



**HEWLETT
PACKARD**

HP 2631B Printer

FEATURES

- High throughput
- Printing versatility
- Forms handling flexibility
- User convenience features
 - long life print head
 - cartridge ribbon
 - display function mode
 - self test
- Variety of interfaces
- High reliability
- High static immunity

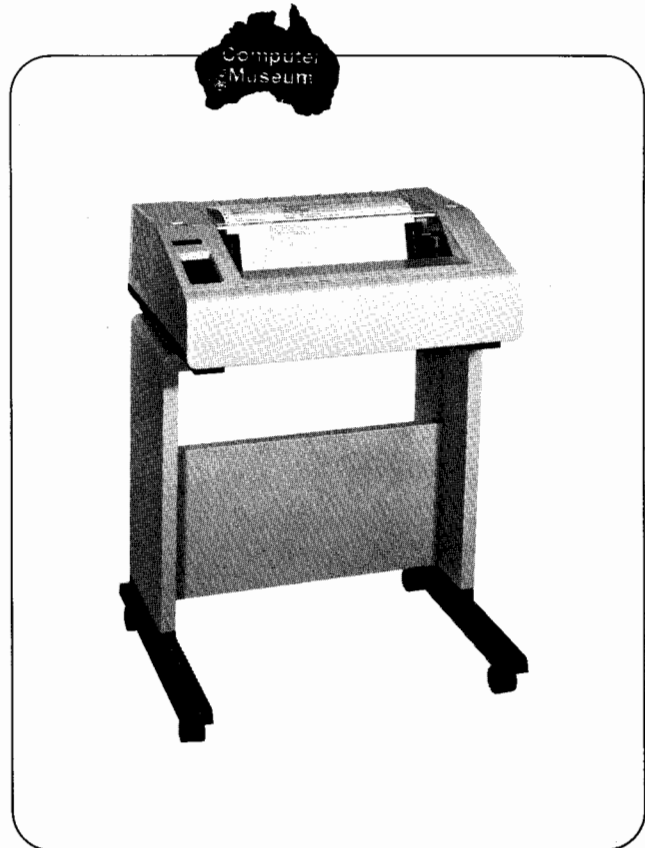
High Throughput

The HP 2631B has a peak print speed of 180 characters per second. Print speed, however, is only one of several factors which affect throughput. The HP 2631B optimizes throughput by printing bi-directionally, suppressing leading and trailing blanks, skipping over embedded blanks and returning the carriage at high speed. The HP 2631B utilizes an HP-developed CMOS/SOS microprocessor to optimize printing functions, data manipulation, and other control functions.

Printing Versatility

The 2631B utilizes a high resolution, four-of-seven wide by nine high dot matrix character cell for crisp, clear character formation. The nine high matrix allows the printing of true descenders on lower case characters and true underlining. The standard 128 USASCII character set allows upper case and lower case, as well as control characters to be printed. In addition, optional character sets are available, including high density sets (printed at 90 CPS) for applications requiring higher quality print. The 2631B can contain two program selectable languages.

To further enhance printing versatility, the 2631B has eight selectable print pitches, from 4.16 characters per inch for titles and headings to 16.67 characters per inch for compressed print which can save paper (*132 characters per line on 8½ inch wide paper*). Twelve programmable line spacings from 1 to 72 lines per inch provide even further flexibility and allow printing of superscripts and subscripts.



Forms Handling Flexibility

The 2631B employs an impact printing technique, allowing the use of single or multi-part forms. The 2631B will typically print on 6 part forms up to .43 mm (.017") thick; however, all multi-part forms and card stock should be tested for satisfactory feeding, registration and print quality, as paper quality can vary significantly. Forms are reliably advanced by adjustable tractors which accommodate form widths as narrow as 31 mm (1.22") perforation to perforation or as wide as 400 mm (15.75") edge to edge.

Page length, defined as the length of the paper being used, can be program selected for any length up to 255 lines. Text length, defined as the maximum printable area on the page, defaults to one inch less than page length or can be program selected for any length less than page length. When automatic perforation skip mode is programmably selected, the 2631B will advance one line until it exceeds the text

2631B

PRINT SAMPLE

16.7
12.5
10.0
8.33

HIGH DENSITY PRINT

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890-=[\|^_!@#%&*()
+^{}|,.<?>

8.33 CHAR/INCH
6.25 CHAR/INCH
5.0 CHAR/INCH
4.16 CHAR/INCH

length, then will automatically skip to the next logical top of form.

Forms may also be advanced using the 2631B's 16 channel electronic vertical format unit. The channel definitions are computed and set based upon the selected page and text length. The channels are computed as follows:

		<i>Line Number</i>
• Channel 1	top of next form (TOF)	1 (first line of text)
• Channel 2	bottom of current text (BOT)	last line of text
• Channel 3	next single space	1,2,3,4,... BOT
• Channel 4	next double space	1,3,5,7,... BOT
• Channel 5	next triple space	1,4,7,10,... BOT
• Channel 6	next half form	1, (BOT/2) + 1
• Channel 7	next quarter form	1, (BOT/4) + 1, (BOT/2) + 1, [3 (BOT/4) + 1]
• Channel 8	next tenth space	1,11,21,31,... BOT
• Channel 9	bottom of current text (BOT)	last line of text
• Channel 10	bottom of text minus one line	line prior the last of text
• Channel 11	top of form minus one line	line prior to first line of text
• Channel 12	top of next form (TOF)	1
• Channel 13	next seventh line	1,8,15,22,... BOT
• Channel 14	next sixth line	1,7,13,19,... BOT
• Channel 15	next fifth line	1,6,11,16,... BOT
• Channel 16	next fourth line	1,5,9,13,... BOT

Tabs (*horizontal and vertical*) and left and right margins may be set, cleared, and accessed through escape sequences embedded in the data stream. These functions may be set at the current head position (or current line), or they may be set at a specified column or line through absolute addressing.

User Convenience

The cartridge ribbon is easily replaced without need to touch the ribbon surface. The cartridge contains approximately 60 yards of ribbon and employs a mobius loop, which continually turns the ribbon over, and a slanted ribbon path to help lengthen the time between cartridge changes. This results in an average ribbon life of 15 million characters.

A switch detects a paper out condition. When paper out is detected, printing is halted and an audible

alarm is sounded. The printer will not resume printing as long as the paper out condition exists. No characters in the data stream are lost when the paper out condition is detected, and the printer is being used in an HP recommended configuration.

The display functions feature provides assistance to programmers during software development. With display functions on, embedded control sequences are printed rather than executed. Carriage return, on-line, off-line and display functions-off are exceptions; they are printed and executed. This feature may be turned on and off via a control panel switch or an embedded escape sequence.

Self-test capability allows the user to verify proper operation of the 2631B and is accessible through a front panel button or an embedded escape sequence.

Variety of Interfaces

A variety of interface options are available with the HP 2631B. The standard interface is full duplex RS-232C/CCITT V.24; it incorporates the following features:

- ENQ/ACK protocol
- X-ON/X-OFF (*DC1/DC3*) protocol
- Printer busy (*buffer full*) signal
- 256 character buffer
- 103 and 212 type modem control
- Baud rates selectable from front panel: 110, 150, 300, 1200, 2400, EXT.
- In EXT position, 15 baud rates up to 9600 baud are selectable on the interface card
- Odd, even or no parity
- 25 pin EIA RS-232C type connector

Available interface options include a TTL parallel interface for use with HP 2640 series CRT terminals, a differential parallel interface for HP 1000 systems, and a Hewlett-Packard interface bus for use with several different HP systems.

High Reliability

Since the first members of the 2630 Family were introduced over two years ago, extensive customer usage has verified the products' high reliability. The 2631B incorporates all the reliability and simplicity of the existing 2630 Family products, plus electronic and mechanical modifications designed to further enhance reliability.

In addition, the 2631B incorporates extensive internal grounding to provide high immunity to electrostatic discharge. The printer can withstand discharges of 15,000 volts* without losing data.

*This product was tested by discharging a 300 picofarad capacitor, charged to -15,000 volts, through a 500 ohm resistor to the product, with the electrostatic source grounded to the safety ground of the products power plug. No guarantee is made or implied that such a discharge would not affect the CPU to which the printer is connected.

SPECIFICATIONS

Printing

- technique: 7 x 9 dot matrix impact
- automatic underlining
- speed: 180 characters per second (*instantaneous*)
- throughput (*see figure 1*)

• print pitch (CPI)	line length (characters)	
16.7	standard character cell	227
12.5	(printed at 180 CPS)	170
10.0		136
8.33		113
8.33	expanded character cell	113
6.25	(printed at 45 CPS)	85
5.0		68
4.16		56

Character Set

- 128 USASCII (standard)

Forms Handling

- forms tractors
- 16 channel computed VFC
- horizontal and vertical tabbing
- programmable left and right margins
- programmable page and text length
- automatic perforation skip
- variable vertical line spacing: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, or 72 lines per inch

Forms Specifications

Paper Widths

- maximum width: 400 mm (15.75") edge to edge
- minimum width: 31 mm (1.22") perforation to perforation

Paper Weights

- single part: 20 to 100 pound
- multi-part**: 12 pound; first and subsequent copies up to six total copies. 7 pound carbon; .43 mm (.017") maximum pack thickness.

Environmental Conditions

Temperature, free space ambient:

-40 to 75C (-40 to 167F) non-operating
10 to 40C (50 to 104F) operating

Humidity:

10% to 90% RH (*non-condensing*)**

**Multi-part forms and card stock should be tested for satisfactory feeding, registration and print quality. If the printer is to be operated under conditions approaching the extremes of the humidity specification, all media should be tested to insure proper handling and stacking.

Power Requirements

Input voltage:

100, 120, 220, 240 volts (+10%, -12%) selectable from rear panel; 48-66 HZ

Power consumption:

140 VA maximum non-printing
265 VA maximum printing

Physical Specifications

469 mm (18.5") D x 640 mm (25.2") W x 215 mm (8.5) H
23.5 Kg (51 lb) net weight (*without pedestal*)
31 Kg (67 lb) ship weight (*without pedestal*)

Safety Compliance

The HP 2631B is listed by Underwriter's Laboratories, Inc. in the following categories with respective guide designations: Electronic Data Processing Equipment (*EMRT*), Teaching and Instruction Equipment (*WYFW*), and Office Appliances and Business Equipment (*QAOT*).

The Canadian Standards Association has certified this printer as Data Processing Equipment.

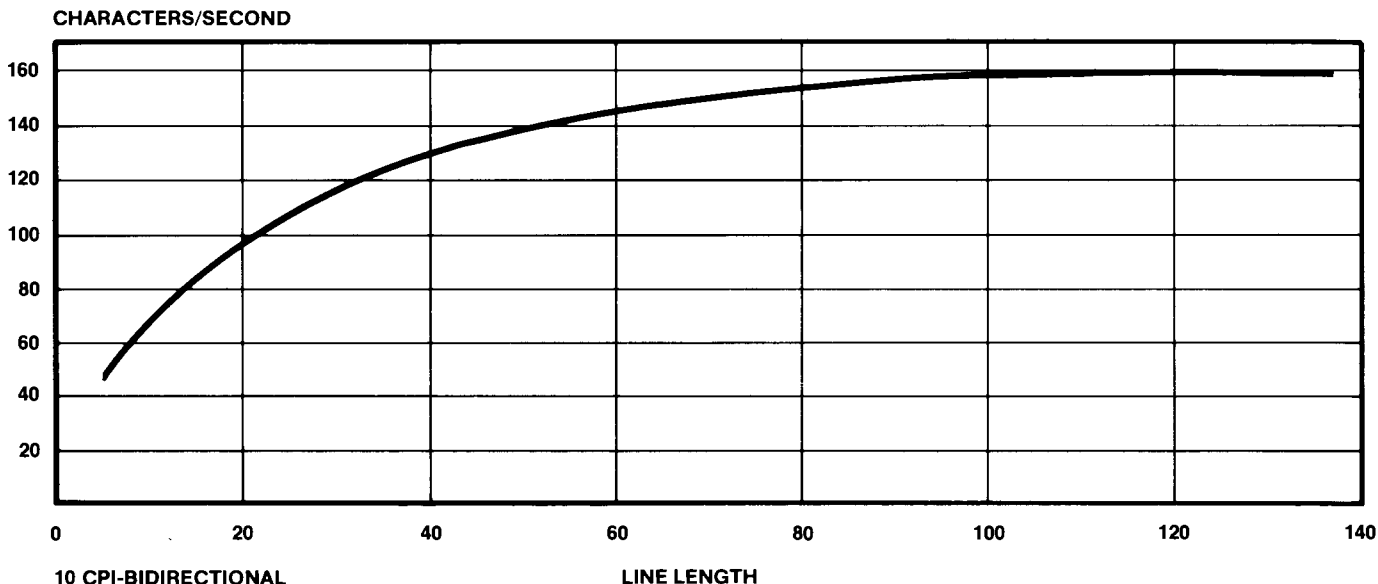
Finally, this product was designed to meet European Safety and RFI/EMC standards for Electronic Data Processing Equipment effective prior to 1 March, 1980. Any questions concerning regulatory agency compliance should be directed to your local Hewlett-Packard Sales Office.

Product Support

System Support:

All programmable features are not supported on all HP systems. Refer to appropriate HP system configuration guide for use and support of the 2631B in HP systems.

TYPICAL 2631B THROUGHPUT



If this product is used in a customer assembled system, the overall operation responsibility for the system rests with the customer.

Warranty: Contact your local HP Sales Office for terms and conditions.

Hardware Supplied:

HP 2631B Printer, cartridge ribbon, cleaning brush, 2.5 mm hex key

Documentation Supplied:

2631B Operator's manual, reference manual, pocket guide

Available Documentation:

2631B Service manual, 2630 Family Parts and Diagrams manual

- 6/8 LPI button and indicators
- Form Feed button
- Line Feed button
- Power On indicator
- Parity, Local Copy, and Baud Rate switches (*serial interfaces only*)

Rear Power Panel

- Power On/Off switch

Rear I/O Adaptor Panel

- Handshake protocol selection switches (*serial interface only*)
- HP-IB address, listen always and service request switches (*HP-IB interface only*)

Manual Paper Advance Knob

Forms thickness lever

Installation

In many cases product preparation can be performed by the user. Refer to the Operator's manual supplied for detailed instructions. HP assistance for installation is available upon request and at prevailing rates.

Control and Indicators

Control Panel

- Print pitch switch: 5, 8.3, 10, 16.7 CPI (*sets default value*)
- Line spacing switch: 6/8 lines per inch (*sets default value*)
- Page length switch (*sets default value*)
- Perforation skip enable/disable switch (*sets default value*)
- Self Test button
- Reset button
- Display Functions button and indicator
- On Line/Off Line button and indicator

ORDERING INFORMATION

2631B

180 character per second printer, RS232C/CCITT V.24 interface and 12.5 foot modem cable. 120 volts, 48-66 HZ, 128 USASCII character set. Only one secondary character set may be ordered.

- 001 Adds Swedish/Finnish character set
- 002 Adds Norwegian/Danish character set
- 003 Adds French character set
- 004 Adds German character set
- 005 Adds U.K. character set
- 006 Adds Spanish character set
- 007 Adds Cyrillic character set
- 008 Replace standard with Japanese ASCII/Katakana character set

- 009 Adds Roman Extension set
- 010 Adds Math set
- 015 220 V, 48-66 HZ
- 016 100 V, 48-66 HZ
- 017 240 V, 48-66 HZ
- 019 Delete USASCII character set (*one of option 001-007, 010 or 020-026 must be ordered as primary set*)
- 020 Adds USASCII high density
- 021 Adds Swedish/Finnish high density
- 022 Adds Norwegian/Danish high density
- 023 Adds French high density
- 024 Adds German high density
- 025 Adds U.K. high density
- 026 Adds Spanish high density
- 028 Replace USASCII with JASCII/Katakana high density
- 029 Adds Roman Extension high density
- 044 Replace standard I/F with 8-bit TTL. No cable.
- 046 Replace standard I/F with HP-IB. No cable.
- 050 Replace standard I/F with differential parallel. No cable.
- 051 Same as standard except PC edge connector replaces RS232C connector. No cable.
- 068 Ribbon starter kit (*3 ribbons*)

Accessories:

- 26090A Sound abatement cover.
- 26093A Paper basket. Cannot be used with 26097A.
- 26097A Pedestal for 2631B. Includes casters.
 - 002 Adds paper catcher.

Operating Supplies

- Print head 92154A
- Ribbon cartridge 92155A (*package of three*)



For more information, call your local HP Sales Office or nearest Regional Office: Eastern (301) 258-2000; Midwestern (312) 255-9800; Southern (404) 955-1500; Western (213) 877-1282; Canadian (416) 678-9430. Ask the operator for computer sales. Or write Hewlett-Packard, 1501 Page Mill Road, Palo Alto, CA 94304. In Europe: Hewlett-Packard S.A., 7, rue du Bois-du-Lan, P.O. Box, CH 1217 Meyrin 2, Geneva, Switzerland. In Japan: Yokogawa-Hewlett-Packard Ltd., 29-21, Takaido-Higashi 3-chome, Suginami-ku, Tokyo 168.