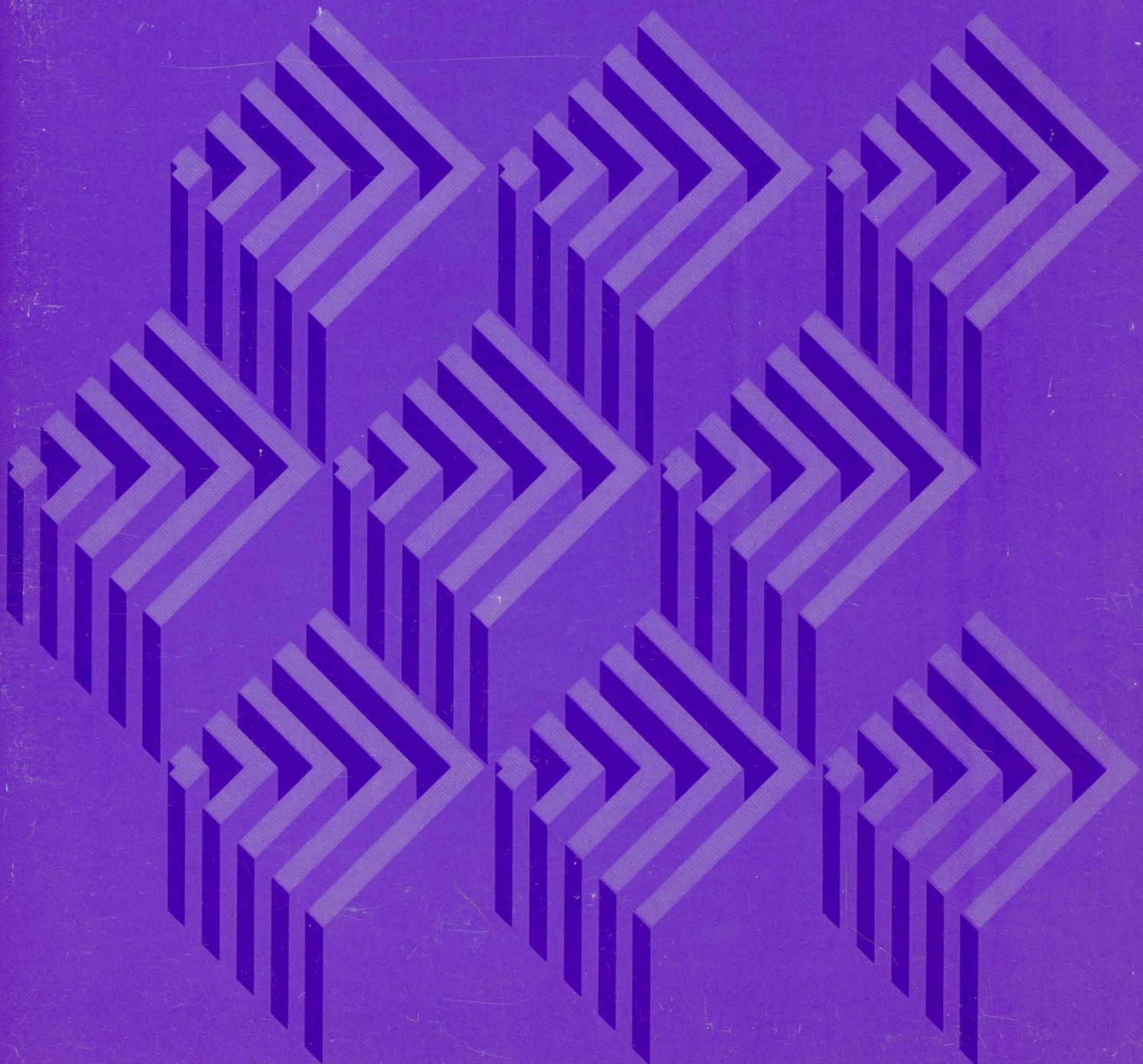
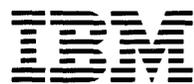




**IBM Displaywriter System
General Information Manual**



**General Information Manual
for the
IBM Displaywriter System**



Fourth Edition (October 1981)

The information in this manual describes all models of the IBM Displaywriter System. Your IBM representative can provide additional information regarding the date any particular component will be available or how the IBM Displaywriter System functions.

Graphics in this publication represent design models and may not be exact replicas of production models.

Requests for IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for reader's comments is at the back of this publication. If the form has been removed, address your comments to IBM Corporation, Information Development, Department 97H, Building 998, 11400 Burnet Road, Austin, Texas 78758. IBM may use and distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

PREFACE

PURPOSE

This manual is designed to give a general overview of the IBM Displaywriter System--a modular, diskette-based word processing system. Licensed programs provide the IBM Displaywriter System functions, such as text processing, files management, and electronic communications.

Besides providing information about the IBM Displaywriter System functions, this manual also describes the equipment components and available IBM support for the IBM Displaywriter System.

AUDIENCE

This publication is intended for company executives, office administrators, and office personnel who may direct or supervise the use of the IBM Displaywriter System but who may not directly operate the system. Familiarity with word processing is helpful, but not mandatory, in understanding the contents of this publication.

CONTENTS

This publication has five chapters, four appendixes, and a glossary:

- Chapter 1, "Introduction," an overview of the IBM Displaywriter System.
- Chapter 2, "Component Devices," detailed descriptions of each of the component devices of the IBM Displaywriter System.
- Chapter 3, "Functions," a general description of the functions available with various licensed programs.
- Chapter 4, "Examples," descriptions of how to do common types of documents on an IBM Displaywriter System.

- Chapter 5, "Support," information about IBM support for the IBM Displaywriter System in the areas of installation, training, and product services.
- Appendix A, "IBM 5215 'Selectric'® Element Printer Specifications," information about type styles and paper specifications.
- Appendix B, "IBM 5218 and IBM 5228 Tractor Feed Specifications," information about paper specifications for the IBM 5218 and the IBM 5228 Tractor Feed.
- Appendix C, "IBM 5218 and IBM 5228 Sheet-Feed Paper Handler Specifications," information about paper specifications for the Sheet-Feed Paper Handler for the IBM 5218 and IBM 5228 Printwheel Printers
- Appendix D, "Asynchronous and Binary Synchronous Communications Summary," detailed information about Asynchronous and Binary Synchronous Communications.
- Appendix E, "IBM Displaywriter System Ergonomic Features," a general description of the design features of the IBM Displaywriter System.
- "Glossary," definitions of word processing and communications terms used in this manual.

RELATED PUBLICATIONS

The other available publications in the IBM Displaywriter System Library include:

- Customer Planning Guide for the IBM Displaywriter System, G544-0852. This manual provides the information the customer needs to prepare for the arrival and set up of the system. The manual discusses such topics as the size and weight of system components, the required system operating environment, and space requirements.
- IBM Displaywriter System Customer Setup Guide, G544-0858. This guide gives detailed step-by-step instructions for system setup. With this guide, customer personnel can (without training or tools) unpack system components, arrange them in a work area, connect power cords and intermachine cables, prepare units for operation, and run the system verifier test. This guide is shipped with the system.

- IBM Displaywriter System Customer Planning Guide for Communication, G544-0865. This manual provides planning information for the physical installation of the communication feature on the IBM Displaywriter System. It is intended for the customer personnel who will plan for the physical setup of an IBM Displaywriter System with communications. No previous knowledge of communications is required to use this manual.
- IBM Displaywriter System Host Attach Programming Guide: Binary Synchronous Communications, G544-2039. This manual provides a detailed description of the IBM Displaywriter System's binary synchronous communication facility. It also describes programming requirements for host system and application programmers who use binary synchronous protocols to communicate with a Displaywriter.
- IBM Displaywriter System Host Attach Programming Guide: Asynchronous Communications, G544-2038. This manual provides a detailed description of the IBM Displaywriter System's asynchronous communication facility. It also describes programming requirements for host system and application programmers who use asynchronous protocols to communicate with a Displaywriter.
- IBM Displaywriter System 3270 Data Stream Compatibility Application Manual, G544-2049. This manual provides a detailed description of the functions provided by the IBM 3270 Data Stream Compatibility licensed program for the IBM Displaywriter System. This licensed program allows an IBM Displaywriter System to access IBM host computer systems using IBM 3270 application programs via SNA/SDLC communications.

CONTENTS

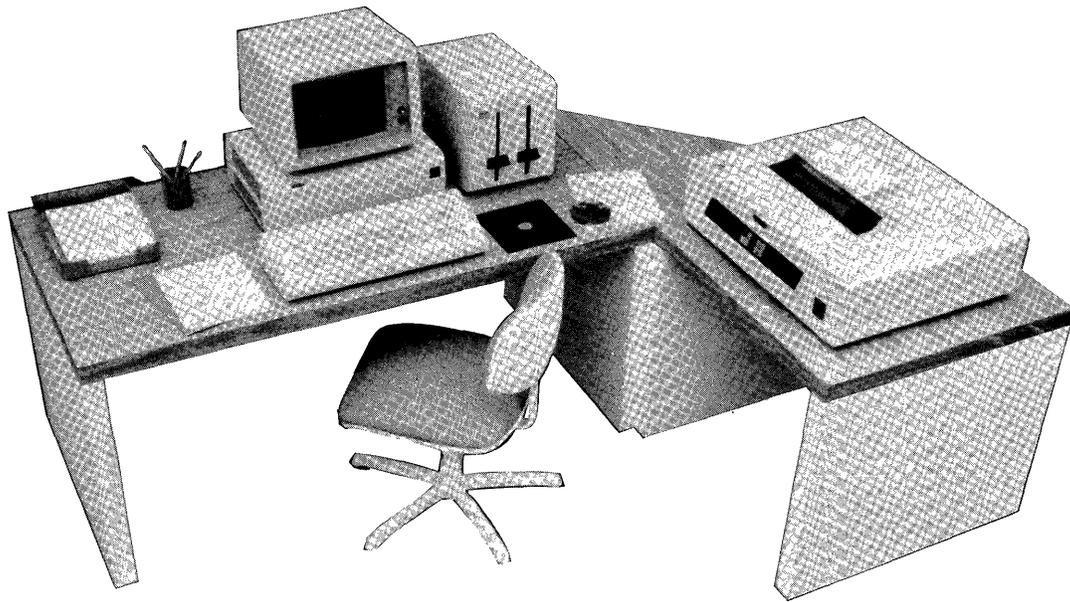
Chapter 1. Introduction	1
Displaywriter Components and Configuration	2
IBM Displaywriter Licensed Programs	2
IBM Support	4
Chapter 2. Component Devices	5
Display Station	6
Display Format	6
Display Cursor	8
Display Page Positioning	8
Keyboard Module	8
Function Keys	9
IBM 6360 Diskette Unit	10
Diskettes	10
Single Diskette Unit	10
Dual Diskette Unit	11
Diskette Drives	11
IBM 5215 "Selectric" Element Printer	12
Optional Features for the 5215 Printer	13
IBM 5218 and IBM 5228 Printwheel Printers	14
Optional Sheet-Feed Paper Handlers	15
Optional Tractor Feeds	17
IBM 6361 Mag Card Unit	17
Communications Feature for Asynchronous and Binary Synchronous Communications	18
Flexibility	19
Example 1. Changing the Printer	20
Example 2. Adding Work Stations	21
Example 3. Changing the Configuration	22
Chapter 3. Functions	23
Operator Assistance Functions	24
Menus	25
Messages	27
Prompts	27
System Functions	27
Information Management	28
System Personalization	28
Text Processing Functions	29
Creating a Document	29
Printing a Document	32
Revising a Document	33
Spelling Verification Aid	33
Enhanced Spelling Verification Aid	34
Languagepack and Languagepack 2	35
Advanced Text	36
Merge Function for Repetitive Documents	36
Merge Function for Document Assembly	39

Additional Advanced Text Functions	40
Column Processing	41
Arithmetic	41
Enhanced Arithmetic	42
Files Management	42
File Creation and Maintenance	43
Merging File Information with Text	44
Lists and Reports	45
Repetitive Documents	45
Communication Functions	46
Equipment Required	47
Communication Modes	47
Personalization	47
Asynchronous Communications	48
Features and Capabilities	49
Binary Synchronous Communications	50
Features and Capabilities	51
IBM 3270 Data Stream Compatibility	52
Equipment Required	54
Use of IBM Displaywriter Functions In The 3270 Mode	54
Operator Control Capabilities	54
Chapter 4. Examples	55
Example 1. Revising a Document	56
Example 2. Repetitive Letter with Variables	58
Example 3. Documents from Stored Paragraphs	60
Example 4. Column Revisions	62
Example 5. Report Generation	63
Example 6. Files Management for Repetitive Letters	65
Chapter 5. Support	67
Office Systems Support Center	67
Planning and Equipment Setup	68
Training	68
Problem Determination and Resolution	69
Licensed Program Support	70
Summary	70
Appendix A. IBM 5215 "Selectric" Element Printer	
Specifications	71
Type Styles	71
Paper Specifications	71
Paper Types	71
Pin-Feed Platen Paper Sizes	72
Pin-Feed Platen Recommended Environment	72
Appendix B. IBM 5218 and IBM 5228 Tractor Feed	
Specifications	73
Paper Types	73
Paper Sizes	73
Appendix C. IBM 5218 and IBM 5228 Sheet-Feed	
Paper Handler Specifications	75

Recommended Environment	75
Recommended Paper Composition	75
Acceptable Paper Weights	75
Acceptable Paper Sizes	76
Paper Limitations	76
Unsatisfactory Paper Conditions	77
Appendix D. Asynchronous and Binary Synchronous Communications Summary	79
Appendix E. IBM Displaywriter System Ergonomic Features	81
Glossary	83

FIGURES

1.	IBM Displaywriter System Components	2
2.	IBM Displaywriter System Work Station	5
3.	IBM Displaywriter System Display Format	6
4.	IBM Displaywriter System Keyboard	9
5.	IBM 6360 Single Diskette Unit	10
6.	6360 Diskette Unit Options	12
7.	IBM 5215 "Selectric" Element Printer	13
8.	IBM 5218 Printwheel Printer	15
9.	IBM 5218 Printwheel Printer with a Sheet-Feed Paper Handler	16
10.	IBM 6361 Mag Card Unit	18
11.	Changing the Printer	20
12.	Adding Work Stations	21
13.	Changing the Configuration	22
14.	IBM Licensed Textpack Programs	24
15.	IBM Licensed Feature Programs	25
16.	Part of the Line Format Menu	26
17.	Part of the Typing Tasks Selection Menu	26
18.	Document After Spelling Verification Aid Is Used	34
19.	Repetitive Letter with Merged Variables	37
20.	Document Assembled from Stored Paragraphs	38
21.	Document Before and After Revision	57
22.	Repetitive Letter With Variables	58
23.	Master Copy of Stored Paragraphs and a Completed Letter	61
24.	Column Revisions	62
25.	Reports Generated From a File	64
26.	Repetitive Letters from a File	66



Frontispiece. IBM Displaywriter System.

CHAPTER 1. INTRODUCTION

At a time when financial data is available almost instantly from a company's data processing center, it may take a week or more to type and edit a financial statement. Even after the document is typed, it must be proofread for typographical errors and any arithmetic in it must be recalculated to check for calculation errors. Inventories can be verified almost immediately by checking a computer's data base, but the office is still forced to store copies of files and to search through file cabinets to retrieve information--then the information must be sorted and typed to produce a report. Documents can be distributed across the country at electronic speeds, yet most documents are mailed and can take days to arrive at their destination.

For many organizations, no system exists to handle information as the valuable resource that it is. Yet the volume of paper work continues to grow at a staggering rate.

To help organizations handle information, IBM offers the IBM Displaywriter System--a diskette-based text processor, capable of creating and editing text and sending and receiving information over communications lines from compatible office equipment and computers.

Using the text processing functions, an operator can create, revise, and electronically store documents on a diskette. The operator can also use a spelling verification aid to compare the words in a document to two stored dictionaries. Words not found in either dictionary are highlighted automatically so the operator can easily find and check them.

By accessing a host computer, the operator can review large data bases and select data to be transferred to IBM Displaywriter diskette. Once stored on IBM Displaywriter diskettes, this host data becomes available for subsequent IBM Displaywriter text processing tasks.

Using the files management functions, the operator can create, store, and revise lists of information, called records. These files can be rearranged into reports or merged with text to produce personalized repetitive documents.

Documents can be printed on attached printers, or, by use of the communications function, distributed to

compatible communicating office equipment in the same building or at remote offices in other cities.

DISPLAYWRITER COMPONENTS AND CONFIGURATION

An IBM Displaywriter System consists of at least one work station. Each work station has a display station (a display module, a keyboard module, and an electronics module) and a diskette unit for reading and recording information on data diskettes.

A printer is recommended for a full text processing system, but is not required. (A work station used only to communicate with a computer, for example, might not use a printer.) The IBM Displaywriter System printer can be one of four impact printers. With an additional hardware feature, up to three work stations can share one printwheel printer, or each work station can have its own printer. A Mag Card Unit is also available for organizations that already have mag card typewriters. (Figure 1 shows the major IBM Displaywriter System components.)

The modular design of the components of the IBM Displaywriter System offers configuration flexibility for a range of office environments. The IBM Displaywriter System can be designed:

- As a standalone unit with one work station and one printer.
- As a cluster of two or three work stations sharing a printwheel printer.
- As part of an operator-controlled document distribution network. The addition of communications allows the electronic transfer of documents to compatible communications equipment.

More detailed descriptions of each component and examples of various configurations are contained in Chapter 2.

IBM DISPLAYWRITER LICENSED PROGRAMS

Licensed programs provide the IBM Displaywriter System's operational functions. IBM Licensed Programs include:

- four text processing programs (which all include a spelling verification aid),

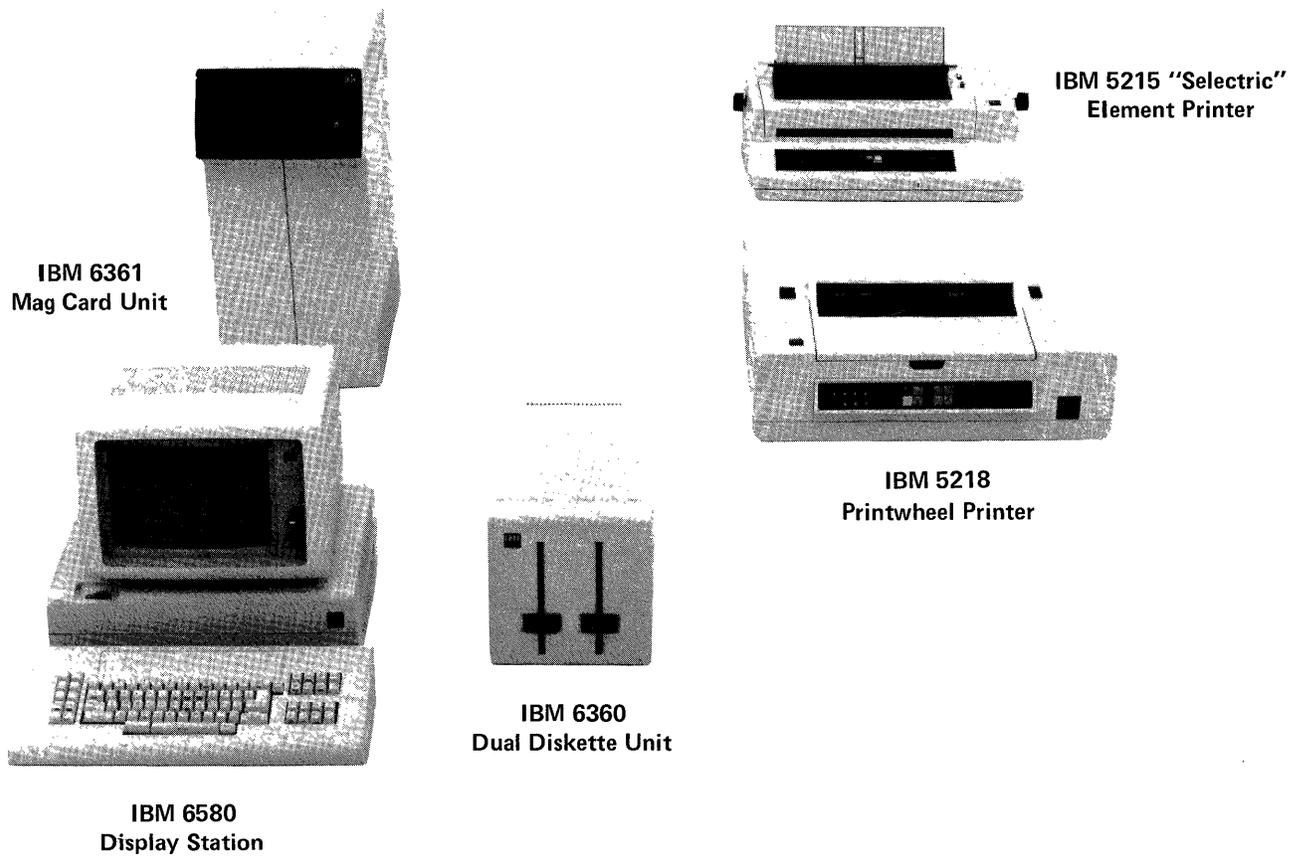


Figure 1. IBM Displaywriter System Components

- an Asynchronous Communications Program,
- a Binary Synchronous Communications Program,
- a Magnetic Card Conversion Program,
- two spelling verification aid programs containing dictionaries in other languages, and
- a files management program for file creation and maintenance.

- an IBM 3270 Data Stream Compatibility program that enables an IBM Displaywriter System to emulate an IBM 3270 Information Display System.

The functions contained in the licensed programs are described in Chapter 3.

IBM SUPPORT

Additionally, the IBM Displaywriter System is designed to allow the customer to achieve a high degree of productivity and self-sufficiency quickly. Customer setup of equipment, for example, gives the customer control over the IBM Displaywriter System environment. The customer can set up the IBM Displaywriter System as soon as it arrives and relocate it at will.

The IBM Displaywriter System operator training is self-paced and modular. The customer controls the training location and schedule, and can even customize the training to meet in-house requirements. An IBM Office Systems Support Center with a toll-free (800) telephone number is available to the operator to give assistance on customer setup of equipment, training and procedural questions, and problem determination and resolution.

CHAPTER 2. COMPONENT DEVICES

This chapter contains a description of each of the major components of the IBM Displaywriter System. The IBM Displaywriter System components include:

- IBM 6580 Display Station
- IBM 6360 Diskette Unit
- IBM 5215 "Selectric" Element Printer
- IBM 5218 and IBM 5228 Printwheel Printers
- IBM 6361 Mag Card Unit

Each IBM Displaywriter System includes at least one work station. Each IBM Displaywriter System work station (Figure 2) consists of a display station (a display module, a keyboard module, and an electronics module) and a diskette unit. Documents are typed at the keyboard, viewed and revised on the display, and stored on a diskette for future use. The operator also uses the keyboard to initiate other functions, such as printing.

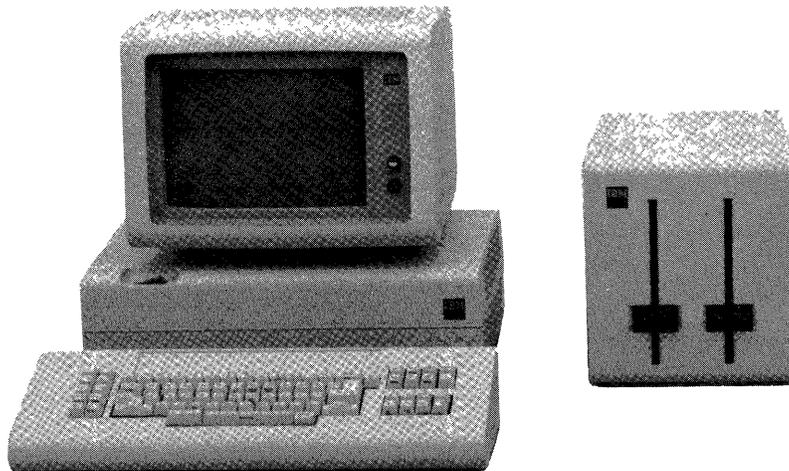


Figure 2. IBM Displaywriter System Work Station

A printer is recommended for a full text processing system, but it is not required. (A work station used only

to communicate with a computer, for example, might not use a printer.) An IBM Displaywriter System also may have a Mag Card Unit.

These components can be combined in different ways to meet the requirements of a wide range of users. This allows the IBM Displaywriter System to meet individual needs.

Two of the most important goals for the IBM Displaywriter System are operator comfort and system ease of use. Many of the features of the IBM Displaywriter System are based on the results of ergonomic studies. Ergonomics is the science of adapting working conditions to meet people's needs and is concerned with making the equipment people use as easy and comfortable to use as possible. In addition to the features mentioned in this chapter, Appendix E lists additional features that help to contribute to operator comfort.

Display Station

The base of the display is the electronics module. The operator can adjust the brightness and the contrast control. The operator also can tilt and swivel the display on the base.

The display shows 25 lines of information, with 80 characters on each line.

Display Format

The display format (Figure 3) consists of:

- **Lines 1 and 2** are status lines showing information such as the names of the diskettes loaded and the name and page number of the document in use. The status line shown while using Textpack 3 and Textpack 4 has an additional field of information (not shown) that indicates whether the system is in a replace mode or an insert mode. (Information not relevant to a task is not shown while that task is executed. Communication status, for example, shows only during communications.)

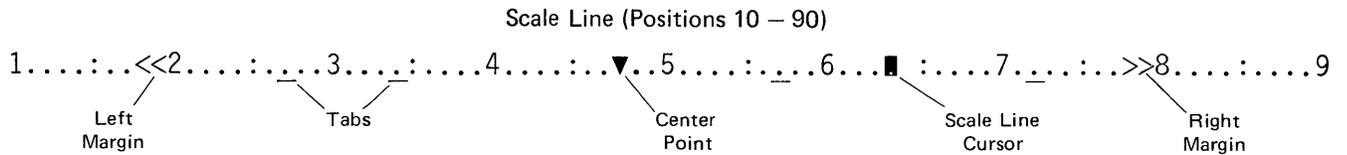
```

1 Context Field          |Document Name          |Audit Window  |
2 L Disk|R Disk|Communication Status|Pg xxx.y.z|Ln zxxx|Kyb xxx-y|Pitch xx
3 .....1.....2.....3.....4.....5.....6.....7.....8
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24 prompt
25 message

```

Figure 3. IBM Displaywriter System Display Format

- **Line 3** is the scale line displayed during text operations and some format menus. The scale line gives format information such as margins, tab settings, and the center of the typing line.



- **Lines 4 -- 23** are an application area, called a viewport. The viewport can display up to 20 lines of:
 - Text, the document being created, reviewed, or revised
 - A menu, a list of options that aid an operator in selecting and defining the tasks to be performed
- **Line 24** is the prompt line that tells the operator to perform some action.
- **Line 25** is the message line that displays messages to inform the operator of device status or function status.

Display Cursor

A cursor, which looks like a brightened underline, indicates the location on the display where the next typed character or character to be edited appears. The operator can either type or change information on the display at this location or move the cursor to another location on the display by using the cursor movement keys. (For a description of the cursor movement keys, see Keyboard Module.)

The cursor and the character above it are brightened on the display to aid the operator in locating them. A second cursor on the scale line indicates to the operator the position of the cursor along the scale line.

Display Page Positioning

The IBM Displaywriter System can process document pages that have more lines or longer lines than can be displayed at one time on the display. For pages with more lines than can be shown on the display, the operator can move the viewport up or down through the text. For example, if the operator moves the cursor down when it is positioned on the bottom line of the display, the text moves up and displays the next line of text. At the same time, the top line leaves the display.

For lines with more than 80 characters, the operator can move the viewport across the line to show 80-character segments of the line. For example, if the operator moves the cursor to the right when it is positioned at the right margin of the screen and there are more characters on that line, the screen will segment to show another 60 characters or will show just the rest of the line if there are less than 60 more characters on that line. There will be an overlap of 20 characters from the previous screen to provide some context information for the operator. In this way, the operator can view a line of up to 999 characters, although only part of the line is displayed at one time.

KEYBOARD MODULE

The IBM Displaywriter System keyboard module (Figure 4) is available with either 92 or 96 standard characters. A cable attaches the keyboard module to the electronics module. This allows the operator to move the keyboard module to the most comfortable position. The keys are pearl white with black characters to help decrease glare and to aid in reducing operator eye fatigue. Except for the addition of a system entry key

(ENTER), key shape, size, and placement of the main key group are similar to the IBM Office System 6 keyboards.

Coded functions--initiated by using the CODE key and another key--have been minimized. Only the functions which may be characterized as touch typing functions (word underlining and centering, for example) are in the main key group.

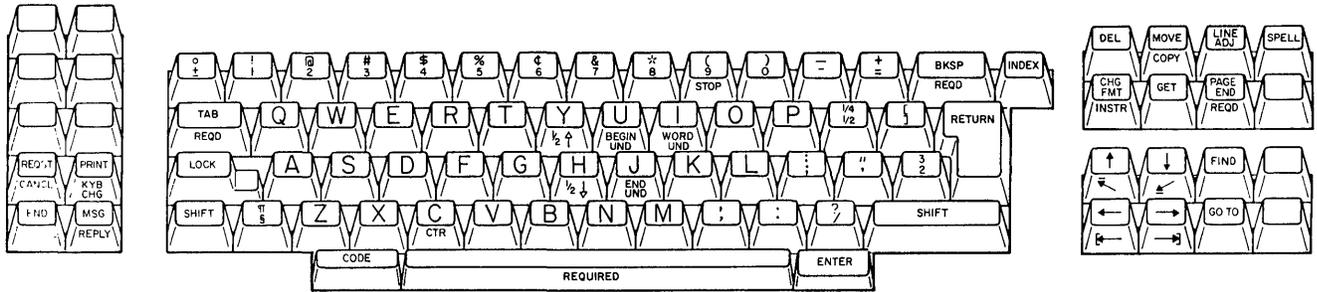


Figure 4. IBM Displaywriter System Keyboard

Function Keys

The keyboard has three types of function keys located in clusters to the right and left of the main key group.

- The **cursor movement keys** position the cursor on the screen at the point of the next entry. The cursor can be moved up, down, left, or right. The cursor also can be moved automatically to the boundaries of a page such as the first or last line and the first or last character of a line. Other functions are available to move the cursor directly to the beginning of a specified page of text or to the first character of a specified character string.
- The **function control keys** initiate functions such as moving text within a document, deleting text, and changing formats.
- The **work station control keys** initiate work station functions such as printing a page of a document.

IBM 6360 DISKETTE UNIT

The IBM 6360 Diskette Unit can read information stored on the magnetic diskettes and record information created at the keyboard onto the diskette. The operator can move the cable-connected diskette unit to either the left or right of the display station, whichever is more convenient.

Diskettes

A diskette is a magnetic disk approximately 203 mm (8 inches) in diameter, enclosed in a protective sleeve. The storage capacity of the diskette depends of the type of diskette used. An IBM Diskette 1 (one-sided diskette) has a storage capacity of approximately 284,000 bytes of customer usable characters and controls. An IBM Diskette 2D, a double density, two-sided diskette, can have information stored on both sides of the diskette with more information stored in the same amount of space. An IBM Diskette 2D has a storage capacity of approximately 985,000 bytes of customer usable characters and controls.

The licensed programs, which control text and communications functions, are stored on program diskettes. The operator uses work diskettes to store operator-created information.

Single Diskette Unit

The IBM 6360 Single Diskette Unit (Figure 5) has one usable slot (the right-hand slot is blocked) and operates with one diskette inserted at a time. Any tasks which requires the use of more than one diskette, such as copying a diskette, is done by the operator inserting each diskette as it is needed.

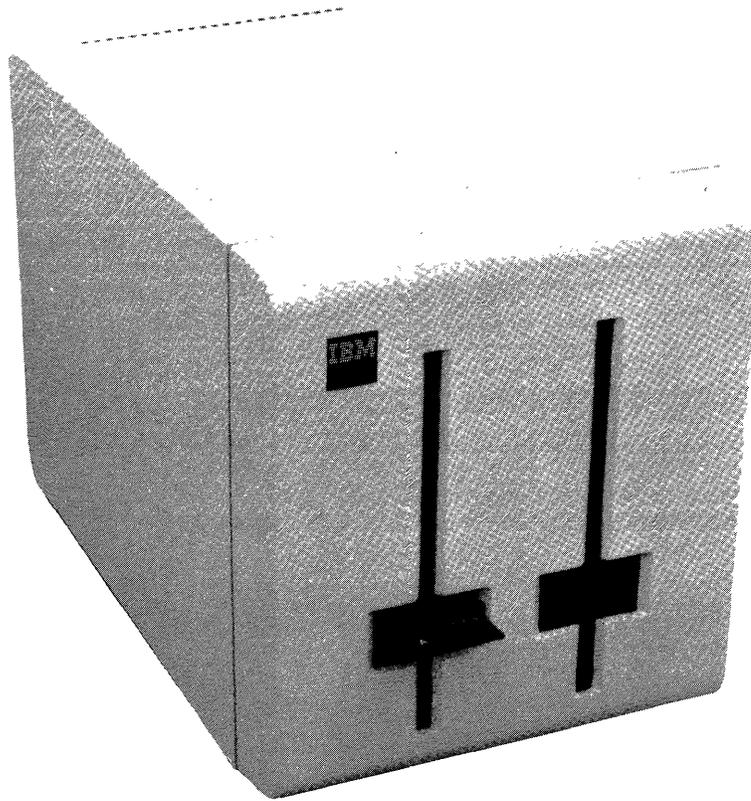


Figure 5. IBM 6360 Single Diskette Unit

Dual Diskette Unit

The IBM 6360 Dual Diskette Unit is identical to the single diskette unit in appearance and function, except that the dual diskette unit has two usable diskette slots. Printing can be done from one diskette while the operator works with the other diskette. Tasks such as copying documents from one diskette to another can be done without operator intervention.

Diskette Drives

There are two types of diskette drives that can be used in the IBM 6360 Diskette Unit. One type of diskette drive can read/record information on an IBM Diskette 1 (one-sided) only. The other type of diskette drive can

read/record information on both the IBM Diskette 1 and Diskette 2D (two-sided).

Both types of diskette drives can be ordered as part of either single (one slot) or dual (two slots) diskette units. Figure 6 shows the various options for combinations of diskette drives in single and dual diskette units.

6360 Diskette Unit	Type of Diskette Used	
	Left Diskette Slot	Right Diskette Slot
-010	IBM Diskette 1 Only	—
-011	IBM Diskette 1 Only	IBM Diskette 1 Only
-020	IBM Diskette 1 or 2D	—
-022	IBM Diskette 1 or 2D	IBM Diskette 1 or 2D

Figure 6. 6360 Diskette Unit Options

5215 "SELECTRIC" ELEMENT PRINTER

The IBM 5215 "Selectric" Element Printer (Figure 7) is an impact printer that uses the familiar IBM "Selectric" typewriter print mechanism. Many ribbons and elements used on current IBM "Selectric" typewriters and IBM mag card typewriters can be used on the IBM 5215 "Selectric" Element Printer. (Contact your IBM Marketing Representative to determine which ribbons and elements are compatible.)

The IBM 5215 "Selectric" Element Printer prints at a rated burst speed of up to 15.5 characters per second (cps). (Actual printing time per page will vary based on information being printed.) The IBM 5215 prints in either 10 or 12 pitch. The IBM 5215 printer can be ordered so that it will print one of the following: 5.1, 5.3, or 6 lines of type per vertical inch.

The IBM 5215 printer can print on manually-fed paper that is up to 381.0 mm (15 inches) wide, with a maximum writing line of 317.5 mm (12.5 inches).

The IBM 5215 "Selectric" Element Printer prints on cut paper or on continuous paper fed through an optional Pin-Feed Platen.

Messages on the work station display and lights on the printer notify the operator of the status of the printer.

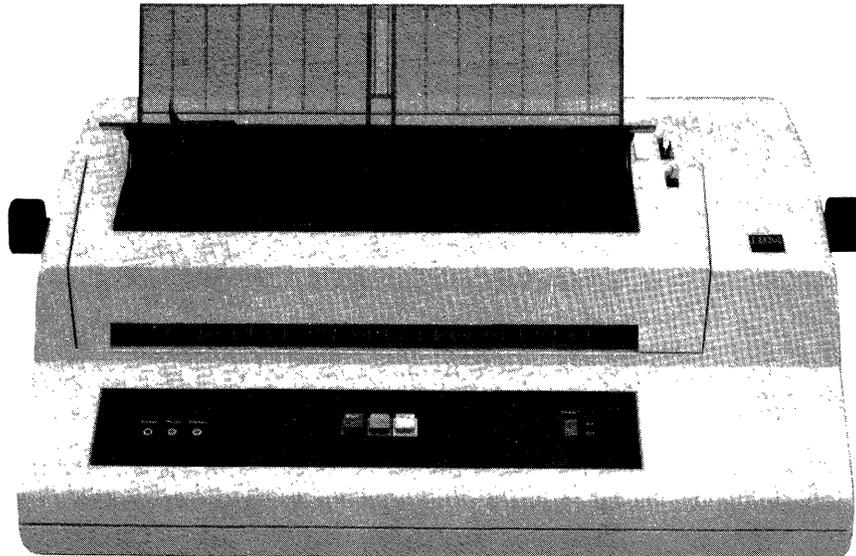


Figure 7. IBM 5215 "Selectric" Element Printer

Each IBM 5215 printer supports a single work station. Work done at the keyboard is independent of work done at the printer. The operator can trail print each page after it is typed. When trail printing, the operator can type or revise text in the same document while a previous page is printed. The operator also can batch print an entire document as another document is created or revised.

Only one document is printed at a time to prevent the intermixing of pages from different documents. Thus, the operator avoids the task of sorting pages, by document, after they are printed.

Optional Features for the 5215 Printer

A Pin-Feed Platen feeds continuous pin-feed paper. (See Appendix A for acceptable paper sizes.)

Used with the Pin-Feed Platen are:

- An out-of-paper switch which stops the printer when only 51 mm (2 inches) of paper remain.
- A roll paper holder that supports and feeds roll paper or, for perforated forms, guides the paper

onto the platen pins and separates incoming from outgoing paper.

- A paper stand that separates incoming from outgoing continuous paper. The paper supply stack is placed under the paper stand and the shelf is used to stack the printed continuous paper.

IBM 5218 AND IBM 5228 PRINTWHEEL PRINTERS

The IBM Printwheel Printers (Figure 8) are bidirectional impact printers that have a printwheel which is rotated electronically to select the desired characters.

The IBM 5218-A01 Printwheel Printer has a 10-pitch rated burst print speed of up to 40 characters per second (cps). The IBM 5218-A02 and IBM 5228-A12 Printwheel Printers have a 10-pitch rated burst print speed of up to 60 cps. (Actual printing time per page will vary, based on the information being printed.)

The IBM Printwheel Printers print in 10 pitch, 12 pitch, 15 pitch, and proportional spacing.

The IBM Printwheel Printers can print 5.1 (by special order), 5.3, 6, or 8 lines per vertical inch, as selected by the work station operator. To assist in more precise forms alignment, a line spacing option of 24 lines per inch can be chosen so that each carrier return causes the paper to index only 1.06 mm (.04 inches).

The IBM 5218 printer can print on manually-fed paper ranging from 80 mm (3.15 inches) to 392 mm (15.43 inches) with a maximum writing line of 335 mm (13.19 inches). The IBM 5228 Wide Carriage Printwheel Printer allows the use of wider paper. It can print on manually-fed paper that is up to 483 mm (19 inches) wide with a maximum writing line of 432 mm (17 inches).

Messages on the work station display and lights on the printer notify the operator of the status of the printer. The printwheel can be changed without removing the printer ribbon.

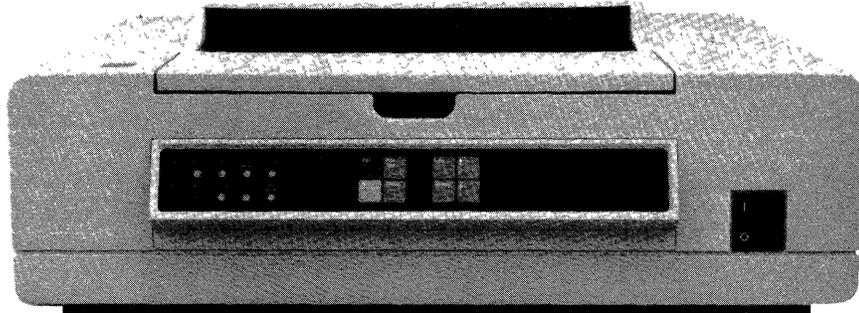


Figure 8. IBM 5218 Printwheel Printer

The IBM Printwheel Printers print on cut paper or on continuous form pin-feed paper. Single sheet paper can be fed automatically through an optional Sheet-Feed Paper Handler or loaded manually by the operator. An optional continuous paper Tractor Feed is available for feeding continuous pin-feed paper.

With a Printer Sharing Card (a logic card placed in a display station to which the printer and the other display stations are attached to determine printer control in a shared configuration) an IBM Printwheel Printer can be shared by up to three work stations in either a trail or batch printing mode, as directed by the work stations. Batch printing normally is used when the printer is shared.

Only one document is printed at a time to prevent the intermixing of pages from different documents. Thus, the operator can avoid the task of sorting pages, by document, after they are finished printing.

Optional Sheet-Feed Paper Handlers

The Sheet-Feed Paper Handler (Figure 9), which is removable, automatically feeds cut sheet paper for either printwheel printer. It has two paper trays. Each tray can hold approximately 200 sheets of 20-lb. paper. The output tray on the sheet feeder can hold approximately 400 sheets of 20-lb. paper.

Although all the paper in a tray at one time must be the same size and weight, the Sheet-Feed Paper Handler can feed a variety of paper weights and sizes. (See Appendix C for acceptable paper sizes and weights and environmental requirements.)

Note: Separate Sheet-Feed Paper Handlers are available for the IBM 5218 and IBM 5228 Printwheel Printers, but the size of paper used is the same for both. Paper requirements are listed in Appendix C.

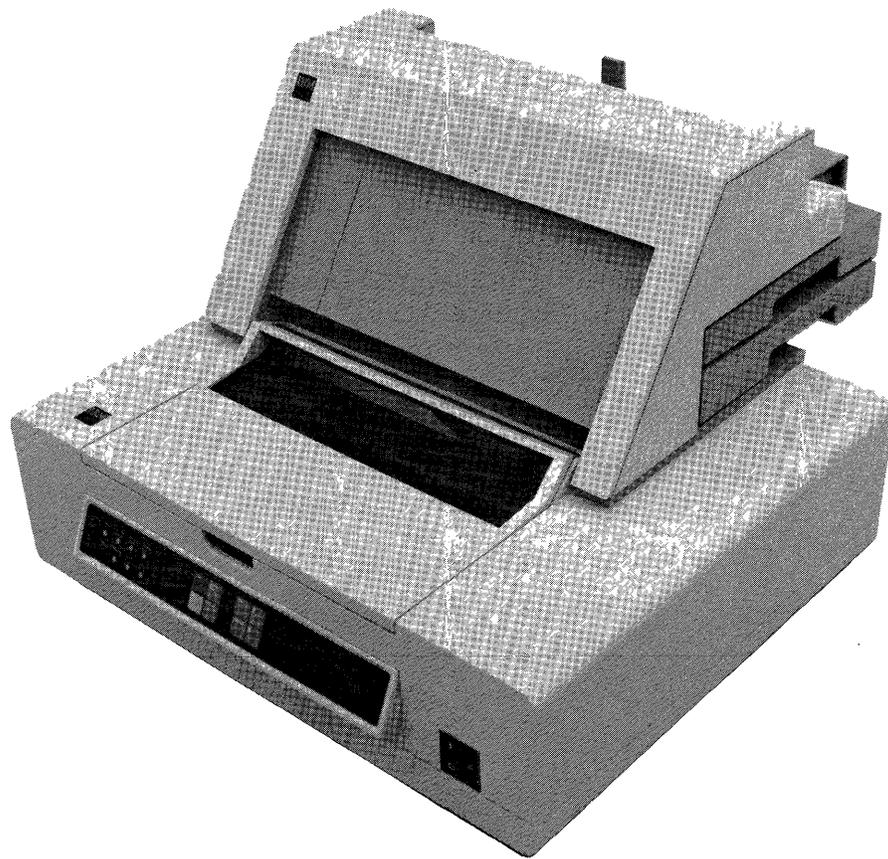


Figure 9. IBM 5218 Printwheel Printer with a Sheet-Feed Paper Handler

Each document is printed in collated order. If multiple copies of the same document are printed, each copy is printed and ejected in collated order. This eliminates the need for the operator to collate documents manually.

Paper sensors alert the operator if a tray is empty or if there is a paper misfeed.

Individual cut sheets or envelopes can be fed manually without removing the Sheet-Feed Paper Handler.

Optional Tractor Feeds

Separate Tractor Feeds for feeding continuous pin-feed paper are available for the IBM 5218 and IBM 5228 Printwheel Printers. The Tractor Feeds can be adjusted to accommodate various paper widths. (See Appendix B for acceptable paper sizes and weights.)

Used with the Tractor Feed are:

- A paper stand that separates incoming from outgoing continuous paper. The paper supply stack is placed under the paper stand and the shelf is used to stack the printed continuous paper.
- An out-of-paper sensor that stops the printer when the end of the continuous paper is reached.

IBM 6361 MAG CARD UNIT

The IBM Displaywriter System will use the IBM 6361 Mag Card Unit (Figure 10) to record magnetic cards and to read magnetic cards created on compatible mag card office equipment. An IBM 6361 Mag Card Unit is attached to a work station, which is the only work station that can use that Mag Card Unit.

Information on magnetic cards can be read and recorded on the IBM Displaywriter System diskette for revision, printing, or storage. In some cases, information from magnetic cards may need to be edited before the information is revised or printed. (For more information about magnetic card compatibility, contact your IBM Marketing Representative.)

The input hopper holds up to 50 cards. The output stacker holds up to 200 cards.

The magnetic card is a reusable recording medium. Up to 50 lines of 100 characters each can be recorded on each card, for a total capacity of 5000 characters.

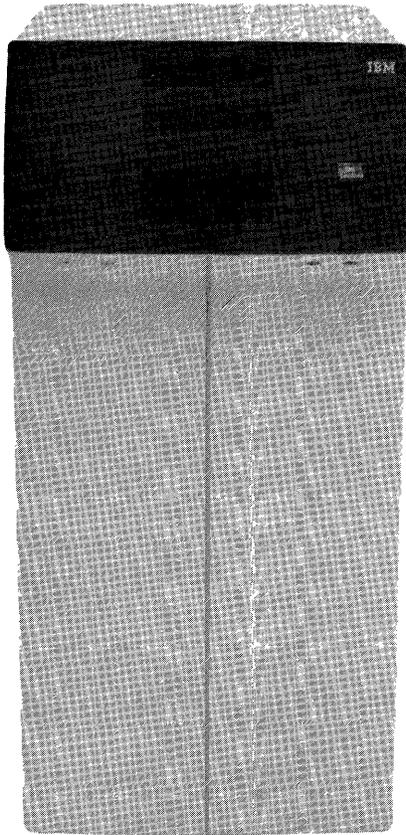


Figure 10. IBM 6361 Mag Card Unit

COMMUNICATIONS FEATURE FOR ASYNCHRONOUS AND BINARY SYNCHRONOUS COMMUNICATIONS

Communications function is provided by the IBM Displaywriter System Asynchronous Communications Program 5608-SR1 or the Binary Synchronous Communications Program 5608-SR2. The following equipment is required for electronic communications:

- A communication adapter. The adapter can provide both an EIA RS-232C compatible interface and an integrated modem connection. The EIA interface is required for operation with external modems that meet the EIA RS-232C interface specifications. All necessary signals to drive the IBM integrated modem are provided.

- A modem. An integrated modem is available from IBM. External modems are available from IBM and from other manufacturers.
- A data coupler may be required depending on the modem selected.
- A telephone line.

FLEXIBILITY

The number of equipment options available allows configuration flexibility for each IBM Displaywriter System. Four printers, three types of paper handling devices, two types of diskette units, and printer-sharing ability (on the printwheel printers) are available.

With the number of equipment options available, consideration can be given to:

- Print capacity
- Type of paper
- Amount of input and revisions
- Working storage required
- Diskettes required (for copying diskettes to create back-up copies, for example)

For example, the amount of input may be small enough to justify only a single work station, but the print volume or the requirement for automatically feeding cut sheet paper may justify a higher speed printer and perhaps a dual diskette unit.

The following examples and figures illustrate how customers can use the IBM Displaywriter System's equipment options and flexibility to change their IBM Displaywriter Systems to meet changing needs.

Example 1. Changing the Printer

XYZ Inc. acquires an IBM Displaywriter System work station and "Selectric" Element Printer. Later, after a library of stored documents is developed, the company needs more print capability. It simply replaces the "Selectric" Element Printer with a higher-speed printwheel printer and also adds a Sheet-Feed Paper Handler to provide automatic paper handling.

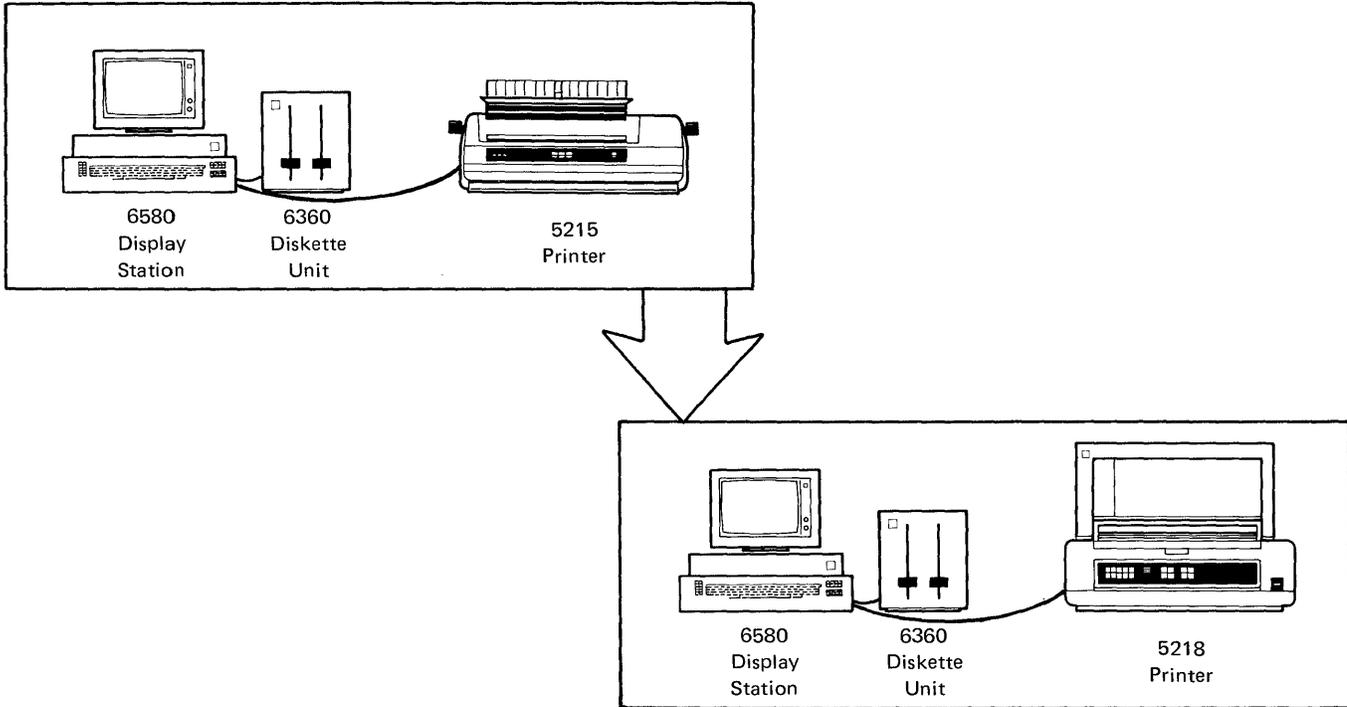


Figure 11. Changing the Printer

Example 2. Adding Work Stations

A branch office of XYZ Inc. acquires an IBM Displaywriter System work station and a printwheel printer. Later it finds that the number of original documents being generated has increased and it needs more input capability. To gain the input capability, two more work stations are added to the configuration. All three work stations share the printwheel printer.

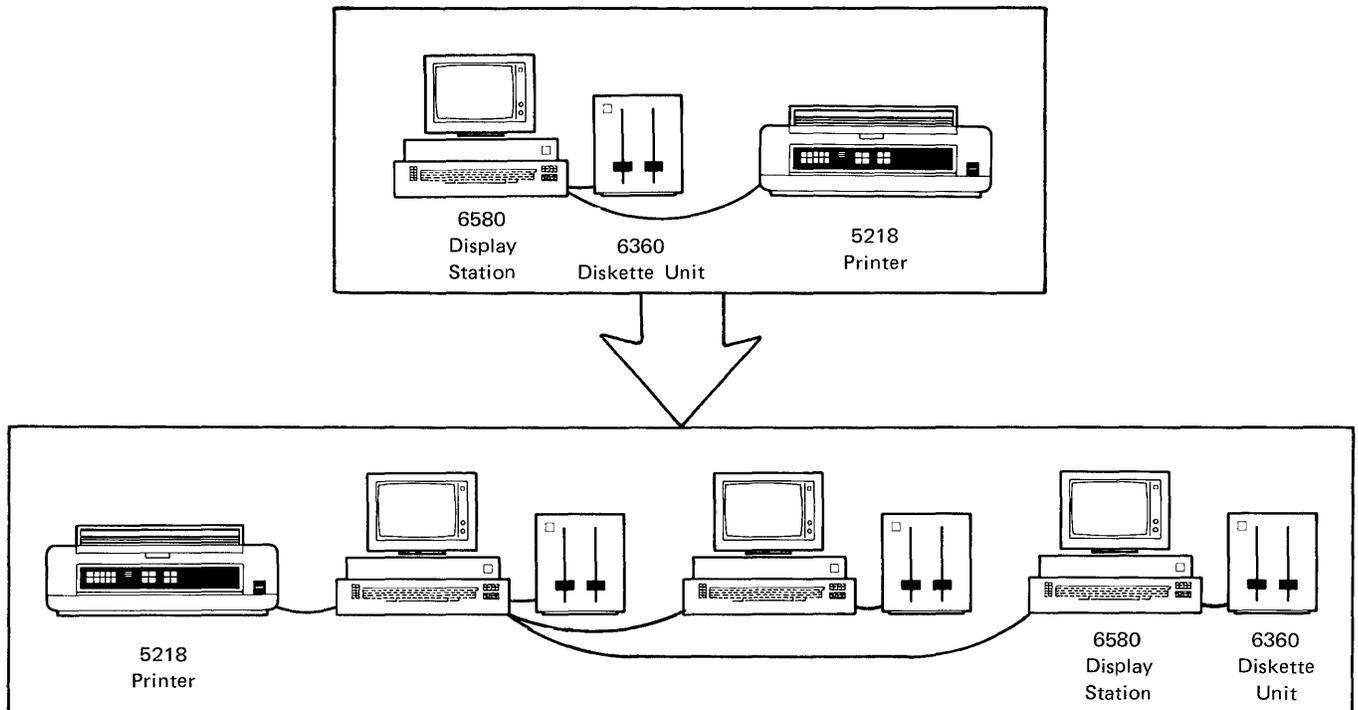


Figure 12. Adding Work Stations

Example 3. Changing the Configuration

The XYZ Inc. headquarters office has three IBM Displaywriter System work stations attached to a printwheel printer. When the Accounting Department moves to another building, it needs some word processing support in its new location. A "Selectric" Element Printer is acquired, and one IBM Displaywriter System work station is removed from the cluster in the headquarters office and attached to the "Selectric" Element Printer to provide the support for the Accounting Department. The other two IBM Displaywriter System work stations and the printwheel printer remain in their original location.

The IBM Displaywriter System equipment is designed to be flexible enough to allow easy reconfiguration, and XYZ personnel can move the IBM Displaywriter System equipment and set it up in a new location.

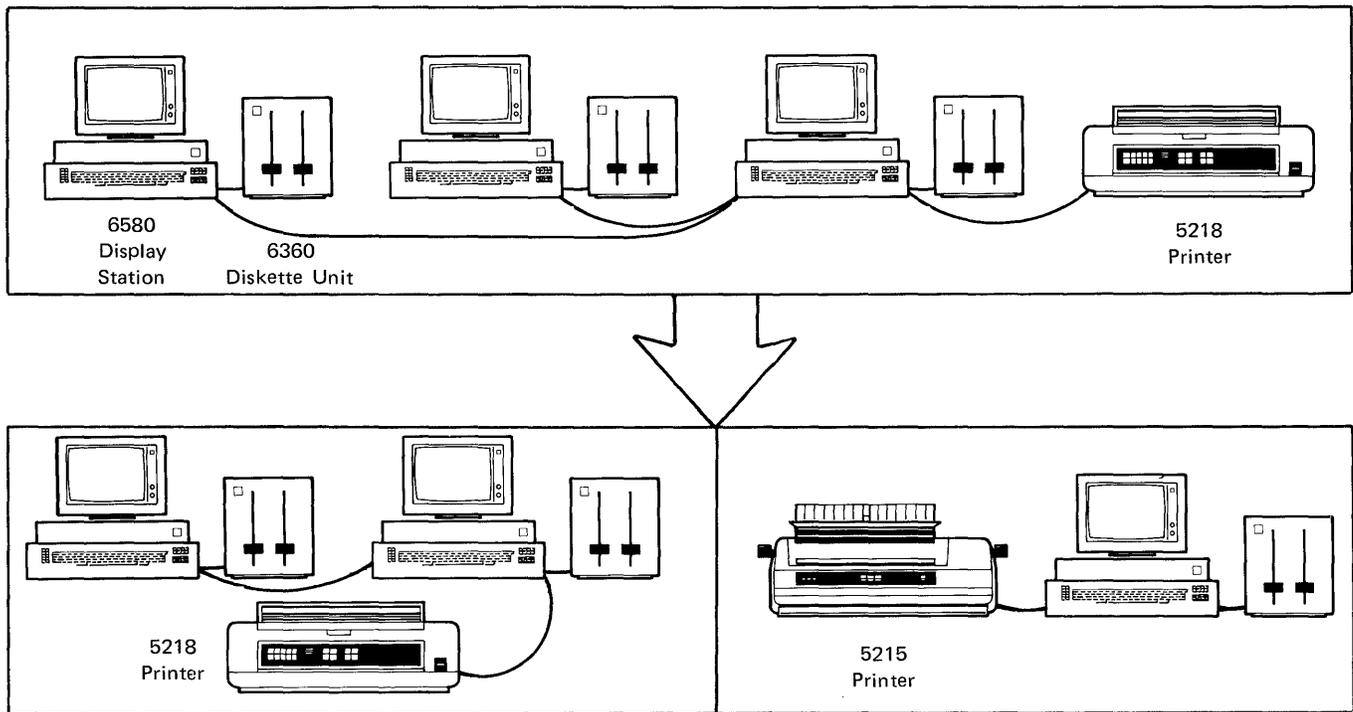


Figure 13. Changing the Configuration

CHAPTER 3. FUNCTIONS

The components described in the previous chapter perform IBM Displaywriter System functions under the control of IBM Licensed Programs. This chapter describes the licensed programs and the functions they provide. These programs provide for:

- operator assistance functions
- system functions
- text processing functions
- files management functions
- electronic communications functions
- IBM 3270 data stream compatibility functions

The text processing, files management, and communication functions are all supported by the IBM Displaywriter's system and operator assistance functions. These functions provide helpful reference information at the work station and help reduce operator errors. All licensed programs provide some operator assistance and system functions.

Text processing functions are those directly used by the operator to create, revise, or print a document. The IBM Displaywriter System Textpack programs provide the text processing functions. Figure 14 below identifies the contents of the programs. These are explained later in this chapter.

Files management functions help the operator to create, store, and revise files of information, then retrieve the information to produce reports and repetitive documents based on that information.

Licensed Program Name	Text Processing Functions	Feature Program Support Capability*
Textpack 1 5608-TR1	basic text spelling verification aid	No
Textpack 2 5608-TR2	basic text spelling verification aid	Yes
Textpack 3 5608-TR3	basic text advanced text spelling verification aid column processing arithmetic	Yes
Textpack 4 5608-TR4	basic text advanced text spelling verification aid enhanced spelling verification aid column processing arithmetic enhanced arithmetic records instructions for files management	Yes
<p>*Any IBM Displaywriter System that has shared printwheel printers, a diskette unit that uses IBM 2D diskettes, and/or one or more of the licensed feature programs listed in Figure 15 must use a text program with support capability as a prerequisite for use of the licensed feature program.</p>		

Figure 14. IBM Licensed Textpack Programs

Figure 15 lists the IBM Licensed Feature Programs that are available for the Displaywriter System. To use these Feature Programs, a customer must also have a Textpack Program that has support capability for using the Feature Program.

Communications functions are those involved in the electronic communications of information, either between the IBM Displaywriter System and a text processor or between the IBM Displaywriter System and a suitably programmed computer.

OPERATOR ASSISTANCE FUNCTIONS

Operator assistance functions assist the operator by providing reference information at the work station and by reducing the requirement that the operator memorize steps and choices. Instead, the operator assistance functions help lead the operator through a task and

Licensed Feature Program	Contents
Asynchronous Communications 5608-SR1	See "Communications Functions" in this chapter.
Binary Synchronous Communications 5608-SR2	See "Communications Functions" in this chapter.
Magnetic Card Conversion 5608-SR3	Must be used for data conversion with any IBM Displaywriter System having an IBM 6361 Mag Card Unit.
Languagepack 5608-SR4	See "Spelling Verification Aid" in this chapter.
Reportpack 5608-SR5	See "Files Management" in this chapter. Note: Can only be used with Texpack 4.
IBM 3270 Data Stream Compatibility 5608-SR6	See "IBM 3270 Data Stream Compatibility" in this chapter. Note: Can only be used with Texpack 4.
Languagepack 2 5608-SR7	See "Spelling Verification Aid" in this chapter.

Figure 15. IBM Licensed Feature Programs

present the choices available when a choice needs to be made. These functions include:

- Menus that help the operator select and define the tasks to be performed
- Messages that inform the operator of function and device status
- Prompts that tell the operator the next operational step

Menus

A menu is a list of choices that is presented to an operator to define and complete a task. In a format menu, an operator will see a format item, the possible choices, and the choice in effect unless changed.

Part of the Line Format Menu (Figure 16) is shown below. In this example, the format item is line spacing.

The line spacing options are shown under Possible Choices. The entry under Your Choice is the current value that is in effect until changed. If an item is

changed, the entry under Your Choice reflects the new choice.

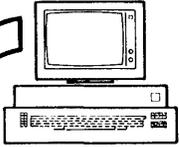


Figure 16 shows a terminal window titled "Part of the Line Format Menu". The window contains a menu with the following structure:

<u>ID</u>	<u>ITEM</u>	<u>YOUR CHOICE</u>	<u>POSSIBLE CHOICES</u>
a	Line Spacing	1	1 = Single 2 = Double 3 = Triple 4 = Half 5 = 1 and 1/2
.			
.			
.			
.			

When finished with this menu, press ENTER.
Type ID letter to choose ITEM; press ENTER:

Figure 16. Part of the Line Format Menu

Other menus help an operator select certain tasks and functions. Choices made in the menu may cause the IBM Displaywriter System to ask the operator for additional information. In the Typing Tasks Selection Menu (Figure 17), if the operator chooses Revise Document, the prompt "Type document name; press ENTER:" appears.

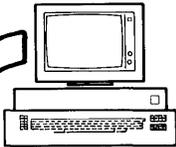


Figure 17 shows a terminal window titled "Part of the Typing Tasks Selection Menu". The window contains a menu with the following structure:

<u>ID</u>	<u>ITEM</u>
a	Create Document
b	Revise Document
.	
.	
.	
.	

Type ID letter to choose ITEM; press ENTER:

Figure 17. Part of the Typing Tasks Selection Menu

Messages

To allow an operator to work more efficiently, the system communicates with the operator through three types of messages that appear on the display:

- Immediate messages appear on the message line automatically in response to an operation action. For example, "Invalid Choice" is an immediate message displayed when an invalid choice is made in a menu.
- Delayed messages inform the operator of the status of tasks previously requested. For example, a delayed message might inform an operator that a print operation (previously requested by that operator) for a specific document is completed.
- Device service messages indicate that a device needs attention. For example, a device service message might indicate that the printer ribbon has run out.

Prompts

Prompts, which are highlighted on the display, guide the operator and reduce the need to memorize the steps of a function. Prompts can indicate the next action an operator must take (for example, "Type page number; press ENTER:"). Other prompts interact with an operator during a multi-step function. For example, if the operator presses the MOVE key, the prompt "Move what?" displays. After the operator specifies what is to be moved (by moving the cursor to the end of the block of text), the prompt "To where?" appears. The operator moves the cursor to the point where the block of text is to be inserted and then the system inserts the text.

SYSTEM FUNCTIONS

Many repetitive operator actions and decisions are necessary in an office environment. Through system functions available in all licensed programs, an IBM Displaywriter System helps to reduce these repetitive actions so that office personnel can perform other tasks. The system functions also help the operator to reduce the need to handle and track documents and files that are stored on the Displaywriter System. The major system functions include:

- Information management tasks which help the operator maintain the library of documents and files that are stored on the Displaywriter diskettes, and

- System personalization that allows standard information, such as a default document format, to be entered in the system one time for repetitive use by the operator.
- Textpack 4 system functions allow the operator to combine more than one program or feature program diskette, which are shipped on IBM 1 diskettes (single-sided, single-density), on an IBM 2D (dual-sided, dual-density) diskette. Any remaining unused space on the combined program diskette can be used for customer data.

Information Management

These tasks include the different types of information manipulation that are necessary when the operator has documents and files stored on Displaywriter diskettes. Among these tasks are:

- Automatic indexing. The operator can display or print a list of all the documents and files that are stored on a Displaywriter diskette. This index contains each document name and document comment.
- Duplication of diskettes and documents. The operator can duplicate the contents of one Displaywriter diskette to another or duplicate a document or file.
- Deletion of a diskette or a document. The operator can erase a diskette for reuse or a document or file that is no longer needed.

System Personalization

After an IBM Displaywriter System has been set up, the program diskette can be personalized for the customer's equipment configuration and document formats. For example, the operator can specify such items as the most common method of paper handling.

For personalization of document formats, the default values for menus can be reviewed and changed, if necessary. The operator changes only those values which need to be different from the original defaults. These changes create new (personalized) defaults that are appropriate for the customer. For example, the original default for line spacing is single space. If an operator's primary format uses double space, the operator can change the program diskette default to double space. Double space is then the machine standard.

The operator can create a document format and an alternate format, which are stored on the licensed program diskette. The operator then has to access and change the format menus only if the format for a specific document is different from the document or alternate formats.

TEXT PROCESSING FUNCTIONS

The IBM Displaywriter System Textpack 1, Textpack 2, Textpack 3, and Textpack 4 Licensed Programs all contain the basic text functions necessary to create and revise a document. These functions are described in Basic Text. (Textpack 2, 3, and 4 can be used to support more than one work station sharing a printwheel printer and/or the use of the feature programs listed in Figure 15. Textpack 1 cannot be used in these situations.)

Textpack 3 and 4 also contain some advanced text functions, and column and four-function math for statistical typing. These functions are described in Advanced Text, Column Processing, and Arithmetic.

The basic text functions necessary to create, paginate, print, and revise a document are included in all IBM Textpack programs. This section contains a description of these functions.

Creating a Document

To create a document, the operator may perform some or all of the following steps:

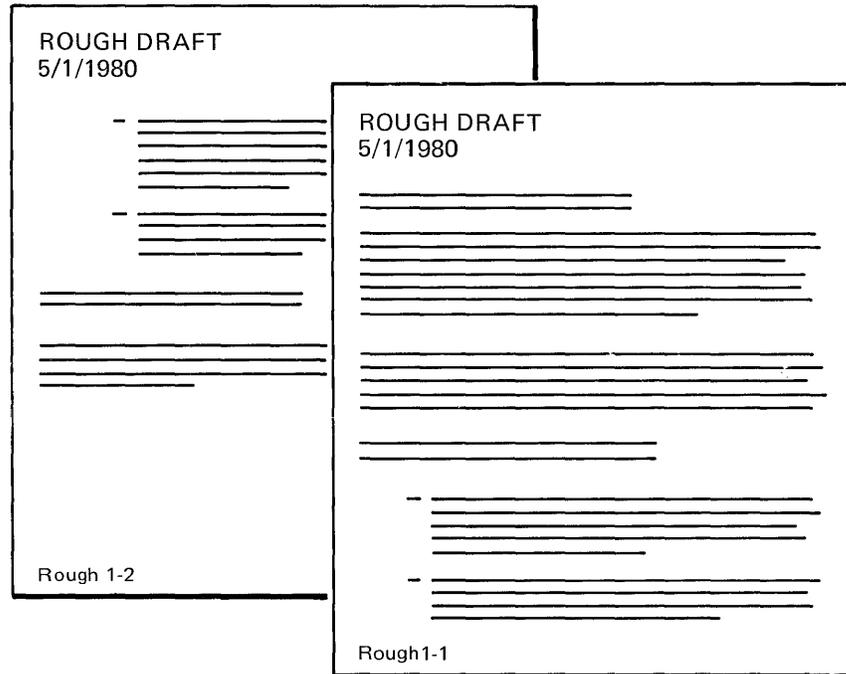
- Establish the format
- Type the document
- Use the Spelling Verification Aid to check the spelling

ESTABLISHING A FORMAT: The operator names the document and can add a document comment (a description of up to 44 characters). After naming the document, the operator can go to the typing area if the default document format is used, or the operator can access the format menus to establish the format for that specific document.

In addition to the format choices the operator would make if typing the document on a typewriter (such as margin

settings), the IBM Displaywriter System format choices include:

- Headers and footers, constant text that can be typed once and automatically printed at the top and/or bottom of each page



- Automatic page numbering that consecutively numbers document pages as a part of header or footer text
- Line spacing for printing text that allows the operator to print:
 - Single space, space and a half, or double space on an IBM 5215 "Selectric" Element Printer
 - Half space, single space, space and a half, double, or triple space on an IBM 5218 Printwheel Printer
- Line alignment that optionally prints text with a justified right margin or a partially justified right margin

MARGIN AS TYPED	PARTIALLY JUSTIFIED	JUSTIFIED MARGIN
<pre> }her important way }rt for exploring }sting products, }ment expenditures </pre>	<pre> {her important way {t for exploring {xisting products, {xment expenditures </pre>	<pre> }her important way }ort for exploring }isting products, }ment expenditures </pre>

- Tab stops that establish both the position of each tab and how text is to be aligned at that tab setting:
 - Right or left aligned
 - Centered
 - Aligned at a decimal point or comma

Additional format changes also can be made in the document in the Change Format Menu. The operator can change the format for a page, a paragraph, a line, or make a type style change in midline. For example, line spacing of a paragraph can be changed to make the paragraph stand out from surrounding text.

TYPING A DOCUMENT: The operator creates the document by typing the text at the keyboard. The operator also can copy pages of a document stored on the diskette to the new document without any retyping. Text from more than one stored document can be included in the new document.

The operator can type at rough draft speed because errors can be erased by backspacing and retyping.

Several IBM Displaywriter System functions help to save keystrokes and time.

- Word underlining and centering are each done with a single code.
- A phrase or line of text can be solidly underlined by using a beginning code to start the underline and an ending code to stop it.

- A carrier return can be inserted automatically on every line as the keyed text crosses the right margin.
- A temporary left margin for indented paragraphs can be created by one code and cancelled by one code.

The typed characters that appear on the screen are stored on diskette. The operator can type without regard to page boundaries. As the memory capacity of the IBM Displaywriter System is reached, text is stored on the diskette automatically. System pagination, which segments the text into pages, can be done after the document is completed. The document then is ready to print.

PAGINATING A DOCUMENT: After creating or revising a document, the operator can use the paginate function to adjust line endings, adjust page endings, and eliminate widow lines.

In both the Create Document and the Revise Document tasks, the operator can adjust line ending and make page ending decisions as each page is created or revised.

System pagination also is possible. When system pagination is invoked, the IBM Displaywriter System makes the line ending and page ending decisions and divides the text into pages without operator intervention.

Printing a Document

The IBM Displaywriter System has background print capability. This means that as soon as the operator has assigned the document to a print queue (a list of documents to be printed), the operator is free to start working on another document. This makes concurrent operations possible with an IBM Displaywriter System.

Each work station maintains its own print queue. If the system has a single work station and printer, the queue indicates the order in which documents are printed on a first-in, first-out basis. The operator can display the contents of the work station's print queue on the screen, rearrange the printing order of the documents, or cancel the printing of a document.

If the system has two or three work stations sharing a printer, then the work station queue serves an additional purpose of printer control. When an operator requests and receives control of the printer, no other work station's documents are printed until all the documents in

the controlling queue are printed or until the operator releases the printer.

Revising a Document

To change an existing document on an IBM Displaywriter System, an operator retrieves the document from storage on the diskette by identifying the document to be revised.

To revise the document, the operator moves the cursor to the position in the document where the text is to be changed and enters the new material at the keyboard. Additional text can be inserted at any point in the document--either by keying it, moving it within the document, or getting it from another document. The operator can define the beginning and end of a block of text (from a single character to an entire document) by using the cursor and other function keys. The operator can move the block of text to another location, copy the block to an additional location in the document, or delete the block of text.

The operator also can change the format of an existing document. For example, a draft copy originally formatted to print in triple space can be reformatted so that the final copy prints in double space.

Spelling Verification Aid

After the operator finishes typing or revising a document, the IBM Displaywriter System spelling verification aid can be used to help check for possible spelling errors. The spelling verification aid compares the words in a document to:

- An IBM-provided spelling dictionary capable of checking approximately 50,000 words.
- A 500-word supplemental dictionary created by the customer. This dictionary can have words that are unique to that environment (such as technical, medical, or legal terms).

The spelling verification aid checks the document while the operator waits. Any word that is not found in either the main or supplemental dictionary is highlighted for easy operator identification. A highlighted word could be a misspelled word, a proper noun (such as a person's name) or a word that is correct but not listed in either dictionary.

After the spelling check is completed, the operator returns to the Revise Document mode. An example of a display after the spelling verification aid has been used is shown in Figure 18. The operator finds the highlighted words and corrects the misspelled words. If a highlighted word is correct, the operator can cancel the highlighting without changing the word.

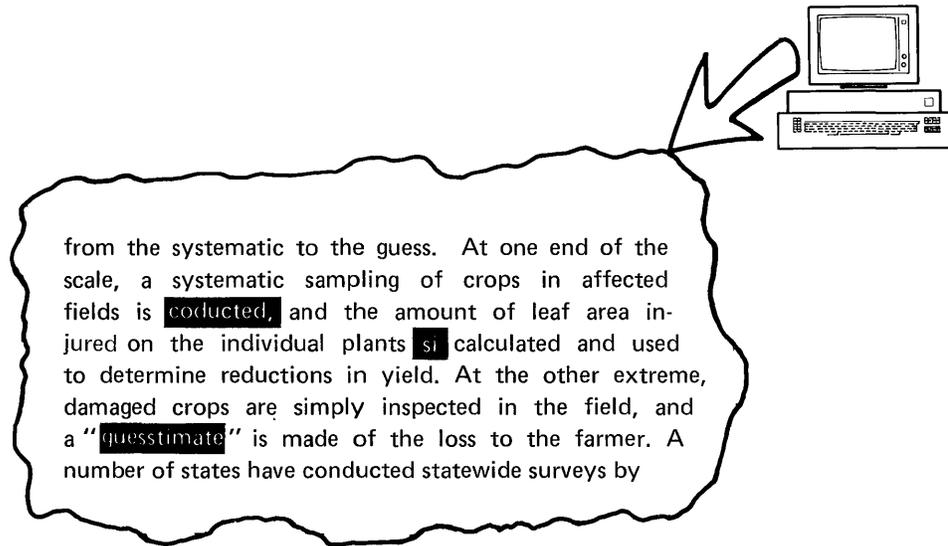


Figure 18. Document After Spelling Verification Aid Is Used

The operator using the spelling verification aid should be aware that a word may be spelled correctly but be wrong in the context of a sentence (for example, "too" instead of "two"). In addition, while doing a spelling check, the system checks for the root words in the dictionary and then allows prefixes or suffixes to be added to them. Because of this, the spelling verification aid may occasionally verify a misspelled word which is formed from inappropriate combinations of prefixes, root words, and/or suffixes. For example, "destate," a combination of the prefix "de" and the root word "state," will not be highlighted.

Enhanced Spelling Verification Aid

The enhanced spelling verification aid contained in Textpack 4 has some additional capabilities. After creating or revising a document, the operator can choose to do a spelling check, make hyphenation decisions, and have the document paginated in one operation. As a part of this task, the operator can choose to do:

- a prompted spelling check
- either prompted or automatic hyphenation

If the operator chooses to use the spelling verification aid in this task, the spell check will be prompted. Just as in regular spelling verification, the Displaywriter will compare the words in the document to the spelling and supplemental dictionaries. Any word not found in either dictionary is highlighted on the screen. Some of the text surrounding the highlighted word is also shown to provide some context. The operator can 1) indicate that the word is acceptable, 2) leave it highlighted for later action or 3) correct the misspelled word by typing it correctly on the prompt line. The newly typed word is checked immediately. If it is spelled correctly, it replaces the misspelled word in the text. If it also is incorrect, the operator is alerted to try another possible spelling.

As a part of the pagination of a document in this task, the lines of text are adjusted to fit within the margins. If there is a word that crosses the right margin, a hyphenation decision is necessary. There are two methods of making the hyphenation decision:

1. The operator can choose to have the system prompt when a hyphenation decision is necessary. Then, the operator is shown the word to be hyphenated with the cursor located at a dictionary-suggested hyphenation point, along with some of the text surrounding that word. The operator can then hyphenate the word, move the entire word to the next line, or leave the entire word on the line it is on.
2. The operator can also choose automatic hyphenation. In this mode, the Displaywriter System will automatically hyphenate any word that crosses the right margin. It uses information from the spelling dictionary to determine the hyphenation points within a word.

After the spell check, hyphenate, and paginate operation is complete, the document is ready to print immediately, if the operator has not already trail printed the document during the task.

Languagepack and Languagepack 2

An IBM Licensed Feature Program, Languagepack Program 5608-SR4, includes spelling dictionaries in all of the following languages:

- U. S. English
- United Kingdom English
- National French
- French Canadian
- Dutch
- Spanish
- Italian
- German
- Swedish
- Danish
- Norwegian

Each U. S. English and United Kingdom English spelling dictionary is capable of checking approximately 50,000 words. Each dictionary for the other languages listed above is capable of checking in excess of 150,000 words. Only one dictionary can be used as a spelling verification aid at one time.

Languagepack also has space for one supplemental dictionary for each of the eleven language dictionaries. The Languagepack licensed program is shipped on three program diskettes with three to four spelling dictionaries and space for supplemental dictionaries on each diskette.

Languagepack 2, used with Textpack 4, contains the eleven spelling dictionaries listed above. It also supports the enhanced spelling capabilities of combined spell check, hyphenation, and pagination as described in "Enhanced Spelling Verification Aid."

Advanced Text

The advanced text in Textpack 3 and 4 contains some additional functions besides those used to create and revise text. These include the merge function used in repetitive documents and document assembly, and some additional functions for creating or revising documents. Advanced text is useful for applications that require additional revision support for long documents or additional support in preparing repetitive or assembled documents.

Merge Function for Repetitive Documents

Repetitive documents are documents that have the same text, but also have variables that are different in each document. The operator can create repetitive documents by combining stored text with variable information.

FILL-IN DOCUMENT

VDateVJuly 16, 1980
VName and AddressVMr. Albert Smith
6606 Elmwood
Dayton, Ohio 30334
VNameVMr. Smith
VAmountV\$1,000.00

VDateVJuly 16, 1980
VName and AddressVMrs. Lawrence Crockrell
3949 San Marcos Road
Evanston, Illinois 93119
VNameVMrs. Crockrell
VAmountV\$750.00

SHELL DOCUMENT

VDateV

VName and AddressV

Dear VNameV:

You may use your CLEARVIEW CARD at any of thousands of merchants in the Chicagoland area who proudly display the CLEARVIEW sticker. You will be required to show your card at the time of purchase.

The limit set on your credit will be VAmountV. If you wish to increase your credit limit beyond VAmountV, please call your CLEARVIEW Account Representative on (312) 555-1234.

Sincerely,

Sue Jones
Customer Service

COMPLETED LETTERS

July 16, 1980

Mr. Albert Smith
6606 Elmwood
Dayton, Ohio 30334

Dear Mr. Smith:

You may use your CLEARVIEW CARD at any of thousands of merchants in the Chicagoland area who proudly display the CLEARVIEW sticker. You will be required to show your card at the time of purchase.

The limit set on your credit will be \$1,000.00. If you wish to increase your credit limit beyond \$1,000.00, please call your CLEARVIEW Account Representative on (312) 555-1234.

Sincerely,

Sue Jones
Customer

July 16, 1980

Mrs. Lawrence Crockrell
3949 San Marcos Road
Evanston, Illinois 93119

Dear Mrs. Crockrell:

You may use your CLEARVIEW CARD at any of thousands of merchants in the Chicagoland area who proudly display the CLEARVIEW sticker. You will be required to show your card at the time of purchase.

The limit set on your credit will be \$750.00. If you wish to increase your credit limit beyond \$750.00, please call your CLEARVIEW Account Representative on (312) 555-1234.

Sincerely,

Sue Jones
Customer Service

Figure 19. Repetitive Letter with Merged Variables

STORED PARAGRAPHS

Paragraph 1
 VDateV
 VRestaurant NameV
 VAddressV
 Paragraph 2
 Dear VManagerV:
 Your request for VAmountV of VfruitV has been received. Your order is scheduled to be shipped on Vshipping dateV and should arrive two weeks later. The total cost of your purchase, including shipping fees, is VcostV.
 Paragraph 3
 Since your account has a positive balance of VbalanceV, you need only pay the balance of Vbalance dueV when the VfruitV arrives.
 Paragraph 4
 This amount will be due in full when you receive the VfruitV.
 Paragraph 5
 Since your account has a negative balance of VbalanceV, we will require a money order from you for the sum of this balance and the cost of your purchase, Vbalance dueV, before shipping the VfruitV to you.
 Paragraph 6
 Sincerely,
 Jim Miller

Vpositive balanceV
 Vnegative balanceV
 Vno balanceV

SHELL DOCUMENT

FILL-IN DOCUMENT

Vpositive balanceVDocumentName,DisketteName,1,2,3,6
 VDateVAugust 18, 1980
 VRestaurant NameVThe Old Corral
 VAddressV4608 Mesa Drive
 El Paso, Texas 78731
 VManagerVMr. Perkins
 VamountV150 lbs.
 VfruitVapples
 Vshipping dateVAugust 23, 1980
 VcostV\$285.50
 VbalanceV\$150.00
 Vbalance dueV\$135.50
 Vnegative balanceVDocumentName,DisketteName,1,2,5,6
 VDateVAugust 18, 1980
 VRestaurant NameVThe Split Rail
 VAddressV7070 Valburn Circle
 Austin, Texas 78731
 VManagerVMrs. McCall
 VamountV50 lbs.
 VfruitVpeaches
 Vshipping dateVSeptember 1, 1980
 VcostV\$133.50
 VbalanceV\$200.00
 Vbalance dueV\$333.50
 Vno balanceVDocumentName,DisketteName,1,2,3,6
 VDateVAugust 18, 1980
 VRestaurant NameVLa Elegance
 VAddressV1000 Mill Avenue
 Boston, Massachusetts 02132
 VManagerVMr. Jackson
 VamountV75 lbs.
 VfruitVoranges
 Vshipping dateVAugust 25, 1980
 VcostV\$185.00

COMPLETED LETTERS

<p>August 18, 1980 La Elegance 1000 Mill Avenue Boston, Massachusetts 02132 Dear Mr. Jackson: Your request for 75 lbs. of oranges order is scheduled to be shipped and should arrive two weeks later. The purchase, including shipping fees, This amount will be due in full when you receive the oranges. Sincerely, Jim Miller</p>	<p>August 18, 1980 The Split Rail 7070 Valburn Circle Austin, Texas 78731 Dear Mrs. McCall: Your request for 50 lbs. of peaches order is scheduled to be shipped and should arrive two weeks later. The purchase, including shipping fees, Since your account has a negative balance, we will require a money order from you for the sum of this balance and the cost of your purchase, shipping the peaches to you. Sincerely, Jim Miller</p>	<p>August 18, 1980 The Old Corral 4608 Mesa Drive El Paso, Texas 78731 Dear Mr. Perkins: Your request for 150 lbs. of apples has been received. Your order is scheduled to be shipped on August 23, 1980 and should arrive two weeks later. The total cost of your purchase, including shipping fees, is \$285.50. Since your account has a positive balance of \$150.00, you need only pay the balance of \$135.50 when the apples arrive. Sincerely, Jim Miller</p>
--	--	---

Figure 20. Document Assembled from Stored Paragraphs

To generate repetitive letters, the operator types a fill-in document that will be merged with the constant text to produce the final letters.

The fill-in document lists each variable name (or switch code) that appears in the repetitive letter and the variable information to be inserted at that place in the repetitive letter. If variable names are used, the variable information does not have to be typed in the same order as the variable names appear in the repetitive letter. This helps the operator save time because:

- Variable information can be typed in the fill-in document without being rearranged to match the repetitive letter.
- A fill-in document may be used with a variety of repetitive letters. The operator does not have to retype the same variable information merely to rearrange it to match a new repetitive letter. (If there are variables listed which do not appear in a given repetitive letter, the system will ignore them in processing the merge.)
- Although a variable may be used more than once in a repetitive letter, it only has to be typed once in the fill-in document.

For an example, see Figure 19.

Merge Function for Document Assembly

The procedure for document assembly incorporates the use of the merge function and is similar to that used for repetitive documents. In document assembly, however, there is no single piece of constant text. Instead, there is a library of stored paragraphs or blocks of text which are compiled to create unique shell documents.

To create documents using document assembly, the operator types a shell document. The shell document contains lists of paragraph or document descriptions. These descriptions are repeated in the fill-in document and specify which paragraphs are to be compiled and in what order. The fill-in document also contains all the variables that are to be merged into the paragraphs after the paragraphs are compiled.

The merge function then collects the paragraphs and merges in the variables to produce the final documents.

For an example, see Figure 20.

Additional Advanced Text Functions

Advanced text contains other functions that enhance the operator's ability to create and revise text. Among the more important of these functions are:

- **Alternating headers and footers** that allows the operator to type the headers and/or footers on pages that will be duplexed so that the header and/or footer appear on the left-hand side of even numbered pages and the right-hand side of odd numbered pages.
- **Global replace/delete** allows the operator to specify a character, a word, or a group of words (up to 60 characters) that appears several times within a document. The system will find every occurrence of the specified information between the point where global replace/delete begins and the end of the document and either replace it with another character string or delete it.

The global replace/delete is a case-sensitive, character search. Up to three "Search For/Replace With" pairs may be specified. These may be used for three independent character strings or may specify how various occurrences of a character string might appear.

For example:

Search For:	ship	Replace With:	boat
Search For:	Ship	Replace With:	Boat
Search For:	SHIP	Replace With:	BOAT

OR

Search For:	ship	Replace With:	ocean liner
Search For:	boat	Replace With:	sailboat
Search For:	craft	Replace With:	vessel

- **Enhanced FIND** capability is designed to facilitate accessing character strings and will find a character string even if it is interrupted by line or page boundaries, or if it contains a syllable hyphen or underscore code within the string.
- **Block overstrike** allows the operator to overstrike a block of text with a single character, such as a slash or an X.

Column Processing

Textpack 3 and 4 also contain column processing functions for statistical typing. Column processing functions include automatic column layout and column revision capability.

To save calculation time, the operator can use the IBM Displaywriter System for automatic column layout. The operator simply types a sample line containing the longest entry from each column. The IBM Displaywriter System calculates the spacing and sets tabs so that there will be an even amount of white space between the columns. The operator can then type the table.

The automatic column layout capability can also be used when previously typed tables are revised. If, for example, the operator wants to insert a column into a table, the automatic column layout capability can reformat the table and set new tab settings to make room for the new column.

The operator can also manually set the tabs for a table if the desired table format has different amounts of white space between the columns.

The column functions also allow the operator to designate columns of alpha or numeric characters as blocks of text so that a column can be deleted, moved, or copied just like any other block of text. Columns can be moved or copied within a table or to another table. This gives an operator more flexibility in doing revisions within tables.

Arithmetic

Textpack 3 and 4 have four-function math capability which allows an operator to add, subtract, multiply, or divide rows or columns of numbers that have been typed on the IBM Displaywriter System. Numbers on the display can be:

- Added to or subtracted from another number shown on the display or from a constant number entered on the prompt line by the operator
- Multiplied or divided by another number shown on the display or by a constant number entered on the prompt line by the operator

The operator uses the cursor to indicate which numbers are to be used in the calculations and the math keys to indicate the type of mathematics operations to be done. The results of the calculations are displayed for the

operator in an accumulator (called Total) at the bottom of the display.

The operator can use four-function math to verify the accuracy of previous calculations. The operator can also choose to have the results of the calculations appear as part of the text.

Using these math functions, the operator can perform other calculations such as figuring percentages and calculating both subtotals and totals in a table.

Enhanced Arithmetic

The enhanced arithmetic functions allow the operator to automatically calculate averages and percentages. In addition to keeping a running total of the math calculations in the accumulator, the system will keep track of the number of items added to or subtracted from the total. If an average is needed, the system will automatically compute the average by dividing the number in the Total by the number of items.

The system will calculate a percentage of a Total, and it will also add the percentage to or subtract it from the Total. In addition, the Total can be multiplied or divided by a percentage.

The enhanced arithmetic functions also allow the operator to add a row or column of numbers by simply pressing a typamatic row add key or column add key. The system will continue to add the numbers in a row or column until the key is released.

FILES MANAGEMENT

The Reportpack Licensed Program and Textpack 4 Licensed Program provide the capability for files management. Textpack 4 is a prerequisite for using the Reportpack Licensed Program.

A file is a structured collection of records considered as a unit. Each record of a file contains all the information about one person, project, inventory item, etc. A telephone directory is an example of a file, with each line of the directory being one record in the file.

Each record is made up of fields. A field is one piece of information in a record such as a person's first name or phone number. In the following example, the telephone directory file consists of records having a last name

field, an initials field, a department number field, a telephone number field, and a rank field.

Rec_ID	Last_Name	Initials	Dept.	Numbers	Rank
1	Alfa	A. A.	210	1586	4
2	Grant	B. B.	709	4687	4
3	Archee	R. A.	942	7681	3
4	Dukworth	B. Z.	790	1876	5
5	Balder	T. C.	041	2615	3
6	Galleon	D. L.	631	3264	2
7	Boman	A. J.	081	7272	6

Within each IBM Displaywriter System file, each record can contain up to 1000 bytes of customer information. The maximum field lengths within a file are 17 characters (arithmetic fields), 80 characters (character fields), and 512 characters (text fields), depending on the field type.

File Creation and Maintenance

To create a file, the operator describes each field by selecting options in a field description menu. The operator specifies whether the field type is character (contains letter and numbers), arithmetic (contains numbers only), or text (contains letters, numbers, and word processing controls, such as tabs and carrier returns, and may be more than one line of text). When entries are made in the file, they are checked against the field descriptions. The operator is alerted if an entry does not match the field description.

After a file is named and described, records can be added to the file in a variety of ways:

- Records can be typed at the display station
- Records can be acquired from an appropriately programmed IBM System/370 host
- Appropriately formatted text can be converted to records
- Records can be duplicated from another file

The operator can revise the file by adding or deleting entire records, by adding fields to the file, or by revising the information already in the file.

Other files capabilities help the operator revise the files. To display a record or a specific set of records, the operator specifies the conditions that the information in one or more fields of the records must match in order for that record to be selected. An operator might, for example, ask for the records in which the last name is Smith or in which the department number is 210 and the person's rank is 5 or higher. Only these records would then be displayed. The operator can view these records and revise them.

The operator can also temporarily rearrange the fields in a file so that the fields to be revised appear at the beginning of each record. If, for example, after a department moves to a new location and all the telephone numbers need to be revised, the operator can rearrange the fields so that the telephone number field appears first. This reduces the need to search for a field in records with many fields. This rearrangement does not permanently change the file.

The IBM Displaywriter System offers several options for duplicating or copying files. The operator may copy the entire file to create a backup file or copy only selected records to create a subfile. The operator can also choose which fields to copy and in what order these fields should appear in the new file. This allows the operator to use the copy selected records facility to create a file or a subfile which contains only the necessary fields.

Merging File Information with Text

An operator can merge file information with text information to create output documents, such as reports or letters. All records from an input file can be merged, or specific records can be selected. A stored merge control document, created using Textpack 4, contains the instruction for the merge. This control document determines the format of the output document and can contain instructions to specify the file information that is to be merged with the text, under what conditions it is to be inserted, and any calculations that are to be performed on file information before it is inserted. Calculations can include addition, subtraction, multiplication, and division.

Merge control documents can contain instructions to create a single report that is produced with the information from all selected records. These lists or reports are described in Lists and Reports. Merge control documents can also specify that a separate output document be produced for each input record processed.

This type of repetitive document is described in Repetitive Documents.

Lists and Reports

The operator can create lists or reports by merging the file information with the merge control document and specifying that a single report be produced from the selected records in the file. Some of the following options can be used:

- The records can be sorted so that they are listed in a specific order based on the contents of a field (or fields) that the operator selects. The sorting is done either alphabetically or numerically, depending on the information in the chosen field(s), and may be done in either ascending or descending order.
- The list can be formatted so that the information prints in several columns, similar to the name and telephone number columns in a telephone book.
- The records can be grouped so that all records of a certain type are printed together with headings, blank lines, lines of text, or new pages separating the groups of records so that the list can be read more easily. (See Figure 25 for an example.)
- Summaries can be automatically generated for the reports. The records within a group can be counted or the total, average, maximum, or minimum of values of a field can be computed. These summaries may be printed together with the grouped records or separately. (See Figure 25 for an example.)
- Calculations can also be performed on file information before that information is inserted into the report. The operator sets up an arithmetic expression.

For example, the operator might set up the expression so that the amount in the balance field is multiplied by a constant number (interest rate) to produce an interest due that is inserted in the report.

Repetitive Documents

The file can also be merged with a text job so that one document is prepared for each record in the file. Information in the file is merged into the text job so that the document is personalized.

The following options can be used when using the merge function to produce repetitive documents.

- The records can be sorted so that the repetitive documents are printed in a specific order based on the contents of a field (or fields) that the operator selects. The sorting is done either alphabetically or numerically, depending on the information in the chosen field(s), and may be done in either ascending or descending order.
- Calculations can also be performed on file information before that information is inserted into the repetitive document. The operator sets up an arithmetic expression that causes the calculation to be done.

For example, the operator might set up the expression so that the amount in the balance field is multiplied by a constant number (interest rate) to produce an interest due to be inserted in the repetitive document.

COMMUNICATION FUNCTIONS

The IBM Displaywriter System (equipped with the communication feature and using either the IBM Displaywriter System Asynchronous or Binary Synchronous Communications Programs described in this section) can send information to and receive information from another IBM Displaywriter System work station or other compatible communication equipment, including a suitably programmed host computer.

Communications on the IBM Displaywriter System is an important capability because:

- Documents that are typed and stored can be translated into electronic signals sent over telephone lines at transmission speeds up to 4800 bits per second (bps).
- Documents that are received at another IBM Displaywriter System work station can be stored and printed or can be revised by the operator at the receiving work station. (Documents received by other compatible communication equipment may need additional editing or reformatting if revisions are necessary.)
- Text and all necessary control codes can be created off-line on the IBM Displaywriter System for transmission to another communication device. The ability to create and edit information off-line helps

insure faster, more accurate transmission which can reduce line and computer connect charges.

- When the communication facility is not needed, the IBM Displaywriter System can be used to perform other word processing applications.

Equipment Required

The communication facility requires a:

- Communications adapter on the IBM Displaywriter System
- Modem (depending on the modem selected, a data coupler may be required)
- Licensed communication program and a text program
- Telephone line

The modem may be integrated (located physically inside the IBM Displaywriter System) or external. An external modem is attached to the IBM Displaywriter System by a 3.8 meter (12.5 foot) cable. The IBM Displaywriter System optionally can support either two external modems or an internal and an external modem. The two modems can support different line protocols. The modems are selected by menus provided by the licensed program. Only one modem can be active at one time.

Communication Modes

Two communication modes, Asynchronous and Binary Synchronous Communications, are available. Asynchronous and Binary Synchronous Communications control the flow of data over the telephone line differently. From an operator's point of view, Asynchronous Communications usually appears to be interactive. Binary Synchronous Communications has batch transmission of information, with all information prepared before initiating communication and sent with minimal operator intervention.

Personalization

All personalization and configuration of the communication facility is done through menus provided by the licensed program. The modem and line description is stored as a part of the program diskette and does not change unless the modem or line is changed.

The various operating options to match another communication device, such as code set (EBCDIC, for example), also are defined by menus and retained as profiles on the program diskette. Because the need to reset all options for each communication session is eliminated, the profiles are a key to the simplicity of operation of the IBM Displaywriter System communication.

A Session Options Menu allows the operator to change some options (which diskette on a dual diskette unit should be used for receiving communication, for example) without terminating the on-line communication.

Up to four operational profiles for Asynchronous Communications and eight profiles for Binary Synchronous Communications can be defined. This provides the flexibility to address a variety of communication applications without the need for the operator to respecify (or be aware of) the options for each particular application.

Asynchronous Communications

Asynchronous Communications usually appears to be interactive and may be considered as a conversation between the sender and the receiver. For example, during communication with a computer, the computer might ask for a password. The operator types the password. The computer then asks what computer program the operator wants to use, and the operator types the program name. This is an example of interactive, conversational communication.

The operator could type as the pages of a document all the information the computer will request, and then use the document send function to communicate selected pages. Characters are presented on the display as they are sent and received. Received information is highlighted to distinguish it from transmitted data. This is an example of batch communications using Asynchronous Communications.

To facilitate error recovery and retransmission, the operator can halt transmission at any line boundary and resume transmission from any page or line within the document.

IBM Displaywriter System emulates the interactive characteristics of an IBM Communicating Mag Card "Selectric" Typewriter, an IBM 2741 Communications

¹ Registered Trademark of the Teletype Corporation.

Terminal, or a teletypewriter similar to the Teletype¹ 33, 35, or 43 KSR (Keyboard Send-Receive) models, using the keyboard for conversational exchanges of information. Characters are translated into electronic signals and sent immediately as they are keyed, with no editing of data prior to transmission.

Asynchronous Communications has three operating modes based on these emulations: CMC (emulates an IBM Communicating Mag Card "Selectric" Typewriter), 2741 (emulates the IBM 2741 Communications Terminal), and TTY (emulates a teletypewriter).

The mode to be used for a communication session is chosen in a communication menu on the program diskette. Since four communication profiles can be stored, an operator may have a profile for each mode.

Features and Capabilities

The following capabilities apply to all three Asynchronous communicating modes, unless otherwise noted.

- A security keylock may be optionally installed to prevent unauthorized access to the communication function. If the keylock is installed, the key must be inserted and in the ON position in order for an operator to select the communication task or revise the communication profiles.
- For additional security, a four-character Terminal ID may be used in the 2741 mode, and a 31-character Terminal ID may be used in the TTY mode. In both modes, the other communication device must provide a matching ID before communication can be initiated.

The IBM 3845 and 3846 Data Encryption Devices also can be used to encrypt/decrypt data transmitted over the communication line. The IBM 3845 or 3846 Device is connected between the IBM Displaywriter System and the external modem at each end of a communication line.

The operator can specify that a copy of the communicated information be recorded as a document on the diskette for subsequent printing and editing off-line. This document recording process may be activated or deactivated at any time. This document provides a record of all or a portion of the communication activity without the need to use the printer for on-line printing as communication takes place.

During the communication session, the IBM Displaywriter System can print other documents stored on the same diskette or stored on the second diskette in a dual

diskette unit. Information received during communication can be recorded on the diskette and printed after communication is terminated.

Additionally, the IBM Displaywriter System may be set up to disconnect automatically after 30 seconds of line inactivity to prevent prolonged periods of non-productive idle time on the line.

In the TTY mode, the IBM Displaywriter System also may be set up to disconnect automatically on reception of an EOT (end of transmission) control code.

See Appendix D for more specific information about Asynchronous Communications.

Binary Synchronous Communications

In Binary Synchronous Communications (BSC) protocol, the communication facility enables the IBM Displaywriter System to batch transmission for communication with the following:

- IBM Mag Card II Typewriter--Communicating
- IBM 6240 Mag Card Typewriter--Communicating
- IBM 6640 Document Printer--Communicating
- IBM Office System 6--Communicating
- IBM 6670 Information Distributor
- IBM 5520 Administrative System
- IBM Displaywriter System--Communicating
- A suitably programmed computer

Batch transmission means that all information, including any necessary control language, is prepared before beginning the communication session. After communication is initiated, all information is sent and received with minimal operator intervention.

Features and Capabilities

Three security features help to protect against unauthorized access to the communication function.

- If the optional security keylock is installed, the key must be inserted and in the ON position for an

operator to select the communication task or revise a communication profile.

- A one-character Terminal ID can be assigned to the IBM Displaywriter System when communicating with a computer. The computer can use the Terminal ID to identify authorized terminals and distinguish between terminal types.
- Session IDs of up to 20 characters can be assigned to each IBM Displaywriter System to authorize communication. At the beginning of a communication session, the IBM Displaywriter System checks the session ID of the other office machine. If it matches an ID on the list of acceptable IDs, communication continues; if not, communication is terminated.

The IBM 3845 and 3846 Data Encryption Devices also can be used to encrypt/decrypt data transmitted over the communication line. The IBM 3845 or 3846 Device is connected between the IBM Displaywriter System and the external modem at each end of a communication line.

The IBM Displaywriter System emulates the characteristics of either an IBM 2270/3780 or 2780 terminal.

To prepare for a communication session, the operator lists the documents to be sent to the various receivers and uses the Session IDs as addresses for sending the documents. Some documents may be sent to more than one receiver, while some receivers may not be sent all the documents on the list. When communication is initiated, the IBM Displaywriter System checks the receiver's ID and sends the receiver only the documents addressed to that ID.

When a document is received by an IBM Displaywriter System, it is recorded automatically on a diskette. The stored document can be printed later, or it can be placed in the print queue so that the document is printed after it is received. The stored document can be accessed after the communication session and revised.

While communication is taking place, the IBM Displaywriter System can print other documents not involved in communication that are stored on the same diskette or stored on the second diskette in a dual diskette unit. This printing does not affect communication.

The IBM Displaywriter System supports automatic answer capability if the function is provided in the modem. Once an appropriate profile is selected, the automatic-answer

and record-to-diskette capabilities allow the reception of communication without operator involvement. Only the station initiating the call needs to be attended by an operator. The IBM Displaywriter System can be left unattended in a ready state at night to take advantage of lower telephone line rates, to accommodate stations that are in different time zones, or simply to keep the IBM Displaywriter System free for text processing during business hours. When called from another location, the unattended IBM Displaywriter System automatically answers. After ID exchanges, communication takes place. When the communication session is finished, communication is terminated. The unattended IBM Displaywriter System returns to the ready state, able to communicate with the next caller.

The IBM Displaywriter System also disconnects automatically if there is no line activity (electronic signal) for 20 seconds or if no text is sent for 10 minutes. Both disconnect activities prevent the IBM Displaywriter System from being held on line when there is no productive activity.

See Appendix D for more specific information about Binary Synchronous Communications.

IBM 3270 DATA STREAM COMPATIBILITY

The IBM 3270 Data Stream Compatibility licensed program allows an IBM Displaywriter System to access IBM host computer systems using IBM 3270 application programs via SNA/SDLC communications.

A communicating IBM Displaywriter using the IBM 3270 Data Stream Compatibility licensed program appears as a IBM 3270 Information Display System to the following suitably programmed IBM host systems:

- IBM SYSTEM/370
- IBM 3031/3032/3033/3081 PROCESSOR COMPLEXES
- IBM 4300 PROCESSORS

The IBM 3270 Information Display System emulated consists of a single IBM 3278 Model 2 Display, an IBM 3274 Model 51C Controller, and, optionally, a single IBM 3287 Printer. Communications to the suitably programmed IBM host is by means of SNA/SDLC communications. For a list of suitable programming environments, see the IBM Displaywriter System 3270 Data Stream Compatibility Application Manual.

When using the IBM 3270 Data Stream Compatibility licensed program, the IBM Displaywriter System can perform a subset of the functions of an IBM 3270 Information System including data entry and simple, complex, or conversational inquiry applications. A more complete description of these functions and any limitations is contained in the IBM Displaywriter System 3270 Data Stream Compatibility Application Manual.

An IBM Displaywriter in the 3270 mode (using the IBM 3270 Data Stream Compatibility licensed program) allows the operator to have rapid access to a file stored on the host system. Depending on the complexity of the inquiry, one or more logical files may be accessed.

For example, many users have questions concerning the status of an account or need to check the disposition of an order while preparing a document. With an interactive inquiry in 3270 mode, the IBM Displaywriter operator can get the information directly from the host system. The information obtained directly from the computer file is accurate and avoids unnecessary clerical work. Following an inquiry, an operator can create an update entry to update the file.

An IBM Displaywriter in the 3270 mode also can be used to enter data by typing it, either for source file update to update the file in host system or for online key entry which allows records to be entered into a host file.

In order to use information received in the 3270 mode, the operator creates a "save" document, which can be used to store the information after it appears on the screen. The IBM Displaywriter in the 3270 mode can receive an IBM 3270 data stream. If the operator uses the Save key to store the data stream to diskette, The IBM Displaywriter in the 3270 mode converts the data stream to the internal IBM Displaywriter data format. This converted data stream can be used by the operator as a text document when the IBM Displaywriter is not in a 3270 mode. The IBM Displaywriter System operator can edit this document (which is stored on the diskette) as text, and move blocks of data into a document that was typed and stored on the IBM Displaywriter.

This combination of host supplied data and traditional word processing text is a first step towards integrating text and data.

Equipment Required

Use of the IBM 3270 Data Stream Compatibility licensed program requires a:

- Communications adapter on the IBM Displaywriter System
- Modem
- Telephone line

An IBM 5218 or IBM 5228 Printwheel Printer can be used if a printer is desired. (An IBM 5215 "Selectric" Element Printer can not be used with the IBM 3270 Data Stream Compatibility licensed program.)

Use of IBM Displaywriter Functions In The 3270 Mode

Certain IBM Displaywriter System functions can still be used while the IBM 3270 Data Stream Compatibility is used.

- Text documents can be batch printed while the IBM Displaywriter System is in the 3270 mode. Messages associated with printing are also displayed.
- The message line on a partial page display is shared between the IBM Displaywriter Text mode and 3270 mode so that messages for either mode can be displayed.

Operator Control Capabilities

The IBM 3270 Data Stream Compatibility licensed program provides the following operator control capabilities:

- Operator information area on the bottom line of the display screen
- Upper and lower case
- Cursor positioning controls
- Editing controls
- Program function and program access keys
- Shift keys
- Erasing controls

CHAPTER 4. EXAMPLES

This chapter contains a number of work examples for the IBM Displaywriter System. All examples use basic text functions available in all IBM Textpack Licensed Programs, unless noted otherwise.

An operator can use an IBM Displaywriter System to perform routine typing tasks, such as the creation of memos and documents. After the documents are created, the IBM Displaywriter System can perform a spelling check to alert the operator to possible misspelled words.

The IBM Displaywriter System also can be used to revise documents such as powers of attorney, contracts, procedure manuals, loan documents, and leases. Long documents such as these may need to be revised extensively before completion.

An operator can create letters or documents that have similar contents. The IBM Displaywriter System can be used to generate these repetitive letters into which the operator simply adds the necessary variables. Standard paragraphs or blocks of text also can be stored on a work diskette. The operator can then choose the appropriate pieces of stored material and combine them to create a new document.

The operator can create, store, and revise files of information. This information can be used to produce one repetitive letter for each record or the records can be grouped and organized into a report or list. The operator can sort the file to put the information from the records in alphabetical or numeric order and select only specified records for use.

EXAMPLE 1. REVISING A DOCUMENT

Revisions to a document may include deleting text, adding text, moving blocks of text from one location to another, and changing the document format, such as changing from double space to single space.

Before some documents are completed, they may go through a number of revision cycles. To avoid the time consuming and costly process of typing a document each time it is revised, the IBM Displaywriter System allows the operator to make these revisions without retyping existing text.

Figure 21 shows a revised copy marked by the author and the final printed document.

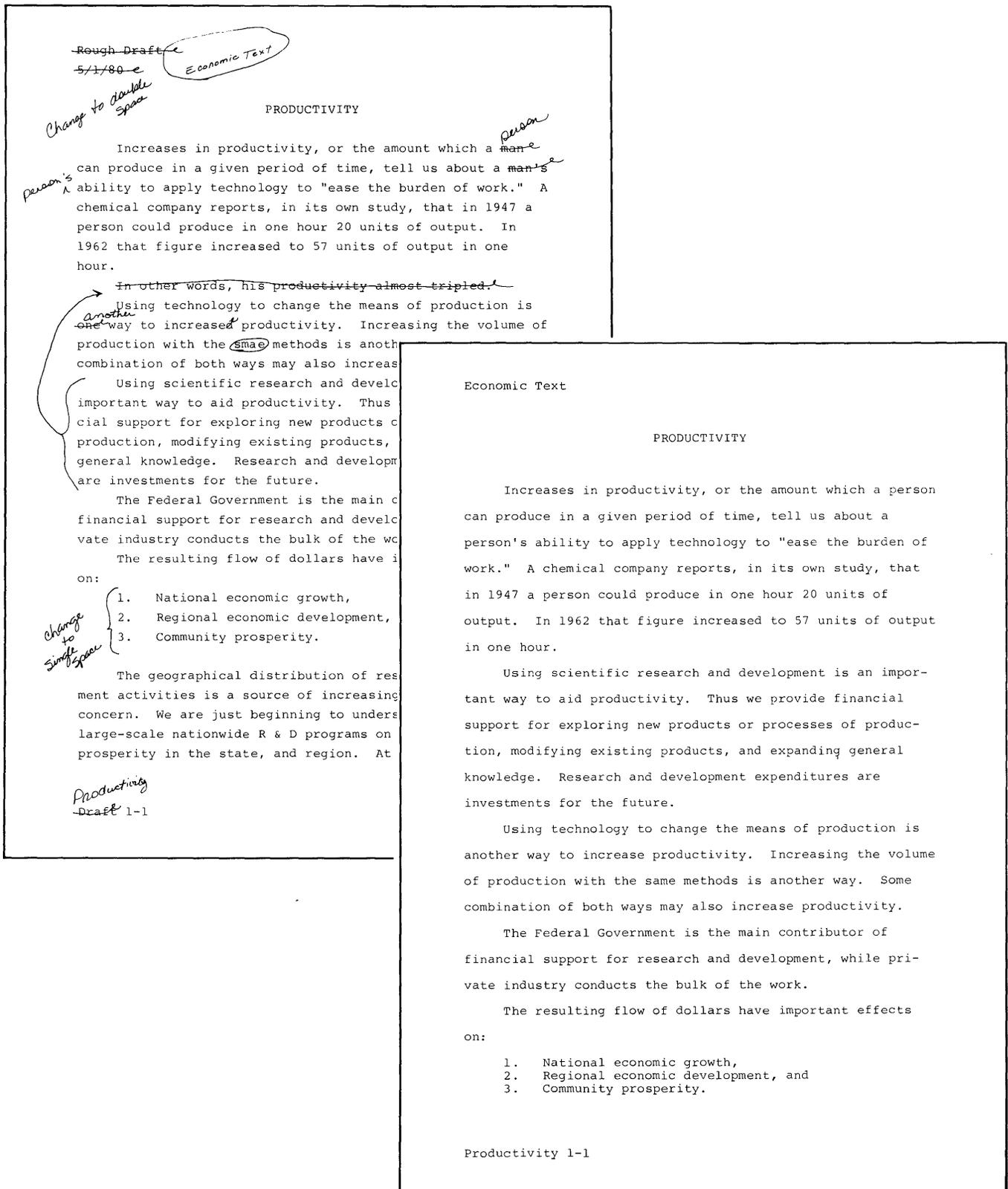


Figure 21. Document Before and After Revision

EXAMPLE 2. REPETITIVE LETTER WITH VARIABLES

Repetitive letters, sometimes called form letters, are letters that have almost the same text, but some variable information, such as the name and address, is different in each letter. Examples of repetitive letters are employment, personnel, policy renewal, and stockholder relations letters.

To create a repetitive letter, the operator types a shell document containing the constant text. The variables can be inserted into the shell in one of two ways.

1. If the operator is using Textpack 1 or Textpack 2, then the operator types the constant text with codes that indicate where each piece of variable information is to be inserted. Then the operator manually inserts the variable information into a copy of the shell document.

Figure 22 shows a shell document and the final document with the variables inserted.

2. If the operator is using Textpack 3 or Textpack 4, the operator can type the constant text with variable names (or switch codes) that mark the position where the variable information will be inserted. Then the operator can type all the variable information for several documents, and use the system to automatically merge these variables into the letters.

Figure 19 in Chapter 3 shows a shell document with named variables, the fill-in document, and the repetitive letters.

VARIABLES

Mr. Abel Label
 202 East 50th Street
 New York, N.Y. 10020
 974579
 Mr. Label
 48.00
 November 18
 Phil Phillips

FINAL DOCUMENT

Mr. Abel Label
 202 East 50th Street
 New York, N.Y. 10020

RE: LOAN NO. 974579

Dear Mr. Label:

Your Personal Loan with us is long overdue, and you have not answered our many letters and notices. Lack of concern on your part indicates a situation that demands more severe action be taken.

We suggest you take a moment and mail your payment of \$48.00. If it is absolutely impossible for you to pay the full amount due by November 18, please contact the undersigned.

Your immediate cooperation is appreciated.

Sincerely,

Phil Phillips
 Loan Department
 111 555-1212

wpc

SHELL DOCUMENT

RE: LOAN NO.

Dear :

Your Personal Loan with us is long overdue, and you have not answered our many letters and notices. Lack of concern on your part indicates a situation that demands more severe action be taken.

We suggest you take a moment and mail your payment of \$. If it is absolutely impossible for you to pay the full amount due by, please contact the undersigned.

Your immediate cooperation is appreciated.

Sincerely,

Loan Department
 111 555-1212

wpc

Figure 22. Repetitive Letter With Variables

EXAMPLE 3. DOCUMENTS FROM STORED PARAGRAPHS

Routine documents that contain similar information can be created by combining stored paragraphs of standard information. With the IBM Displaywriter System, each document can be created from the stored paragraphs, which reduces the time and cost associated with generating original documents. The document also can be customized by adding original information or variables, such as an inside address and salutation.

The operator must type and store a library of paragraphs (or blocks of text). A document can be created from those stored paragraphs in one of two ways.

1. If the operator is using Textpack 1 or Textpack 2, the operator manually chooses the appropriate paragraphs from the paragraphs previously typed and stored on the diskette. Then the operator adds the original text or variables.

Figure 23 shows a master copy of the stored paragraphs and the final document created from the selected paragraphs.

2. If the operator is using Textpack 3 or Textpack 4, the operator types:
 - a shell document containing lists of paragraph or document descriptions, and
 - a fill-in document which contains both the lists of paragraphs to be compiled and the variable information to be merged into the final document.

The merge function compiles the paragraphs with the variables for each document. Figure 20 in Chapter 3 shows a shell document, a fill-in document, and the final letters created after merge.

STORED PARAGRAPHS

Thank you for your letter concerning employment with our company.

Thank you for sending us a resume of your past business experience.

At the present time, we do not have openings and we cannot be encouraging about employment opportunities in the near future. However, please complete and return the enclosed application which we shall retain in our active file for consideration should openings develop.

Enclosed is an application which should be completed and returned to our Personnel Department. After review of this application, we shall contact you relative to any openings suitable to your background and interests.

Again, thank you for your interest in our company.

We look forward to hearing from you soon.

Yours truly,

Harold Wright

Yours truly,

John Jameson

COMPLETED LETTER

May 7, 1980

Ms. J. M. Allen
1325 West 87th Street
Haley, Texas 76089

Dear Ms. Allen:

Thank you for your letter concerning employment with our company.

Enclosed is an application which should be completed and returned to our Personnel Department. After review of this application, we shall contact you relative to any openings suitable to your background and interests.

We look forward to hearing from you soon.

Yours truly,

Harold Wright

Figure 23. Master Copy of Stored Paragraphs and a Completed Letter

EXAMPLE 4. COLUMN REVISIONS

Column revisions may include deleting a column, adding a column, and moving columns from one location to another. Column revisions may also require reformatting the table.

In column revisions like those in Figure 24, each column is treated as a block of text, so a column can be deleted, copied, or moved to another place in the same table or to another table in the same document. Columns can also be inserted into a table.

After the changes are made, the operator can use the automatic column layout capability to reformat the table so that the columns are equally spaced on the page.

The document can then be paginated and printed.

ORIGINAL DOCUMENT

	Six Months Ended 2/28/81	Year Ended August 31		
		1980	1979	1978
Commission on sales	\$784,836	\$834,556	\$653,948	\$685,644
Less: 75 percent	588,627	625,917	490,461	514,233
Net Commissions on sales	196,209	208,639	163,487	171,411
Expenses (including taxes)	140,632	200,018	131,162	109,691
Net distribution income before Federal income tax	55,577	8,621	32,325	61,720
Provision for Federal income tax	40,281	865	7,774	11,139
Net distribution income after provision for Federal income tax	\$ 15,296	\$ 7,756	\$ 24,551	\$ 50,581

REVISED DOCUMENT

	Year Ended August 31		
	1978	1979	1980
Commission on sales	\$685,644	\$653,948	\$834,556
Less: 75 percent	514,233	490,461	625,917
Net Commissions on sales	171,411	163,487	208,639
Expenses (including taxes)	109,691	131,162	200,018
Net distribution income before Federal income tax	61,720	32,325	8,621
Provision for Federal income tax	11,139	7,774	865
Net distribution income after provision for Federal income tax	\$ 50,581	\$ 24,551	\$ 7,756

Figure 24. Column Revisions

EXAMPLE 5. REPORT GENERATION

Files management can be used to produce lists or reports. The file information is merged with a control document which controls the content and format of the report. This capability allows the operator to print lists without retyping the information that is already in the file.

The operator creates a merge control document using Textpack 4. In this document the operator specifies:

- the format of the final document
- any additional text, such as report headings, to be included
- how the records are to be grouped
- what report summaries should be generated
- what math calculations should be done

After the merge control document is created, it is ready to merge with the file. However, prior to merging the control document with the file, the operator can decide:

- whether all records or only selected records should be merged with the text
- what order the records should be listed in

This IBM Displaywriter System then merges the control document with the file to produce the final report.

Many different lists and reports can be generated from the same file by simply merging the file with different merge control documents. Figure 25 shows some of the possible reports that can be generated from the sample file. Arithmetic is used in some of the reports.

Rec ID	Customer Name	Address	City	St	Zip	Contact	Date	Amount	Rep	Ind
1	Dareco Supply Co.	1407 8th St.	Phoenix	AZ	85730	Mr. Donald Smith	01/05/81	10500	Jones	Med
2	Global Industries	913 Dowd St.	Tucson	AZ	85719	Ms. Patricia Ross	01/05/81	28000	Ortiz	Mfg
3	Farrington Co.	642 Peach Dr.	Pomona	CA	77890	Mr. Timothy Sainz	01/08/81	42500	Jones	Mfg
4	Universal Industry	90 Elm St.	Pomona	CA	77689	Mr. Thomas Boyd	01/09/81	19975	Hull	Mfg
5	Mayan Construction	66 Ash St.	El Centro	CA	77459	Ms. Betty Smith	01/12/81	110700	Ortiz	Bld
6	Farmers Association	356 Rural Rd.	El Centro	CA	77635	Mr. John Gaus	02/13/81	200550	Hull	Frm
7	Tool Setting Co.	1240 9th St.	Phoenix	AZ	85702	Ms. Leslie Garland	02/21/81	32780	Curtis	Mfg
8	City College	23 N. Central	Tucson	AZ	85723	Mr. Robert Ries	02/25/81	67300	Jones	Ed

CUSTOMER LIST			
CUSTOMER	CONTACT	AMOUNT	REPRESENTATIVE
Cactus Hardware	Mr. Manuel Shull	\$18,900	Jones
City College	Mr. Robert Ries	\$67,300	Jones
City Services	Ms. Suzanne Strayer	\$89,900	Curtis
Clinical Supply	Mr. Donald Higgins	\$17,450	Hull
Community College	Ms. Sharon Smith	\$235,980	Ortiz
Dareco Supply Co.	Mr. Donald Smith		
Farmers Association	Mr. John Gaus	\$	
Farrington Co.	Mr. Timothy Sainz		
Global Industries	Ms. Patricia Ross		
Hospital Supply	Ms. Donna Ikeda		
Johnson Mfg. Co.	Mr. Samuel Salor	\$	
Mayan Construction	Ms. Betty Smith	\$	
Ranchers Inc.	Ms. Brenda Hebert	\$	
Rural Implements	Ms. Judy Exline		
State Pipe Co.	Mr. Keith Cronin		
State University	Ms. Pamela Ramage		
Thompson Const. Co.	Ms. Betsy McKane		
Tool Setting Co.	Ms. Leslie Garland		
Universal Industry	Mr. Thomas Boyd		
Wrench Inc.	Ms. Lupita Arino		
	TOTAL	\$1,	

REVENUE ANALYSIS BY STATE						
STATE	INDUSTRY	REP	REP TOTAL	INDUSTRY TOTAL		
AZ	Ed	Jones	\$ 67,300			
		Ortiz	\$ 54,900	\$122,200		
	Frm	Hull	\$156,890		\$156,890	
		Jones	\$ 10,500			
	Med	Hull	\$ 17,450			
		Jones	\$ 10,500			
STATE TOTAL						
CA	Bld	Jones	\$ 64,350			
		Ortiz	\$110,700			
	Ed	Ortiz	\$235,980			
		Hull	\$200,550			
	Med	Ortiz	\$ 51,790			
		Hull	\$ 19,975			
STATE TOTAL						

REVENUE ANALYSIS BY INDUSTRY			
YEAR-TO-DATE 1981			
INDUSTRY	CUSTOMER	AMOUNT	TOTAL
Bld	Mayan Construction	\$110,700	
	Thompson Const. Co.	\$64,350	\$175,050
Ed	City College	\$67,300	
	Community College	\$235,980	
	State University	\$54,900	\$358,180
Frm	Farmers Association	\$200,550	
	Ranchers Inc.	\$130,890	
	Rural Implements	\$26,000	\$357,440
Med	Clinical Supply	\$17,450	
	Dareco Supply Co.	\$10,500	
	Hospital Supply	\$51,790	\$79,740
Mfg	Cactus Hardware	\$18,900	
	City Services	\$89,900	
	Farrington Co.	\$42,500	
	Global Industries	\$28,000	
	Johnson Mfg. Co.	\$125,890	
	State Pipe Co.	\$60,000	
	Tool Setting Co.	\$32,780	
	Universal Industry	\$19,975	
Wrench Inc.	\$32,000	\$449,945	
YEAR-TO-DATE TOTAL			\$1,420,355
LARGEST AMOUNT		\$235,980	
AVERAGE AMOUNT		\$71,018	
NUMBER OF CUSTOMERS		20	

Figure 25. Reports Generated From a File

EXAMPLE 6. FILES MANAGEMENT FOR REPETITIVE LETTERS

Files management can also be used to produce repetitive documents, such as contracts or letters. The text for the document is created using Textpack 4. The document controls the merge process and specifies:

- The format of the final document
- what fields from the record should be inserted into the text
- what math calculations should be done

This capability allows the operator to generate personalized documents that may be used for several purposes. One file might be used for tracking donations, generating letters to donors, creating name and address lists for future solicitations, etc.

Prior to merging the control document with the file, the operator can also decide:

- whether all records or only selected records should be merged with the text
- what order the final documents should be printed in

The IBM Displaywriter System then merges the control document with the file to produce the final repetitive documents.

Figure 26 shows the personalized repetitive letters that might be generated from a file.

Title	First Name	MI	Last Name	Sub- title	Street	City	State	Zip	Amount
Mr.	Aaron	R	Able		8803 Riviera Drive	Decatur	Alabama	35600	150
Miss	Wanda	E	Evers		7400 Cole Drive	Boise	Idaho	83600	100
Judge	Henry	J	McCauley		1708 North 18th Street	Albany	New York	12500	750
Mr.	Charles	R.	Kaiser, Jr		911 Jamison Avenue	Raleigh	North Carolina	27500	500
Dr.	Larry	J.	Prescott		2845 Briddle Path	Jacksonville	Florida	32001	1000
Ms.	Celeste	H.	Carroll		2708 Burton Road	Tampa	Florida	33500	800
Mr.	William	W	Aiken	III	1648 Versailles	Boca Raton	Florida	33430	200
Mrs.	Olivia	K	Byde		1842 Ramsey Street	Tallahassee	Florida	32320	1200
Mr.	Russell	J	Isaacs		2908 Cameron Street	Mobile	Alabama	36658	780
Mr.	Brian	A.	Worring		2708 Burton Road	Seale	Alabama	37561	475
Miss	Alice	D.	Manning		8134 Burlington Road	Birmingham	Alabama	35292	1150
Mr.	Dan	J.	York		9016 Alpine Court	Tuscaloosa	Alabama	36688	100

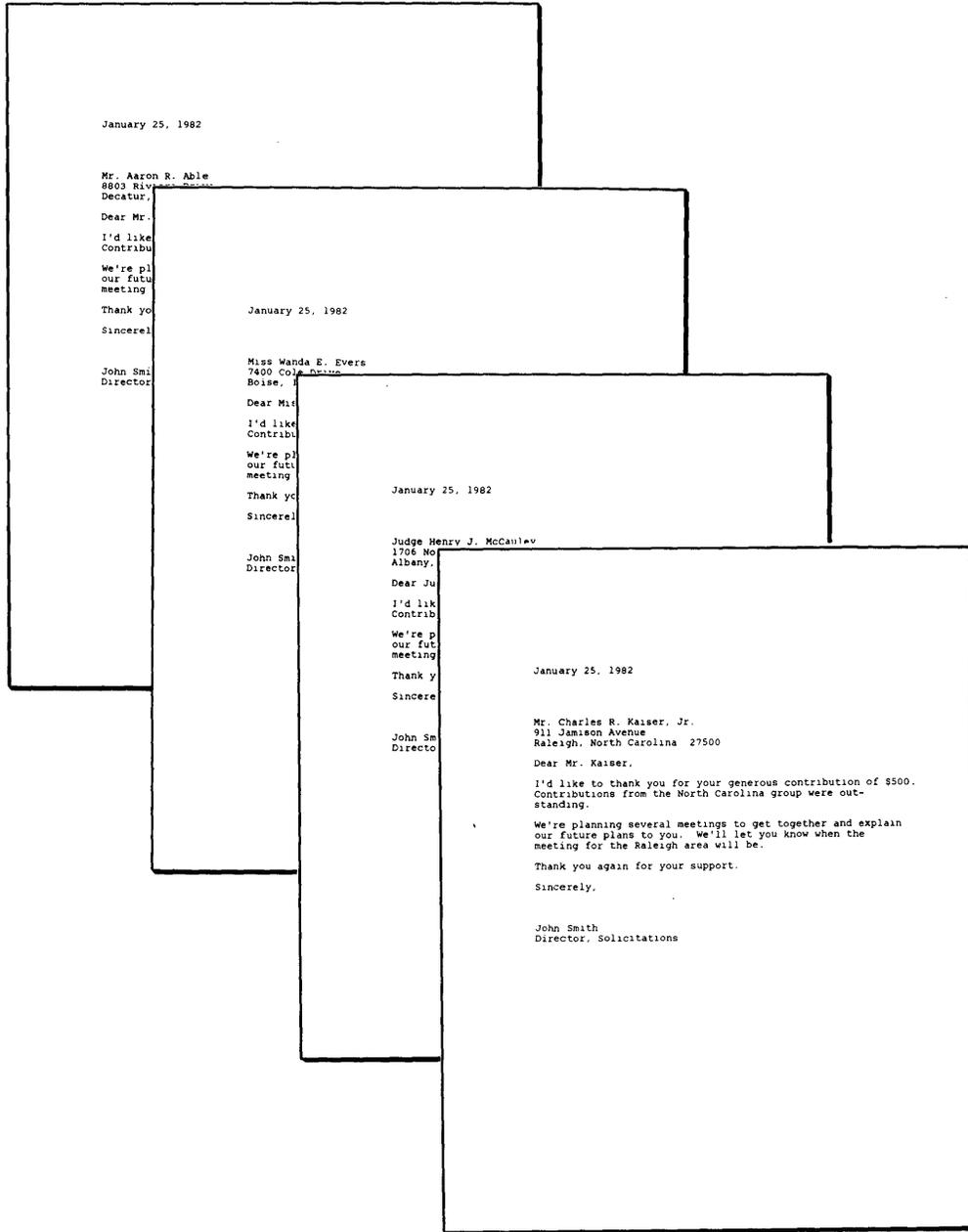


Figure 26. Repetitive Letters from a File

CHAPTER 5. SUPPORT

This chapter describes the customer support provided by IBM for the IBM Displaywriter System in the following major areas:

- Office Systems Support Center
- Planning and equipment setup
- Training
- Problem determination and resolution
- Licensed program support

OFFICE SYSTEMS SUPPORT CENTER

An Office Systems Support Center, available to all IBM Displaywriter System users, provides:

- Assistance during equipment setup
- Assistance with training questions
- Answers to questions about operational procedures
- Assistance with problem determination procedures and problem resolution for licensed programs

A toll-free (800) telephone number is provided to all IBM Displaywriter System users. Through the 800 number, the user can directly contact the Office Systems Support Center. Personnel at the Office Systems Support Center work with the operator to handle questions or problems. After the operator explains the situation, the Center personnel will ask questions, suggest actions to be taken, and contact other IBM personnel, if necessary. The Office Systems Support Center is a contact point for immediate assistance and offers direct access to application and technical expertise. This helps increase system availability through more rapid problem identification and resolution.

PLANNING AND EQUIPMENT SETUP

Planning and equipment setup for the IBM Displaywriter System includes:

- Physical planning and preparation
- Equipment setup
- Licensed program installation

Each of these activities is supported with publications and other assistance from IBM.

Site planning is a customer responsibility, and the Customer Planning Guide for the IBM Displaywriter System contains planning guidelines for properly preparing a site for the IBM Displaywriter System.

Besides this manual, IBM provides an orientation seminar covering customer setup of equipment, use of training materials, and other topics prior to delivery of the IBM Displaywriter System.

After the IBM Displaywriter System is delivered, the operator (or other customer personnel) can refer to the IBM Displaywriter System Customer Setup Guide for information about how to unpack and set up the IBM Displaywriter System work stations and printer. The setup process consists of unboxing each piece of equipment and plugging in connecting cables. This process is designed to provide customers with greater flexibility and control in locating and relocating these devices. (If difficulties are encountered during the equipment setup, the operator can call toll-free to the Office Systems Support Center to receive immediate help.)

After setup, the operator may load an IBM Licensed Program. Once the program diskette has been loaded, the operator can personalize it so that the defaults reflect common customer applications.

TRAINING

As indicated, education begins prior to installation of the IBM Displaywriter System. After installation, IBM offers further educational assistance with management and supervisor seminars.

The amount of training required by each operator depends on the tasks assigned to that operator. The IBM Displaywriter System operator training manuals describe

logical groups of operations and tasks. The modular training material allows a supervisor or an operator to tailor the training to fit that office's type of work. The Office Systems Support Center is available to answer questions related to training.

Information about educational assistance and costs (if any) may be obtained from the local IBM branch office.

PROBLEM DETERMINATION AND RESOLUTION

During normal system operation, the IBM Displaywriter System provides the operator with messages and prompts so that operator procedural errors can be distinguished from machine malfunctions. Problems not caused by operator procedural error may be caused by machine malfunction or by licensed program defects. If a problem occurs, the operator follows a problem determination procedure to determine whether the problem is caused by machine malfunction, by a licensed program defect, or by an operator error.

The Problem Determination Guide (S544-0860) in the IBM Displaywriter System Reference Package directs the operator through the problem determination procedure. The operator also may use a Problem Determination Diskette that has a diagnostic program. If the operator has questions or needs assistance during the problem determination procedure, a call should be made to the Office Systems Support Center.

If the problem is determined to be a hardware malfunction after completing the problem determination procedure, the operator is directed to call IBM service. With the information the operator gathers from the problem determination procedure, the problem can be corrected with one service call in many cases. This can reduce machine downtime.

If an operator has completed the problem determination procedure and has not received an error code or message that identifies an equipment problem, the Office Systems Support Center should be notified. The problem may be a licensed program problem or, occasionally, an equipment problem not identified by the problem determination procedure.

For problems on the IBM 5218 Printwheel Printer, the IBM 5218 Printwheel Printer Problem Determination Guide (S544-2000) can be used to assist the operator in pinpointing the problem and gaining assistance from IBM, if necessary.

The Office Systems Support Center helps the operator determine the cause of the problem and directs the appropriate IBM personnel to resolve it.

LICENSED PROGRAM SUPPORT

When the Office Systems Support Center identifies a licensed program problem, the problem is dealt with as quickly as possible. The customer receives either a revised program diskette with a program correction or alternative procedures. The new program or procedures then will be sent to all other IBM Displaywriter System customers with that licensed program as a licensed program update release. Each customer is responsible for installing the latest licensed program update release as it is received.

SUMMARY

IBM customer support is designed to enable an IBM Displaywriter System user to plan, install, and productively operate an IBM Displaywriter System. This support is provided through direct contact with an IBM marketing and service team and the IBM Office Systems Support Center, through IBM seminars, and through comprehensive IBM Displaywriter System documentation. For additional information on IBM support, contact your IBM Marketing Representative.

APPENDIX A. IBM 5215 "SELECTRIC" ELEMENT PRINTER SPECIFICATIONS

TYPE STYLES

Contact your IBM Marketing Representative for information about available type styles.

PAPER SPECIFICATIONS

Paper Types

Manually-fed paper can be up to 381.0 mm (15 inches) wide with a 317.5 mm (12.5 inches) writing line.

Continuous-form paper may be either single-part (without carbon copies) or multi-part (with carbon copies). The maximum number of copies is one original and five copies.

Note: When using multi-part, continuous-form paper, all plies (copies and carbon paper of multi-part forms) must be "positively" fastened at one edge so that they do not separate before leaving the Pin-Feed Platen. "Positive" fastening refers to the optional, secure fastening methods available from major forms-manufacturing companies.

Pin-Feed Platen Paper Sizes

Continuous paper measuring 133.35 mm (5.25 inches) to 333.38 mm (13.13 inches) pin-to-pin can be used, depending on the width of the Pin-Feed Platen. Pin-Feed Platens are available in the following widths (pin-to-pin):

- 133.4 mm (5.25 inches)
- 152.4 mm (6.0 inches)
- 190.5 mm (7.5 inches)
- 203.2 mm (8.0 inches)
- 228.6 mm (9.0 inches)
- 238.1 mm (9.4 inches)
- 250.8 mm (9.9 inches)
- 254.0 mm (10.0 inches)
- 257.2 mm (10.1 inches)
- 258.8 mm (11.3 inches)
- 292.1 mm (11.5 inches)
- 317.5 mm (12.5 inches)
- 333.4 mm (13.1 inches)

Note: The acceptable form width is 12.7 mm (0.5 inches) wider than the pin-to-pin width. The writing line will be 6.35 mm (0.25 inches) less than the pin-to-pin width.

Pin-Feed Platen Recommended Environment

Temperature: 15.5° C to 29.4° C (60° F to 85° F)
Humidity: 30% to 65% relative humidity

APPENDIX B. IBM 5218 AND IBM 5228 TRACTOR FEED SPECIFICATIONS

PAPER TYPES

Continuous-form paper may be either single-part (without carbon copies) or multi-part (with carbon copies).

Note: When using multi-part, continuous-form, pin-feed paper, all "plies" (copies and carbon paper of multi-part forms) must be "positively" fastened at one edge so that they do not separate before reaching the exit tractor drive pins. "Positive" fastening refers to the optional, secure fastening methods available from major forms-manufacturing companies.

PAPER SIZES

Width: 50.8 mm (2 inches) to 368.3 mm (14.5 inches) pin to pin
50.8 mm (2 inches) to 44.45 mm (17.5 inches) pin to pin on the IBM 5228 Wide Carriage Printwheel Printer

Weight: Single-part forms: 60 to 90 g/m² (16 to 24 pounds)
Multi-part forms: individual plies of 45 to 90 g/m² (12 to 24 pounds)

Copies: Maximum number of copies is one original and five copies if the form is up to 368.3 mm (14.5 inches) wide
Maximum number of copies is one original and two copies if the form is wider than 368.3 mm (14.5 inches wide) up to the maximum width of 44.45 mm (17.5 inches) on the IBM 5228 Wide Carriage Printwheel Printer

Thickness: Maximum thickness for one original and five copies, including carbons, is 0.6 mm (.024 inches).

Note: Multi-part forms should be tested before quantity ordering since some manufactured five- and six-part forms may exceed the maximum allowable thickness and may cause paper feeding problems.

APPENDIX C. IBM 5218 AND IBM 5228 SHEET-FEED PAPER HANDLER SPECIFICATIONS

The specifications for the Sheet-Feed Paper Handlers for the IBM 5218 and the IBM 5228 Printwheel Printers are the same and are described below.

RECOMMENDED ENVIRONMENT

Temperature: 15.5° C to 29.4° C (60° F to 85° F)
Humidity: 30% to 65% relative humidity

RECOMMENDED PAPER COMPOSITION

Plain bond paper of either:

- No. 1 sulphite (100% chemical wood pulp)
- 25% cotton content
- 50% cotton content
- 100% cotton content
- Paper made from recycled office paper

ACCEPTABLE PAPER WEIGHTS

The following paper weights can be used:

- 60 g/m² (16 pounds)
- 75 g/m² (20 pounds)
- 90 g/m² (24 pounds)

Note: For optimum results, 75 g/m² (20 pound), 25% to 50% cotton content, plain bond paper is recommended.

ACCEPTABLE PAPER SIZES

Various paper sizes can be fed in the Sheet-Feed Paper Handler. Only one size of paper should be loaded at one time in either the top or bottom paper trays.

The following paper sizes can be fed reliably either lengthwise or sideways:

- 203 x 267 mm (8.0 x 10.5 inches)
- 216 x 279 mm (8.5 x 11.0 inches)

The following paper sizes can be fed reliably lengthwise only:

- 178 x 267 mm (7.0 x 10.5 inches)
- 184 x 267 mm (7.25 x 10.5 inches)
- 191 x 267 mm (7.5 x 10.5 inches)
- 203 x 330 mm (8.0 x 13.0 inches)
- 216 x 330 mm (8.5 x 13.0 inches)
- 216 x 356 mm (8.5 x 14.0 inches)

PAPER LIMITATIONS

The following paper supplies cannot be used reliably in the Sheet-Feed Paper Handler and may cause paper jams:

- Coated paper
- Vellum paper
- Coated erasable bond
- Synthetic paper (such as rice paper or parchment)
- Translucent paper
- Multi-sheet forms and documents (bound or unbound)
- Peel-off pressure-sensitive labels
- Some chemically treated paper (for example, paper used to make copies without carbon paper)
- Preprinted forms that require a high degree of registration accuracy for character location

- Dark-colored paper
- Envelopes
- Card stock
- Some preprinted paper where the printing process results in either introducing chemicals which contaminate feed-mechanism components or changing the paper frictional characteristics

UNSATISFACTORY PAPER CONDITIONS

Paper in unsatisfactory condition will not feed reliably and may cause paper jams. The following can affect the use of the Sheet-Feed Paper Handler:

- Paper with exposed gummed surfaces, holes, perforations, cutouts, or windows
- Highly-embossed paper with an embossment height exceeding 0.5 mm (0.020 inches)
- Folded documents
- Mixing different sizes or weights of paper in the same paper tray
- Paper with excessive curl or waviness exceeding 3.0 mm (0.118 inches)
- Reams of paper with edges or corners folded or bonded together (Some conditions, such as bonded edges, may be corrected by fluffing the ream.)
- Paper with poorly cut (rough) edges

Note: Paper should not be exposed to adverse temperature and humidity conditions. (Consult the paper manufacturer for recommended storage environment.)

APPENDIX D. ASYNCHRONOUS AND BINARY SYNCHRONOUS COMMUNICATIONS SUMMARY

Asynchronous Communications

		Operating Mode		
		CMC	2741	TTY
Applications	Displaywriter System—CPU	N/A	X	X
	Displaywriter System—Office Machine	X	N/A	X
Facilities	EIA RS 232C Interface	X	X	X
	Switched Lines*	X	X	X
	Auto Answer Modems	X	X	X
Line Control	Line Speed* *	134.5/300/1200bps	134.5/300/1200 bps	110/150/200/300/1200 bps
	Line Code	Correspondence	Correspondence	7-bit
	Parity**	Odd	Odd	Even/Odd/None
	Terminal ID**	N/A	4 Characters	31 Characters
	Inactivity Disconnect**	X	X	X
	Reverse Interrupt	X	X	X
	Echoplex**	N/A	N/A	X
Capabilities	EOT Disconnect**	N/A	N/A	X
	Interactive Keyboard/Display	X	X	X
	Document Transmission	X	X	X
	Session History Document	X	X	X
	Background Printing	X	X	X
	Unattended Receive	X		X

X = Supported

N/A = Not Applicable

*point-to-point, full-duplex only
 **setup option

For more detailed information about communications, see the *IBM Displaywriter System Host Attach Programming Guide: Asynchronous Communications*.

Binary Synchronous Communications

		Operating Mode	
		2770, 3780 Emulation	2780 Emulation
Applications	Displaywriter System—CPU	X	X
	Displaywriter System—Office Machines	X	X
Facilities	EIA RS 232C Interface for External Modem	X	X
	Integrated Modem	X	X
	Single or Dual Modem Capability	X	X
	Switched Lines*	X	X
	Nonswitched Lines*	X	X
Line Control	Line Speeds	1200 ^{***} /2000/2400/4800 bps	
	Line Code ^{**}	EBCDIC, 7 bit	
	Character Buffers ^{**}	Send up to 512-byte blocks. Receive up to 512-byte blocks.	
	Error Checking—7 bit	Vertical Redundancy Check (VRC). Longitudinal Redundancy Check (LRC)	
	Error Checking—EBCDIC	Cycle Redundancy Check (CRC)	
Capabilities	Auto Answer Modem	X	X
	Extended Transmission Retry	X	X
	Optional Keylock	X	X
	Terminal ID	X	X
	Session (User) ID	X	X
	Space Compression & Expansion (Receive Only)	X	X
	Synchronous Clock for 600 & 1200 bps	X	X
	EBCDIC Transparency	X	X

X = Supported

*point-to-point, half duplex

**setup option

***600 bps if the modem supports a half-speed option

For more detailed information about communications, see the *IBM Displaywriter System Host Attach Programming Guide: Binary Synchronous Communications*.

APPENDIX E. IBM DISPLAYWRITER SYSTEM ERGONOMIC FEATURES

Device	Feature	Purpose and Benefit
System Covers	Paint Finish	Matte finish to minimize glare. Easily cleaned.
	Pearl White Color	Has a reflectivity ratio of less than 3:1 between the work station, keyboard, and source documents. Helps reduce eye strain and fatigue by reducing frequent pupillary changes of the eye when moving between contrasting light and dark surfaces.
Keyboard	Cable-attached	Permits positioning of the keyboard, independent of the display, for operator comfort.
	Surface Angle	Keys arranged at 12° slope to provide the proper angle for typing.
	Palm Rest	Optional keyboard palm rest is available as an additional comfort feature.
	Keytops	Matte finish to reduce reflections. Contoured to provide secure feel.
	Nomenclature on Keytops	Dark characters on light background for easy recognition and to minimize glare.
	Touch	Key forces ranging from 40 to 75 grams with key displacements of 1.5 to 3 mm (1/16 to 1/8 inch) for accurate typing with minimal effort. Audible and tactile feedback gives a positive signal when keys are pressed.
Display	Screen	Non-reflective to minimize glare.
	Display Graphics	Large, easy-to-read alphanumeric displays. Character matrix helps eliminate confusion between symbols, such as the letter O and the number 0 (zero).
	Image Stability	Combined high-refresh rate and phosphor characteristics of the display contribute to the stability of the displayed images, which helps reduce eye fatigue and strain.
	Brightness/Contrast	Individual controls for operator convenience. Permits operator to adjust for a variety of lighting conditions.
	Phosphor Color	Green, which is recommended by ergonomics specialists.
	Tilt Display (0° to 20°)	Allows for improved line of sight.
	Rotate 0° to 12° Right and Left	Permits flexibility in placement of the work station. Permits adjusting the display to minimize reflections.
Diskette Unit	Cable-attached	Permits flexibility in the positioning of the diskette unit.
	Design	Low noise and heat output levels for operator comfort.
Printers	Operator Panel	Located on the front surface of the printer. Angled for easy viewing by a standing or seated operator. All lights and controls are easily accessed from the front of the printer.
	Design	Low noise and heat output levels for operator comfort.
	Covers	Matte finish to minimize glare.
	Ribbon Cartridge	Easy to change and clean to handle.
	Printwheel Cartridge	Printwheels are contained in cartridges for simple, easy printwheel changes.

GLOSSARY

The following terms are defined as they are used in this book. If you do not find the term you are looking for, refer to the IBM Data Processing Glossary, GC20-1699. All terms marked with an asterisk (*) are from the American National Dictionary for Information Processing.

IBM is grateful to the American National Standards Institute (ANSI) for permission to reprint its definitions from the American National Dictionary for Information Processing (Copyright (c) 1975 by the American National Standards Institute, Inc.), which was prepared by Subcommittee X3K5 on Terminology and Glossary of American National Standards Committee X3.

alternate format. A stored second format that can be changed.

ASCII*. American National Standard Code for Information Interchange. The standard code, using a coded-character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control and graphic characters.

Asynchronous Communications. Data transmission in which each information character is individually synchronized (usually by the use of start bits and stop bits).

batch printing. Queueing one or more documents to print as a separate job. The operator can type

or revise additional documents at the same time.

batched communication. The sending of a large body of data from one station to another station in a communications network without intervening responses from the receiving unit.

Binary Synchronous Communications. Data transmission in which the character synchronization is controlled by timing signals generated at the sending and receiving stations.

block. A section of text whose beginning and end points are defined by the operator using the block keys at the work station. Blocks are displayed at the work station with the blocked characters highlighted. Blocks may be deleted from the text, or copied, or moved within the text.

bps. Bits per second. In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

BSC. Binary Synchronous Communications.

carrier return. The function of moving the printer element to the left margin of the next line.

character. A letter, digit, or other symbol that is used as part of the organization, control, or representation of data.

coded function key. A key that normally produces a character but performs a special function when the CODE key is held down while the coded function key is pressed.

communications facility. Anything used or available for use in furnishing data communications service.

continuous paper. Connected paper forms that feed continuously through a printer.

cps. Characters per second. A printing or transmission speed.

default. A value, attribute, or option that is preassigned and assumed by a system when no other has been specified by the operator.

diskette. A thin, flexible, magnetic disk and its semirigid, protective jacket, in which the diskette is permanently enclosed. It provides reusable storage of documents that can be used and updated.

diskette slot. The opening in the diskette unit into which a diskette is inserted.

document. A collection of one or more lines of text that can be named and stored as a separate entity.

duplex*. In data communications, it pertains to simultaneous, two-way, independent transmission.

duplicate. To copy information from a location, leaving the information at that location unchanged, and to move the copy to another location.

EBCDIC*. Extended binary coded decimal interchange code. A coded-character set consisting of 8-bit coded characters.

field. One piece of information in a record; for example, the first name of a person. Fields make up a record.

file. A set of related records treated as a unit, e.g., in stock

control, a file could consist of a set of invoices.

footer. Constant text that is formatted to be in the bottom margin of one or more pages.

format. A set of specific conditions that determine the final position of text on a page.

full duplex. In data communications, it pertains to simultaneous, two-way, independent transmission. Synonym for duplex.

function keys. Special keys that do not produce characters for printing when they are used, but allow the operator to give instructions to the system for additional functions. Included are the keys that normally produce a printed character, but when used with the code key produce a function instead.

half duplex*. In data communications, it pertains to alternate, one-way- at-a-time, independent transmission.

header. Constant text that is formatted to be in the top margin of one or more pages.

highlight. The process of emphasizing an area on the display by brightening the area and reversing the color of any characters within the area.

hyphenation. The process of separating a word by inserting a hyphen to end a line and moving the remainder of the word to the start of the next line.

index. On a diskette, a list of document names and comments. A diskette index can be viewed or printed.

insert mode. Characters typed when the system is in an insert mode are added to the existing text.

integrated modem. A modem that is an integral part of the device with which it operates.

justify. To print a document with even right and left margins.

licensed program. Software program which remain the property of the manufacturer, for which customers pay a license fee.

menu. Choices listed on the display that can be selected by an operator.

merge file/report. The ability to combine fields from all selected output records with a shell document to produce one output document.

merge file/text. The ability to perform either merge file/report or merge record/text.

merge record/text. The ability to combine fields from a single record with a shell document to produce one output document per record.

message. A message issued by the system because of a condition that requires an operator response.

modem*. Modulator- demodulator. A device that modulates and demodulates signals transmitted over data communications facilities.

modulation. The process by which some characteristic of one wave or signal is varied in accordance with another wave or signal.

module. A hardware unit designed for use with other components.

nonswitched communications line. In data communications, a mode of operating in which a data circuit is

established for the exclusive use of the data stations without using switching facilities. Synonym for leased line.

pagination. The process of adjusting text to fit within margins and/or page boundaries.

pitch. A unit of width of typewriter type, based on the number of times a letter can be set in a linear inch. For example, 10-pitch type has 10 characters per inch.

problem determination procedure. A prescribed sequence of steps aimed at recovery from, or circumvention of, problem conditions.

prompt. Information that appears on the display to alert the operator to a specific condition or action needed.

queue. A waiting line or list formed by items in a system waiting for service; for example, tasks such as printing to be performed or messages to be transmitted.

record. A collection of related data or words, treated as a unit; all the information about one person, project, etc. Records make up a file.

replace. Characters typed when the system is in a replace mode are typed over existing text.

revision. The process of changing the text and/or format of a document.

scale line. A line on the display showing margins, tabs, and character positions.

segment. To move the display image horizontally to bring into view information that is to the left or right of the display's boundaries.

select. The ability to choose only certain records from a file based on field values.

shell document. A standardized document that uses variable information to complete it.

sort. The ability to arrange records sequentially according to field values.

status lines. The first two lines of the display which indicate special functions currently being performed, the document name, the identity of the cursor codes or symbols, the diskette name(s), page number, line number, keyboard number, and pitch.

switched communications line. A mode of operating data communications in which the physical connection between the terminals is established through communications equipment. The connection must be established for each message or

series of messages involved in the transmission. Synonym for switched line.

transmission. In communications, one or more blocks or messages.

transparency. In teleprocessing, the ability to send EBCDIC control and graphic characters that are not acted upon as transmission control characters by the receiving device.

variable. Information (such as name, date, time) that can be inserted within a standardized document.

widow line. A single first or last line of a paragraph separated from its related text and appearing on a different page.

work station. In the IBM Displaywriter System, the combination of Electronics Module, Display Module, Keyboard Module, and Diskette Unit.

Index

- alternating headers 40
- alternating footers 40
- application area 7
- arithmetic 42
- Asynchronous Communications
 - description of 24, 48
 - Features and Capabilities 48-50
- batch print
 - "Selectric" Printer 13
 - Printwheel Printer 15
- Binary Synchronous Communications
 - description of 24, 50
 - Features and Capabilities 50-52
- block overstrike 40
- centering 31
- coded functions 9
- column processing 41
- communications
 - equipment 18-19
 - functions 46-52
- configuration 2-3
- constant text 39, 58
- cursor 8
- cursor movement keys 9
- customer setup 4, 67-68
- Data Stream Compatibility (3270)
 - description of 52-53
 - equipment 54
- design features 6
- diskette
 - defined 10
 - licensed program 23
 - type 10
 - work 10, 23
- diskette unit
 - Dual 11
 - Single 10
- display format 7
- display module 2, 6-7
- display page positioning 8
- display station 6
- document management functions
 - advanced text 36-40
 - arithmetic 41-42
 - column processing 41
- document assembly 39
- documents
 - creating 29-32
 - paginating 32
 - printing 32
 - revising 33
- dual diskette unit 9
- EIA Interface 24
- electronics module 2, 6
- emulation (3270) 52-54
- equipment setup 4, 68
- fields 42
- files 42-46
- FIND 40
- footers 30
- form letters (see repetitive letters)
- format
 - choices 30-31
 - menus 25-26
 - personalization 28
- four-function math 29
- function control keys 9
- functions
 - communications 46-52
 - document management 29-46
 - operator assistance 24-27
 - system 27-28
 - 3270 DSC 52-54
- global replace/delete 40
- Glossary 83
- headers 30
- information management 28
- integrated modem 24, 27
- keyboard module 2, 8-9
- Languagepack 25, 35-36
- Languagepack 2 25, 35-36

- licensed program 2-3, 23
- licensed program support 70
- line spacing
 - "Selectric" Printer 12, 30
 - Printwheel Printer 15, 30
- lists 45

- Magnetic Card Conversion 25
- Mag Card Unit 17
- magnetic cards 17
- margins 30
- menus
 - communications 47
 - format 25-26
 - other 25
- merge
 - files with text 44-46
 - variables into constant text 39, 58, 60
- message line 7
- messages 27
- modem 24, 47

- Office System Support
 - Center 4, 67
- operator assistance functions
 - defined 24
 - menus 25-26
 - messages 27
 - prompts 27
- out of paper sensor 17
- out of paper switch 13
- page numbering 30
- pagination 32
- paper stand
 - "Selectric" Printer 14
 - Printwheel Printer 17
- personalization 28
- Pin-Feed Platen 13
- planning and equipment
 - setup 68
- print queue 32-33
- printer sharing 15, 32
- Printwheel Printer 14-15
- problem determination 69
- program diskette 10
- prompt line 7
- prompts 27

- repetitive letter
 - variables from a file 44-46, 65
 - variables manually inserted 36-39, 58
 - variables merged in 36-39, 58
- records 42
- Reportpack 25, 42
- revision
 - example 56-57
 - description of 33
- roll paper holder 13-14

- scale line 7
- "Selectric" Printer 12-13
- Sheet-Feed Paper
 - Handler 15-17
- single diskette unit 10
- spelling verification
 - aid 33-35
- status line 7
- stored paragraphs 39, 60-61
- support center 4, 67
- system personalization 28

- tab stops 31
- Textpack 1 Program 24
- Textpack 2 Program 24
- Textpack 3 Program 24
- Textpack 4 Program 24
- Tractor Feed 17
- trail print
 - "Selectric" Printer 13
 - Printwheel Printer 15
- training 4, 68-69

- variable information 39, 58
- viewport 7

- word underlining 31
- work diskette 10
- work station 2, 5
- work station control keys 9

- 3270 Data Stream
 - Compatibility 52-54

READER'S COMMENT FORM

G544-0851-3

General Information for the IBM Displaywriter System

Your comments assist us in improving the usefulness of our publications; they are an important part of the input used in preparing updates to the publications. IBM may use and distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

Please do not use this form for technical questions about the system or for requests for additional publications; this only delays the response. Instead, direct your inquiries or requests to your IBM representative or the IBM branch office serving your locality.

Corrections or clarifications needed:

Page	Comment
------	---------

Cut or Fold Along Line

Please indicate your name and address in the space below if you wish a reply.

Thank you for your cooperation. No postage stamp necessary if mailed in the U.S.A.
(Elsewhere, an IBM office or representative will be happy to forward your comments.)

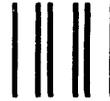
..... Cut or Fold Along Line

Reader's Comment Form

Fold and tape

Please Do Not Staple

Fold and tape



**NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES**

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

International Business Machines Corporation
Department 506, Building 998
11400 Burnet Rd.
Austin, Texas 78758



Fold and tape

Please Do Not Staple

Fold and tape



International Business Machines Corporation
Office Products Division
Parson's Pond Drive
Franklin Lakes, N.J. 07417

IBM General Business Group/International
421 Boston Post Road, Port Chester, N.Y., U.S.A. 10573

IBM Displaywriter System General Information Printed in USA G544-0851-3

G544-0851-3

IBM Displaywriter System General Information Manual Printed in USA G544-0851-3



International Business Machines Corporation
Office Products Division
Parson's Pond Drive
Franklin Lakes, N.J. 07417