

[Offering Information](#) > [Announcement Letters](#) >

## **IBM 3161 AND IBM 3163 ASCII DISPLAY STATIONS MODELS 11 AND 12**

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### Contents

[Announcement Letter Number 185-078 dated June 18, 1985](#)

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### **Brief Description of Announcement, Charges, and Availability**

IBM announces the IBM 3161 and IBM 3163 ASCII Display Stations, which bring new levels of function and ergonomics to IBM ASCII displays. They are designed to attach to both IBM and non-IBM systems. Each unit contains IBM 3101 Model 881 (Model 230) emulation, providing current 3101 users with a smooth migration path. For non-IBM processor attachment, a number of non-IBM ASCII display emulations are available.

### **Customer Letter Section**

The IBM 3161 is a high-function, entry-level ASCII display. It offers such features as menu setup, definable function keys, split screen, and character and field attributes. It also has an auxiliary port, a cartridge capability, and an ASCII keyboard with a numeric keypad. The IBM 3163 provides these same features plus smooth scroll, windowing, double high/double wide characters, and a redefinable keyboard. The IBM 3161 native mode is upward compatible with the IBM 3163.

The IBM 316X display family continues IBM's product quality excellence. The displays are high-resolution, 12-inch monitors and the keyboards have a low profile with tactile feedback. The IBM 316X display family provides high-quality terminals for a variety of user applications at a very attractive price.

With this announcement, the IBM 3101 Model 881 (formerly designated as the Model 230) is being withdrawn from marketing,

effective September 18, 1985, and the IBM 3101, IBM 3161, and IBM 3163 are included in the revised Information Display System Volume Procurement Amendment (VPA) Exhibit in a new category with a revised discount schedule.

#### HIGHLIGHTS

- o Improved ergonomics
  - Tilt/swivel display
  - Etched/dark screen to reduce glare
  - Enhanced keyboard
  - Brightness/contrast controls
  - Reduced footprint
- o Screen characteristics
  - 25 lines x 80 characters
  - 8 x 16 character cell
  - 12-inch green phosphor cathode ray tube (CRT)
  - Reverse video, blinking, underline, dual intensity, and nondisplay attributes
- o New keyboard
  - Designed for ASCII
  - Tactile feedback
  - Low profile
  - 12 function keys (shifted to 24) and three PA keys
  - Numeric keypad
  - Coiled cable
- o Enhanced functions
  - Menu setup
  - Definable function keys
  - Attributes in character and block modes
  - Line drawing characters
  - Split screen
  - CRT saver
- o Communication
  - Selectable speeds to 19.2K bps
  - 7/8 bits option
  - XON/XOFF
  - RS232C auxiliary port
- o Additional functions of 3163

- Smooth scroll
  - Viewports, paging, and partitioning
  - Double high/double wide characters
  - Redefinable keyboard
  - Block longitudinal redundancy checking (LRC)
  - Host-loadable character set
  - Extended attributes
- o Variety of emulations\*
- 3161: 3101 Model 881 (230), ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM-3A, Lear Siegler ADM-5, TeleVideo 910
  - 3163: 3101 Model 881 (230), DEC VT52 and VT100 (via cartridge)

\* ADDS Viewpoint is a registered trademark of Applied Digital Data Systems, Inc.; Hazeltine 1500 is a registered trademark of Hazeltine Corp.; Lear Siegler ADM-3A and ADM-5 are registered trademarks of Lear Siegler, Inc.; TeleVideo 910 is a registered trademark of TeleVideo Systems, Inc.; DEC VT52 and VT100 are registered trademarks of Digital Equipment Corporation.

#### DESCRIPTION

##### IBM 316X DISPLAY FAMILY DESCRIPTION

The IBM 3161 and IBM 3163 Models 11 and 12 are general-purpose ASCII displays that provide a wide range of functions and communicate using the ASCII/ISO communication codes. The 3161 and 3163 are composed of a high-quality 12-inch monochrome display with a tilt and swivel pedestal, a 102-key low-profile keyboard that is specifically designed for use with ASCII systems, and a logic element that can accommodate an optional cartridge. The 3161 and 3163 are designed to attach to both IBM and non-IBM systems. For IBM systems, 3101 emulation is either operator- or software-selectable and is included in the 3161 and 3163 base logic. For non-IBM systems, five emulations are available in the base logic of the 3161 (ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM-3A and ADM-5, and TeleVideo 910) and two emulations via the same cartridge for the 3163 (DEC VT52 and VT100).

The IBM 3161 is a high-function, entry-level ASCII display. It offers such advanced functions as menu setup, definable function keys, split screen, and character and field attributes. The display

provides brightness and contrast control knobs on a green phosphor, antiglare screen that is 25 lines by 80 characters wide (the 25th line is an indicator row). The keyboard layout is compatible with most ASCII display keyboards and is attached to the logic unit via a coiled cable. The keyboard provides tactile feedback to the operator, selectable tilt angle, and a numeric keypad. The logic element provides multiple options for communication, such as line speed, XON/XOFF, and operating modes. The operator may select 3161 native mode, 3101 mode, or one of the five non-IBM entry-level ASCII emulators. An auxiliary port allows the attachment of an ASCII printer.

The IBM 3163 is an advanced editing display that provides sophisticated features, such as multiple screen viewports, partitioning, and paging, as well as many advanced screen characteristics, such as smooth scroll and double high/double wide characters. It consists of a keyboard, a display, a logic element, and an optional cartridge.

The IBM 316X display family offers capabilities not generally available in ASCII terminals. All models have provisions for an optional cartridge that alters the personality of the terminal. Other features on the 3163 include a 7,680-character buffer that may be divided into partitions (maximum of three), each of which may be longer and wider than the viewing area; block error checking; and a redefinable, recappable keyboard. In addition, all models of the 316X family are designed with IBM quality with excellent screen characteristics and tactile feedback on the keyboard.

The IBM 3161 and IBM 3163 are each offered in two models:

- o 3161 Model 11 - RS232C interface
- o 3161 Model 12 - RS232C/RS422A operator-selectable interface
- o 3163 Model 11 - RS232C interface
- o 3163 Model 12 - RS232C/RS422A operator-selectable interface.

#### IBM 316X DISPLAY FAMILY FUNCTIONS

**MENU SETUP:** Communication options for both the main and auxiliary ports are easily modified by the operator. Pressing the SETUP key on the keyboard provides a full-screen display of the current settings. To change a value, the operator simply advances the cursor to the chosen field and presses the space bar until the desired value

appears. Such communication options as line speed, parity, number of stop bits, word length, and turnaround characters are on the menu, along with the operating options, such as native/emulation modes and character/block modes. All setup data will be retained when power is turned off.

**DEFINABLE FUNCTION KEYS:** The 24 function keys (F1 through F24) may have data 'defined' to them by either the operator or a host program to assist in entering frequently keyed information. Any function key can be set to a character string, and subsequent pressing of that key will simulate the operator's entering of that character string. (This is similar to the PLAY/RECORD feature on the 3180 and 3270 PC.) Each key may be set to a maximum of 32 characters (64 for the 3163). The sum of all the key strings may be a maximum of 128 characters (256 bytes for the 3163). All values are stored in nonvolatile memory, so they are saved when power is turned off.

**CHARACTER AND BLOCK MODE ATTRIBUTES:** Attributes that control the visual presentation of characters (underline, reverse video, nondisplay, blinking, and dual intensity) are available. There are three types of attributes: field, character, and line. Field attributes provide control in a manner similar to the 3270 and are available in block mode only. A field attribute occupies a screen and buffer position and affects all characters in a field. Character attributes may be used in both block and character modes. A character attribute does not take up a screen or buffer position, and is in

effect for all subsequent characters sent to the display until the next character attribute is sent. Double high/double wide characters (IBM 3163 only) are provided via a line attribute, which is in effect for a line of the screen.

**LINE DRAWING CHARACTERS:** Twenty-four line drawing characters are available for creating continuous lines on the display. These characters use the entire 8 x 16 cell of each screen position, and are invoked by host command or operator action. All 24 characters are represented on the numeric keypad for easy access. An example of the use of these characters would be a grid or table that has horizontal and vertical rows or an organization hierarchy with each position

contained in a box.

CRT SAVER: A timer is provided that "blanks" or "dims" the display if there has been no keystroke activity or no data transfer from the host for an operator-specified amount of time (similar to the 3180 "screen dimming" function). During menu setup, the operator may choose this time to be 5, 10, or 15 minutes or "none" (the screen will never dim).

TERMINAL EMULATION: Models of the 3161 and 3163 provide for a wide range of emulations of competitive terminals as well as of the IBM 3101. The IBM 3161 provides in the base box emulations of the IBM 3101 Model 881, ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM-3A and ADM-5, and TeleVideo 910 terminals. Switching among these emulation models and the native 3161 mode is accomplished via menu setup or host software commands. The IBM 3163 provides IBM 3101 Model 881 emulation, and an optional cartridge is available on the 3163 to emulate the DEC VT52 and VT100. The DEC cartridge must be removed to access the other modes.

HOST ATTACHMENT: Both the 3161 and 3163 attach to a wide variety of IBM and non-IBM hosts via the main communications port with one of two interfaces. The IBM 3161 Model 11 and the IBM 3163 Model 11 provide an RS232C interface for the main port, while the 3161 Model 12 and 3163 Model 12 have a menu option to select RS232C or RS422A. The main communications port has a selectable transmission rate from 50 bps to 19,200 bps, inbound and outbound XON/XOFF pacing (inbound pacing is the default and not selectable for the 3161), and echo/character/block modes, and supports 7- or 8-bit word length and non/odd/even/mark and space for parity. It allows full- and half-duplex communication to a host. The RS232C communications cable may be up to 40 feet long, and the attachment may be direct or via a modem. The RS422A interface supports a point-to-point direct coupling with a maximum cable length of 4,000 feet.

AUXILIARY PORT: This RS232C port can be used on the 3161 for attaching another asynchronous ASCII device such as an ASCII printer. On the 3163, the auxiliary port is enhanced with a bidirectional

capability. This allows the attachment of output devices, such as a printer, as well as input devices, such as wands and other ASCII terminals. Transmission rates from 50 bps to 19,200 bps are selectable independent of the main communications port speed settings on both the 3161 and 3163.

**SPLIT SCREEN:** The 3161 supports the ability of a host program to divide the screen (1,920 characters) into three horizontal screen areas or 'viewports.' The host program may define the height of each area or 'viewports.' The host program may define the height of each area and send data to and receive data from each of them. The operator has the capability of remaining within the current viewport set by the host program or 'jumping' to the next one. A possible use set by the host program or 'jumping' to the next one. A possible use of the split-screen facility would be the creation of a master program that assigns each viewport to a different application for the operator.

#### IBM 3163 ENHANCED FUNCTIONS

**SMOOTH SCROLLING:** This feature allows the terminal to move smoothly, upward and downward, the data displayed on the CRT. The data is rolled one picture element at a time, so that the movement looks continuous, rather than 'jumping' a line at a time up the screen. continuous, rather than 'jumping' a line at a time up the screen.

**VIEWPORTS, PAGING, AND PARTITIONING:** This 3163 facility is an expansion of the 3161 split-screen function. The 3163 has a data buffer that is four times the size of the 3161 buffer (7,680 characters vs. 1,920 characters). Since this is more data than can be displayed on the CRT, each of the three split-screen areas or 'viewports' displays a portion of the data buffer. The operator may 'viewports' displays a portion of the data buffer. The operator may pan across sections of the data from the buffer in these screen areas. A more detailed explanation of the terminology and available functions follows:

- o **Horizontal and Vertical Viewports:** Each screen area is called a 'viewport' since it displays a "view" into the data buffer. The 'viewport' since it displays a "view" into the data buffer. The 3163 viewports may be both horizontal and vertical screen areas, compared to the 3161, which has all horizontal screen areas.

There is a maximum of two adjacent viewports on the screen. Data in the viewports may be viewed by moving vertically and horizontally using the scroll keys.

- o Partitioning: The three screen viewports look into three corresponding areas in the data buffer, called 'partitions.' Partitions may be up to 255 characters by 255 characters, and may not overlap in the data buffer. The sum of the three partitions must be less than or equal to the size of the data buffer (7,680 characters).
- o Paging: Data in a partition may be organized into a maximum of four 'pages.' This gives the operator the ability to "jump" to different sections or pages of the data, which may be formatted differently.

DOUBLE HIGH/DOUBLE WIDE CHARACTERS: A line attribute may be used to control the following characteristics of each line of a screen area or partition: single high/single wide, single high/double wide, double high/single wide, double high/double wide. These characters can be used as another means of highlighting important information. Only viewports that are 80 columns wide may use this feature.

REDEFINABLE KEYBOARD: The following functions are provided for all the single unit keys except the keys in the typewriter input area:

- o Swap - To exchange the locations of two function keys
- o Copy - To copy a function from one key to another
- o Delete - To delete a function from the keyboard
- o Default - To return the functions of all keys to the default
- o Check - To check the key function.

BLOCK LRC ERROR CHECK: The IBM 3163 has the ability to generate and check the longitudinal redundancy check character at the end of block mode data transmission. This capability allows increased data integrity for this asynchronous terminal.

HOST-LOADABLE CHARACTER SET: A user may define his own special characters or graphics symbols within the 8 x 16 character cells.

Examples of special characters include foreign language letters, mathematical and scientific symbols, and special fonts such as bold and italics. Up to 94 characters may be loaded and accessed.



Characters are loaded under program control and accessed for display through programming or operator control.

**ADVANCED EDITING FIELD ATTRIBUTES:** These attributes are used to reduce user programming and host workload by performing the editing at the terminal.

- o **Right Justify with Zero or Blank Fill:** When the cursor exits this field, all data characters are right-justified and the left portion of the field is filled.
- o **Must-Enter:** This field must be modified before transmission can occur. The terminal performs a test to verify that all must-enter fields have been filled when the operator attempts to send the data to the host.
- o **Must-Fill:** If this field is modified by the operator, it must be completely filled before the operator can move the cursor out of the field. This feature can be used to edit fixed-length fields (such as social security number) at the terminal.
- o **Auto-Send:** This field is transmitted to the host as soon as the operator modifies it and moves the cursor out of the field.

**HOST ACCESS TO THE INDICATOR ROW:** A host message may be written to an 80-character terminal buffer. The contents of the message sent from the host to this buffer are displayed in the Operator Information Area (25th row) by operator or host control.

#### PUBLICATIONS

- o IBM 3161/3163 ASCII Display Station Setup Instructions (GA18-2312)
- o IBM 3161/3163 ASCII Display Station Operator Reference and Problem Solving Guide (GA18-2311)
- o IBM 3161/3163 ASCII Display Station Description Manual (GA18-2310)
- o IBM 3161/3163 ASCII Display Station Repair Center Maintenance Information (SY18-2118)
- o Using the IBM 3163 ASCII Display Station to Emulate the DEC VT100/52 (GA18-2313)

#### SCHEDULE

First customer shipments of the IBM 3161 and IBM 3163 are planned for July 1985.

## TECHNICAL INFORMATION

## SPECIFIED OPERATING ENVIRONMENT

**SOFTWARE SUPPORT:** The 3161 and 3163 are supported in 3101 emulation mode by IBM hosts that currently support the IBM 3101 Model 881 or 3101 Model 230, and in native mode by IBM hosts that support the CPT-TWX 33/35 ASCII protocols. They are supported by the current levels of DOS/VSE, OS/VS1, MVS/370, Multiple Virtual Storage/Extended Architecture (MVS/XA), Virtual Machine/System Product (VM/SP), and VM/SP HPO for the System 370, 30XX, and 4300 processors. They are also supported by the current levels of the Series/1 EDX and RPS operating systems. In nonemulation mode, the 316X generates an ANSI X3.4 data stream.

**SYSTEMS ATTACHMENT:** The 3161 and 3163 attach to hosts via a main communications port that supports RS232C (Model 11s) or RS232C and RS422A (Model 12s). This may be a direct host attachment (as on the Series/1) or a TP/modem attachment (as on a dial-up connection to a System/370). As an alternative to a modem attachment, the 3161 and 3163 may be directly connected to a ROLM CBX (private branch exchange) at speeds up to 19.2K bps through one of the following devices (RS232C interface): Rolmphone DataCom Module (DCM); Data Terminal Interface (DTI); rack-mounted version of the DCM or DTI.

**SERIES/1 PROGRAMMING SUPPORT:** Series/1 support of the IBM 3161 and IBM 3163 ASCII Display Stations is provided in 3101 emulation mode by the current versions of the following licensed programs:

- o Realtime Programming System
- o Event Driven Executive (EDX)
- o Communications Manager (CM)
- o Communications Facility (CF)
- o Transaction Processing System (TPS)
- o Series/1 Input/Output Executive (IOX).

**SERIES/1 ATTACHMENT:** The 3161 and 3163 ASCII Display Stations attach directly to the IBM Series/1 using either the RS232C interface or RS422A interface, or TP attach via modems using the RS232C interface. The display stations attach to the IBM Series/1 5170 System Unit Model 495 six-port terminal/host attachment card using either the RS232C or RS422A interface, or to the serial/parallel adapter using the RS232C interface. The displays also attach to the IBM Series/1

4950 System Unit four-port terminal/host attachment card using the RS422A interface or the asynchronous communications adapter using the RS232C interface.

**IBM 8100 PROGRAMMING SUPPORT AND ATTACHMENT:** IBM 8100 support for the IBM 3161 and IBM 3163 ASCII Display Stations is provided in 3101 emulation mode by the current versions of the DPCX and DPPX operating systems. For direct connection, the 3-meter (10-foot) modem cable must be used and the 8100 direct connect cable cannot exceed 9.1 meters (30 feet), for a total cable length of 12.2 meters (40 feet). Also, the 8100 EIA interface has speeds up to 9,600 bps.

**SYSTEM 88 PROGRAMMING SUPPORT:** System 88 support of the IBM 3161 and IBM 3163 ASCII Display Stations is provided in character mode by the current versions of the following licensed programs:

- o System 88 Operating System
- o System 88 3270 Emulation
- o System 88 Transaction Processing
- o System 88 High Level Languages (COBOL, FORTRAN, PL/I, Pascal, BASIC).

**SYSTEM 88 ATTACHMENT:** The IBM 3161 and IBM 3163 ASCII Display Stations attach to the IBM System 88 using the RS232C interface. The display stations attach to the IBM System 88 4575 Model 20 and to the 4576 Model 40 and Model 60 using the Direct Connect Line Adapter (#1202) or the Full Modem Line Adapter (#1201) on the System 88.

**PRINTERS:** The 3161 and 3163 have an auxiliary port that can connect an ASCII printer over an RS232C direct connection. A print key allows local printing of the screen, while software commands allow remote printing from a host. For example, the recently announced IBM 4201 Proprinter may attach via its serial interface to the IBM 3161 and IBM 3163 for direct printing of text-oriented screens (or graphics and text via host programming).

**IBM 3101 COMPATIBILITY AND MIGRATION:** The 3161 and 3163, when operating in 3101 emulation mode, will accept and generate 3101 Model 881 data streams. There are two methods of placing the 3161 or the 3163 into 3101 emulation mode. The operator may select the 3101 operating mode during menu setup, or a suitably programmed host may send a '3101 mode" command to the 316X. The terminal may then be used send a '3101 mode" command to the 316X. The terminal may then be used

as a 3101 Model 881 or earlier 3101 model (110, 130, 210, or 230).

There are some operational differences in terms of the screen management facilities. The new keyboard has some differences in key nomenclature and key positions. The operator may receive new or different messages. The IBM 3161/3163 ASCII Display Station Description Manual (GA18-2310) documents these differences. It is recommended that current 3101 users refer to this manual for migration planning. Also, see the Limitations section.

#### SECURITY, AUDITABILITY, AND CONTROL

Data security is provided via a nondisplay field control. User management is responsible for evaluation, selection, and implementation of the security and auditability features, for administrative procedures, and for appropriate controls in application systems. If sensitive data is sent over external communication facilities, user management may wish to pursue the application of cryptography. For more information on data security controls, see Data Security Controls and Procedures (G320-5649).

#### PLANNING INFORMATION

**CUSTOMER RESPONSIBILITY:** The 3161 and 3163 are designated as customer setup (CSU) machines. A copy of the IBM 3161/3163 Setup Instructions (GA18-2312), which contain detailed CSU information, will be shipped with each display station.

Customers are responsible for all modifications they make to the 3163 keyboard. Customers are also responsible for handling any necessary keyboard changes in the event of a maintenance action. This means that the customer should remove and save all special keycaps prior to submitting a keyboard to IBM for exchange. The new keyboard IBM returns to the customer will have a standard key layout, which may then be modified by the customer using the same or different keycaps.

**PHYSICAL PLANNING:** See the IBM 3161/3163 Display Station Description Manual (GA18-2310) for detailed physical planning information.

**POWER RATING AND LINE CORD:** Power - 120 V AC, one phase, three wire. Line cord - A 2.8-meter (9-foot) line cord with nonlocking plug is standard. A 1.8-meter (6-foot) line cord with nonlocking plug is available.

**LIMITATIONS:** When using the non-IBM emulators or the IBM 3101

emulation, the unique functions of the native 316X display are not available. You may use only those functions that the emulated device accepts. For example, the IBM 3101 has eight program function keys. When using the IBM 3161/3163 in IBM 3101 emulation mode, only F1 through F8 are available. F9 through F24 are disabled.

The DEC VT52/VT100 emulation cartridge must be removed from the IBM 3163 in order to use the native 3163 mode or the 3101 emulation mode.

Refer to the IBM 3161/3163 ASCII Display Station Description Manual (GA18-2310) and Using the IBM 3163 ASCII Display Station to Emulate the DEC VT100/52 (GA18-2313) for specific operational differences and limitations on the non-IBM emulators.

**PREREQUISITES:** The 3161 and 3163 ASCII Display Stations must be attached to a host that supports the asynchronous ASCII/ISO communications protocol over RS232C or RS422A direct connection, or over a telecommunications line through asynchronous modems.

**PERFORMANCE:** Performance is influenced by a wide variety of factors, many of which are not under IBM's control. However, the IBM 3161 and IBM 3163 do offer some performance advantages. Both displays have a high-speed I/O communications port that can communicate at speeds up to 19.2K bps. In comparison, the IBM 3101's maximum communication speed is 9.6K bps. The 7,680-byte buffer in the 3163 allows data to be sent in large "blocks" and then paged through by the user. This could reduce the number of I/Os executed by the host, allowing it to perform better, and could also give the user better response time since the data is already in the terminal.

#### CHARGES, TERMS, AND CONDITIONS

##### TERMS AND CONDITIONS

**CUSTOMER SETUP:** The 3161 and 3163 are customer setup (CSU) machines. The customer setup allowance is one day.

**WARRANTY PERIOD:** Three months.

**WARRANTY SERVICE:** Customer Carry-In Exchange service is included in the purchase of the machine and is provided under the Agreement for Purchase of IBM Machines (Z120-2892) and the Amendment for IBM Service/Exchange Center Services (Z125-3385-01).

WARRANTY OPTIONS: IBM On-Site Exchange and Customer On-Site Exchange are available for the applicable Warranty Option Charge under the IBM Maintenance Agreement and the Amendment for IBM Service/Exchange Center Services.

MAINTENANCE SERVICE: Maintenance service is available under the IBM Maintenance Agreement (Z125-3275) and the Amendment for IBM Service/Exchange Center Services (Z125-3385-01). The following services, as described in the 'Information Bulletin for Customers - services, as described in the 'Information Bulletin for Customers - IBM Service/Exchange Center Services and Associated On-site Services' IBM Service/Exchange Center Services and Associated On-site Services' (G125-3488), are available:

- o IBM On-Site Exchange (IOE)
- o Customer On-Site Exchange (COE)
- o Customer Carry-In Exchange (CCE)
- o Customer Carry-In Repair (CCR).

CSU/CPAR TELEPHONE ASSISTANCE: For customers who are under warranty or maintenance agreements, customer setup (CSU) and customer problem analysis and resolution (CPAR) procedure assistance is available. If the customer has difficulty in completing the CSU or CPAR procedures, the customer may call the Service/Exchange Communication Center (S/ECC), toll-free, on (800) 428-2569 and request assistance in completing the CSU or CPAR procedures. The customer will receive a return telephone call to aid him in completing the procedures.

IBM HOURLY SERVICE: If desired, IBM repairs or replaces defective 316X elements on an IBM hourly service basis. The same procedure as for the Customer Carry-In Repair offering must be followed. An IBM hourly service rate classification applies.

ON-SITE ASSISTANCE: If a customer desires on-site assistance to perform CPAR procedures, he may call the Service/Exchange Communication Center on the toll-free number. IBM will assist the customer in performing on-site CPAR procedures using the same documentation that is available to the customer. All on-site assistance is provided on an IBM hourly service per-call basis at the applicable hourly rates and terms.

IBM HOURLY SERVICE RATE CLASSIFICATION: 1

MACHINE GROUP: A

VOLUME PROCUREMENT AMENDMENT (VPA): For volume orders, the IBM 3101, IBM 3161, and IBM 3163 displays are added to the products qualifying for the VPA discount in Category I of the revised Information Display System VPA Exhibit. The quantity of 3161s and 3163s can be combined with quantities of 3101s for purposes of determining the Category I discount.

CHARGES

		Minimum Warranty Option Charges		
	Model	Purchase Price	IOE (#9799)	COE (#9826)
3161	110	\$ 695	\$55	\$35
3161	120	774	55	35
3163	110	1,095	70	40
3163	120	1,174	70	40

Annual Minimum Maintenance Charges

	Model	IOE (#9830)	COE (#9824)	CCE (#9816)	CCR (#9821)
3161	110	\$65	\$45	\$40	\$35
3161	120	65	45	40	35
3163	110	80	55	50	45
3163	120	80	55	50	45

Machine Element Charges

3161 Machine Elements		Part Number	Purchase Price
Video		6319006	\$290
Keyboard		1386303	180
Logic (Model 11)		6113000	165
Logic (Model 12)		6113001	244
Pedestal		6319013	20
Line Cord-2.8 m (9.0 ft)		6952297	10
Line Cord-1.8 m (6.0 ft)		6952298	10
Video Cable		6165557	30
3163 Machine Elements		Part Number	Purchase Price
Video		6319006	\$290
Keyboard		1386304	200

Logic (Model 11)	6113002	545
Logic (Model 12)	6113003	624
Pedestal	6319013	20
Line Cord-2.8 m (9.0 ft)	6952297	10
Line Cord-1.8 m (6.0 ft)	6952298	10
Video Cable	6165557	30
Cartridge (DEC VT52/100)*	6113006	50

\* Also available via #8103 when ordered with the 3163  
 Accessories

	Part Number	Purchase Price
Clear Keycaps (60) with Paper Inserts	6341707	\$50
Blank Light Keycaps (60)	1351710	25
Blank Dark Keycaps (60)	1351728	25
Paper Inserts (300)	6341704	30
Keycap Removal Tools (6)	1351717	11
Modem Cable	6343332	66

Keycaps and Paper Inserts include a removal tool.

Notice to IBM Customers

June 18, 1985

IBM 3161 AND IBM 3163 ASCII DISPLAY STATIONS ANNOUNCED, IBM 3101  
 MODEL 881 WITHDRAWN, AND INFORMATION DISPLAY SYSTEM VOLUME  
 PROCUREMENT AMENDMENT (VPA) EXHIBIT REVISED

The IBM 3161 and IBM 3163 ASCII Display Stations provide improved product function and ergonomics for IBM ASCII displays at a new low price. Each display station contains IBM 3101 Model 881 (Model 230) emulation to provide current 3101 users with a smooth migration path.

WITHDRAWAL FROM MARKETING

Effective September 18, 1985, IBM is withdrawing from marketing the IBM 3101 Model 881 (formerly designated as the Model 230).

IBM's supply of the product being withdrawn is limited. Orders for this product received by IBM before the effective date of withdrawal will be acknowledged on an as-available basis. By no later than one month following the effective date of withdrawal, either



your order will be assigned an IBM estimated shipment date or you will be notified that IBM cannot accept your order.

IBM will honor all orders that have been assigned an estimated shipment date. The estimated shipment date for new orders will be on or before December 31, 1985. If you defer the estimated shipment date of any on-order IBM 3101 Model 881, the order may be cancelled by IBM.

IBM maintenance and other customer engineering services are not affected by this announcement and will continue to be available for these machines.

Current IBM 3101 RPQ models (882, 837, and 834) are not affected by this announcement. IBM will continue to accept new orders and honor on-order delivery dates for these 3101 RPQ models.

These procedures apply to all VPA and special bid customers who have not ordered the withdrawn product from IBM. (The term "order" means that a written request from the customer, including requested shipment dates, has been received by IBM.) Requested delivery dates may be any time within the VPA or special bid contract period.

#### INFORMATION DISPLAY SYSTEM VOLUME PROCUREMENT AMENDMENT

#### EXHIBIT REVISED

The revised Information Display System VPA Exhibit replaces the IBM 3101 and IBM 3102 Machines VPA Exhibit, and has been included for your information. The IBM 3161 and IBM 3163 ASCII Display Stations have been added to the new Category I, along with the remaining IBM 3101 models. Existing VPAs are not affected by the revised Exhibit unless you wish to transfer the Category A machines of your current Exhibit to the revised Exhibit. If you wish to do so, you must notify IBM in writing by September 18, 1985. The terms of the revised Exhibit, including the revised discount schedule, will be applied to all machines shipped on or after the date IBM receives your written notice. If this option is chosen, the following terms apply: (SEE HARD COPY FOR EXHIBIT.)

- o The total quantity commitment of machines in Category I of the VPA (both shipped and unshipped) will be the same as the Category

A commitment under the previous Exhibit.

- o The contract period and commencement date remain unchanged.
- o IBM 3101s shipped under the previous Exhibit will count toward the quantity commitment of the revised Exhibit.

Customers who accept the revised Exhibit may combine quantities of 3163s with quantities of 3101s to determine the applicable purchase discount.

If sufficient additional quantities are ordered to qualify for a higher discount, a supplement for additional quantities must be signed, and all machines shipped on and after the date it is received by IBM, and prior to expiration of the contract period, will receive the higher discount.

If you have any questions regarding this notification, please contact your IBM representative.

#### Customer Acceptance

Please consider this to be our written acceptance of IBM Information Display System Exhibit 3270-12 to our Volume Procurement Amendment. It is understood that this Exhibit will replace the IBM 3101 and 3102 Machines Exhibit in its entirety.

Customer Name:

Authorized Signature:

Date: