again in the next issue for a discussion on communications standards and where we stand on approvals.

NOTE: Since radiation control standards mainly exist in

Western Europe, all Grenoble production will contain the EMI modification. It is presently in pilot run here in Cupertino. The U.S. production will remain standard. However, we will be able to handle this modification outside of Europe via special quotes.

Plotting with the 13349A Printer

By: Carl Flock/DTD

How one plots with the 13349A printer is not intuitively clear to the most casual observer. Alas, don't count on the manual to clarify the situation! It has come to our attention in the last few weeks that there is a great interest in using the 13349A printer to plot. The following program is a long way from being a plotting subsystem, but at least it's a start to show something on the 13349A.

PROGRAM

PLOT

```

10 REM SAMPLE PROGRAM TO SHOW USE OF 13349A
20 PRINT '27"H" '27"J PLOT          SAMPLE PROGRAM FOR 13349A"
30 PRINT "TYPE CONTROL-Y TO STOP"
40 PRINT LIN(2), &
   "1/120-INCH INCREMENTS IN X, 1/96-INCH INCREMENTS IN Y", LIN(2)
50 REM RESET('27'10 TERMINATES SEQUENCE WITHOUT DOING LINE FEED)
60 PRINT CTL(208), '27"&D4dV" '27"+E"+ '27'10;
70 REM SET ORIGIN TO MIDDLE OF PAGE
80 PRINT CTL(208), '27"&D4dV" '27"+O"+FNAS(510)+FNAS(528)+ '27'10;
90 REM POSITION PRINT WHEEL AT ORIGIN
100 PRINT CTL(208), '27"&D4dV" '27"+A"+FNAS(0)+FNAS(0)+ '27'10;
110 ENTER 255,S,SS
120 INPUT "X,Y ? ",X,Y
130 REM OUTPUT COMMAND TO 13349A
140 PRINT CTL(208), '27"&D4dV" '27"+a"+FNAS(X)+FNAS(Y)+ '27'10;
170 GOTO 110
180 END
190 DEF FNAS(N)
200   REM THIS FUNCTION CALCULATES ASCII PARAMETERS REQUIRED FOR 13349A
210   DIM NS[2]
220   IF N>=0 THEN DO
230     REM FOR POSITIVE OR ZERO VALUES OF N--CALCULATION FOLLOWS
240     N[1]=INT(N/64)
250     N[2]=N MOD 64
260   DOEND
270   ELSE DO
280     REM FOR NEGATIVE VALUES OF N--CALCULATION FOLLOWS
290     N[1]=63-INT((-N)/64)
300     N[2]=63-(-N MOD 64)
310   DOEND
320   REM NULL AND DEL ARE STRIPPED BY TERMINAL
330   REM THUS 64 IS ADDED TO LOW ASCII CONTROL CHARACTERS ONLY
340   IF N[1]<32 THEN N[1]=N[1]+64
350   IF N[2]<32 THEN N[2]=N[2]+64
360   NS[1,1]=CHRS(N[1])
370   NS[2,2]=CHRS(N[2])
380   RETURN NS
390 FNEND

```

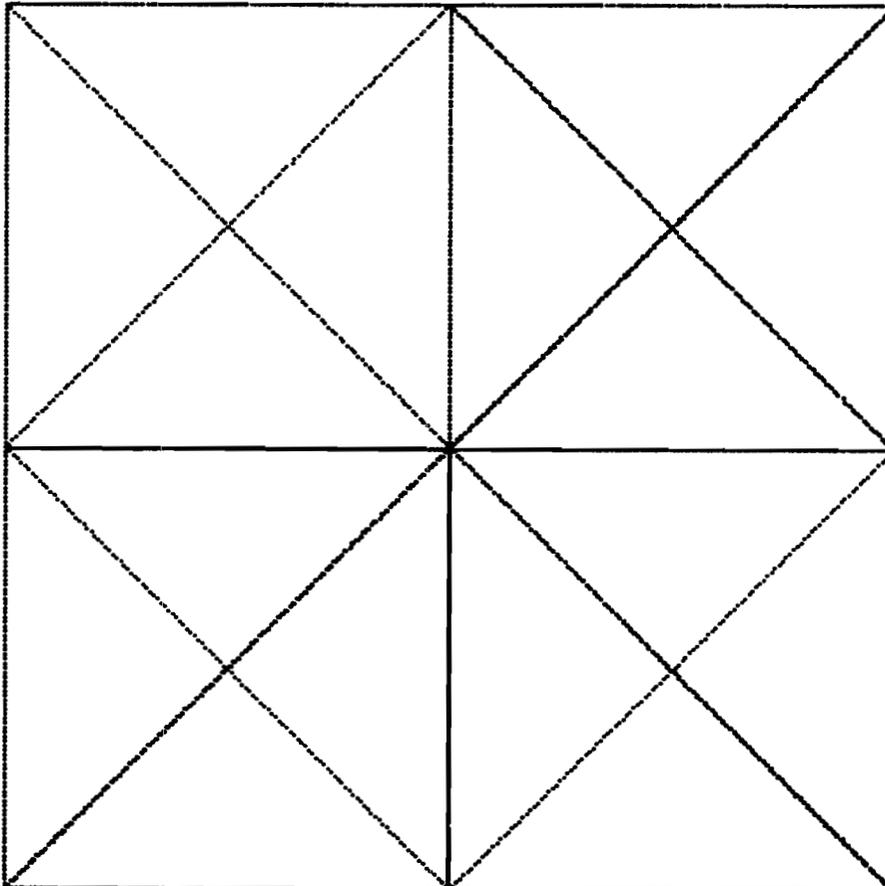
TERMINAL INPUT

PLOT SAMPLE PROGRAM FOR 13349A
TYPE CONTROL-Y TO STOP

1/120-INCH INCREMENTS IN X, 1/96-INCH INCREMENTS IN Y

```
X,Y ? 360,0  
X,Y ? -360,0  
X,Y ? 0,-288  
X,Y ? 0,288  
X,Y ? -360,0  
X,Y ? 0,-288  
X,Y ? 360,0  
X,Y ? 0,288  
X,Y ? 0,0  
X,Y ? 360,288  
X,Y ? -360,-288  
X,Y ? 0,0  
X,Y ? -360,288  
X,Y ? 360,-288  
X,Y ? -360,-288  
X,Y ? -360,288  
X,Y ? 360,288  
X,Y ? 360,-288
```

PRINTER OUTPUT



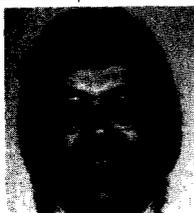
HP GRENOBLE NEWS

Division News

New Faces In Grenoble Sales Development

By: Guenter Kloepper/HPG

The following people have recently joined the Sales Development team in Grenoble.



1. *Richard Franklin* comes to us from the U.K., where he sold calculators for HP. *Richard* has Sales Development responsibility for *Product Line 69* (Data Collection Devices).



2. Some of you may remember *Jack Griffin* from the S.O. Boeblingen days. *Jack* spent a year in AMD marketing before moving to Boeblingen. There, he did Sales Development for 9600-type systems before moving to the Boeblingen EDP department. During the last one-and-a-half years, *Jack* has

been responsible for the German COMSYS network. His experience from the computer-user side will certainly be of benefit to him and you, in his new job as the Sales Development man for the *S1000*.



3. *Francis Marc* is one of the Grenoble factory "old-timers" — although he spent some time in the field before joining the factory. The experience *Francis* has gained in Production Engineering, particularly during his recent work in transferring the manufacture of the

2640B to Grenoble, will come in really handy in his new position as Sales Developer for the *DTD Products*.



4. *Henri Ajenstat* from the Grenoble lab has joined the Sales Development team to focus full-time on the promotion of *HPIB on the S1000*. We feel that there is tremendous potential on this area that we have not capitalized on until now. *Henri's* technical

background and involvement with the 3070 development make him ideally suited for this task.

With these people, in addition to *Georges Retornaz* and *Serge Boivineau*, we are going to have a hard-hitting team to help you exceed your quota.

Our First 2640 Shipment

By: Francis Marc/HPG

One week after orders receipt, we sent to a French customer, our first ten 2640B's, produced at Grenoble. We still offer a good availability and will reach our full production capacity these months.

Starting July first, Grenoble will also receive the orders for 2645.



The Production team in shipping area

Sales Aids

The HP-IB and HP 3070A

By: Peter Stuart/HPG

Have The Instrument Sales Force Selling For You

As you know, the HP 3070A terminal permits you to control HP instrument clusters remote from an HP 1000 Computer System. We have not been pushing this capability strongly up until now since we wanted to check it out thoroughly first. Now we are 100% confident the product is a winner. Do yourself a favour and read this article, and then go and tell your friends in the Instrument sales force what you have for them.

A New Opportunity

Up until now people have bought calculators or computers to control their HP-IB instruments in situations where the speed or sheer volume of measurements required made it impractical to do it any other way. The result is you are often faced with tricky questions on speed performance.

However, for each HP-IB compatible instrument being used with an HP controller, there are many, many more HP-IB compatible instruments being controlled manually. Frequently, they are used in production testing situations in which the test engineer manually sets up a specified input stimulus (for example, voltage and frequency) and then measures and writes down the output signal(s) of the unit under test.

The HP 3070A's controlled by a remote computer may be used to automate at low cost measurements that were previously controlled manually.

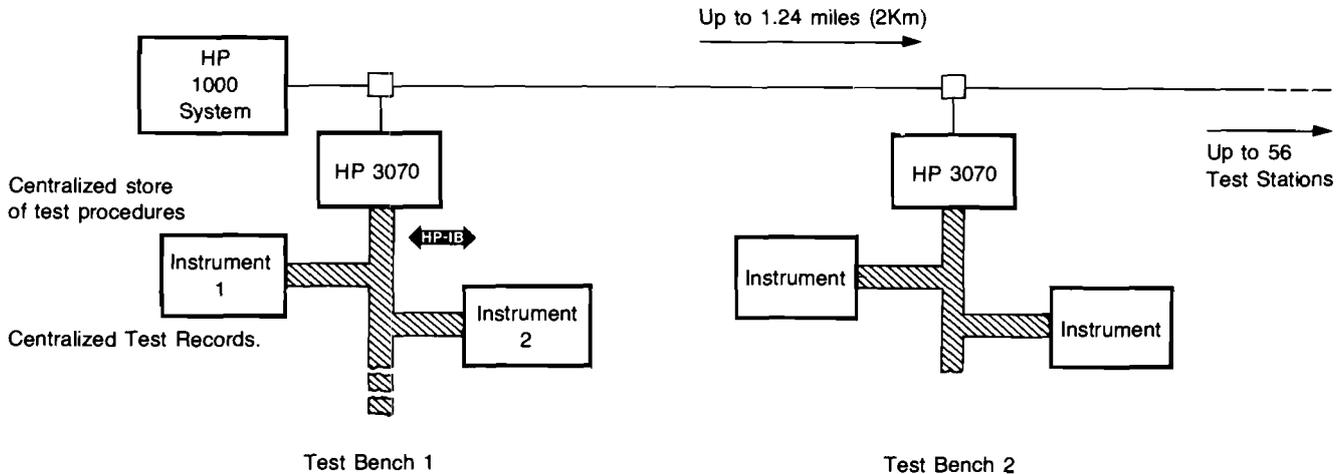
The advantages of this capability are as follows:

- Human errors in the setting of range and values of stimulus instruments are eliminated.
- Human errors in the setting of the ranges of measurement instruments are eliminated.
- Human errors in the writing down of the readings are eliminated.

- Test records can be reliably recorded in the central computer data base without the need for keypunch operations.

No Problems selling HP-IB

You will not be faced with tricky questions about performance when discussing this capability with your prospects. You can assure them that HP 3070A's can be used to control up to 56 remote instrument clusters, each as fast as anyone can do it manually. How do we know? We tested and achieved a continuous average HP-IB transfer rate of one transfer per second at all stations. A lot of disc swapping with many independent programs would slow this down, but it will almost inevitably be as fast as anyone could achieve manually. In another article, we describe a typical test station and how the 3070A could be used. By telling your friends in the Instrument sales force about this, they will have a new feature to mention when promoting instruments and every now and again will come back to you with a lead for an easy sale.



Eliminate Monotony in Product Testing and Drastically Cut Human Errors

By: Peter Stuart/HPG

Imagine a production test situation in which the performance of a voltage-to-frequency converter must be measured and the results written down for the QA records. A typical configuration would be as shown in drawing 1. If a measurement of frequency was required at 10 different input voltages, this would require the test technician to take a number of repetitive actions. First, he would have to set up the three instruments to their required ranges. Then he would have to adjust the voltage source to the nominal settings (e.g., 1 volt, 2 volts, 3 volts, etc.) and record at each step the measured voltage and frequency. A total of 30 extremely repetitive (error prone) actions. In addition, it is more than likely that the hand-written records created would eventually be keypunched for entry into a computer data base (another chance for errors such as transposition of digits).

You have the solution

In the past, people have purchased automatic measurement systems to enable them to make measurements that would be too complex or impractical any other way. Testing stations have been centralized in a few key locations in order to gain maximum utilization of expensive equipment. The HP 3070A's and SERIAL LINK permit you to distribute the power (and cost) of a computer system throughout a factory getting low speed automatic testing back to the bench where it belongs.

In drawing 2, we show you how a 3070A would hook up to such instruments. The 3070 would be used by the test engineer to tell the computer system the serial number of the unit under test and to indicate that he has connected the input and output probes ready for measurements. Within minutes the entire test will be completed and the results stored in the computer data base. All this being done at least as fast as any manual operator could work while eliminating many monotonous and error-prone operations.

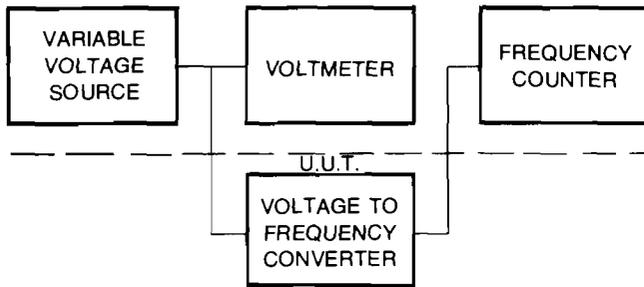
Who should you talk to

First, you should talk to the Instrument Sales Engineers in your area and find out who are the big volume buyers of HP instruments (volume of units, not necessarily dollar volume). Then with their introduction, visit the head of the "Test Department" or Production Engineering Department" and talk to them about how they can make more reliable measurements with less skilled people and finish up with all the results in a computer data base. Up until then, it may never have occurred to them to think of automated measurements if they have only simple and dispersed testing requirements. Before long you will find you have a great ally to help you call on the same company's EDP Department.

In other words, a happy customer already in the factory.

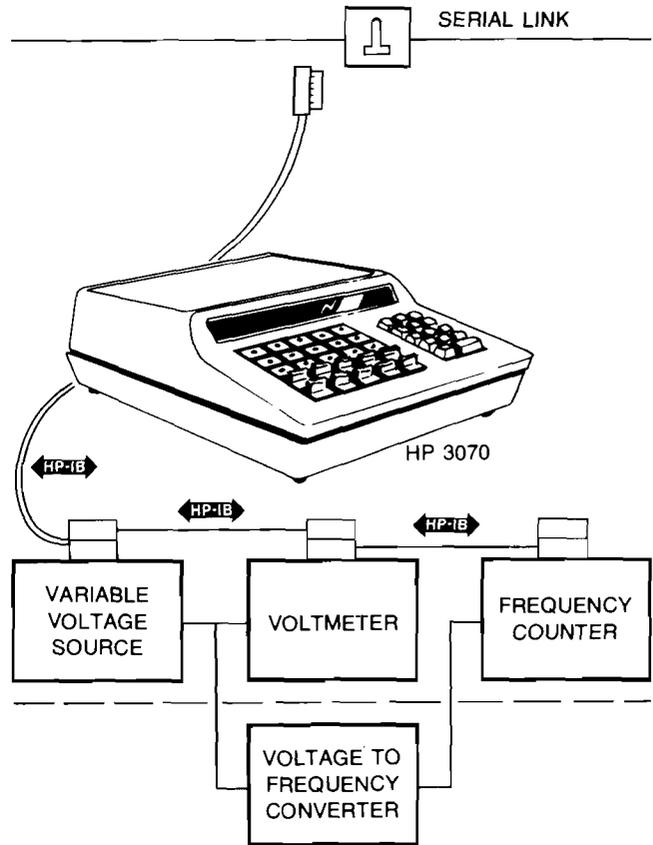
Drawing 1

TYPICALLY THESE ARE ALREADY HP-IB COMPATIBLE INSTRUMENTS



A voltmeter is required since the precision of the variable voltage source is often insufficient.

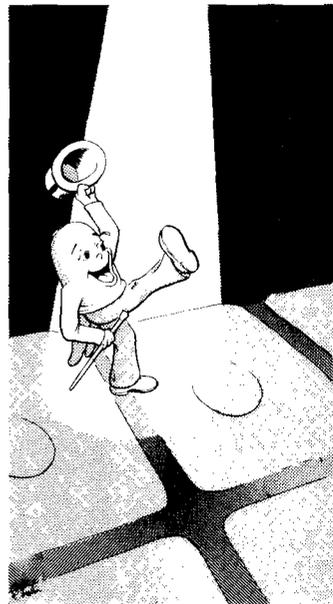
Drawing 2



The Easiest Demo in the World

By: Peter Stuart/HPG

Some of you have said you would like to show your prospects the quality of the numeric display of the HP 3070A terminal or the brightness of the Light Emitting Diode Prompting Lights. This has been impossible without a computer system since the keyboard and display are HP-IB devices which must configure their talker and listener functions before they will function.



A solution is to ask your friendly CE to remove two jumpers TON (Talker On) and LON (Listener On) which are located on the bottom left-hand corner of the mother board.

In addition, if you want to then use the keyboard to light and extinguish the LED prompting lights instead of the display, plug in a spare HP-IB connector with pins 15 and 24 shorted together.

Remember to replace the jumpers before you try to use the terminal with a system and good luck with your prospects.

You now have "The Easiest Demo In The World".

Fifty-Six 3070's On An HP 1000

By: Marc-Henri Bricquet/HPG

Remember the NPT 3070A demo (The one which simulates a production inspection station where parts are sorted as good or bad along with the reject reason)?

Well, based on inputs from the field, we have modified and improved the program to make it less cumbersome, and more flexible.

Want a copy of the new version? Drop a line to my attention in Grenoble or Alic Rakhmanoff in Boise.

Remember . . . this program will drive up to fifty six 3070A's and will help you sell HP 1000's.

264X And RTE Systems

By: Francis Marc/HPG

I sum up here some relevant interfacing details pointed out by Dieter Schmidtke (RTE Specialist in Grenoble Product Support). It affects request procedures sent from the system (for example cursor position or terminal status), as the terminal replies immediately, just after receipt of a DC1.

Case 1

- Interface board 12531C or 12880A;
- Standard Data Communication board (2640B or 2645A);
- Driver DVR00

The RTE sends ESC + (appropriate code) + DC1. Switching from an output request on RTE will take an unknown amount of time. Therefore no warranty can be given whether or not the read request can catch up data from the terminal (the 264X sends data regardless of the computer status if the interface board is clocked by the terminal).

Case 2

- Interface board 12966A;
- Extended Data Communication board (2640B opt 020 or 2640B + 13250B or 2645A opt 030 + 13260B)
- Driver DVR05.

The RTE has to issue ESC + (appropriate code) only (without DC1).

Then, commuting from "transmitting" to "receiving", the DVR05 issues a DC1 automatically, that starts the terminal answer. (A DC1 always precedes a read request).

Multiple RTE's Sharing One 7905

By: *Jean-Pierre Baudouin/HPG*

Do you remember that a single 7905 (with only one controller, of course) can be shared by up to 8 RTE's?

We tried here an RTE II and an RTE III simultaneously on a 7905, and it works great! You just want to be careful during your generation, and then you can use a lot of computing power.

This means that your not-so-rich customer can buy two RTE's without having to buy two 7905's. It also means that your customer who wants to expand his RTE can do so by just adding a CPU. In addition, for your sophisticated user, it means that he can share data between processors (like having one CPU do fast data collection and the other process this data).

If you want a demo, advice or anything at all on this subject, please feel free to contact me.

Order Processing**A Great Discount Scheme For Great Products**

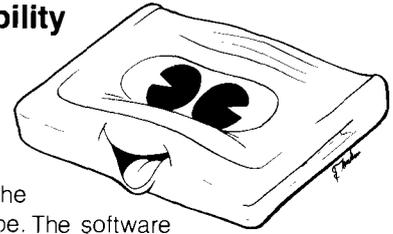
By: *Peter Stuart/HPG*

There has been a number of questions from the field recently concerning the discounts you can offer to OEM and Volume End Users who are considering purchase of Data Entry Devices. It's all very simple if you remember that type 6A devices may be grouped together when calculating the quantity.

For example, an OEM customer for twenty-five 3070A's, seven 2749's, and three 7260A's would obtain a quantity count of 35 units which means a discount of 27%. This means the unit cost of his 3070A's would be only \$1,073 (IPL price of \$1,004).

Software Availability

By: *Peter Stuart/HPG*



Customers who order the 92900A subsystem option 422 will receive RTE driver DVA47 and the diagnostic on paper tape. The software is also included in the 24396 mini-cartridge diagnostics pack and the 92062 drivers pack (release 1650). People who wish to order just the 92900/HP 3070 software on mini-cartridges should order the appropriate cartridge as a part as described in the software catalogs (92060-90019 and 92001-93003).

2640B And Accessories

By: *Kathy Romani/HPG*

We have noticed lately quite a number of overrides on the delinquency report for 2640B's and accessories. Do not forget to order all 2640B's for Europe in Grenoble. We do not make the 2645A as yet, and realize that accessories to this unit, which are also common to the 2640B, are best ordered with the main terminal. We therefore accept any overrides where accessories (13231A, 13234A, etc . . .) are ordered to be installed with the 2645A. Please consult the Price List or Grenoble's Availability Schedule when in doubt as to which accessories are made at our division.

Sell 2640's.

ANNOUNCING... SERIES II MODELS 6 & 8



Model 8

GENERAL SYSTEMS NEWS

Product News

Introducing Models 6 & 8

By: Ed North and Rich Edwards/GSD

What are Models 6 & 8?

Models 6 & 8 are new Series II computer systems designed to replace Models 5, 7, & 9. The new models add Disc Memory Division's high performance 50 MB disc drive (7920A) to the existing Series II architecture (connected via the 30229A controller on the selector channel). With the introduction of Models 6 & 8 GSD is unbundling from the standard model configurations ALL software, except the MPE-II operating system and fundamental software (EDIT, FCOPY, SORT, TRACE, SPL, and the Compiler Library). Models 6 & 8 are the first HP computer systems to offer customers a full choice of data management facilities, ranging from the MPE file system (sequential and direct [random] files) to keyed (indexed) sequential files (KSAM/3000) and an award-winning on-line data base management system, IMAGE/3000, with an inquiry facility, QUERY/3000. With the improved system performance from the new disc and its complete range of data management facilities, the Series II is now being promoted as "A COMPUTER ADVANCE IN INFORMATION PROCESSING." For a complete description of the models plus details on their performance, see the "INTRODUCING MODELS 6 & 8 FIELD TRAINING MANUAL" which is being distributed on the worldwide NPT during the month of March. Two new pieces of sales literature, SERIES II TECHNICAL SUMMARY and SERIES II PRICES AND CONFIGURATIONS [data book], are the customers' introduction to the new models.

Why is GSD Introducing New Series II Models?

The Model 6 & 8 introduction has the following objectives:

1. Position the Series II in two commercial markets:
 - a. An upgrade machine for small organizations that want to:
 - Improve batch throughput
 - Update, inquire, and report on-line
 - Put program development on-line
 - b. An EDP satellite for large organizations that want to:
 - Locally update, inquire, and report on-line
 - Communicate with a central computer or other satellites
 - Perform local data processing with central control
2. Boost Series II sales by 25% with the improved price/performance of Model 6 & 8.

Features and Benefits of Models 6 & 8.

The new, higher performance disc, 7920A, from HP's Disc Memory Division means that the performance of the 7920 Series II models is approximately 20% better [response time and/or throughput] than comparably sized (memory) ISS Series II systems. Performance data on the overall computer system for the new models are presented in Chapter 3 of the 6 & 8 FTM and also the ALL NEW Series II Technical Summary.

GSD's latest data management facility, KSAM/3000, is now available to complement the MPE file system and the award-winning [Datapro Software Honor Roll, 1976] data base management system, IMAGE/QUERY. With improved hardware (7920A) and a full range of data management tools, GSD is now promoting the Series II as "A COMPUTER ADVANCE IN INFORMATION PROCESSING."

New, simplified models allow flexible configurations and will result in a more tailored system for a customer's application. The new models also mean OEM's save money by not having to pay for bundled software. Additionally, simplified models will mean a lower Model 6 to Model 8 upgrade price.

What is the New Series II Software Policy?

Effective with the introduction of Models 6 & 8, GSD is unbundling all software subsystems and their support from the standard Series II models (except MPE-II and the utilities). All subsystems (e.g., COBOL, RPG, KSAM, IMAGE, DEL, etc.) must now be ordered as line items in the same manner as line printers, card readers, or additional discs.

There will no longer be special prices for software subsystems ordered at the time of system order; i.e. a customer will NO LONGER get COBOL, for example, at a special \$2500 price (instead of the line item price of \$4500) when ordered with a Model 6 or 8. The BMMC charges remain unchanged for monthly maintenance. A full list of Series II subsystems and their prices appears in Chapter 4 of the 6 & 8 Field Training Manual as well as the new Series II data book.

What's the Competition?

Because of its unique combination of an advanced, state-of-the-art operating system; high system performance; complete range of application tools (languages data management facilities, and DEL/3000); and low cost, the 3000 Series II finds itself competing with a broad range of competitive systems. At the high end you'll see IBM (System 370/115-2 and 125-2), Burroughs (B1800), Honeywell, Univac, and NCR, among others. In its own price class the 3000 favorably challenges the DEC 11/70, Data General Eclipse C330, and the IBM System/3 model 15D. Other minicomputers that compete with the 3000 include the new Varian V77, Prime, Modular Computer Systems (Modcomp), and Microdata. Detailed analyses of the main competitive systems appear in Chapter 6 of the 6 & 8 Field Training Manual.

Models 6 and 8 Configurations, Prices, and BMMC's

By: Ed North & Rich Edwards/GSD

The HP 3000 Series II Models 6 and 8 are designed to be flexible enough to be easily configured for a small company, large company, educational institution, or an OEM customer. In the past, models have been designed as an extension of our marketing strategy. However, a standard model which was right for one customer was not quite right for another and hence a plethora of options and specials were required. The new models are designed to be relatively simple and very flexible for easy configuring. The models 6 and 8 are overviewed below:

HP 3000 SERIES II	
MODEL 6 [product no. 32416A]	MODEL 8 [product no. 32418A]
System Price	
\$110,000	\$140,000
Standard Hardware	
3000 Series II CPU 128 Kb memory (expandable to 256 Kb) 50 Mb Disc (one 7920A) 1600 BPI magnetic tape drive 2640B system console (CRT) 16 port ATC with 103 modem control two system bays plus desk	3000 Series II CPU 320 Kb memory (expandable to 512 Kb) 50 Mb Disc (one 7920A) 1600 BPI magnetic tape drive 2640B system console (CRT) 16 port ATC with 103 modem control three system bays plus desk
Standard Software	
MPE II SPL EDIT/3000 DEBUG/TRACE FCOPY SORT/3000 Compiler Library	MPE SPL EDIT/3000 DEBUG/TRACE FCOPY SORT/3000 Compiler Library

Careful comparison of the two new models reveals the following:

1. Both Models 6 and 8 have identical CPU's, discs, magnetic tape drive, system consoles, and ATC's.
2. The standard software is identical on both models.
3. The difference between the models is that Model 6 has 128 Kb memory, expandable to 256 Kb in TWO bays, whereas the Model 8 has 320 Kb memory, expandable to 512 Kb in THREE bays.
4. Model 6 is similar to the former Model 5 with 128 Kb memory, expandable to 256 Kb, and NO bundled subsystem software. The 7905A (15 Mb) disc has been replaced with the 7920A (50 Mb) disc and 103 modem control added, giving the customer more for the same \$110,000 price.
5. Model 8 is similar to the former Model 9 with 320 Kb memory, expandable to 512 Kb in three bays; differences include one 7920A disc (50 Mb) instead of two ISS discs (94 Mb) and NO bundled software subsystems. The price is \$140,000 for the Model 8, versus \$190,000 for a Model 9.

Two important hardware price changes are being made concurrent with the introduction of Models 6 and 8. First, a reduction in the Model 5, 6, or 7 upgrade kit; second, a lower add-on memory price. The 30408A upgrade kit price has been reduced to \$25,000. A 64 Kb memory module has been reduced in price by \$700. A 64 Kb module purchased with the system as an option is now \$4700, compared to the former \$5400 price. The price of a field installed 64 Kb memory module (30008A) has been reduced to \$5,000 from \$5,700.

In the software area, the BASIC Interpreter and BASIC Compiler have been packaged into a single product, BASIC/3000 (32111A). We also packaged IMAGE and QUERY together as Data Base Management/3000 (32235A). Why did we package these products? QUERY requires IMAGE, or looking from the other direction, most IMAGE users will want to use QUERY. Also, it forces our competitors who don't have an inquiry facility for their DBMS into a weaker competitive position.

Similarly, most people using BASIC want to use the interpreter and compiler. Again, our competitors will look weak in comparison because they typically have only a BASIC Interpreter.

Please note that the March price list microfiche is incorrect for 3000 software products. Use February 3000 software prices for quoting and ordering in March. The April microfiche will be correct. Ordering information for BASIC/3000, DBM/3000, and SIS/3000 is shown in Table I — don't use the February prices/product numbers for these.

The following table provides a list of Models 6 and 8, memory, upgrade, and software prices and BMMC's.

TABLE I

Product	Option	Description	Price	BMMC
32416A		HP 3000 Series II Model 6	\$110,000	\$580
	-015	230V, 50 Hz	0	0
	-110	103/202 Modem Control	+1,240	+6
	-124	Replace 2640B with 2762A	+1,245	+30
	-130	Replace 1600 BPI with 800	-2,625	-9
	-500	Expand memory to 192 Kb	+4,700	+21
	-501	Expand memory to 256 Kb	+9,400	+42
32418A		HP 3000 Series II Model 8	\$140,000	\$721
	-015	230V, 50 Hz	0	0
	-110	103/202 Modem Control	+1,240	+6
	-124	Replace 2640B with 2762A	+1,245	+30
	-130	Replace 1600 BPI with 800	-2,625	-9
	-503	Expand memory to 384 Kb	+4,700	+21
	-504	Expand memory to 448 Kb	+9,400	+42
	-505	Expand memory to 512 Kb	+14,100	+63
30408A		Expands Model 5 and 7 Memory and I/O to that of a Model 8 (Increases memory from 256 Kb to 320 Kb)	\$25,000	*
	-001	Model 6 to 8 Upgrade	0	—
	-503	Expands memory from 320 Kb to 384 Kb	+4,700	+21
	-504	Expands memory from 320 Kb to 448 Kb	+9,400	+42
	-505	Expands memory from 320 Kb to 512 Kb	+14,100	+63
	-506	Expands memory from 128 Kb to 256 Kb	+9,400	+42
	-507	Expands memory from 192 Kb to 256 Kb	+4,700	+21
30008A		64 Kb Memory Module	\$4,700	\$21
32111A		BASIC/3000	\$4,500	\$20
32235A		Data Base Management/3000	\$11,000	\$40
32900A**		SIS/3000 (now includes SAS)	\$9,500	\$35



Note: The Models 5, 7 and 9 were removed from the March 1, 1977, price list.

*System BMMC must be recalculated.

**Requires Software License Agreement.

Good News For Your Pre-Series II Customers

By: Ross Hunt/GSD

New Lower Price for the 30409A Upgrade to Series II

Your March 1 CPL reflected several new attractive prices for the 30409A Pre-Series II to Series II upgrade and its additional memory options. (See Table 1.) There, reductions were due to improved semiconductor memory costs which were reflected across the 3000 line. Series II processing power for less cost, a good deal for your Pre-Series II customers.

TABLE 1

	Old Price	New Price
30409A	\$75,000	\$72,200
Options -502	15,500	14,800
-503	20,900	19,500
-504	26,300	24,200
-505	31,700	28,900
-508	-5,400	-4,700

Data Entry Library Will Be Supported on Pre-Series II

You can now order DEL for your Pre-Series II customers. Originally, DEL did not work on Pre-Series II systems due to a design problem in FORMAIN, the screen design program. This program resulted in a port lock-out when very complex forms were generated. The problem has not been corrected. When running on Pre-Series II systems, FORMAIN will detect this situation if it occurs and issue a diagnostic.

(The actual problem occurred when more than 216 characters, including the non-printing control characters, appeared on a single line of the form. Our own application designers at GSD encountered the problem). With this one exception, DEL works the same on both Series II and Pre-Series II.

Performance tests for DEL on Pre-Series II systems are in progress, but not yet complete. If this is an issue anywhere, have the concerned person call me.

DEL allows 264X terminals to work in block mode if they are strapped for "line" operation. Operation under DEL is the *only* situation where block mode operation is supported on Pre-Series II systems.

The DEL data sheet in the new data book correctly relates how DEL works on Pre-Series II systems.

DEL is currently on the Series II Master Installation but is not on the Pre-Series II MIT. It will be available on Pre-Series II MIT by May 1. The price is \$1500, with a BMMC of \$25.

New 7920 Disc Supported on Pre-Series II

If your Pre-Series II customer needs more disc capacity, sell them the new 7920. The basic support philosophy behind 7920 on Pre-Series II systems is that we will support it in the same configuration where 7905's were supported in the past. The configuration guide for Pre-Series II systems has been updated in the data book (5953-0515D) to reflect the 7920 capability.

Only 2 disc controllers can be supported on a Pre-Series II system. This means that customers with 7900/ISS or DDC/ISS systems will face the following choices if they need more disc storage:

- a. Add more ISS's (we still have some left)
- b. Add 7920's but do away with their 7900's or DDC
- c. Upgrade to a Series II where 3 disc controllers can be supported so 7920's can be added easily.

We are testing 3-controller configurations on Pre-Series II machines, but as yet we cannot offer that support.

There is a maximum disc capacity for any single system of 400 M-bytes. The reasons for this limitation are:

- 1. Length of time it takes to do a back-up. It takes so long with 400 M-bytes that users won't do it often enough, reducing supportability of the system.
- 2. Reliability — the more disc drives you have, the less reliable the system. Since MPE has no way to take failing disc off-line and keep running, a disc failure is a system failure. Any more than about 8 discs, and system reliability will be marginal.

If there are any questions needing assistance, contact your sales development engineer.

Requests for EBA or EPS

By: Babs Brownyard/GSD

If you receive requests for the Educational Budget and Accounting System, (EBA) or the Educational Payroll System, (EPS) please advise the caller of the following:

- EBA & EPS
- 1. A license agreement must be submitted to *Carol Budkowski*.

- 2. No support, training, warranty, or further help is available from HP, on either package.

EBA

- 3. EBA software and manuals are available if ordered on an I.O.S. (If ordered through COMSYS note that license agreement has been submitted.) The following part numbers are available — prices are internal prices; field prices have an additional handling charge of about 15%.

EBA User Manual	20352-90002	\$ 3.39
EBA Technical Manual	20352-90003	\$17.00
EBA Software — 2000F, 800 BPI	20352-10001	\$ 6.50
EBA Software — 2000F, 1600 BPI	20352-11001	\$ 6.50
EBA Software — Access, 800 BPI	22689-10001	\$ 6.50
EBA Software — Access, 1600 BPI	22689-11001	\$ 6.50

EPS

- 4. EPS is *not* orderable at all; however the following are available from me.

EPS User Manual — no charge

EPS Access Software — I have a master tape which you may borrow to make a copy for the person requesting it.

Thanks for your cooperation.

Yes! There is a 2000 Series Contributed Library

By: Brenda Mapp/GSD

Contrary to popular belief; the 2000 Series Contributed Library is available and orderable from this division.

You may obtain *all or portions* of the Library by using the following part and product number:

36600A Gives you a complete library which includes an 800 BPI magnetic tape, a complete set of 2000F manuals and *updates* to the manuals which converts them to 2000 series manuals.

36600A-Option 100 Gives you a complete library as listed above except it includes a 1600 BPI tape in place of the 800 BPI tape.

The cost to your customer for either of the above products is \$200.

36600-10001 Is an 800 BPI magnetic tape of the complete library which costs \$133.

36600-11001 Is a 1600 BPI magnetic tape of the complete library which also costs \$133.

36600-90001 Is a complete set of the manuals including update priced at \$66.95.

You may also order individual volumes of the manual. Each volume is accompanied by its manual update.

- VOLUME I (100) Data Handling
(200) Testing, Debugging and Programming Aids
Order Number: 36000-91001, \$10.00
- VOLUME II (300) Math and Numerical Analyses
(400) Probability and Statistics
(500) Scientific and Engineering Applications
Order Number: 36000-91002, \$10.00
- VOLUME III (600) Management Sciences and Operations Research
(700) Business and Manufacturing Applications
Order Number: 36000-91003, \$10.00
- VOLUME IV (800) Education
Order Number: 36000-91004, \$15.00
- VOLUME V (900) Games
Order Number: 36000-91005, \$6.95
- ADDENDUM TO VOLUMES I-IV
Order Number: 36000-92001, \$15.00

Manual updates are separately available by sending their request to:

Software/Publications Distribution
Hewlett-Packard Company
5303 Stevens Creek Blvd.
Santa Clara, CA 95050

Please give the name of the manual, its part number, and state that the update is required, not the complete manual. There is no charge for the manual updates.

For example, to order Volume I update, request:

HP 2000 Series Contributed Library, Vol. I

Part Number 36000-91001
Update Only

In summary, 36600A (or 36600-Option 100) is the only number you use when ordering the entire new 2000 Series contributed library. Extended documentation part numbers for particular programs are still valid numbers, i.e., the FIN-DIT Manual part number 36250-D00. Programs will no longer be separately offered on paper tape. The former paper tape part numbers are now obsolete.

Order Processing

Hassle-Free Instructional Software Ordering

By: Gary Stump/GSD

At the present time, there are nine different combinations of instructional software that can be ordered. In an effort to simplify the ordering of these packages, and since the combination package is nearly always ordered anyway, we are eliminating a number of the combinations now listed in the Price/Configuration Guide. After April 1st, THE ONLY way to order instructional software is in the combination package:

Product No.	Option No.	Description	Price	Monthly Maintenance Charge
22699A		*IMF, IDF, HP MATH	\$3,000	\$15
	100	1600 BPI tape instead of 800 BPI	N/C	

*HP software license agreement required, FCOPY/2000 (22700A) required.

If any of your customers anticipate ordering subsets of this software, make sure the order is placed by March 31st at the latest.

Sales Aids

An Introduction for Managers

By: Rich Edwards and Jerry Epps/GSD

That's the title of the new HP 3000 "management brochure" designed for the decision makers you'll be dealing with in organizations investigating the capabilities of HP 3000. It's theme is presented early: "In today's business environment, Hewlett-Packard believes a computer must be a management tool that's available to every department of your organization for quick, efficient information processing." Following a section on "the way to get now answers to now questions" [in contrast to the traditional batch processing method], the 3000 is introduced as a "shareable resource" for all departments to use. Four pages of application stories (with on-site color photos) show the manager how other companies have successfully used the HP 3000. The remainder of the brochure points out the opportunity for growth with the system, its key features, and HP's training, support, and maintenance services. The final pages discuss the history and excellent reputation of HP and introduce the entire CSG team: 8 divisions working together. The back cover drives home an important point for the commercial customer: WORLDWIDE SUPPORT. This is illustrated by a color world map with each sales and service office designated [172 offices in 65 countries!]. AN INTRODUCTION FOR MANAGERS is in literature distribution already; its number is 5953-0501.

Also new for the introduction of the Models 6 & 8 are a TECHNICAL SUMMARY [5953-0503] and a data book, PRICE/CONFIGURATION GUIDE [5953-0515]. Both of these brochures are also in literature distribution.

The TECHNICAL SUMMARY introduces batch processing, interactive problem solving/program development, and on-line transaction processing, followed by specific 3000 tools for data entry/screen formatting, data management, and on-line inquiry/report generation. Interesting, new performance tests on Models 6 & 8 are included in the brochure, including transaction processing tests (IMAGE + COBOL, KSAM + COBOL) with up to 63 terminals!

Complete descriptions of the hardware and software products available on the HP 3000 [Series II and Pre-Series II] are contained in the new data book. The configuration guides have been expanded to show not only the current models, but also guides for the upgrades and add-on hardware for Series II Model 5, 7, and 9, separately.

HP 3000 Series II Systems
A computer advance in information processing



An Introduction for Managers



Division News

HP 3000 Users Group Newsletter

By: Rich Edwards/GSD

Where do you turn to find, all in one spot, information on connecting terminals to the HP 3000, an OEM's source data entry system for the Series II, KSAM/3000 (Keyed Sequential Access Method), an OEM's word processor system based on the HP 3000, and a sample of how to bill users for time used on the 3000? They're all in the January 1976 issue of the *HP 3000 Users Group Newsletter*.

For those not familiar with the Users Group, it is a non-HP organization of HP 3000 users who have joined together to share their experiences with 3000 systems. "Information through interface and involvement" is the motto of the group. In addition to sharing information among themselves, they meet periodically with HP through their HP Interface Committee.

Besides disseminating information through the newsletter, the Users Group has an annual International Meeting, in addition to more frequent meetings of the Regional Users Groups. This year's International Meeting will be September 27 - 30 near Seattle, Washington.

Returning to the recent newsletter — you'll find a lot of interesting reading in addition to the aforementioned articles. Regular columns on application notes, services and software, installation management, plus the new HP 264X tips/techniques section keep you informed on what our current users are doing. An interesting supplement to this newsletter was the results of the August 1976 Users Group Questionnaire with HP responses (by the GSD R & D Lab) covering 320 questions about the 3000 product line. Results were tabulated to show the average response as well as a breakdown of replies to every question.

If your sales office doesn't subscribe to the newsletter, all you have to do to receive it is join the Users Group as an individual for \$10.00 per year which entitles you to the newsletter and special mailings. Encourage your new 3000 customers to join. For \$100 a site membership receives: 1 vote, a newsletter subscription, the contributed library magnetic tape of programs and documentation, proceedings of the International Meetings, special publications and special mailings. Address correspondence to HP 3000 Users Group c/o HP-GSD, 5303 Stevens Creek Blvd., Santa Clara, CA 95050. Attn: Membership.

Manual Updates and How to Get Them

By: Mary Eicher/GSD

Customers who have Service Contracts with GSD get FREE updates automatically. All other manual users must order updates from: HP Software/Publications Distribution, 5303 Stevens Creek Blvd., Santa Clara, CA 95050.

Current manual and update information is published in the *HP Computer Systems Communicator* which can be ordered through the:

Subscription Service Manager
HP Company
Mail Order Department
P.O. Drawer No. 20
Mt. View, CA 94043.

New Applications

HP 3000 Series II: Results in a Manufacturing Company

By: Rich Edwards/GSD

The textile finishing business is a very competitive one with customers demanding fast processing of their grey-goods. A major Southeastern textile finishing company has gained an advantage over its competitors with the successful implementation of an on-line manufacturing information system based on an HP 3000. Where it formerly could take up to two or three days for a full time employee to locate an order in process in response to a customer inquiry, it now takes about 5 seconds with a terminal inquiry. Production workers on the manufacturing floor use HP 2640 terminals to enter data on the status of the goods as they flow from receiving to dyeing, printing, framing, packing and to the warehouse to await shipping.

Data previously unavailable on the status of individual production runs as well as on daily production totals is now

available to top management. Data accuracy is vastly improved over the previous manual and computer systems; on-line editing of data has reduced errors to an occasional single order out of several hundred per day, down dramatically. Finished goods inventory records are now 99.8% accurate compared with a 65% accuracy before. *Since the inventory system on the 3000 was installed, they haven't lost a single case of finished fabric among the average 12,000 cases stored in the warehouse prior to shipping.* Previously, it wasn't uncommon, according to the warehouse manager, to lose a case a week; they never knew where it went. Typing shipping labels used to take a clerk thirty to forty minutes per shipment; with terminal inputs from the warehouse the labels are now printed by computer on a remote printer in the warehouse in less than five minutes from initiation to completion. Picking lists for shipping are computer generated and typed so that goods are pulled from the shelves from the back to the front of the warehouse in bin order.

While still running all of their traditional batch accounting programs, the company has instantaneous data entry and data retrieval through the on-line terminals on the manufacturing floor. The 3000's powerful operating system automatically controls both the batch jobs and terminals. The company now leaves the computer unattended during the evening and night production shifts; the terminals remain on-line for access from the manufacturing area. The former 2nd shift computer operator is now an accomplished programmer helping add more systems to the operation. Besides reducing manpower needs the 3000 has saved this company over \$3,000/year in system expenditure compared with their previous IBM 1800 which they outgrew. Programs execute much faster now, too. For example, a complex color matching program that previously took 30 minutes to run only takes 1-2 minutes on the 3000.

The data processing manager stated that "the benefits of on-line program development have been tremendous." They are continually adding new applications to replace previous manual systems. The company is excited because their growth is not limited by the system components ("a lot of room for us to grow").



CS GROUP NEWS

CSG Quote Form

By: Chuck Silberstein/CSG

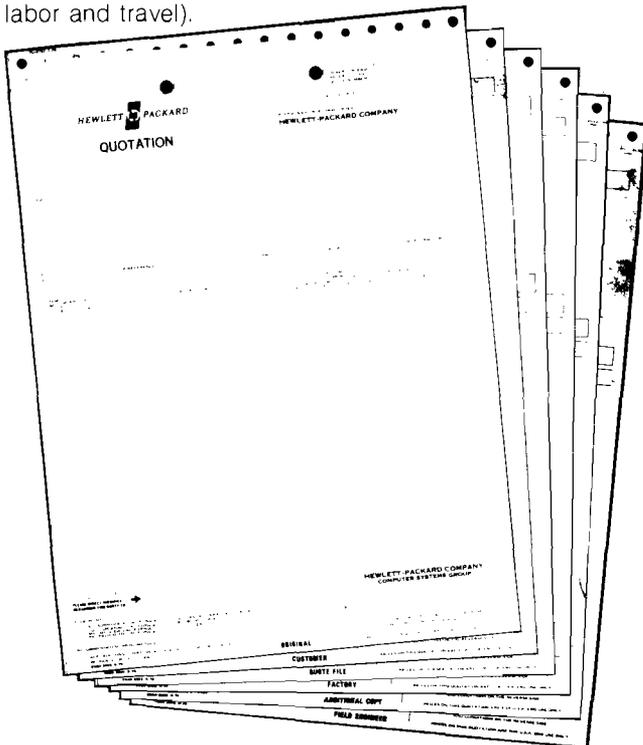
At present, Computer Systems Group uses quotation form #9320-3392. This is not a new form. It was put into use around June 1976. Besides being able to identify it by the form number, it can also be recognized by the phrase "Computer Systems Group" just above the signature block in the lower right hand corner of the front page.

In certain areas, the general terms and conditions of this quote form (printed on the reverse side of the front page) parallel the terms and conditions of CSG's standard purchase agreements.

For instance, any order issued by the Customer and cancelled less than 60 days prior to scheduled delivery is subject to 5% charge based upon the list price of the equipment.

Also, F.O.B. point is HP's plant and risk of loss or damage passes from HP to the customer at the F.O.B. point.

Unless otherwise specified in the documentation supplied with the product purchased, warranty is 90 days (parts, labor and travel).



I suggest that anyone involved with customer quotations spend some time familiarizing themselves with the terms and conditions of CSG's quote form. It isn't the most interesting reading but it might pay you some dividends in the long run.

Coordinated Shipment Update II

By: Sherry Harvey/CSG

The following modifies the March 1 Newsletter "Coordinated Shipment Update":

1. OEM's buying STANDARD HP SYSTEMS (1000, 2000, 3000, etc..) will have their systems coordinated.
2. OEM's buying components with the 93723A Racking Option will have the items involved in the option coordinated.

Linda Scheffer Joins CSG

By: Carol Scheifele/CSG

The program to position Hewlett-Packard CSG as the innovator of the Computer industry is well underway. Computer Advances has appeared regularly in *Datamation* and *Computer Design* for over a year. To maintain this momentum and to further strengthen the copy quality of the piece, Linda Scheffer has joined CSG staff to assist me in the writing of future issues. Linda comes to Group Advertising and Sales Promotion with both marketing communications experience and background.

She has a BS in communications from the University of Illinois with a major in Public Relations. Since joining HP three years ago, Linda has produced multiple product brochures and promotional materials. She coordinated the 1976 Computer Caravan for Data Systems Division, working closely with Tom Casalegno, overall show coordinator. This popular show generated many field sales leads for us. Plus, Linda is a star slugger on HP's Softball Team.

Join me in welcoming Linda to the challenges of her new job.

Computer Advances

By: Carol Scheifele/CSG

The HP 1000 issue of *Computer Advances* appeared in the November *Datamation* and *Computer Design* and was direct mailed earlier this month.

Reply cards continually arrive here requesting either further information or a call from an HP representative.

Those leads in your area are promptly forwarded to your office.

They're hot; don't let them cool down.

INNOVATIONS FROM Advertisement

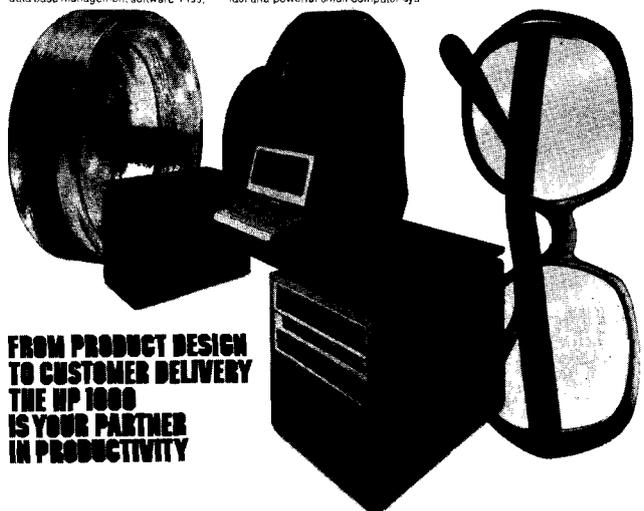
HEWLETT-PACKARD

COMPUTER ADVANCES

The introduction of the affordable computer power center, the Hewlett-Packard 1000 Computer System is one of those fortunate occasions where a number of computer advances arrive concurrently and are able to be utilized within a single new computer system. Significant contributions within the HP 1000 computer system include a fast new processor, and a fast and flexible new CRT terminal as the convenient machine/interface to HP's new IMAGE/1000 database management software. Plus, the system's contemporary and attractive desk styling is a welcome addition to office environments.

Beyond these new capabilities, the HP 1000 builds on previous contributions such as HP's complete computer network software, the Hewlett-Packard interface Bus for control of automated instrument systems, HP's efficient and proven Real Time operating systems, and the fastest cartridge disc memory on the market.

The effect is an exceptionally fast and powerful small computer system that both OEM's and end users with computer experience can easily use as a tool to implement a wide range of applications. The HP 1000 is well suited to computation, instrumentation, and operations management applications that demand high performance. Because its increased performance is priced five to ten percent below previous HP small computer systems, the HP 1000 sets a new price/performance standard in its class.



FROM PRODUCT DESIGN TO CUSTOMER DELIVERY THE HP 1000 IS YOUR PARTNER IN PRODUCTIVITY

COMPUTER ADVANCES

DIRECT RESPONSE CARD INNOVATIONS FROM HEWLETT-PACKARD

Let us show you how Hewlett-Packard systems can help solve measurement and testing needs as well as your general computing need

Please send more information Please contact me

A. IMAGE DBMS
 B. HP 1000
 C. 2645 CRT
 D. Computer Product Capabilities

NAME _____
 TITLE _____ COMPANY _____
 ADDRESS _____
 CITY _____ STATE OR PROVINCE _____
 ZIP OR POSTAL CODE _____ COUNTRY _____
 TELEPHONE _____

HEWLETT-PACKARD M-11-76

The following items were sent in response:

- A. "IMAGE/1000" 5952-9939
- B. "HP 1000 Computer Systems" 5953-0818
- C. "HP 2645A Display Station" 5952-9963
- D. "HP Computer Product Solutions with the Personal Touch" 5952-0046

This issue of *Computer Advances* is perfect for HP 1000 direct mail campaigns. You can request further copies simply by mailing the handy coupon below.

MAIL TO: Carol Scheifele
Computer Systems Group
Building 40, Cupertino

Please Rush Me _____ Copies of the COMPUTER ADVANCES Featuring the HP 1000.

NAME _____ HP SALES OFFICE _____

