SOURCE DATA

THE DATAPOINT SOFTWARE NEWSLETTER

No. 5

February, 1980

Datapoint's IEO Roadshow — Behind the Scenes

Spring-like weather and overflow crowds greeted a host of Datapoint officers at New York's Essex House for the combined Integrated Electronic Office announcement and annual Shareholder's Meeting.

The impressive combination of working equipment displays and a dazzling multi-media show brought instant response from customers, as well as the business press. Articles on Datapoint appeared in such prestigious publications as BUSINESS WEEK and FORBES. Requests for the IEO began coming in immediately.

The IEO Roadshow continued in two trucks from New York on to Boston and Washington, D.C. The show was then consolidated into one truck for the remainder of the tour — Detroit, Chicago, Minneapolis, Atlanta, Houston, Dallas, Los Angeles and San Francisco.

The key to the successful execution of this traveling extravaganza was Datapoint teamwork. During the months before the New York announcement, corporate staff were busy designing special displays, creating brochures, moving mountains of paper and procuring equipment (often by any means at their disposal). Meanwhile, the field was selectively locating the proper local showplaces, booking all the arrangements and inviting their customers and prospects to view the event.

As the roadshowmobile lumbered into each city, it was greeted by eager, blue-jean-clad Datapointers who, regardless of title, income or gender, provided the muscle to assemble the boggling array of machinery and audiovisual equipment.

We hope many of you had an opportunity to attend the IEO Roadshow. Your local sales office can provide you with information about the Integrated Electronic Office.

Editor's Note

SOURCE DATA is offering readers a new service — a Classified Advertising section. For more details see page 15 of this issue.

In this issue and in subsequent ones, you will find a section dedicated to Integrated Electronic Office, which I am sure will be helpful and informative. Word Processing supervisors will also want to review SOURCE DATA and will find it beneficial to have an individual subscription.

For your convenience we are also including a form on the last page which you can use to tell us what you'd like to see in upcoming issues of SOURCE DATA. Perhaps you've developed an innovative approach to solving your data processing problems that you'd like to share with other SOURCE DATA readers? Do you have a change of address we should know about? Let us hear from *you*!

Ken Hatten
Editor

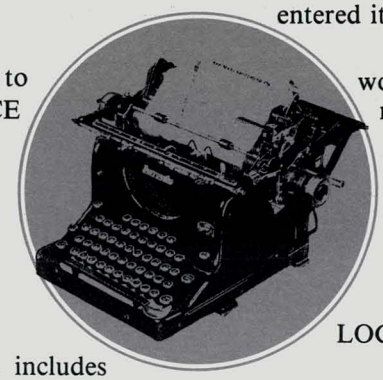
Buffie Wise
Staff Writer

Inside This Issue

The Integrated Electronic Office

MORE ABOUT DATAPOINT'S WORD PROCESSING SYSTEM

Datapoint's Word Processing System is to be released soon. The next issue of SOURCE DATA will contain the specifics about ordering Word Processing, including software model codes, training, and documentation information (brochures, user's guides, etc.).



AIM

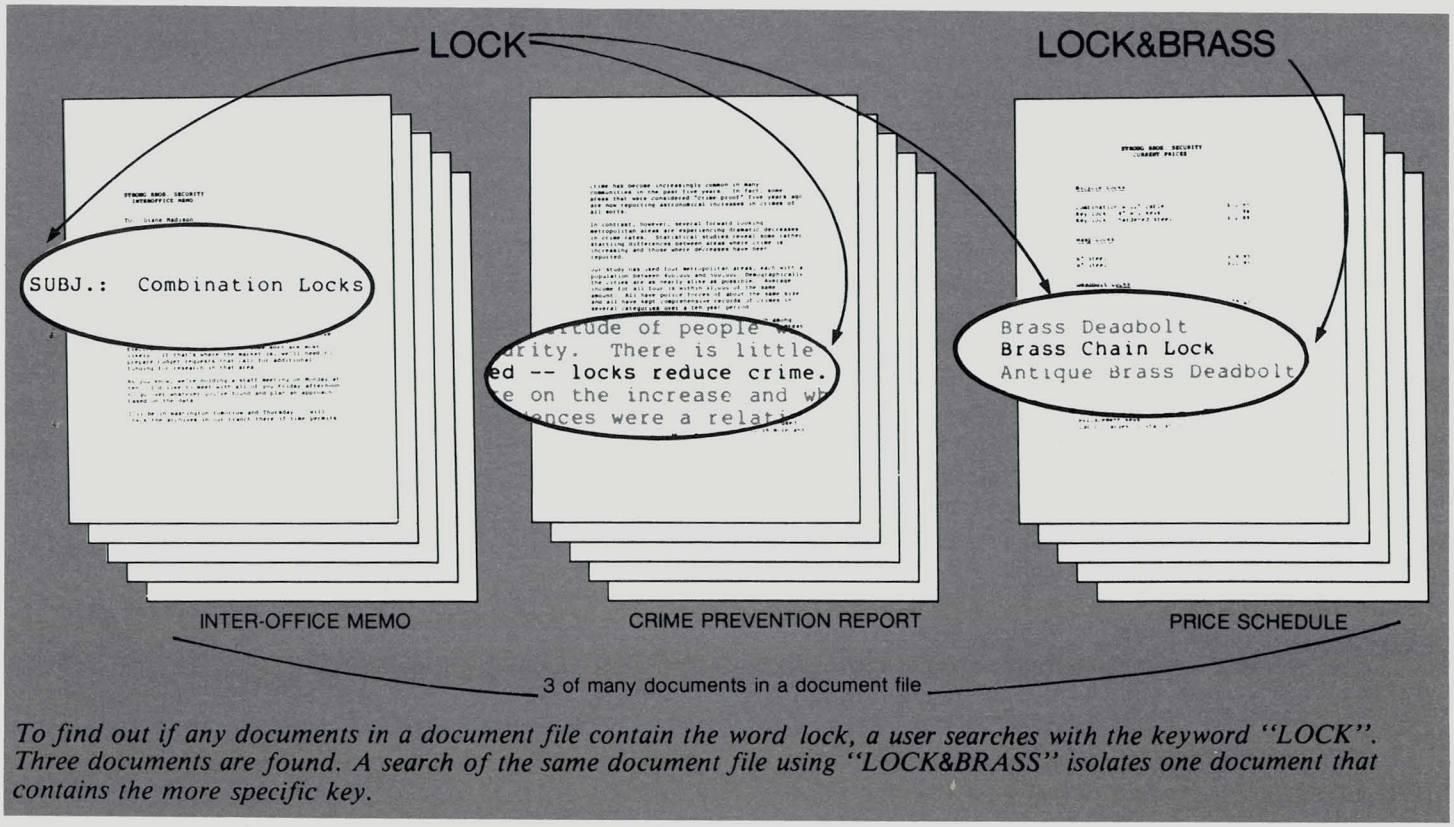
Datapoint's Word Processing System includes the AIM (Associative Index Method) feature, which is exclusive to the Word Processing System. This feature allows users to locate stored documents on the basis of content alone — even though the document name, who entered it, or when it was entered is unknown.

With AIM, any phrase, word, or part of a word (as few as three contiguous characters) may be used as a key for the search.

Two commands are associated with AIM information retrieval. The output from either of these commands can occur either on the processor screen, on an attached printer, on a disk file, or a spooler file.

LOCATE - The name of the document or documents containing the key are listed.

SEARCH - The key word or words are displayed in context in the line as the key exists in the document.



To find out if any documents in a document file contain the word lock, a user searches with the keyword "LOCK". Three documents are found. A search of the same document file using "LOCK&BRASS" isolates one document that contains the more specific key.

AIM creates a compact index to a document file. This AIM index can be generated at either of two times:

1. The AIM file can be created at the same time the document file is prepared. This is preferable if it is expected that the content of the documents will be searched frequently.

2. The AIM file can be created at any time after the documents are prepared by using the PACKUP AIM command. This can be used when document content is rarely searched.

The PACKUP feature is used to reorganize a document library to speed access and save disk space. The library can be reorganized either with or without an AIM file.

Reusing or Moving Text

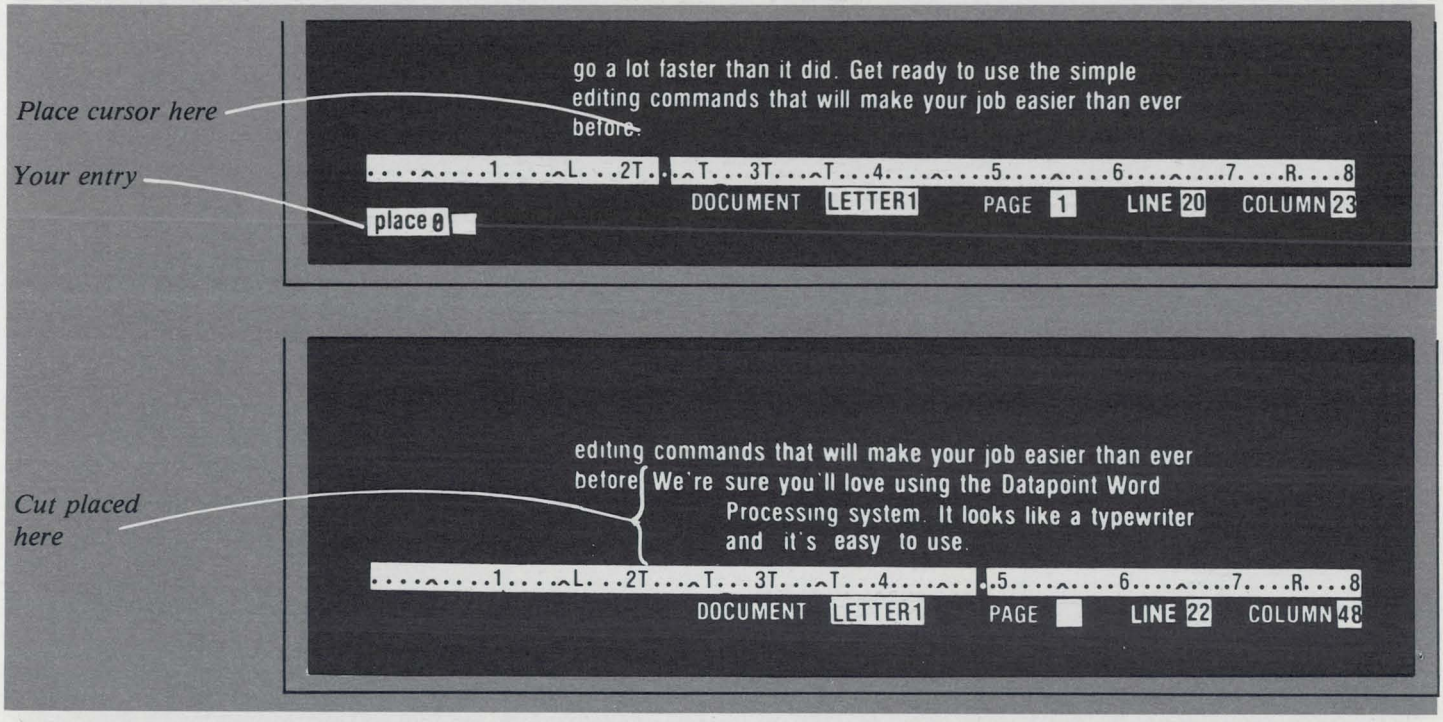
Datapoint's Word Processing System uses three commands for reusing portions of text or moving it to another location. These commands are:

— CUT
— PLACE
— MACRO

continued on next page

The command CUT is used to save selected portions of text for additional use in the same document or any other document file. The portion of text CUT may remain in its original place in the document, or the text may be deleted from the document. In either case, the CUT text is saved for further use in one of ten areas on disk designated CUT 0 through CUT 9. Although there is no limit to the amount of text saved, the CUT and PLACE commands are intended mainly for use with smaller blocks of text.

To put saved text into a document, the command PLACE is used. The text stored with the CUT command is copied into the document beginning at the current cursor position. PLACE can either replace existing text or can insert the CUT portion of text in the document. A CUT can be PLACEd in a document in the same file from which it was taken, or in an entirely different document file.



MACRO is used for inserting large amounts of text (generally an entire document) into a document. The MACRO document and the text being edited must be in the same document file. Text insertion may occur either during editing or only when the document is printed.

Although a MACRO is generally used to insert a large portion of text, it is possible for the MACRO to contain only format changes. This is especially useful when a certain format is used frequently in documents or throughout the same document. This provides a convenient way to change the format with minimum effort.

NIMBLE will be written into the document just as a CUT is written when the PLACE command is used. % is the MACRO command and NIMBLE is the document name in this example.

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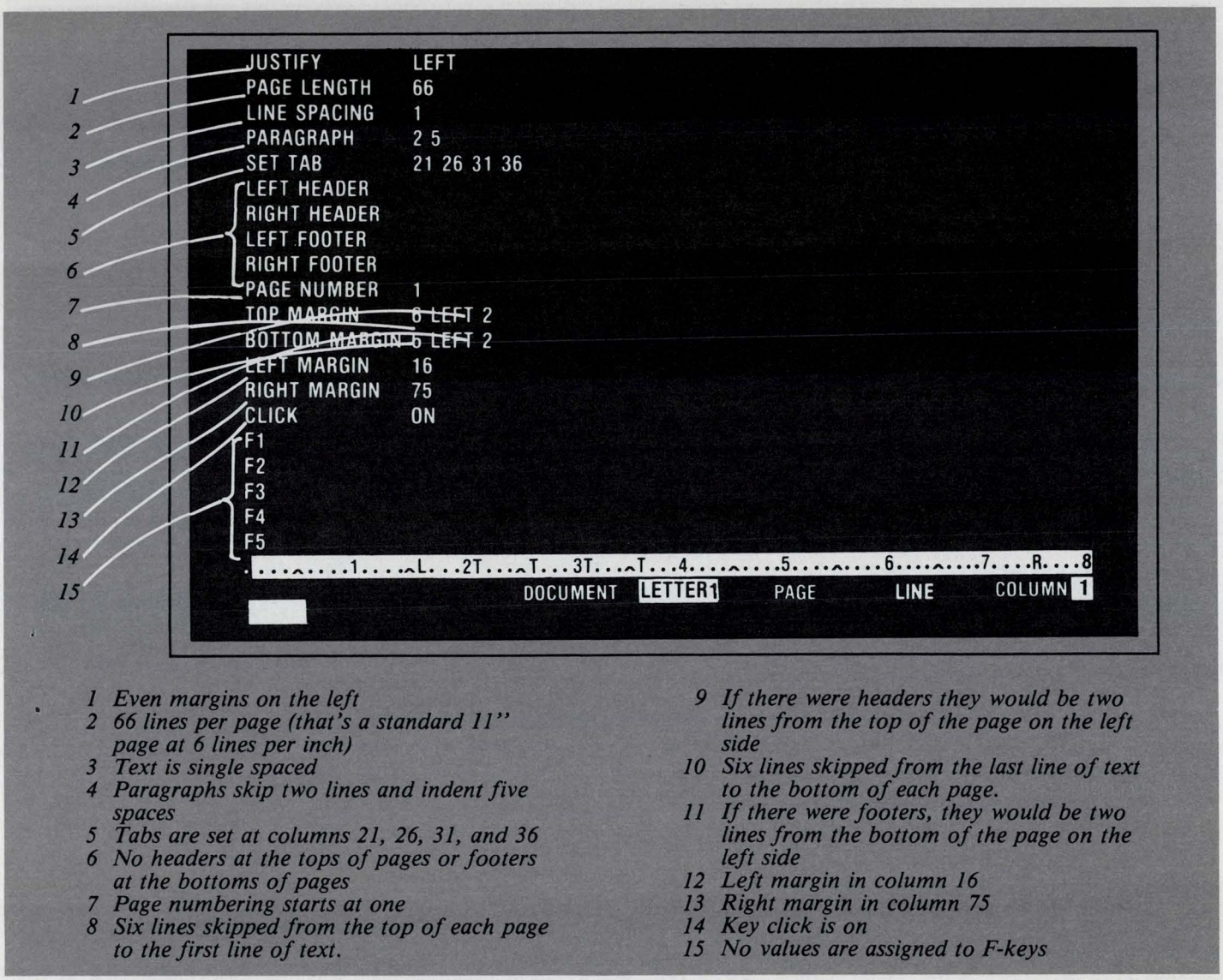
Formatting a Document

Datapoint's Word Processing System offers several ways to determine the size and shape of a document:

— use the preset primary format
— use the format of another document
— change the primary format before editing
— change the format during editing

This is the Word Processing primary format menu — the "default format" any document will automatically have unless the format values are changed. The default format can be changed to best suit the users of the Word Processing System.



1 Even margins on the left
2 66 lines per page (that's a standard 11" page at 6 lines per inch)
3 Text is single spaced
4 Paragraphs skip two lines and indent five spaces
5 Tabs are set at columns 21, 26, 31, and 36
6 No headers at the tops of pages or footers at the bottoms of pages
7 Page numbering starts at one
8 Six lines skipped from the top of each page to the first line of text.
9 If there were headers they would be two lines from the top of the page on the left side
10 Six lines skipped from the last line of text to the bottom of each page.
11 If there were footers, they would be two lines from the bottom of the page on the left side
12 Left margin in column 16
13 Right margin in column 75
14 Key click is on
15 No values are assigned to F-keys

The primary format of a document existing in the file can be adopted as the format for a document using the CREATE or MODIFY commands. The primary format of the existing document then becomes the format of the document being edited.

Another way to establish the document format is by entering changes to the primary format before editing begins. Any changes to the format menu remain in effect from the beginning unless format changes are made during the editing.

The format changes made during editing are called the secondary format. These changes take effect at the current location in the document, and remain in effect until the end of the document or until they are again changed.

More About Datapoint's Electronic Message System
Interleaving of Voice and Data

A special feature of EMS is its ability to work in conjunction with the INFOSWITCH/LDCS™ (Long Distance Control System.) LDCS acts as the traffic manager, transmitting voice and data traffic over flat-rate facilities to remote locations.

The LDCS routes EMS messages between voice calls as well as after normal business hours. This method of forcing the message traffic between voice communications and during non-peak hours offers the message essentially a "free ride" — the user is already paying for unused flat-rate line capacity.

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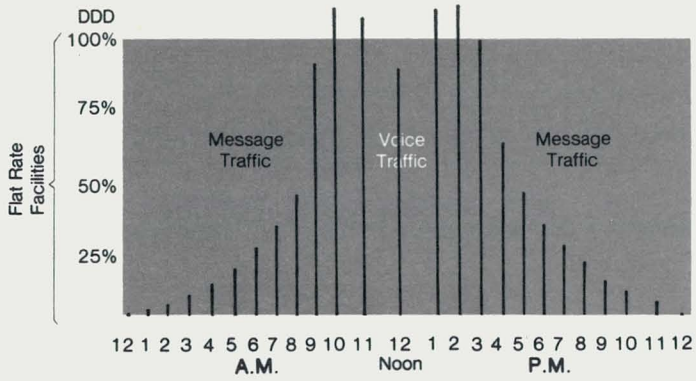


Should an immediate priority message enter the system, the message is transmitted at once over the first available line.

Flexible Priority System

The EMS offers user-controlled message delivery priorities which define the speed and relative cost for each type of message. The user company establishes one priority for the bulk of messages, but an individual user can select a different priority if a message demands greater or lesser speed. The four EMS priorities are:

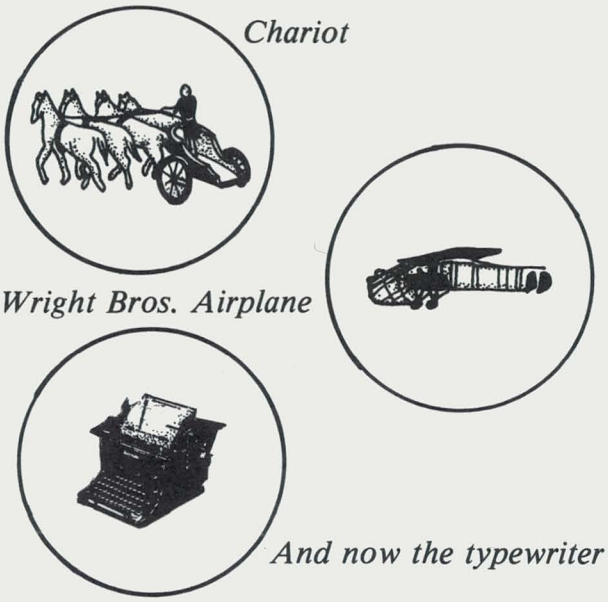
- — Overnight — assures a message will be delivered and waiting for the recipient the first thing in the morning. This is especially suited for long documents or batch transactions.
- — Regular — guarantees the same-day delivery of messages, and is used for the majority of business correspondence.
- — Urgent — this guarantees same-day delivery of messages, but these are sent ahead of "regular" messages.
- — Immediate — this is the highest priority and may be transmitted before voice communications. The message goes the moment it enters the system and may be delivered in a matter of seconds.

Turn-key System

Datapoint's EMS is a turn-key system which requires no user programming. By defining the parameters and operating characteristics of the system, a company can tailor the EMS to meet its particular needs.

With the use of AIM (the Associative Index Method), there is little chance of error in the addressing of messages. If the user is unsure of the message recipient's name, AIM can be used to determine the correct name. The system can provide the full name and append the correct mailstop of the recipient.

EMS is efficient and easy to use. It uses free-form message formatting as well as English language commands such as SEND, RECEIVE, REVIEW and SCAN. The system eliminates duplication of many tasks, such as retyping memos or addressing multiple envelopes, by allowing single entry of message information.



Museum of Technology

We've Misplaced His Phone Number!

Do you know Jerry Powers, a software programmer who lived in the New York metropolitan area? If you do, please ask him to call Jack Menache at (512)-699-7398.

More Emulation for 1500 Processors — EMT20015

Another software product has been added to the family of emulators for use with the Datapoint 1500 processor. EMT20015 is a program which allows a 1500 processor with at least 32K bytes of memory to emulate the operation of the CDC 200 User Terminal. EMT20015 is intended to be compatible with the UT200 line discipline so that the emulator can communicate with any system with which a standard UT200 will communicate. EMT20015 supports both ASCII and BCD code transmission at speeds up to 4800 bps.

A 1500 processor with 64K bytes of memory will support PRINT15 running as a concurrent job with EMT20015.

EMT20015 — Model Code 20710, 1 Diskette, $15.00
— User's Guide, Document No. 50492, $4.00

A Discussion of Telecommunications Facilities

by Bill Dow

Telecommunications Networks — Like Transportation Systems

A telecommunications network may be compared to a transportation network in many ways. First, consider the transportation system. It consists of many types of thoroughfares, ranging from super highways to back streets and alleys. Each type of road handles traffic loads in a different way. The super highway is designed to handle a large, high-speed flow of traffic for maximum transfer of vehicles between two points. The construction and maintenance of a super highway system is generally the most costly overall, but not necessarily on a per vehicle carried basis. These highways have limited access. The accesses move the traffic out onto smaller secondary highway systems which offer access to more areas. The secondary highways eventually go to arterial streets and boulevards, and from there to side streets and alleys. This system allows a vehicle to reach its ultimate destination.

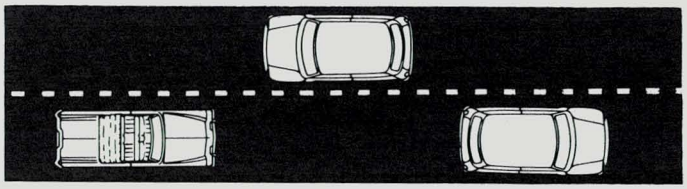
A telecommunications network looks much the same as the transportation system. Instead of concrete, asphalt or bricks, there is a tangle of wire, carrier, microwave, satellite and lightwave systems. The network components are no more difficult to comprehend than the super highways or streets, if each is analyzed individually. Throughout this article some tongue-in-cheek comparisons of the two systems will be attempted to emphasize this point, such as "car pools compared with multiplexers," "and busses compared with packet systems." All this may sound silly, but remember — information on a telecommunication network *is* referred to as traffic! I rest my case!

Traffic Flow

Let's consider the flow of traffic. Automobile traffic can be:

— uni-directional (one-way) and

— bi-directional (two-way)



In communications this is called:

— half-duplex (HDX) and

— full-duplex (FDX)

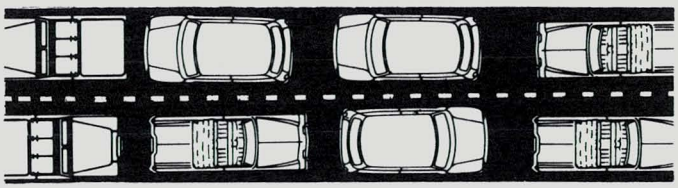
A street may be too narrow to allow traffic flow in both directions simultaneously (remember the one lane bridges?). But it may allow traffic in both directions if one car waits for the other or if there are two very narrow cars! The "traffic" capacity of a circuit is called bandwidth (street width?). Like the traffic on the narrow street, high speed data can be transmitted in both directions, but only one way at a time. Or, low speed data can be transmitted both ways simultaneously. This single, narrow two-way street can be equated to a single pair of wires called a 2-wire circuit.

If a second street were added parallel to the first street, with each street being one-way, bigger cars could be handled on each without interruptions in the flow of traffic. You guessed it! This is called a 4-wire circuit, with one pair handling traffic in one direction and the other pair handling traffic in the other direction.

A house still can't be moved down this two-way street. But if the street were a super highway, a house could be moved (disregarding vehement objections from the local constabulary), because the lanes are much wider. Here, the house equates to very high speed data.

So far, we have discussed 2- and 4-wire circuits, half and full duplex circuits and bandwidth of a circuit. Painless? Read on.

What to do About Traffic Congestion



What happens when the streets reach maximum capacity for handling traffic? Congestion. No matter what is done (except widening the street), more cars cannot be pushed down a given path within a given time period. This problem has plagued traffic engineers for a long time. However, more people can be moved in the same number of cars — people can car-pool or ride busses.

Modulation

In communications, the same thing is accomplished by using modern modulation techniques which allow 2, 3 or 4 information bits to be squeezed into the same amount of space required to transmit one bit. This is like putting 2, 3 or 4 people into one car. It is referred to as dibit, tribit and quadrabit modulation, and requires very sophisticated modems.

Multiplexing

If all four people in the car-pool start from the same house and work in the same office, they can be efficiently moved from one point to another. However, it is not necessary that they all go together the entire way. If each person knows where to be in the morning to be picked up for the ride, and upon reaching the destination knows where to go for work, the same method of transportation between two common points can be used. Data, in the same way, can be collected from various points, transported down a common line, and then dispersed to

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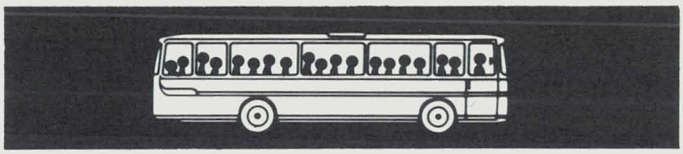
the eventual destinations. This is called multiplexing. Multiplexers are smart enough to know where the data came from and where it should go at the other end.

Packet Switching

Another way to look at this subject of moving people from place to place is in bunches. If enough people could be gathered together to charter a bus, they could be moved in a group from point to point. This requires that all people start from the same place and finish at the same place. In addition, they may have to wait before they can be shipped, may have to change busses, etc. This is analagous to a packet switching network. It is known who is inside the bus, but what the bus looks like or how it gets to its final destination is unimportant, so long as the passengers arrive intact.



Handling and Routing Telecommunications

Now let's take a look at the network as a whole. There are many ways to get from point A to point B. These paths are not necessarily in a straight line either. Most people pay taxes, which enables us to have a network of roads to take us from one place to another. Some of these roads are better than others, and some are downright impossible (impassable?). What if you were confronted with a series of detours that were changed every morning when you left for work? Every day then, you would be confronted with a different set of circumstances or road conditions on which to drive. You can never count on the driving speed or time to be the same. You might even arrive at your destination in a somewhat altered state (flat tire, crunched fender, etc.) due to these road conditions (potholes, bad railroad tracks, etc.). In some cases, you might not even arrive at all.

A similar situation arises every time a telephone is picked up to make a call. The public switched telephone network reacts in much the same way — successive calls to the same place do not always travel over the same wires. I do not wish to cast aspersions upon our fine telephone companies, but merely wish to point out that conditions do change from call to call.

If one were rich enough, one could build a private road from point A to point B and not have to be concerned with other traffic conditions, or with the varying conditions on other roads. In communications the same thing can be acomplished by leasing a line. That line is then dedicated to the one who has leased the line, and the condition of that line will be known at all times.

Another point worth mentioning is propagation delay. At 55 miles per hour it will take a certain amount of time to drive from point A to point B. If the route changes, so does the driving time — unless the alternate route is exactly the same distance and the driving conditions are exactly the same. Even though data travels at approximately the speed of light (186,000 miles per second), it still takes time to travel. This becomes obvious on a satellite circuit where the delay could be as much as half a second. This doesn't mean much for voice traffic, but could be intolerably long for high speed data.

Systems for Handling Telecommunications

Having this general picture of how data and voice are routed and handled over the telecommunications network, attention is now turned to the technical nitty-gritty of the network. The lines leaving equipment are generally dedicated between the user and the telephone company central office. From here they are connected to the destination point over another dedicated line. These connections may be either permanent (leased line) or temporary (switched network). If the two points to be connected are in the same telephone exchange, chances are good that the only facility used will be wire. If the two points are not in the same exchange, a variety of circuits are available to connect these points:

— a straight wire path
— a carrier system over wire
— a carrier system over coaxial cable
— a microwave system

In high density areas, a coaxial carrier system or microwave system would most likely be used because several lines could be multiplexed over a single system. This results in a cost advantage to the telephone company. A typical wire carrier system can combine up to 24 channels, while a coaxial carrier system combines up to 1800 channels and a microwave carrier system up to 3600 channels. Each of these channels is the equivalent of one voice grade telephone line.

Voice Grade Circuits

What is a voice grade circuit? It is a communication line nominally capable of passing 300-3000 Hertz of audio signal. This isn't high fidelity, but it does pass a voice signal intelligibly (although not necessarily intelligently!). In terms of data, a voice grade circuit will pass 4800 baud (information bits per second) reliably. In some cases, 9600 baud will pass but this can be touch and go unless the circuit is dedicated and conditioned (leased).

The Public Switched Network

Now let's look at the Public Switched Network or DDD (direct distance dialing) offered by the telephone companies. This network consists of 2-wire, full duplex, voice grade lines terminated in telephone or data instruments. As long as the telephone company provides the equipment, nothing further is required on the part of the customer (other than paying a nominal recurring monthly fee). If the customer wishes to provide his own termination equipment (telephone or data device), the equipment must be registered and approved by the Federal Communications Commission before it may be connected to the public switched network. This is two-way protection:

1. The customer is protected from hazardous conditions that could exist on the telephone line.
2. The network is protected from hazardous conditions that may exist on the customer's equipment.

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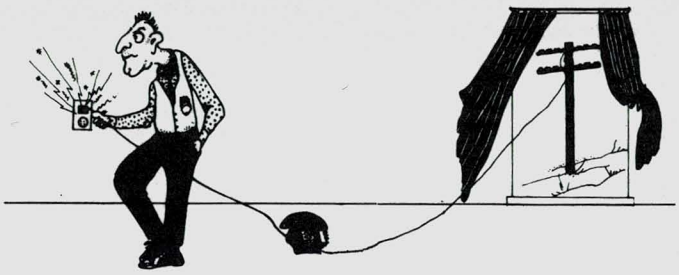

There are several types of service available on the switched network:

- Local service — normal local telephone calls
- Long distance — measured time and distance charges for calls outside the local area
- WATS — Wide Area Telephone Service is flat rate long distance service for a prescribed area and length of time (usually either 10 or 40 hours per month)
- Foreign exchange — a leased line to another exchange so that you may make local calls in that exchange, and vice-versa, without being charged the long distance rates.

Private Telecommunications Lines

Private lines (leased lines) come in many shapes and sizes. They are available in 2- or 4-wire, full or half duplex, and range from 30 baud (sub-voice grade) to over 265,000 baud (carrier systems). The usual breakdown of bandwidths available other than standard voice grade is as follows:

30 baud	— remote metering, supervisory control and miscellaneous signalling
55 baud	— teletypewriter, data, control and signalling
75 baud	— teletypewriter, typesetter, data, etc.
150 baud	— teletypewriter, data, etc.
300 baud	— data*
1200 baud	— data*
4800 baud	— data*
9600 baud	— data*
19200 baud	— wideband data
56000 baud	— wideband data
135000 baud	— wideband data (limited availablity)
265000 baud	— wideband data (limited availability)

*From 300 to 9600 baud usually falls within the definition of a voice grade line. 9600 baud may require special line conditioning.

Other types of circuits available are usually limited to entirely dedicated systems either leased or privately owned, including microwave and satellite channels. Telecommunications is not limited to the Bell Telephone System, either. There are many other common carrier companies offering similar types of facilities to the general public. However, any company making such offers is designated as a common carrier and therefore is regulated by the Federal Communications Commission, just as the telephone companies are.

Telecommunications Glossary

Bandwidth — The capacity of a circuit for the amount of information it can carry.

Baud — The number of transitions per second that can be reliably detected on a circuit.

bps — Bits per second. Using sophisticated modulation techniques, the number of bps can be 2, 3 or 4 times greater than the baud rate for a given circuit.

Carrier — The medium used to carry information on a system. For example, air is the carrier for sound; radio waves are the carrier for music and information.

Central office — The local switching center and termination point for all wires and cables in a local area or exchange.

Coaxial cable — A single wire surrounded by a shield and spaced uniformly within that shield. This gives coax the unique property of having much greater bandwidth than a pair of wires.

Common carrier — A designation for any entity offering a service to the general public which is regulated. For example, telephone companies, power companies, trucking companies, airlines, etc.

Conditioning — The electrical balancing of a communications circuit to correct any imperfections in the response or bandwidth.

DDD — Direct Distance Dialing. The public switched telephone network.

DDS — Digital Data Service. A network of pure digital service (no voice traffic).

Dedicated line — A line leased from a common carrier dedicated to a specific customer. Not part of the switched network.

Full-duplex — Allowing transfer of information in both directions simultaneously.

Half-duplex — Allowing transfer of information in one direction at a time.

Hertz — Cycles per second.

Microwave — Extremely high radio frequencies.

Multiplex — To combine several distinct signals onto one path and separate them on the far end.

Packet — Group of sequential data signals bundled and sent at one time for one destination.

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Private line — see dedicated line

Propagation delay — The amount of time required to traverse a circuit from origin to destination.

Satellite — A microwave relay station orbiting the earth. It is used for long haul communications where cost or bandwidth would prohibit the use of terrestrial circuits. All satellites used for this type of service are geosynchronous, that is, are in a stationary orbit above a fixed point on the earth.

Switched network — See DDD

Tie-line - A leased private circuit to "tie" two or more customer locations together.

Toll office — A switching center for the telephone company to connect various long distance circuits together and tie them to central offices.

Traffic — Information flow on a network.

Voice grade - A designation for the capacity of a circuit to reliably pass voice communications, usually 300-3000 Hertz.

WATS — Wide Area Telephone Service. A telephone company service allowing flat rate charges for long distance calling.

Wideband — Generally refers to circuits whose bandwidth is greater than 4000 Hertz (voice grade).

2-wire — A circuit consisting of one pair of wires. It may be half or full duplex.

4-wire — A circuit consisting of two pairs of wires, generally with one pair for each direction, and therefore generally full-duplex.

Do you practice computer room cleanliness?

DATAPOINT'S COBOL — Large Core Requirement Programs

The following was submitted by Roland K. Smith, Staff Analyst with TRW Inc., Automotive Worldwide.

The Datapoint COBOL compiler has been in operation on our Datapoint computer system for more than a year and a half. While the current compiler is relatively error-free, there are some considerations that must be given to large core requirement programs.

The COBOL compiler will compile programs of any size (up to 1MB — ed.). The compiler will assign addresses in ascending sequence until the program has been compiled. Due to the hardware characteristics of the Datapoint computers, some tailoring of larger COBOL programs is necessary before they will function properly. The tailoring required is dependent on the object machine and the operating environment. The constraints concern the maximum COBOL program size.

Maximum COBOL Program Size

Processor Type	Environment	Maximum Program Size
6000 series	Non-ARC™	59.75K
6000 series	ARC	52K
1800 series	Non-ARC	52K
1800 series	ARC	48K
3800 series	ARC	48K
5500 (48K)	Non-ARC	48K
5500 (48K)	ARC	44K
5500 (60K)	Non-ARC	59.75K
5500 (60K)	ARC	52K

These program sizes apply even if the particular processor has more than 60K bytes of user memory. For example, a 6020 processor with 120K bytes of user memory will not execute a nonsegmented program larger than 59.75K in a non-ARC environment. *continued on next page*

If the COBOL program turns out to be larger than the maximum program size listed above, it must be segmented in order to execute. After the program has been divided into a root segment and two or more independent segments, the program size calculation changes somewhat. When a program is segmented, the root segment size plus the size of the largest independent segment must be smaller than the maximum program size described above. The root segment of the program is always resident in memory and the independent segments are loaded from disk as required. Since these segments must be read into memory from disk each time they are needed and are not memory-resident, significant degredation of throughput can be experienced.

To improve the performance of segmented programs executing on processors with more than 60K bytes of user memory, Datapoint has provided a "Multisegment Manager." The Multisegment Manager places all independent segments in upper core (above 64K) that will fit in this available memory. As these segments are needed, they are swapped into the address space of lower memory and executed, rather than being retrieved from disk. This increases throughput in segmented programs, but is not without penalty.

The Multisegment Manager is invoked during linkage edit after the program is compiled and adds about 8K bytes to the root program segment. Therefore, the root segment and the largest independent segment, plus the Multisegment Manager must be smaller than the maximum program size listed in the table above.

In a specific set of COBOL compiler libraries, the normal segmentation procedures are invoked, or the Multisegment Manager is invoked, but not both at the same time. The compiler is delivered with the normal segmentation feature. In order to make use of the Multisegment Manager, it is necessary to replace certain modules in the COBOL compiler libraries. If it is desired to have compilers available both with the Multisegment Manager and without, it is necessary to copy the compiler prior to activating the Multisegment Manager.

[Ed. note: In COBOL version 2.2 and later, the Multisegment Manager is invoked by inclusion of an "M" option on the compilation command line. This eliminates the requirement of having two copies of the COBOLLIB/REL for those who wish to have an option in the use of the Multisegment Manager.

[In addition, the user may identify the range of segments which are to become buffered and those which will be dynamic at all times. This is selected by use of the line "MEMORY C$MXSGBF=nn", where "nn" is the highest priority-numbered segment to be buffered by the Multisegment Manager. All higher numbered sections — nn+1 through 99 — will be loaded each time they are required. The default value is 99.]

If a program which was compiled with a compiler using a Multisegment Manager is executed on a processor with 64K bytes of user memory or less, the segments are read in from disk as required, as though the Multisegment Manager were not invoked. This in no way changes the size of the program. Even though the program is executing on a small size machine, the 8K bytes reserved for the Multisegment Manager at compile time is still occupied by the temporarily inactive Multisegment Manager.

In summary:

1. Regardless of the processor core resources, the maximum size of a COBOL program is limited to the primary address space of the computer, less any memory used by ARC and the keyboard/display routines.
2. Programs larger than the allowable program size must be segmented such that the root segment plus the largest independent segment would fit in the space according to the chart.
3. Should additional memory be available (memory resources greater than 64K bytes), program throughput can be improved by using the Multisegment Manager. This does add about 8K bytes to the size of the root program segment.

These factors should be considered in any environment upgrading from a stand-alone system to an ARC system, and any time COBOL software is being considered which was not written specifically for the Datapoint computer line.

Look for further developments regarding Datapoint's COBOL in upcoming issues of SOURCE DATA.

Program Releases

Name/ Release Date	*Description*	*Purpose*	*Release Items* *Model*	*Media**
PS 2.3 Released 15 Nov 79	PS is a dual-partition supervisor for DOS. D and DOS.E systems. This permits concurrent execution of many DOS programs along with another partition running a version of DATASHARE™.	Corrects problems cancels PS 2.1	50218 20301	User's Guide $2.50 1 Cassette
PS66 2.1 Released 6 Nov 79	PS66 is a Datapoint 6600 processor dual-partition supervisor for DOS.D and DOS. E systems. It permits concurrent execution of many DOS programs, along with support for the 9390 Storage Module System.	Improves performance cancels PS66 1.2	50292 20416	User's Guide $1.50 1 Cassette
PSDS4 2.1 Released 1 Oct 79	The partition supervisor for DATASHARE 4 supports up to 16 workstations (any combination of 3360, 3600 or 8200 Datastations or serial printers). It includes most additional capabilities of DATASHARE 5. PSDS4 does not support MULTILINK or networking communications, or execution under ARC.	Corrects problems cancels PSDS4 1.2	50317 20444	User's Guide $5.00 1 Cassette
CHARLD82 1.2 Released 13 Nov 79	This is the international character set generator for the 8200 terminal. The DATABUS program to down-line load the generated character set is DS42200-compatible.	Corrects problems cancels CHARLD82 1.1	50457 ** 20626 20627 40409	User's Guide $1.00 1 Cassette 1 Diskette 1 DDD
DB15 2.2 Released 25 Oct 79	DP15 is a stand-alone interpreter for DATABUS™ on the 1500 processor. It may be run interactively using the 1500 keyboard and console display, or in batch mode with a DOS CHAIN file. It is capable of using ISAM, sequential or random accessing methods.	Corrects problems cancels DB15 2.1	50309 40278	User's Guide $1.50 1 Diskette
DOS.D 2.5.1 Released 26 Nov 79	This is a maintenance release for DOS.D 2.5, the Disk Operating System for the 3800, 5500 and 6600 processors, and for the 9370/9374 disk drives or the Storage Module System (9390).	Corrects problems supplements DOS.D 2.5	50432 ** 20685	User's Guide $15.00 1 Cassette
DOS.E 2.4.3 Released 13 Nov 79	This is a maintenance release for DOS.E 2.4, the Disk Operating System for Datapoint 5500 cartridge disk systems.	Corrects problems supplements DOS.E 2.4	50216 ** 20684	User's Guide $16.00 1 Cassette
ML15TC35 1.1 Released 5 Dec 79	ML15TC35 is a DBML15 line handler module for use with the Burrough's TC500/TD800/TC3500 standard poll/ select on the Datapoint 1500 processor.	New software package	50461 20634	User's Guide $2.50 1 Diskette

**Media Charges -- 1 Cassette -- $15.00 -- 1 Diskette -- $15.00 -- 1 Double Density Diskette -- $15.00 ** Previously released*

Name/ Release Date	*Description*	*Purpose*	*Release Items* *Model*	*Media**
DS5 3.1 Released 5 Dec 79	DATASHARE V Version 3 adds EM3270 support (IBM 3270 communications between a DATASHARE system and an IBM mainframe). See article in Issue 4 about EM3270. ***One-time DATASHARE license fee of $500. Specify media on which DS5 3.1 is to be loaded: 20698 Cassette 20650 Diskette 20651 DDD	Adds new features cancels DS5 2.1, DS5 2.1.1	50450 9812 ***	User's Guide $4.00 3 Cassettes ($45.00) 2 Diskettes ($30.00) 1 DDD ($15.00)
DS5 3.1.1 Released 22 Jan 80	This is a maintenance release for DS5 Version 3.	Corrects problems supplements DS5 3.1	20711 20712 40423	2 Cassettes 1 Diskette 1 DDD
EMT20015 1.1 Released 16 Jan 79	EMT20015 is a program which emulates a CDC 200 User Terminal. It operates on a 1500 processor with 32K of memory. See article in this issue.	Net software package	50492 20710	User's Guide $4.00 1 Diskette

**Media Charges -- 1 Cassette -- $15.00 -- 1 Diskette -- $15.00 -- 1 Double Density Diskette -- $15.00 ** Previously released*

System Releases

Name/ Release Date	*Description*	*Purpose*	*Release Items* *Model*	*Media**
S4634 1.5 Released 4 Dec 79	The ARC file processor system (20MB) consists of one 10MB disk pack containing the following released programs: DOS.D 2.5 Mass Storage Disk Operating System DOS.D 2.5.1 Maintenance Release ARC 1.3 ARC for File Processor (model 9801) S4634/RFM Release form print file	Corrects problems cancels S4634 1.4	20462	1 10MB Disk $160
S1500 1.6 Released 12 Nov 79	The 1500 Software System consists of four diskettes containing the following released programs: DOS.H 2.4.2 1500 Disk Operating System DOS.H 2.4.3 Maintenance Release LIBSYS15 1.3 System Library Maintenance Utility CHARIN15 2.1 International Character Set Generator	Corrects problems cancels S1500 1.5	40291	4 Diskettes $60.00

Name/ Release Date	*Description*	*Purpose*	*Release Model*	*Items Media**
	JOB15 2.1 Concurrent Job Loader PRINT15 2.1 Concurrent Print Despooler S1500/RFM S1500 Release Form DBCMP15 2.1 DATABUS Compiler DCDFMT15 1.2 Diskette Converter DF15SYS 2.1 Data Entry System DPS15M 3.4 DATAPOLL® Synchronous Disk Master Program DPS15S 3.4 DATAPOLL Synchronous Disk Spooling Program UNITRM15 1.4 Universal Terminal Emulator DEMO15 1.1 DATABUS/DATAFORM® Demonstration CC378015 2.2 Concurrent 3780 Emulator CCDP15 4.1 Concurrent DATAPOLL DB15 2.1 DATABUS Interpreter CC278015 2.2 Concurrent 2780 Emulator			
S1800 2.1 Released 12 Nov 79	The 1800 system software consists of three disketts containing the following Datapoint released programs: DBCMPLUS 2.1 5500 DATABUS Compiler DCCONV18 1.2 1800 Single/Double Density File Copy Utility DCDFMT18 1.1 1800 IBM Diskette Conversion Program DOS.G 2.4 1800 Diskette Operating System DOS.G 2.4.1 Maintenance Release DSGEN 1.2 DATASHARE Program Generation System FASTSORT 3.1 Fast Sort Program S1800/RFM 1800 System Release Form CHAINPLS 2.1 CHAIN File Compiler and Executor LIBSYS 2.1 System Library Maintenance Utility DSTEXT 3.1 DATASHARE Text File Handling System DS5 2.1 DATASHARE V Version 2 DS5 2.1.1 Maintenance Release FIXREL 1.3 Relocatable FIX Utility LINK 2.2 Linking Editor for Relocatable Modules	Adds new features cancels S1800A 1.1 S1800B 1.1 S1800C 1.1 S1800D 1.1	40421	3 DDD $45.00

Diagnostic Program Releases

Name/ Release Date	*Description*	*Purpose*	*Release Items* *Model*	*Media**
KEY1800 1.3 Released 18 Dec 79	KEY1800 is a diagnositc for the 1800 keyboard logic and switches.	Corrects problems cancels KEY1800 1.2	50387 20533 40353	User's Guide $ .60 1 Cassette 1 DDD
SWITCH 1.2 Released 30 Oct 79	This program tests the 1800 processor identification switch.	Corrects problems cancels SWITCH 1.1	50388 20534 40354	User's Guide $ .45 1 Cassette 1 DDD
TSTSP 2.1 Released 24 Sept 79	TSTSP is a servo printer diagnostic.	Corrects problems cancels TSTSP 1.2	50112 20143 20191 40407	User's Guide $2.00 1 Cassette 1 Diskette 1 DDD
TST1800 1.2 Released 2 Nov 79	This program will test the 1800/3800 system.	Corrects problems cancels TST1800 1.1	50384 20529 40350	User's Guide $ .50 1 Cassette 1 DDD
TEST1800 1.2 Released 29 Oct 79	TEST1800 is a faster version of TST1800.	Corrects problems cancels TEST1800 1.1	50391 20537 40357	User's Guide $1.00 1 Cassette 1 DDD
RIMBUF 1.2 Released 11 Dec 79	This tests the RIM buffer memory.	Corrects problems cancels RIMBUF 1.1	50378 20517 20518 40347	User's Guide $ .75 1 Cassette 1 Diskette 1 DDD

**Media Charges -- 1 Cassette -- $15.00 -- 1 Diskette -- $15.00 -- 1 Double Density Diskette -- $15.00 ** Previously released*

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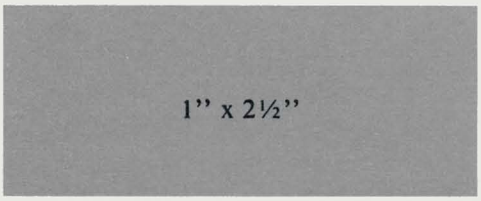

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