

GA33-3040-6

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Systems

**An Introduction to the
IBM 8775 Display Terminal**



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- The phrase "instructions manual" means:
 - For installation information, *IBM 8775 Display Terminal: Site Preparation Guide*, GA33-3043, *IBM 8775 Display Terminal: Configurator*, GA33-3042, and *IBM 8775 Display Terminal: Setup Instructions*, GA33-3048.
 - For user information, *IBM 8775 Display Terminal: Terminal User's Guide*, GA33-3045.

Seventh Edition, October 1982

This is a major revision of, and obsoletes, GA33-3040-5. Information has been added concerning the Printer Attachment feature, the Spanish-Speaking Typewriter/Text Entry and Edit keyboard, and the Tilt-Rotate Accessory. Changes or additions are indicated by a vertical line to the left of the change.

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Preface

This reference manual provides an introduction to the IBM 8775 Display Terminal for customer executives, organization and methods managers, administrative services managers, data processing managers and planners, and IBM marketing representatives.

- Chapter 1 gives an overview of the 8775 Display Terminal.
- Chapter 2 describes the components and features of the 8775.
- Chapter 3 describes the functional control of the terminal in terms of data fields, characters, data transmission, display size, enhanced function, multiple partitions and scrolling, and printing.
- Chapter 4 gives a brief description of the programming support and reference material available.
- Chapter 5 describes the physical aspects of the display unit and keyboard from an operator standpoint.
- Chapter 6 describes the attachment of:
 - 8775 Models 1 and 2 to IBM 4331, 8130, and 8140 Processors through either a directly attached, or a data-link attached loop.
 - 8775 Models 11 and 12 to the processing unit of an IBM System/370, or to 4331, 4341, 8130, and 8140 Processors.
- Chapter 7 describes the functions provided by the Interactive Display Text Facility licensed program.
- Chapter 8 describes the reliability, availability, and serviceability aspects of the terminal.
- Chapter 9 gives setup planning data.

A glossary, a bibliography, and an index are included at the back of the manual.

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Frontispiece. IBM 8775 Display Terminal

Chapter 1. Introduction

The IBM 8775 Display Terminal (see Frontispiece) consists of a display unit, its attached keyboard and, optionally, a selector light pen and a magnetic-stripe reader.

Models of 8775

The 8775 is available in a choice of four models:

- *Models 1 and 11* offer a screen capacity of 960, 1920, or 2560 display characters in a 9 x 16 dot character matrix. Models 1 and 11 can display 2560 characters in 80 columns by 32 rows.
- *Models 2 and 12* offer a screen capacity of 960, 1920, or 2560 display characters in the 9 x 16 dot character matrix and 3440 characters in a 9 x 12 dot character matrix. In addition to the screen capacities of Models 1 and 11, Models 2 and 12 can display 3440 characters in 80 columns by 43 rows.

Features

The following features are available on all models of the 8775. Functions and operational characteristics are described in Chapters 2, 3, and 5.

- A selection of keyboard styles (including APL, overlay, and text entry and edit) in a choice of languages.
- Optional selector light pen.
- A Monocase Switch feature.
- Optional data security features, such as security keylock, magnetic reader control, audible alarm, setup keylock, and keyboard numeric lock.
- Printer attachment feature.

The following display features are also available for all models of the 8775, subject to certain restrictions described in *IBM 8775 Display Terminal: Configurator*, GA33-3042. The functions provided by these features must be downstream loaded from the host processor into the 8775 (see "Downstream Load" in Chapter 3).

Enhanced Function

The Enhanced Function feature provides highlighting, field validation, multiple partitions, and APL. These functions are summarized here and explained more fully in Chapter 3.

Highlighting

The user can select highlighting of a character or field as blinking, reverse video, or underscoring.

Field Validation

The field validation function allows the application program to identify data fields as any combination of the following, depending on the programming support:

- *Mandatory-Enter Field*: A mandatory-enter field is one whose contents must be modified by the operator before the operator can transmit any data from the partition.

- *Mandatory-Fill Field:* A mandatory-fill field is one which, if modified by the operator, must be filled with characters other than the null character before the operator can move the cursor out of the field or transmit any data from the partition.
- *Trigger Field:* A trigger field is one which, if modified by the operator, is transmitted on its own as soon as the operator tries to move the cursor out of the field; this allows the host program to receive and to validate fields one by one.

Multiple Partitions

The Multiple Partitions function enables the application program to divide the screen into rectangular areas, or partitions. Up to eight partitions may be defined. The operator may continue to key data into one partition while the application program processes data or writes to another partition.

APL

The APL keyboard permits entry of the space (blank) character plus a 175-character set, as follows:

- APL OFF: 94 EBCDIC characters
- APL ON: 81 APL characters, 52 EBCDIC characters (10 numeric, 26 alphabetic, 16 symbols)

Enhanced-Function-with-Magnetics

The Enhanced-Function-with-Magnetics feature provides the enhanced functions described above and also supports magnetic-stripe readers that use the 63-character alphanumeric character set.

Multiple Partitions and Scrolling

The Multiple Partitions and Scrolling feature provides the same facility as does the Multiple Partitions function, and also allows vertical scrolling within a defined partition without intervention by the host system software.

Programmed Symbols (PS-2 and PS-4)

Two Programmed Symbols features (PS-2 and PS-4) provide access and storage for up to six sets of special character fonts or pictorial characters, definable by the customer's programmers. Using the 3270 extended data stream and either Enhanced Function or Enhanced-Function-with-Magnetics, the programmed symbols can be accessed by the application program. Provided that the application designer permits it, the symbols can also be entered at the keyboard (87-key EBCDIC, 88-key Japanese, APL, and overlay keyboards; see Chapter 2).

The special symbols defined by the user can be represented on the keyboard by the use of overlays on the appropriate overlay keyboard.

Interactive Display Text Facility

The Interactive Display Text Facility (IDTF) licensed program enables the 8775 to be used both in data applications and in text applications. The text functions that IDTF provides are additional to the basic functions of the 8775. IDTF is available only for 8775s attached to IBM 8130 or 8140 Processors, and having the Enhanced Function, Multiple Partitions and Scrolling, and Enhanced-Function-with-Magnetics features. For further details, see Chapter 7.

Design Considerations

The 8775 has been designed with the following human-factors aspects in mind:

- *Antiglare Screen:* The screen is coated to reduce reflections.
- *Tilted Screen:* This helps the operator assume a comfortable viewing posture.
- *Variable Tilt:* A two-stage mechanism provides up to 5° variation in device angle to accommodate operator's preference and differences in desk-top heights. Alternatively, a Tilt-Rotate Accessory is available; this provides a greater variation in device angle and allows the display unit to be rotated.
- *Low Profile:* This helps prevent the operator from feeling isolated.
- *Weight:* The weight of the terminal is approximately 27 kilograms (58 pounds).

Attachment to System

Models 1 and 2 of the 8775 attach to an IBM 4331, 8130, or 8140 Processor through a loop that can be shared with other devices; the loop may be either a directly attached loop or a data-link attached loop. Models 11 and 12 provide data communication attachment to the processing unit of an IBM System/370, or to a 4331, 4341, 8130, or 8140 Processor through data communication features.

System attachment features are described in Chapter 6.

Reliability, Availability, and Serviceability

The 8775 incorporates the following aids to reliability, availability to the customer, and serviceability of the device:

- The machine can be unpacked, set up, and checked out by the customer's personnel.
- The machine is designed to give a high degree of reliability.
- The built-in aids to fault isolation reduce the reliance on interaction with the processor.
- A problem determination guide housed in the keyboard may be used by the operator, together with the indicators on the display unit. Use of the guide assists recovery from problems during operations and avoids unnecessary service calls.

Chapter 8 describes the above aids more fully. Chapter 9 gives information needed for planning the setup of the 8775.

Chapter 2. Components and Features

Components

The 8775 is a tabletop display station comprising a pearl-white display unit and an alphanumeric keyboard (Figure 2-1). Optionally, a selector light pen and a magnetic-stripe reader can be attached.



Figure 2-1. Display Unit and Keyboard

The keyboard is connected to the display unit by a cable that is long enough to allow the keyboard to be positioned in front of, or to one side of, the display unit. In turn, the display unit connects either through a loop or over data-link communication features to the processor.

The terminal provides a display of the data transmitted from the processor. A display unit and its attached keyboard enable the operator to view, enter, modify, or delete data on the display, and to cause the revised data to be returned to the processor for storage or additional processing.

System copy, that is, printing of the screen or partition contents, is initiated by either the Print key on the 8775 keyboard, or the application program. System copy is available only on 8775 Models 1 and 2 that are attached to 8130 or 8140 Processors.

Features

This section describes the features that are a customer-specified choice (*specify features*) and the features that are available as customer options (*special features*). For order details, see *IBM 8775 Display Terminal: Configurator*, GA33-3042.

Display Unit (Specify Features)

At the time of order, choice of model number of the 8775 automatically defines the character size and the maximum number of displayable characters:

- Models 1 and 11: These have a 9 x 16 dot character matrix and can display up to 2560 characters in 80 columns by 32 rows. Displays of 1920 or 960 characters are also selectable.
- Models 2 and 12: These have a 9 x 12 dot character matrix and allow up to 3440 characters, in 80 columns by 43 rows, to be displayed. Displays of 2560, 1920, or 960 characters in the 9 x 16 dot character matrix are also selectable.

Character sets for the following languages may be specified for 8775s that are not intended for use with the Interactive Display Text Facility (IDTF) licensed program. Character sets for 8775s that are to be used with IDTF are described in Chapter 7.

Austrian	Finnish	Japanese (English)	Spanish-Speaking
Belgian	French	Japanese (Katakana)	Swedish
Brazilian	German	Norwegian	English (United Kingdom)
Canadian-French	International	Portuguese	English (United States)
Danish	Italian	Spanish	EBCDIC

For full details of the character sets, see *IBM 8775 Display Terminal: Character Set Reference*, GA33-3041.

Keyboard (Special Features)

Various keyboards are available to attach directly to the integrated keyboard adapter in the display unit.

Typewriter Keyboard

The typewriter keyboard (Figure 2-2) retains the basic key layout found on an office typewriter, thus minimizing operator training. Special function keys, such as the ENTER key and cursor control keys, have been placed where they can be readily reached from the home row.

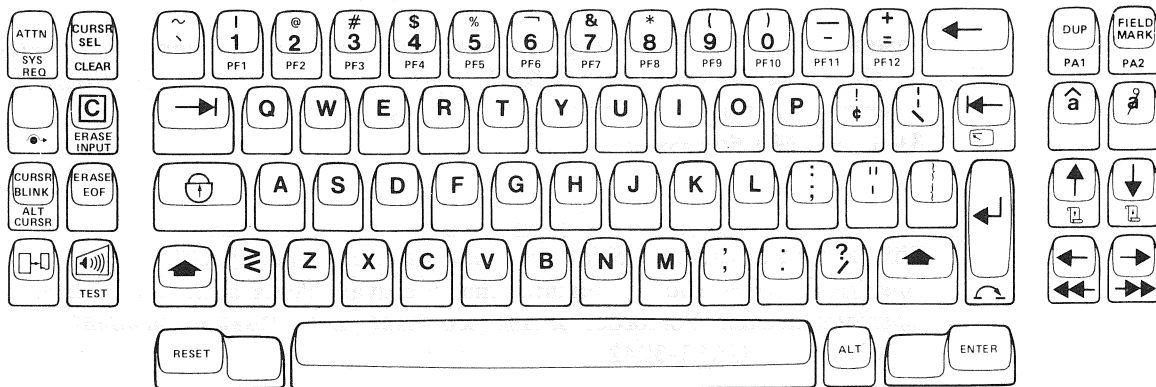


Figure 2-2. Typewriter Keyboard - English (United States)

87- and 88-Key EBCDIC Typewriter Keyboards

The 87-key EBCDIC typewriter keyboard (Figure 2-3) provides an additional twelve keys that allow the operator to select various additional programming and display highlighting functions. Japanese (Katakana) and Japanese (English) keyboards have 88 keys.

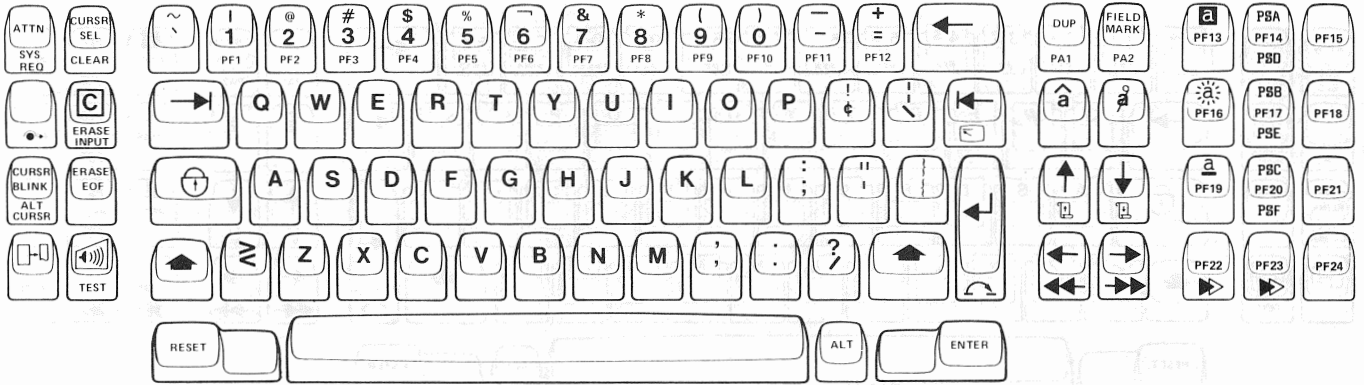


Figure 2-3. 87-Key EBCDIC Typewriter Keyboard - English (United States)

APL Keyboard

The APL keyboard (Figure 2-4) has a layout that is similar to the 87-key EBCDIC typewriter keyboard, with the twelve program function keys (1 to 12) at the right-hand side of the keyboard. The keyboard has a total of 87 keys, or 88 keys for Japanese (Katakana) and Japanese (English). Keypop APL characters are color-coded to distinguish them from the basic characters. The operator selects APL mode by using the APL ON/OFF key.

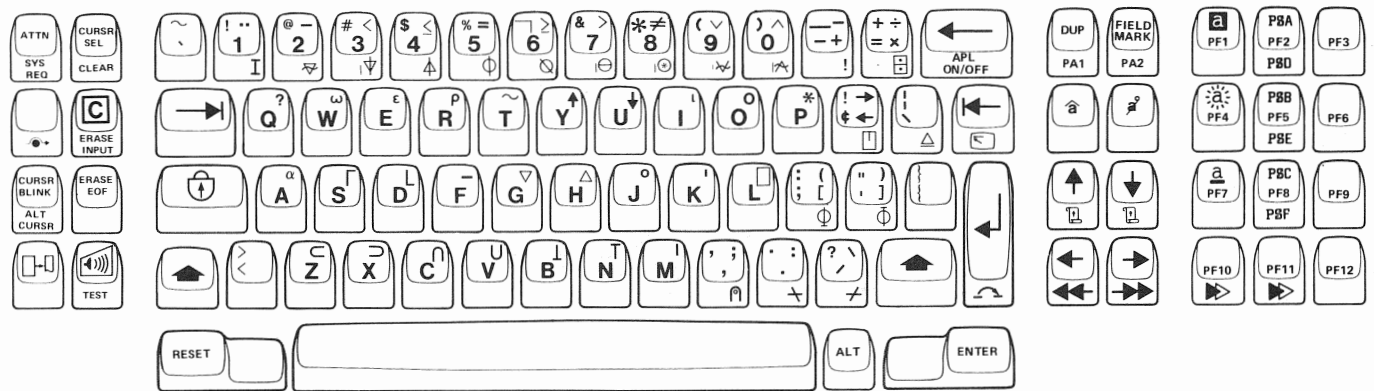


Figure 2-4. APL Keyboard - English (United States)

Overlay Keyboard

The overlay keyboard (Figure 2-5) has the same layout and can be used in the same way as the 87- or 88-key EBCDIC typewriter keyboard. Narrow keytops allow the use of overlays that can identify the special symbols or characters associated with each key, within a selected set of programmed symbols.

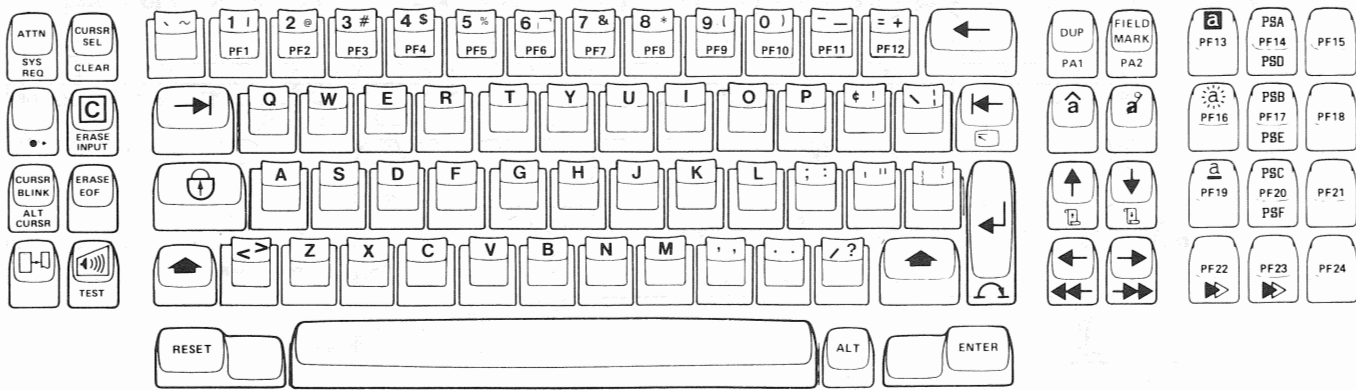


Figure 2-5. 87-Key EBCDIC Typewriter Overlay Keyboard - English (United States)

87- and 88-Key EBCDIC Typewriter/Text Entry and Edit Keyboards

The 87-key EBCDIC typewriter/text entry and edit keyboard (Figure 2-6) is similar in layout to the 87-key typewriter keyboard described earlier in this chapter. The twelve program function keys at the right-hand side of the keyboard have narrow, blank keytops that permit the use of a reversible overlay. One side of the overlay indicates the key functions of the standard 87-key EBCDIC typewriter keyboard; the other side indicates the key functions that apply when the 8775 is used with the IDTF program. Various other keys have legends that indicate functions and controls for use in text applications; these legends are colored lime-green for ease of recognition.

The text entry and edit keyboard is also available in 88-key Japanese (English) style.

Text entry and edit keyboards may be ordered only for 8775s that are intended for use with IDTF. For further details, see Chapter 7.

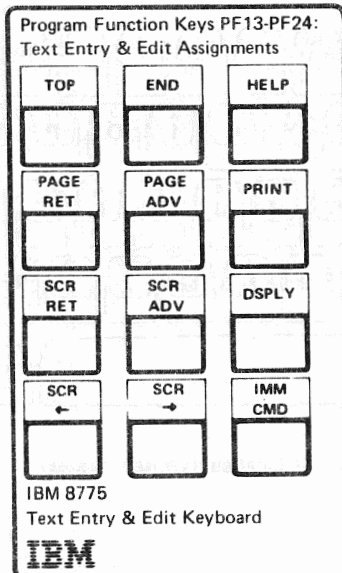
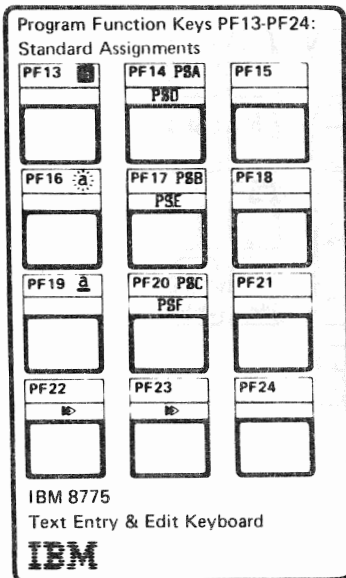
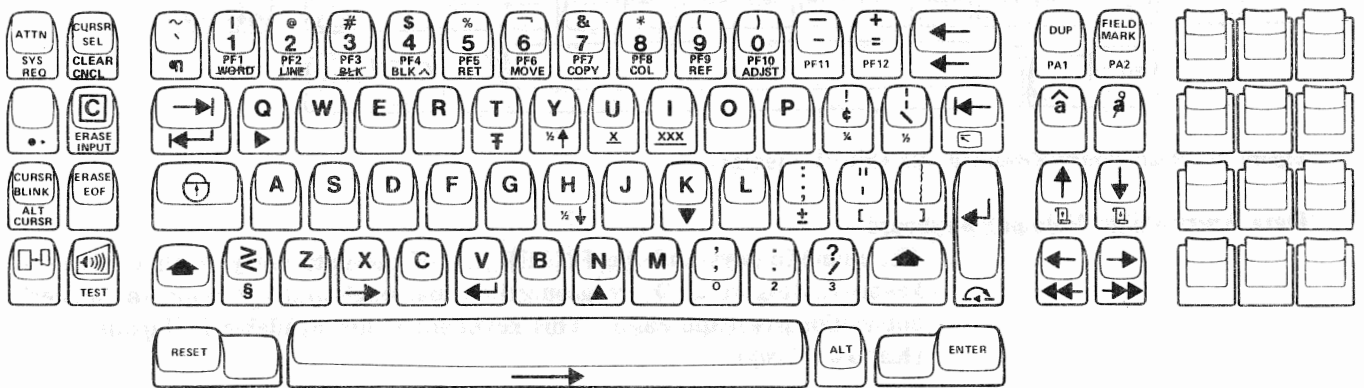


Figure 2-6. 87-Key Typewriter/Text Entry and Edit Keyboard - English (United States)

Data Entry Keyboard

The arrangement of alphabetic characters on the data entry keyboard (Figure 2-7) is the same as on a typewriter. However, the numeric keys and some function keys are positioned as on IBM card punches.

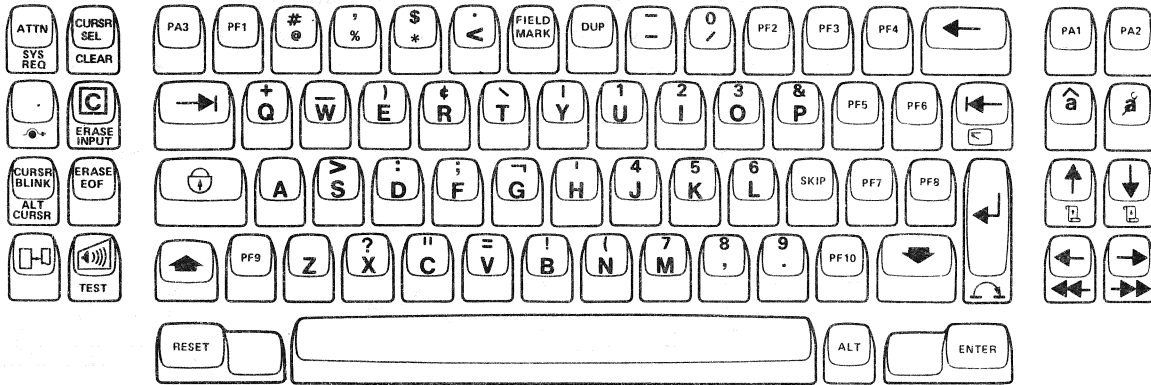


Figure 2-7. Data Entry Keyboard - English (United States)

Data Entry (High Volume) Keyboard

The numeric keys and the ENTER key of the data entry (high volume) keyboard (Figure 2-8) are grouped so that one-hand operation for numeric applications is made easier. This keyboard is not available in Japanese (Katakana) style.



Figure 2-8. Data Entry (High Volume) Keyboard - English (United States)

Japanese (Katakana) Keyboard

The Japanese (Katakana) keyboard is available in 76-key typewriter (Figure 2-9), 88-key typewriter, data entry, APL, and overlay keyboard styles, but not in the data entry (high volume) or text entry and edit styles. These keyboards support the 127-character Katakana character set; they have one additional key to allow the operator to shift between the Katakana and Latin character sets.

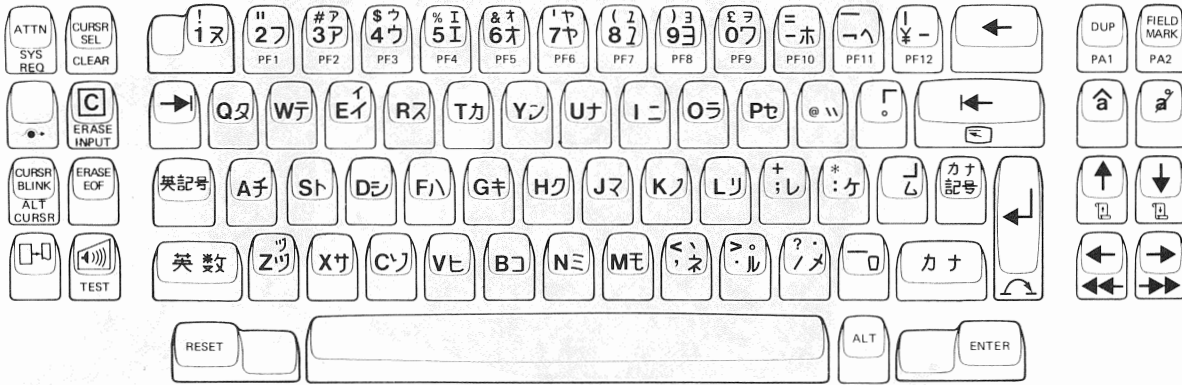


Figure 2-9. 76-Key Japanese (Katakana) Keyboard

Keyboard Language (Specify Features)

The following keyboard language options are available for 8775s that are not intended for use with the IDTF program. Keyboard languages for 8775s that are to be used with IDTF are described in Chapter 7.

Austrian	Japanese (English)
Belgian	Japanese (Katakana)
Brazilian	Norwegian
Canadian-French	Portuguese
Danish	Spanish
Finnish	Spanish-Speaking
French (AZERTY layout)	Swedish
French (QWERTY layout)	English (United Kingdom)
German	English (United States)
International	EBCDIC
Italian	

The keyboard language selected must correspond to the character set language specified.

For illustrations of all keyboards available, refer to *IBM 8775 Display Terminal: Character Set Reference*, GA33-3041.

Selector Light Pen (Special Feature)

The selector light pen enables the operator to interact directly with the display by selecting appropriately-designated character fields, as shown in Figure 2-10.

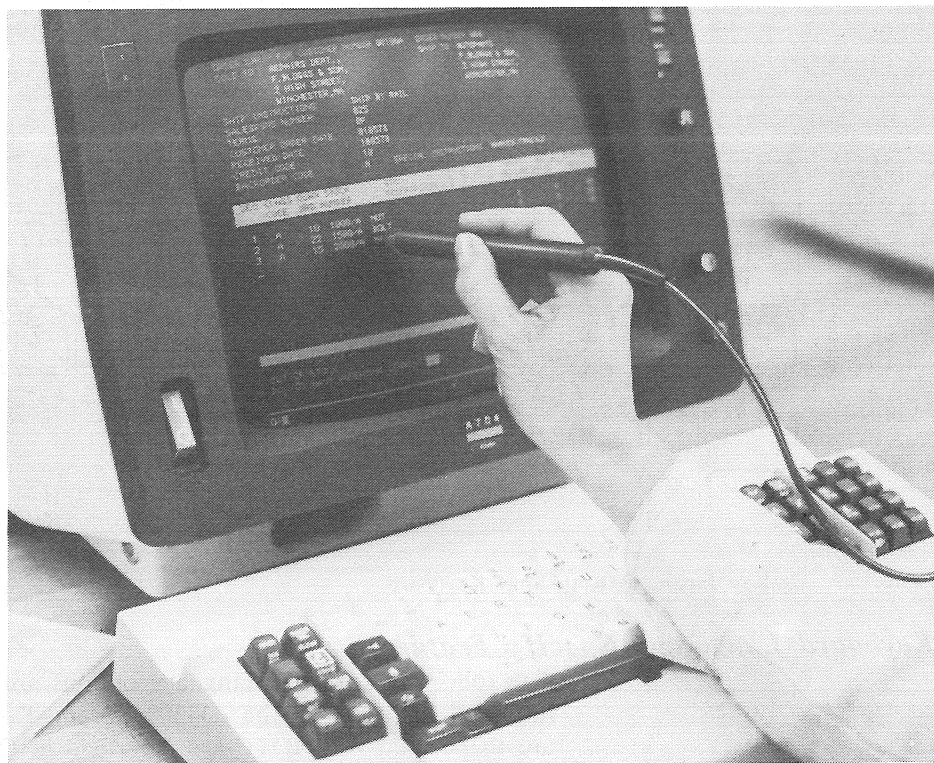


Figure 2-10. Use of Selector Light Pen

Audible Alarm (Special Feature)

The audible alarm sounds when a character is entered into the next-to-last position on the partition or display screen. The alarm can also be activated, under program control, to alert the operator to a special condition. The volume of the alarm may be adjusted by the operator.

Magnetic Reader Control (Special Feature)

The Magnetic Reader Control feature provides attachment to the 8775 of the following magnetic-stripe readers (which are purchase-only features):

- **Magnetic Slot Reader (Figure 2-11).** The magnetic slot reader enables an 8775 to read data encoded on magnetic-stripped cards. For 8775s *without* Enhanced-Function-with-Magnetics, the magnetic-stripped cards use a 10-character numeric character set. For 8775s *with* Enhanced-Function-with-Magnetics, the magnetic-stripped cards use a 63-character alphanumeric character set. This character set comprises alphabetic and numeric characters, special characters, and space.
- **Dual-Entry Magnetic Slot Reader.** The dual-entry magnetic slot reader enables an 8775 with Enhanced-Function-with-Magnetics to read data encoded on magnetic-stripped cards that use a 63-character alphanumeric character set. This character set comprises alphabetic and numeric characters, special characters, and space. The magnetic-stripped cards may be passed through the dual-entry reader in either direction.

- **Magnetic Hand Scanner (Figure 2-12).** The magnetic hand scanner enables an 8775 with Enhanced-Function-with-Magnetics to read data encoded on magnetic-striped labels (affixed to any object such as box, shelf, or product) or on hand-held magnetic-striped tags (placed on flat surfaces) that use a 63-character alphanumeric character set. This character set comprises alphabetic and numeric characters, special characters, and space.

Stripe capacity, that is, the number of characters that can be encoded on the magnetic stripe, is the same for the magnetic hand scanner as it is for the magnetic slot readers; the scanner, however, requires the full width of the stripe to be encoded.

The above magnetic-stripe readers have colored indicators and an audible alarm to guide the operator. When a reader is attached to an 8775 having Enhanced-Function-with-Magnetics, the indicators and audible alarm can be controlled by the application program.

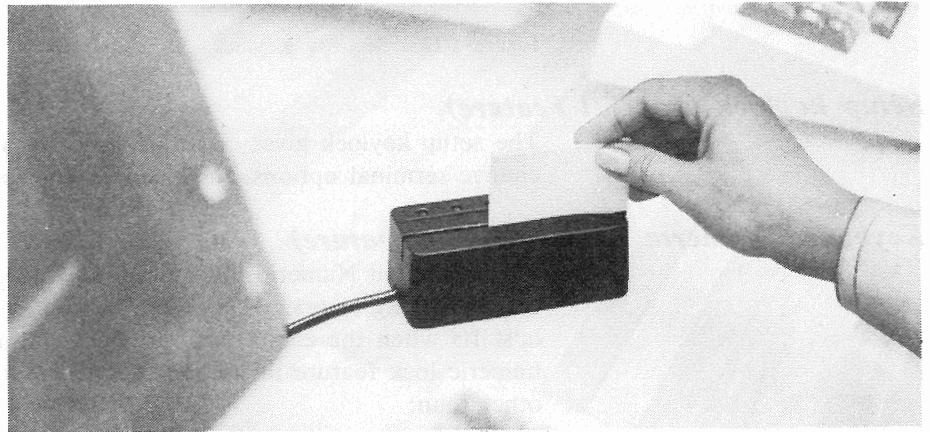


Figure 2-11. Magnetic Slot Reader

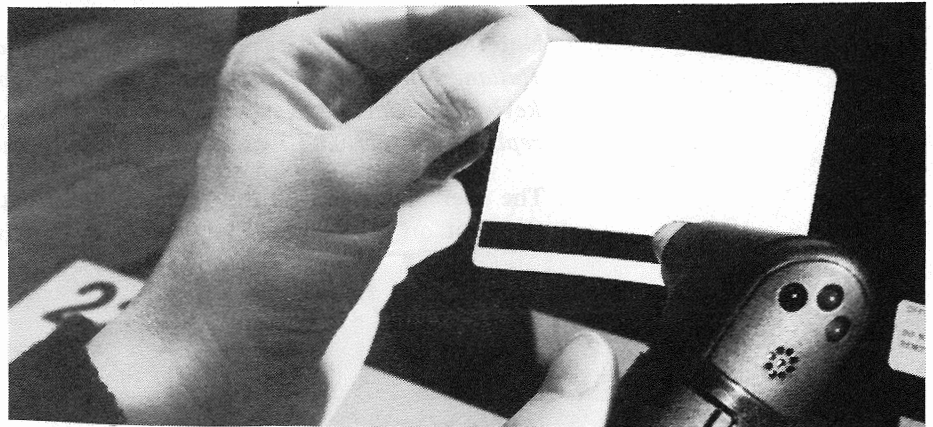


Figure 2-12. Magnetic Hand Scanner

Security Keylock (Special Feature)

The security keylock (Figure 2-13) allows control over the use of the 8775 and its attached devices. With the lock in the off position, the display screen is normally blanked (except for the Operator Information Area) and the attached devices are inoperative.

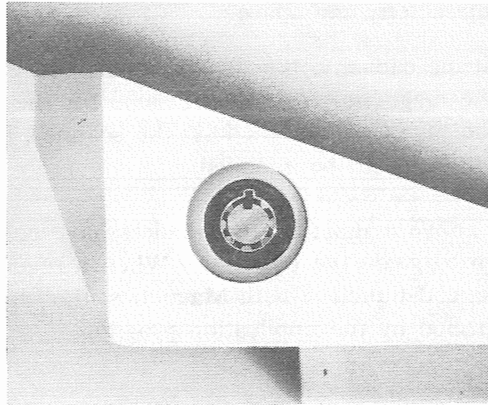


Figure 2-13. Security Keylock

Setup keylock (Special Feature)

The setup keylock gives controlled access to authorized customer personnel to change terminal options, for example, the terminal address.

Keyboard Numeric Lock (Special Feature)

The Keyboard Numeric Lock feature provides a means of alerting the user to certain keying errors. For a data entry keyboard, the 8775 automatically upshifts when the cursor is positioned within a numeric input field. With the numeric lock feature in use, the keyboard is locked if any key is pressed other than:

- Numerals 0 through 9, minus (-), period (.), and duplicate (DUP)
- Error Override (if enhanced functions or enhanced-functions-with-magnetics are loaded)

Note: *On Austrian/German, Belgian, Brazilian, Danish, Finnish, French, Italian, Norwegian, Portuguese, Spanish, Spanish-Speaking, and Swedish keyboards with the Keyboard Numeric Lock feature installed, the comma (,) replaces the period (.) as a valid numeric character.*

The user may override the numeric lock feature on a data entry keyboard (but not on a typewriter keyboard) by holding down the alpha shift key.

Configurations

IBM 8775 Display Terminal: Configurator, GA33-3042, gives detailed information for standard supplied items and options or features. Figure 2-14 gives outline information.

8775 Models 1, 2, 11, and 12

Item	Options (see Notes)
Power (ac)	100 to 120 volts; 127 volts; 200 to 230 volts; 240 volts
Power Cord Plug	Locking; Nonlocking
Power Cable	2.8 meters (9 feet); 1.8 meters (6 feet); 3.7 meters (12 feet); 4.5 meters (15 feet)
Keyboard Cable	0.9 meter (3 feet) standard; or 1.8 meters (6 feet)
Machine Nomenclature	Brazilian; Canadian-French; Danish; Dutch; English (U.K); English (U.S); Finnish; Flemish; French; German; Italian; Japanese; Norwegian; Portuguese; Spanish; Swedish
Character Set Language	Austrian/German; Austrian/German (A); Belgian; Brazilian; Canadian-English; Canadian-French; Danish/Norwegian; Danish/Norwegian (A); EBCDIC (WT); English (U.K); English (U.S); Finnish/Swedish; Finnish/Swedish (A); French; International; Italian; Japanese (English); Japanese (Katakana); Netherlands; Portuguese; Spanish; Spanish (A); Spanish-Speaking
Keyboard Language	Austrian/German; Belgian; Brazilian; Canadian-English; Canadian-French; Danish; EBCDIC (WT); English (U.K); English (U.S); Finnish; French (AZERTY); French (QWERTY); International; Italian; Japanese (English); Japanese (Katakana); Netherlands; Norwegian; Portuguese; Spanish; Spanish-Speaking; Swedish
Keyboard	75-Key Typewriter; 75-Key Data Entry; 75-Key Data Entry (High-Volume); 87-Key EBCDIC Typewriter; 87-Key EBCDIC Typewriter/APL; 87-Key EBCDIC Typewriter Overlay; 87-Key EBCDIC Typewriter/Text Entry and Edit; 76-Key Japanese English/Japanese Katakana Typewriter; 76-Key Japanese Katakana Data Entry; 88-Key Japanese English/Japanese Katakana Typewriter; 88-Key Japanese English/Japanese Katakana Typewriter/APL; 88-Key Japanese English/Japanese Katakana Typewriter Overlay; 88-key Japanese English Typewriter/Text Entry and Edit

Notes:

- Options may be subject to certain restrictions; consult your IBM Marketing Representative.
- An (A) following a character set language denotes the alternative-language character set.

Figure 2-14 (Part 1 of 4). Components and Features of 8775

8775 Models 1, 2, 11, and 12

Item	Options (see Note)
Display Features	Enhanced Function; Multiple Partitions and Scrolling; Enhanced-Function-with-Magnetics; Feature Adapter; Extended Feature Store; Programmed Symbols PS-2; Programmed Symbols PS-4; Magnetic Media;
Interactive Display Text Facility	
Operator Control	Keyboard Numeric Lock; Selector Light Pen; Monocase Switch
Data Security	Audible Alarm, Security Keylock; Setup Keylock
Magnetic Readers and Accessories	Magnetic Reader Control; Magnetic Slot Reader; Dual-Entry Magnetic Slot Reader; Magnetic Hand Scanner; Extension cables for Magnetic Readers or Scanner; Battery; Tilt-Rotate Accessory
Printer Attachment	

Note: Options may be subject to certain restrictions; consult your IBM Marketing Representative.

Figure 2-14 (Part 2 of 4). Components and Features of 8775

8775 Models 1 and 2 only

Item	Options (see Note)
Communication Cable	1.8 meters (6 feet) standard; 4.3 meters (14 feet)
Communication	Loop Adapter
Loop Speed	Directly attached loop: 9,600 bits per second; 38,400 bits per second Data-link attached loop: 2,400 bits per second; 4,800 bits per second; 9600 bits per second
Attachment	Initial Attachment; Additional Attachment; 4331 Processor Designator; 8130 Processor Designator; 8140 Processor Designator

Note: Options may be subject to certain restrictions; consult your IBM Marketing Representative.

Figure 2-14 (Part 3 of 4). Components and Features of 8775

8775 Models 11 and 12 only

Item	Options (see Note)
1 Communication Cable	6.1 meters (20 feet) standard; 3.0 meters (10 feet); 9.1 meters (30 feet); 12.2 meters (40 feet) Attachment Cable to Data Services in the United Kingdom
Telecommunication	Business Machine Clocking; CCITT ¹ V.35 Interface; 1200 bps Integrated Modem, Non-Switched; Digital Data Service (DDS) Adapters; External Modem Interface; X.21 Adapter for Nonswitched Networks; Attachment to Public Switched Network; Attachment to Nonswitched Communication Facilities; Interface Test
Data Communication Speed	600 bits per second; 1,200 bits per second; 2,000 bits per second; 2,400 bits per second; 4,800 bits per second; 9,600 bits per second (Not all the features listed above support all speeds.)
Attachment	Initial Attachment; Additional Attachment; System/370 CPU Designator; 4331 Processor Designator; 4341 Processor Designator; 8130 Processor Designator; 8140 Processor Designator

Note: Options may be subject to certain restrictions; consult your IBM Marketing Representative.

¹ The International Telephone and Telegraph Consultative Committee

Figure 2-14 (Part 4 of 4). Components and Features of 8775

Chapter 3. Functional Control

This chapter describes the functional control of the 8775 in terms of data fields, characters, data transmission, display size, display features, and printing. For 8775s that are intended for use with the Interactive Display Text Facility (IDTF) licensed program, see also Chapter 7.

In this chapter, the word "screen" can be taken to refer to a full screen or to a partition, as applicable.

Data Field Control

Format

The display presentation may be either unformatted or formatted. With an unformatted screen, the screen is used in a free-form manner. A formatted screen contains fields whose attributes and position are defined by the application program. The fields may be defined to start at any screen (or partition) position and may be of any length up to a full screen (or partition size) less one undisplayed attribute character.

The characteristics of the field may include:

- Protected, for data that the operator cannot modify
- Unprotected, for input data
- Brightness (normal/bright)
- Alphanumeric input
- Display or nondisplay
- Numeric
- Auto skip/tab - which causes automatic cursor positioning to the next unprotected field
- Selector light pen detectable
- Field validation, including mandatory-enter field, mandatory-fill field, and trigger field
- Highlighting by reverse video, blinking, and underscoring

Protected Fields

The application programmer can designate fields on the display screen as protected fields. These fields are generally for the operator's information and they cannot be overwritten while protected. An example is the legend 'CUSTOMER NAME,' which would be a protected field. The following field, in which the operator would enter the customer name, would not be protected.

Nondisplay Keying Mode

The nondisplay field attribute permits program definition of fields so that they will accept data entered from the keyboard or from the program without the data being displayed on the screen.

Cursor Control

Additional cursor control is provided as follows:

- A cursor home key can be used to return the cursor to the start of the first unprotected field on the screen or partition.

- The Jump Partition key moves the cursor from its current partition into the next sequential partition on the screen.
- The cursor-move-left and cursor-move-right keys move the cursor two character positions at a time in alternate shift. This allows the operator to reposition the cursor quickly.
- The operator can select either the normal cursor or a reverse video cursor, with the option of making the cursor blink.

Character Control

Character Attribute Control

In a formatted or unformatted screen, the attributes of individual characters can be controlled by the application program or by the operator (if permitted). These character attributes control reverse video, blinking, underscoring, and programmed symbol set selection on a character basis.

Character Addressing

The 8775 provides character addressing facilities that allow a program-write operation to start at any character position of the screen. The write address can be set any number of times during a write operation or update operation, or both. This action allows selective write operations to various noncontiguous areas of the screen. The addressing facilities also allow the modification of single or multiple field-attribute control characters as well as data characters.

Monocase Switch

An 8775 with the Monocase Switch (an optional feature, see Figure 5-1) provides a choice to the operator of:

- Displaying *lowercase coded* characters as either uppercase or lowercase characters
- Displaying uppercase characters only
- Displaying uppercase *and* lowercase characters

The Monocase Switch feature is not available on machines with Katakana keyboards.

Data Transmission Control

Erase All-Unprotected Operation

An erase-all-unprotected operation erases, by programmed command, all unprotected data fields to null codes and positions the cursor in the first unprotected field of the screen or partition.

Null Suppression

To minimize the length of messages transmitted from the 8775 to the processor, 8775 data fields can be erased to null codes (which display as blank character positions) under operator or program control. When an operator keys data into a field, data codes replace null codes, leaving null codes in any unkeyed positions of the field. When the data is sent to the processor, the null codes are not transmitted as part of the message.

Repeat Characters

To minimize the number of data characters that must be sent to an 8775, the display can be made to write repeatedly a specified character code from the current write address position into all positions up to a specified address. Four control bytes transmitted to the 8775 can cause identical character codes to be written, up to the maximum character count of the particular display terminal.

Program Tab

To minimize the length of a message sent to a display terminal, the 8775 automatically writes successive data fields into successive unprotected data fields that were previously defined. This action eliminates the need to transmit control characters for specifying the starting address of noncontiguous data, thereby reducing the number of control characters required.

Read-Modified Operation

A read-modified operation transfers only data fields that have been changed by the operator and suppresses null codes. The operation reduces the message size by including essential data only, thus minimizing data transmission.

Short-Read Operation

To allow an operator to communicate with the application program without transmitting data fields to the processor, the information transmitted is restricted to that required for identifying the key that was pressed. This action eliminates the transmission of unnecessary data.

Control of Display Size

A program may specify two sizes of display, the default size and the alternative size. The program controls the actual size to be employed at any one time by using the Erase Write command for the default size and the Erase Write Alternate command for the alternative size.

Display Features and Their Functions

Enhanced Function Feature

The Enhanced Function feature provides the following display functions:

- Highlighting
- Field validation
- Multiple partitions
- APL

Highlighting

The 8775 can provide the ability to highlight a field or a character. The types of highlighting available are:

- Underscore: The field or character is underscored.
- Blink: The field or character flashes on and off.
- Reverse Video: The light intensity between the character(s) and the matrix background is reversed. This form of highlighting is analogous to a normally black-on-white character becoming a white-on-black character.

In addition, a field can be highlighted by being intensified.

Field Validation

Field validation provides for the checking of fields as they are entered from the keyboard. The field validation functions are mandatory enter, mandatory fill, and trigger field.

Mandatory-Enter Field: Any field can be given the mandatory-enter field attribute. The contents of the field must be modified before the operator can transmit any data from the partition.

Mandatory-Fill Field: Any field can be given the mandatory-fill field attribute. If any data in the field is modified by the operator, the field must be filled with characters other than null characters before the operator can move the cursor out of the field or transmit any data from the partition.

Trigger Field: The trigger field performs automatic data transfer to the processor. Its function is triggered by the operator attempting to move the cursor from the designated field. At this stage, the field data is sent to the processor; the cursor, however, is kept within the field and up to 30 subsequent keystrokes are queued but not displayed. This process continues until a response is received from the processor. The response will be either (1) *positive* (for example, keyboard restore), allowing the queued keystrokes to be displayed and the cursor to be released, or (2) *negative*, discarding the queued keystrokes as a result of an error message received from the application.

Multiple Partitions

Up to eight rectangular areas may be defined by the application program for concurrent display on the screen. Each area functions as a separate display, with the cursor wrapping at its boundaries. Furthermore, the operator can continue to key data into one partition while the application program processes data or writes to another partition.

APL

The APL (A Programming Language) feature provides a problem-solving language that is designed for mathematical applications. The feature requires an APL keyboard, which can be switched between the standard character set and the APL character set by pressing the APL On/Off key. When the keyboard is in APL mode, the APL character set is operational and an APL indicator is displayed.

Enhanced-Function-with-Magnetics Feature

The Enhanced-Function-with-Magnetics feature provides the same display functions as does the Enhanced Function feature, and also supports magnetic-stripe readers that use the 63-character alphanumeric character set.

Multiple Partitions and Scrolling Feature

The Multiple Partitions and Scrolling feature allows the same screen division as does the Multiple Partitions function of the Enhanced Function or Enhanced-Function-with-Magnetics feature (that is, up to eight rectangular areas). In addition, Multiple Partitions and Scrolling allows the partition or the screen to be programmed as a scrollable partition. Depending on the partition or screen configuration defined by the application program, the feature provides vertical scrolling of up to 58 lines that are not more than 80 characters wide.

The line-by-line scrolling within the partition or screen is controlled by keyboard scroll-up and scroll-down keys and without intervention of the application program.

Programmed Symbols Features

The Programmed Symbols features provide storage and access of up to six 190-character sets; the fonts or pictorial characters may be defined by the user's application program. The two sets of 190 user-definable code points of the Programmed Symbols 2 (PS-2) feature may be adequate for alphanumeric applications of the feature. The Programmed Symbols 4 (PS-4) feature that is available in addition to the PS-2 feature is likely to be more suitable for graphic applications.

The programmed symbol sets are loaded under program control and can be changed or used together with the basic character set of the 8775 and its display functions, providing the application program permits the user to do so.

Downstream Load

The functions of the display features are implemented by data (microcode) that has previously been loaded into storage at the host processor from a diskette (8100 processors) or a magnetic tape (System/370 and 4300 processors) provided by the Magnetic Media feature.

To enable a display feature to be used in a particular application, the microcode for that feature must be loaded from the processor into the 8775 (downstream load). However, only one display feature can be downstream loaded and used at any one time. Therefore, each time an application requires a change of display feature, a downstream load of the appropriate microcode is necessary. (See "Setup Modes" in Chapter 8.)

This procedure also applies to the IDTF program. The program must be loaded into storage at the host processor (8100 only) from a diskette, and downstream loaded when required.

The required display feature (or the IDTF program) is downstream loaded when the user selects the appropriate code during terminal setup; see the list below, and "Setup Modes" in Chapter 8.

- Code 0: Basic functions only (no downstream load)
- Code 1: Enhanced Function
 - Highlighting
 - Field Validation
 - Multiple Partitions
 - APL
 - Programmed Symbols
- Code 2: Multiple Partitions and Scrolling

- Code 3: Enhanced-Function-with-Magnetics
 - Highlighting
 - Field Validation
 - Multiple Partitions
 - APL
 - Programmed Symbols
 - 63-Character-Set Magnetics
- Code 4: Interactive Display Text Facility (IDTF)

Notes:

1. *No downstream-load takes place when code 0 is selected, because the microcode for basic functions is stored permanently in the terminal.*
2. *The selector light pen can be used with any code selected. With code 4 (IDTF) selected, however, the selector light pen can be used only in an active alphanumeric partition (see Chapter 7).*
3. *Magnetic-stripe readers that use the 10-character numeric character set can be used with any code selected. With code 4 (IDTF) selected, however, the readers can be used only in an active alphanumeric partition (see Chapter 7).*
4. *Magnetic-stripe readers that use the 63-character alphanumeric character set can be used only when code 3 is selected.*

Interactive Display Text Facility

For information about the functions provided by the IDTF licensed program, see Chapter 7.

Initiating Printing From The Terminal (System Copy)

The System Copy function of the 8775 Model 1 or Model 2, attached to an 8130 or 8140 Processor, is initiated when the operator presses the print key or when the application program requests the function. The terminal must be predefined as being eligible for system-copy operation and the copy function must be selected during customer setup. The data to be printed is transmitted to the processor for formatting and transmission to the assigned printer. The printer may be on the same or another loop.

If the screen is partitioned, each depression of the print key causes the current partition to be printed. If the screen is not partitioned, the whole screen is printed. This function is not supported when the 8775 Model 1 or Model 2 is attached to a 4331 Processor.

| System Copy is not available on 8775s that have the Printer Attachment feature.

Printer Attachment Feature

The Printer Attachment feature enables any one of the following IBM printers to be attached to the 8775 without the need for a controller:

- IBM 3230 Printer Model 2
- IBM 3262 Printer Model 13
- IBM 3268 Printer Model 2
- IBM 3287 Printer Models 1, 2, 1C, and 2C
- IBM 5210 Printer Models G01 and G02
- IBM 7436 Printer Model 1

An 8775 with the Printer Attachment feature provides the functions required to control the printer *without* the need for microcode to be downstream loaded from the host processor. The feature can receive and interpret commands and data, define their format, and transfer this information, through a coaxial cable, to the printer. Printer error conditions or temporary delays in printer availability are brought to the attention of the 8775 operator by symbols displayed in the Operator Information Area of the 8775 screen.

The Printer Attachment feature provides the following print facilities:

- "Local Copy" printing, in which a copy of the screen is printed on the attached printer. A local-copy operation can be initiated either by the 8775 operator or by the host (on the logical unit type 2 session¹). Local-copy requests that are initiated by the operator, but cannot be accepted by the processor, may be canceled from the 8775 keyboard.
- Bulk printing controlled by the host processor (logical unit type 1 or type 3 session).
- The use of both local copy and bulk printing, in shared mode.

Note: *The system-copy function (see "Initiating Printing from the Terminal" earlier in this chapter) is not available on 8775s that have the Printer Attachment feature.*

¹ For information about logical unit sessions, see *Systems Network Architecture Format and Protocol Reference Manual: Architecture Logic*, SC30-3112.

Figure 3-1 illustrates the differences between the print facilities.

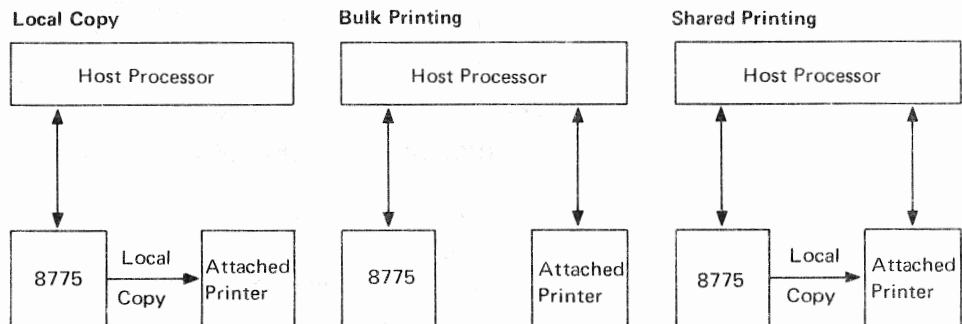


Figure 3-1. Facilities Provided by the Printer Attachment Feature:
This figure shows the logical (not physical) communication paths available for each of the print facilities

The Printer Attachment feature is not available for 8775s that have any of the display features (Enhanced Function, Multiple Partitions and Scrolling, or Enhanced-Function-with-Magnetics), or for 8775s that are intended for use with IDTF.

System Planning Note: *Because 8775s have the Printer Attachment feature installed only at the plant, take account of possible future requirements for the printers when planning your system configuration.*

Printers

The 3230, 3262 Model 13, 3268, 3287, 5210, and 7436 Printers are designated as customer-setup devices. Each printer is shipped with unpacking and setup instructions. Full details of the printers are given in the following publications:

IBM 3230 Printer Model 2: Product Description, GA24-3759

IBM 3262 Printer Models 3 and 13: Component Description, GA24-3741

IBM 3268 Printer Model 2: Description, GA27-3268

IBM 3287 Printer Models 1 and 2: Component Description, GA27-3153

IBM 3287 Printer Models 1C and 2C: Component Description, GA27-3229

IBM 7436 Printer Model 1: Component Description, GA33-3072

The printer is attached to the 8775 by way of a coaxial cable. For details, see "Coaxial Cable for Printer Attachment Feature" in Chapter 9.

Program Product Support

All program products or programming support provided under Systems Network Architecture/Synchronous Data Link Control (SNA/SDLC) for a 3230, 3262 Model 13, 3268, 3287; 5210, or 7436 Printer, attached to an IBM 3274 or 3276 Control Unit, can be used for a similar printer attached to an 8775 with the Printer Attachment feature; see Note below. As a result, the host programs written for displays and printers attached to the 3274 or 3276 can generally be used without any change. Further details are given in the publications listed under "Printers" earlier in this section.

Note: *The following printer functions are not supported when the printer is attached to an 8775:*

- *Extended Highlighting (underscore)*
- *APL*
- *Programmed Symbols*
- *Extended Color*
- *SNA Character-String Support for Structured Field and Attribute Processing*

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail.

2. The second part of the document outlines the various methods used to collect and analyze data. It includes a detailed description of the sampling techniques employed and the statistical tests used to evaluate the results.

3. The third part of the document provides a comprehensive overview of the findings of the study. It discusses the implications of the results and offers recommendations for future research and practice.

4. The fourth part of the document contains a detailed appendix of the data used in the study. This includes a list of all the variables measured and the specific values recorded for each observation.

5. The fifth part of the document provides a summary of the key findings and conclusions. It highlights the most significant results and discusses their potential impact on the field of study.

6. The sixth part of the document includes a list of references to the literature cited in the study. This provides a clear path for readers who wish to explore the topics discussed in more detail.

7. The seventh part of the document contains a list of figures and tables that are included in the study. This provides a quick reference for readers who wish to consult the data presented in the text.

8. The eighth part of the document provides a final summary of the study and its contributions. It reiterates the main findings and offers a final thought on the importance of the research.

Chapter 4. Programming Support

This chapter lists the IBM program products that are available for use with the 8775. The term 'basic functions' refers to those functions of the 8775 that are comparable with the functions of the IBM 3276 and 3278 Display Stations. These basic functions are stored permanently in the 8775. The term 'display features' refers to those features whose functions must be downstream loaded from the host processor into the 8775. (See "Display Features and Their Functions", and "Downstream Load" in Chapter 3.)

The downstream load function is provided by a utility program in the host processor. This program sends the correct device microcode to support the display functions that have been selected by the user at terminal setup. Downstream load occurs whenever the 8775 powers on, or whenever the user selects a different set of display functions.

Support for Basic Functions

- When an 8775 Model 1, 2, 11, or 12 is attached to an 8100 processor, support is provided by either of the following:
 - DPPX²
 - DPCX³
- When an 8775 Model 1 or 2 is attached to a 4331 Processor, support is provided by either of the following:
 - ACF/VTAME⁴ for VSE/AF⁵
 - ACF/VTAM⁶ for OS/VS1⁷
- When an 8775 Model 11 or 12 is attached to a System/370 or 4300 processor, support is provided by any one of the following:
 - ACF/VTAME for VSE/AF
 - ACF/VTAM for VSE/AF
 - ACF/VTAM for OS/VS1
 - ACF/VTAM for OS/MVS⁸
 - ACF/TCAM⁹ for OS/MVS

Support for Applications

Any application program that runs on one of the above Access Methods, and supports an IBM 3276, 3277, or 3278 Display Station connected as an SNA LU-2¹⁰, will also support an 8775, provided that only basic functions are required.

² Distributed Processing Programming Executive

³ Distributed Processing Control Executive

⁴ Advanced Communication Function/Virtual Telecommunications Access Method Extended

⁵ Virtual Storage Extended/Advanced Function

⁶ Advanced Communication Function/Virtual Telecommunications Access Method

⁷ Operating System/Virtual Storage 1

⁸ Operating System/Multiple Virtual Storage

⁹ Advanced Communication Function/Telecommunications Access Method

¹⁰ Systems Network Architecture Logical Unit Type 2

Support for Display Features

- When an 8775 Model 1, 2, 11, or 12 is attached to an 8100 processor, support is provided by either of the following:
 - DPPX
 - DPCX
- When an 8775 Model 1 or 2 is attached to a 4331 Processor, support is provided by either of the following:
 - ACF/VTAME for VSE/AF
 - ACF/VTAM for OS/VS1
- When an 8775 Model 11 or 12 is attached to a System/370 or 4300 processor, support is provided by either of the following:
 - ACF/VTAME for VSE/AF
 - ACF/VTAM for OS/VS1

Note: *On 8100 processors, the downstream load program is an integral part of the DPPX or DPCX operating systems. On System/370 and 4300 processors, downstream load is an independent licensed program. When an 8775 is attached to a System/370 or 4300 processor by way of an 8100 processor, downstream load may be provided by the relevant 8100 operating system. In such a system, all the processor/operating system environments, described previously for basic functions, are available to applications that require the 8775 display features. These applications can communicate with the 8775 by using the Data Stream Compatibility (passthrough) support of DPPX and DPCX.*

Support for Applications

Support for user applications that use display features is as follows:

- When an 8775 is attached to an 8100 processor, all functions are supported by either of the following:
 - DPPX/DPS
 - DPCX
- When an 8775 is attached to a System/370 or 4300 processor, all functions are supported by either of the following:
 - CICS/DOS/VS¹¹
 - CICS/OS/VS¹²

Some of the functions, however, are supported only at the Terminal Control level.

- The Programmed Symbols Features are supported by GDDM¹³.
- Text functions and the Interactive Display Text Facility Licensed Program are supported by DOSF¹⁴.

For further information about support provided for the 8775 by the program products listed in this chapter, refer to the appropriate program product manuals. Ask your IBM Marketing Representative to advise you of the correct levels of program products for your 8775.

¹¹ Customer Information Control System/Disk Operating System/Virtual Storage

¹² Customer Information Control System/Operating System/ Virtual Storage

¹³ Graphical Data Display Manager

¹⁴ Distributed Office Support Facility

Chapter 5. Operator Considerations

This chapter describes operator considerations in terms of switches, controls, keylocks, indicators, and keyboard. For 8775s that are intended for use with the Interactive Display Text Facility (IDTF) licensed program, see also Chapter 7.

Display Unit

The 8775 Display Terminal has the following design-features to help the operator:

- Antiglare Screen: The screen is coated to minimize reflections.
- Tilted Screen: This helps the operator assume a comfortable viewing posture.
- Variable Tilt: A two-stage mechanism provides up to 5° variations in device angle to accommodate operator's preference and differences of desk-top heights. Alternatively, a Tilt-Rotate Accessory is available; this allows the screen to be tilted forward to any angle from 20 degrees to upright, or backward to any position between 20 and 25 degrees. The tilt-rotate accessory also allows the display unit to be turned to any position up to 90 degrees left or right of the forward-facing position.
- Low Profile: This helps prevent the operator from feeling isolated.
- Weight: The weight of the display unit, approximately 27 kilograms (58 pounds), makes it easy to site or relocate.

Variable contrast, brightness, and audible alarm volume controls, are also available on the 8775.

Switches

Power On/Off

Each time the operator presses the power on/off switch to the on position, power is applied to the electrical circuits of the terminal and a power-on-reset sequence occurs.

Run/Setup

The run/setup switch (see Figure 5-1) should be put to the setup position for setup of the terminal (see "Setup of the 8775" in Chapter 8). The terminal is normally operated with this switch set to the run position.

Monocase Switch

This optional feature (see Figure 5-1) provides a choice to the operator of displaying lowercase coded characters as either uppercase or lowercase.

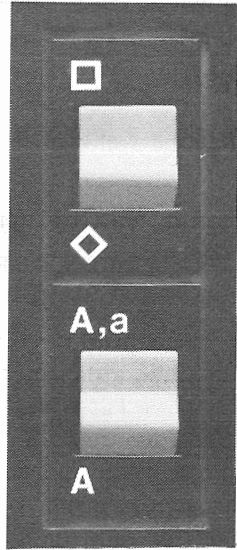


Figure 5-1. Run/Setup and Monocase Switches

Controls

Audible Alarm

This control adjusts the volume of the audible alarm (an optional feature).

Contrast

This control adjusts the relative intensity of normal and intensified characters.

Brightness

This control adjusts the brightness of the displayed characters.

Keylocks

Security Keylock

The security keylock (an optional feature) provides the operator with a key that can be used to disable the display terminal and blank the screen whenever it is to be left unattended. Normally the unit is enabled when the correct key is inserted in the lock and turned to the on position.

Setup Keylock

The setup keylock (an optional feature) gives controlled access to authorized customer personnel to change terminal options (for example, the terminal address). The position of the key does not affect normal operation.

Indicators

Indicators 1 and 2 (Figure 5-2) show the operator whether or not the 8775 is powered on and ready for use.

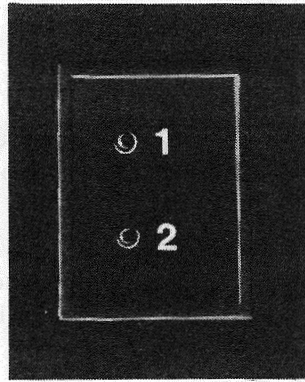


Figure 5-2. Indicators 1 and 2

Indicators are also included on the screen in an Operator Information Area. This is a row of characters, in addition to and independent of the normal screen alphanumeric display, that is provided at the bottom of the screen. The conditions displayed include: state of readiness, operational mode, operator guidance, terminal conditions, and test.

Keyboard

The keyboard is connected to the display unit by a 0.9 meter (3 foot) or 1.8 meter (6 foot) cable that allows easy and convenient positioning. The surface angle of the keyboard has been carefully selected to provide comfort and efficiency.

The keyboard keys are divided into three logical groups: data keys, special control keys, and erase keys. So that they can be easily found by touch, the home row keys are deepened.

Repeat-Action Keys

All alphanumeric keys, special symbol keys, and cursor-moving keys are repeat-action keys; that is, they repeat their functions for as long as they are held down.

Keyboard Clicker

An audible feedback device (clicker) is incorporated in the keyboard. The keyboard clicker can be enabled or disabled by means of the clicker key. With the clicker on, absence of a click indicates an input-inhibited condition; with the clicker off, the presence of a click indicates an input-inhibited condition.

Cursor Positioning Controls

Several cursor controls are provided to permit rapid positioning of the cursor to any character position on the display image. These cursor controls are:

- Up (↑), Down (↓), Left (←), and Right (→) keys.
- Alt/Left (⌘) and Alt/Right (⌞) keys that provide double-speed horizontal positioning.
- A Backspace (←) key.
- Tab (→), SKIP, and Backtab (⌘) keys.
- A New Line (↵) key.
- A Cursor Home (⏪) key. Operation of this key repositions the cursor to the first unprotected character position of the active partition.
- Operator-selectable alternative cursor key. The operator may elect to display either an underscore cursor or a reverse-video cursor. Either of these two cursors may be displayed continuously or blinked. Cursor selection and display mode are determined by the operator through keyboard control.
- Jump Partition (↻) key. Operation of this key causes the cursor to jump from the active partition, that is the partition to which the keyboard is currently connected, into the next created partition.

Editing Controls

An Insert (⏏) key and a Delete (⏴) key enable the operator to edit the display. The Insert key allows characters to be inserted into a field that contains nulls; all characters following the point of insertion are shifted to the right. The Delete key has the opposite effect; characters can be deleted from a field, while all characters on the same line after the point of deletion are shifted left. Nulls are inserted in each blank character position at the end of the line.

Erasing Controls

The CLEAR, ERASE EOF, and ERASE INPUT keys provide erasing functions by setting to null codes any character positions on the display image that are affected by the key operation. The CLEAR key is used if the operator must erase the entire display screen and the display format. The ERASE EOF key is used when the operator puts data into part of a field and wants the rest of the field erased. The ERASE INPUT key is used to erase all data input in unprotected fields on the display screen or partition.

Program Function and Program Access Keys

Program function (PF) keys allow any input data on the screen to be transmitted to the program, together with a code that identifies which program function key was pressed.

Program access (PA) keys allow a code to be transmitted to the program to identify which key was pressed, but no input data from the screen is transmitted to the program.

Field Mark Key





The FIELD MARK key is used to generate the end of a field in an unformatted partition or the end of a subfield in a formatted partition.

When this key is pressed, it causes a field mark character to be entered at the cursor location. The field mark character is displayed as a semicolon with an overscore (dualcase mode) or simply as a semicolon (monocase mode).

Scrolling Keys

Line-by-line scrolling is controlled from the keyboard by use of the Scroll-Up and Scroll-Down keys.

Shift Keys

All typewriter-like keyboards are provided with typewriter-like shift keys: shift () and lock (). These keys function in a similar way to the shift keys on a typewriter to allow access to upshift characters. Data entry keyboards are provided with the alphanumeric () and numeric () shift keys. The alphanumeric shift key is used to override a numeric (input) field definition and the Keyboard Numeric Lock special feature to put alphanumeric data into a numeric field. The numeric shift key also overrides the numeric field definition and numeric lock condition to permit upshift character entry of other characters.

Duplicate (DUP) Key

The DUP key allows a unique code, which is displayed as an asterisk, to be sent to the processor. The DUP code is typically interpreted by the program to mean 'duplicate this field from the previous record.'

Print Key ()

When the print key of an 8775 Model 1 or 2 is pressed, it initiates a system copy function (see "Initiating Printing from the Terminal" in Chapter 3) if the terminal, attached to an 8130 or 8140 Processor, had this function assigned during its setup.

Overlays for Overlay Keyboards

The surface of the overlays available with the overlay keyboards allows the user to mark the shape of a programmed symbol adjacent to the key assigned for that symbol.

Overlay for Text Entry and Edit Keyboards

This overlay is used with the twelve program function keys that are on the right-hand side of the text entry and edit keyboard. One side of the overlay indicates the key functions of the standard 87-key EBCDIC typewriter keyboard; the other side indicates the key functions when the 8775 is used with the IDTF program.

Chapter 6. System Attachment and Communication Features

The 8775 Display Terminal Models 1 and 2 communicate with a 4331, 8130, or 8140 Processor by synchronous data link control (SDLC) over either a directly attached loop or a data-link attached loop.

The 8775 Models 11 and 12 also communicate with their processors by SDLC protocols. The data link may be either by direct connection or by data communication over nonswitched or switched facilities, as follows:

- To a System/370 processing unit or a 4331 or 4341 Processor:
 - By way of an IBM 3704 or 3705 Communications Controller, *and either*
 - Over nonswitched communication facilities, *or*
 - Over switched communication facilities.
- To an 8130 or 8140 Processor:
 - By way of data communication features, *and either*
 - Over nonswitched communication facilities, *or*
 - By direct connection with a CCITT¹⁵ V.35 or V.24/V.28 interface.
- To a 4331 Processor through its integrated communications adapter:
 - Over nonswitched communication facilities, *or*
 - Over switched communication facilities, *or*
 - By direct connection over a CCITT V.24/V.28 interface.

¹⁵ The International Telephone and Telegraph Consultative Committee

Loop Attachment (Models 1 and 2)

Models 1 and 2 of the 8775 attach to a 4331, 8130, or 8140 Processor, either locally through a directly attached loop, or remotely through a data-link attached loop. Figure 6-1 shows the two types of loop attachment.

The data rate on a directly attached loop may be either 9600 or 38400 bits per second (bps). The data rate on the data-link attached loop is 2400, 4800, or 9600 bps with half-speed selection, provided that equivalent half-speed selection is available on the modem.

The data rate of a loop cannot be higher than that of the slowest device on the loop. It may be desirable to attach slower devices on a separate loop when it is required to operate the 8775 at its maximum data rate.

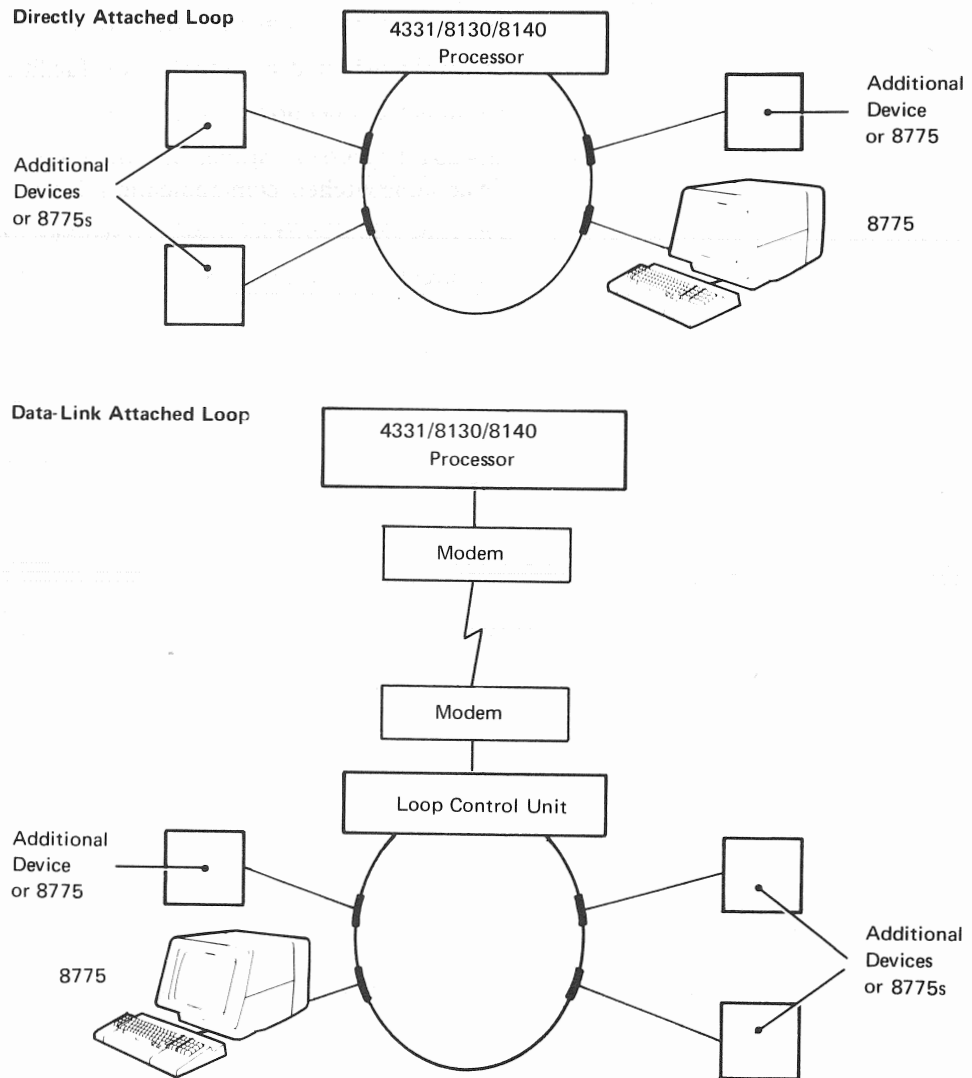


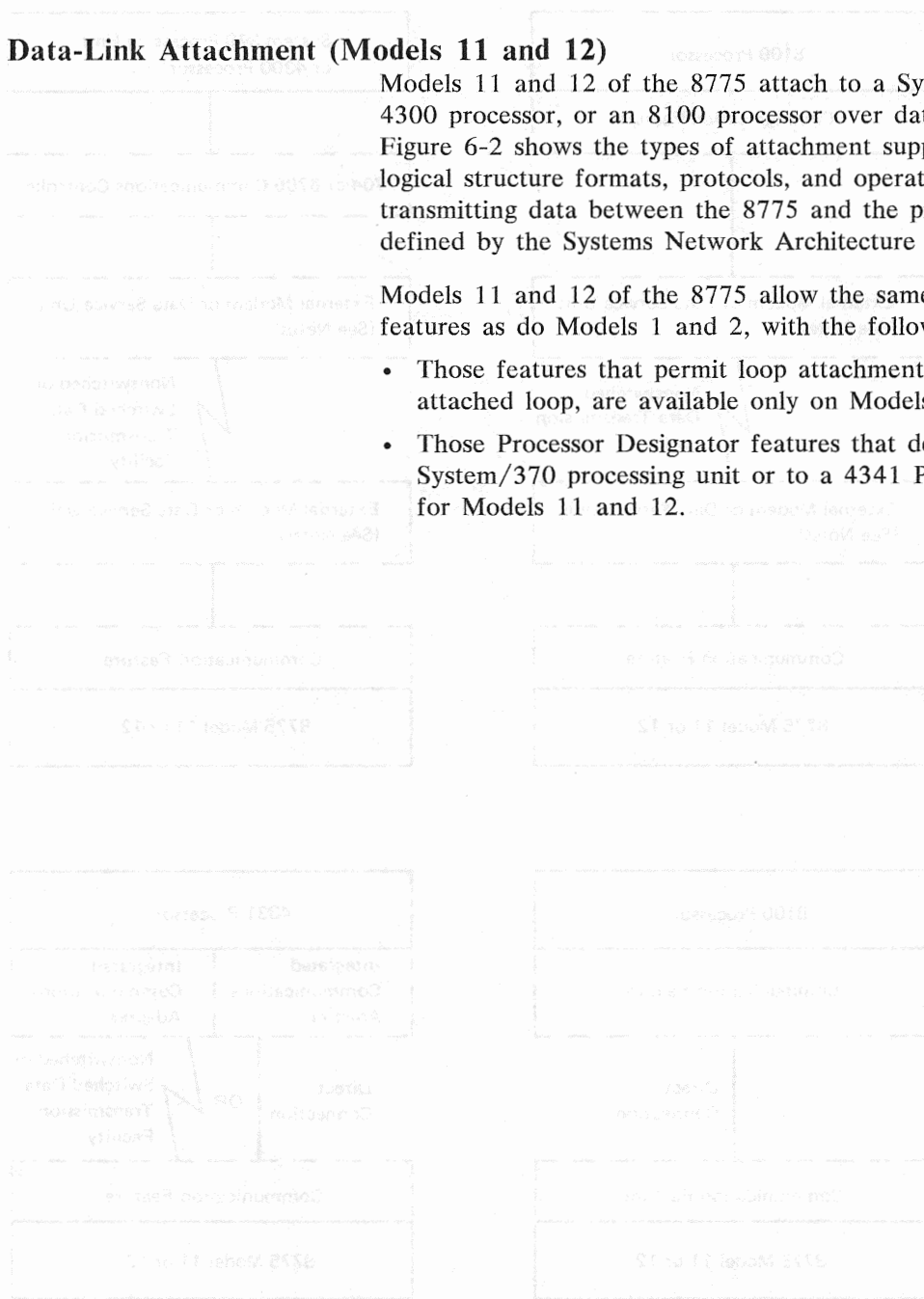
Figure 6-1. Loop Attachment of 8775 Models 1 and 2 to a Processor

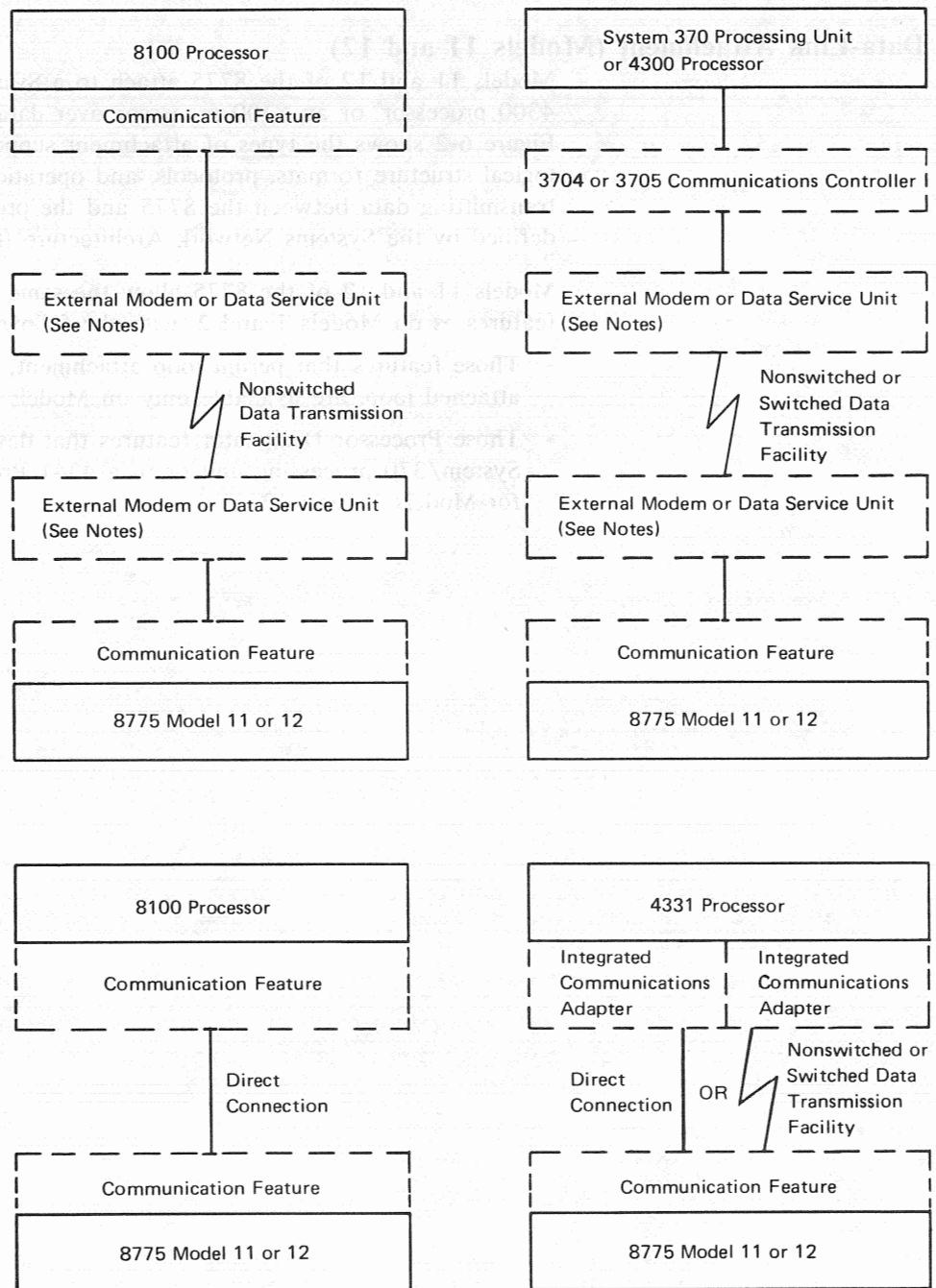
Data-Link Attachment (Models 11 and 12)

Models 11 and 12 of the 8775 attach to a System/370 processing unit, a 4300 processor, or an 8100 processor over data-link communication features. Figure 6-2 shows the types of attachment supported by these features. The logical structure formats, protocols, and operational sequences used for transmitting data between the 8775 and the processing unit or processor are defined by the Systems Network Architecture (SNA).

Models 11 and 12 of the 8775 allow the same choice of specify and special features as do Models 1 and 2, with the following exceptions:

- Those features that permit loop attachment, either direct loop or data-link attached loop, are available only on Models 1 and 2.
- Those Processor Designator features that designate attachment to a System/370 processing unit or to a 4341 Processor can be chosen only for Models 11 and 12.





Notes:

1. An external modem is not required when a 1200 bps Integrated Modem feature is installed (for nonswitched communications only).
2. A Data Service Unit is not required when a Digital Data Service Adapter is installed for attachment to an American Telephone & Telegraph Co. Digital Data Service facility.
3. Switched Network Backup Selection is available on those 8775s that have the attachment specify code for nonswitched communication facilities.

Figure 6-2. Data-Link Attachment of 8775 Models 11 and 12

Data Transmission Facilities

For the data links between the 8775 and the processor, communication facilities of different types are available from both the communication common carriers and the Post Telephone Telegraph Administration (PTT). The facilities provide analog and digital communication for:

- Switched networks
- Point-to-point or multipoint nonswitched networks

The 8775 provides a number of communications capabilities for its operation under SDLC line protocols:

- EIA RS-232C, CCITT V.24/V.28, or X.21 *bis* /V.28 interface, or
- An integrated modem, nonswitched, operating at 1200 bits per second (bps), or
- Digital Data Service Adapter, or
- CCITT V.35 interface, or
- CCITT X.21 interface

Data transmission between the 8775 and the processor on a nonswitched analog data link can be one of the following types:

- American Telephone and Telegraph Co. (AT & T) Type 3002 Service Channel (United States only) - with the External Modem Interface feature or the 1200 bps Integrated Modem feature at the 8775.
- Communication lines meeting CCITT Recommendation M.1020 (countries other than the United States) - with either the External Modem Interface feature or the 1200 bps Integrated Modem feature at the 8775.
- Nonswitched digital data network with the CCITT X.21 interface adapter, or the External Modem Interface feature, used as an X.21 *bis* interface.
- Dataphone¹⁶ digital data service network (United States only) - with either the External Modem Interface feature or the Digital Data Service (DDS) Adapter feature at the 8775.

Note: *A feature compatible with the one at the 8775 must be present at the processor.*

Attachment to analog networks is by way of either an integrated modem or an external modem. Attachment to a digital data network is by way of an external data service unit or a DDS Adapter.

Direct Connection: Data transmission between the processor and the 8775 can also be carried out over a direct connection:

- Direct connection over a V.24/V.28 type interface of up to 12.2 meters (40 feet) to an 8100 processor, or up to 800 meters (2624 feet) to a 4331 Processor, requires the External Modem Interface feature at the 8775.
- Direct connection over a V.35 interface of up to 305 meters (1000 feet) to an 8100 processor requires the CCITT V.35 Interface feature.

¹⁶ Trademark of American Telephone & Telegraph Co.

Operational Modes

The 8775 with data link communication features operates in data half-duplex mode using one of the following facilities:

- Two-wire point-to-point (noncontinuous carrier) over nonswitched or switched transmission facilities.
- Four-wire point-to-point (continuous carrier) over nonswitched or switched transmission facilities.
- Four-wire multipoint (noncontinuous carrier) over nonswitched transmission facilities.

Transmission Speeds

Subject to the type of data communication equipment, the following transmission speeds (with optional half-speed selection, if available) are supported:

- 1200/600 bps
- 2000 bps (Canada only)
- 2400/1200 bps
- 4800/2400 bps
- 9600/4800 bps

Communication Features

Data-link communication requires one of the following features to be installed on the 8775 Model 11 or 12:

- External Modem Interface over nonswitched or switched transmission facilities
- 1200 bps Integrated Modem, Non-Switched
- Digital Data Service Adapter (United States only)
- The CCITT X.21 Adapter

Direct connection of the 8775 to an 8130 or 8140 Processor is provided by either a CCITT V.35 Interface adapter or a V.24/V.28 type interface adapter. (A PTT¹⁷ facility is not required.)

Direct connection of the 8775 to a 4331 Processor is provided by a V.24/V.28 type interface adapter. (A PTT facility is not required.)

¹⁷ Post Telephone & Telegraph Administration

External Modem Interface (Special Feature)

The External Modem Interface feature provides an interface to attach the 8775 to an external IBM modem, a PTT mandatory modem, other external non-IBM modems, or a data service unit. Non-IBM modems may be attached subject to the conditions stipulated in *Multiple Supplier System Bulletin*, G120-6648 (in United States) or G110-6823 (in other countries). The feature has three designations:

- EIA RS-232-C
- CCITT V.24/V.28
- CCITT X.21 *bis* /V.28

The designation used depends on (1) the country in which the system is located and (2) the type of application (analog data link, digital data link, or direct connection).

Notes:

1. *The Business Machine Clocking feature (described later), operating at 1200/600 bps, is required if the external 1200 bps modem is not self-clocking.*
2. *Direct connection of an 8100 system over a line not exceeding 12.2 meters (40 feet) and operating at data transmission speeds of 600, 1200, 2400, 4800, or 9600 bps. (The Business Machine Clocking feature is not required for direct attachment.)*
3. *Direct connection of a 4331 Processor supports the following data transmission speeds: 1200 bps, up to 800 meters (2624 feet), 2400 bps, up to 400 meters (1312 feet), 4800 bps, up to 200 meters (656 feet), 9600 bps, up to 100 meters (328 feet).*

IBM Modems: The following IBM modems are supported:

- IBM 3872 Modem Model 1 for data transmission at 2400/1200 bps.
- IBM 3874 Modem Model 1 for data transmission at 4800/2400 bps.
- IBM 3863 Modem Models 1 and 2 for data transmission at 2400/1200 bps.
- IBM 3864 Modem Models 1 and 2 for data transmission at 4800/2400 bps.
- IBM 3865 Modem Models 1 and 2 for data transmission at 9600/4800 bps.
- IBM 3976 Modem Model 3 for data transmission at 1200/600 bps (in countries serviced by IBM World Trade Europe/Middle East/Africa Corporation and IBM World Trade Americas/Far East Corporation only). For this modem, the Business Machine Clocking feature is required in the 8775.
- IBM 5979 Modem Model L41 for transmission at 9600/4800/2400 bps (in countries serviced by IBM World Trade Europe/Middle East/Africa Corporation).

1200 bps Integrated Modem, Non-Switched (Special Feature)

The Integrated Modem supports data communication over nonswitched communication lines without an external modem, and is used for data half-duplex communication in the SDLC protocol. The data rate is 1200 bps with the facility of selecting half-speed operation (600 bps). Communication may be by way of two-wire point-to-point, four-wire point-to-point, or four-wire multipoint facilities.

Note: The Business Machine Clocking feature is a prerequisite to the Integrated Modem, and either two-wire or four-wire operation must be specified.

Digital Data Service Adapter (Special Feature)

The Digital Data Service Adapters (DDSA) enable the 8775 to use the AT & T nonswitched Digital Data Service (DDS) for either point-to-point or multipoint tributary operation in the United States. The DDSA, which attaches to the AT & T Channel Service Unit, provides an interface to the termination of the DDS network at the customer site, for communication over the nonswitched AT & T Dataphone digital data service network. Transmission speeds of 2400, 4800, and 9600 bps are supported.

CCITT V.35 Interface (Special Feature)

The CCITT V.35 Interface supports direct connection to the 8100 system over a cable of 305 meters (1 000 feet) maximum length, and supports data rates of 600, 1200, 2400, 4800, and 9600 bps. When using direct connection, the Business Machine Clocking feature is not required.

CCITT X.21 Interface (Special Feature)

This feature provides an interface for connection to a Data Service Unit on a nonswitched data network, supporting transmission speeds of 2400, 4800, or 9600 bps.

Business Machine Clocking

The Business Machine Clocking feature provides clocking for a data rate of 1200 bps with optional half-speed selection. This feature is required with the 1200 bps Non-Switched Integrated Modem feature and the External Modem Interface feature, if the terminal is attached to an external modem that does not provide its own clocking.

Chapter 7. Text on the 8775

In addition to the text functions that are available to the 8775 through the Distributed Office Support Facility (DOSF), for example, document storage, document browsing, and document printing, further text functions are provided by the Interactive Display Text Facility (IDTF) licensed program. This chapter describes the additional functions that are provided for the 8775 by IDTF.

Notes:

1. For further information about the functions provided by DOSF, see IBM 8100 Information System: Distributed Office Support Facility - General Information, GC27-0546.
2. For further information about the IDTF Program, see IBM Interactive Display Text Facility: General Information, GA33-3115.

Introduction

The Interactive Display Text Facility (IDTF) licensed program is a downstream-loadable program that provides the 8775 with a text entry and edit facility. The addition of this program enables the 8775 to be used both as a text and as a data terminal. IDTF is available only for 8775s attached to 8130 and 8140 Processors and having the Enhanced Function, Multiple Partitions and Scrolling, and Enhanced-Function-with-Magnetics features.

Functions of the IDTF Licensed Program

With the IDTF program downstream loaded, the 8775 can operate both as a data terminal and as a text terminal. The designation of the 8775 for data or text is controlled by the application program, which switches the 8775 between two states: base state and text state.

Base State

When in base state, the 8775 operates as a data terminal and may be used for all data applications that require only the basic functions of the terminal.

Text State

When in text state, the 8775 operates as a text terminal. The screen may be designated as two partitions: an alphanumeric partition and a text partition (see Figure 7-1).

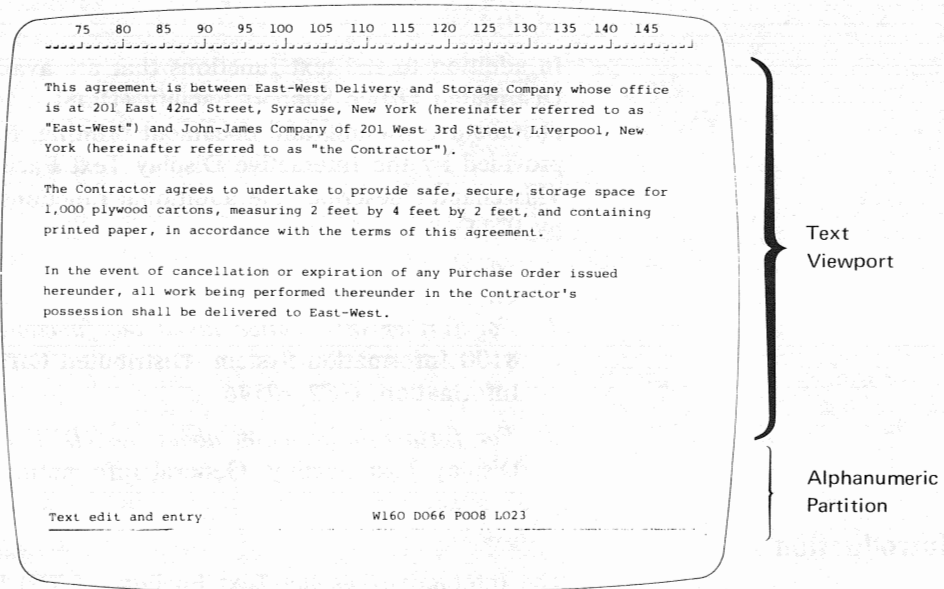


Figure 7-1. Format of Screen with 8775 in Text State

Alphanumeric Partition

The alphanumeric partition is an area of screen that can be used by the host program for the display of messages. The size of this partition can be from one to 24 rows deep by one to 80 columns wide, depending on the contents of the messages displayed. However, for most applications, the partition is only one row deep.

Text Partition

The text partition is the area of 8775 storage space in which the text is formatted. The partition can be up to 255 columns wide, and have a depth (excluding the scale line) that is limited only by the storage restraints of the 8775. The area of screen through which the formatted text is viewed (the viewport) can be from one to 24 rows deep by one to 80 columns wide, with the first row used to display the text scale line. The depth of the viewport depends on the depth of the alphanumeric partition; if the depth of the alphanumeric partition increases, the depth of the text viewport decreases by a corresponding amount. The dimensions of the viewport determine whether the text partition is displayed in part or as a whole. For most applications, the text viewport is 23 rows deep (including the text scale line) and the alphanumeric partition one row deep.

Screen Functions

Whenever the text partition is active, additional screen functions are available, some of which are controlled from the keyboard. These screen functions include:

- Forward, backward, and column tabulation
- Normal, decimal, and centering tab stops
- Forward and backward wordspill (the automatic placing of a word on a new line when the current line has insufficient space for the whole word)
- Required space (a space between adjacent words that need to be kept together, such as 17 December 1981)

- Required new line (the means of causing some text in adjust mode to start on a new line, and to reset the left-hand margin to 0)
- Required backspace (the means of creating a printable overstruck character and, in some cases, a printable underscored character)
- Formatting line error (an indication by the host application that a particular line of text cannot be successfully interpreted or formatted)
- Display, nondisplay, and control display of text control symbols
- Definition and cancellation of Temporary Left Margin
- Word, line, and backspace delete
- Word and character underscore and de-underscore
- Horizontal scrolling (screen left and right)
- Definition and cancellation of text reference segment
- Ability for the operator to type more than one screen of text without using the ENTER key

Keyboard Functions

Whenever the text partition is active, the keyboard operates in its text form; that is, it interprets the additional or changed key functions that are provided by DOSF for text applications. The key functions include:

- Adjust (causes the text of a document in working store to be divided into pages of the required depth and, if appropriate, required line width)
- Block delete (allows the deletion of a block of text at a specified position in a document)
- Block insert (allows the insertion of a block of text at a specified position in a document)
- Block return (returns the cursor to a location from which a block of text has just been moved)
- Column operations
- Copy (copies a block of text into another location)
- End (used for displaying the end of a document)
- Help (requests the display of information about the immediate command being given or the functions that are available to the operator)
- Immediate command (requests a particular operation to be done immediately on a document)
- Move (moves a block of text from one location to another)
- Page advance (advances the displayed text by the number of lines that have been specified as length of page)
- Page return (returns the displayed text by the number of lines that have been specified as length of page)
- Print
- Screen advance (advances the displayed text by the number of lines in the text partition)
- Screen return (returns the displayed text by the number of lines in the text partition)
- Top (used for displaying the top of a document)

When the IDTF program has been downstream loaded and the text partition is active, the following keyboard controls cannot be used:

- Backtab
- Cursor Select
- DUP (Duplicate)
- Erase EOF (End of Field)
- Erase Input
- Error Override
- Field Mark
- Keyboard Numeric Lock
- Magnetic-Stripe Reader and Selector Light Pen (both treated as keyboard actions)
- Print (System Copy)
- Scroll Up
- Scroll Down

Text-EBCDIC Character Set

Within all partitions, IDTF allows the use of (1) the Text-EBCDIC character set that is in common use for text documents, and (2) an alternative page that contains graphic symbols representing the following special text symbols:

	⌘	Formatting line error
	↵	New line
	←	Required backspace
	⏪	Required new line
	⋯	Required space
	▼	Set adjust mode
	■	Set attribute
	▲	Set no-adjust mode
	▶	Set temporary left margin
	⋯	Space
	↑	Superscript
	↓	Subscript
	–	Syllable hyphen
	→	Tab
	⌘	Text command

An explanation of these terms can be found in the glossary at the back of this manual.

Features

This section describes how IDTF affects some of the features of the 8775. For ordering details, see *IBM 8775 Display Terminal: Configurator*, GA33-3042.

Display Unit (Specify Feature)

When IDTF has been downstream loaded, only the 1920-character screen capacity may be used.

Keyboard (Special Feature)

Only the 87- or 88-key EBCDIC Typewriter/Text Entry and Edit keyboard (see Figure 2-6) may be ordered for 8775s that are intended for use with IDTF.

Character Set Language (Specify Features)

One of the following character set language features must be specified for 8775s that are intended for use with IDTF:

Austrian/German	Italian
Belgian	Japanese (English)
Canadian-French	Netherlands
Canadian-English	Spanish
Danish/Norwegian	Spanish-Speaking
Finnish/Swedish	English (United Kingdom)
French	English (United States)

For full details of the character sets, see *IBM 8775 Display Terminal: Character Set Reference*, GA33-3041.

Keyboard Language (Specify Features)

The following keyboard language features are available for 8775s that are intended for use with IDTF:

Austrian/German	Japanese (English)
Belgian	Netherlands
Canadian-English	Norwegian
Canadian-French	Spanish
Danish	Spanish-Speaking
Finnish	Swedish
French (AZERTY layout)	English (United Kingdom)
French (QWERTY layout)	English (United States)
Italian	

Note: The keyboard language selected must correspond to the character set language specified.

For illustrations of all keyboards available, refer to *IBM 8775 Display Terminal: Character Set Reference*, GA33-3041.

Other Features Supported by the IDTF Program

In Figure 7-2, an asterisk (*) indicates those features that are supported when IDTF has been downstream loaded.

Optional Feature	Base State	Text State		
		Text Partition	Alpha Part.	
			EBCDIC	TE
Selector Light Pen	*		*	*
Keyboard Numeric Lock	*		*	
Monocase Switch	*		*	
Audible Alarm	*	*	*	*
Security Keylock	*	*	*	*
Setup Keylock	*	*	*	*
Magnetic Slot Reader	*		*	*
Dual-Entry Magnetic Slot Reader				
Magnetic Hand Scanner				
APL Characters in Datastream				
Programmed Symbols (PS-4)				

Legend:

- Alpha Part - Alphanumeric Partition
- EBCDIC - EBCDIC Character Set
- TE - Text-EBCDIC Character Set

Figure 7-2. Other Features Supported by the IDTF Program

Display Features

An 8775 that is intended for use with the IDTF program must have the Enhanced Function, Multiple Partitions and Scrolling, and Enhanced-Function-with-Magnetics features. However, the functions of any one of these features cannot be combined with the functions of either of the other two features or with the functions of IDTF. The user can downstream load only one set of functions at any one time (see "Downstream Load" in Chapter 3).

Programmed Symbols

The normal functions of the Programmed Symbols (PS-2) and (PS-4) features (see Chapter 3) are not available when IDTF has been downstream loaded. This is because the storage provided by Programmed Symbols (PS-2) is used for the additional symbols that are required for text applications.

APL

APL characters can be displayed on the screen, but cannot be entered from the keyboard; the APL keyboard is not available for 8775s that are intended for use with IDTF.

Cursor Positioning Controls

The keyboard cursor controls are the same as for all 8775s, except that the Jump Partition key is reassigned as 'Required New Line' for text applications.

Character Attribute Control

When the IDTF program has been downstream loaded, and either the alphanumeric partition or the text partition is active, the attributes of individual characters cannot be controlled by the operator. Program-controlled reverse video, underscore, and blinking are available; programmed symbols are not available.

Initiating Printing From The Terminal

When the text partition is active, System Copy is not available. Printing, however, may be initiated from the text Print key, which is on the right-hand side of text entry and edit keyboard.

Program Support

The Distributed Office Support Facility (DOSF) Release 2.1 provides program product support for text functions on the 8775. DOSF runs under the Distributed Processing Control Executive (DPCX) control program. For further information about DOSF, see *IBM 8100 Information System: Distributed Office Support Facility - General Information*, GC27-0546.

Chapter 8. Reliability, Availability, and Serviceability

Introduction

The IBM 8775 Display Terminal incorporates many factors that are designed to give a high degree of reliability, availability, and serviceability. These factors include the following:

- The design of the 8775 caters for setup of the terminal by the customer.
- A problem determination guide to advise the operator on the best course of action when operational problems occur.
- A series of internal tests that automatically test the 8775 each time it is powered on.
- A series of internal tests that can be executed from the keyboard.

Setup of the 8775

The 8775 is designated as customer setup equipment, that is, equipment that is to be set up by the customer. Setup of a unit involves unpacking, locating, connecting, setting the address, and testing of the 8775. The customer will not be required to use tools and need not gain access to inner parts of the terminal other than a specified customer access area. Clear, concise documentation in the appropriate language is provided.

Relocation of 8775 Models 1 and 2 can be made to a different position on the same loop; relocation of these models to a different loop, or to a loop attached to a different processor, or in a different building requires assistance from the IBM Marketing and Service Representatives. Relocation of 8775 Models 11 and 12 requires assistance from the IBM Marketing and Service Representatives.

Setup Modes

The three setup modes that are available on the 8775 enable the user to select the various options, such as screen capacity and downstream-loadable functions, that are required for a particular application. The setup modes are used for the initial setup of the terminal and whenever different options are required.

The setup modes are actioned by the run/setup switch and (if present) the setup keylock:

- Terminal Setup Mode: This is used only at the time of initial setup or as a result of a feature change.
- Attachment-Setup Mode: This specifies the following:
 - The SDLC address of the terminal.
 - The possible assignment of printer support.
 - Continuous or noncontinuous carrier, for 8775 Models 11 and 12 only.
 - Selection of non-return-to-zero (NRZ) or non-return-to-zero inverted (NRZI) recording, for 8775 Models 11 and 12 only.
- Attachment-Backup Mode: This allows the operator:
 - To set the number of displayable characters.
 - To select the required downstream loadable functions.
 - To select full-speed or half-speed transmission.
 - To select the nonswitched communication facility or the Switched Network Backup facility, for 8775 Models 11 and 12 only.

Problem Determination and Action

Using a problem determination guide housed in the keyboard, the customer may participate in problem determination procedures and in attempting recovery. This will enable the customer to reduce terminal downtime.

The purpose of these procedures is to aid in determining if the problem is caused by:

- A customer error, for example, operator error or application programming error.
- Non-IBM facilities, for example, telephone equipment.
- IBM facilities, for example, hardware or control microcode.

The customer can also determine if:

- The 8775 can do useful work until the problem is resolved.
- The repair action can be scheduled for deferred maintenance.

Tests

Basic Assurance Tests

Basic assurance tests are diagnostic tests that are executed sequentially each time the 8775 is switched on to establish the operational capability. The test sequence does not go past the routine that failed, and the display indicates the failing test.

Test Mode

Included on each type of keyboard is a test key. When this key is pressed, the screen is cleared, test mode is entered, and all line communication to the processor ceases. Various internal tests can then be initiated from the keyboard.

For 8775s with the Printer Attachment feature, an additional test is provided to test the printer interface.

Note: The attached printers also have offline tests that may be run by the operator.

Online Tests

The System/370 and the 4331, 4341, 8130, and 8140 Processors provide online communication tests for devices that are operated on the system, including the 8775.

Chapter 9. Setup Planning Data

Introduction

The physical characteristics and environmental requirements of the 8775 allow it to be placed in a normal office or computer room by customer personnel with a minimum of special arrangements.

For detailed information about planning for the physical setup of the 8775, see *IBM 8775 Display Terminal: Site Preparation Guide*, GA33-3043. This information includes a review of the setup tasks that the customer undertakes.

For information about planning for the physical setup of attached printers (8775s with Printer Attachment feature only), consult your IBM Marketing Representative and the following IBM publications:

IBM 3230 Printer Models 1 and 2: Site Preparation and Planning Guide, GA24-3761

IBM 3262 Printer Models 1, 2, 3, 11, 12, and 13: Site Planning and Preparation Guide, GA24-3734

IBM 3268 Printer: Site Preparation and Planning Guide, GA27-3266

IBM 3270 Information Display System: Installation Manual - Physical Planning, GA27-2787 (for 3287 Printer information)

IBM 5210 Printer: Physical Planning Information Guide, GA23-1021

IBM 7436 Printer Model 1: Site Planning, Physical Planning, and Configurator Guide, GA33-3074

Physical Characteristics

The display unit weighs about 27 kilograms (58 pounds) and the keyboard weighs 4.5 kilograms (10 pounds). The dimensions of the units are:

	<i>Height</i>	<i>Width</i>	<i>Depth</i>
Display Unit	380 mm (15 in.)	444 mm (17.5 in.)	542 mm (21.3 in.)
Keyboard	76 mm (3 in.)	483 mm (19 in.)	254 mm (10 in.)

Power Supplies

Input voltages (V) conform to the following:

<i>Nominal</i>	<i>Minimum</i>	<i>Maximum</i>	
100 to 120 V	90 V	130 V	at 50 or 60 hertz
127 V	114 V	137 V	
200 to 230 V	180 V	248 V	
240 V	216 V	259 V	

Cables

Power Cable

For the United States and countries other than those served by IBM World Trade Europe/Middle East/Africa Corporation (E/ME/A), a 2.8 meter (9 foot) cable is provided as standard equipment.

For E/ME/A countries, a 4.5 meter (15 foot) cable is provided as standard equipment.

For the United States and countries served by IBM World Trade Americas/Far East Corporation (A/FE), the following optional cable lengths are available:

- 1.8 meters (6 feet) in United States only
- 3.7 meters (12 feet) in United States only
- 4.5 meters (15 feet) in United States and A/FE countries only

Communication Cable

8775 Models 1 and 2: A seven-core cable 1.8 meters (6 feet) in length is provided as standard equipment for connection to the loop. If preferred, a 4.3 meter (14 foot) cable may be specified.

8775 Models 11 and 12: The communication cable that connects the 8775 to a modem or communication facility is provided with the 8775. The standard cable length is 6.1 meters (20 feet); optional cable lengths of 3.0 meters (10 feet), 9.1 meters (30 feet), and 12.2 meters (40 feet) may be specified.

Note: A 3-meter (10-foot) standard communication cable is supplied with the CCITT V.35 Interface feature; the above optional cable lengths cannot be chosen for a machine with this feature.

Keyboard Cable

The standard cable length is 0.9 meter (3 feet). An optional keyboard cable 1.8 meters (6 feet) in length can be provided.

Coaxial Cable for Printer Attachment Feature

A coaxial cable of a maximum length of 1500 meters (4920 feet) is required to attach the printer to the 8775. This cable is not shipped with the 8775 or the printer. It may, however, already be available if you have previously used the printer connected to an IBM 3274 Control Unit or to an IBM 3276 Control Unit Display Station.

If you do not already have a cable, you must obtain one by separate order from IBM or elsewhere. Consult your IBM Marketing Representative or your cable supplier. See also *Installation and Assembly of Coaxial Cable and Accessories for Attachment to IBM Products*, GA27-2805.

Specifications and Environmental Requirements

The 8775 is designed to operate under heating and lighting conditions typical of commercial offices. The specifications and environmental requirements are as follows:

Temperature range: 10°C to 40°C (50°F to 105°F)

Relative humidity range: 8% to 80%

Maximum wet bulb temperature: 26.7°C (80°F)

Airflow: 1 cubic meter per minute (35 cubic feet per minute)

Heat output: If several 8775s are to be used in one room, the air conditioning or the heating and ventilation may require adjustment. Each 8775 dissipates approximately 230 watts (197 kilocalories per hour, 780 BTUs per hour).

Note: One person, working at a typewriter, produces about 176 watts (152 kilocalories per hour, 600 BTUs per hour).

Ambient light: The 8775 is designed to work under the normal range of office lighting. The terminal should be sited away from the glare of direct sunlight or other bright sources of light, to avoid operator fatigue.

Electromagnetic compatibility: In some instances, the site chosen for an installation may have high ambient electromagnetic fields, which could interfere with the operation of the 8775. These fields can result from nearby radio-frequency sources, such as transmitting antennas (AM, FM, television, and two-way radios), radar installations, and industrial equipment (radio-frequency induction heaters, arc welders, and insulation testers). Three-phase power distribution lines can generate magnetic fields that may cause problems with the 8775. As a precautionary measure, keep the 8775 as far away as possible from power distribution lines, preferably never closer than 1 meter (3.3 feet).

Other magnetic sources include transformers (including those installed within other units; see Note), distribution panels, rotating machinery, and electrical floor heating. A check should be made with your building engineer to identify the location of such magnetic sources.

Before positioning units or cabling, an installation planning review may be appropriate to assess the environment and to determine whether any special installation or product considerations are required to assure normal system operation and maintenance. Consult your IBM Installation Planning Representative.

Note: Other units should be located as recommended in the appropriate installation planning manual. For example, the minimum distance between the IBM 3287 Printer and any display terminal should be no less than 76.2 centimeters (30 inches); see IBM 3270 Information Display System: Installation Manual - Physical Planning, GA27-2787.

Electrostatic discharge:

High-resistance floor coverings and/or plastic seat covers, in conjunction with low humidity, can cause high electrostatic discharges to build up on personnel and furniture. A combination of these factors should be avoided because the electrostatic discharges can cause discomfort to the personnel and interference with the terminals.

Glossary

This glossary explains terms and abbreviations used in the publication. It includes terms and definitions from the *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems*, GC20-1699. Refer to the index or to that book if you do not find here the term for which you are looking.

The glossary includes definitions developed by the American National Standards Institute (ANSI) and the International Organization for Standardization (ISO). This material is reproduced from the *American National Dictionary for Information Processing*, copyright 1977 by the Computer and Business Equipment Manufacturers Association, copies of which may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

The symbol 'TC97' at the beginning of a definition indicates that the definition has been discussed and agreed upon at meetings of Subcommittee 1 of Technical Committee 97 of the International Organization for Standardization.

adjust mode. The text mode in which the system automatically arranges text to fit within the current margins. Text is in adjust mode following a Set Adjust Mode symbol until a subsequent Set No-Adjust Mode symbol is encountered.

alphanumeric keyboard. A typewriter-like keyboard used to enter letters, numbers, and special characters into the buffer of a display terminal; also used to perform special functions (such as backspacing) and to produce special control signals.

APL (a programming language). (TC97) A programming language with an unusual syntax and character set, primarily designed for mathematical applications, particularly those involving numeric or literal arrays.

application program. (1) A program written for or by a user that applies to the user's work. (2) A program used to connect and communicate with stations in a network, enabling users to perform application-oriented activities.

attention. An I/O interruption signal generated by a display terminal, usually as the result of an action taken by the operator of the device.

attribute. A characteristic controlling the presentation of displayed information.

BTU. British thermal unit.

buffer. (1)* A routine or storage used to compensate for a difference in rate of flow of data, or time of occurrence of events, when transferring data from one device to another. (2) An area of storage that is temporarily reserved for use in performing an input/output operation, into which data is read or from which data is written.

character addressing. The process of gaining access to a character position by using an address.

character position. See *display position*.

clicker. An audible feedback device in the keyboard that indicates, according to its setting, the acceptance or nonacceptance of input keystrokes by the 8775.

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

control character. (TC97) A character whose occurrence in a particular context initiates, modifies, or stops a control operation. A control character may be recorded for use in a subsequent action, and it may have a graphic representation in some circumstances.

cursor. In an 8775, a movable marker on the screen that may be an underscore or reverse-video underscore, with the option of blinking. The cursor always indicates where the next character will be entered or deleted.

data entry keyboard. A typewriter-like keyboard on which the numeric keys are grouped in a layout similar to the numeric keys on a card punch keyboard (to facilitate entry of numeric data). Two types of layout are available: the data entry and the data entry (high volume). Both types of layout resemble key layouts found on IBM keypunch units. Other features include (1) automatic upshift of the keyboard when the cursor enters a numeric-only display field, and (2) automatic prevention of entry of non-numeric characters into a numeric-only display field if the Numeric Lock feature is installed.

data link. The physical connection and the connection protocols between units that exchange data over a communication line.

data-link attached loop. (1) A data communication transmission loop used to attach input/output devices to the system by a data link facility rather than directly by cables. (2) Contrast with *directly attached loop*.

data stream. (1) All application data transmitted along a data path in a single read or write operation. (2) Data transferred by stream-oriented transmission, as a continuous stream of data elements in character form.

detectable. Pertaining to an attribute of a display field that determines whether the field can be sensed by the selector light pen or cursor select key.

directly attached loop. (1) A loop that connects to the loop adapter by cables, rather than a data link facility, and allows attachment of a variety of input/output devices. (2) Contrast with *data-link attached loop*.

diskette 2D. (1) A generic term for any diskette that is the media used to record double density information on both physical sides. See also *IBM diskette 2D*.

display. (1) *(ISO) A visual presentation of data. (2) To present a display image on a display surface.

* American National Dictionary for Information Processing

display field. A group of consecutive characters on the screen that starts with an attribute character (defining the characteristics of the field) and contains one or more character positions. The field continues to, but does not include, the next attribute character.

display position. (TC97) In computer graphics, any position in a display space that can be occupied by a picture element or a display element.

Distributed Office Support Facility (DOSF). An IBM program product for text processing and paperwork management at an IBM 8100 Information System.

Distributed Presentation Services (DPPX/DPS). A licensed program that enables the application programmer to write programs that are independent of both the presentation format of the data and the device on which it is presented. The product has two basic components: Interactive Map Definition, which provides interactive facilities for presentation design; and Format Management, which manages the presentation of the data during execution of the application program.

DOSF. Distributed Office Support Facility.

downstream load. The transference of coded instructions from the processor to the storage of the 8775.

DPCX. Distributed Processing Control Executive.

DPPX. Distributed Processing Programming Executive.

DPPX/DPS. Distributed Presentation Services.

DPPX/DSC. 3270 Data-Stream Compatibility.

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

field. See *display field, protected field, unprotected field.*

field validation. A feature for allowing certain checks to be carried out on data in that field.

formatting line error. A control character that may be generated automatically by a host application to indicate that a particular line of text cannot be successfully interpreted or formatted.

four wire. Communication paths in which four wires, two in each direction, are presented to the terminal or station equipment.

half duplex operation. (TC97) A mode of operation of a data link in which data may be transmitted in both directions, one way at a time. Synonymous with either-way operation.

highlight. To emphasize a displayed character or field through attributes that produce blinking, reversing, underscoring, or to display a field (only) at high intensity.

Hz. Hertz.

IBM diskette 2D. (1) A flexible diskette that is the media used to record double density information on both physical sides. (2) Synonymous with *diskette 2D.*

IDTF. Interactive Display Text Facility.

in. Inch.

Interactive Display Text Facility. An IBM licensed program that provides text entry and edit functions for the 8775.

I/O. Input/output.

loop. An electrical path into which an 8775 Model 1 or 2 is connected to allow communication with the processor.

mandatory enter. (1) A field attribute for specifying that a field must be modified before a signal from the ENTER key or enter-type key can be accepted. (2) Contrast with *mandatory fill.*

mandatory fill. (1) A mode of entry whereby a display field must be completely filled with data before the operator can move the cursor to another field. (2) Contrast with *mandatory enter.*

microcode. A code, representing the instructions of an instruction set, implemented in a part of storage that is not program-addressable.

mm. Millimeter.

Modem. (1) (TC97) A functional unit that modulates and demodulates signals. One of the functions of a modem is to enable digital data to be transmitted over analog transmission facilities. (2) *(modulator-demodulator) A device that modulates and demodulates signals transmitted over data communication facilities.

multidrop line. Synonym for *multipoint line.*

multiple partitions. See *partition.*

multipoint line. (1) A line or circuit interconnecting several stations. (2) Synonymous with *multidrop line.* (3) Contrast with *point-to-point line.*

no-adjust mode. The text mode by which text remains in its typed and entered form.

null character. An all-zero character that occupies a position in the buffer and is displayed as a blank.

null suppression. In reading the contents of the display buffer, the ignoring of all null characters in order to reduce the amount of data to be transmitted or printed.

overlay keyboard. A keyboard with narrow alphanumeric keytops that allows the use of overlays. An overlay shows the characters or pictorial shapes associated with each key, as assigned by the programmer. The keyboard is intended for use with the Programmed Symbols features.

PA key. Program access key.

* American National Dictionary for Information Processing

partition. An entity that allows information to be displayed and manipulated within a defined rectangular area of the screen. Up to eight partitions are available to the programmer.

PF key. Program function key.

point-to-point line. (1) A data link that connects a single remote station to the computer. (2) Contrast with *multipoint line*.

printer attachment. On the 8775, the direct attachment of a printer to the terminal rather than to the system.

program access (PA) key. On an 8775, a key that produces an interruption to the processor.

program function (PF) key. A key on the keyboard of a display device that passes a signal to a program to call for a particular program operation.

programmed symbol. In computer graphics, a special character or pictorial shape (or a portion of such) that is defined by an application program and is displayable.

protected field. (1) A display field in which the operator cannot enter, modify, or erase data from the keyboard. (2) Contrast with *unprotected field*.

read-modified operation. An operation in which only those display fields that are operator-modified are transferred and in which nulls are suppressed.

required backspace. The means of creating a printable overstruck character and, in some circumstances, a printable underscored character.

required new line. The means of causing some text in adjust mode to start on a new line, and to reset the left-hand margin to 0.

required space. A space between two words that need to be kept together (such as 17 December 1981 and 500 kg) for automatic word underscoring or during the adjusting of text.

reverse video. An attribute for highlighting a character by reversing the light intensity between the character and its matrix background. The highlighting is analogous to a normally black-on-white character becoming a white-on-black character.

scale line. A line at the top of the screen, for displaying (1) all character positions and current tabulator-stop settings, (2) the position of the left-hand margin, (3) the position of the right-hand margin, (4) the adjust or no-adjust symbol, and (5) the cursor position in its horizontal movement.

SDLC. Synchronous data link control.

selector light pen. A pen-like instrument that may be attached to an 8775 as a special feature. When pointed at a detectable portion of an image and then activated, the selector light pen senses the presence of light at a display field and identifies the selected field for entry into the system.

special feature. A feature that can be ordered to enhance the capability, storage capacity, or performance of an IBM product, but is not essential for its basic work; for example, a feature that enables a modem to be connected to a public switched network as well as to a nonswitched line.

specify feature. One of a group of similar features for an IBM product that is needed and therefore must be specified so that the product can do its basic work; for example, one of ten features for keyboard languages that the customer must order for a terminal.

subscript. A normal-size character that can be printed at a half line space below the normal print line.

superscript. A normal size character that can be printed at a half line space above the normal print line.

switched network backup (SNBU). An optional facility that allows a user to specify, for 8775 Models 11 and 12, a switched line to be used as an alternative path (backup) if the primary line becomes unavailable or unusable.

synchronous data link control (SDLC). A discipline for managing synchronous, transparent, serial-by-bit information transfer over a communication channel.

tab. Same as tabulate.

tabstop. Same as tabulator stop.

tabulate. Causes the immediately following text to be positioned at the next tabulator stop.

tabulator stop. A variable column position available for text or for a table. The tabulator stop may be (1) *normal*, for vertically aligning to the stop the first character in the column, as can be done with a typewriter; (2) *centering*, for vertically aligning to the stop the nearest-to-center character in the column; or (3) *decimal*, for vertically aligning the decimal sign in a column of numbers.

temporary left margin. The means of automatically indenting the subsequent lines of text.

text command. A request that the 8775 operator can put into a document for governing its layout and structure or for imbedding other text at that point.

text command key. The key that the 8775 operator presses to signify that the following typed characters are a text command.

unprotected field. (1) A display field in which the operator can enter, modify, or erase data from the keyboard. (2) Contrast with *protected field*.

viewport. A rectangular area on the screen that can be used for the display of data.

wordspill. During typing of text in adjust mode, the automatic placing of a word on a new line if the current line has insufficient space for the whole word.

Bibliography

This bibliography describes those publications mentioned in the manual and others that may be of interest. Request for copies should be made to your IBM representative or to the IBM branch office serving your locality.

Publications for 8775 Display Terminal

IBM 8775 Display Terminal: Configurator, GA33-3042.

Contains configuration information for the IBM 8775 Display Terminal. The configurator is intended for customer system planning purposes and for IBM marketing personnel. Chapter 1 introduces the other two chapters and the appendixes; Chapter 2 lists the features and accessories that are available for configurations of the 8775 Display Terminal; and Chapter 3 describes the feature changes that can be made. Indexes of the features are provided at the back of the manual.

IBM 8775 Display Terminal: Site Preparation Guide, GA33-3043.

Is intended for those persons concerned with planning and preparing the customer's premises for the IBM 8775 Display Terminal.

Using the information in this guide will help ensure that customer personnel can unpack, position, setup, and checkout the 8775 Display Terminal. As a result, the customer will be able to use the 8775 soon after it is delivered. If the customer later chooses to relocate an 8775, the personnel should be able to do that, because the 8775 is designed for setup, relocation, and discontinuance by the customer.

IBM 8775 Display Terminal: Physical Planning Template: (Scale 1:48), GX22-7071, or *IBM 8775 Display Terminal: Physical Planning Template, (Scale 1:50)*, GX22-7072.

These give scaled representations of the physical planning specification of the IBM 8775 Display Terminal.

IBM 8775 Display Terminal: Character Set Reference, GA33-3041.

Provides general reference material about the character sets, alphanumeric keyboards, and input/output (I/O) interface codes (bit patterns) for languages that are available with the IBM 8775 Display Terminal. The manual is intended for management personnel, programmers, and system analysts.

The manual has three chapters:

- Chapter 1 describes the various language character sets for the 8775 Display Terminal.
- Chapter 2 describes and illustrates all keyboards that are available for the terminal.
- Chapter 3 contains: matrix drawings of the I/O interface codes that support the various keyboards; a table that shows the differences in I/O interface codes for the various national languages; and an I/O interface code matrix for the magnetic-stripe reader.

The reader is assumed to have a general knowledge of display terminals.

IBM 8775 Display Terminal: Terminal User's Guide, GA33-3045.

Describes all the features and functions of the IBM 8775 Display Terminal. The guide, intended to be used for reference by users of the 8775, includes (1) descriptions of keyboard keys, (2) explanations of indicators and messages displayed, (3) instructions for checking or changing options selected at 8775 setup, and (4) procedures for determining the cause of problems and the appropriate remedial actions to be taken.

IBM 8775 Display Terminal: Problem Determination Guide, GA33-3049.

Mounted in the keyboard, this document provides quick reference and procedures to assist the operator in:

1. Determining the cause of problems encountered in operating the IBM 8775 Display Terminal, and
2. Solving those problems that do not require technical assistance from a service representative.

IBM 8775 Display Terminal: Component Description, GA33-3044.

Describes the IBM 8775 Display Terminal from the point of view of a programmer, and is not intended to provide "operating instructions" for the terminal operator. This manual provides sufficient information for an 8775 to be used in a Systems Network Architecture (SNA) environment, and for application programs to be written. The manual contains four parts:

- Part 1 briefly introduces the reader to the physical, programming, and SNA aspects of the 8775. Parts 2, 3, and 4 deal with these three aspects in more detail.
- Part 2 deals with some basic concepts of the 8775 and describes operator controls from the point of view of a host programmer.
- Part 3 deals with programming considerations and, after presenting some background information, describes outbound and inbound data streams for the 8775 in base state and in partitioned state.
- Part 4, after a brief introduction to SNA concepts, describes SNA transmission formats and control functions.

The types of SNA sessions and the SNA commands supported by the 8775 are then described. Part 4 finishes with a description of SDLC operations.

The appendixes provide, in one place, details of the following topics; transmission of buffer addresses; the magnetic slot reader; input/output interface codes; SNA sense codes; program check codes; and field validation.

IBM 8775 Display Terminal: Setup Instructions, GA33-3048.

Provides instructions to customer personnel for the setup of the IBM 8775 Display Terminal without the assistance of an IBM Service Representative. Customer personnel are not required to have previous knowledge of display terminals or communication facilities.

Publications for System/370

IBM System/370: System Summary, GA22-7001.

Provides basic information about the IBM System/370. It helps the reader achieve a general understanding of the system, and the interrelationship of its components.

The manual has eight sections:

- Sections 1 through 3 discuss the system structure and features.
- Section 4 describes the programming systems.
- Section 5 gives an introductory explanation of telecommunications.
- Section 6 presents summary information about individual system models.
- Sections 7 and 8 describe the system input/output devices and terminals.

IBM System/370: Installation Manual - Physical Planning, GC22-7004 (for United States only) or GC19-0004 (for other countries).

Contains information necessary for planning the physical installation of the IBM System/370. It includes floor planning information, as well as electrical, environmental, and structural requirements. The manual also provides detailed cable charts.

IBM Input/Output Equipment: Installation Manual - Physical Planning for System/360 and System/370, GC22-7064.

Contains information necessary for planning the physical installation of IBM input/output equipment. It is divided into two sections with reference appendixes:

- Section 1 contains machine specifications and cabling information for input/output equipment.
- Section 2 has other general cabling information.

The reference appendixes contain additional information and cross-references.

Publications for 4300 Processors

IBM 4300 Processors: Installation Manual - Physical Planning, GA24-3667.

Contains information for preparing the site for the installation of the IBM 4300 Processors. Included are:

1. Information on floor planning, electrical, environmental, and structural requirements.
2. Detailed specifications and cabling information for each of the 4300 Processors.
3. An index of 4300 Processors physical planning templates.
4. A checklist to be used as an aid in the installation planning and scheduling.

Note: *This manual is intended for use with the companion manual IBM Input/Output Equipment Installation Manual - Physical Planning for System/360, System/370, and 4300 Processing, GC22-7064.*

IBM 4300 Processors Summary and Input/Output and Data Communications Configurator, GA33-1523.

Is intended to give a general understanding of the IBM 4300 Processors. It is divided into five sections:

- Sections 1, 2 and 3 explain the concepts of the processors and give an overview of their structure and most important features.
- Section 4 describes the individual 4300 Processors.
- Section 5 presents the input/output and data communications configurator for the 4300 Processors.

Because each section is built on information presented in preceding sections, it is preferable to read the sections in order of presentation. A basic knowledge of data processing systems, such as give in the *Introduction to IBM Processing Systems*, GC20-1684 is assumed.

Publications for 8100 Information System

An Introduction to the IBM 8100 Information System, GA27-2875.

Contains introductory information about the IBM 8100 Information System. Its objective is to assist user executives, managers, programmers, and installation planners in understanding the 8100 Information System, the interrelationships of its components, and its approach to distributed processing. Briefly described are system concepts, programming support, hardware components and features, and input/output devices that can be attached to the system.

IBM 8100 Information System: Distributed Processing Programming Executive Base, General Information, GC27-0400.

Provides the information required to evaluate the Distributed Processing Programming Executive (DPPX) Base licensed program.

The audience includes anyone looking for an introduction to the DPPX Base and/or highlights of the usefulness of related licensed programs. (Many of the related licensed programs are also further described in separate general information manuals.)

DPPX executes on IBM 8100 Information System processors, which can operate in three modes: stand-alone, interconnected (8100 to 8100), and attached to System/370.

Following an overview section which introduces the DPPX Base and related licensed programs, three key aspects of the system are described:

- Designing, developing, and using DPPX application program.
- Day-to-day processing operations, including system installation, customization, operation, growth, and service.
- The planning involved in system installation.

IBM 8100 Information System: Distributed Processing Control Executive General Information, Introduction, GC22-9075.

Provides an overview of the Distributed Processing Control Executive (DPCX), IBM Licensed Program, to readers with a general knowledge of the telecommunications environment. It introduces DPCX services, functions, and capabilities. It discusses IBM System/370 and program products that can be used with DPCX to provide control programming support for a distributed system network. The manual also provides details about orderable DPCX features and DPCX support of IBM 8100 Information System units and communications capabilities.

IBM 8100 Information System: Communications, Loop, and Display Printer Attachment Description, GA27-2883.

The overview part of this publication identifies the hardware communications and loop capabilities for attachment of systems and I/O devices to the 8100 system, tells what can be done with these capabilities, and describes the advantages of loop attachment.

The communications-description part deals with (1) the commands with which the program modules control the SDLC and the BSC/SS communication control logic (hardware), (2) the channel I/O (CHIO) operation of the SDLC control logic and (3) the communications features used with SDLC and the BSC/SS features.

The loop-description part deals with the control of directly attached and data-link attached loops. This control is accomplished through commands and bit sequences based on SDLC concepts.

IBM 8100 Information System: Distributed Presentation Services General Information, GC33-0090.

Introduces DPPX Distributed Presentation Services. The manual is intended for data processing managers, system programmers, system administrators, and application programmers. Chapter 1 describes the advantages that Distributed Presentation Services offers to a data processing installation. Chapter 2 describes how Distributed Presentation Services is used, and introduces the key concepts. Chapter 3 describes the installation process and the machine and programming requirements.

IBM 8100 Information System: Distributed Office Support Facility - General Information, GC27-0546.

Introduces the Distributed Office Support Facility (DOSF), an IBM program product for text processing and paperwork management at an IBM 8100 Information System.

IBM 8100 Information System: Site Preparation Guide for IBM 8130, IBM 8140, IBM 8101, GA27-2884.

Is a guide for the user (customer personnel) to plan for the physical installation of IBM 8100 Information System units (8130 Processor, 8140 Processor, and 8101 Storage and Input/Output Unit).

Publications for 3230 Printer

IBM 3230 Printer Model 2: Product Description, GA24-3759.

IBM 3230 Printer Models 1 and 2: Site Preparation and Planning Guide, GA24-3761.

IBM 3270 Information Display System: Configurator, GA27-2849.

Contains information relating to the configuration of, among other system components, the IBM 3230 Printer. It also lists the features and associated numbers.

IBM 3270 Information Display System: Data Stream Programmer's Reference, GA23-0059.

Contains data stream information relating to, among other system components, the IBM 3230 printer.

Publications for 3262 Printer

IBM 3262 Printer Models 3 and 13: Component Description, GA24-3741.

Provides supervisory personnel, systems analysts, and application programmers with reference information about the IBM 3262 Printer Models 3 and 13. The manual describes the general functions of the printer as well as the major components, printing method, and printing speeds.

IBM 3262 Printer Models 1, 2, 3, 11, 12, and 13: Site Planning and Preparation Guide, GA24-3734.

Provides information to help customer personnel plan and prepare the physical installation and setup of an IBM 3262 Printer.

IBM 3262 Printer Models 3 and 13: Operator's Guide, GA24-3743.

Provides the reference and instructional information necessary to operate the IBM 3262 Printer. Included are general descriptions of printer operations, printer performance, operator panel functions, operating and error-recovery procedures, operator maintenance routines, and relocation instructions. Although the manual is intended primarily for machine operators, it may also be of interest to system supervisors and engineers.

IBM 3270 Information Display System: Configurator, GA27-2849.

Contains information relating to the configuration of, among other system components, the IBM 3262 Printer. It also lists the features and associated numbers.

Publications for 3268 Printer

IBM 3268 Printer Model 2: Description, GA27-3268.

Provides introductory and reference information about the IBM 3268 Printer Model 2. The manual describes the capabilities and functions of the 3268 Printer for those concerned with planning a new system or integrating a Model 2 into an existing system.

IBM 3268 Printer Model 2: Operator's Guide, GA27-3270.

IBM 3268 Printer: Site Preparation and Planning Guide, GA27-3266.

IBM 3270 Information Display System: Configurator, GA27-2849.

Contains information relating to the configuration of, among other system components, the IBM 3268 Printer. It also lists the features and associated numbers.

Publications for 3287 Printer

An Introduction to the IBM 3270 Information Display System, GA27-2739.

Provides customer executives, installation managers and planners, and IBM marketing representatives with planning information about the IBM 3270 Information Display System, including the IBM 3287 Printer.

IBM 3270 Information Display System: Configurator, GA27-2849.

Contains information relating to the configuration of, among other system components, the IBM 3287 Printer. It also lists the features and associated numbers.

IBM 3270 Information Display System: Installation Manual - Physical Planning, GA27-2787.

Provides physical planning information for, among other system components, the IBM 3287 Printer. Included is information on floor planning, electrical and environmental requirements, cabling, and the machine specifications and description.

IBM 3270 Information Display System: Data Stream Programmer's Reference, GA23-0059.

Contains data stream information relating to, among other system components, the IBM 3287 printer.

IBM 3287 Printer Models 1 and 2: Component Description, GA27-3153.

Describes the IBM 3287 Printer Models 1 and 2, and gives information for customer executives, system analysts, and systems engineers who are aware of the intended use of the printer. Included in this manual are descriptions of the printer's applications, operating characteristics, features and international considerations.

IBM 3287 Printer Models 1C and 2C: Component Description, GA27-3229.

Provides information for executives, systems analysts, and systems engineers who have a knowledge of color applications for the IBM 3270 Information Display System.

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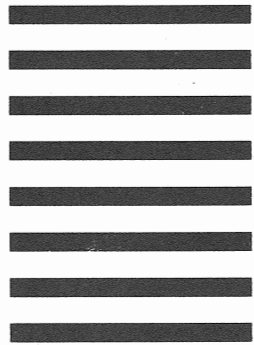
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