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Systems

IBM 3270 Information Display System Feature Description

First Edition (August 1982)

This publication applies to the 3270 system units listed in the Preface. Changes are made periodically to the information herein; before using this publication in connection with the installation and operation of IBM equipment, see the latest *IBM System/360 Bibliography*, GC20-0360, and *IBM System/370 and 4300 Processors Bibliography*, GC20-0001, for the editions that are applicable and current.

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Preface

This manual contains configuration information for the following units of the IBM 3270 Information Display System:

- 3274 Control Unit
- 3276 Control Unit Display Station
- 3277 Display Station
- 3278 Display Station
- 3279 Color Display Station
- 3230 Printer
- 3262 Line Printer
- 3268 Printer
- 3287 Printer (attached to a 3274 unit)
- 3289 Printer

Organization of This Manual

This manual contains two chapters and an appendix:

- Chapter 1, "Features and Accessories," describes the features and accessories available for the above units of the IBM 3270 Information Display System.
- Chapter 2, "Feature Lists," contains information about features and accessories, such as cable lengths, machine nomenclature, and keyboard languages, that is not included in Chapter 1.
- Appendix A contains the control storage requirements for the 3274 Control Unit.

A list of abbreviations used in this manual follows Appendix A.

Related Publications

Configuration information applicable to other 3270 system units is given in:

IBM 3270 Information Display System Configurator, GA27-2849.

Introductory information about the 3270 Information Display System is given in:

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

Character sets and keyboards are described in:

IBM 3270 Information Display System: Character Set Reference, GA27-2837.

Physical aspects of the 3270 system are described in:

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

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Chapter 1. Features and Accessories

The features for the IBM Information Display System are categorized as *specify* or *special*. A specify feature is usually one that must be chosen to make a unit functional. A special feature is usually an optional one that may improve performance, provide additional operational capability, or permit expansion of the unit.

Note: Not all features and accessories described are announced or available in every country. You should verify their availability with your IBM sales representative.

Specify Features

The specify features for the 3270 system are described below.

Notes:

1. For countries other than the United States, a keyboard language must be specified. The keyboard language selected must correspond to the character set to be used.

2. Refer to *IBM 3270 Information Display System: Character Set Reference,* GA27-2837, for character set differences.

3. Refer to *Forms Design Reference Guide for Printers,* GA24-3488, for forms design considerations and limitations.

2835 Datel 2412 Service, Facility 3 (3274 Models 1C, 21C, 31C, and 51C; 3276)

This feature provides the communication cabling required when the indicated service is used. (U.K. only.)

2898 Dial Disconnect Switch (3276)

This feature is required if D1200S/2400S switched service in Germany, Datel 2400 switched service in Switzerland, or 600 Switched Service in the United Kingdom is used.

2943 NTT D-1 Service (3274 Models 31C and 51C, 3276)

This feature provides feature compatibility with this service. (Japan only.)

9011 Alternate Mailing Address (3274)

This optional feature must be ordered to specify that diskette-only updates are to be mailed to an alternate site address. The alternate address selected is usually that of a central site location. The purpose of this feature is to assist the customer with his network management.

9030 Blower (3287)

This feature provides a blower if the unit is to be used in an environment above 32.2°C (90°F) ambient temperature [specification limits up to 40.5°C (104°F)]. Field installation is not recommended.

9061 3.0-Meter (10-Foot) Communication Cable (3274 Models 1C, 21C, 31C, and 51C; 3276)
9062 9.1-Meter (30-Foot) Communication Cable (3274 Models 1C, 21C, 31C, and 51C; 3276)
9063 12.2-Meter (40-Foot) Communication Cable (3274 Models 1C, 21C, 31C, and 51C; 3276)

These features provide a communication cable of the indicated length in lieu of the standard 6.1-meter (20-ft) cable.

9082 EBCDIC Character Set (3276, 3287)

This feature provides the 94-character extended binary-coded decimal interchange code (EBCDIC) character set. On the 3287, it is mutually exclusive with Data Analysis—APL (1066). With displays, it is used in conjunction with the 75-Key Typewriter Keyboard (4261), Data Entry Keyboard (4622 or 4623), 87-Key EBCDIC Typewriter Keyboard (4627), EBCDIC Typewriter/APL Keyboard (4624), or EBCDIC Typewriter/Text Keyboard (4629).

9084 ASCII Character Set (3276, 3287)

This feature provides the standard American National Standard Code for Information Interchange (ASCII) character set. On the 3287, it is mutually exclusive with Data Analysis—APL (1066). With displays, it is used in conjunction with the 75-Key ASCII Typewriter Keyboard (4624) or 87-key ASCII Typewriter Keyboard (4628).

9089 EBCDIC Character Set (3277)

This feature provides the 64-character EBCDIC character set. It is mutually exclusive with Data Analysis—APL (1066).

Prerequisite: If this feature is used with the 3271 Control Unit Model 1 or 2, EBCDIC Transmission Code (9761) is required on the 3271.

9091 ASCII Character Set (A) (3277)

This feature provides the 64 ASCII characters, but substitutes the logical OR and the logical NOT for the exclamation mark and the circumflex. It is mutually exclusive with Data Analysis—APL (1066).

Prerequisites: If this feature is used with the 3271 Control Unit Model 2, ASCII Transmission Code (9762) is required on the 3271. If it is used with the 3271 Model 12, ASCII Transmission Code (1200) is required on the 3271.

9092 ASCII Character Set (B) (3277)

This feature provides the standard 64 ASCII characters. It is mutually exclusive with Data Analysis—APL (1066).

Prerequisites: If this feature is used with the 3271 Control Unit Model 2, ASCII Transmission Code (9762) is required on the 3271. If it is used with the 3271 Model 12, ASCII Transmission Code (1200) is required on the 3271.

9093 EBCDIC TN/T11 Character Set (3277)

This feature provides the 120 characters of the technical notation (TN)/T11 print train.

Prerequisites: Text Print (7880) and EBCDIC Transmission Code (9761) are required on the 3271 Control Unit.

9110 Configuration Support A (All 3274 Models)

Configuration Support A is shipped with all 3274 models unless Configuration Support C is specified. It provides support for:

- All 3270 functions listed in the storage-requirements figures in Appendix A
- Solicitation of summary maintenance statistics from 3274 models using systems network architecture (SNA) protocol through the use of Network Problem Determination Application (NPDA)
- Support for base color on attached terminals
- X.21 nonswitched network operation.

9112 Configuration Support C (3274 Models 31A, 31C, and 31D; Model 51C with Extended Function Store)

Configuration Support C provides support for all 3270 functions included in Configuration Support A plus support for the following:

- Ability to attach 3278 Model 5
- Pacing of inbound message traffic (Models 31C/SNA and 51C/SNA)
- Structured Field and Attribute Processing (SFAP) (EBCDIC only)[1]
- Programmed Symbols (PS) on attached terminals [1]
- Extended color on attached terminals [1]
- Extended highlighting on attached terminals [1]
- Decompression of PS load data [1]
- BSC text blocking
- BSC transparency
- Integrated modems (Models 31C and 51C only)
- X.21 switched network operation (Model 51C/SNA only)

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[1] The extended data stream functions (extended color, extended highlighting, and programmed symbols), which require the SFAP option in Configuration Support C, will not operate with the 1970 Alternate Character set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

- Loop attachment (Model 51C only)
- Automatic session recovery in both single- and multidomain networks (Models 31C/SNA and 51C/SNA)
- Host notification of changes in the power on/off status of attached terminals (Models 31A, 31C/SNA, and 51C/SNA).

Note: The configuration support required for the 3274 must be determined before special features are ordered or the terminals are attached to the 3274. See Appendix A.

9135 Base Color Black (3287 Models 1C and 2C)

When this feature is specified, color mapping occurs as follows: when the display station displays in green, or when the appropriate attribute byte is received, the printer will print in black; when the display station displays in white, or when the appropriate attribute byte is received, the printer will print in green.

9136 Base Color Green (3287 Models 1C and 2C)

When this feature is specified, color mapping occurs as follows: when the display station displays in green, or when the appropriate attribute byte is received, the printer will print in green; when the display station displays in white, or when the appropriate attribute byte is received, the printer will print in black.

9162 Pin Feed Platen: 126-Position (3284, 3286)
9167 Pin Feed Platen: 120-Position (3284, 3286)
9168 Pin Feed Platen: 132-Position (3284, 3286)

These features provide for the indicated number of print positions. Hole-to-hole spacing is:

120 positions (9167)—31.8 cm (12-1/2 in.)
126 positions (9162)—33.3 cm (13-1/8 in.)
132 positions (9168)—35.2 cm (13-7/8 in.)

9185 Variable Width Forms Tractor—Paper Handling (3287)

This feature provides for handling forms with an overall width from 76.2 to 203.2 mm (3 to 8 in.).

Prerequisite: The Variable Width Forms Tractor (8700) is required.

9200 960-Character Print Operation (3262 Models 3 and 13)
9202 2560-Character Print Operation (3262 Models 3 and 13)
9203 3440-Character Print Operation (3262 Models 3 and 13)
9204 3564-Character Print Operation (3262 Models 3 and 13)

The basic 3262 Models 3 and 13 operate with a program that assumes the buffer size is 1920 bytes while using the Erase/Write Alternate command. One of these options must be specified to alter the basic machine.

Limitations: Feature code 9204 is valid only when the 3262 is attached to a 3274 Control Unit with Configuration Support C.

9399 1.8-Meter (6-Foot) Keyboard Cable (3276, 3278)

This feature provides a keyboard cable of the indicated length in lieu of the standard 0.9-meter (3-ft) cable.

9405 4.3-Meter (14-Foot) Loop Station Connector Cable (3274 Model 51C; 3276 Models 11, 12, 13, and 14)

This feature provides a communication cable of the indicated length in lieu of the standard 1.8-meter (6-ft) cable for attachment to a loop of the 8100 Information System.

9488 X Print Error Indication (3287)

This feature provides an error indication by printing an X on the print line immediately below the last line normally printed. This feature is inactive when the printer is in SNA character string (SCS) mode of operation.

9488 Print Error Indication (3289)

This feature provides an error indication by printing an error graphic on the line immediately below the last print line for that data buffer when the printer is used in 3270 data-stream mode.

9490 Switched Network (3276 Models 11, 12, 13, and 14)

This feature provides for operation on the public switched network.

9491 Nonswitched Network (3276)

This feature provides for operation on nonswitched communication facilities.

9490 48-Character Set EBCDIC Print Belt (3289)
9491 64-Character Set EBCDIC Print Belt (3289)
9492 94-Character Set EBCDIC Print Belt (3289)
9493 48-Character Set ASCII Print Belt (3289)
9494 64-Character Set ASCII Print Belt (3289)
9495 94-Character Set ASCII Print Belt (3289)
9496 125-Character Text Print Belt EBCDIC (3289)

These features provide a print belt of the indicated character set. (U.S. only; contact IBM for other character set languages.)

9501 Carriage Return at MPP Plus 1 (3230 Model 2, 3268 Model 2)

Standard operation of the basic machine provides for an automatic new-line operation to be executed at MPP (maximum print position) plus 1, followed by a carriage return. The next print position is the first position of the next line. Feature 9501 prevents the automatic new-line operation from being executed.

9502 New Line at MPP Plus 1 (3230 Model 2, 3268 Model 2)

Standard operation of the basic machine provides for an automatic new-line operation to be executed at MPP plus 1, followed by a second new line. The next print position is the first print position of the current line plus 2. Feature 9502 prevents the automatic new-line operation from being executed.

9503 Form Feed Followed by Data (3230 Model 2, 3268 Model 2)

In standard operation of the basic machine, the form is skipped to the first line of the next form and the next print position is the second print position of that line. With feature 9503, the form is skipped to the first line of the next form, but the next print position is the first print position of that line.

9504 Form Feed Is Last Character in Print Order (3230 Model 2, 3268 Model 2)

In standard operation of the basic machine, an automatic new-line operation is executed after the form feed is completed. The next print position is the first print position of the second line on the next form. Feature 9504 suppresses the automatic new-line operation. The next print position is the first print position of the first line of the next form.

9506 Form Feed Command Position (3230 Model 2, 3268 Model 2)

In standard operation of the basic machine, the Form Feed command is executed only when it occurs at the first print position in a line or at MPP plus 1. The Form Feed command is treated at other positions as a space. Feature 9506 causes execution of the Form Feed command whenever it is encountered in the data stream.

9507 Automatic Function at End of Print Buffer (3230 Model 2, 3268 Model 2)

In standard operation of the basic machine, an automatic new-line operation is executed following a print order. The next print position is the first print position of the next line. Feature 9507 causes an automatic form-feed operation to be executed following a print order. The next print position is the first print position of the first line of the next form.

9520 480-Character Print Operation (3287)
9521 960-Character Print Operation (3230 Model 2, 3268 Model 2, 3287)
9522 1920-Character Print Operation (3287, 3289)
9523 2560-Character Print Operation (3230 Model 2, 3268 Model 2, 3287, 3289)
9524 3440-Character Print Operation (3230 Model 2, 3268 Model 2, 3287, 3289)
9525 3564-Character Print Operation (3230 Model 2, 3268 Model 2, 3287, 3289)

These features provide for operation with a program that requires a printer buffer of the indicated size while using the Erase/Write Alternate command.

Notes:

1. For compatibility with 3271/3272 application programs using the Erase/Write command for the 3270 system, feature 9521 provides 480-character print operation and 9522, 9523, 9524, and 9525 provide 1920-character print operation. Allowable usage in the SNA character string of the full buffer varies with the control unit (3274 or 3276) to which the printer is attached and with programming considerations. Copy operation from a larger screen display to a smaller printer buffer is not acceptable.

2. Features 9523, 9524, and 9525 on the 3287 and 3289 printers require the Extended Print Buffer (3880).

3. All character print operations except feature 9525 are supported by 3276 Models 1, 2, and 3 with the SDLC/BSC Switch (6315) installed and operating in synchronous data link control (SDLC) mode.

4. The basic 3230 Model 2 and 3268 Model 2 operate with a program that assumes the buffer size is 1920 bytes while using the Erase/Write Alternate command. One of these options must be specified to alter the basic machine.

5. The 3274 with Configuration Support C is required for feature 9525.

9651 4-Wire Facility (3276)
9652 2-Wire Facility (3276)

These features provide for operation with the indicated communication facility.

Prerequisite: Feature 5500, 5507, or 5508 is required.

9660 SCS Support (3287)

In the SNA environment, this feature provides the capability for receiving the SNA character string (SCS) data stream from the host system via a 3274 or a 3276. This feature allows the printer to perform such functions as:

- Vertical forms skipping to a header or to a vertical tab position
- Horizontal skipping to a horizontal tab stop position.

Page size, header location, and vertical and horizontal tab positions are host-loaded through the 3274 or 3276 via application programming. Included in SCS Support (9660) are the Cancel and Program Attention 1/Program Attention 2 (PA1/PA2) switches. The Cancel switch allows the operator to terminate the current print operation. The PA1/PA2 switch allows the operator to request a specific action from the user-written program in the host. Operator settings for page-length control, 6 or 8 lines per inch, and maximum print position are set by the host program when the 3287 has the 3274/3276 Attachment (8331) and SCS Support (9660) and only when the user is operating in SCS mode. The SCS mode always operates in dual case. This feature is mutually exclusive with the 3271/3272 Attachment (8330) and ASCII Character Set (B) (9084). It cannot be installed on a 3287 that is attached to a 3274 Model 1B, 1D, 21B, 21D, or 31D.

Note: Feature 9660 does not support PS-2 (5781), PS-4 (5782), PS-4A (5783), or color printing.

9661 SCS Support for Structured Field and Attribute Processing (SFAP) (3287)

In the SNA environment, this feature provides support for Extended Highlighting (underscore), Programmed Symbols (PS-2 and PS-4 on all models, PS-4A on Models 1C and 2C), decompression of PS load data, and Read Partition (query).

Limitations: The SCS function cannot be used when the 3287 is attached to a 3274 Model 1B, 1D, 21B, 21D, or 31D, or when ASCII Character Set (B) (9084) is used.

Prerequisites: Extended Character Set Adapter (3610), PS-2 (5781, for Models 1 and 2 only), SCS Support (9660), and a 3274 Model 1A, 1C, 21A, 21C, 31A, 31C, or 51C with the SFAP and SCS options of Configuration Support C (9112) are required.

Special Features

Following are the special features for the 3270 system.

Notes:

1. A variety of keyboard features are available. Refer to *IBM 3270 Information Display System: Character Set Reference,* GA27-2837, for keyboard layouts and characters.

2. Keyboards used on 3275 and 3277 display stations are not interchangeable with keyboards used on 3276, 3278, and 3279 display stations.

1009 Address Keylock (3276)

This feature controls access to the unit address switches (and, in some units, transmit level switches), which are located in the operator panel drawer.

1066 Data Analysis—APL (3277 Model 2, 3287)

This feature provides dual-case EBCDIC, the APL set, and (for output only) support of 120 technical notation (TN) print train characters. It is mutually exclusive with the Katakana Character Generator (2706).

Prerequisite: Data Analysis—APL (1066) is required on the 3271 or 3272 Control Unit, and 1920-Character Print Operation (9522) on the 3287.

1067 APL/Text Control (3276)

This feature provides control of the 3276, 3278, 3279, and 3287 equipped with Character Set Extension (3620) or the 3289 equipped with Text Print (1130). It is mutually exclusive with the SDLC/BSC Switch (6315).

Prerequisite: The Extended Function Base (1068) is required.

Note: APL/Text capability is provided with the 3279 Models 2B and 3B.

1068 Extended Function Base (3276)

This feature provides additional control to access APL/Text Control (1067), Color Display Attachment (1950), and/or X.21 Adapter for Switched Networks (5656) in the 3276. It is mutually exclusive with the SDLC/BSC Switch (6315) and ASCII Character Set (9084).

1090 Audible Alarm (3262 Models 3 and 13)

This feature audibly notifies the operator that manual intervention or problem determination is required. The alarm sounds when the printer receives the SCS bell code or when the Check indicator turns on. A switch on the operator's panel can disable the alarm.

1091 Audible Alarm (3277)

This alarm, sounded under program control, alerts the operator to a special condition during keyboard operation when a character is entered into the next-to-last position on the screen.

1120 APL/Text (3287)

This feature enables the 3287 to print the 222-character APL/Text character set, including the 94-character EBCDIC set. This feature can be used on 3287s connected (1) to all 3274 models except 1B and 21B customized to include the APL/Text Control Function and (2) to a 3276 with the APL/Text Control feature (1067). This feature is not compatible with ASCII and is mutually exclusive with the 3271/3272 Attachment (8330).

Prerequisite: The Extended Character Set Adapter (3610) is required.

1130 Text Print (3289)

This feature provides the ability to print 32 Text characters in addition to 93 characters of the 94-character EBCDIC set (U.S. English only). Printers with or without this feature can be mixed with displays and printers with or without Character Set Extension (3620) on an appropriately configured control unit. The text print belt provided with this feature is interchangeable only with the 48-, 64-, and 94-character EBCDIC print belts.

Note: Installing a text print belt on a 3289 limits the 3289 Model 1 to 40 lines per minute (lpm) and the 3289 Model 2 to 160 lpm; when the 48-, 64-, and 94-character EBCDIC print belts are used on the 3289 with the Text Print feature, the normal print speeds are maintained.

1550 CCITT V.35 Interface (3274 Models 1C, 21C, 31C, and 51C)

This feature provides a cable and an International Telegraph and Telephone Consultative Committee (CCITT) interface for attachment to an external modem or other data-circuit-terminating equipment (DCE) complying with CCITT recommendation (1976) V.35, ISO Standard 2593, and other relevant CCITT recommendations.

Limitations: This feature cannot be installed with any other communication-interface feature, and does not support BSC at speeds greater than 19,200 bps.

Prerequisites: The Communications Adapter (6302 or 6303) for speeds up to 9600 bits per second (bps), or the High Performance Communications Adapter (6303) for speeds over 9600 bps, is required.

Notes:

1. For 3274 Models 1C, 21C, and 31C, this feature can also be used for direct connection to an IBM 3705 Communications Controller at speeds up to 57,600 bps.

2. For 3274 Model 51C, this feature can also be used for direct connection to an IBM 8100 Processor at speeds up to 9600 bps or to an IBM 3705 Communications Controller at speeds up to 57,600 bps.

1800 Extended Function Store (3274 Model 51C)

This feature provides 65,536 positions of additional control storage.

Limitations: This feature cannot be installed with Extended Function Store Type D1, D2, or D3 (3630, 3631, or 3632) or with Control Storage Expansion (1802).

1801 Control Storage Expansion (3274 Models 1A, 1C, and 1D)

This feature permits the storage addresses to be accessed above the basic level. It is a prerequisite for Extended Function Store Type C1 (3622) or C2 (3623). One of these combinations (1801 and 3622 or 3623) is a prerequisite for the other Extended Function Store features (3625, 3627, and 3628).

1802 Control Storage Expansion (3274 Model 51C)

This feature permits the storage addresses to be accessed above the basic level. It is a prerequisite for Extended Function Store Types D1 (3630) and D2 (3632).

1950 Color Display Attachment (3276)

This feature permits attachment of 3279 Color Display Station Models 2A, 2B, 3A, 3B, S2A, S2B, S3G, 02X, and 03X.

Limitations: This feature is not available for 3276 Model 1. The 3276 does not support programmed symbols, extended color, or extended highlighting. The 3279 Models 2B, 3B, S2B, and S3G, and Model 03X with Extended Function Store (3850), are supported on the 3276 for base color and APL/Text operation.

Prerequisites: This feature requires the Extended Function Base (1068) and APL/Text Control (1067) for use with 3279 Models 2B, 3B, S2B, and S3G, and Models 02X and 03X with Extended Function Store (3850), for APL/Text operation.

2706 Katakana Character Generator (3277)

This feature provides the ability to display the characters described on the Katakana keyboard. It is mutually exclusive with Data Analysis—APL (1066).

Prerequisite: Katakana Control (2707) is required on the 3271 or 3272 Control Unit.

2708 88-Key Attribute Select Japanese English/Japanese Katakana Typewriter Keyboards (3278, 3279 except Models S2A and S2B)

These typewriter-layout, movable keyboards are similar to the 88-Key Japanese English and Japanese Katakana Typewriter Keyboards (2717). Attribute-select functions are shown on the 12 program function keys at the right-hand side of these keyboards.

Limitation: This feature cannot be installed on a 3278 or 3279 that is attached to a 3276 Control Unit Display Station.

Prerequisites: Japanese English (2955) or Japanese Katakana (2973) Keyboard Language is required. For 3279 Models 02X and 03X, Extended Function (3850) is required.

2715 76-Key Japanese English/Japanese Katakana Typewriter Keyboards (3276, 3278, 3279 except Model S3G)

On these typewriter-layout, movable keyboards, 12 program function keys are available in the top row of data keys through use of an Alternate shift key. The 76-Key Japanese English Typewriter Keyboard provides 49 data keys and 27 control keys.

Prerequisite: Japanese English (2955) or Japanese Katakana (2973) Keyboard Language is required.

2716 76-Key Japanese Katakana Data Entry Keyboard (3276, 3278, 3279 except Model S3G)

This movable, 4-level shift keyboard has 49 data keys, 10 program function keys, and 27 control keys.

Prerequisite: Japanese Katakana Keyboard Language (2973) is required.

2717 88-Key Japanese English/Japanese Katakana Typewriter Keyboards (3276, 3278, 3279)

These typewriter-layout, movable keyboards have 49 data keys, 26 control keys, and 12 program function keys. Twelve additional program function keys in the top row of data keys are available through the use of an Alternate shift key. The Japanese Katakana keyboard provides 4-level shift, 49 data keys, and 27 control keys.

Prerequisite: Japanese English (2955) or Japanese Katakana (2973) Keyboard Language is required.

2718 88-Key Japanese English/Japanese Katakana Typewriter/APL Keyboards (3276; 3278; 3279 Models 2B, 3B, S2B, 02X, and 03X)

These typewriter, movable keyboards have 49 data keys, 26 control keys, and 12 program function keys. These keyboards are similar to the 88-Key Japanese English and Japanese Katakana Keyboards (2717), but do not have the 12 additional program function keys. The keytops are modified to allow entry of 81 APL specific characters in addition to the basic character set. An APL On/Off key controls whether the keyboard is in APL or character-set mode.

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to a 3274 Control Unit Model 1B or 21B.

Prerequisites: Character Set Extension (3620) and Japanese English (2955) or Japanese Katakana (2973) Keyboard Language are required. For 3279 Models 2X and 3X, Extended Function (3850) is required.

2719 88-Key Japanese English/Japanese Katakana Typewriter Overlay Keyboards (3278, 3279 except Models S2A and S2B)

These typewriter-layout, movable keyboards are similar to the 88-Key Japanese English and Japanese Katakana Typewriter Keyboards (2717). The 48 character keys in the typewriter section of these keyboards have narrow keytops. Blank overlays are available for the user to mark up special characters or symbols assigned to the keys when using Programmed Symbols (PS). Attribute-select functions are shown on the 12 program function keys at the right-hand side of these keyboards.

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to a 3276 Control Unit Display Station or to a 3274 Control Unit Model 1B or 21B.

Prerequisites: Japanese English (2955) or Japanese Katakana (2973) Keyboard Language is required. For 3279 Models 02X and 03X, Extended Function (3850) is required.

2721 88-Key Attribute Select Japanese English/Japanese Katakana Typewriter/APL Keyboards (3278, 3279 except Models S2A and S2B)

These typewriter-layout, movable keyboards are similar to the 88-Key Japanese English and Japanese Katakana Typewriter/APL Keyboards (2718). Attribute-select functions are shown on the 12 program function keys at the right-hand side of these keyboards.

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to a 3276 Control Unit Display Station or to a 3274 Control Unit Model 1B or 21B.

Prerequisite: Japanese English (2955) or Japanese Katakana (2973) Keyboard Language is required.

2955 Katakana Typewriter Keyboard (3277)

This typewriter-layout, movable, 4-level shift keyboard provides 55 Katakana, 36 alphanumeric, and 33 special characters, and 12 program function keys.

Prerequisites: This feature requires the Katakana Character Generator (2706) on the 3277 and Katakana Control (2707) on the 3271 or 3272 Control Unit.

2973 Katakana Data Entry Keyboard (3277)

This movable, 4-level shift keyboard provides 55 Katakana, 36 alphanumeric, and 33 special characters.

Prerequisites: This feature requires the Katakana Character Generator (2706) on the 3277 and Katakana Control (2707) on the 3271 or 3272 Control Unit.

3255 Terminal Adapter No.1 (3276)
3256 Terminal Adapter No.2 (3276)
3257 Terminal Adapter No.3 (3276)

Each adapter provides for the attachment of two devices (3262 Model 13s, 3278s, 3279s, 3287s, and/or 3289s). (See Figure 1-1 for model restrictions.) One each of these adapters can be installed, and they must be installed in sequence.

3610 Extended Character Set Adapter (3287)

This feature provides the additional control and buffering necessary for the extended character set in APL/Text (1120). It is mutually exclusive with 3271/3272 Attachment (8330).

Limitations: This feature cannot be installed on a 3287 that is to be attached to a 3274 Model 1B or 21B.

3276 Model	3278 Model					3279 Model	
	1	2	3	4	5	2A, 2B, S2A, S2B, 02X	3A, 3B, S3G, 03X
1	Yes	No	No	No	No	No	No
11	Yes	Yes	Yes	Yes	No	Yes	Yes
2	Yes	Yes	No	No	No	Yes	Yes
12	Yes	Yes	Yes	Yes	No	Yes	Yes
3	Yes	Yes	Yes	No	No	Yes	Yes
13	Yes	Yes	Yes	Yes	No	Yes	Yes
4	Yes	Yes	Yes	Yes	No	Yes	Yes
14	Yes	Yes	Yes	Yes	No	Yes	Yes

Notes:

1. The 3276 Models 1, 2, and 3 (with SDLC/BSC switch in SDLC mode) support the same 3278 models as the 3276 Models 11, 12, and 13.
2. The 3276 provides a display and a port for attaching one device: a 3262 Model 13, 3278, 3279, 3287, or 3289. The 3276 with the three terminal adapters (3255, 3256, and 3257) thus allows a maximum cluster of eight displays and/or printers.

Figure 1-1. 3276/3278/3279 Attachment Matrix

3620 Character Set Extension (3276, 3278)

This feature permits display of the 222-character APL/Text character set, including the 94-character EBCDIC set. For 3278, it provides the additional character and field attributes required for the extended-highlighting capabilities of blink, reverse video, and underscore, and the control and buffering required for the Programmed Symbols feature (5790). Any of the following keyboards can be used to utilize the APL/Text capabilities: for the 3278, keyboards 2708, 2718, 2719, 2721, 4629, 4640, 4651, and 4652; for the 3276, keyboards 2718, 4626, and 4629.

Limitations: This feature is not compatible with ASCII.

Prerequisite: For the 3276, APL/Text Control (1067) is required.

3622 Extended Function Store Type C1 (3274 Models 1A, 1C, and 1D)
3623 Extended Function Store Type C2 (3274 Models 1A, 1C, and 1D)
3625 Extended Function Store Type C3 (3274 Models 1A, 1C, and 1D)
3627 Extended Function Store Type D1 (3274 Models 1A, 1C, and 1D)
3628 Extended Function Store Type D2 (3274 Models 1A, 1C, and 1D)

These features provide increments of additional control-storage positions to accommodate combinations of functional features that exceed the storage capacity of the basic unit. They require Control Storage Expansion (1801). Increment sizes are as follows:

Types C1, C3, and D1—16,384 bytes
Types C2 and D2—32,768 bytes

Feature	Prerequisites: Control Storage Expansion (1801) and	Mutually Exclusive with:
C1 (3622)	—	C2
C2 (3623)	—	C1
C3 (3625)	C1	—
D1 (3627)	C1 or C2	—
D2 (3628)	C1 or C2	—

Note: To determine which Extended Function Store features are required, see Appendix A.

3630 Extended Function Store Type D1 (3274 Model 51C)
3631 Extended Function Store Type D3 (3274 Model 51C)
3632 Extended Function Store Type D2 (3274 Model 51C)

These features provide an additional 32,768 control storage positions to accommodate combinations of functional features that exceed the storage capacity of the basic unit. It is for field installation only. Feature 3630 is a prerequisite of feature 3631.

3680 Encrypt/Decrypt (3274 Models 1C, 21C, 31C, and 51C; 3276 Models 11, 12, 13, and 14)

This feature provides a hardware implementation of the Federal Data Encryption Standard algorithm to encrypt and decrypt data messages under a 56-bit key variable. When this feature is used in conjunction with the Advanced Communications Function for Virtual Telecommunications Access Method (ACF/VTAM) Encrypt/Decrypt feature (Feature Number 6010, Program Number 5735-RC2) or Advanced Communications Function for Telecommunications Access Method (ACF/TCAM) Version 2 (Program Number 5735-RC3) and either the IBM 3848 Cryptographic Unit and the Operating System/Virtual Storage 1 (OS/VS1) and OS/VS2 Multiple Virtual Storage (MVS) Cryptographic Unit Support Program Product (Program Number 5740-XY6) or the OS/VS1 and OS/VS2 MVS Programmed Cryptographic Facility Program Product (Product Number 5740-XY5), data transmitted over unprotected communication lines can be safeguarded through cryptography.

Limitations: This feature is for SNA/SDLC only. It cannot be installed with the Loop Adapter (4850) on a 3274 Model 51C.

3701 External Modem Interface (3274 Models 1C, 21C, 31C, and 51C; 3276)

This feature provides a cable and an RS-232C interface for attachment to an IBM modem [or CCITT interface for attachment to an external IBM or OEM (original equipment manufacturer) modem or to a Post Telegraph and Telephone Administration (PTT) mandatory modem complying with CCITT recommendations (1976) V.24, V.28, ISO Standard 2110, and other relevant CCITT recommendations] that provides clocking of up to 9600 bps.

Limitation: This feature cannot be installed with any other communication-interface feature.

Prerequisites: For 3274, the Communications Adapter (6301, 6302, or 6303) is required; for 3276, the Communications Feature with or without Business Machine Clock (6301 or 6302).

Notes:

1. For 3274 Models 1C, 21C, and 31C, this feature can also be used for direct attachment to an IBM 4331 Processor at speeds up to 9600 bps.

2. For 3274 Model 51C, this feature can also be used for direct attachment to an IBM 3704 or 3705 Communications Controller or 4331 or 8100 processor at speeds up to 9600 bps.

3850 Extended Function (3279 Models 02X and 03X)

This feature provides extended color and extended highlighting. It also provides the capability for display of a 222-character APL/Text character set, including the 94-character EBCDIC set.

3880 Extended Print Buffer (3287)

This feature provides additional buffer storage to allow 2560-, 3440-, or 3564-character print operation. It is mutually exclusive with the 3271/3272 Attachment (8330). Allowable usage in SNA character string (SCS) of the full buffer varies with the control unit (3274 or 3276) to which the printer is attached and with programming considerations.

4110 Friction Feed Paper Handling (3287)

This feature provides for friction-feeding of single-part, nonpreprinted, continuous-roll or fanfold paper with a minimum width of 203.2 mm (8 in.). Included is a paper tear bar for tearing continuous forms approximately 63.5 mm (2-1/2 in.) from the last line printed. This feature is used interchangeably with the Variable Width Forms Tractor and is attached and removed by the user. It must be ordered on all machines without the Variable Width Forms Tractor-Covers (9850).

4450 Forms Stand (3268, 3287)

This accessory permits placement of continuous forms (out of the carton) on a stand above the floor and provides for stacking after printing.

4600 Operator Identification Card Reader (3277)

This feature enables the reading of a small, 53.9-by-85.7-mm (2-1/8-by-3-3/8-in.) credit-card-size, plastic card with an encoded magnetic stripe on the back. The card can be encoded with 1 to 40 characters (including control characters) at 75 bits per inch. This feature reads an operator identification card to allow identification of the display operator, thus enhancing system data security capability.

4621 75-Key EBCDIC Typewriter Keyboard (3276, 3278, 3279 except Model S3G)

This typewriter-layout, movable keyboard has 49 data keys and 26 control keys. Twelve program function keys are included in the top row of data keys and are available through the use of an Alternate shift key.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4622 75-Key Data Entry Keyboard (3276, 3278, 3279 except Model S3G)

This movable keyboard has 35 data keys, 10 program function keys, and 30 control keys.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4623 75-Key EBCDIC Data Entry Keypunch Layout Keyboard (3276; 3278; 3279 except Models S2A, S2B, and S3G)

This keypunch-layout, movable keyboard has 35 data keys, 10 program function keys, and 30 control keys. This is the recommended keyboard for high-volume data entry.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4624 75-Key ASCII Typewriter Keyboard (3276; 3278; 3279 except Models S2A, S2B, and S3G)

This ASCII typewriter-layout, movable keyboard has 49 data keys and 26 control keys. Twelve program function keys are included in the top row of the data keys and are available through the use of an Alternate shift key. (U.S. only.)

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to an A, B, or D model of the 3274 Control Unit.

4626 87-Key EBCDIC Typewriter/APL Keyboard (3276; 3278; 3279 except Models 2A, 3A, S2A, S3B, and S3G)

This typewriter-layout, movable keyboard has 49 alphanumeric data keys, 26 control keys, and 12 program function keys. It is similar to the 87-Key EBCDIC Typewriter Keyboard (4627); however, it does not have the 12 additional program function keys. The keytops are modified to allow entry of 81 APL specific characters in addition to the basic character set. An APL On/Off key controls whether the keyboard is in APL or basic character mode.

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to a 3274 Control Unit Model 1B or 21B.

Prerequisites: Character Set Extension (3620) is required. For 3279 Models 02X and 03X, Extended Function (3850) is required.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4627 87-Key EBCDIC Typewriter Keyboard (3276, 3278, 3279)

This typewriter-layout, movable keyboard has 49 alphanumeric data keys, 26 control keys, and 12 program function keys. Twelve additional program function keys are included in the top row of data keys and are available through the use of an Alternate shift key.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4628 87-Key ASCII Typewriter Keyboard (3276; 3278; 3279 except Models S2A, S2B, and S3G)

This ASCII typewriter-layout, movable keyboard has 49 alphanumeric data keys, 26 control keys, and 12 program function keys. Twelve additional program function keys are included in the top row of data keys and are available through the use of an Alternate shift key. (U.S. only.)

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to an A, B, or D model of the 3274 Control Unit.

4629 87-Key EBCDIC Typewriter/Text Keyboard (U.S. English Only) (3276; 3278; 3279 Models 2B, 3B, 02X, and 03X)

This typewriter-layout, movable keyboard has 49 alphanumeric data keys, 26 control keys, and 12 program function keys. It is similar to the 87-Key EBCDIC Typewriter Keyboard (4627); however, it does not have the 12 additional program function keys. The keytops are modified to allow entry of 65 Text specific characters in addition to the basic character set. A Text On/Off key controls whether the keyboard is in text or basic character-set mode. (Not available in E/ME/A countries.)

Limitations: This feature cannot be installed on a 3278 or 3279 that is attached to a 3274 Control Unit Model 1B or 21B.

Prerequisites: Character Set Extension (3620) is required. For 3279 Models 02X and 03X, Extended Function (3850) is required.

4630 66-Key EBCDIC Typewriter Keyboard (3277)

This typewriter-layout, movable keyboard has 45 alphanumeric keys and 21 control keys.

Prerequisite: The EBCDIC Character Set (9089) or a keyboard language is required.

4631 66-Key EBCDIC Data Entry Keyboard (3277)

This movable keyboard has 36 alphanumeric keys and 30 control keys.

Prerequisite: The EBCDIC Character Set (9089) or a keyboard language is required.

4632 78-Key Operator Console Keyboard (3277)

This operator-console-layout, movable keyboard has 45 alphanumeric keys, 21 control keys, and 12 program function keys.

Prerequisite: The EBCDIC Character Set (9089) is required.

Note: This keyboard is available only in U.S. English. In World Trade countries, English (U.S.) Keyboard Language (2956) should be specified.

4633 78-Key EBCDIC Typewriter Keyboard (3277)

This is a 66-key EBCDIC typewriter-layout, movable keyboard with 12 additional program function keys.

Prerequisite: The EBCDIC Character Set (9089) or a keyboard language is required.

4634 66-Key ASCII Typewriter Keyboard (3277)

This 66-key ASCII typewriter-layout, movable keyboard has 45 alphanumeric keys and 21 control keys. (U.S. only.)

Prerequisite: ASCII (A) or (B) (9091 or 9092) is required.

4635 76-Key ASCII Typewriter Keyboard (3277)

This is a 66-key typewriter-layout, movable keyboard with 12 additional program function keys. (U.S. only.)

Prerequisite: ASCII (A) or (B) (9091 or 9092) is required.

4636 66-Key EBCDIC Data Entry Keypunch Layout Keyboard (3277)

This keypunch-layout, movable keyboard has 36 alphanumeric keys and 30 control keys.

Prerequisite: The EBCDIC Character Set (9089) or a keyboard language is required.

4637 66-Key EBCDIC Typewriter/APL Keyboard (3277)

This movable keyboard has 45 alphanumeric and 21 control keys.

Prerequisite: Data Analysis—APL (1066) is required.

4638 78-Key EBCDIC Typewriter/APL Keyboard (3277)

This movable keyboard has 45 alphanumeric keys, 21 control keys, and 12 program function keys.

Prerequisite: Data Analysis—APL (1066) is required.

4639 78-Key EBCDIC Text Keyboard (3277 Model 2)

This movable keyboard has 45 alphanumeric keys, 21 control keys, and 12 program function keys. (U.S. only.)

Prerequisite: This feature requires Data Analysis—APL (1066) both on the 3277 and on the 3271 Control Unit Model 2 or 12 or the 3272 Control Unit Model 2.

4639 78-Key EBCDIC Fast Cursor Text Keyboard (3277 Model 2)

This movable keyboard has 45 alphanumeric keys, 21 control keys, and 12 program function keys. The speed of the cursor and repeat-action key operation is about twice that of a nontext keyboard. Included are repeat-action Delete and a function similar to typewriter carriage return. (U.S. only.)

Prerequisite: This feature requires Data Analysis—APL (1006) both on the 3277 and on the 3271 Control Unit Model 2 or 3272 Control Unit Model 2.

4640 87-Key EBCDIC Typewriter Overlay Keyboard (3278; 3279 except Models S2A, S2B, and S3G)

This typewriter-layout, movable keyboard is similar to the 87-Key EBCDIC Typewriter Keyboard (4627). The 48 character keys in the typewriter section of the keyboard have narrow keytops. Blank overlays are available for the user to mark up special characters or symbols assigned to keys when using Programmed Symbols (PS). Attribute-select functions are shown on the 12 program function keys at the right-hand side of the keyboard.

Limitations: This feature cannot be installed on a 3278 or 3279 attached to a 3276 Control Unit Display Station or to a 3274 Control Unit Model 1B or 21B.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4651 87-Key EBCDIC Attribute Select Typewriter Keyboard (3278, 3279 except Models S2A and S2B)

This typewriter-layout, movable keyboard is similar to the 87-Key EBCDIC Typewriter Keyboard (4627). Attribute-select functions are shown on the 12 program function keys at the right-hand side of the keyboard.

Limitations: This feature cannot be installed on a 3278 or 3279 attached to a 3276 Control Unit Display Station or to a 3274 Control Unit Model 1B or 21B.

Prerequisites: For 3279 Models 02X and 03X, Extended Function (3850) is required.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4652 87-Key EBCDIC Attribute Select Typewriter/APL Keyboard (3278, 3279 except Models S2A and S2B)

This typewriter-layout, movable keyboard is similar to the 87-Key EBCDIC Typewriter/APL Keyboard (4626). Attribute-select functions are shown on the 12 program function keys at the right-hand side of the keyboard.

Limitations: This feature cannot be installed on a 3278 or 3279 attached to a 3276 Control Unit Display Station or to a 3274 Control Unit Model 1B or 21B.

Prerequisites: For 3279 Models 02X and 03X, Extended Function (3850) is required.

Note: An alternative keyboard language may be specified only for 3279 Models 02X and 03X in all A/FE countries except Canada and Japan.

4690 Keyboard Numeric Lock (3276, 3277)

This feature enables keyboards 4621, 4622, 4623, 4627, 2715, 2716, and 2717 to be locked if a nonnumeric key (that is, other than 0-9, minus (-), decimal sign, or DUP) is operated in a predefined numeric-only field.

Note: For devices with an attribute-select keyboard, Numeric Lock is defined as *on* or *off* during the control unit customizing procedure. (Overlay keyboards are included in the group of attribute-select keyboards.)

4691 Inhibit Keyboard Numeric Lock (3279 Models 02X and 03X)

This feature prevents locking of keyboards 4621, 4622, 4623, 4627, 2715, 2716, and 2717 when a nonnumeric key (that is, other than 0-9, minus (-), decimal sign, or DUP) is operated in a predefined numeric-only field.

4850 Loop Adapter (3274 Model 51C with Extended Function Store; 3276 Models 11, 12, 13, and 14)

This feature permits attachment to a directly attached or data-link-attached loop of the 8100 Information System. Direct loop attachment supports speeds up to 38,400 bps. Data-link loop attachment supports 2400, 4800, or 9600 bps. A directly attached loop can use a 9.6-kilohertz (kHz) or 38.4-kHz carrier; a data-link-attached loop uses a 9.6-kHz carrier.

This feature is mutually exclusive with any other communication-interface feature (1550, 3701, 5500, 5501, 5502, 5507, 5508, 5650, 5651, 5655, and 5656), Encrypt/Decrypt (3680), and, for 8100 attachment, Terminal Adapter Type B (7801).

Prerequisites: For 3276, Communications Feature without Business Machine Clock (6302) is required; for 3274 Model 51C, the High Performance Communications Adapter (6303) and Configuration Support C (911).

4999 Magnetic Reader Control (3276; 3278; 3279 except Models S2A, S2B, and S3G)

This feature permits attachment of the magnetic hand scanner to a 3278 or 3279 or of the magnetic slot reader to a 3276, 3278, or 3279. See "Accessories" at the end of this chapter.

5450 OCR Print Feature (3262 Models 3 and 13)

This feature provides a manual selection for Optical Character Recognition (OCR) print applications. One of the OCR bands (numeric only) must also be specified: 9666—OCR-AON 48-Character Set or 9667—OCR-BON 48-Character Set.

5500 1200-bps Integrated Modem, Nonswitched (3276)

This feature provides an integrated modem for operation over nonswitched communication facilities at 600 or 1200 bps. No external modem is required. This feature is mutually exclusive with other communication-interface features (3701, 4850, 5501, 5502, 5507, 5508, 5650, 5651, 5655, and 5656).

Prerequisite: Communications Feature with Business Machines Clock (6301) is required. Specify 9651 for use with a 4-wire facility or 9652 for use with a 2-wire facility, and (for Japan only) 2943 if used on Nippon Telephone and Telegraph (NTT) D-1 service.

5501 1200-bps Integrated Modem, Switched, Auto Answer (3276 Models 11, 12, 13, and 14)

This feature provides an integrated modem with auto/manual answer capabilities for operation over switched communication facilities at 600 or 1200 bps. No external modem is required. This feature is mutually exclusive with other communication-interface features (3701, 4850, 5500, 5502, 5507, 5508, 5650, 5651, 5655, and 5656).

Prerequisite: Communications Feature with Business Machine Clock (6301) is required.

Note: In Canada and the United States, this feature requires a data access arrangement type CBS or Federal Communications Commission (FCC)-registered equivalent. In World Trade countries, this feature includes the Public Switched Network (PSN) line plate, which is mandatory for the public switched telephone network.

5502 1200-bps Integrated Modem, Switched, Manual Answer (3276 Models 11, 12, 13, and 14)

This feature provides an integrated modem for communication with a remote processor at 600 or 1200 bps over the public switched telephone network. No external modem is required. This feature is mutually exclusive with other communication-interface features (3701, 4850, 5500, 5501, 5507, 5508, 5650, 5651, 5655, and 5656).

Prerequisite: Communications Feature with Business Machine Clock (6301) is required.

Notes:

1. In Canada and the United States, this feature requires a data access arrangement type CDT or FCC-registered equivalent. In World Trade countries, this feature includes the PSN line plate, which is mandatory for attachment to the public switched telephone network.

2. Canada only: This feature is for SNA/SDLC only.

5507 1200-bps Integrated Modem, Nonswitched with Switched Network Backup (3276)

This feature provides an integrated modem at 600 or 1200 bps for operation over nonswitched communication facilities and also provides manual switched network backup capability. No external modem is required. This feature is mutually exclusive with other communication-interface features (3701, 4850, 5500, 5501, 5502, 5508, 5650, 5651, 5655, and 5656).

Prerequisite: Communications Feature with Business Machine Clock (6301) is required. Specify feature 9651 for use with a 4-wire facility or 9652 for use with a 2-wire facility.

Note: In Canada and the United States, this feature requires a data access arrangement type CDT or FCC-registered equivalent. In World Trade countries, this feature includes the PSN line plate, which is mandatory for attachment to the public switched telephone network.

5508 1200-bps Integrated Modem, Nonswitched with Switched Network Backup, Auto Answer (3276)

This feature provides an integrated modem for operation over nonswitched communication facilities at 600 or 1200 bps and also provides auto/manual answer switched network backup capabilities. No external modem is required. This feature is mutually exclusive with other communication-interface features (3701, 4850, 5500, 5501, 5502, 5507, 5650, 5651, 5655, and 5656).

Prerequisite: Communications Feature with Business Machine Clock (6301) is required. Specify feature 9651 for use with a 4-wire facility or 9652 for use with a 2-wire facility.

Note: In Canada and the United States, this feature requires a data access arrangement type CBS or FCC-registered equivalent. In World Trade countries, this feature includes the PSN line plate, which is mandatory for attachment to the public switched telephone network.

5550 Power Expansion (3274 Model 51C)

This feature provides the additional power required for the installation of Terminal Adapter Type B (7801).

5650 DDS Adapter, Point-to-Point Operation (3274 Models 1C, 21C, 31C, and 51C; 3276)
5651 DDS Adapter, Multipoint Operation (3274 Models 1C, 21C, and 51C; 3276)

These features provide an integrated adapter for BSC or SDLC data transmission at speeds of 2400, 4800, or 9600 bps, or SDLC data transmission at 56,000 bps, over the AT&T nonswitched Dataphone[2] digital data service (DDS) network. This adapter interfaces with a DDS channel service unit, the customer site termination of the DDS network. (U.S. only.)

These features are mutually exclusive with other communication-interface features (1550, 3701, 5500, 5501, 5502, 5507, 5508, 5650, 5651, 5655, and 5656).

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[2] Trademark of the American Telephone and Telegraph Co.

Prerequisites: For 3274, the Communications Adapter (6302 or 6303) is required for speeds up to 9600 bps or High Performance Communications Adapter (6303) for speeds above 9600 bps. Specify 9822 for 2400 bps, 9823 for 4800 bps, 9825 for 9600 bps, or 9833 for 56,000 bps.

5655 X.21 Adapter for Nonswitched Networks (3274 Models 1C, 21C, 31C, and 51C; 3276 Models 11, 12, 13, and 14)

This feature is an interface adapter for connection to an X.21 nonswitched network. It operates in SDLC mode at speeds of 2400, 4800, 9600, or 48,000 bps through X.21 nonswitched data communication equipment.

Limitations: This feature cannot be used with any other communication-interface feature, and does not support BSC transmission control protocol.

Prerequisite: For 3276, feature 6302 is required for communication up to 9600 bps; for 3274, feature 6302 or 6303 for communication up to 9600 bps and feature 6303 for communication at 48,000 bps.

5656 X.21 Switched Adapter (3274 Model 51C with Extended Function Store; 3276 Models 11, 12, 13, and 14)

This feature is an interface adapter for connection to an X.21 switched network. It operates in SDLC mode at speeds of 2400, 4800, 9600, or 48,000 bps through X.21 switched data communication equipment.

Limitations: This feature cannot be used with any other communication-interface feature, and does not support BSC transmission control protocol.

Prerequisites: For 3276, feature 6302 is required for communication up to 9600 bps; for 3274, feature 6303 and Configuration Support C for communication at 48,000 bps.

5781 Programmed Symbols 2 (PS-2) (3287)

This feature provides storage and accessing of two 190-character symbol sets whose shapes and codes are customer-definable. The symbol sets are loaded under program control and accessed for printing through programming or by an operator from a display station keyboard.

Limitations: This feature can be used only with a 3274 equipped with a Category A terminal port having the PS Control and the SFAP options of Configuration Support C.

Notes:

1. The number of symbols in any one set that can be accessed from a display station keyboard is 94 (or 116 for Canadian French or 127 for Japanese Katakana) plus space.

2. On the 3287 Models 1C and 2C, this feature also permits printing within a character location in a selected color (black, blue, green, or red).

Prerequisites: The Extended Print Buffer (3880) and the Extended Character Set Adapter (3610) are required.

5782 Programmed Symbols 4 (PS-4) (3287)

This feature provides storage and accessing for an additional four 190-character symbol sets whose shapes and codes are customer-definable.

Limitations: This feature can be used only with a 3274 equipped with a Category A terminal port having the PS Control and the SFAP options of Configuration Support C.

Notes:

1. The number of symbols in any one set that can be accessed from a display station keyboard is 94 (or 116 for Canadian French or 127 for Japanese Katakana) plus space.

2. On the 3287 Models 1C and 2C, this feature also permits printing within a character location in a selected color (black, blue, green, or red).

Prerequisites: PS-2 (5781) is required.

5783 Programmed Symbols 4A (PS-4A) (3287 Models 1C and 2C)

PS-4A provides the storage and accessing of four 190-symbol sets whose shapes and codes are customer-definable. Three of the symbol sets allow printing within a character location in a selected color (black, blue, green, or red), and the remaining set allows printing of up to four colors (black, blue, green, and red) within a given character location.

Limitations: This feature can be used only with a 3274 equipped with a Category A terminal port having the PS Control and the SFAP options of Configuration Support C. It cannot be installed with PS-2 (5781) or PS-4 (5782).

Prerequisites: The Extended Character Set Adapter (3610) and the Extended Print Buffer (3880) are required.

5790 Programmed Symbols (3278 Models 2, 3, and 4; 3279 Models 3B and 03X)

This feature provides storage and accessing of six 190-character symbol sets whose shapes and codes are customer-definable. The symbol sets are loaded under program control and accessed for display through programming or by an operator from the display station keyboard. The feature is mutually exclusive with Character Set Extension (3620).

Limitations: This feature can be used only with a 3274 equipped with a Category A terminal port having the PS Control and the SFAP options of Configuration Support C.

Notes:

1. The number of symbols in any one set that can be accessed from the display station keyboard is 94 (or 116 for Canadian French or 127 for Japanese Katakana) plus space.

2. If selection of Programmed Symbols by the operator is required, keyboard 4640, 4651, 4652, 2708, 2719, or 2721 must be used.

5811 48-Character ASCII Print Belt (3289)
5812 64-Character ASCII Print Belt (3289)
5813 94-Character ASCII Print Belt (3289)
5821 48-Character EBCDIC Print Belt (3289)
5822 64-Character EBCDIC Print Belt (3289)
5823 94-Character EBCDIC Print Belt (3289)

These features provide a print belt of the indicated character set. (U.S. only; contact IBM for other character set languages.)

6301 Communications Feature with Business Machine Clock (3276)

This feature is required for attachment to communication facilities through any 600- or 1200-bps integrated modem, through the External Modem Interface (3701) at 1200 bps (SNA/SDLC or BSC), or through any external modem that does not provide its own clocking. It is mutually exclusive with Communications Feature without Business Machine Clock (6302).

6301 Common Communications Adapter with Business Machine Clock (3274 Model 51C)

This feature is required for attachment to communication facilities through any 600- or 1200-bps integrated modem, through the External Modem Interface (3701) at 1200 bps (SNA/SDLC or BSC), or through any external modem that does not provide its own clocking. It is mutually exclusive with features 6302 and 6303.

6302 Communications Feature without Business Machine Clock (3276)

This feature is required for attachment to communication facilities, at speeds up to 9600 bps with SDLC or up to 7200 bps with BSC, through any external modem that provides its own clocking or through the DDS Adapter (5650 or 5651). It is also required for attachment to the directly attached or data-link-attached loops of the 8100 Information System at speeds up to 9600 bps. It is mutually exclusive with Communications Feature with Business Machine Clock (6301).

6302 Common Communications Adapter without Business Machine Clock (3274 Models 1C, 21C, 31C, and 51C)

This feature is required for attachment to communication facilities at speeds up to 9600 bps. SNA/SDLC and BSC transmission control protocols are supported. Clocking must be provided by the modem or communication facility. This feature is mutually exclusive with High Performance Communications Adapter (6303).

Limitations: When a Category B Terminal Adapter (7802, 7803, 7804, or 7805) is installed, the High Performance Communications Adapter (6303) must be installed in lieu of this feature if SNA/SDLC protocol is required with a line speed greater than 7200 bps.

6302 Common Communications Adapter (3274 Model 51C)

This feature is required for attachment to communication facilities at speeds up to 9600 bps. SNA/SDLC and BSC transmission control protocols are supported. Clocking must be provided by the modem or communication facility. This feature is mutually exclusive with features 6301 and 6303.

Limitations: When a Category B Terminal Adapter (7801) is installed, the High Performance Communications Adapter (6303) must be installed in lieu of this feature if SNA/SDLC protocol is required with a line speed greater than 7200 bps.

6303 High-Performance Communications Adapter (3274 Models 1C, 21C, 31C, and 51C)

This feature is required for attachment to the communication lines through a modem with its own clocking when SNA/SDLC protocol is required with a line speed of 9600 bps and a Category B Terminal Adapter(s) (7802, 7803, 7804, or 7805) is installed. This feature is required when the line speed exceeds 9600 bps. It is also required for attachment of the Model 51C to the directly attached or data-link-attached loops of the IBM 8100 Information System at speeds of up to 38,400 bps. This feature is also required for X.21 switched network operation. It is mutually exclusive with features 6301 and 6302.

Note: Operation is restricted to SNA/SDLC protocol; initial microcode load (IML) for BSC protocol is not possible.

6315 SDLC/BSC Switch (3276 Models 1, 2, 3, and 4)

This feature provides SNA/SDLC or BSC transmission control. SDLC or BSC can be selected by the operator with a switch on the operator panel. This feature is mutually exclusive with Extended Function Base (1068).

Notes:

1. The 3276 Models 1, 2, and 3 with feature 6315 installed and operating in SDLC mode support the same 3278 models as the 3276 Models 11, 12, and 13, respectively.

2. A 3276 with feature 6315 installed does not support attachment of the 3279 Color Display Station.

6340 Security Keylock (3277)

This feature is a lock and key that, in the off position, prevents entry, modification, and display of data.

6350 Selector Light Pen (3277)
6360 Selector Light Pen (3276, 3278, 3279 Models 02X and 03X)

The selector light pen is a hand-held, pen-like device that permits the operator to select fields of data from a display for input to the host system.

6901 Terminal Adapter Type A1 (All 3274 Models except 51C)
6902 Terminal Adapter Type A2 (All 3274 Models except 51C)
6903 Terminal Adapter Type A3 (All 3274 Models except 51C)

Each adapter permits attachment of an additional eight Category A terminals. The base control unit, which provides for attachment of eight Category A terminals (1—8), can be expanded with these three adapters to a maximum configuration of 32 Category A terminals. One each of these adapters can be installed, and they must be installed in sequence.

Adapter Type	Terminals	Mutually Exclusive with Type	Prerequisites
A1 (6901)	9—16	—	—
A2 (6902)	17—24	—	A1 (6901)
A3 (6903)	25—32	B3 (7804), B4 (7805)	— A2 (6902)

7801 Terminal Adapter Type B (3274 Model 51C)

This feature permits attachment of four Category B terminals, thus expanding the capability of the control unit to attach up to 12 terminals. It is mutually exclusive with the Loop Adapter (4850).

Prerequisite: Power Expansion (5550) is required.

7802 Terminal Adapter Type B1 (All 3274 Models except 21A, 21C/SNA, and 51C)

This feature permits four Category B terminals (1—4) to be attached and provides for installation of Terminal Adapter Types B2, B3, and B4 (7803, 7804, and 7805) when additional Category B terminals are desired.

7803 Terminal Adapter Type B2 (All 3274 Models except 21A, 21C/SNA, and 51C)
7804 Terminal Adapter Type B3 (All 3274 Models except 21A, 21C/SNA, and 51C)
7805 Terminal Adapter Type B4 (All 3274 Models except 21A, 21C/SNA, and 51C)

Each adapter permits four additional Category B terminals to be attached. A maximum of one each of these adapters can be installed for a combined total of 12 additional or 16 total Category B terminals attached to a control unit. One each of these adapters can be installed, and they must be installed in sequence.

Adapter Type	Terminals	Mutually Exclusive with Type	Prerequisites
B2 (7803)	5—8	—	B1 (7802)
B3 (7804)	9—12	A3 (6903)	B1 (7802) B2 (7803)
B4 (7805)	13—16	A3 (6903)	B1 (7802) B2 (7803) B3 (7804)

8330 3271/3272 Attachment (3287)

This feature provides one interface for attaching a 3287 to a 3271, 3272, 3274, 3791 Controller, 8101 Storage and I/O Unit, or S/370 Model 138 or 148. It provides the buffer storage required for print operation. It is mutually exclusive with 3274/3276 Attachment (8331). Also, the 127-character plus space and null Katakana enhancement is not supported.

Prerequisites: For 3271 or 3272, an available port or added Device Adapter (3250) is required; for 3274, an available Type B port or added Terminal Adapter Type B (7802, etc.).

8331 3274/3276 Attachment (3287)

This feature provides one interface for attaching a 3287 to a 3274 or 3276. It provides the buffer storage required for print operation and buffer-reprint support. It is mutually exclusive with 3271/3272 Attachment (8330) or Data Analysis—APL (1066).

Prerequisites: For 3274, an available Type A port or added Terminal Adapter Type A (6901, etc.) is required; for 3276, an available port or added Terminal Adapter (3255, etc.).

8700 Variable-Width Forms Tractor (3287)

This feature is a forms-feeding device for continuous margin-punched forms. Overall forms width from 76.2 to 381.0 mm (3 to 15 in.) can be fed. Forms of up to six parts, with a total thickness of 0.457 mm (0.018 in.), can be used.

Prerequisite: This feature requires the Variable Width Forms Tractor—Paper Handling (9185) where there is a requirement to handle forms with an overall width from 76.2 to 203.2 mm (3 to 8 in.).

8750 Video Output (3279 Model 02X)

This feature provides separate red, green, blue, and sync signals to drive non-IBM devices such as monitors, large-screen projection systems, and hard-copy units. See *IBM 3279 Color Display Station Video Output Feature,* GA33-3079, for details of this feature.

8801 Waterproof Power Connector (3274 Models 1A, 1B, 1D, 21A, 21B, 21D, 31A, and 31D)

This feature provides a waterproof connector instead of the normal locking or nonlocking plug on the power cable. This connector is sometimes required to satisfy local ordinances requiring termination of this type in specific locations. See *IBM 3270 Information Display System Installation Manual—Physical Planning,* GA27-2787, for the mating receptacle that the customer must have installed.

Accessories

Following are the accessories for the 3270 system.

9181 Switch Control Unit (3278, 3279)

This accessory permits switching operational control of the display station between two control units.

For 3278, this unit is available by accessory code 9181. For 3279, it is available by IBM part number, depending on the language, as follows:

Language	IBM Part Number
Brazilian/Portuguese	4419348
Canadian French	4419343
Danish	4419339
Dutch	4419340
English	4419338
Finnish	4419342
French	4419341
German	4419344
Italian	4419345
Japanese	4419346
Norwegian	4419347
Spanish	4419349

9440 Magnetic Hand Scanner (3278, 3279)

The magnetic hand scanner (MHS) is attached by a 1.5-meter (4.9-ft) coiled cable to a 3278 or 3279 that is connected to a properly configured 3274 Control Unit. It reads magnetic-striped labels that are attached to shelves, cartons, and other objects. The MHS has three lights and a buzzer to provide the user with feedback on the status of the scanned data. See *IBM 3270 Information Display System: 3274 Control Unit Description and Programmer's Guide,* GA23-0061, for a description of the applicable character sets and recording capacities.

Prerequisite: Magnetic Reader Control (4999) is required.

Note: U. S. and A/FE only: A 6-meter (19.7-ft) Extension Cable (9106) or a 12-meter (39.4-ft) Extension Cable (9107) is available. A maximum of one extension cable can be attached.

9441 Magnetic Slot Reader (3276, 3278, 3279)

The magnetic slot reader (MSR) is attached by a 1.5-meter (4.9-ft) cable to a 3276 or to a 3278 or 3279 connected to a 3276 or a properly configured 3274. It reads information encoded on magnetic-striped cards such as job tickets, operator ID badges, and both large and small credit cards. The MSR has three lights and a buzzer to provide the user with feedback on the status of the scanned data. See *IBM 3270 Information Display System: 3274 Control Unit Description and Programmer's Guide,* GA23-0061, for descriptions of the applicable character sets and recording capacities.

Prerequisite: Magnetic Reader Control (4999) is required.

Note: U. S. and A/FE only: A 6-meter (19.7-ft) Extension Cable (9106) or a 12-meter (39.4-ft) Extension Cable (9107) is available. A maximum of one extension cable can be attached.

Tilt-Rotate Accessory (3279)

This accessory (IBM part 4422265) fits under the display station and provides a ball-and-socket type movement to permit the angle of the screen face to be adjusted for comfort of viewing position. The screen angle is normally 20 degrees from the vertical. This accessory permits the screen to be adjusted between 25 degrees to the vertical and the vertical position. A locking device is provided to maintain the selected position. This accessory also allows the display station to be rotated plus or minus 90 degrees from the central position, and this movement is independent of the tilt movement.

Legendable Keytop (3276, 3277, 3278, 3279)

The legendable keytop consists of two parts: a molded key base and a clear plastic cover. The user can define unique keytop messages by writing on a piece of paper, affixing the paper to the keytop base, and sliding on the clear plastic cover. The keytop is available in three colors and with top-keyboard-row contour only:

Legendable Keytop	IBM Part Number
Charcoal gray	8627192
Light gray	8542831
White	5188775

Blank Keytop (3276, 3277, 3278, 3279)

Blank keytops can be engraved by the user with the desired nomenclature. The keytop is available in three colors and with top-keyboard-row contour only:

Blank Keytop	IBM Part Number
Charcoal gray	1853567
Light gray	1853563
White	1853775

Keytop Extractor (3276, 3277, 3278, 3279)

The keytop extractor (IBM part 9900373) is a small tweezer-like device that fits between the keytops. By the application of a firm squeezing grip, this tool can be used to pull a keytop from its stem. The extractor is used when keytops are being replaced or changed.

Chapter 2. Feature Lists

Figures 2-1 through 2-24 list additional feature information, such as cable lengths, machine nomenclature, and keyboard languages.

Necessary (N) Optional (O) Default (D)	Feature Name	Feature Code		Prerequisite (Must be ordered with)
		Specify	Special	
N [1] Choose one	120 V Locking Plug (Models 21C, 31C, 51C)	9890		
	208 V Locking Plug [2]	9884		
	240 V Locking Plug [2]	9894		
	120 V Nonlocking Plug [3]			
	208 V Nonlocking Plug [2] [4]	9885		
	240 V Nonlocking Plug [2]	9895		
O	Power Connector, Waterproof (U.S. and Canada)		8801	9884 or 9894
O [5]	Power Cable, 1.8 meters (6 ft)	9511		
O [6]	Power Expansion		5550	7081
O [7] Choose one	Communication Cable, 3.0 meters (10 ft)	9061		
	Communication Cable, 9.1 meters (30 ft)	9062		
	Communication Cable, 12.2 meters (40 ft)	9063		

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.

[1] AC voltage, 1-phase, 3-wire, 60 Hz.

[2] Not available on Model 51C.

[3] Default on Models 21C, 31C, and 51C.

[4] Default on Models 21A, 21B, 21D, 31A, and 31D.

[5] If standard 4.3-meter (14-ft) power cable is not desired, specify 9511 for 1.8 meters (6 ft).

[6] Model 51C only.

[7] 6.1 meters (20 ft) normally supplied with each communication-interface feature except the Loop Adapter (4850). A 1.8-meter (6-ft) Loop Station Connector cable is provided as standard for Model 51C attachment to a directly attached or data-link-attached loop. If standard cable is not desired, specify 9405 for 4.3-meter (14-ft) cable.

Figure 2-1. 3274 Control Unit Features — United States

Necessary (N) Optional (O) Default (D)	Feature Name	Feature Code		Prerequisite (Must be ordered with)
		Specify	Special	
N Choose one	*Power — World Trade A/FE except Canada*	2998		
	100 V, 50 Hz	2804		
	110 V, 50 Hz	2805		
	200 V, 50 Hz	2806		
	220 V, 50 Hz	2813		
	230 V, 50 Hz	2821		
	240 V, 50 Hz	2801		
	100 V, 60 Hz	2730		
	110 V, 60 Hz	2822		
	120 V, 60 Hz	2800		
	127 V, 60 Hz	2823		
	200 V, 60 Hz	2732		
	208 V, 60 Hz	9902		
	220 V, 60 Hz	2803		
	240 V, 60 Hz	2831		
O	*Power — Canada only*			
	120 V, 60 Hz [1]			
	208 V, 60 Hz (Models 21C, 31C) [2] [3]	9902		
	240 V, 60 Hz [3]	2831		
[4] Choose one	Locking Plug (Canada only)	9890		
	Nonlocking Plug (Japan only)	9891		
N Choose one	*Machine Nomenclature*			
	Brazilian	2933		
	Canadian French	2935		
	English (U.K.)	2927		
	English (U.S.)	2924		
	Japanese	2930		
	Spanish-speaking	2931		
O	X.21 Adapter for Nonswitched Networks		5655	6301, 6302, or 6303
O	X.21 Switched Adapter		5656	

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

[1] Default on Models 21C, 31C, and 51C. Not available on A, B, and D models.

[2] Default on A, B, and D models.

[3] Not available on Model 51C.

[4] Available for voltages under 200 V.

Figure 2-2. 3274 Control Unit Features — Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N Choose one	*Power* 220 V, 50 Hz	2813
	240 V, 50 Hz	2801
O (U.K. only)	Communication Cable - Datel 2412 Service, Facility 3	2835
O (Germany only)	Communication Cable - D2400S Direct-Call Facility Service	2899
N Choose one	*Machine Nomenclature* English (U.K.)	2927
	English (U.S)	2924
	French	2928
	German	2929
	Italian	2932
	Spanish	2931

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.

Figure 2-3. 3274 Control Unit Features — Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Feature Code	
		Specify	Special
N	*Power — U.S.*		
D	*Voltage* 120-Vac, 1-phase, 3-wire, 60-Hz, nonlocking plug		
O	*Power Cable Plug* Locking plug	9890	
D	*Power Cable Length* 2.8 meters (9 ft) If alternative is required, specify: 4.5 meters (15 ft)	9513	
D	*Keyboard Cable* 91 cm (3 ft) If alternative is required, specify: 1.8 meters (6 ft)	9399	
O Choose one	*Communication Cable* 1 3.0 meters (10 ft)	9061	
	9.1 meters (30 ft)	9062	
	12.2 meters (40 ft)	9063	
	Communication Cable 2 4.3 meters (14 ft)	9405	
O	*Magnetic Reader Extension Cable* 3 6 meters (19.7 ft) 12 meters (39.4 ft)		9106 9107

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.
D If no feature code is specified, the default determines which feature is supplied.

1 6.1 meters (20 ft) normally supplied. Optionally specify other lengths.

2 1.8 meters (6 ft) normally supplied for attachment to a directly attached or data-link-attached loop.

3 1.5-meter (4.9-ft) cable normally supplied. Optionally specify extension cables.

Figure 2-4. 3276 Control Unit Display Station Features — United States

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N Choose one	*Power — World Trade A/FE except Canada*	2998
	100 V, 50 Hz	2804
	110 V, 50 Hz	2805
	200 V, 50 Hz	2806
	220 V, 50 Hz	2813
	230 V, 50 Hz	2821
	240 V, 50 Hz	2801
	100 V, 60 Hz	2730
	110 V, 60 Hz	2822
	120 V, 60 Hz	2800
	127 V, 60 Hz	2823
N [1] Choose one (Japan only)	Locking plug	9890
	Nonlocking plug	9891
N Choose one	*Machine Nomenclature* Brazilian	2933
	Canadian French	2935
	English (U.K.)	2927
	English (U.S.)	2924
	Japanese	2930
	Spanish-speaking	2931
N Choose one	*Keyboard Language* Brazilian	2975
	Canadian French	2977
	EBCDIC	2951
	English (U.S.)	2956
	International	2950
	Japanese (English) [2]	2955
	Japanese (Katakana) [3]	2973
	Spanish-speaking	2969

Legend:

N A feature code must be specified.

[1] Available for all voltages under 200 V.

[2] Applies only to keyboards 2715, 2716, 2717, 2718, 4622, and 4623.

[3] Applies only to keyboards 2715, 2716, 2717, and 2718.

Figure 2-5. 3276 Control Unit Display Station Features — Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)
N Choose one	*Power*	2999	
	220 V, 50 Hz	2813	
	240 V, 50 Hz	2801	
	120 V, 60 Hz (Saudi Arabia only)	2800	
O (Germany only)	Communication Cable — D1200S/D2400S Switched or Direct Call Facility Service	2899	
O (U.K. only)	Communication Cable — Datel 2412 Service, Facility 3	2835	
O (Germany only)	Dial Disconnect Switch — D1200S/D2400S Switched Service	2898	2899
N Choose one	*Machine Nomenclature* English (U.K.)	2927	
	English (U.S.)	2924	
	French	2928	
	German	2929	
	Italian	2932	
	Spanish	2931	
N Choose one	*Character Set Language* Austrian/German (Alternate)	2748	
	Danish/Norwegian (Alternate)	2742	
	Finnish/Swedish (Alternate)	2743	
	Spanish (Alternate)	2740	
N Choose one	*Keyboard Language* Austrian/German	2957	
	Belgian	2971	
	Danish	2965	
	EBCDIC	2951	
	English (U.K.)	2958	
	English (U.S.)	2956	
	Finnish	2963	
	French (AZERTY)	2964	
	French (QWERTY)	2970	
	International	2950	
	Italian	2968	
	Norwegian	2966	
	Portuguese	2959	
	Spanish	2960	
	Swedish	2967	

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

Figure 2-6. 3276 Control Unit Display Station Features — Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N Choose one	115 V Locking Plug	9880
	115 V Nonlocking Plug	9881
N [1] Choose one	*Character Set* ASCII(A)	9091
	ASCII(B)	9092
	EBCDIC	9089

Legend:

N A feature code must be specified.

[1] If the 3277 is attached to a 3271, the corresponding transmission code must be specified for the 3271.

Figure 2-7. 3277 Display Station Features — United States

Necessary (N) Optional (O) Default (D)	Feature Name	Feature Code	
		Specify	Special
N Choose one	*Power* 100 V, 50 Hz	2804	
	110 V, 50 Hz	2805	
	123.5 V, 50 Hz	2811	
	220 V, 50 Hz	2813	
	235 V, 50 Hz	2814	
	100 V, 60 Hz	2730	
	115 V, 60 Hz	9901	
Choose one [1] (Japan only)	Locking Plug	9890	
	Nonlocking Plug	9891	
N Choose one	*Machine Nomenclature* English (U.K.)	2927	
	English (U.S.)	2750	
	Japanese	2930	
	Spanish	2931	
N Choose one	*Character Generator Language* English (U.K.)	2703	
	English (U.S.)	2705	
	Portuguese	2712	
	Spanish	2714	
N Choose one	*Keyboard Language* English (U.K.)	2958	
	English (U.S.)	2956	
	Portuguese	2959	
	Spanish	2961	
O	Katakana Character Generator		2706

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

[1] Available for all voltages under 200 V.

Figure 2-8. 3277 Display Station Features — Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N Choose one	*Power* 100 V, 50 Hz	2804
	110 V, 50 Hz	2805
	123.5 V, 50 Hz	2811
	220 V, 50 Hz	2813
	235 V, 50 Hz	2814
	100 V, 60 Hz	2730
	115 V, 60 Hz	9901
N Choose one	*Machine Nomenclature* English (U.K.)	2927
	English (U.S.)	2750
	French	2928
	German	2929
	Italian	2932
	Spanish	2931
N Choose one	*Character Generator Language* Austrian/German	2704
	Belgian/French (dual case)	2709
	Belgian/French (mono case)	2705
	Danish/Norwegian	2710
	English (U.K.)	2703
	English (U.S.)	2705
	Finnish/Swedish	2708
	Italian (dual case)	2702
	Italian (mono case)	2705
	Portuguese	2712
	Spanish	2714
N Choose one	*Keyboard Language* Austrian/German	2957
	Belgian	2971
	Danish	2965
	English (U.K.)	2958
	English (U.S.)	2956
	Finnish/Swedish	2963
	French	2964
	Italian	2968
	Norwegian	2966
	Portuguese	2959
	Spanish	2961

Legend:

N A feature code must be specified.

Figure 2-9. 3277 Display Station Features — Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N	*Power*	
D	*Voltage* 120-Vac, 1-phase, 3-wire 60-Hz, nonlocking plug	
O	*Power Cable Plug* Locking plug	9890
D	*Power Cable Length* 2.8 meters (9 ft) If alternative is required, specify: 1.8 meters (6 ft)	9511
D	*Keyboard Cable* 91 cm (3 ft) If alternative is required, specify: 1.8 meters (6 ft)	9399

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.
D If no feature code is specified, the default determines which feature is supplied.

Figure 2-10. 3278 Display Station Features — United States

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)
N	*Power*	2998	
[1] Choose one	*Voltage* 100 V, 50 Hz	2804	
	110 V, 50 Hz	2805	
	200 V, 50 Hz	2806	
	220 V, 50 Hz	2813	
	230 V, 50 Hz	2821	
	240 V, 50 Hz	2801	
	100 V, 60 Hz	2730	
	110 V, 60 Hz	2822	
	120 V, 60 Hz [2]	2800	
	127 V, 60 Hz	2823	
N	*Power Cable Plug* Locking Plug (Canada only)	9890	
	Nonlocking Plug (Japan only) [3]	9891	
O (Japan only)	Character Set Language [4]	2773	
O [5] [6]	*Keyboard Language* Brazilian	2975	
	Canadian French	2977	
	EBCDIC	2951	
	English (U.K.)	2958	
	English (U.S.)	2956	
	International	2950	
	Japanese English [7]	2955	2755
	Japanese Katakana [8]	2973	2773
	Spanish-speaking	2969	

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

[1] Single-phase ac.

[2] Includes requirements for 115 V.

[3] For voltages under 200 V.

[4] Specify if Japanese Katakana is required.

[5] All 3278s attached to a 3274 or 3276 must have the same keyboard language that is selected during 3274 customizing or that is specified for the 3278.

[6] For all keyboards except the 87-key EBCDIC Typewriter/Text Keyboard (4629), which is available in English (U.S.) only.

[7] Applies only to keyboards 2708, 2715, 2717, 2718, 2719, 2721, 4622, and 4623.

[8] Applies only to keyboards 2708, 2715, 2716, 2717, 2718, 2719, and 2721.

Figure 2-11. 3278 Display Station Features — Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)
N	*Power*	2999	
Choose one [1]	220 V, 50 Hz	2813	
	240 V, 50 Hz	2801	
	120 V, 60 Hz [2]	2800	
O [3] [4]	*Keyboard Language*		
	Austrian/German	2957	2748 or 2757
	Belgian	2971	2771
	Danish	2965	2742 or 2762
	EBCDIC (WT)	2951	2756
	English (U.K.)	2958	2758
	English (U.S.)	2956	2756
	Finnish	2963	2743 or 2763
	French (AZERTY)	2964	2770
	French (QWERTY)	2970	2770
	International	2950	2750
	Italian	2968	2768
	Norwegian	2966	2742 or 2762
	Portuguese	2959	2749
	Spanish	2960	2760
	Swedish	2967	2743 or 2763

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.

[1] Single-phase ac.

[2] Saudi Arabia only.

[3] All 3278s attached to a 3274 or 3276 must have the same keyboard language that is selected during customizing or that is specified for the 3276.

[4] For all keyboards except the 87-key EBCDIC Typewriter/Text Keyboard (4629), which is available in English (U.S.) only.

Figure 2-12. 3278 Display Station Features — Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N	Power	
D	*Voltage* 120-Vac, 1-phase, 3-wire, 60-Hz, nonlocking plug	
O	*Power Cable Plug* Locking plug (Models 02X and 03X only)	9890
D	*Power Cable Length* 2.8 meters (9 ft) For Models 02X and 03X only: 1.8 meters (6 ft) 4.5 meters (15 ft)	 9511 9513

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.
D If no feature code is specified, the default determines which feature is supplied.

Figure 2-13. 3279 Color Display Station Features — United States

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)	Mutually Exclusive (Must not be ordered with)
N	Power	2998		
1 Choose one	*Voltage* 100–120 V 127 V (not Japan) 200–230 V 240 V (not Brazil or Japan)	 2804 2 2820 2806 2801		
D 3	*Power Cable Plug* Locking plug: 120 V, 60 Hz, 1-phase, Models 02X and 03X, Canada only. Nonlocking plug: Models 02X and 03X, Japan only. Otherwise, locking plug for voltages under 200 V will be supplied.	 9890 9891		
D	*Power Cable Length* 4.5 meters (15 ft) (Models 02X and 03X only) Default is 2.8 meters (9 ft)	 9513		
D 4 5	*Keyboard Language and Character Set* Brazil—Brazilian Canada: Canadian French Default is English (U.S.) Japan: English (U.S.) Japanese English 6 Japanese Katakana 7 Spanish-speaking: Argentina Bolivia Chile Colombia Costa Rica Dominican Republic Ecuador El Salvador Guatemala Honduras Mexico Nicaragua Panama Paraguay Peru Uruguay Venezuela Others—English (U.S.) If an alternative keyboard language is required, specify (for Models 02X and 03X only) as follows: Brazilian	 2977 2956 2955 2973 2975		 2708, 2715, 2716, 2717, 2718, 2719, 2721, 4629
	Canadian French	2977		2708, 2715, 2716, 2717, 2718, 2719, 2721, 4629

Figure 2-14 (Part 1 of 3). 3279 Color Display Station Features — Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)	Mutually Exclusive (Must not be ordered with)
D 4 5	*Keyboard Language and Character Set (continued)*			
	EBCDIC (World Trade)	2951		2708, 2715, 2716, 2717, 2718, 2719, 2721, 4629
	English (U.K.)	2958		2708, 2715, 2716, 2717, 2718, 2719, 2721, 4629
	English (U.S.)	2956		2708, 2715 2716, 2717, 2718, 2719, 2721
	International	2950		2708, 2715, 2716, 2717, 2718, 2719, 2721, 4629
	Japanese English	2955	2708, 2715, 2717, 2718, 2719, 2721, 4622, or 4626	2716, 4621, 4623, 4624, 4627, 4629, 4640, 4651, 4652
	Japanese Katakana	2973	2708, 2715, 2716, 2717, 2718, 2719, or 2721	4621, 4623, 4624, 4627, 4629, 4640, 4651, 4652
	Spanish-speaking	2969		2708, 2715, 2716, 2717, 2718, 2719, 2721, 4629
	Machine Nomenclature Brazil—Brazilian Canada—Canadian Bilingual Japan—Japanese Spanish-speaking: Argentina Bolivia Chile Colombia Costa Rica Dominican Republic Ecuador El Salvador Guatemala Honduras Mexico Nicaragua Panama Paraguay Peru Uruguay Venezuela Others—English			

Figure 2-14 (Part 2 of 3). 3279 Color Display Station Features — Americas/Far East

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.
D If no feature code is specified, the country code determines which feature is supplied.

1 Single-phase ac; each supply is suitable for the range of voltages defined for both 50-Hz and 60-Hz supplies.

2 Japanese Katakana applies only to keyboards 2708, 2715, 2716, 2717, 2718, 2719, and 2721.

3 Available only for 100—124 V in Canada and Japan. For all other countries in World Trade A/FE, the power cable plug supplied is the most commonly used plug in the country.

4 All 3279s attached to a 3274 or 3276 must have the same keyboard language as that selected during 3274 customizing or specified for the 3276.

5 The 87-Key EBCDIC Typewriter/Text Keyboard (4629) is available only with English (U.S.) as the keyboard language.

6 Japanese English applies only to keyboards 2708, 2715, 2717, 2718, 2719, 2721, 4622, and 4623.

Figure 2-14 (Part 3 of 3). 3279 Color Display Station Features — Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
N	Power — World Trade E/ME/A	2999
D 1 2	*Voltage* Kuwait, Qatar, Sudan, and U.K.—240 V Saudi Arabia—127 V Other countries—200 to 230 V	
D	*Power Cable Plug* The most commonly used power cable plug in each country is supplied for that country.	
D 2	*Power Cable Length* 4.5 meters (15 ft)	
	Terminal Cables For cable specifications, see GC19-0004.	
D 3 4	*Keyboard Language and Character Set* If nothing is specified, the following are supplied: Austria—German Belgium—English (U.S.) Denmark—Danish Finland—Finnish France—French (AZERTY) Germany—German Italy—Italian Netherlands—English (U.S.) Norway—Norwegian Portugal—Portuguese South Africa—English (U.S.) Spain—Spanish Sweden—Swedish Switzerland—English (U.S.) United Kingdom—English (U.K.) Other countries—English (U.S.) If an alternative keyboard language is required, specify (for Models 02X and 03X only) as follows:	
	Austria/Germany	2957
	Belgium	2971
	Denmark	2965
	EBCDIC (World Trade)	2951
	English (U.S.)	2956
	Finland	2963
	France (AZERTY)	2964
	France (QWERTY)	2970
	International	2950
	Italy	2968
	Norway	2966
	Portugal	2959
	Spain	2960
	Sweden	2967
	United Kingdom	2958

Figure 2-15 (Part 1 of 2). 3279 Color Display Station Features — Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code
D	*Machine Nomenclature* The following are supplied: Austria—German Belgium—Dutch/French Denmark—Danish Finland—Finnish France—French Germany—German Italy—Italian Netherlands—Dutch Norway—Norwegian Portugal—Portuguese South Africa—English (U.K.) Spain—Spanish Sweden—Swedish Switzerland—English (U.K.) United Kingdom—English (U.K.) Other countries—English (U.K.) For Switzerland only, the following alternatives may be specified: French German Italian	 2928 2929 2932

Legend:

N A feature code must be specified.

D If no feature code is specified, the country code determines which feature is supplied.

1 Single-phase, ac, 3-wire. Each supply is suitable for the range of voltages defined and for both 50-Hz and 60-Hz supplies.

2 Models S2A, S2B, and S3G are available only with these specifications. Models 02X and 03X will be shipped with these specifications unless alternative codes are specified.

3 All 3279s attached to a 3274, 3276, or 4331 must have the same keyboard language as the 3274, 3276, or 4331.

4 The 87-Key EBCDIC Typewriter/Text Keyboard (4629) is available only with English (U.S.) as the keyboard language.

Figure 2-15 (Part 2 of 2). 3279 Color Display Station Features — Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Special Feature Code
N [1]	Power	
D [2]	Power Cable	9913 or 9986
D [3]	*Power Cable Plug*	
	Hospital Grade	9892
	Locking	9890
D [4]	960-Character Print Operation	9521
	2560-Character Print Operation	9523
	3440-Character Print Operation	9524
	3564-Character Print Operation	9525
D [5]	*Compatibility Options*	
	Automatic Function at End of Print Buffer	9507
	Carriage Return at MPP Plus 1	9501
	Form Feed Command Position	9506
	Form Feed Followed by Data	9503
	Form Feed Is Last Character in Print Order	9504
	New Line at MPP Plus 1	9502
	Null Suppression	9505

Legend:

N A feature code must be specified.

D If no feature code is specified, the country code determines which feature is supplied.

[1] 120-Vac, 1-phase, 3-wire, 60-Hz.

[2] If standard 2.8-meter (9-ft) power cable is not desired, choose one: 9513 for 4.3-meter (14-ft) power cable; 9986 for 1.8-meter (6-ft) power cable.

[3] If standard nonlocking plug is not desired, choose one: 9890 for locking plug; 9892 for hospital-grade plug.

[4] Basic machine is shipped for use with a program that assumes buffer size to be 1920 bytes while using Erase/Write Alternate command. Specify one of these options only to alter basic machine.

[5] Basic machine is shipped with standard operations unless options are specified. See feature number in Chapter 1 for description of standard versus optional operation.

Figure 2-16. 3230 Printer Model 2 Features

Necessary (N) Optional (O) Default (D)	Feature Name	Feature Code		Accessory Code	Prerequisite (Must be ordered with)
		Specify	Special		
N [1]	Power				
D	Power Cable	9511 [2]			
D [3]	*Power Cable Plug* Locking Watertight Locking	 9081 9080			
N [4]	*Print Band Character Set* 48-character set EBCDIC [5]	 9520			
	63-character set EBCDIC (optimized)	9523			
	64-character set EBCDIC [5]	9522			
	96-character set EBCDIC [5] [6]	9526			9950
	128-character set Text [6]	9527			9950
	Character Set Height 2.0 mm (0.079 in.)	 9951 [7]			
	2.4 mm (0.095 in.)	9950			
D [8]	960-Character Print Operation 2560-Character Print Operation 3440-Character Print Operation 3564-Character Print Operation	9200 9202 9203 9204			
O	Audible Alarm		1090		
O	OCR Print Feature		5450		9666 or 9667 [9]
N [10] Choose one	*Accent Panel Color* Charcoal brown	 9064			
	Classic blue	9063			
	Garnet rose	9061			
	Pebble gray	9065			
	Sunrise yellow	9062			
	Willow green	9060			
O	Forms Stand—Accessory			4450	

Legend:

N A feature code must be specified.
O A feature code may be specified, but is not mandatory.
D If no feature code is specified, the default determines which feature is supplied.

[1] 120-Vac, 1-phase, 3-wire, 60-Hz.

[2] If standard 4.3-meter (14-ft) power cable is not desired, specify 9511 for 1.8-meter (6-ft) power cable.

[3] If standard nonlocking plug is not desired, choose one: 9081 for connection above floor; 9080 for connection beneath raised floor.

[4] Specify one feature number for character set size and one feature number for character set height.

[5] If Spanish N (with tilde) is desired on print band provided, specify 2961 for Spanish code plus two additional specify codes for character set and character height.

[6] Available only with 2.4-mm (0.095-in.) character height (9950).

[7] Recommended for printing 8 lines per inch (25.4 mm).

[8] Basic machine is shipped for use with a program that assumes buffer size to be 1920 bytes while using Erase/Write Alternate command. Specify one of these options only to alter basic machine.

[9] 9666: OCR-AON 48-Character Set
9667: OCR-BON 48-Character Set
Height of non-OCR characters is 2.4 mm (0.095 in.).

[10] Background color is pearl white. One accent panel color must be specified.

Figure 2-17. 3262 Line Printer Models 3 and 13 Features

Necessary (N) Optional (O) Default (D)	Feature Name	Special Feature Code	Accessory Code
N [1]	Power		
D	Power Cable	9511 [2]	
D	Power Cable Plug	9890 [3]	
D [4]	960-Character Print Operation 2560-Character Print Operation 3440-Character Print Operation 3564-Character Print Operation	9521 9523 9524 9525	
D [5]	*Compatibility Options* Automatic Function at End of Print Buffer Carriage Return at MPP Plus 1 Form Feed Command Position Form Feed Followed by Data Form Feed Is Last Character in Print Order New Line at MPP Plus 1 Null Suppression	 9507 9501 9506 9503 9504 9502 9505	
	Forms Stand		4450

Legend:

N A feature code must be specified.

D If no feature code is specified, the default determines which feature is supplied.

[1] 120-Vac, 1-phase, 3-wire, 60-Hz.

[2] If standard 2.8-meter (9-ft) power cable is not desired, specify 9511 for 1.6-meter (5-ft) power cable.

[3] If standard nonlocking plug is not desired, specify 9890 for locking plug.

[4] Basic machine is shipped for use with a program that assumes buffer size to be 1920 bytes while using Erase/Write Alternate command. Specify one of these options only to alter basic machine.

[5] Basic machine is shipped with standard operations unless options are specified. See feature number in Chapter 1 for description of standard versus optional operation.

Figure 2-18. 3268 Printer Model 2 Features

Necessary (N) Optional (O) Default (D)	Feature Name	Feature Code		Prerequisite (Must be ordered with)	Mutually Exclusive (Must not be ordered with)
		Specify	Special		
N [1]	3271/3272 Attachment [2]		8330		3610, 8331, 9660
	3274/3276 Attachment [3]		8331		1066, 8330
N Choose one (Specifies Control Unit)	3271 [4]	9251			
	3272 [4]	9252			
	3274 Models 1A, 21A, and 31A	9549			
	3274 Models 1B and 21B	9554			
	3274 Models 1C, 21C, and 31C	9551			
	3274 Models 1D, 21D, and 31D	9261			
	3274 Model 51C	9609			
	3276 Models 1—4	9552			
	3276 Models 11—14	9553			
N [5] Choose one	Locking Plug	9890			
	Nonlocking Plug	9891			
O [6] Choose one	Power Cord, 1.8 meters (6 ft) [7]	9511			
	Power Cord, 3.7 meters (12 ft) [7]	9512			
	Power Cord, 4.5 meters (15 ft)	9513			
N [8] Choose one	Character Set — EBCDIC	9082			
	Character Set — ASCII (B) [9]	9084			1120, 9660
O	Extended Character Set Adapter [10]		3610		1066, 8330, 9084
O	APL/Text [10]		1120	3610, 8331, 9082	1066, 8330, 9084
O	Friction Feed Paper Handling [11]		4110		
O	Blower	9030			
O	SCS (SNA Character String) [12]	9660		8331, 9082	8330, 9084
O	SCS Support for SFAP [12]	9661		3610, 9660 Also 5781 for Models 1 and 2	8330, 9084
O	X Print Error Indication	9488			
N Choose one	960-Character Print	9521		8331	8330
	1920-Character Print	9522		8330 or 8331	
	2560-Character Print	9523		3880 and 8331	8330
	3440-Character Print	9524		3880 and 8331	8330
	3654-Character Print [13]	9525		3880 and 8331	8330
O	Variable-Width Forms Tractor		8700		
O	Variable-Width Forms Tractor — Paper Handling	9185		8700	
O	Extended Print Buffer		3880	8331	8330
O	Forms Stand [14]		4450		
O	Programmed Symbols (PS-2) [15]		5781	3610, 3880	5783
O	Programmed Symbols (PS-4) [15]		5782	5781	5783
O	Programmed Symbols (PS-4A) [16]		5783	3610, 3880	5781, 5782
N Choose one	Base Color Black	9135			9136
	Base Color Green	9136			9135

Figure 2-19 (Part 1 of 2). 3287 Printer (3274/3276 Attachment) Features — Universal

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

[1] Choose one for Models 1 and 2 only.

[2] To be attached to the 3274 Type B Terminal Adapter.

[3] To be attached to the 3276 or 3274 Type A Terminal Adapter or base ports.

[4] Models 1 and 2 only.

[5] 120 V, 1-phase, 3-wire, 60 Hz (U.S./Canada).

[6] 2.8 meters (9 ft) normally supplied. Optionally specify other lengths.

[7] Not available in E/ME/A countries.

[8] The character set must be the same as the transmission code/character set used on the control unit to which the 3287 is attached.

[9] ASCII is available only in U.S.

[10] Unit must be attached either to a 3274 Model 1A, 1C, 1D, 21A, 21C, 21D, 31A, 31C, 31D, or 51C or to a 3276 unit with APL/Text Control Feature 1067. Corequisites: APL/Text (1120) or PS-2 (5781).

[11] Can be used interchangeably with 8700.

[12] Unit cannot be attached to 3274 Model 1B, 1D, 21B, 21D, or 31D.

[13] Unit cannot be attached to a 3274 Model 1B or 21B.

[14] Accessory item—purchase only.

[15] Models 1, 1C, 2, and 2C.

[16] Models 1C and 2C only.

Figure 2-19 (Part 2 of 2). 3287 Printer (3274/3276 Attachment) Features — Universal

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)	Mutually Exclusive (Must not be ordered with)
N	*Power* [1]	2998		
Choose one	100 V, 50 Hz	2804		
	110 V, 50 Hz	2805		
	200 V, 50 Hz	2806		
	220 V, 50 Hz	2813		
	230 V, 50 Hz	2821		
	240 V, 50 Hz	2801		
	100 V, 60 Hz	2730		
	110 V, 60 Hz	2822		
	120 V, 60 Hz [1]	2800		
	127 V, 60 Hz	2823		
N [1] [2] Choose one	120 V, 60 Hz Locking Plug	9890		
	120 V, 60 Hz Nonlocking Plug	9891		
N Choose one	*Machine Nomenclature* Brazilian	2933		
	Canadian French	2935		
	English (U.K.)	2927		
	English (U.S.)	2924		
	French	2928		
	Japanese	2930		
	Spanish-speaking	2931		
N Choose one	*Character Set Language* Brazilian	2775	8331	8330
	Canadian French	2777	8331	8330
	EBCDIC	2751	8331	8330
	English (U.K.)	2758	8330 or 8331	
	English (U.S.)	2756	8330 or 8331	
	International	2750	8331	8330
	Japanese (English)	2755	8331	8330
	Japanese (Katakana)	2773	8330 or 8331	
	Spanish-speaking	2769	8330 or 8331	

Legend:

N A feature code must be specified.

[1] Canada must specify.

[2] Japan only must specify if under 200 V.

Figure 2-20. 3287 Printer (3274/3276 Attachment) Features – Additions for Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)	Mutually Exclusive (Must not be ordered with)
N Choose one	*Power*	2999		
	220 V, 50 Hz	2813		
	240 V, 50 Hz	2801		
	120 V, 60 Hz [1]	2800		
N Choose one	*Machine Nomenclature* English (U.K.)	2927		
	English (U.S.)	2924		
	French	2928		
	German	2929		
	Italian	2932		
	Spanish	2931		
N Choose one	*Character Set Language* Austrian/German	2757	8331	8330
	Austrian/German (Alternate)	2748	8330 or 8331	
	Belgian	2771	8330 or 8331	
	Danish/Norwegian	2762	8331	8330
	Danish/Norwegian (Alternate)	2742	8330 or 8331	
	English (U.K.)	2758	8330 or 8331	
	English (U.S.)	2756	8330 or 8331	
	Finnish/Swedish	2763	8331	8330
	Finnish/Swedish (Alternate)	2743	8330 or 8331	
	French	2770	8330 or 8331	
	International	2750	8331	8330
	Italian	2768	8330 or 8331	
	Portuguese	2749	8330 or 8331	
	Spanish	2760	8331	8330
	Spanish (Alternate)	2740	8330 or 8331	

Legend:

N A feature code must be specified.

[1] Saudi Arabia only.

Figure 2-21. 3287 Printer (3274/3276 Attachment) Features — Additions for Europe/Middle East/Africa

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)
N Choose one	3274 Models 1A, 21A, and 31A	9549	
	3274 Models 1B and 21B	9550	
(Specifies Control Unit)	3274 Models 1C, 21C, and 31C	9551	
	3274 Models 1D, 21D, and 31D	9261	
	3274 Model 51C	9609	
	3276 Models 1–4	9552	
	3276 Models 11–14	9553	
N [1] Choose one	Locking Plug	9890	
	Nonlocking Plug	9891	
O [2] Choose one	Power Cord, 1.8 meters (6 ft) [3]	9511	
	Power Cord, 3.7 meters (12 ft) [4]	9512	
	Power Cord, 4.5 meters (15 ft)	9513	
N [5] Choose one [6]	48-Character Set Print Belt—EBCDIC	9490	
	64-Character Set Print Belt—EBCDIC	9491	
	94-Character Set Print Belt—EBCDIC	9492	
	48-Character Set Print Belt—ASCII (B) [7]	9493	
	64-Character Set Print Belt—ASCII (B) [7]	9494	
	94-Character Set Print Belt—ASCII (B) [7]	9495	
	125-Character Text Print—EBCDIC [3] [4]	9496	1130
O	Print Error Indication	9488	
N Choose one	960-Character Print	9521	
	1920-Character Print	9522	
	2560-Character Print	9523	
	3440-Character Print	9524	
	3564-Character Print [8]	9525	
O	Audible Alarm	1090	
O [6] [9]	48-Character Set Print Belt—EBCDIC (Additional)	5821	
	64-Character Set Print Belt—EBCDIC (Additional)	5822	
	94-Character Set Print Belt—EBCDIC (Additional)	5823	
	125-Character Text Print Belt—EBCDIC (Additional) [3] [4]	5824	
	48-Character Set Print Belt—ASCII (B) (Additional) [7]	5811	
	64-Character Set Print Belt—ASCII (B) (Additional) [7]	5812	
	94-Character Set Print Belt—ASCII (B) (Additional) [7]	5813	
O	Text Print (U.S. English only) [3] [10]	1130	

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

[1] 120 V, 1-phase, 3-wire, 60 Hz (U.S. and Canada).

[2] 2.8 meters (9 ft) normally supplied. Optionally specify other lengths.

[3] Not available in E/ME/A countries.

[4] Interchangeable only with U.S. English print belts.

[5] Available at time of manufacturing only.

[6] EBCDIC and ASCII (B) print belts are not interchangeable.

[7] ASCII is available in U.S. only.

[8] Unit cannot be attached to a 3274 Model 1B or 21B.

[9] Accessory item — purchase only.

[10] The 3289 must be attached either to a 3274 Model 1A, 1C, 1D, 21A, 21C, 21D, 31A, 31C, 31D, or 51C, or to a 3276 unit with APL/Text Control Feature 1067.

Figure 2-22. 3289 Line Printer Features — Universal

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)
N	*Power — World Trade A/FE except Canada*	2988	
Choose one	100 V, 50 Hz	2804	
	110 V, 50 Hz	2805	
	200 V, 50 Hz	2806	
	220 V, 50 Hz	2813	
	230 V, 50 Hz	2821	
	240 V, 50 Hz	2801	
	100 V, 60 Hz	2730	
	110 V, 60 Hz	2822	
	120 V, 60 Hz	2800	
	127 V, 60 Hz	2823	
N [1] Choose one (Japan only)	Locking plug	9890	
	Nonlocking plug	9891	
O Choose one (Canada only)	120 V, 60 Hz Locking Plug (Canada only)	9890	
	120 V, 60 Hz Nonlocking Plug (Canada only)	9891	
N Choose one	*Machine Nomenclature*		
	Brazilian/Portuguese	2933	
	Canadian French	2935	
	English	2924	
	Japanese	2930	
	Spanish-speaking	2931	
N Choose one each from Groups A and B	*Print Belt Character Set* *Group A:*		
	48-Character Set	2767	
	64-Character Set	2768	
	94-Character Set	2769	
	116-Character Set (Canadian French only)	2820	
	125-Character Set (Text Print)	2825	1130
	127-Character Set (Japanese Katakana only)	2873	
	EBCDIC	2951	
	Group B [2] :		
	Brazilian	2975	
	Canadian French [3]	2977	
	EBCDIC	2951	
	English (U.S.)	2956	
	International	2950	
	Text Print EBCDIC [4]	2953	
	Japanese(English)	2955	
	Japanese (Katakana) [5]	2973	
	Spanish-speaking	2969	

Figure 2-23 (Part 1 of 2). 3289 Line Printer Features — Additions for Americas/Far East

Legend:

N A feature code must be specified.

O A feature code may be specified, but is not mandatory.

1 Available for all voltages under 200 V.

2 Group B belts are not interchangeable.

3 116-character Canadian French is interchangeable with 48-, 64-, and 94-character Canadian French belts.

4 The 125-character Text Print belt is interchangeable only with the 48-, 64-, and 94-character U.S. English belts.

5 The 127-character Japanese Katakana belt is interchangeable only with the 48- and 64-character Japanese English belts.

Figure 2-23 (Part 2 of 2). 3289 Line Printer Features — Additions for Americas/Far East

Necessary (N) Optional (O) Default (D)	Feature Name	Specify Feature Code	Prerequisite (Must be ordered with)
N	*Power*	2999	
Choose one	220 V, 50 Hz	2813	2759 [1]
	240 V, 50 Hz	2801	2759 [1]
	120 V, 60 Hz [2]	2800	
N Choose one	*Machine Nomenclature* English (U.S.)	2924	
	French	2928	
	German	2929	
	Italian	2932	
	Spanish	2931	
N Choose one each from Groups A and B	*Print Belt Character Set* *Group A:* 48-Character Set	2767	
	64-Character Set	2768	
	94-Character Set	2769	
	Group B [3] : Austrian/German	2957	
	Austrian/German (Alternate)	2948	
	Belgian	2971	
	Danish/Norwegian	2962	
	Danish/Norwegian (Alternate)	2942	
	English (U.K.)	2958	
	English (U.S.)	2956	
	Finnish/Swedish	2963	
	Finnish/Swedish (Alternate)	2943	
	French	2970	
	International	2950	
	Italian	2968	
	Portuguese	2959	
	Spanish	2960	
	Spanish (Alternate)	2940	

Legend:

N A feature code must be specified.

[1] Order SC 2759 for Germany only.

[2] Saudi Arabia only.

[3] Group B belts are not interchangeable.

Figure 2-24. 3289 Line Printer Features — Additions for Europe/Middle East/Africa

Appendix A. 3274 Control Storage Requirements

The following paragraphs describe how to determine the control storage requirements for the selected model of the 3274 Control Unit.

Models 1A, 1C, and 1D

After you have selected the configuration support and the desired special features for your 3274, you will have to determine the control storage required. Because some combinations of functions and features exceed the basic storage capacity of the control unit you have chosen, you may have to order Extended Function Store features to provide adequate control storage. Still other combinations may exceed the maximum control storage possible with all Extended Function Store features. Such combinations are invalid configurations. In these situations, you must forfeit feature(s) in order to reduce the control storage requirements to an amount not exceeding the maximum control storage possible.

Do the following steps to determine which, if any, Extended Function Store features must be ordered for the model you have selected:

1. Select the Configuration Support option that contains the functions you want.

2. Refer to the appropriate figure of control storage requirements, and select the features and functions you want:

   a. Use Figure A-1 for a 3274 Model 1A.

   b. Use Figure A-2 for a 3274 Model 1C using SNA protocol.

   c. Use Figure A-3 for a 3274 Model 1C using BSC protocol.

   d. Use Figure A-4 for a 3274 Model 1D.

3. Determine the total Type C and total Type D storage required for the features and functions you selected in step 2.

4. Add the Type C and Type D totals to determine the total control storage required. If this total is less than 65,536, no Extended Function Store features are required and you can stop here. If the total is greater than 65,536, proceed with step 5.

5. Refer to Figure A-5. If you chose Configuration Support A, begin at line 1 and work down. If you chose Configuration Support C, begin at line 4 and work down. Stop at the first line that satisfies the control storage requirements you determined in steps 3 and 4. This line tells you the Extended Function Store features that your 3274 Model 1A, 1C, or 1D requires.

Models 21A, 21C, 21D, 31A, 31C, 31D, and 51C

After you have selected the desired special features, you will have to determine the control storage required. Some combinations of functions and features may exceed the basic control-storage capacity of the Models 21A, 21C, and 21D, and of the Model 51C without the Extended Function Store feature(s) (1800 or 3632, or 3630 and 3631). If the sum of the control storage requirements exceeds 65,536, a Model 31 or a Model 51C with the Extended Function Store feature(s) (1800 or 3632, or 3630 and 3631) is required. Note the special considerations for Models 31A and 31C/SNA, and for Model 51C/SNA with the Extended Function Store feature, in step 5 below.

Do the following steps to determine the control storage requirements for the functions and features you have selected:

1. Determine which Configuration Support option contains the functions you want.

2. Refer to the appropriate figure of control storage requirements, and select the features and functions you want:

   a. Use Figure A-6 for a 3274 Model 21A.

   b. Use Figure A-7 for a 3274 Model 21C using SNA protocol.

   c. Use Figure A-8 for a 3274 Model 21C using BSC protocol.

   d. Use Figure A-9 for a 3274 Model 21D.

   e. Use Figure A-10 for a 3274 Model 51C using SNA protocol.

   f. Use Figure A-11 for a 3274 Model 51C using BSC protocol.

3. Determine the total storage requirement for the features and functions you selected in step 2.

4. For a Model 21: If the total storage requirement calculated in step 3 is equal to or less than 65,536, the Model 21 can be used and you can stop here. If the storage requirements exceed 65,536, however, the Model 21 Control Unit cannot be used and a Model 31 is required. If you determine that a Model 31A or a Model 31C/SNA is required, you must proceed with step 5. If not, stop here.

   For a Model 51C: If the total storage requirement calculated in step 3 is equal to or less than 65,536, the Model 51C without the Extended Function Store feature can be used and you can stop here. If the storage requirements exceed 65,536, however, the Extended Function Store feature(s) (1800 or 3632, or 3630 and 3631) is (are) required, and you must proceed with step 5.

5. If you chose Configuration Support C (9112) and Model 31A, 31C/SNA, or 51C/SNA with Extended Function Store, you must ensure that the combination of functions and features you select forms a valid configuration by doing the following:

   a. Refer to the appropriate figure of control storage requirements, and select the features and functions you want:

      1) Use Figure A-12 for a 3274 Model 31A.

      2) Use Figure A-13 for a 3274 Model 31C/SNA and for a Model 51C/SNA with Extended Function Store.

   b. Determine the total storage requirement for the features and functions you selected in step a.

   c. If the total storage requirement calculated in step b exceeds 71,680, you must forfeit one or more features so that storage requirements do not exceed 71,680.

Feature or Function	Storage Required (bytes)	
	Type C	Type D
Model 1A Base (including Copy) (Choose one)		
• Configuration Support A (#9110)	41,200	13,600
• Configuration Support C (#9112)	50,030	17,940
Category A terminals (Choose one)[1]		
• 1 to 8 terminals (included in base)	0	0
• 1 to 16 terminals	0	2,048
• 1 to 24 terminals	0	4,096
• 1 to 32 terminals	0	6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[2]		
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	786[3]
• Data Entry (3278/3279—#4622)	0	786[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	786[3]
• Text (3278/3279—#4629)	0	1,560
• APL (3278/3279—#4626, 4652)	0	1,560
Canadian French Keyboards (any)	500	150
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	1,042[3]
• Data Entry (3278/3279—#4622)	0	1,042[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	1,042[3]
• APL (3278/3279—#4626, 4652)	0	1,816
Japanese Katakana Keyboards		
• Typewriter (3278/3279—#2715, 2717, 2719, 2708)	0	1,304
• Data Entry (3278/3279—#2716)	0	1,304
• APL (3278/3279—#2718, 2721)	0	2,072
Category B terminals (Choose one)[1,4]		
• 1 to 4 terminals	4,900	5,624
• 1 to 8 terminals	4,900	6,648
• 1 to 12 terminals	4,900	7,672
• 1 to 16 terminals	4,900	8,696
APL/Text Control Function (Choose one)		
• Configuration Support A	1,700	1,200
• Configuration Support C	0	0
3289 Text Print Control	0	512
Host-Loadable Printer Authorization Matrix	500	0
Between Bracket Printer Sharing	800	100
SCS Printer Support (3287—#9660, 9661)[5] (3230, 3262, 3268, and 3289—basic function)	1,600	100
Magnetic Reader Control (3278/3279—#4999) (Choose one)		
• 3275/3277-Compatible 10-Character Set	600	60
• Numeric and Alphanumeric Character Sets	1,630	316
3279 Color Convergence	4,296	1,198
The following are available with Configuration Support C only		
Structured Field and Attribute Processing (SFAP)[5]	4,950	950
Programmed Symbols (PS)	2,700	190
Decompression of PS Load Data	900	0
Extended Attribute Terminals (add 256 for each terminal): 3278/3287 with #3610; 3279-2B, -3B, -S2B, and -S2G; 3279-02X and -03X with #3850.	0	#x256

[1]If the total type D requirement for Category A and Category B terminals exceeds 10,744, use 10,744.

[2]Add the indicated amount for each keyboard type to be used.

[3]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the Type D storage requirement listed.

[4]No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

[5]The SFAP function is also required when the SCS Support for SFAP feature (9661) is to be used on the 3287 Printer Model 1, 1C, 2, or 2C. This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-1. 3274 Model 1A Control Storage Requirements

Feature or Function	Storage Required (bytes)	
	Type C	Type D
Model 1C/SNA (including Copy) (Choose one)		
EBCDIC		
• Configuration Support A (#9110)	41,030	13,700
• Configuration Support C (#9112)	50,580	17,940
ASCII		
• Configuration Support A (#9110)	41,446	14,100
• Configuration Support C (#9112)	51,700	18,090
Category A terminals (Choose one)[1]		
• 1 to 8 terminals (included in base)	0	0
• 1 to 16 terminals	0	2,048
• 1 to 24 terminals	0	4,096
• 1 to 32 terminals	0	6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[2]		
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	786[3]
• Data Entry (3278/3279—#4622)	0	786[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	786[3]
• Text (3278/3279—#4629)	0	1,560
• APL (3278/3279—#4626, 4652)	0	1,560
Canadian French Keyboards (any)	450	150
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	1,042[3]
• Data Entry (3278/3279—#4622)	0	1,042[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	1,042[3]
• APL (3278/3279—#4626, 4652)	0	1,816
Japanese Katakana Keyboards		
• Typewriter (3278/3279—#2715, 2717, 2719, 2708)	0	1,304
• Data Entry (3278/3279—#2716)	0	1,304
• APL (3278/3279—#2718, 2721)	0	2,072
Category B terminals (Choose one)[1,4]		
• 1 to 4 terminals	4,900	5,624
• 1 to 8 terminals	4,900	6,648
• 1 to 12 terminals	4,900	7,672
• 1 to 16 terminals	4,900	8,696
APL/Text Control Function (Choose one)		
• Configuration Support A	1,700	1,200
• Configuration Support C	0	0
3289 Text Printer Control	0	512
High Performance Communications Adapter (#6303)		
• Configuration Support A	600	−500
• Configuration Support C	600	+400
Host-Loadable Printer Authorization Matrix	500	0
Between Bracket Printer Sharing	800	100
SCS Printer Support[5] (3287—#9660, 9661) (3230, 3262, 3268, and 3289—basic feature)	1,600	100
Magnetic Reader Control (3278/3279—#4999) (Choose one)		
• 3275/3277-Compatible 10-Character Set	600	60
• Numeric and Alphanumeric Character Sets	1,630	316

Figure A-2 (Part 1 of 2). 3274 Model 1C/SNA Control Storage Requirements

Feature or Function	Storage Required (bytes)	
	Type C	Type D
Encrypt/Decrypt (#3680)	3,200	2,000
3279 Color Convergence	4,296	1,198
The following are available with Configuration Support C only		
Structured Field and Attribute Processing (SFAP)[5]	4,950	950
Programmed Symbols (PS)	2,700	190
Decompression of PS Load Data	900	0
Extended Attribute Terminals (add 256 for each terminal): 3278/3287 with #3610; 3279-2B, -3B, -S2B, and -S2G; 3279-02X and -03X with #3850.	0	#x256

[1]If the total type D requirement for Category A and Category B terminals exceeds 10,744, use 10,744.

[2]Add the indicated amount for each keyboard type to be used.

[3]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the Type D storage requirement listed.

[4]No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

[5]The SFAP function is also required when the SCS Support for SFAP feature (9661) is to be used on the 3287 Printer Model 1, 1C, 2, or 2C. This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-2 (Part 2 of 2). 3274 Model 1C/SNA Control Storage Requirements

Feature or Function	Storage Required (bytes) Type C	Type D
Model 1C/BSC (Choose one)		
EBCDIC		
• Configuration Support A (#9110)	38,000	13,800
• Configuration Support C (#9112)	47,150	22,200
ASCII		
• Configuration Support A (#9110)	38,000	14,500
• Configuration Support C (#9112)	48,650	22,900
Category A terminals (Choose one)[1]		
• 1 to 8 terminals (included in base)	0	0
• 1 to 16 terminals	0	2,048
• 1 to 24 terminals	0	4,096
• 1 to 32 terminals	0	6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[2]		
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	786[3]
• Data Entry (3278/3279—#4622)	0	786[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	786[3]
• Text (3278/3279—#4629)	0	1,560
• APL (3278/3279—#4626, 4652)	0	1,560
Canadian French Keyboards (any)	500	150
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	1,042[3]
• Data Entry (3278/3279—#4622)	0	1,042[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	1,042[3]
• APL (3278/3279—#4626, 4652)	0	1,816
Japanese Katakana Keyboards		
• Typewriter (3278/3279—#2715, 2717, 2719, 2708)	0	1,304
• Data Entry (3278/3279—#2716)	0	1,304
• APL (3278/3279—#2718, 2721)	0	2,072
Category B terminals (Choose one)[1,4]		
• 1 to 4 terminals	4,700	1,724
• 1 to 8 terminals	4,700	2,748
• 1 to 12 terminals	4,700	3,772
• 1 to 16 terminals	4,700	4,796
APL/Text Control Function (Choose one)		
• Configuration Support A	2,200	4,700
• Configuration Support C	0	0
3289 Text Printer Control	0	512
Host-Loadable Printer Authorization Matrix	550	0
Copy (Print Key Function)	2,700	0
Magnetic Reader Control (3278/3279—#4999) (Choose one)		
• 3275/3277-Compatible 10-Character Set	600	60
• Numeric and Alphanumeric Character Sets	1,630	316
3279 Color Convergence	4,296	1,198
The following are available with Configuration Support C only		
Structured Field and Attribute Processing (SFAP)[5]	4,950	950
Programmed Symbols (PS)	2,700	9,610
Decompression of PS Load Data	900	0
Extended Attribute Terminals (add 256 for each terminal): 3278/3287 with #3610; 3279-2B, -3B, -S2B, and -S2G; 3279-02X and -03X with #3850.	0	#x256

[1] If the total type D requirement for Category A and Category B terminals exceeds 6,844, use 6,844.

[2] Add the indicated amount for each keyboard type to be used.

[3] Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the Type D storage requirement listed.

[4] No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

[5] This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-3. 3274 Model 1C/BSC Control Storage Requirements

Feature or Function	Storage Required (bytes)	
	Type C	Type D
Model 1D (including copy) (Choose one)		
• Configuration Support A (#9110)	34,500	17,000
• Configuration Support C (#9112)	39,720	24,900
Category A terminals (Choose one)[1]		
• 1 to 8 terminals (included in base)	0	0
• 1 to 16 terminals	0	2,048
• 1 to 24 terminals	0	4,096
• 1 to 32 terminals	0	6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[2]		
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	786[3]
• Data Entry (3278/3279—#4622)	0	786[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	786[3]
• Text (3278/3279—#4629)	0	1,560
• APL (3278/3279—#4626, 4652)	0	1,560
Canadian French Keyboards (any)	500	150
• Typewriter (3278/3279—#4621, 4624, 4627, 4628, 4640, 4651)	0	1,042[3]
• Data Entry (3278/3279—#4622)	0	1,042[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	0	1,042[3]
• APL (3278/3279—#4626, 4652)	0	1,816
Japanese Katakana Keyboards		
• Typewriter (3278/3279—#2715, 2717, 2719, 2708)	0	1,304
• Data Entry (3278/3279—#2716)	0	1,304
• APL (3278/3279—#2718, 2721)	0	2,072
Category B terminals (Choose one)[1,4]		
• 1 to 4 terminals	4,300	3,724
• 1 to 8 terminals	4,300	4,748
• 1 to 12 terminals	4,300	5,772
• 1 to 16 terminals	4,300	6,796
APL/Text Control Function (Choose one)		
• Configuration Support A	1,700	4,600
• Configuration Support C	0	0
Copy (Print Key Function)	2,700	0
3289 Text Print Control	0	512
Host-Loadable Printer Authorization Matrix	550	0
Magnetic Reader Control (3278/3279—#4999) (Choose one)		
• 3275/3277-Compatible 10-Character Set	600	60
• Numeric and Alphanumeric Character Sets	1,120	316
3279 Color Convergence	4,296	1,198
The following are available with Configuration Support C only		
Structured Field and Attribute Processing (SFAP)[5]	4,950	950
Programmed Symbols (PS)	2,700	190
Decompression of PS Load Data	900	0
Extended Attribute Terminals (add 256 for each terminal): 3278/3287 with #3610; 3279-2B, -3B, -S2B, and -S2G; 3279-02X and -03X with #3850.	0	#x256

[1] If the total type D requirement for Category A and Category B terminals exceeds 8,844, use 8,844.

[2] Add the indicated amount for each keyboard type to be used.

[3] Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the Type D storage requirement listed.

[4] No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

[5] This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-4. 3274 Model 1D Control Storage Requirements

Line	Factors	Storage Size	Feature Codes
1	Type C + Type D	≤ 65,536	None
2	Type C + Type D and Type C and Type D	> 65,536 ≤ 49,152 ≤ 32,768	1801 and 3622
3	Type C + Type D and Type C and Type D	> 65,536 ≤ 49,152 ≤ 49,152	1801, 3622, and 3627
4	Type C + Type D and Type C and Type D	> 65,536 ≤ 65,536 ≤ 32,768	1801, 3622, and 3625, or 1801 and 3623
5	Type C + Type D and Type C and Type D	> 65,536 ≤ 65,536 ≤ 49,152	1801, 3622, 3625, and 3627, or 1801, 3623, and 3627
6	Type C + Type D and Type C and Type D	> 65,536 ≤ 65,536 < 49,152	1801, 3622, 3625, and 3628, or 1801, 3623, and 3628
7	Type C and Type C and Type D	> 65,536 ≤ 71,680 Any	1801, 3622, 3625, and 3628, or 1801, 3623, and 3628
8	Type C	> 71,680	Invalid Configuration

Figure A-5. 3274 Models 1A, 1C, and 1D Extended Function Store Features

Feature or Function	Storage Required (bytes)
Model 21A (including Copy) • Configuration Support A (#9110)	 54,800
Category A terminals (Choose one) • 1 to 8 terminals (included in base) • 1 to 16 terminals • 1 to 24 terminals • 1 to 32 terminals	 0 2,048 4,096 6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[1] • Typewriter (3278/3279—#4621, 4627) • Data Entry (3278/3279—#4622) • Data Entry Keypunch Layout (3278/3279—#4623) • Text (3278/3279—#4629) • APL (3278/3279—#4626) Canadian French Keyboards (any) • Typewriter (3278/3279—#4621, 4624, 4627, 4628 • Data Entry (3278/3279—#4622) • Data Entry Keypunch Layout (3278/3279—#4623) • APL (3278/3279—#4626) Japanese Katakana Keyboards • Typewriter (3278/3279—#2715, 2717) • Data Entry (3278/3279—#2716) • APL (3278/3279—#2718)	 786[2] 786[2] 786[2] 1,560 1,560 650 1,042[2] 1,042[2] 1,042[2] 1,816 1,304 1,304 2,072
APL/Text Control Function	2,900
3289 Text Print Control	512
Host-Loadable Printer Authorization Matrix	500
Between Bracket Printer Sharing	900
SCS Printer Support (3287—#9660) (3230, 3262, 3268, and 3289—basic function)	1,700
Magnetic Reader Control (3278/3279—#4999) (Choose one) • 3275/3277-Compatible 10-Character Set • Numeric and Alphanumeric Character Sets	 660 1,946
3279 Color Convergence	5,494

[1]Add the indicated amount for each keyboard type to be used.

[2]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the storage requirement listed.

Figure A-6. 3274 Model 21A Control Storage Requirements

Feature or Function	Storage Required (bytes)
Model 21C/SNA (including Copy) • Configuration Support A (#9110)	54,730
ASCII	816
Category A terminals (Choose one) • 1 to 8 terminals (included in base) • 1 to 16 terminals • 1 to 24 terminals • 1 to 32 terminals	 0 2,048 4,096 6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[1] • Typewriter (3278/3279—#4621, 4624, 4627, 4628) • Data Entry (3278/3279—#4622) • Data Entry Keypunch Layout (3278/3279—#4623) • Text (3278/3279—#4629) • APL (3278/3279—#4626) Canadian French Keyboards (any) • Typewriter (3278/3279—#4621, 4624, 4627, 4628) • Data Entry (3278/3279—#4622) • Data Entry Keypunch Layout (3278/3279—#4623) • APL (3278/3279—#4626) Japanese Katakana Keyboards • Typewriter (3278/3279—#2715, 2717) • Data Entry (3278/3279—#2716) • APL (3278/3279—#2718, 2721)	 786[2] 786[2] 786[2] 1,560 1,560 600 1,042[2] 1,042[2] 1,042[2] 1,816 1,304 1,304 2,072
APL/Text Control Function	2,900
3289 Text Print Control	512
High Performance Communications Adapter (#6303)	100
Host-Loadable Printer Authorization Matrix	500
Between Bracket Printer Sharing	900
SCS Printer Support (3287—#9660) (3230, 3262, 3268, and 3289—basic feature)	1,700
Magnetic Reader Control (3278/3279—#4999) (Choose one) • 3275/3277-Compatible 10-Character Set • Numeric and Alphanumeric Character Sets	 660 1,946
Encrypt/Decrypt (#3680)	5,200
3279 Color Convergence	5,494

[1]Add the indicated amount for each keyboard type to be used.

[2]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the storage requirement listed.

Figure A-7. 3274 Model 21C/SNA Control Storage Requirements

Feature or Function	Storage Required (bytes)
Configuration Support A (#9110)	51,800
ASCII	700
Category A terminals (Choose one)[1]	
• 1 to 8 terminals (included in base)	0
• 1 to 16 terminals	2,048
• 1 to 24 terminals	4,096
• 1 to 32 terminals	6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[2]	
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	786[3]
• Data Entry (3278/3279—#4622)	786[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	786[3]
• Text (3278/3279—#4629)	1,560
• APL (3278/3279—#4626)	1,560
Canadian French Keyboards (any)	650
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	1,042[3]
• Data Entry (3278/3279—#4622)	1,042[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	1,042[3]
• APL (3278/3279—#4626)	1,816
Japanese Katakana Keyboards	
• Typewriter (3278/3279—#2715, 2717)	1,304
• Data Entry (3278/3279—#2716)	1,304
• APL (3278/3279—#2718)	2,072
Category B terminals (Choose one)[1,4]	
• 1 to 4 terminals	6,424
• 1 to 8 terminals	7,448
• 1 to 12 terminals	8,472
• 1 to 16 terminals	9,496
APL/Text Control Function	6,900
3289 Text Print Control	512
Host-Loadable Printer Authorization Matrix	550
Copy (Print Key Function)	2,700
Magnetic Reader Control (3278/3279—#4999) (Choose one)	
• 3275/3277-Compatible 10-Character Set	660
• Numeric and Alphanumeric Character Sets	1,436
3279 Color Convergence	5,494

[1]If the total requirement for Category A and Category B terminals exceeds 11,544, use 11,544.

[2]Add the indicated amount for each keyboard type to be used.

[3]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the storage requirement listed.

[4]No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

Figure A-8. 3274 Model 21C/BSC Control Storage Requirements

Feature or Function	Storage Required (bytes)
Configuration Support A (#9110)	51,500
Category A terminals (Choose one)[1]	
• 1 to 8 terminals (included in base)	0
• 1 to 16 terminals	2,048
• 1 to 24 terminals	4,096
• 1 to 32 terminals	6,144
Keyboards on Category A terminals (Select all that apply, choosing at least one)[2]	
• Typewriter (3278/3279—#4621, 4627)	786[3]
• Data Entry (3278/3279—#4622)	786[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	786[3]
• Text (3278/3279—#4629)	1,560
• APL (3278/3279—#4626)	1,560
Canadian French Keyboards (any)	600
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	1,042[3]
• Data Entry (3278/3279—#4622)	1,042[3]
• Data Entry Keypunch Layout (3278/3279—#4623)	1,042[3]
• APL (3278/3279—#4626)	1,816
Japanese Katakana Keyboards	
• Typewriter (3278/3279—#2715, 2717)	1,304
• Data Entry (3278/3279—#2716)	1,304
• APL (3278/3279—#2718)	2,072
Category B terminals (Choose one)[1,4]	
• 1 to 4 terminals	8,024
• 1 to 8 terminals	9,048
• 1 to 12 terminals	10,072
• 1 to 16 terminals	11,096
APL/Text Control Function	6,300
Copy (Print Key Function)	2,700
3289 Text Print Control	512
Host-Loadable Printer Authorization Matrix	550
Magnetic Reader Control (3278/3279—#4999) (Choose one)	
• 3275/3277-Compatible 10-Character Set	660
• Numeric and Alphanumeric Character Sets	1,436
3279 Color Convergence	5,494

[1]If the total requirement for Category A and Category B terminals exceeds 13,144, use 13,144.

[2]Add the indicated amount for each keyboard type to be used.

[3]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the storage requirement listed.

[4]No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

Figure A-9. 3274 Model 21D Control Storage Requirements

Feature or Function	Storage Required (bytes)
Model 51C/SNA (including Copy) • Configuration Support A (#9110)	54,730
ASCII	816
Keyboards on Category A terminals (Select all that apply, choosing at least one)[1]	
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	786[2]
• Data Entry (3278/3279—#4622)	786[2]
• Data Entry Keypunch Layout (3278/3279—#4623)	786[2]
• Text (3278/3279—#4629)	1,560
• APL (3278/3279—#4626)	1,560
Canadian French Keyboards (any)	600
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	1,042[2]
• Data Entry (3278/3279—#4622)	1,042[2]
• Data Entry Keypunch Layout (3278/3279—#4623)	1,042[2]
• APL (3278/3279—#4626)	1,816
Japanese Katakana Keyboards	
• Typewriter (3278/3279—#2715, 2717)	1,304
• Data Entry (3278/3279—#2716)	1,304
• APL (3278/3279—#2718, 2721)	2,072
Category B terminals[3] • 1 to 4 terminals	10,524
APL/Text Control Function	2,900
3289 Text Print Control	512
High Performance Communications Adapter (#6303)	100
Host-Loadable Printer Authorization Matrix	500
Between Bracket Printer Sharing	900
SCS Printer Support (3287—#9660) (3230, 3262, 3268, and 3289—basic feature)	1,700
Magnetic Reader Control (3278/3279—#4999) (Choose one)	
• 3275/3277-Compatible 10-Character Set	660
• Numeric and Alphanumeric Character Sets	1,946
Encrypt/Decrypt (#3680)	5,200
3279 Color Convergence	5,494

[1]Add the indicated amount for each keyboard type to be used.

[2]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the storage requirement listed.

[3]No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3271.

Figure A-10. 3274 Model 51C/SNA, without Extended Function Store, Control Storage Requirements

Feature or Function	Storage Required (bytes)
Configuration Support A (#9110)	51,800
ASCII	700
Keyboards on Category A terminals (Select all that apply, choosing at least one)[1]	
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	786[2]
• Data Entry (3278/3279—#4622)	786[2]
• Data Entry Keypunch Layout (3278/3279—#4623)	786[2]
• Text (3278/3279—#4629)	1,560
• APL (3278/3279—#4626)	1,560
Canadian French Keyboards (any)	650
• Typewriter (3278/3279—#4621, 4624, 4627, 4628)	1,042[2]
• Data Entry (3278/3279—#4622)	1,042[2]
• Data Entry Keypunch Layout (3278/3279—#4623)	1,042[2]
• APL (3278/3279—#4626)	1,816
Japanese Katakana Keyboards	
• Typewriter (3278/3279—#2715, 2717)	1,304
• Data Entry (3278/3279—#2716)	1,304
• APL (3278/3279—#2718)	2,072
Category B terminals[3]	
• 1 to 4 terminals	6,424
APL/Text Control Function	6,900
3289 Text Print Control	512
Host-Loadable Printer Authorization Matrix	550
Copy (Print Key Function)	2,700
Magnetic Reader Control (3278/3279—#4999) (Choose one)	
• 3275/3277-Compatible 10-Character Set	660
• Numeric and Alphanumeric Character Sets	1,946
3279 Color Convergence	5,494

[1]Add the indicated amount for each keyboard type to be used.

[2]Configuration Support A consideration only: If all three keyboard types (Typewriter, Data Entry, and Data Entry Keypunch Layout) are required on display stations attached to the 3274, add 1,000 to the storage requirement listed.

[3]No customizing option or additional control storage is required to support the 3275/3277-compatible character set for the Operator Identification Card Reader (4600) on 3277 Display Stations (Category B terminals) attached to a 3274.

Figure A-11. 3274 Model 51C/BSC, without Extended Function Store, Control Storage Requirements

Feature or Function	Storage Required (bytes)
Configuration Support C	50,030
Category B terminals	4,900
Host-Loadable Printer Authorization Matrix	500
Between Bracket Printer Sharing	800
SCS Printer Support (3287—#9660, 9661)[1] (3230, 3262, 3268, and 3289—basic feature)	1,600
Magnetic Reader Control (3278/3279—#4999) (Choose one) • 3275/3277-Compatible 10-Character Set • Numeric and Alphanumeric Character Sets	 600 1,630
3279 Color Convergence	4,296
Structured Field and Attribute Processing (SFAP)[2]	4,950
Programmed Symbols (PS)	2,700
Decompression of PS Load Data	900
Canadian French Keyboards (any)	500

[1]The SFAP function is also required when the SCS Support for SFAP feature (#9661) is to be used on the 3287 Printer Model 1, 1C, 2, or 2C.

[2]This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-12. 3274 Model 31A Control Storage Requirements

Feature or Function	Storage Required (bytes)
Configuration Support C	50,580
Category B terminals	4,900
Host-Loadable Printer Authorization Matrix	500
Between Bracket Printer Sharing	800
SCS Printer Support (3287—#9660, 9661)[1] (3230, 3262, 3268, and 3289—basic feature)	1,600
Magnetic Reader Control (3278/3279—#4999) (Choose one) • 3275/3277-Compatible 10-Character Set • Numeric and Alphanumeric Character Sets	 600 1,630
3279 Color Convergence	4,296
Structured Field and Attribute Processing (SFAP)[2]	4,950
Programmed Symbols (PS)	2,700
Decompression of PS Load Data	900
High Performance Communications Adapter (#6303)	600
Encrypt/Decrypt (#3680)	3,200
Canadian French Keyboards (any)	450
X.21 Switched Network Operation	6,500

[1]The SFAP function is also required when the SCS Support for SFAP feature (#9661) is to be used on the 3287 Printer Model 1, 1C, 2, or 2C.

[2]This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-13. 3274 Model 31C/SNA and Model 51C/SNA with Extended Function Store, Control Storage Requirements

IBM 3270 Information Display System Feature Description (File No. S360/S370/S3/4300/8100-09) Printed in U.S.A. GA23-0113-0

GA23-0113-0

Feature or Function	Storage Required (bytes)
Configuration Support C	50,580
Category B terminals	4,900
Host-Loadable Printer Authorization Matrix	500
Between Bracket Printer Sharing	800
SCS Printer Support (3287—#9660, 9661)[1] (3230, 3262, 3268, and 3289—basic feature)	1,600
Magnetic Reader Control (3278/3279—#4999) (Choose one) • 3275/3277-Compatible 10-Character Set • Numeric and Alphanumeric Character Sets	 600 1,630
3279 Color Convergence	4,296
Structured Field and Attribute Processing (SFAP)[2]	4,950
Programmed Symbols (PS)	2,700
Decompression of PS Load Data	900
High Performance Communications Adapter (#6303)	600
Encrypt/Decrypt (#3680)	3,200
Canadian French Keyboards (any)	450
X.21 Switched Network Operation	6,500

[1]The SFAP function is also required when the SCS Support for SFAP feature (#9661) is to be used on the 3287 Printer Model 1, 1C, 2, or 2C.

[2]This function does not support ASCII or the 1970 Alternate Character Set codes for Austria/Germany, Denmark/Norway, Finland/Sweden, and Spain.

Figure A-13. 3274 Model 31C/SNA and Model 51C/SNA with Extended Function Store, Control Storage Requirements

List of Abbreviations

A/FE. Americas/Far East.

ac. Alternating current.

ACF. Advanced communications function.

APL. A programming language.

ASCII. American National Standard Code for Information Interchange.

bps. Bits per second.

BSC. Binary synchronous communication.

C. Celsius.

CCITT. The International Telegraph and Telephone Consultative Committee.

cm. Centimeter(s).

DCE. Data-circuit-terminating equipment.

DDC. Denden digital circuit.

DDS. Digital data service.

DDX. Digital Data Exchange.

E/ME/A. Europe/Middle East/Africa.

EBCDIC. Extended binary-coded decimal interchange code.

F. Fahrenheit.

FCC. Federal Communications Commission.

ft. Foot.

IML. Initial microcode load.

in. Inch.

ISO. International Organization for Standardization.

kHz. Kilohertz.

LPDA. Link Problem Determination Aid.

lpm. Lines per minute.

MHS. Magnetic hand scanner.

mm. Millimeter(s).

MPP. Maximum print position.

MSR. Magnetic slot reader.

MVS. Multiple virtual storage.

NPDA. Network Problem Determination Application.

NTT. Nippon Telephone and Telegraph.

OCR. Optical Character Recognition.

OEM. Original equipment manufacturer.

OS. Operating System.

PA. Program attention.

PS. Programmed Symbols.

PSN. Public Switched Network.

PTT. Post Telegraph and Telephone Administration.

SCS. SNA character string.

SDLC. Synchronous data link control.

SFAP. Structured field and attribute processing.

SNA. Systems network architecture.

TCAM. Telecommunications access method.

TN. Technical notation.

U.K. United Kingdom.

U.S. United States.

V. Volts.

VS. Virtual system.

VTAM. Virtual telecommunications access method.

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IBM 3270
Information Display System
Feature Description

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