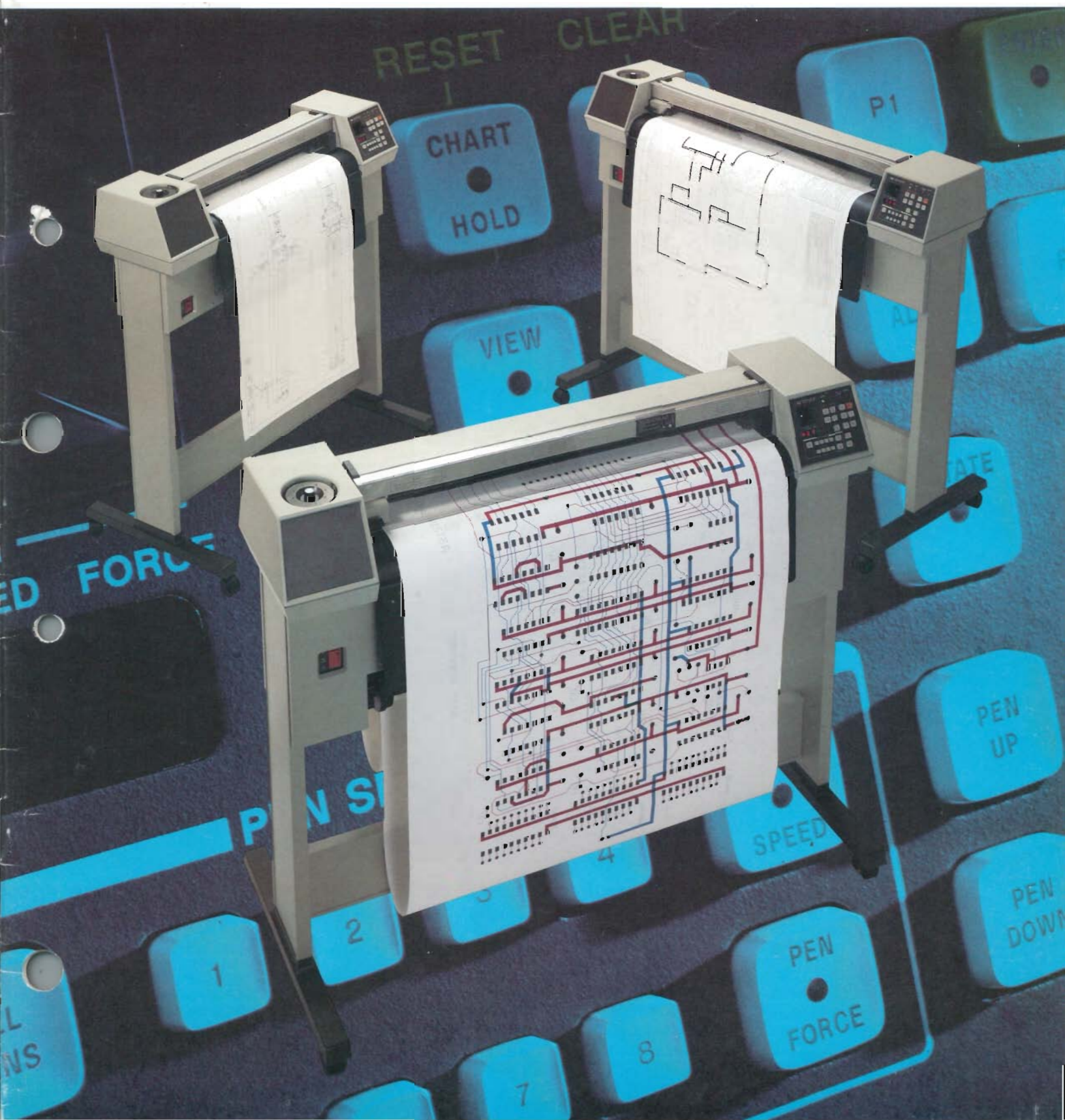


A Complete Family of HP Drafting Plotters



TECHNICAL DATA, FEBRUARY 1984

- HP 7580B A1/D-size model for sheet media
- HP 7585B A0/E-size model for sheet media
- HP 7586B A0/E-size model for sheet and roll media



A complete solution for your drafting needs



HP Computer Museum
www.hpmuseum.net

For research and education purposes only.



Plotters you can buy with confidence

Just three years ago, Hewlett-Packard revolutionized the drafting plotter market with the HP 7580A. The plotter's innovative paper-moving technology, superior performance, and low price established HP as a leader in large plotter design.

Today, HP drafting plotters are industry standards for two simple reasons: quality shows in every detail of HP plotters, and we offer you this quality at prices you can afford. That's a combination that builds confidence!

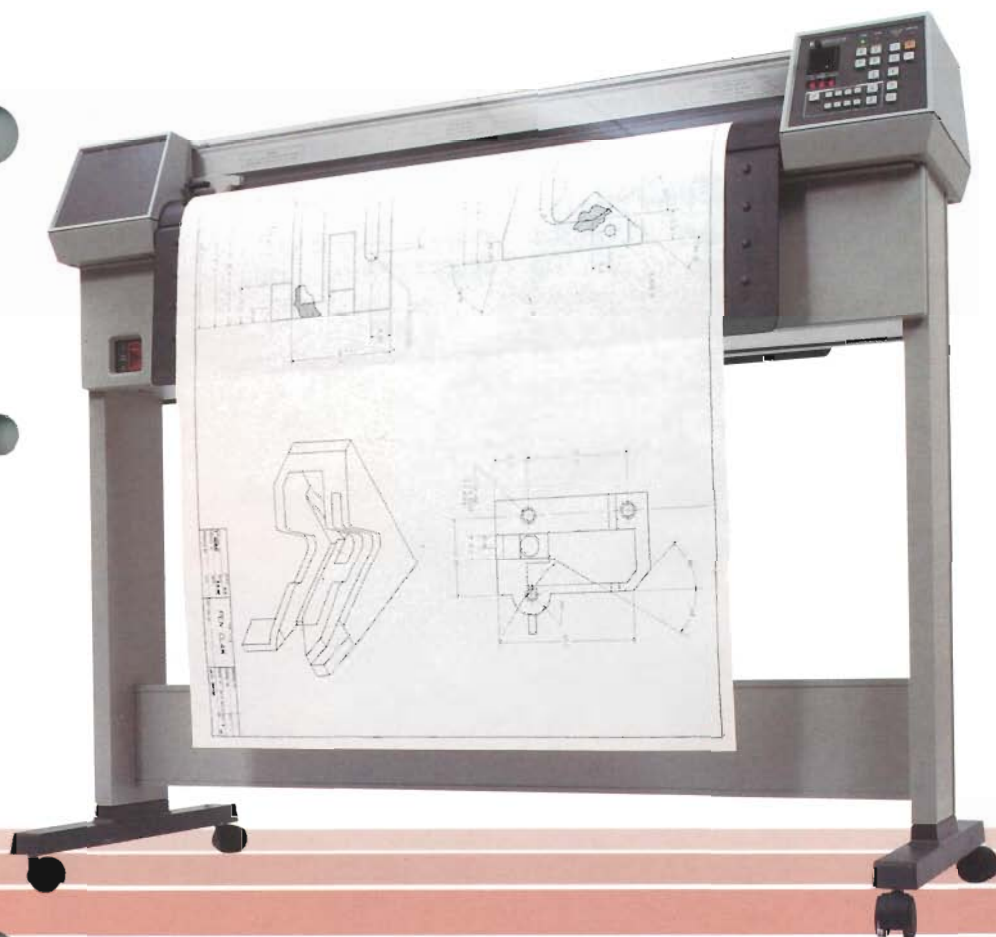
A plotter made to fit your needs

Whenever you need large, visually perfect drawings, you'll find an HP drafting plotter suited to your application. Hewlett-Packard offers you a choice of three models.

When price is a prime consideration, the HP 7580B is a cost-effective solution for single sheet plots in sizes up to A1/D. When you need larger A0/E-size plots, add the HP 7585B to your system.

And now, to provide you with a complete selection, HP offers the HP 7586B A0/E-size plotter for both single sheet and roll media plotting. Designed for high volume, continuous feed, and long axis plotting, the HP 7586B is a truly versatile solution for all your drafting plotter requirements.

Take a look at the features described on the following pages — you'll see how all the details work together to ensure fast, high-quality output, user convenience, flexibility and power, and reliability. You'll also find a feature listing to help you choose between the three models.





Quick, precise plotters for high-quality output

drafting plotters this repeatability is 0.10 mm (0.004 in.) on paper, vellum, and 0.075 mm (0.003 in.) double-matte polyester film.

Each drawing from an HP drafting plotter speaks for itself. Plotting is quick and precise, lines and curves are consistently smooth, and characters are sharply defined. To achieve output quality and speed, every detail counts — high resolution and repeatability, intelligent pen control, and mechanical accuracy.

High resolution and repeatability give you superior line quality

A plotter's addressable resolution is the smallest move that you can specify programmatically. On HP plotters this is 0.025 mm (0.000984 in.). An even finer mechanical resolution of 0.003 mm (0.00012 in.) makes pen movements still more precise.

High repeatability enables the plotter to join new lines smoothly to previously plotted ones. With HP

Pen control means line consistency

In HP drafting plotters, pen motion is damped as pens descend toward the plotting surface. Damping minimizes pen bounce and protects pen tips. As a result, lines are uniform and pens last longer.

To keep line width consistent, the same pen velocity and acceleration are maintained in any given direction. And to assure the highest line quality for each pen type, the plotter sets optimum pen speed and force automatically.

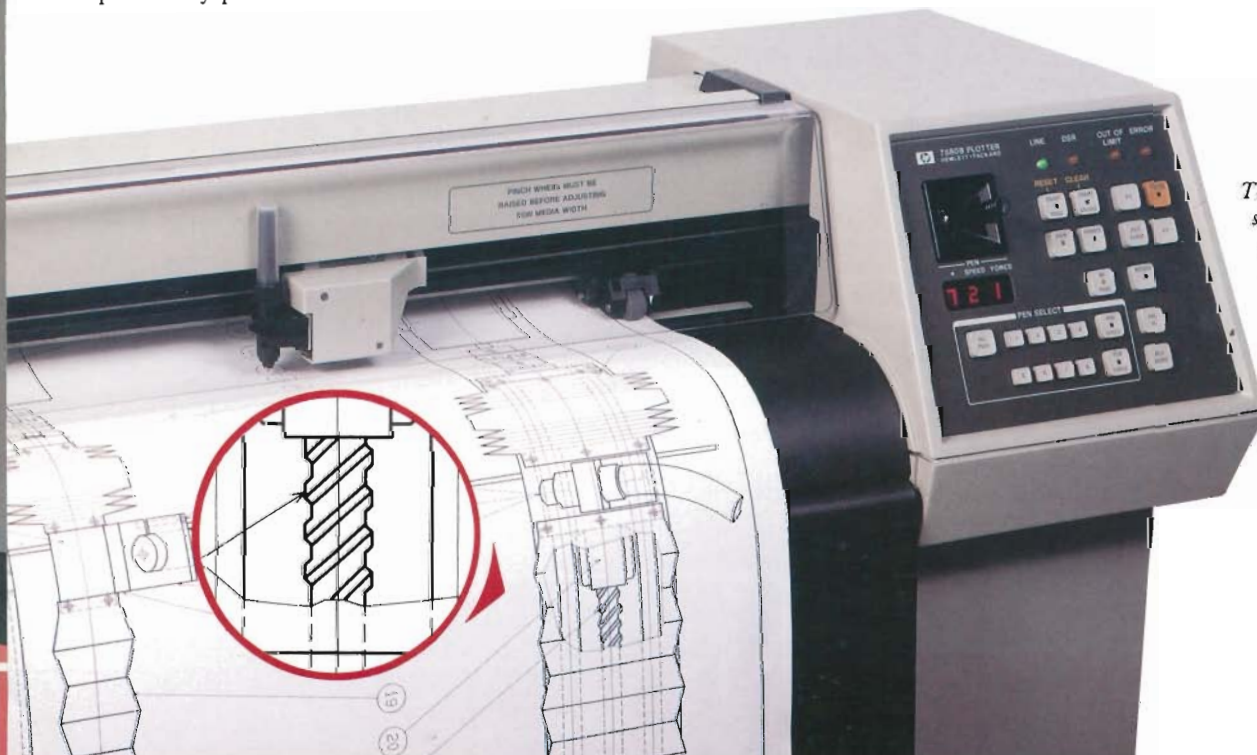
Speed and acceleration are keys to high throughput

At 60 cm/s (24 in./s) maximum speed and 4 g's acceleration, HP pen plotters are among the fastest in their

price range. But HP has done even more to optimize throughput. The plotter executes all pen-up moves at maximum speed, even when your drawing medium requires slower pen-down speeds. The pen is lifted to maximum height only for long moves. And for quick working drawings, you can program the plotter to write in a character font that plots faster.

High accuracy for critical applications

Algorithms are stored in plotter memory to compensate for mechanical tolerances. This enables the plotter to position one endpoint with a high degree of accuracy in relation to other endpoints. Endpoint accuracy in HP drafting plotters is 0.1% of the specified move length or 0.25 mm (0.01 in.), whichever is greater. This exactness exceeds the needs for most drawing applications.



This unretouched close-up shows the excellent line quality achieved by HP drafting plotters. It is a section of a plot drawn on paper with a fiber-tip pen.

Friendly, versatile plotters that save you time

HP's attention to detail is apparent in features which make plotter operation easy. Whether you are loading paper and pens or using front-panel controls, you will appreciate HP features that save you time and add to your drawing flexibility.

Quick media loading

For single sheets, loading is very easy. Use the paper guide and slip the paper under the pinch wheels; move the right pinch wheel to the media edge; lower the wheels with the push of a button — the plotter does the rest. Electronic sensors identify paper size and set the margins automatically.

Roll media loading on the HP 7586B is also easy. Snap the supply roll into place and thread the paper under the pinch wheels. If you want the plotter to store your drawings as they are finished, tape the paper to each end of the take-up core. Then push CHART HOLD and all adjustments will be made automatically. The HP 7586B will sense electronically whether you are using single sheets or rolls.



Just four front-panel buttons control normal plotter operation.

A carousel of colors: eight pens capped automatically

HP drafting plotters hold eight pens. You can use three pen types — fiber tip, roller ball, and drafting — and each type has its own carousel.

You can mix a variety of pen widths and colors in one carousel, and if you need to, you can even mix different pen types in the same carousel.

When not in use, pens remain tightly capped in the carousel to prevent premature ink drying.

Easy front-panel control

Just four buttons control normal plotter operation: CHART HOLD, CHART UNLOAD, VIEW, and REMOTE. These buttons lower and raise the pinch wheels for media loading, tell the plotter to begin accepting program instructions from the computer, and let you interrupt plotting to view your drawing.

The front panel also gives you local control of many plotter functions. For example, you can override default or programmed values for pen speed and force, reset plotting limits, change P1 and P2 positions for scaling, rotate your drawing 90 degrees, and align the axes with those on preprinted forms.

For point digitizing, you can install a digitizing sight in the pen holder and move the joystick in any direction to locate coordinates quickly.

Lightweight and easy to move

HP drafting plotters are compact and lightweight so they roll easily from one work area to another. They require less space than most tables.



Each pen type has its own eight-pen carousel. Pen type is represented pictorially on the carousel's safety cap.



HP drafting plotters give you the flexibility and power that every user should have. Look at the intelligence and interfacing features below — and see what you can expect from a superior drafting plotter.

Powerful graphics instruction set

The Hewlett-Packard Graphics Language (HP-GL) is a set of two-letter codes, usually first letter abbreviations of plotting functions. These internal instructions simplify graphics programming. With just one or two instructions you can, for example, draw arcs, lines and circles; label; color wedges, rectangles and polygons; or select a character set.

Since HP-GL is used in almost all HP plotters, most programs already running on smaller plotters can be used on the drafting plotters.

Reliable plotters that place flexibility and power at your fingertips

HP-GL area fill instructions

Area fill instructions make it easy to use patterns or solid coloring in wedges, rectangles, and polygons. To color a wedge, just specify its angle; to fill a rectangle, define just two points, the current pen position and its opposite corner. Or you can fill polygons, even with multiple islands, by defining the polygon boundaries. These instructions will save programming time and host computer overhead.

Select a character set . . . or define your own

With HP drafting plotters you have access to 21 international character sets including ten ISO European sets, Katakana, ASCII, Roman 8 extensions, and special symbol sets.

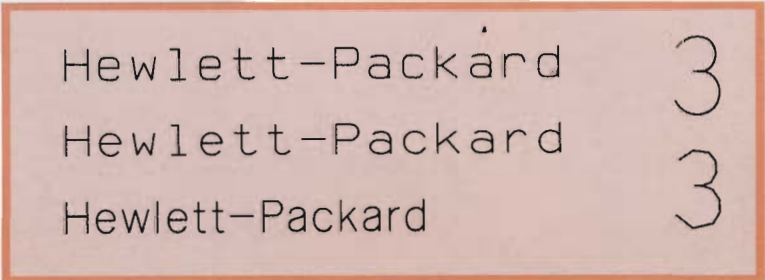
A “downloadable” set for creating user-defined characters is also available whenever you need a special alphabet, font, or symbol. For example, you can download your terminal’s character set so the plotted output will look just like your display. Or create a set of symbols used frequently in your specific application.

Choose from three lettering styles

Each character set can be plotted in three styles. Fixed vector lettering produces equally spaced block characters. High-resolution arc-generated characters can be plotted with proportional spacing for maximum aesthetic appeal or with fixed spacing so columns and tables line up evenly.



The plot on the left shows just a few of the character sets available on HP drafting plotters. The printed circuit mask plotted on the right illustrates a typical area fill application — made easy with new HP-GL instructions. The three lettering styles to the right are, from top to bottom, fixed block, fixed arc, and proportional arc. For quick lettering you can plot arc characters with fewer vectors as shown by the second number three in the sample.





18K-byte buffer

A large, 18K-byte partitionable buffer adds more power to your HP drafting plotter. This increased size allows you to pass more data to the plotter with minimal system overhead.

Error recovery with block mode data transfer

Data can be transferred in block mode with both the RS-232-C and HP-IB interfaces. Block mode data transfer provides a reliable method of detecting transmission errors, permits error recovery, and prevents loss of your valuable plotting time.

Interfacing flexibility

Two switch-selectable standard interfaces are built into each plotter: the HP-IB (IEEE 488-1978) interface and the RS-232-C/CCITT V.24 serial interface.

Four handshaking modes allow interfacing to a broad range of computer systems: XON/XOFF and HARDWARE, two plotter-controlled handshakes; SOFTWARE CHECK, a handshake controlled from an application program; and ENQ/ACK, a computer-controlled handshake.

To make remote modem operation easy, two RS-232-C connectors are provided so that one computer port can support both the plotter and a terminal.

Multilevel graphics software

HP drafting plotters are supported on HP computer systems, desktop and personal computers, and intelligent terminals at two levels: application software and software for programmer support. Application software gives you packaged solutions to specific graphics needs. Programmer software simplifies programming tasks with high-level, device independent tools such as graphics ROM commands and extensions to HPL, BASIC and Pascal.

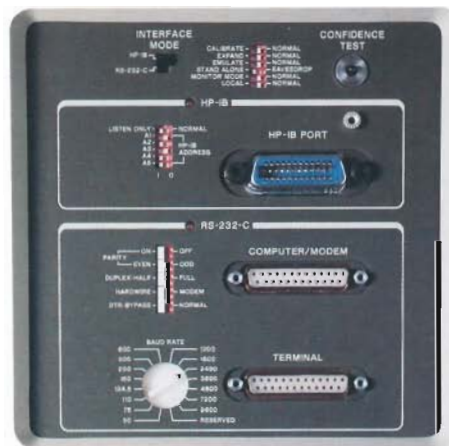
For users of industry standard FORTRAN subroutines, Hewlett-Packard's Industry Standard Plotting Package (HP-ISPP) provides 15 user-callable FORTRAN subroutines which make the programs you are already using compatible with HP plotters.

Reliability and support are part of the product

When we build quality, convenience, flexibility, and power into our plotters, we build in reliability as well. Extensive testing assures you low maintenance costs and products that are guaranteed to perform as specified.

When you buy HP products, you can expect prompt and thorough service and support. Because HP maintains sales and service facilities throughout the world, we can supply information or repair service when and where you need it. In addition to a standard product warranty, HP offers a variety of on-site service plans. And all HP drafting plotters have built-in self-tests to help service personnel isolate problems quickly. With this kind of support your HP plotter is ready when you are — its power is at your fingertips.

Take a closer look at HP's selection of drafting plotters on the following pages. Then decide which plotter fits your particular needs.





A closer look at the HP 7586B roll feed plotter

The HP 7586B has all the advantages of the HP 7580B and HP 7585B — and more. Look what else you can do with the HP 7586B.

Increase media flexibility

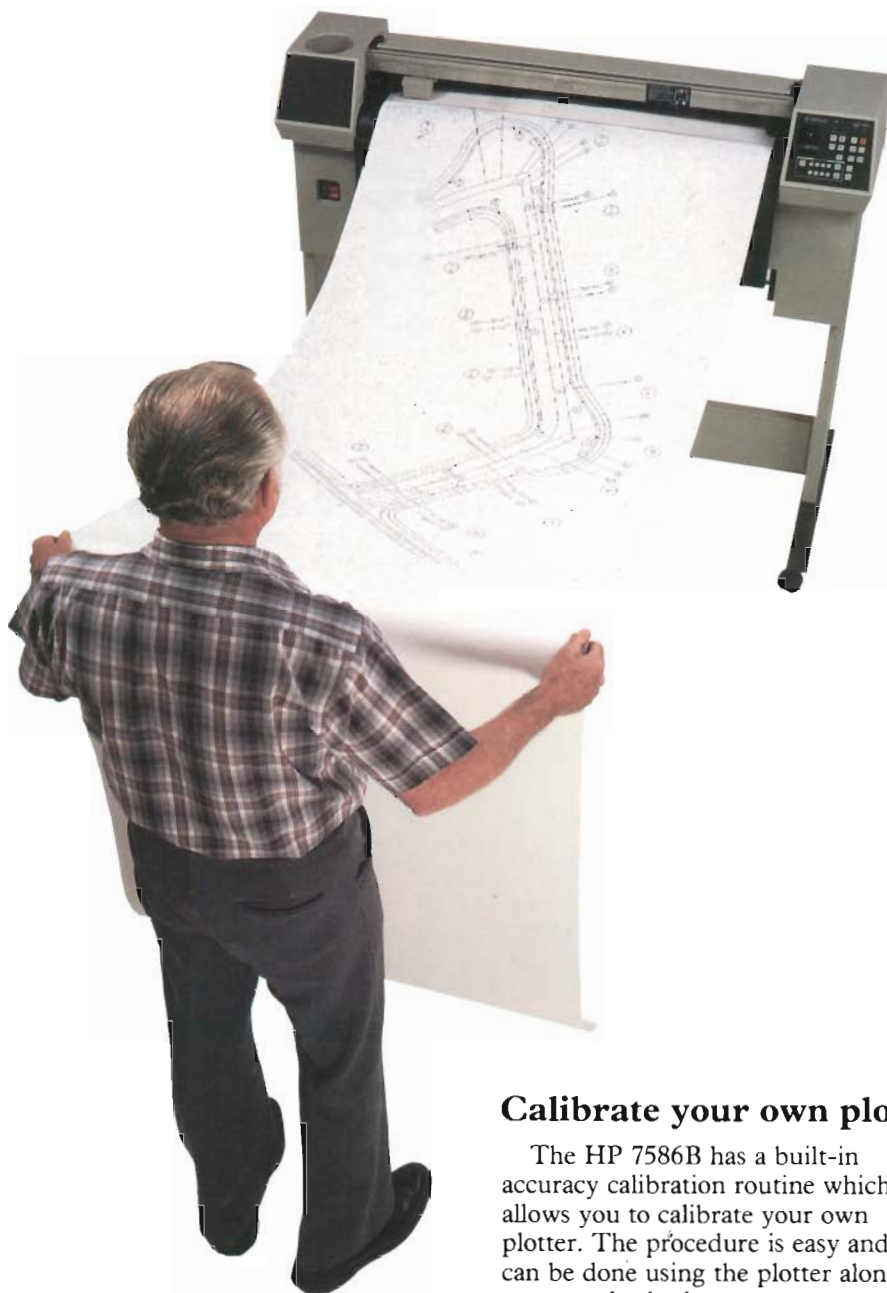
The HP 7586B can be operated in three different modes. It works as a sheet plotter, so you can use preprinted forms or do single plots; as a roll feed plotter with take-up, so you can run large numbers of plots which are rolled up for neat storage; and as a roll feed plotter without take-up, so you can remove each plot as it is finished.

With roll feed, you can plot without reloading media for each drawing, an advantage when many users share one plotter. The HP 7586B accommodates paper, vellum, or double-matte polyester film on rolls in standard widths from 267 mm (10.5 in.) to 919 mm (36.2 in.) and lengths up to 46 m (150 ft).

Draw long axis plots

The HP 7586B's frame-to-frame long axis technique allows you to draw plots up to 3.7 metres (12 ft) long. And, you can draw even longer plots (up to the maximum roll length of 46 m) by increasing your plot margins.

Long plots are divided into sections and drawn one frame at a time. The plotter draws registration marks in the margins to align the sections. As the plotter finishes each section, it digitizes these marks and adjusts the next frame to assure that the plot continues exactly where it left off.



Calibrate your own plotter

The HP 7586B has a built-in accuracy calibration routine which allows you to calibrate your own plotter. The procedure is easy and it can be done using the plotter alone, so you can check plotter accuracy as often as required. And you can recalibrate for different media types when accuracy is critical to your application.

This feature puts more plotter control in your hands, saves you service calls, and gives you confidence that your plots will always be drawn with optimum accuracy.

Choose the HP drafting plotter that makes sense for you



HP 7580B:

- Single sheet media in standard sizes up to A1/D-size
- 77 HP-GL commands



HP 7586B:

- Single sheet media in standard sizes up to A0/E-size
- Roll media in standard widths up to 919 mm (36.2 in.) and lengths up to 46 m (150 ft)
- Frame-to-frame long axis plotting
- Built-in accuracy calibration
- 82 HP-GL commands



HP 7585B:

- Single sheet media in standard sizes up to A0/E-size
- 77 HP-GL commands

With all three models you'll have the following advantages:

- high addressable resolution of 0.025 mm (0.000984 in.)
- 60 cm/s maximum speed and 4 g's acceleration
- 8-pen carousels with automatic pen capping
- choice of media including paper, vellum, tracing bond, and double-matte polyester film
- three pen types — fiber tip, roller ball, and drafting — in a variety of colors and widths
- intelligence features including 21 character sets, a downloadable character set, HP-GL, area fill commands, and an 18K-byte buffer
- switch-selectable dual interface with four handshaking modes and eavesdrop

Specifications

Resolution

Smallest addressable move	0.025 mm (0.000984 in.)
Mechanical resolution	0.003 mm (0.00012 in.)

Repeatability (for a given pen)

On paper, vellum or 0.075 mm (0.003 in.) double-matte polyester film at 10–30°C	0.10 mm (0.004 in.)
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Endpoint Accuracy

On 0.075 mm (0.003 in.) double-matte polyester film at 18–30°C, level floor	0.1% of the move or 0.25 mm (0.0098 in.), whichever is greater
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NOTE: Specifications apply only when plotting single frames and using HP supplies.

Supplemental Characteristics

Maximum Plotting Area

Single sheet plotting	Drawing sheet less margins
Roll media plotting	Roll width times frame length less margins
Long axis plotting	Roll width less 30 mm (1.2 in.) margin times 3.7 metres (12 ft). Maximum plotting length can be increased beyond 3.7 metres by increasing the 30 mm margin.

Frame Lengths for Roll Media

Roll widths less than 298.5 mm (11.75 in.):	431.8 mm (17 in.)
Roll widths greater than 721.4 mm (28.4 in.):	1219.2 mm (48 in.)
Roll widths between 298.5 and 721.4 mm:	914.4 mm (36 in.)

Margins

Single sheet: Normal mode	Three margins approximately 15 mm (.59 in.) each, fourth margin approximately 39 mm (1.5 in.)
Expand mode	Three margins approximately 5 mm (.2 in.) each, fourth margin approximately 29 mm (1.1 in.)
Roll media: Normal mode	15 mm (.59 in.) each side
Expand mode	Not recommended for use

Speed

Pen down	
Maximum	60 cm/s (24 in./s) independent of vector direction
From the program	4 to 60 cm/s (0.4 to 24 in./s) in increments of 1 cm/s
From the front panel	10 to 60 cm/s (4 to 24 in./s) in increments of 10 cm/s

Supplemental Characteristics (Cont.)

Speed (Cont.)

Pen up	60 cm/s (24 in./s) regardless of pen-down speed
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Acceleration

Maximum	4 g's (39m/s ² , 129 ft/s ²)
From the program	1 to 4 g's (9.7 to 39 m/s ² , 32 to 128 ft/s ²) in increments of 1 g

Pen Force

From the program or front panel	10 to 66 grams in increments of 8 grams
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Power Requirements

Source	100, 120, 220, 240 V~ -10%, +5%
Frequency	48–66 Hz
Consumption	182 W maximum

Environmental Range (limited by media)

Operating	
Temperature	0°C to 55°C
Relative humidity: Sheets	5% to 95% (0°C to 40°C)
Rolls	30% to 70% (10°C to 30°C)
Nonoperating	
Temperature	-40°C to 75°C

Interfaces (selectable from a rear-panel switch)

HP-IB (IEEE 488-1978)	Implements the following HP-IB functions as defined in IEEE 488- 1978: SH1, AH1, T6, L3, SR1, RL0, DC1, DT0, C0, PP0 for listen-only, PP1 for address greater than 7 and PP2 for address of 7 or less
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RS-232-C/CCITT V.24

Asynchronous serial ASCII with
switch-selectable baud rates of 50,
75, 110, 134.5, 150, 200, 300, 600,
1200, 1800, 2400, 3600, 4800, 7200,
9600

Buffer

Size	18 432 bytes
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Pens

Number	8, automatic pen changing from carousel
Type	Fiber tip, drafting, roller ball

Media Types

Most standard paper, vellum, and tracing bond; double-matte
polyester films from 0.05 mm (0.002 in.) to 0.1 mm (0.004 in.)
thick

Supplemental Characteristics (Cont.)

Media Sizes	
HP 7580B (sheets)	
Width	267 mm (10.5 in.) to 622 mm (24.5 in.), which includes standard sizes A4/A, A3/B, A2/C, A1/D, and architectural size D
Length	203 mm (8 in.) to 1231.9 mm (48.5 in.)
HP 7585B and HP 7586B (sheets)	
Width	267 mm (10.5 in.) to 298 mm (11.75 in.), which includes standard sizes A4/A and A3/B; and 546 mm (21.5 in.) to 927 mm (36.5 in.), which includes standard sizes A2/C, A1/D, A0/E, and architectural size E
Length	203 mm (8 in.) to 1231.9 mm (48.5 in.)
HP 7586B (rolls)	
Width	267 mm (10.5 in.) to 298 mm (11.75 in.) and 546 mm (21.5 in.) to 919 mm (36.2 in.)
Length	46 metres (150 ft)
Roll core, inner diameter	51 mm ±1.6 mm (2.0 in.)
Plotter Size	
HP 7580B	
Height	1188 mm (46.8 in.)
Width	1087 mm (42.8 in.)
Depth	557 mm (21.9 in.)
HP 7585B and HP 7586B	
Height	1188 mm (46.8 in.)
Width	1392 mm (54.8 in.)
Depth	557 mm (21.9 in.)
Plotter Weight	
HP 7580B	
Net weight	59.1 kg (130 lb)
Shipping weight	Approximately 114 kg (250 lb)
HP 7585B	
Net weight	70.4 kg (155 lb)
Shipping weight	Approximately 131 kg (290 lb)
HP 7586B	
Net weight	86.4 kg (190 lb)
Shipping weight	Approximately 147.8 kg (325 lb)

Accessories Supplied with Plotters

	HP Part No.
Interfacing and Programming Manual	07580-90034
Operator's Manual	07580-90033
Reference Card	07580-90035
Preferred Media Guide	07580-90036
Pen Carousels	
Fiber tip	07580-60035
Drafting	07580-60081
Roller ball	07580-60082
Digitizing Sight, straight view	09872-60066
Drafting Pen Bodies (4)	07580-60025
Drafting Pen Tips	
0.35 mm tip	9260-0588
0.70 mm tip	9260-0579
Drafting Pen Cleaning Syringe	9282-0905
Drafting Ink — Black	9260-0596
(0.75 oz container)	
Drafting Pen Cleaning Solution	9282-0908
(5.2 oz container)	
Fiber-tip Pens with 0.7 mm Tips	
Package of 4 (1 each — black, green, blue, and red)	5060-6858
Package of 6 (1 each — burnt orange, lime green, gold, brown, turquoise, and violet)	5060-6895
Roller-ball Pens	
Package of 4 (black)	5061-5033
Package of 4 (red)	5061-5034
Package of 4 (green)	5061-5035
Package of 4 (blue)	5061-5036
Media Sampler* (each sampler — 50 sheets of chart paper and 5 sheets of polyester film)	
HP 7580B	
A1-size media or	9280-0524
D-size media	9280-0523
HP 7585B	
A0-size media or	9280-0586
E-size media	9280-0585
HP 7586B	
A0-size media or	9280-0586
E-size media	9280-0585
914.4 mm (36 in.) roll paper	9280-0637
914.4 mm (36 in.) paper spool	9300-1069
Grit Wheel Brush	8710-1386
Supplies Organizer	4040-1953
Power Cord	—
(cord appropriate to destination of plotter)	
Male-to-male Interface Cable	8120-3258

*Metric or English media is included depending on the destination of the plotter.

Ordering Information

Accessories Available	HP Part No.	Accessories Available (Cont.)	HP Part No.
Service Manual		Paper spool	
HP 7580B	07580-90022	609.6 mm (24 in.) spool	9300-1068
HP 7585B	07585-90002	914.4 mm (36 in.) spool	9300-1069
HP 7586B	07586-90000	Writing accessories chest, hardwood	1540-0714
Chart paper		Digitizing sight, angled view	07585-60191
D-size, 200 sheet package	9280-0527	Pen caps for carousels	
E-size, 150 sheet package	9280-0587	For fiber-tip or roller-ball pens,	4320-0361
A1-size, 200 sheet package	9280-0528	available individually	
A0-size, 150 sheet package	9280-0590	For drafting pens, available individually	4320-0365
609.6 mm (24 in.) roll	9280-0638		
914.4 mm (36 in.) roll	9280-0637		
Vellum		Drafting pen tips are also available in the following sizes: 0.18, 0.25, 0.35, 0.50, 0.70, and 1.00 mm. See the HP Computer Users Catalog (P/N 5953-2450) for a complete list of HP supplies. Media and drafting pen tips can also be purchased from engineering supply stores. The operator's manual lists recommended media and pen tips.	
D-size, 150 sheet package	9280-0529		
E-size, 150 sheet package	9280-0593		
A1-size, 150 sheet package	9280-0530		
A0-size, 150 sheet package	9280-0594		
609.6 mm (24 in.) roll	9280-0635		
914.4 mm (36 in.) roll	9280-0636		
Tracing bond		Ordering Options	
D-size, 150 sheet package	9280-0600	Manual Options*	
E-size, 150 sheet package	9280-0598	051 for use with HP 9000, Series 200 computers	
A1-size, 150 sheet package	9280-0599	052 for use with HP 9000, Series 100 personal computers	
A0-size, 150 sheet package	9280-0597	053 for use with HP 3000 computers	
Double-matte polyester film, 0.075 mm (0.003 in.)		058 for use with HP Series 80 personal computers	
D-size, 50 sheet package	9280-0526	059 for use with HP 9000, Series 500 computers	
E-size, 50 sheet package	9280-0591	060 for use with HP 1000 computers	
A1-size, 50 sheet package	9280-0525	065 for use with Non-HP computers	
A0-size, 50 sheet package	9280-0592		
609.6 mm (24 in.) roll	9280-0634		
914.4 mm (36 in.) roll	9280-0633		

NOTE: All rolls are 46 metres (150 ft) long

*Use the manual option numbers to indicate the computer you will use with your plotter. If a graphics programming guide is available for that computer, it will be shipped with your plotter.