DATA SYSTEMS NEWSLETTER

Vol. 3 No. 6
Feb. 1, 1976

For HP Field Sales Personnel

Division News

In This Issue...

A NEW POLICY TO CLEAN THINGS UP

By: Bob Brannon

DSD has been guilty of two sins that have been creating problems:

1. We've been accepting orders for unannounced or non-existing products (e.g., a 7905A subsystem with the unannounced and not yet finished DOS driver).

2. We've been announcing products that have *not* been released for manufacturing (e.g., just about everything).

AS OF JANUARY 9, 1976 THIS WILL STOP

DSD's Order Processing Department has been instructed to reject all orders for products which:

1. Are not in the Corporate Price List and Availability Schedule or

2. Have not been released for announcement by a signed memo from *Dick Anderson,* Division Manager.

With the exception of specials that have been authorized and quoted on an approved price quotation sheet, no other person is permitted to authorize accepting an order under any other terms and conditions (HEART overrides, etc.). Specifically, Order Processing, Sales Development, Support Engineering, Product Management, the lab engineers, production managers, etc. are all prohibited from making any commitments that lead to orders for unannounced or unreleased products.

Finally, the policy of this division relative to announcing products is as follows:

A. We will not announce or offer for sale products that have not passed manufacturing release sign-off.

B. We will not accept - formally or informally - any orders that are conditional upon future products that are unreleased and unannounced.

Company Private

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SELL OEM

C. There should be no conversations with customers or HP representatives that could be construed or extended as verbal commitments to the customer concerning a future or unannounced product.

Tech. Ed. Note: To quote our fearless leader, *Dick Anderson*: "any deviations without my approval will be considered a serious breach of responsibility."

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OEM CORNER

ANATOMY OF CLOSING A BIG OEM

By: Dave Hancock

How do you go about closing an OEM account who intends to purchase many millions over a three year period when there are only eleven other computer manufacturers vying for the business? VERY CAREFULLY. . .along with large doses of utilizing the HP resources that are available to the HP sales team. That's exactly what *Werner Kanthak* of HP-Hannover did in signing ANKER DATA SYSTEMS in Bielefeld, Germany.

The action began in March of last year when ANKER invited HP to bid a solution for their Point-of-sale systems - along with DIGITAL EQUIPMENT, CDC, DATA GENERAL, CII, CDM, CA, INTERDATA, KRANTZ, SCHREM, PHILIPS und TEXAS INSTRUMENTS. The competition not withstanding, a sales strategy was developed and evolved to include the following:

1. HP System hardware demonstrations (two).

2. Computer shows (Hannover Exhibition, NCC).

3. Factory visits (Cupertino, Boeblingen and Grenoble).

4. Top-level contacts by HP management team - *Mssrs Hewlett, Ely, Anderson, Hackborn, Blaesser, Schöltzel*, to name only a few . . .

5. Technical discussions and contract negotiations.

A brief chronology of the OEM sales effort and execution of the above strategy follows:

March Initial presentation and demonstration of 21MX systems to ANKER by *Werner Kanthak, Jürgen Pomplun* and *Dr. Rolf Röbcke*. They even used video cameras to support the demonstration at the customer site.

April First contact by *Paul Ely* at Hannover Exhibition. Also included meetings with ANKER by *Heiner Blaesser, Fred Schröder, Peter Schöltzel* and *Karl Döring*. Plans were made to proceed with actual demo of ANKER equipment tied to an HP DOS-IIIB System.

May A one-week test and demonstration of the DOS III system running and controlling ANKER's terminals, keyboards, printers, numerical displays and read-pens. This demo utilizing DOS-III, a pseudo-TCS and a mini-database was organized and performed by *Rolf Röbcke* and *Wim Roelandts*.

This extensive demo was accomplished by HP to a satisfactory solution over a 4-5 day period. By comparison, we understand that it took the com-

petition much longer to perform the same. At this point consideration was narrowed to DEC, D.G. and H.P.

June First ANKER visit to the USA. Visit to NCC show and then to Cupertino for discussions with product managers, sales development on technical points - both hardware and software. Left with positive impression.

July ANKER making a final evaluation among the three by a point-ranking method covering the following parameters about the potential computer vendor:

1. Capacity, image, policies, expansion, flexibility of the people.

2. Pricing.

3. Hardware, peripherals, interfaces, computer-technologies, microprogramming.

4. Software, operating systems, compatibility, drivers, documentation.

As of this evaluation, HP was ranked 2nd.

A second negotiation meeting took place at Cupertino by ANKER management with *John Doyle, Dick Anderson* and *Bill Senske*. Also, a phone conversation with *Bill Hewlett* helped establish another link to ANDER's management.

August A third and extensive visit was scheduled for Cupertino by ANKER. At this point, we believe that DATA GENERAL had the favored position. The two-day visit encompassed technical discussions, detailed product tours, negotiations and contact by all of Data Systems key personnel. ANKER executives left HP well satisfied and our position was improved because of this visit. It was agreed that *Paul Ely* and *Heiner Blaesser* would visit ANKER during *Paul's* next European tour.

September *Paul, Heiner* and *Peter Schöltzel* visited ANKER facility in Bielefeld. Various system configurations and contract points were discussed and negotiated. At this point we emerged as the favored vendor.

October Following a visit to ANKER by DATA GENERAL top management, ANKER called a meeting attended by *Eberhard Knoblauch, Karl Döring, Peter Schöltzel, Knud Schulte* and *Werner Kanthak*. At this session ANKER agreed to go with Hewlett-Packard and signed an agreement for 21MX, discs, tapes, displays and printers.

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Potential volume:

millions of dollars per year,
starting this year.

Look back over this "study of an OEM sale" and see how well
Werner and his marketing team utilized the HP resource.
Look at the number and quality of the HP management team
that were involved both in Europe and the USA. Look at how
the persistant selling effort, factory visits, live demonstrations
brought HP from one of twelve vendors to the top three
finalists, to second place and finally to the one selected to
solve ANKER's opportunities.

To quote the Account Manager, *Werner Kanthak,* what
helped HP win was: "It should be emphasized that all per-
sons [from HP] concerned in this deal always behaved AS A
TEAM which gave us the possibility to present HEWLETT-
PACKARD at any time as a solid unit. This gave the customer
the feeling that HP is a professional partner he can rely on."

Well said, *Werner* - and well done, Hewlett-Packard,
wherever you are.

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FUNDIDORA de MONTERREY — MEXICO

By: Carlos Avila

Fundidora de Monterrey, the second largest steel producer in
Mexico, has purchased three mass spectrometer systems
from Applied Research Laboratory, an HP OEM. The spec-
trometer systems will be controlled by three HP 2105
computers.

Two of the chemical engineers that will be using the spec-
trometers to improve steel production at Fundidora are *Oscar
Trevino* and *Luis Wha,* pictured below at a recent 21MX
assembler course in Cupertino.

The mass spectrometers will be used to chemically analyze
steel samples drawn from three new Basic oxygen furnaces
that are presently being installed at a cost of over $160
million (which should create some excellent 9600 process
control opportunities for *Gabino Perez,* our man in
Monterrey).

*Fundidora engineers Oscar Trevino (left) and Luis Wha
(right) work on class exercise during recent 21MX Assem-
bler course.*

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KODAK KAPERS

By: Frank Jackson

Another first for *Mel Hauck* of the Rochester N.Y. Office. He
has sold the first 9640 system into the marketing division of
Eastman Kodak.

This order is another step in *Mel's* plans for the reformatting
system associated with the Kodak KOM Microfilter. This sys-
tem will be utilized for software development of the new
RTE-C Based M.T.R.S. System.

Congratulations to *Mel* and *Bill Groves,* S. E. Rochester on
another successful strategy.
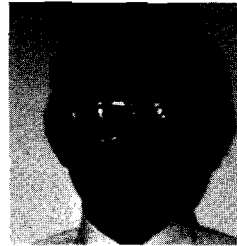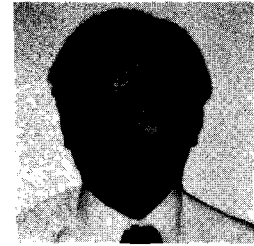
Mel Hauck   *Bill Groves*

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2100 OEM TAB SENOTE FILE

By: Cheryl Anderson

Due to the recent divisional split of Data Systems, I will be
monitoring only OEM customers who are entitled to receive
CPU, Disc, and Paper Tape equipment service notes.

Any OEM customers who are entitled to receive service
notes other than those mentioned above should now be
handled through the respective Computer Systems Division
as listed below. Also indicated are the SENOTE Tab num-
bers as on file with *Dave Asplund,* Bldg. 9B.

SENOTE Tab #	Equipment	Division	Contact
3	Line Printers	Boise	Gary Ferguson
5	Terminals	Terminal Products	Jim Sebring
6	Card Readers	General Systems	Jerry Peterson
7	Mag Tape	Boise	Gary Ferguson

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REALTRONICS

By: Bob Blake

Remember the last time you went house hunting? Did you
get the fireplace in the master bedroom that your wife
wanted? Did you find the house in your price range with the
low interest, high assumable loan balance you wanted? Was
it within walking distance of the school you both wanted your
children to enjoy? Why is *Lou Castagnola* smiling?

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

Realtronics, Division of Planning Research Corporation, is an OEM customer who buys DISComputers and offers a turnkey system to Boards of Realtors. Subscriber realtors, using an applications program based upon HP DOS/IMAGE, enter the prospects parameters from their office and retrieve a hard copy listing from the Multiple Listing Service (MLS) data base. Nothing replaces a good, persuasive sales job, but significantly narrowing the search, the sales hit ratio zooms and since the data base is updated as often as twice daily, the salesman knows about all new listings and that the property is available when it's shown. When the system isn't working for the salesmen, it prepares sales and financial reports for the Broker with security against unauthorized access to proprietary data (such as expiration date of listing) by other subscribers.

Lou is smiling because, with the Christmas bills coming in, he just received three (3) big orders against a renewal Purchase Agreement. Realtronics is near completion of a major software development effort calculated to extend DOS above 32K with the 7905A and has a contract to install in some of the largest Boards in the country.

Do yourself a favor . . . .SELL OEM!
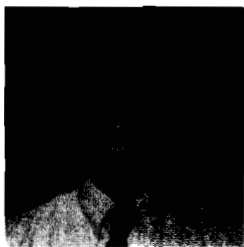
Lou Castagnola

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PLAY MSTI FOR ME. . . .

By: Dave Bunch

. . .To the tune of one million dollars. That is what Super Star *John Malone* received from Management Systems Technology, Inc., our largest DOS'OEM, this month. They will be using the DOS's to automate National Drug of Canada, a distribution outfit. National Drug made the decision to go with MSTI/HP after carefully checking HP service capabilities in Canada and finding very favorable responses, including "they're always there when you need them" from one of our largest Canadian customers — Telesat.

Also, word from the Skokie office sounds like "We've only just begun. . ."

Great job, *John*!   Sell OEM!!

John Malone

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Group News

OVER 5000 COMPUTER ADVANCES REPLYS IN FIRST THREE WEEKS... WHAT IF ONLY 5% WERE CONVERTED TO A SALE?

By: Sherry Harvey

December 15, 1975: The first issue of COMPUTER ADVANCES appeared in DATAMATION, COMPUTER DESIGN and was sent to HP Canadian, Intercon and domestic direct mail lists.

December 17, 1975: One reply card was received at Group MARCOM.

December 29, 1975: A few *thousand* reply cards were received at Group MARCOM.

January 13, 1976: A few *thousand* more reply cards tumbled in at Group MARCOM and more are arriving daily. So far we have received 804 reply cards from DATAMATION and COMPUTER DESIGN placements, and an overwhelming 4,114 cards, or 14%, response from our domestic direct mailing of COMPUTER ADVANCES. Canadian and Intercon responses have not yet been tabulated. The sources for the direct mailings were existing Data Systems customer and prospect lists plus those people on the Corporate list who had checked an interest in computers.

So how does this benefit the salesman? The objectives of COMPUTER ADVANCES are to promote HP's image as a major minicomputer manufacturer world wide and provide a source of qualified leads to the field. Each respondee has the opportunity to fill out profile information and be placed on the permanent mailing list (we have over 4000 now!) We can then sort by area, job function, industry, product interest, etc. to provide lists and mail labels for your seminars and direct mailings.

What's more, HOT LEADS (prospects who check the "please contact me about" boxes) are sent directly to the field. Your DM should have already received your first batch. 300 have been sent out so far! FOLLOW THEM UP - They're anxiously awaiting your call.

MORE TO COME — The Issue for Europe will be mailed in February — translated into four languages. Our next issue will appear in March and issues for Spanish and Portuguese speaking countries are planned.

Sherry Harvey, Computer Advances Editor, can't find desk due to first three weeks' response.

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Product News

SAFETY CERTIFICATIONS

By: Ron Morgan

The following list shows those products presently covered by Underwriters Laboratories (UL) and Canadian Standards Association (CSA). The list reflects only those units manufactured at DSD, GSD and DTD.

The means of identification as to whether a particular unit is covered by UL and/or CSA is by the referenced markings. Only those units bearing the designated markings are covered (exceptions noted). If included, the markings are usually located in the vicinity of the incoming power.

This does not mean to say that all units going out the door are covered by UL and CSA. Occasionally special units may be shipped without such approval. As well, 220 or 240 volt units are not covered because of the foreign power cords which have a plug configuration different from the US or Canada.

A. | COMPONENT DATA PROCESSING EQUIPMENT 00 — This marking indicates The Product is UL Recognized and covered only as a system component.

B. | LISTED E.D.P. EQUIP. 133J CONTROL NO. — This marking indicates The Product is UL Listed under their Data Processing classification.

C. | LISTED EDP/BUSINESS EQUIPMENT 133J — This marking indicates the Product is UL Listed under their Data Processing and Business Equipment classifications.

D. | HEWLETT-PACKARD 00 — This marking indicates the product is CSA certified under their classification for Data Processing Equipment. Consult factory to determine whether covered as a system component or stand alone device.

E. These units are UL Recognized and identified as such by their Model Number marking.

*13215A is not marked for CSA. It is covered as part of 7900A.

Should you have any questions, be aware of any other products that require certification, or be aware of a need for certification by other agencies, please contact me.

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"PRICE CORRECTION"

By: Jerry Kleinberg

The price of option P25 on the 9640A was discovered to be in error. The correct price is $1250 and will be changed on the February 1st price list.

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ORDERING I/O EXTENDERS FOR THE 21MX

By: Dave Carver

The ordering procedure for the 12979A I/O Extender has been simplified. Previously, an order for a 12979 to be used as a *second* extender had to specify option 010. This is no longer necessary, because we supply enough cabling with each 12979 to enable its use either as a first or second extender. Simply specify 12979A for any extender. Remember that the 21MX series can accommodate up to two I/O Extenders, for an additional capacity of 32 I/O slots.

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DYNAMIC MAPPING AND FFP - HOW TO ORDER

By: Hugh Amick

Since DM5-12976A has been released, we've had an increasing number of calls concerning ordering and configuring DMS and FFP. Remember, when ordering DMS with the original 2108/2112 order, the 12976A should be ordered. If FFP is desired, the 12976-003 should be added. The diagram below describes the relationships between the different modules. All products are released and on 8-week or less availability.
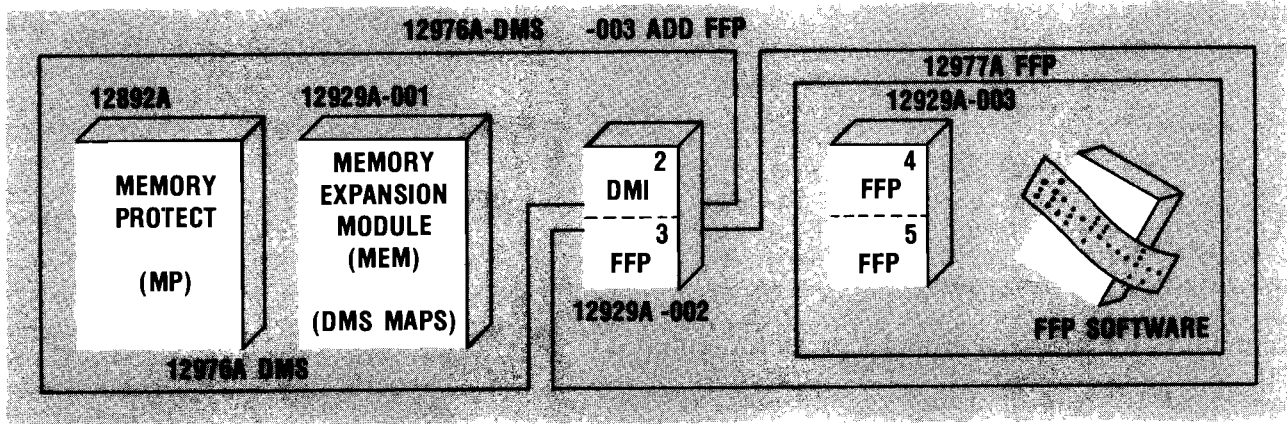
MEMORY REQUIREMENTS FOR RTE-II

By: Van Diehl

We have raised the memory requirements of a minimum RTE-II system to 24K words because it is super tight to have a minimum system containing any foreground partition and a background partition of reasonable size for program development.

Futhermore, it is highly recommended to have the Batch-Spool Monitor for these applications that involve on-line program development.

However, if you have an application that does not involve program development but only an execution environment, a 16K system can be adequate. This will be more of a factor in the case of multiple RTE-II systems where the extra cost of 8K core might be of some concern.

Always check the memory requirements for a specific application, using the Memory Requirement table on page 48-49 of your 9600 configuration guide (5952-1653[22]D).

12968A DOS SUPPORT

By: Fred Gibbons

DOS software support for the 12968A is being withheld pending revision of DVR 74. With the revision, the 12968A will be able to operate in character mode only using logical drivers ATD-01 or ATD-02. The field will be notified as soon as the revision is available.

The 12968A is *NOT* the recommended interface for *PAGE MODE* communications. The 12966 (128 Character Buffer) Interface should be used instead.

THE 12968 INTERFACE IS RELEASED

By: Fred Gibbons

The 12968 Asynchronous Data Communications Interface is released with deliveries starting February 1st. It's major features are:

- Plug-in compatibility with 21MX Series and 2100 Series computers

- EIA RS-232-C and CCITT V.24 compatibility

- Compatible with Bell 103 and 202 Data Sets or equivalent

- Data Set control implemented through software

- Simplex, half duplex or echoplex operations with secondary data channel

- Selectable data transfer rates to 9600 bits per second, under either program or Dual Channel Port Controller/Direct Memory Access control

- Two character buffering

- Selectable character size, parity checking, and number of stop bits

- Hardware break detection

The 12968 is designed to replace the 12587B interface and add sophisticated asynchronous character mode I/O capability to the 21XX line.

For customers designing their own data communications systems, the 12968 provides several advantages over the 12531C & D and 12880 asynchronous interfaces.

	12968	12531C	12531D	12880
Internal clock maximum baud rate	9600	1760	2400	not available
Character buffering	2	1	1	1
DCPC/DMA capability	Yes	No	No	No
Software data set Control Commands	Yes	No	No	No
Character Size (bits)	5,6,7,8	8	8	8
Price	$600	$350	$350	$350

The 12968 Interface is also *very* competitive with DEC's and Data General's Asynchronous Communications Interfaces. The 12968's major strength is it's SOFTWARE CONTROL of several I/O parameters. This is a very attractive feature to system designers.

	HP 12968	DG 4023	DEC DC11
Maximum Internal Clock baud rate	9600	1200	10,000
Maximum external Clock baud rate	9600	not available	not available
Interface Levels	RS-232, CCITT, 20 milliamp	RS-232, 20 milliamp	RS-232 20 milliamp
Character Size Selectable under SOFTWARE CONTROL	Yes	not available	not available
# of stop bits Selectable under SOFTWARE CONTROL	Yes	not available	Yes
Character parity selectable under SOFTWARE CONTROL	Yes	not available	not available
DMA/DCPC Data Transfer Capability	Yes	not available	not available
Price	$600	$450	$980 (1 Terminal) $1625 (2 Terminals)

Data Communications Capability sells systems so . . . .

SELL HP DATA COMMUNICATIONS!!

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WHAT'S SO GREAT ABOUT THE DATA SYSTEMS DIVISION DATA COMMUNICATIONS PRODUCTS?

Computer Museum

....PLENTY

By: Fred Gibbons

Here are the five best reasons why a data communications system designer should buy HEWLETT-PACKARD equipment.

1. **The 21MX IS A GREAT MINICOMPUTER FOR COMMUNICATIONS.**

   ● Memory and I/O can expand easily and independently.

   ● The 21MX is microprogrammable. This gives the system designer the ability to customize the 21MX instruction set for his application. Repetitive communications routines can be moved into firmware for faster execution.

   ● The 21MX uses vectored interrupt architecture. When an interrupt is received, the CPU control jumps immediately to the service routine for the interrupting device.

   ● The 21MX has a special set of instructions designed for data communication applications.

Data Communications Group

Class		Instruction
Mnemonic		**Description**
LBT		Load Byte
SBT		Store Byte
MBT		Move Bytes
MVW		Move Words
CBT		Compare Bytes
CMW		Compare Words
SFB		Scan for Byte
SBS		Set Bits
CBS		Clear Bits
TBS		Test Bits

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2. **HEWLETT-PACKARD HAS A VARIETY OF DATA COMMUNICATIONS INTERFACES.**

- HP has several synchronous and asychronous interfaces. They are engineered to give a communications system designer many of the features he might need. These include: software or hardware selectable baud rate and character length; EIA, CCIT, and current loop levels; auto dial and auto answer; character buffering and special character recognition. High speed processor-to-processor communications interfaces are available for network design.

3. **HEWLETT-PACKARD HAS SEVERAL OPERATING SYSTEMS TO BUILD ON.**

- The RTE Family provides excellent I/O task scheduling and a straightforward system interface for user written drivers.

4. **HEWLETT-PACKARD HAS NETWORK CAPABILITY.**

The 9700 Distributed System family coupled with HP's communication software for RJE to IBM & CDC, gives a data communication network designer a sophisticated foundation to build on.

5. **HEWLETT-PACKARD HAS CREDIBILITY THAT IT ALL FITS TOGETHER.**

The success of the 9600 system and 2000 ACCESS proves that HP Data Communication products really work.

Data Communication capabilities sells systems, so. . . .*SELL DATA COMM. . . .HEWLETT-PACKARD'S GOT WHAT IT TAKES!!*

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SELL OEM

DATA TERMINALS NEWSLETTER

QUESTIONS CONCERNING THE 2640 SERIES TERMINALS.
PARTS I, II, and III

By: Jim Elliott

Just in case you missed one of the past Newsletters, I am repeating my series concerning the 2640 in this issue.

PART I OF A SERIES

1. **How Do I Use Printer With the 2640A Terminal?**

   Manually using the PRINT key (ESC 0). If the optional printer is present, the contents of the terminals' memory is printed when the print key is depressed or the correct control code is generated by the CPU.

   NOTE: Some printers cannot print many of the optional character sets that are available on the terminal. In these cases, please consult the Operation and Service manual of the printer considered.

   Remote triggering of your printer from a CPU. If it is desired to have the contents of the terminals' memory dumped to the printer under computer control simply program your CPU to do three things:

   a. Transmit an ESC 0. — This triggers the dump command at the terminal.

   b. Transmit an ENQ (control F). — This asks the terminal if it is done dumping the memory.

   c. Wait for an *ACK*nowledge (control F). — This is sent from the terminal to let the computer know that it is finished.

2. **What Interfaces and Cables are Available for the 2640A?**

   We know that this question comes up often and Tables A & B have been generated to help alleviate the problem.

3. **What is a RS-232 Connection and Why Is It That We Don't Have Current Loop Instead?**

The RS-232 connection is an HP adopted method for data communication equipment employing serial binary data transmission and reception. It is an industry standard recommended by Electronic Industries Assoc.

The specification gives thirteen specific interface considerations for fifteen defined system applications. It is applicable for data signaling rates from 0-to-20K bits per second. It is applicable for interchange of data, timing and control signals for electronic equipment having a single common return ground at the interface point. It covers such detail as the required characteristics for:

a. Open circuit driver voltage

b. Effective capacitance of the driver at the interface point. (Includes any cable to the interface point. Distance indicated is 50 ft.)

c. Internal driver DC resistance.

d. Capacitance of the terminator (plus Cable)

e. Load resistance at the terminator.

f. Open-circuit terminator voltage.

g. The voltage at the interface point.

h. Communications over dedicated, private and switched two or four wire lines.

i. Application for synchronous and non-synchronous serial binary data communications.

Also included are the functional descriptions of the interchange circuits.

So, using this standard, compatibility is ensured for manufacturers of electronic data-comm equipment specifying this type of interface.

On the other hand, there is no uniquely specified standard for current-loop interfaces. Though there seems to be a *de facto* industry standard for current levels of 60 ma or 20 ma, certain pin connections, etc. manufacturers have been known to deviate from the norm.

NOTE: The 2640A Currently Operates to a Maximum of 2400 Baud.

| | | | | | THE INTERFACE CARD AND DESCRIPTION | | | THE INTERFACE CABLES | | | ADDITIONAL REQUIREMENTS | |
PRODUCT	COMM. TYPE	MAX BAUD RATE	MODEM OF OPERATION	BUFFER SIZE	DESCRIPTIVE COMMENTS	PRICE	PRODUCT	DESCRIPTION	PRICE	REQUIRED 2640 CABLE	PRICE
12531D	ASYNC	2400	Character	None	Single Terminal Interface Must use own clock	$350.00	12531D-001	RS232, 25 ft. Cable Hood-to-Male RS232 Conn.	$55.00	2640-006 5 ft. Cable	$50.00
							12531D-004	RS232, 50 ft. Hood-to-Hood Cable	55.00	None Req.	--
12587B	ASYNC	3110	Char/Block	2 Char.	Single Terminal Interface Needs Additional Documentation	550.00	12587B-001	Does not work with the 2640A	50.00	None	--
							12587B-003	Not yet released. 50 ft. Hood-to-Hood Cable	50.00	None Req.	--
12880	ASYNC	9600	Character	None	Single Terminal Interface Uses terminal's clock.	350.00	Cable Included	RS232, 25 ft. Cable Hood-to-Male RS232 Conn.	N/C	2640-006 5 ft. Cable	50.00
							12880-001	RS232, 50 ft. Hood-to-Hood Cable	N/C	None Req.	
12920B	ASYNC	2400	Char/Block	None	Multiple Terminal Interface Has Female RS232 Connector	2200.00	None Needed			2640-005 15 ft. Cable	50.00
12966	ASYNC	9600	Char/Block	128 Char.	Buffered Comm. Interface	950.00	Cable Included	RS232, 50 ft. Cable Hood-to-Male RS232 Conn.	N/C	2640-006 5 ft. Cable	50.00
							12966-001	RS232, 50 ft. Cable Hood-to-Hood Connectors	N/C	None Req.	
12968	ASYNC	9600	Char/Block	2 Char.	Asynchronous Comm. Interface Card	600.00	Cable Included	RS232, 50 ft. Cable Hood-to-Male RS232 Conn.	N/C	2640-006	50.00
							12968-001	RS232, 50 ft. Cable Hood-to-Hood Connectors	N/C	None Req.	--

2640A TERMINAL INTERFACE BLOCK DIAGRAM

12531D/001
12880A
12966A
12968A

(25 ft. - 12531 & 12880)
(50 ft. 12966 & 12968)
(Female RS-232 Connector)
(Male RS-232 Connector)
(2640A-006 5 ft.)

2640A DATA COMM INTERFACE

12531D/004
12587B/003
12880A/001
12966A/001
12968A/001

50 ft. Cable - Hood-to-Hood
(Supplied with I/O Card as an Option)

2640A DATA COMM INTERFACE

12920B
MULTIPLEXER
OR MODEM

Female RS-232 Connector(s)
(Male RS-232 Connector)
(2640A-005 Cable - 15 ft.)

2640A DATA COMM INTERFACE

MUX Extension Cables May be Required

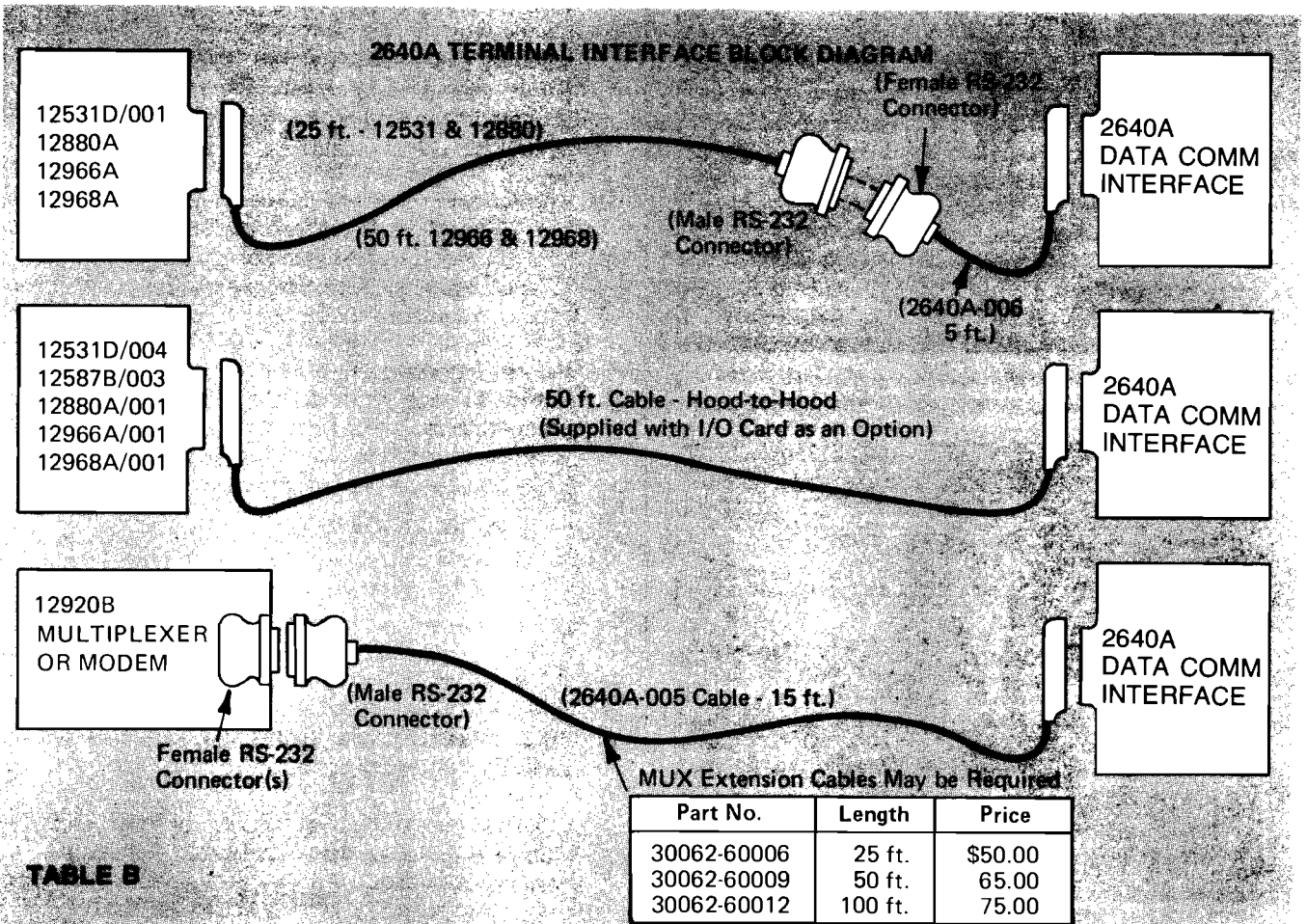| Part No.	Length	Price
30062-60006	25 ft.	$50.00
30062-60009	50 ft.	65.00
30062-60012	100 ft.	75.00

TABLE B

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"The 2640A and 202 Modems"

1. What does it mean to say that the 2640A is 202 modem compatible?

Ans. The 2640A has been tested to be compatible with the Bell 202-C modem (or equivalent) operating within the Direct Distance Dial Network. This modem is a medium speed (typically 1200 Baud Max), asynchronous, binary device.

2. I'm operating the 2640A in character mode with the Data COMM switch in the half-duplex position using a Bell 202-C modem, yet I can't communicate with my computer. Why?

Ans. There are two possible reasons for this dillemma.

(a) Line turn-around is required in half-duplex operations. The 2640A implements line turn-around via the reverse channel of the 202-C modem. However, reverse channel is normally an option to the 202-C modem. Please verify that your modem has this option.

(b) The 2640A requires that the remote computer have software support for its line turn-around control procedure. Make sure that your computer system recognizes requests for line turn-around via the reverse channel of the modem. (HP 3000 and DOS III has this software support).

3. I'm operating in Block mode with half-duplex on and using the Bell 202-C modem and I can't communicate with my computer either?

Ans. The 2640A requires a handshaking arrangement in order to communicate with your computer in Block mode. This communications protocol involves alternately sending then receiving and sensing unique control codes exchanged between the 2640A and your processor. There are basically two things that must happen in order to transmit information from the terminal to the computer. And they are:

(a) The information transfer must be enabled.
(b) The actual transfer is triggered by the computer.

There are two ways to enable a transfer:

(a) Either the operator presses the ENTER key which transmits a control R [R^c] — (This is an ASCII DC2) or
(b) the computer transmits an ESCd.

Once the transfer is enabled, the computer must then trigger the transfer. This is done when it sends a control Q (Q^c) or what is called an ASCII DC1 to the terminal. A block of information is then transferred to the CPU.

However, when using a 202-C modem, the computer need not actually transmit a DC1. When the computer requests a line turn-around via the reverse channel, this action triggers the block transfer.

The message, then, is to make sure that your computer software supports the handshaking protocol required by the modem and the 2640A Block transfer design criterion.

PART III OF SERIES

In the Sept. 5 issue of this newsletter I talked briefly about the 2640A and 202 modems. A review of that article may be helpful here.

1. I have a 2644A, operating in half-duplex and Block Mode using a 202C Modem with straps G and H out. Now that the requirement for the DC1/DC2 handshake software support in the CPU is eliminated, why is it that communication with my CPU fails.

Ans. The 2640 series terminals' firmware monitors the reverse channel for line turnaround requests *from the CPU. Again verify that the Modem has* the reverse channel option and that your CPU supports it.

2. I have recorded a diagnostic routine from the display onto a cartridge tape in the 2644A. When transmitting this diagnostic to my CPU, line feeds are also transmitted causing my CPU to reject the data. How do I get around this problem?

Ans. When transmitting from the tape to the CPU make sure the Auto LF key is up.

Hope this brief explanation helps. HEWLETT hp PACKARD

RETROFIT LINE DRAWING AND MATH SETS

By: Rich Ferguson

If you have a customer that has a 2640 or 2644 with display enhancements and wants to now add either line drawing or math symbol sets, you can fix him up.

You need to order the character sets as chips from CPC. These chips correspond to Options 201 and 202 to the 13231A display enhancement board.

Part Number	Description	13231A Option
1816-0642	Math Set	201
1816-0641	Line Drawing	202

As always, it is best to have your CE install them to insure proper operation. Current prices are available from CPC.

HEWLETT hp PACKARD

ON EDGE ABOUT CONNECTORS?

By: Rich Ferguson

I'm sure that at one time or another, all of us have been asked by a customer how to get an edge connector by itself so he can make his own cable. This is the one that connects to the P.C. boards behind a 2640 or 2644.

Until recently, to get one without a cable attached, you had to order 11 separate parts. Now, you only order one:

5061-1340

This is the edge connector that is used on all Data Terminals' cables. HEWLETT hp PACKARD

TERMINALS ON WHEELS

By: Eric Grandjean

NOW you can really go out there and land those BIG DATA TERMINAL DEALS! No longer do you have to struggle or risk heart attack: No longer will you feel like you've run a 100 yard/meter dash, just before an important demo or meeting.

Keep you cool, look elegant and relaxed, while you casually wheel your MINI DATASTATION behind you.

"THE WHEELS", as we call this fabulous chariot, has a retractable gear allowing you to install it (with terminal attached) in the front seat of your new company compact.

If you want one of these fantastic "deal winners", mail us an IOS order form, for the amount of $100, to cover our cost. Just write "Wheels" on the order, and the quantity. The price if FOB Cupertino.

Last, but not least, we will try to keep the availability between 1 week and 1 month!
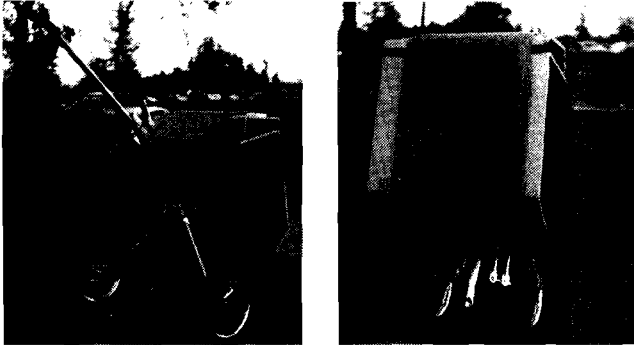
Wheels out Ready to Go   *Folded for car ride or storage*

SAVE KEYSTROKES WITH THE MINI DATASTATION

By: Tom Anderson

Most of you are familiar with TO and FROM device selection using the GOLD prefix key on the 2644A Mini DataStation, but the 2644A may be even easier to use than you think. Let's review the use of the READ and RECORD keys.
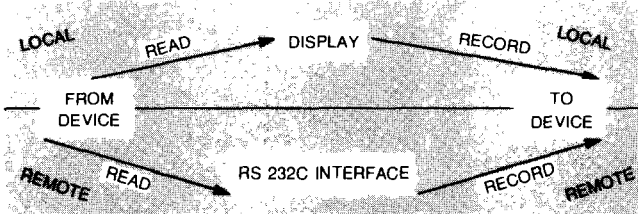
When using the 2644A in LOCAL Mode, the READ key moves data contained in the FROM device to the *display*, and the RECORD key moves data in the *display* to the TO device. As an example, consider displaying the contents of the next file stored on the left cartridge. One possible key sequence is:
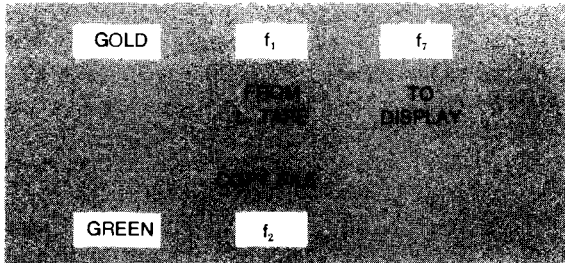

Using the READ, the same operation is:
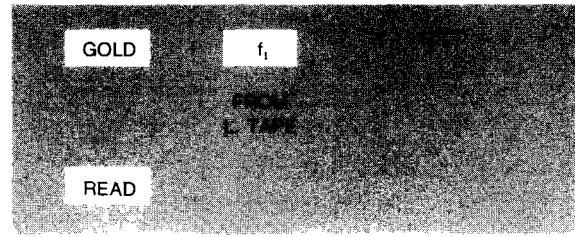
There are two points to note. First, because the READ key always moves data to the *display* (in LOCAL MODE), it is not necessary to specify the TO device. Secondly, because power-on or RESET select L. TAPE as the FROM device, the selection sequence may be entirely unnecessary.

To record information on the display to the right cartridge you have the same device.
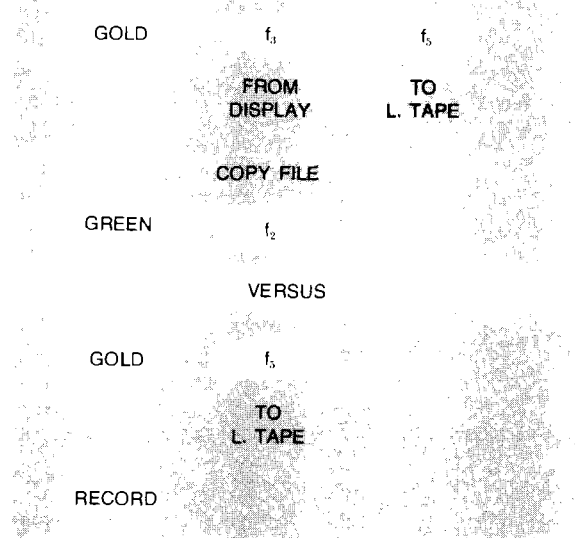
Again, because power-on or RESET select R. TAPE as the TO device, selection may not be required.

In REMOTE MODE, the READ and RECORD keys simplify the transfer of data to and from the computer. By removing straps D, E, G, and H on the keyboard interface, it's possible to transfer cartridge data without any protocol requirements. READ always transfers data *to* the computer and RECORD always takes data from the computer and transfers it to the TO device. (Caution is in order to make sure that both devices can handle the data transfer rate. Without computer software modifications it will be necessary to run slower than 2400 baud.)

Combined with the $f_1, \ldots, f_x$ function keys, READ and RECORD make the Mini DataStation easy to use on-line or off-line.

Sell those OEM's!