



**HEWLETT  
PACKARD**

## HP 2631G Graphics Printer



### FEATURES

- **Graphics Printing**
  - Raster Data Format
  - 72 x 72 Dots/Inch Resolution
  - Two 976 Byte Input Buffers
  - Standard Paper
- **Alphanumeric Printing**
  - High Throughput
  - 7 x 9 Character Formation
  - 128 USASCII Character Set
  - Multiple Optional Character Sets
  - Optional High Density Print
  - Four Selectable Vertical Spacings
  - Horizontal Tabs
  - Automatic Underscore
  - Display Functions Mode
- **Forms Handling**
  - Single or Multi-part Paper
  - Adjustable Tractor Feed
  - Selectable Page/Text Length
  - Automatic Perforation Skip
  - 8 Channel VFC
  - Paper Out Detection
- **User Features**
  - Long Life Ballistic Print Head
  - Quick Change Cartridge Ribbon
  - Self Test
  - Table Top or Pedestal Mount

### Graphics Printing

The 2631G combines the capabilities of a high performance serial printer with the ability to print raster data format graphics. With its 72 x 72 dots per inch graphics resolution, the 2631G is ideally suited for medium resolution graphics such as business, general scientific, and engineering data. The 2631G can reproduce the graphics memory of the HP 2647A and 2648A CRT to create a 10" x 5" graphics picture. Since it requires no special paper, the cost per graphics copy is minimal and the copy will not fade. To maximize graphics throughput, dual input buffers allow the 2631G to accept data while printing. In addition, all leading and trailing blank graphics data is automatically deleted. These throughput enhancements allow a typical graph to be printed in about 50 seconds.



### Alphanumeric Printing

As an alphanumeric printer, the 2631G has excellent throughput and printing versatility. The print speed is 180 cps (*instantaneous*). Throughput is optimized by employing smart bidirectional printing (*in which the shortest printing path is followed*), deleting all leading and trailing blanks, and skipping at high speed (*350 cps*) over embedded blanks and horizontal tabs.

For printing versatility the 2631G uses a high resolution seven column by nine row half dot shift matrix character formation. This allows clear character formation for excellent print quality. In addition, it allows the 2631G to print descenders on lower case characters and a true underline. An optional high density character set allows printing a full 7 x 9 dot matrix (*90 cps*) for applications requiring higher quality print. The 128 USASCII character set allows upper case and lower case, and control characters (*when in display functions mode*) to be printed. The 2631G can contain several program selectable languages.

To further enhance printing versatility, the 2631G has four selectable print widths: 5 and 7.2 characters per inch for titles and headings; 10 characters per inch for standard size text; and 14.4 characters per inch for compressed printing. Compressed print allows 196 columns of print per line on standard

## 2631G ALPHANUMERIC PRINT SAMPLE

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ABCDEFGHIJKLMN0PQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
0123456789,./;:|@!_-^~\!"#$%&'()*0=~/\`{#+*}<>?@#%&'()*0123456789
!@#%&'()*0123456789
!@#%&'()*0123456789
NORMAL PRINT (10 CHARACTERS PER INCH)
COMPRESSED PRINT (14.4 CHARACTERS PER INCH)
EXPANDED PRINT (7.2 CHARACTERS PER INCH)
EXPANDED PRINT (5 CHARS PER INCH)
    
```

computer paper or 110 columns on 8½ inch paper. Programmable line spacings at 1, 2, 3, 4, 6, 8, or 12 lines per inch also enhance printing versatility and allow printing of superscripts and subscripts.

### Forms Handling

The 2631G employs an impact printing technique allowing single or multi-part forms. The 2631G will typically print on 6 part forms of 12 pound paper with 7 pound carbons interleaved. However, all multi-part forms should be tested as paper quality can vary significantly. Forms are advanced reliably by adjustable forms tractors which allow form widths from 1.25 inches to 15.75 inches. 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 program selected, the 2631G will advance the commanded distance until it exceeds the bottom of the defined text area, then will automatically skip to the next top of page.

Alternatively, forms may be advanced using the 2631G's 8 channel electronic Vertical Format Control. The 8 channels are automatically computed and set using the above selectable page and text length. This is stored in random access memory so there is no paper tape or paper tape reader to worry about. The 8 channels are computed as follows:

CHANNEL	DESCRIPTION	LINE NUMBER
Channel 1	Top Of Next Page (TOP)	0
Channel 2	Bottom of Current Text (BOT)	BOT
Channel 3	Single Space	0, 1, 2, ...
Channel 4	Next Double Space	0, 2, 4, ...
Channel 5	Next Triple Space	0, 3, 6, ...
Channel 6	Next Half Page	0, BOT/2
Channel 7	Next Quarter Page	0, BOT/4 ... 3 BOT/4
Channel 8	Next Tenth Space	0, 10, 20, ...

A switch detects the Paper Out condition. When Paper Out is detected, printing is halted and an audible alarm is sounded. The printer will not go "on line" as long as the Paper Out condition exists. No

characters in the data stream are lost when Paper Out condition is detected.

### User Features

The nine-wire ballistic print head used in the 2631G provides clear, consistent print on up to six part forms. The average life of the print head is 130 million ASCII characters, making replacement an infrequent task. However, when replacement is required, the head is easily replaced.

The cartridge ribbon is also easily replaced without need to touch the ribbon surface. The cartridge contains approximately 60 yards of ribbon in a mobius loop, which automatically turns the ribbon over. The ribbon path is slanted to allow maximum use of the ribbon surface. This allows an average of 15 million ASCII characters to be printed without changing the ribbon.

To verify proper operation of the 2631G, a self test capability has been included. Initiated by a button on the front panel or via program control, it causes the unit to check its internal electronics, then print the full character set, a line of the compressed and both expanded print modes, and a line of graphics output. This test will allow the user to quickly determine if the 2631G is operating properly. If a failure occurs, internal LED's will read out an error code to isolate the problem.

## SPECIFICATIONS

### Printing

- technique: 7 x 9 dot matrix, impact
- speed: 180 cps (*bidirectional at 10 or 14.4 cpi*)
- line length: up to 136 characters/line (*at 10 cpi*)
- 68 characters/line (*at 5 cpi*)
- 98 characters/line (*at 7.2 cpi*)
- 196 characters/line (*at 14.4 cpi*)

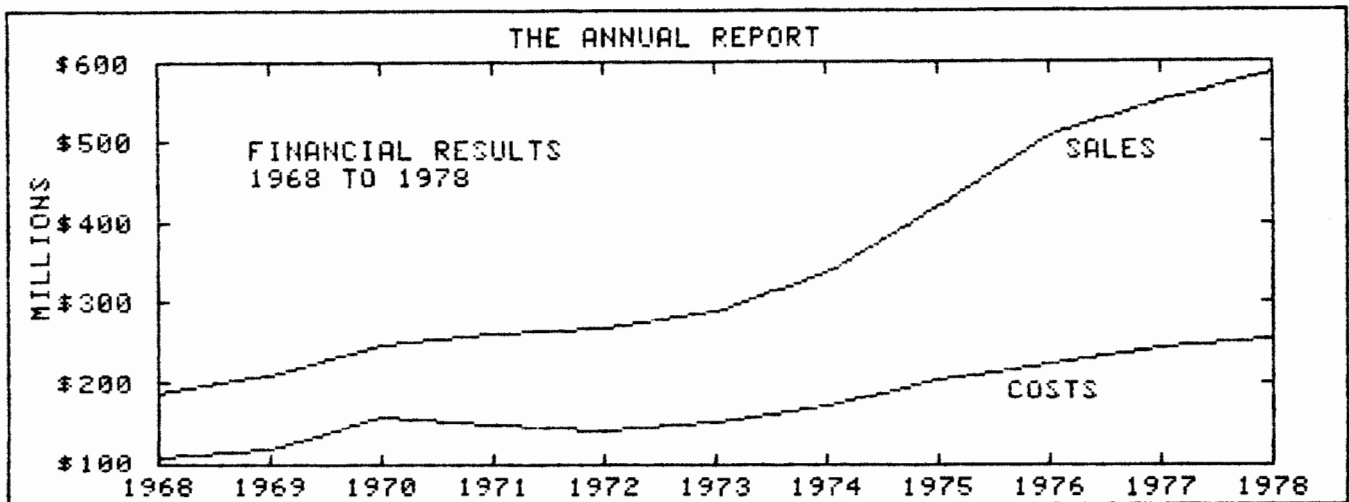
### Graphics Resolution

- 72 x 72 dots/inch

### Graphics Accuracy

Dot placement accuracy is + .010 inch when using 24-pound bond (.004 to .005 inch thickness) paper, fed through the bottom paper slot.

## 2631G GRAPHIC SAMPLE



### Character Set

- 128 USASCII character set

### Forms Handling

- forms tractors (*adjustable*)
- 8 channel VFC
- horizontal tabbing (*up to 196 positions*)
- variable horizontal and vertical pitch
- program selectable page length
- program selectable text length
- program selectable automatic perforation skip mode
- end of line wrap around

### Interfacing

- IEEE 488-1975 (HP-IB)

### Power Requirements

- Input Voltage  
100, 120, 220, 240 volts AC (+10%, -12%)  
selectable from rear panel. 48-66 Hz
- Power Consumption  
140 VA max non-printing  
265 VA max printing

### Environmental Conditions

- Temperature, free space ambient  
-40° to 75° (-40° to 167° F) non-operating  
10° to 40° C (50° to 104° F) operating
- Humidity:  
10% to 90% RH (*non-condensing*)  
Forms should be tried at high humidity for satisfactory feeding and handling; and at low humidity to determine if static buildup must be eliminated for proper stacking.

### High Static Immunity

The 2631G incorporates extensive internal grounding to provide high immunity to electrostatic discharge.

### Physical Specifications

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

### Product Safety

This product is Listed by Underwriter's Laboratories Inc., in the following categories:

- Electronic Data Processing Equipment (*EMRT*)
- Office Appliances and Business Equipment (*QAOT*)
- Teaching and Instruction Equipment (*WYFW*)

It is also certified by the Canadian Standards Association as Data Processing Equipment.

This product was designed to meet European Safety and RFI/EMC standards for Electronic Data Processing Equipment effective prior to June 1, 1979. Any questions concerning regulatory agency compliance should be directed to your local Hewlett-Packard Sales Office.

### Product Support

- System Support:  
The 2631G is not supported on all HP systems. Refer to appropriate HP system configuration guide for use and support of the 2631G in HP systems.

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

brush, 2.55mm hex key

- Documentation supplied:  
2631G Operator's Manual, 2631G Technical Reference Manual
- Available documentation:  
2630 Family Service Manual

## Installation

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

## HP CONFIGURATION GUIDE

### HP 2647A

Requires shared peripheral interface 13296A in the 2647A. Copies alphanumeric memory (*below cursor*) or full graphics memory only. Cannot copy both simultaneously. ASCII data may be passed through CRT to printer without being placed into CRT memory. Maximum graph size is limited to size of CRT screen (10" x 5").

### HP 2648A

Requires Integrated Dual Cartridge Tapes (2648A-007) or Device Control Firmware (13261A-003), and Shared Peripheral Interface 13296A in 2648A. Copies alphanumeric memory (*below cursor*) or full graphics memory only. Cannot copy both simultaneously. Cannot copy escape sequences directly from display when display enhancements are used; however, ASCII data, including escape sequences, may be passed through CRT to printer without being placed into CRT memory. Maximum graph size is limited to size of CRT screen (10" x 5").

### HP 9826A/9836A

HP-IB standard on the host. Requires 10833 cable.

### HP 9835A

Requires 98034A opt. 335 HP-IB Interface.

## ORDERING INFORMATION

### 2631G

- 180 cps (*instantaneous*) printer
- Graphics capability
- 128 USASCII character set
- HP-IB I/F (2647A/2648A compatible)
- Operator's Manual, Technical Reference Manual
- Ribbon cartridge
- 2.55mm Hex key, Cleaning Brush
- Power cord

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—Adds Katakana Character Set

009—Adds Roman Extension Character Set

010—Adds Math Character Set

011—Adds Line Draw Character Set

012—Adds High Density Print Character Set

015—220V 48-62Hz

016—100V 48-62Hz

017—240V 48-62Hz

200—Factory Data Printer

Provides bar code, mark sense, and line draw capability

715—Service Documentation

26097A—Stand for 2631G (*includes casters and paper shelf*)

#### Operating Supplies

Ribbon Cartridge—92155A (*package of 3*)

Note: Options 001 through 006 and 009 are all contained on one ROM. All other character sets should be ordered on an individual basis. A total of three ROM's can be ordered with each printer.