

HP 260 Computer Systems



**PREPARING FOR YOUR HP 260
SERIES 30 AND SERIES 40**

User's Manual



HERRENBERGER STRASSE 130, D-7030 BOEBLINGEN

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**FEDERAL COMMUNICATION COMMISSION RADIO
FREQUENCY INTERFERENCE STATEMENT**

(for U.S.A. only)

This equipment generates and radiates radio frequency energy. If not installed and used as directed in the system's documentation, the system may cause interference to radio communications.

The system has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference. Should this occur, the user must at his own expense take whatever measures may be required to correct the interference.

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PRINTING HISTORY

New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The dates on the title page change only when a new edition or a new update is published. No information is incorporated into a reprinting unless it appears as a prior update; the edition does not change when an update is incorporated.

The software code printed alongside the date indicates the version level of the software product at the time the manual or update was issued. Many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one to one correspondence between product updates and manual updates.

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LIST OF EFFECTIVE PAGES

The List of Effective Pages gives the date of the most recent version of each page in the manual. To verify that your manual contains the most current information, check the dates printed at the bottom of each page with those listed below. The date on the bottom of each page reflects the edition or subsequent update in which that page was printed.

Effective Pages	Date
all	Sep 1986

THE HP 260 SERIES 30 AND SERIES 40

Throughout this manual reference is made to the HP 260. This name represents both the HP 260 Series 30 (product number HP 45070A), and the HP 260 Series 40 (product number HP 45072A), and no other products.

TERMS USED IN THIS MANUAL

- **SPU.** This is an abbreviation for "System Processor Unit". It contains the computer board, the memory boards, the HP-IB board, and other I/O (Input/Output) boards.
- **I/O Extender.** This is an abbreviation for Input/Output Extender. It is an optional cabinet that fits on top of the SPU and can contain extra I/O boards.
- **Mass storage devices.** These include all discs, disc/tape combinations, and the HP 9144A tape drive.
- **HB-IB devices.** This term covers every component of the HP 260 system that communicates using the Hewlett-Packard Interface Bus (HP-IB).
- **HP-IB printers.** These include the HP 2563A, HP 2563B, and HP 2934A printers when ordered with the HP-IB interface option.

Abbreviations are occasionally used to refer to groups of peripherals. For example, if you see the term "HP 9133/4L", it refers to both the HP 9133L and the HP 9134L discs. Similarly, the term "HP 794xA" refers to every product with a product number prefix "HP 794" and a suffix of "A". (These are the fast mass storage devices HP 7941A, HP 7942A, HP 7945A, and HP 7946A).

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How to Use This Manual

This manual helps you to prepare for your new HP 260, so that you can use your computer without delay. Please read the introduction and the section titled "Choosing and Preparing Your Site". Your electrician reads the section titled "What Your Electrician Must Read". Choose your site on the basis of the information supplied in these two sections.

Guide to the Manual

- Section 1, "Introduction", indicates the organizational preparations that you should make, introduces you to the Hewlett-Packard team, lists other sources of help, and advises you on the arrival of your system.
- Section 2, "Choosing and Preparing Your Site", covers non-technical site preparation subjects, ranging from the calculation of system size to ordering microfloppy discs.
- Section 3, "What Your Electrician Must Read", covers all your HP 260's electrical requirements.
- The appendices hold further technical information, worksheets, etc., to which you are directed where necessary.
- The Site Preparation Kit holds worksheets for calculating system heat output and power consumption, a grid for planning the layout of all system components and data cables, and the site preparation checklist. **The site preparation checklist is a worksheet for you to fill in as you complete each site preparation task.** It documents the preparation of your site and provides a countdown to the arrival of your system.

ORGANIZATIONAL PREPARATIONS

This subject covers all the preparations that affect your organization. Those governing the choice and preparation of your site are described in the Section titled "Choosing and Preparing Your Site".

Select Your Principal Operator

Appoint someone to be your system's principal operator. The principal operator is initially responsible for managing site preparation and system installation. The principal operator's responsibilities also include:

- acting as liaison between your company and Hewlett-Packard or your Value-Added System Supplier
- ordering consumable supplies and monitoring stock
- making regular backups of data and programs
- safely storing backup media
- configuring your HP 260
- arranging staff training
- monitoring the site preparation process

Further duties of the principal operator are discussed in the manual "Operating and Managing the HP 260".

Consumable Supplies

Your HP 260 system includes peripherals that use consumable supplies. To make sure that you have everything ready by the time your system arrives, order these consumable supplies at least four weeks before installing your system. The consumable supplies you need depend upon the peripherals ordered, and can include:

printer paper	ink jet cartridges
printer ribbons	tape cartridges
plotter paper	3.5" microfloppy discs
plotter pens	

For information about computer supplies, consult the Hewlett-Packard Computer Supplies Catalog or talk to your Hewlett-Packard Sales Representative.

Storage of Paper, Pens, etc.

No particular arrangements need be made for the storage of ordinary consumable supplies such as ink or paper. However make sure that their storage area is clean, and that printer paper is kept at the same humidity as the computer.

Storage of Magnetic Media

Magnetic media (discs and tapes) require special consideration. Flexible disc covers normally list the manufacturer's specifications for use. General storage guidelines for magnetic media are listed below.

- Magnetic media are susceptible to extreme heat and light. Store your magnetic media in a clean, dust-free environment similar to that of the computer.
- Wide differences in humidity or differences between storage and working areas can warp flexible discs (consult the disc packaging to find the disc temperature and heat tolerance).
- If the storage and work areas cannot be kept at the same humidity and temperature, allow time for the media to reach the temperature and moisture level of the work area (typically one hour before use). The temperature change of flexible discs should not exceed 20 degrees Celcius (68 degrees Fahrenheit) per hour.
- To preserve magnetically recorded data, do not place magnetic media near magnetic fields. (For example, magnetic fields are generated by motors, alternators, transformers, or other disc drives).

Some people consider their investment in software, hardware, and data is so important that they purchase electronic data processing insurance, which can cover both hardware and software. Consult the Hewlett-Packard Computer Supplies Catalog for a list of data storage products.

SOURCES OF HELP

There are many sources of help to answer any of your questions. The most common sources of assistance, and their areas of expertise, are listed below.

Hewlett-Packard

The Hewlett-Packard team provides three main sources of assistance;

- The Sales Representative (SR) arranges the correct delivery of your system. Call your Sales Representative for additions to your system.
- The Customer Engineer (CE) supports your HP 260 system, both computer and peripheral equipment. If you purchase a Hewlett-Packard Maintenance Agreement, the Customer Engineer provides hardware maintenance, makes repairs, and diagnoses problems. If you have purchased Hewlett-Packard installation, it will be performed by the Customer Engineer.
- The Applications Engineer (AE) offers training courses and technical consulting on BASIC, utility programs, data base management and system performance. If you purchase a Hewlett-Packard Account Management Support service, the Applications Engineer provides software consultation and problem diagnosis.

Value-Added System Suppliers

Value-Added System Suppliers are independent companies who, as industry experts, have developed high-quality applications for the HP 260 for a variety of business needs. If you purchased an HP 260 from a Hewlett-Packard Value-Added System Supplier, he can be a very useful source of help. If you have any questions concerning application software that is provided by a Value-Added System Supplier, direct those questions to the Value-Added System Supplier.

Your Electrician

The most common local source of help is your electrician. If you have any doubts or questions concerning electrical preparations, consult your electrician. Some of the operations described in this manual must be performed by a qualified electrician. Such operations include data cable construction and electrical wiring.



WHEN YOUR HP 260 ARRIVES

Each HP 260 system is made up of several components, for example, disc drives, printers and workstations. Hewlett-Packard organizes the shipment of these components so that they all arrive at approximately the same time. In some cases, factors beyond the control of Hewlett-Packard cause delivery dates to vary. If you do not receive your entire order within a two-week period, notify your Hewlett-Packard Sales Representative (or Value-Added System Supplier) who will trace your system and ensure delivery.

Check for Shipping Damage

As each shipment arrives, check the carrier's packing list carefully to make sure that every item shipped by Hewlett-Packard has been delivered. If items are missing, notify the carrier immediately.

When the equipment is delivered, inspect all containers for signs of damage. Some typical signs of shipping damage are dents, scratches, cuts, or water marks. If any damage is found, note on the packing list "Apparent damage - subject to inspection" and arrange for the carrier's representative to be present when that item is unpacked.

Regardless of the circumstances, the Hewlett-Packard Customer Engineer will take immediate action to replace any damaged parts. Claims and responsibility can be settled later.

Unpack the Cartons

Unpack the cartons at your convenience. Instructions for unpacking your HP 260 and its peripherals are shipped within each carton.

Locate the invoice for each carton or crate that you unpack and make certain that it corresponds exactly to the components supplied. If something is missing, contact your Hewlett-Packard Sales Representative or Value-Added System Supplier immediately.

Book a Date for Hewlett-Packard to Install Your System

If you ordered Hewlett-Packard system installation, wait until your complete system has been delivered and then call the local Hewlett-Packard Sales and Service Office to set an installation date. The Hewlett-Packard Customer Engineer will:

- verify that the site has been prepared according to this manual,
- assemble the HP 260 system hardware,
- install the operating system,
- demonstrate how to start up and power down the system,
- explain backup procedures, and,
- complete the system installation report.

NOTE

If, when installing your HP 260, the Hewlett-Packard Customer Engineer determines that the site you have chosen is not yet suitable, you will be required to bring the site up to specification. You can be charged for any further visits necessary to install the system.

CHOOSING AND PREPARING YOUR SITE

SECTION

2

This section covers every subject except electrical preparations that you must consider when choosing and preparing your site. Electrical preparations are covered in the section titled "What Your Electrician Must Read". Record each subject, as you cover it, on the site preparation checklist which is contained in the Site Preparation Kit.

Hewlett-Packard engineers have designed, built, and tested your HP 260 to ensure safe, reliable, and efficient operation in an office or business environment. Careful site preparation ensures that this high standard is maintained.

NOTE

Equipment guarantees from Hewlett-Packard apply only when its equipment is installed in a properly prepared site. Operating conditions which do not comply with the requirements of this site preparation manual invalidate all guarantees.

SAFETY

Take sensible safety precautions, comparable to the installation of a sophisticated Hi-Fi unit. Do not install the HP 260 where there is a fire hazard from flammable gases, liquids, or dust.

Because the HP 260 is so small and light, it is tempting to place it where it can be easily moved, or to move it from place to place. This is not recommended. Place it in a designated area where it is safe from movement or jolting. If you do not install your system in the Mini-Rack Cabinet, leave at least 30 centimeters (1 ft) of free space behind each component for air circulation.

Safety Grounding

For user safety, every component of the HP 260 system is supplied with three-pin grounded plugs. To avoid electrical shock, plug them into properly grounded wall outlets only. **It is a REQUIREMENT that all power sources for HP 260 components are directly connected to the building earth ground.** (Ask your electrician to make sure the ground is suitable).

Safety of Cables

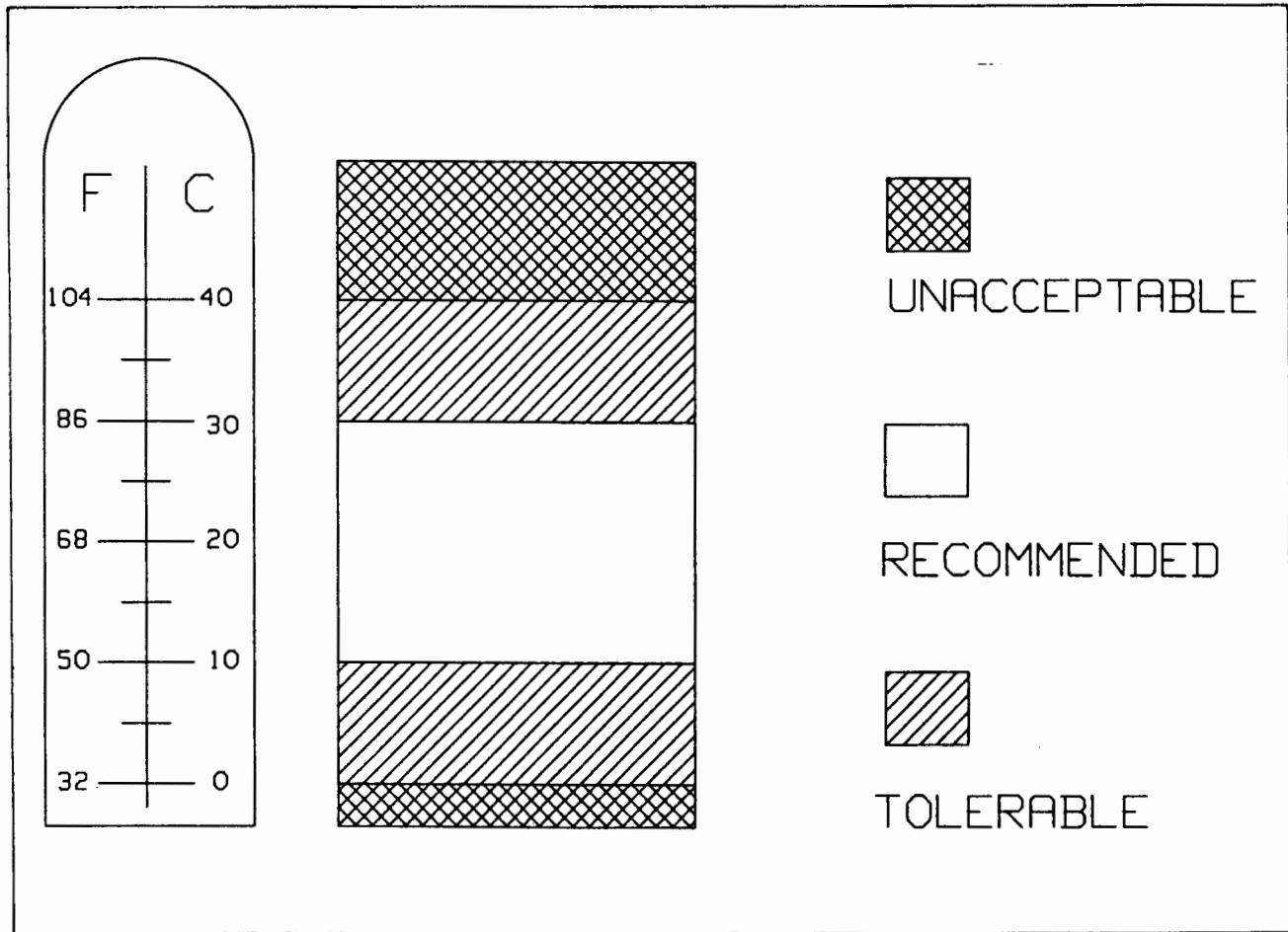
Never use an extension cord for power. Make sure that every component of your HP 260 system is within range of a wall power outlet. Supplied power cables are 2.29 meters (7.5 ft) in the U.S.A. and the United Kingdom, and two meters (6.5 ft) elsewhere. Power and data cables run from the rear of each HP 260 component.

When choosing your site, consider the safe placement of all power and data communication cables. Plan the layout of data and power cables so that they do not obstruct passageways or furniture. Cables which run beneath passageways can wear and become a fire and safety hazard.

THE BEST ENVIRONMENT FOR YOUR HP 260

Temperature

The diagram below shows the HP 260's operating temperature range. Operations outside the range marked **RECOMMENDED** progressively increase the possibility of failure. Comprehensive component testing by Hewlett-Packard shows that the rate of component failure is almost 25% higher for a system operating at 32 degrees Centigrade (90 degrees Fahrenheit) than for a system operating at 25 degrees Centigrade (77 degrees Fahrenheit). Take your site temperature readings from a point just above the floor, in the approximate area where the equipment will be installed.



System Temperature Range

All possible system components operate within the area marked **RECOMMENDED**. Some components of your HP 260 system have wider temperature tolerances. A table of the maximum and minimum operating ranges for each component of the HP 260 system is provided in the appendix titled "System Temperature Tolerance".

Heat Output by your HP 260

Heat is produced by the HP 260 system components and dissipated by their internal cooling fans. This heat output can raise the room temperature above the range marked **RECOMMENDED**. If you plan to install your HP 260 in a small room, with no ventilation, then consider the heat output by the components when checking the site temperature. Also consider the system heat output if you plan to install your HP 260 in any cabinet other than the HP Mini-Rack Cabinet. A worksheet and instructions for calculating your total system heat output are supplied in the Site Preparation Kit.

Altitude

Your HP 260 system can safely operate between the following altitudes:

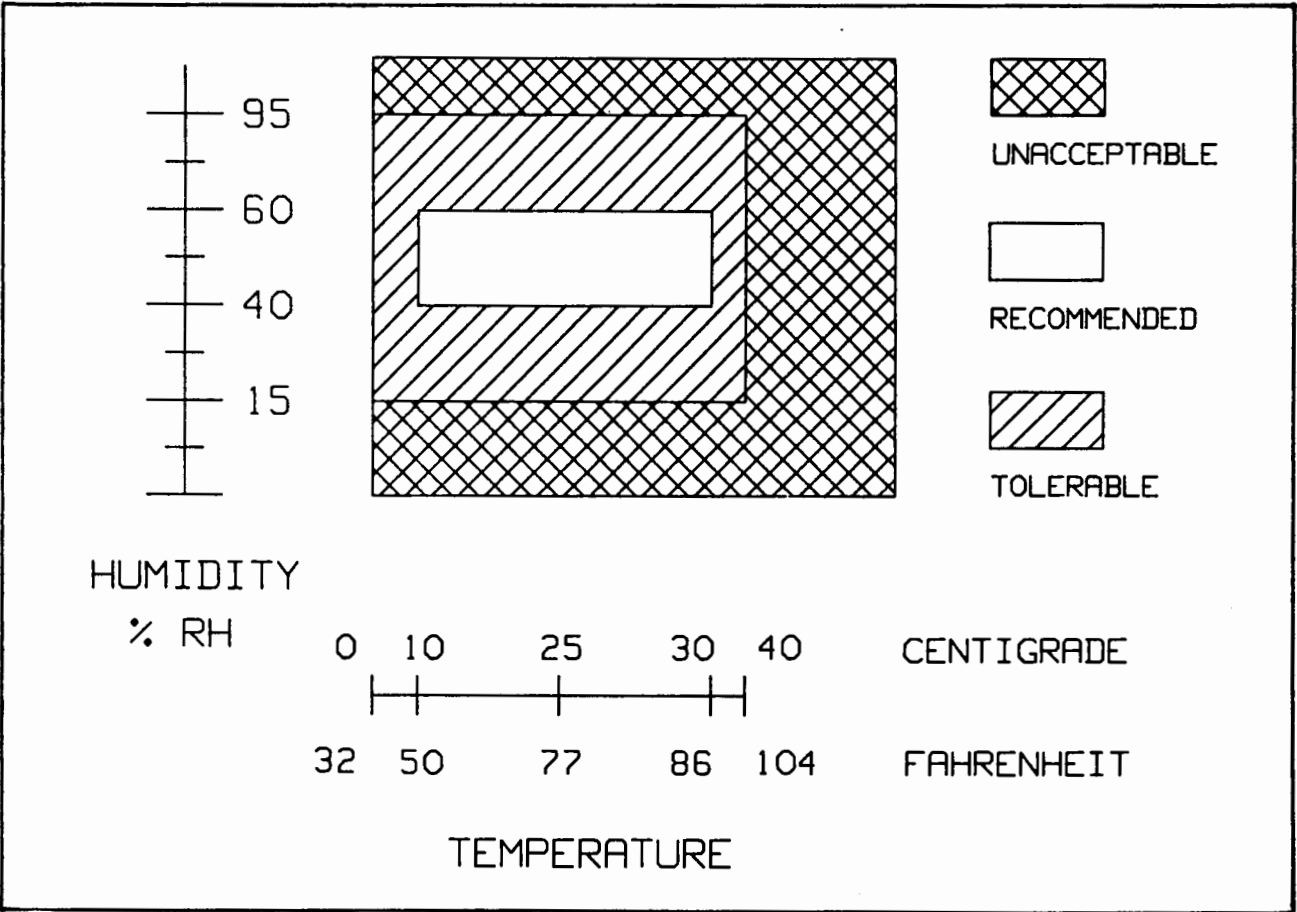
Sea level to 1980 meters (6500 ft)

This range includes all possible components of an HP 260 system. Some components can operate within a wider altitude range. For further details, consult each individual device's data sheet.

Humidity

The chart below shows the acceptable humidity range for the HP 260. Never exceed the ranges marked **TOLERABLE**. The range marked **RECOMMENDED** can be exceeded for 48 hours at most without damage. Operating your HP 260 outside the range marked **TOLERABLE** shortens the life of your system.

High absolute humidity causes condensation inside the system, malfunctions in the disc drive, or improper feeding of printer paper. Low humidity aggravates static electricity problems. Rapid or wide swings in humidity levels increase the risk of corrosion.



System Humidity Range

NOTE

If you intend to operate the HP 260 on weekends, when the building climate controls may be switched off, check that the temperature and humidity do not exceed the permitted ranges.

Static Electricity

Electrostatic discharges can interfere with the operation of your HP 260. Your HP 260 is designed and tested to withstand electrostatic discharges of up to 15 kV. (However, prolonged exposure to any level of electrostatic discharge adversely affects the reliability of any computer system). Low humidity and high temperature increase static electricity. Static electricity is also generated by walking over work area carpets. Integrated circuits and computer terminals are susceptible to static. Ways to reduce static electricity include:

- Using a room humidifier
- Keeping the front of the system clear of carpets (or using grounded floor mats)
- Placing anti-static mats beneath terminals
- Keeping the site to the specified temperature

You can order anti-static aids from the Hewlett-Packard Computer Supplies Catalog. Do not use anti-static spray because such spray is sucked into the computer by its cooling fan, and interferes with the computer circuits.

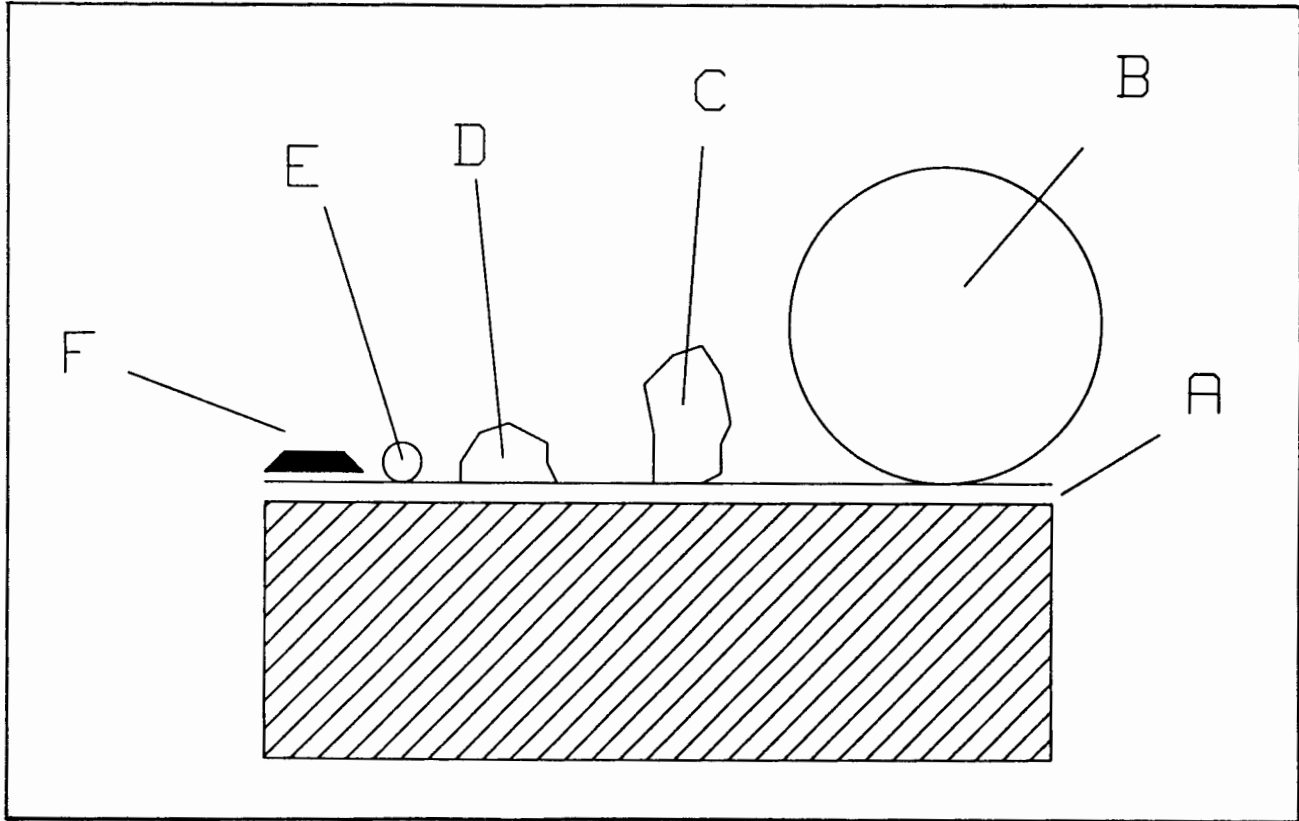
NOTE

Semiconductor components used in computer systems are subject to damage or failure when exposed to electrostatic discharges of 300 volts or less. This voltage is easily exceeded by such daily actions as walking on a synthetic carpet or vinyl floor.

Electrostatic discharges cause noticeable shocks to humans starting at about 5000 volts. Therefore the absence of shocks or noise does not prove the absence of harmful electrostatic discharge.

Airborne Contaminants

Common airborne contaminants include dust and smoke. Apart from being a fire hazard, airborne particles can interfere with the operation of a disc drive. The gap on a Hewlett-Packard precision disc drive between the read/write head and the disc surface is extremely narrow. Even particles that are invisible to the naked eye can cause obstruction, premature disc wear, or data errors.



Contaminant size in relation to the read/write head

Label	Item
A	Oxide disc coating
B	Human hair, 0.01 cm (0.03 in) in diameter
C	Dust particle
D	Finger print
E	Smoke particle
F	Disc drive read/write head

Solvent vapors produced by duplicating equipment containing liquid spirit, wet process copiers, and solvent cleaners can corrode the oxide disc coating. Although the HP 260 is designed for the office environment, heavily contaminated air can cause faults. To prevent faults and premature wear, keep these contaminants away from your HP 260.

Susceptibility to Radiated Interference

Radiated interference causes a variety of computer problems, most commonly disc read/write errors. The most common sources of radiation are:

Airport communications
(and radar)

Hand-held transceivers
("walkie-talkies")

Two-way radio
transmitters

Microwave transmissions

TV or radio signals

X-Ray equipment

The HP 260 computer is designed to withstand radiated interference of up to one volt per meter, over a frequency range of 14 KHz to 1 GHz.

If you suspect a problem with radiated interference, you can ask an outside consultant to perform radiation measurements and advise you on shielding the system.

Possible Interference Produced by Your HP 260

The HP 260 uses and generates radio frequency energy. The HP 260 system has been designed, tested and shielded to minimize interference. A list of test certificates is supplied in the appendix titled "Safety, RFI and Data Communication Approvals". Compliance with this manual helps to minimize the chances of interference; however, Hewlett-Packard does not guarantee that the HP 260 will not interfere with radio and television reception.

NOTE

Shielded data cables use a metal shield wrapped around the wires to minimize radio frequency interference. Always use shielded data cables. Data cable product numbers quoted in this manual refer to Hewlett-Packard shielded cables.

Magnetic Fields

Mass storage devices (discs and tape cartridges) record data magnetically. Therefore, nearby magnetic fields can corrupt such recorded data. Magnetic fields can adversely affect workstations and other devices that use cathode ray tubes. Most electrical machines with moving parts generate magnetic fields, for example, elevators and photocopiers.

Do not install HP 260 components closer than 0.5 meters (1.5 ft) to any such source of magnetism, and keep magnetic media away from stray magnetic fields.

DATA COMMUNICATIONS

It is your responsibility, before your system arrives, to order and install all data communication equipment that is not supplied with your system.

You must also plan the path of data communication equipment that is supplied with your system. To assist you, charts of all possible HP 260 system data communication links and cables are supplied in the appendix titled "Connections and Cables".

You can order all cables from Hewlett-Packard except RS-422 cables. Refer to the appendix titled "Connections and Cables" for a complete list of the cables needed to connect the HP 260 with its peripherals. Consult your Sales Representative or Hewlett-Packard Computer Supplies Catalog to order cables. You must supply your own RS-422 cables. To help you, the complete HP 260 serial pin-out is supplied in the appendix titled "Serial Port Pin Layout".

The Hewlett-Packard Interface Bus (HP-IB)

The HP-IB is a very fast method of transferring data between the SPU, mass storage devices, and HP-IB printers. Owing to its speed and sophistication, the HP-IB has certain restrictions, listed below.

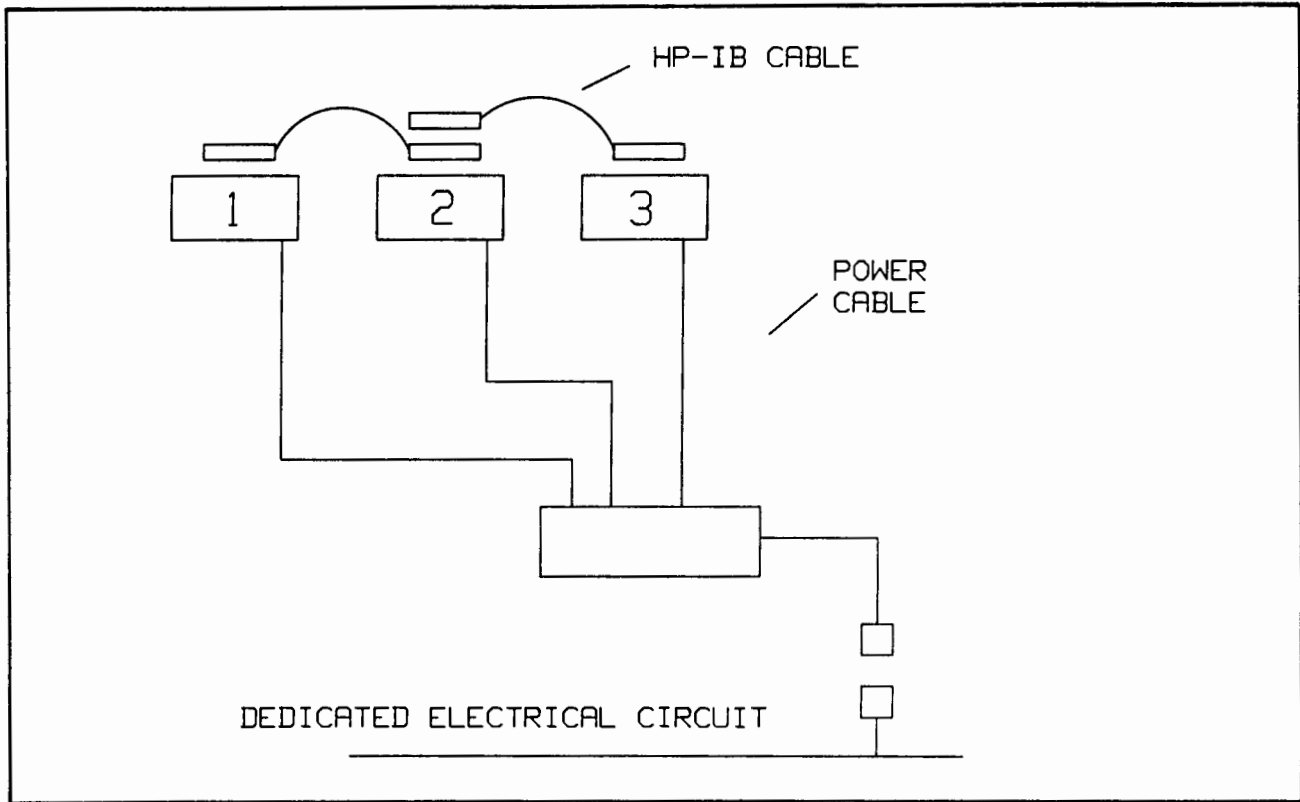
HP-IB Configuration Rules

Your system must comply with these rules:

- No more than four mass storage devices.
- No more than two HP-IB printers.
- HP-IB cables that connect discs must not be longer than one meter.
- HP-IB cables that connect printers must not be longer than two meters.
- All HP-IB devices must take their electrical power from the same dedicated circuit. (This is fully described in the section titled "What Your Electrician Must Read").

The opposite illustration shows how HP-IB cables connect HP-IB devices. The power cables plug into the dedicated electrical circuit.

Choosing and Preparing Your Site



Label	HP-IB Device
1	HP 260 SPU
2	First mass storage device
3	Second mass storage device
4	HP-IB Printer

The cables connecting the devices labeled 1, 2, and 3 must not be longer than one meter. The cable connecting the device labeled 4 (the HP-IB printer) must not be longer than two meters.

Hewlett-Packard includes HP-IB cables with these HP-IB devices. You must obtain additional HP-IB cables from Hewlett-Packard. You cannot build your own HP-IB cables.

Device	Supplied Cable
HP 2563A Printer	Two-meter HP-IB cable
HP 2563B Printer	Two-meter HP-IB cable
HP 7909A Disc	One-meter HP-IB cable
HP 7912P Disc	One-meter HP-IB cable
HP 7941A Disc	One-meter HP-IB cable
HP 7942A Disc	One-meter HP-IB cable
HP 7945A Disc	One-meter HP-IB cable
HP 7946A Disc	One-meter HP-IB cable
HP 7957A Disc	One-meter HP-IB cable
HP 7958A Disc	One-meter HP-IB cable

The Video Interface

The video interface is used for communication between the SPU and HP 45263D video workstations. You must use a video cable to connect each HP 45263D video workstation to the SPU. Hewlett-Packard supplies a five-meter video cable with each video workstation. **Video cables can have a maximum length of 100 meters.**

Asynchronous Serial Communication

Asynchronous serial communication is available from the two serial ports on the SPU board and the ports on up to two Asynchronous Serial Interface (ASI) boards.

RS-232-C and RS-422

Your HP 260 supports RS-232-C and RS-422 asynchronous serial communication. The main features of RS-232-C and RS-422 communication are:

- RS-422 cables have a maximum length of 1 kilometer
- RS-232-C cables have a maximum length of 15 meters
- only RS-232-C supports the use of modems

You must supply RS-422 cables. Consult the the appendix titled "Serial Port Pin Layout".

The Intelligent Network Processor (INP)

The INP communicates with other computers via a synchronous serial data link using either a direct cable or a modem. The maximum length of an INP cable without a modem is 15 meters.

Modems

Modems can be synchronous, when used with the INP, or asynchronous, when used with the ASI. A list of supported modems and their configuration values is supplied in the appendix titled "Modems and Modem Configuration".

SYSTEM SIZE AND WEIGHT

Make sure that your HP 260 will fit into your site by referring to the tables of size and weight in the appendix titled "System Size and Weight". The floor space required for the system can be determined using the space planning grid, supplied in the Site Preparation Kit.

NOW CHOOSE YOUR SITE

Choose a site for your HP 260 that complies with the specifications given in this section. If you have already chosen your site, ensure that it too complies with the preceding specifications. The site planning grid (part of the Site Preparation Kit) is designed to help you set out your site. Arrange the components on the grid and draw the data communication lines which connect them. Run the cables along the site walls, rather than directly across the floor (see "Safety Of Cables").

When calculating cable length, remember that cable routing usually requires that cables be longer than the distance between the components they connect. Ensure that your planned site does not extend any data communication cables beyond their permitted maximum length. As soon as you have determined what cables you require, order them and record this on the site preparation checklist.

Ask your electrician to make sure that your site complies with your HP 260's electrical requirements. Draw necessary electrical wiring on the site planning grid.

SUMMARY OF ELECTRICAL REQUIREMENTS

- **Line Voltage**

Single Phase 115/230 Volts AC

Nominal	Range
115V	90 to 129
230V	190 to 254

- **Line Frequency**

48 Hz to 66 Hz

- You must make sure that every component of the HP 260 system is **electrically grounded**. This preserves the safety of people working with the system and also minimizes data errors.
- You must install a **dedicated electrical circuit** to supply all the system components which communicate using the HP-IB.

SAFETY GROUNDING

To ensure operator and system safety, all HP 260 components MUST be grounded.

The HP 260 SPU and its peripherals are safety class 1 products. They have three-conductor power cords which, when connected to appropriate power outlets, ground the individual components of the system. The ground wire of each power cord is connected to the metal frame of the system component to which it is attached. Each grounded power cord is wired to a three-pin grounded plug of your country's specification. Plug each three-pin grounded plug into a grounded power outlet. For proper operation, the ground pin of each power outlet to which you have plugged the HP 260 must connect to the building earth ground.

A DEDICATED CIRCUIT FOR THE HP 260

You must make sure that all HP 260 components that communicate using the HP-IB (the SPU, all mass storage devices, and HP-IB printers) draw their power from a dedicated circuit. Electrical appliances that are not part of the HP 260 system, for example coffee machines, photocopiers and radios, must not draw power from the HP 260's dedicated circuit. The following diagram shows the required specifications for an electrical circuit from which the HP 260 is powered.

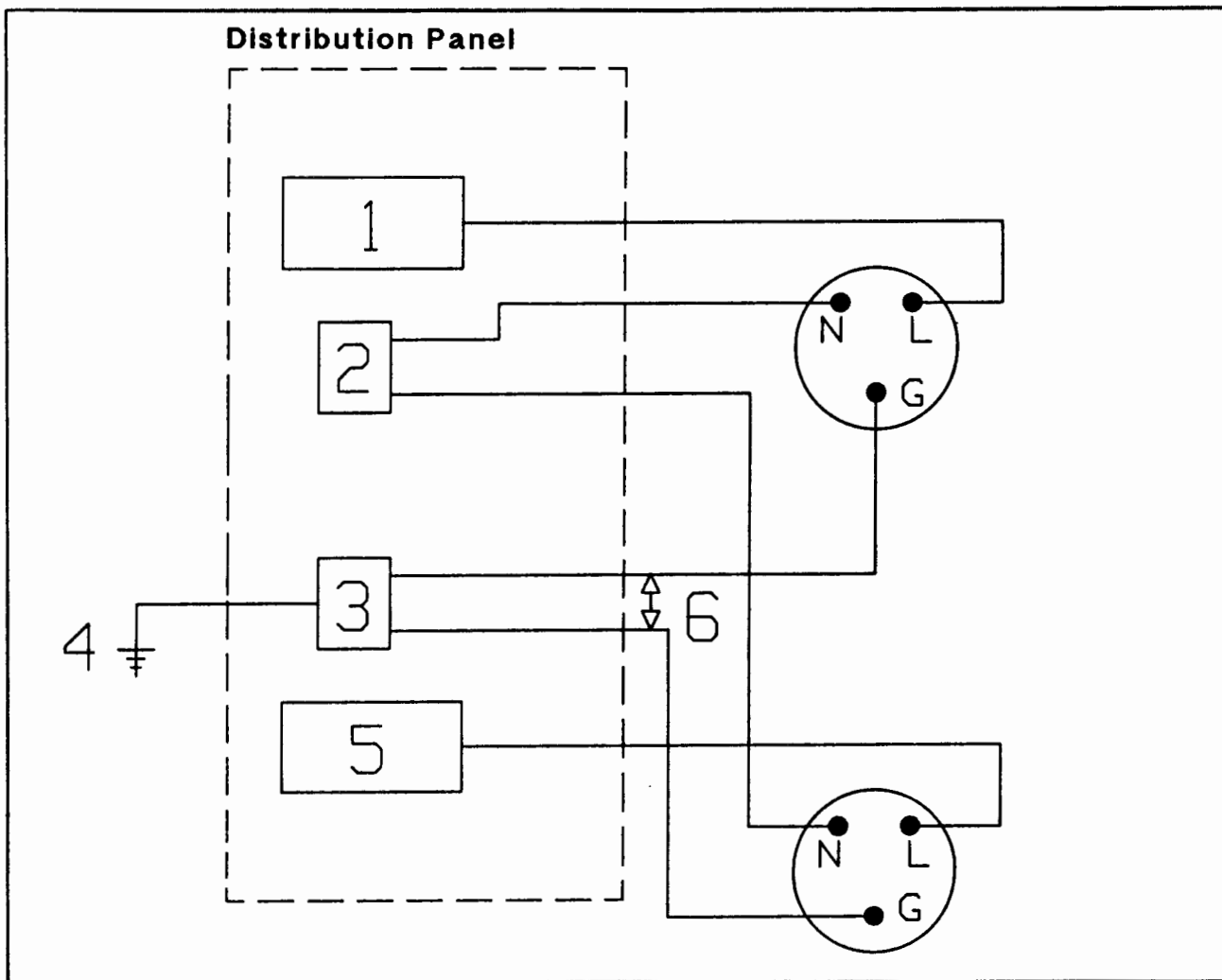
Power Consumption

Calculate the system's power consumption using the power consumption worksheet, which is supplied in the Site Preparation Kit.

Circuit Breakers

When choosing circuit breakers, remember to include a margin for surge currents. Hewlett-Packard suggests a margin of 25% of the system power consumption, but check local electrical codes first. Where multiple circuits are needed to satisfy the total amperage consumed by the system, consult local electrical codes to determine the appropriate circuit breaker size and load distribution.

HP 260 System Dedicated Circuit



Label	Item
1	Circuit breaker
2	Neutral bar
3	Ground Bar
4	Building earth ground
5	Circuit breaker (for each additional circuit)
6	The voltage difference between any two ground pins must not exceed 0.7 Volts RMS
N	Neutral Pin
L	Live Pin
G	Ground Pin

NOTE

The power outlets pictured here must only supply the HP 260 system.

ELECTRICAL INTERFERENCE

The HP 260 is designed to withstand all forms of interference.

Conducted Interference

Plugging non-computer electrical devices into the computer system circuit is the most common source of electrical interference. HP 260 system components must be the only devices on the computer's dedicated circuit.

Power Line Transients

Power line transients are undesirable variations in electromagnetic energy that transmit over power lines. These electrical pulses are sometimes generated by electric motors, vending machines, etc. The HP 260 performs correctly as long as stray electrical pulses on its power supply do not exceed the following limits.

	Maximum Permissible
Pulse Amplitude	1000 Volts
Duration	1 microsecond
Rise/Fall	1 nanosecond

Severe electrical loads from nearby heavy equipment, like elevators or electric welders, can cause system errors even if that equipment is on a different circuit breaker. For those conditions, you must provide a separate and completely independent circuit with the circuit breaker which comes directly from the main building power source. In cases of severe electrical noise, you might have to install an isolation or power-line conditioning transformer.

Susceptibility to Radiated Interference

Radiated interference causes a variety of computer problems, most commonly disc read/write errors. The most common sources of radiation are:

Airport communications
(and radar)

Hand-held transceivers
("walkie-talkies")

Two-way radio
transmitters

Microwave transmissions

TV or radio signals

X-Ray equipment

The HP 260 computer system is designed to withstand radiated interference of up to 1 volt per meter, over a frequency range of 14 KHz to one GHz.

Magnetic Fields

Nearby magnetic fields can corrupt magnetically recorded data and can adversely affect workstations and other devices that use cathode ray tubes. Most electrical machines with moving parts generate magnetic fields, for example, elevators and photocopiers.

Do not install HP 260 components closer than 0.5 meters (1.5 ft) to any such source of magnetism. The magnetic field radiated by the HP 260 will not exceed five Gauss peak to peak.

LOCAL ELECTRICAL REQUIREMENTS

The specifications quoted here are for the HP 260 only. They do not cover each country's electrical laws and regulations. When you make your electrical preparations, ensure that you meet the requirements of all local laws.

SYSTEM SIZE AND WEIGHT

APPENDIX

A

Device	Height mm (in approx)	Width mm (in approx)	Depth mm (in approx)	Weight kg (lb approx)
HP 260 SPU (HP 45070/2A)	130 (5.2)	325 (12.8)	383 (15)	11 (24.75)
I/O Extender (HP 45071A)	130 (5.2)	325 (12.8)	383 (15)	11 (24.75)
Mini-Rack Cabinet	720 (28.4)	375 (14.8)	710 (28)	25 (55)
Printers				
HP 2225D ThinkJet	90 (3.5)	285 (11.2)	205 (8.1)	3.18 (7)
HP 2563A/B	274 (10.7)	450 (17.7)	600 (23.8)	34 (75)
HP 2603A	142 (5.6)	550 (21.6)	330 (13)	13.5 (29.7)
HP 2686A LaserJet	293 (14.4)	475 (18.5)	415 (15.2)	32 (72)
HP 2932/4A	185 (7.3)	600 (23.8)	365 (14.4)	20.4 (45)
Plotters				
HP 7440A ColorPro	125 (4.9)	460 (18.1)	308 (12.1)	5.5 (12)
HP 7475A	127 (5)	568 (22.4)	367 (14.5)	7 (16)
HP 7550A	215 (8.5)	670 (26.4)	432-869 (17.0-35.3)	17.3 (38)
Mass Storage Devices				
HP 7909A	180 (7.1)	325 (7.1)	467 (18.4)	27 (59)
HP 7912P	720 (28.3)	354 (14)	711 (28)	67.7 (148)
HP 7941A	132 (5.2)	325 (12.8)	285 (11.2)	10 (22)
HP 7945A	132 (5.2)	325 (12.8)	285 (11.2)	10 (22)
HP 7942A	208 (8.2)	325 (12.8)	285 (11.2)	16 (35.2)
HP 7946A	208 (8.2)	325 (12.8)	285 (11.2)	16 (35.2)
HP 7957A	132 (5.2)	325 (12.8)	285 (11.2)	10 (22)
HP 7958A	132 (5.2)	325 (12.8)	285 (11.2)	10 (22)
HP 9133/4H	132 (5.2)	325 (12.8)	285 (11.2)	10.5 (23)
HP 9133/4L	132 (5.2)	325 (12.8)	285 (11.2)	9.1 (20)
HP 9153/4B	132 (5.2)	325 (12.8)	285 (11.2)	10.5 (23)
HP 9144A Tape	125 (4.9)	325 (12.8)	285 (11.2)	8.7 (19)
Workstations				
HP 45263D	332 (13.1)	340 (13.4)	335 (13.1)	13.0 (29.25)
HP 150 II PC	290 (11)	300 (11.7)	290 (13.4)	12.4 (27.9)
HP Vectra PC	540 (21.3)	420 (16.6)	390 (15.4)	14.4 (32.4)
HP 2392A	320 (12.6)	320 (12.6)	350 (13.8)	13.7 (30.9)
HP 2334A Multimux	135 (5.4)	425 (16.6)	540 (21)	13 (29)

SYSTEM TEMPERATURE TOLERANCE

APPENDIX

B

Device	Maximum Operating Temperature Centigrade (Fahrenheit)	Minimum Operating Temperature Centigrade (Fahrenheit)
HP 260 SPU (HP 45070/2A)	40 (104)	0 (32)
I/O Extender (HP 45071A)	40 (104)	0 (32)
Printers		
HP 2225D ThinkJet	40 (104)	10 (50)
HP 2563A/B	50 (122)	10 (50)
HP 2603A	40 (104)	5 (41)
HP 2686A LaserJet	35 (95)	10 (50)
HP 2932A	40 (104)	5 (41)
HP 2934A	55 (131)	0 (32)
Plotters		
HP 7440A ColorPro	55 (131)	0 (32)
HP 7475A	55 (131)	0 (32)
HP 7550A	55 (131)	0 (32)
Mass Storage Devices		
HP 7909A	40 (104)	10 (50)
HP 7912P	40 (104)	10 (50)
HP 794xA	40 (104)	10 (50)
HP 795xA	40 (104)	10 (50)
HP 9133/4H	40 (104)	10 (50)
HP 9133/4L	40 (104)	10 (50)
HP 9153/4B	40 (104)	10 (50)
HP 9144A Tape	40 (104)	5 (41)
Workstations		
HP 2392A	55 (131)	0 (32)
HP 45263D	40 (104)	5 (41)
HP 150 II PC	40 (104)	5 (41)
HP Vectra PC	40 (104)	5 (41)
Other Devices		
HP 3081A Date Entry	55 (131)	0 (32)
HP 39800A Bar Code	55 (131)	0 (32)
HP 2334A Multimux	55 (131)	0 (32)

This appendix lists all the peripherals which you can attach to your HP 260. Each peripheral is shown alongside the data cables needed to connect it to the HP 260. Quote the Hewlett-Packard product number, printed next to each cable, when ordering cables.

Additional Software Needed For Personal Computers

You must purchase the "AdvanceLink 2392" software package (revision A.05.00 or later) before the HP Vectra, the IBM PC, the IBM PC AT, and the IBM PC XT can communicate with the HP 260. These personal computers must include the appropriate data communications option.

You must purchase the "REFLECTION 1" software package before the HP Portable Plus can communicate with the HP 260. The HP Portable Plus must include an RS-232-C interface.

Local Bar Code Readers and Printers

You can operate the HP 92916A bar code reader from the HP 150 II, the HP Vectra, and the HP 45263D video workstation. You can operate the HP 92915A bar code reader from the HP 2392A workstation. You can attach local printers to these workstations, and also to the IBM PC, the IBM PC AT, and the IBM PC XT. Cables necessary to attach these local devices are supplied with the local devices themselves.

Cables for the IBM PC, IBM PC AT and IBM PC XT

It is your responsibility to supply a cable capable of connecting the serial interface of these IBM PCs to a 25-pin male connector that is correctly wired for the HP 260. Consult the appendix titled "Serial Port Pin Layout". for the serial data pins used by the HP 260.

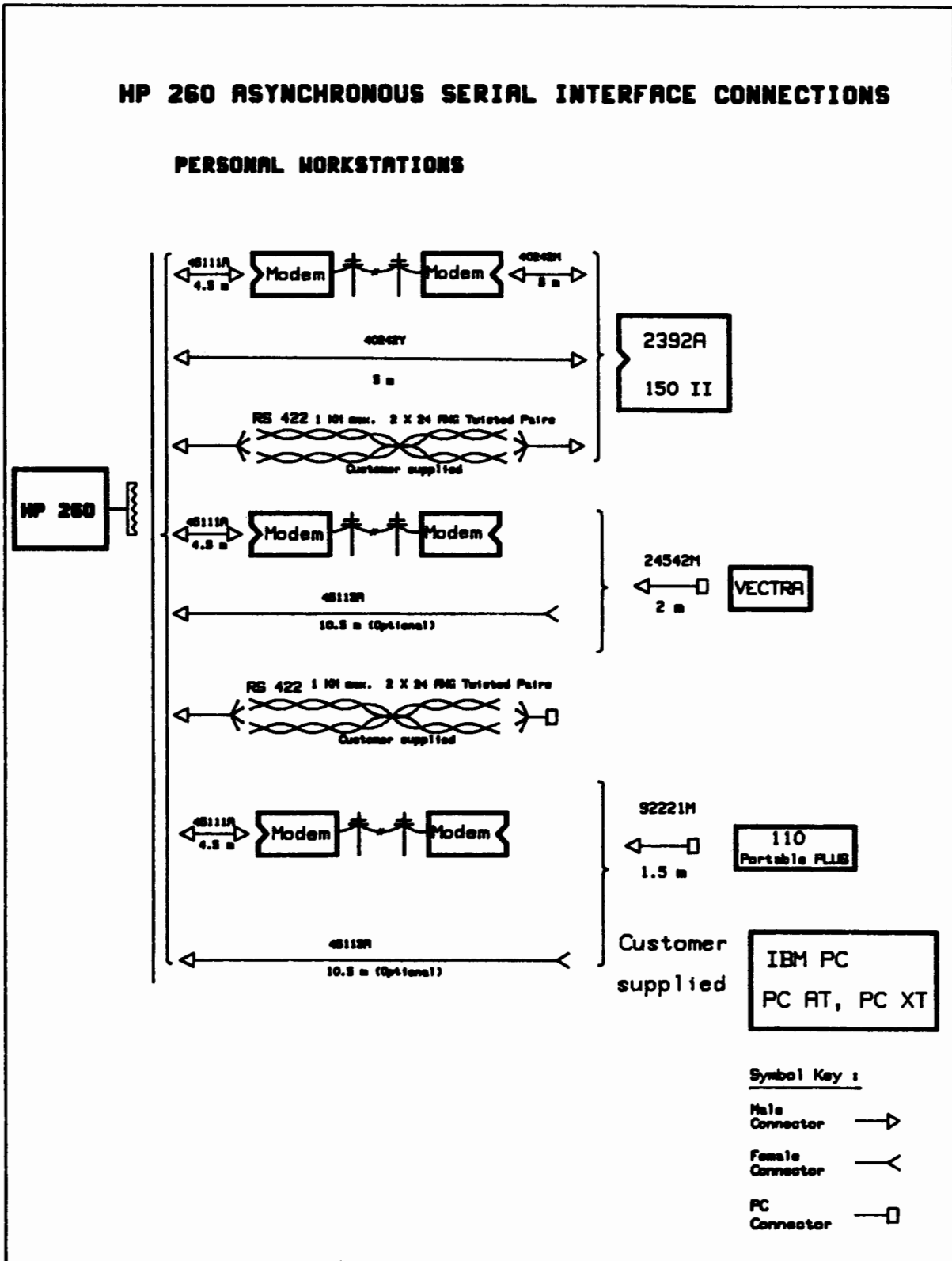
RS-422 Cables

You must supply RS-422 cables. Consult the appendix titled "Serial Port Pin Layout" for a an example of RS-422 cable and a full description of the HP 260 serial communication pins.

NOTE

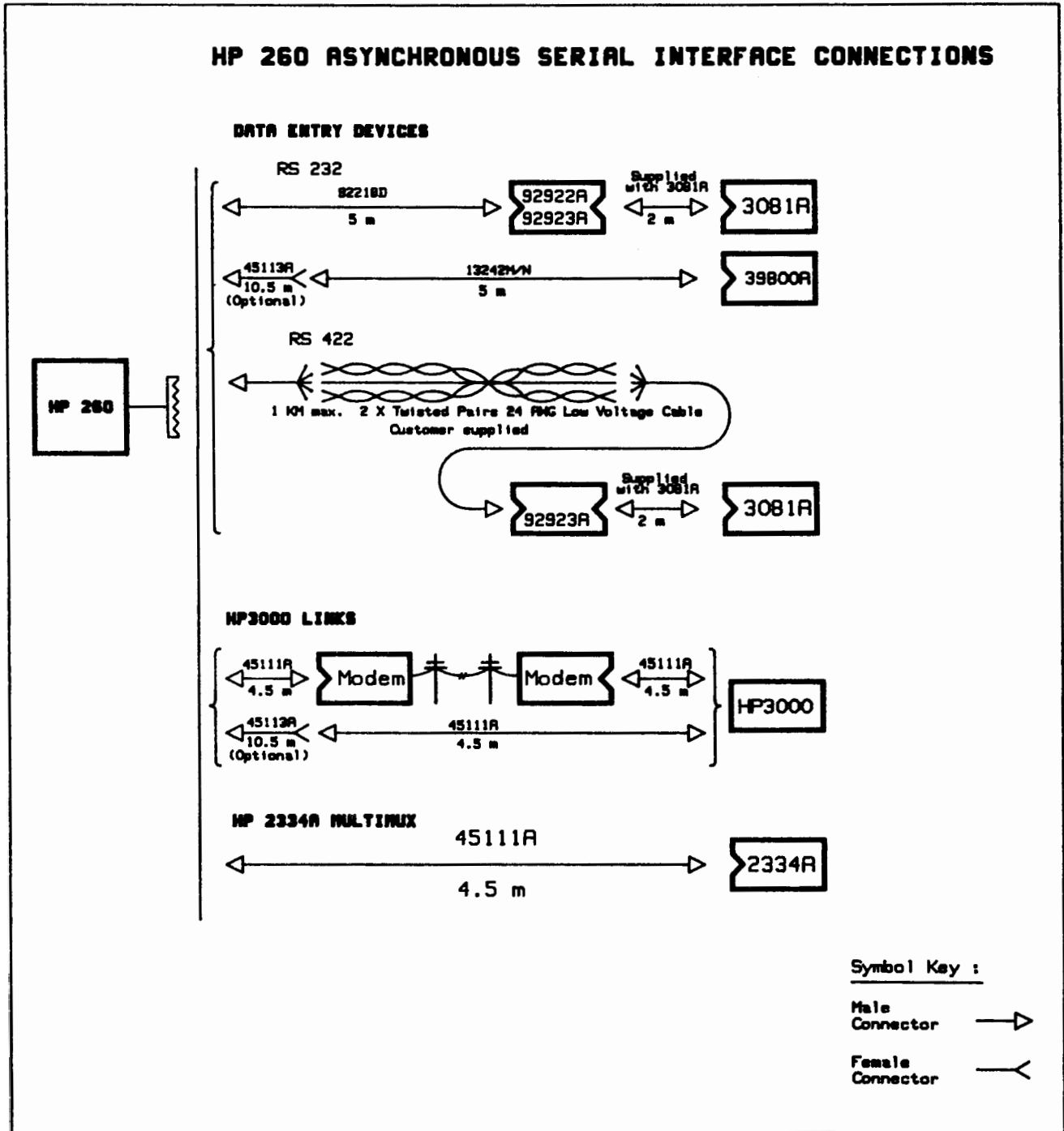
If you want to attach a peripheral to ports four and five on an ASI board, you must first fit a connection cable. This cable, part number HP 45127-61601, converts the socket for ports four and five to two standard 25-pin female connectors. One connection cable is supplied as standard with each ASI board.

Asynchronous Workstations



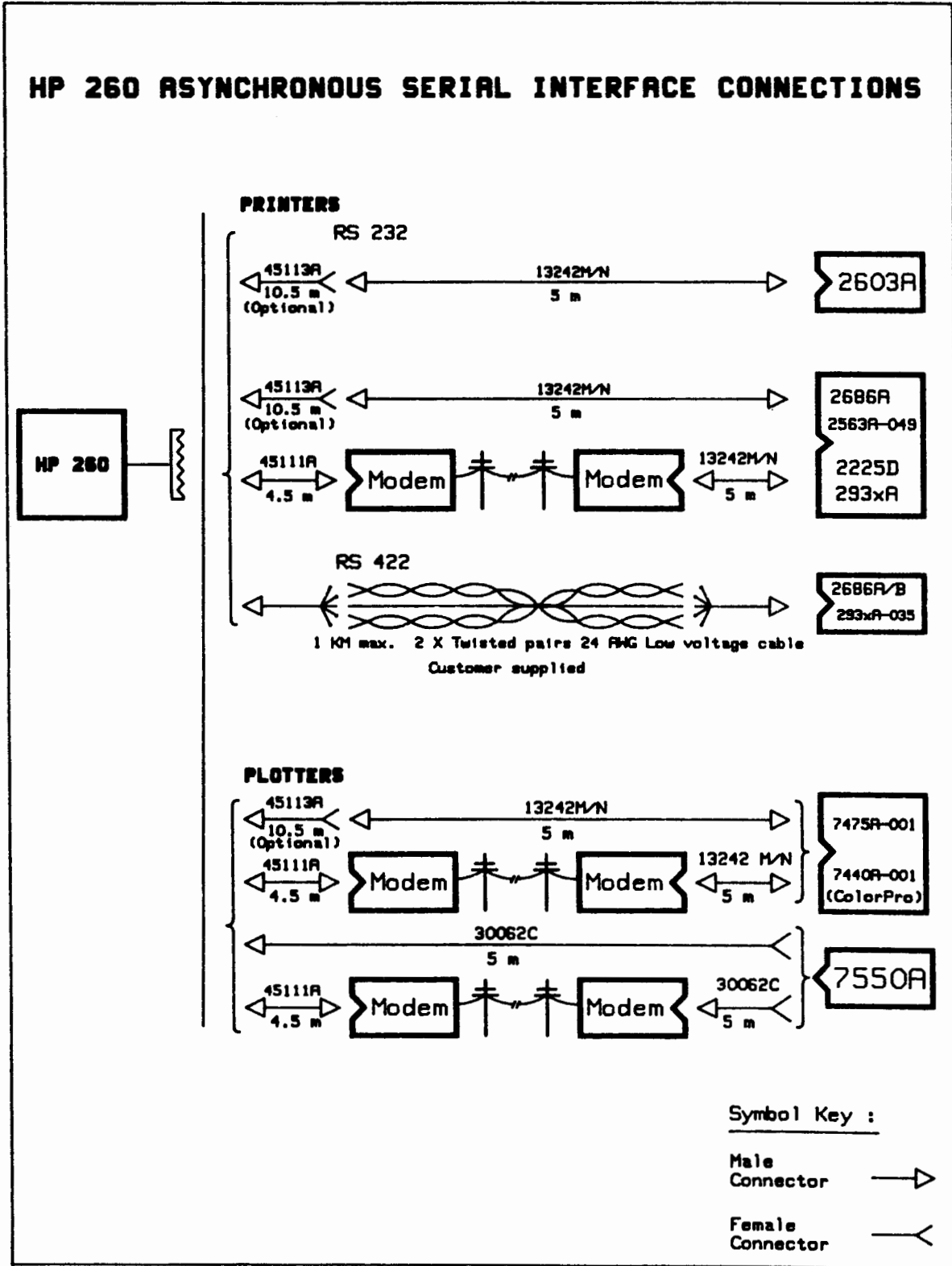
Designed with HP EGS

Asynchronous Data Entry Devices, the HP 2334A, and the HP 3000



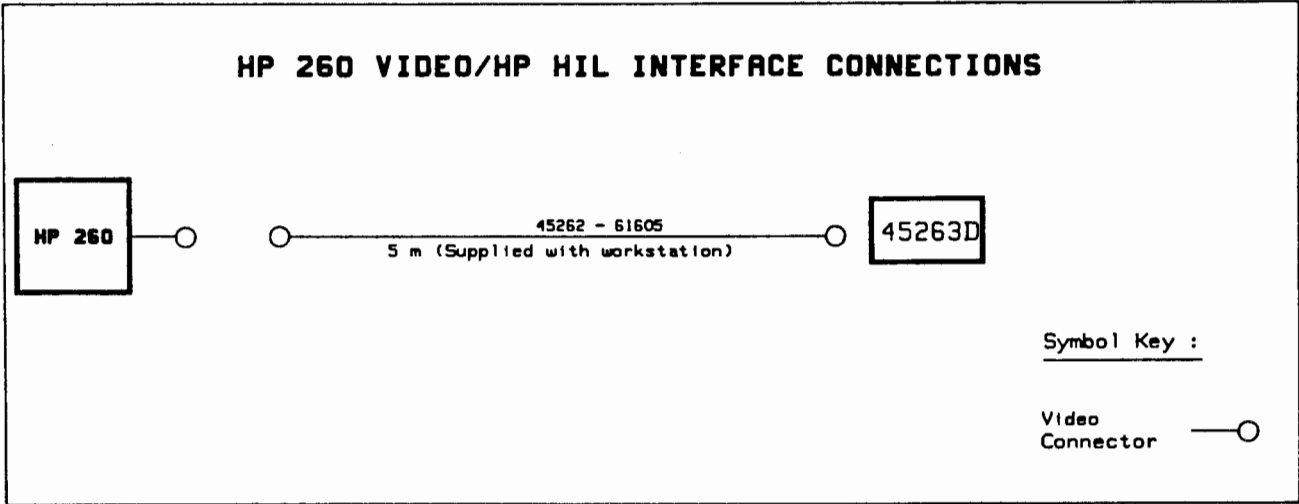
Designed with HP EGS

Asynchronous Printers and Plotters



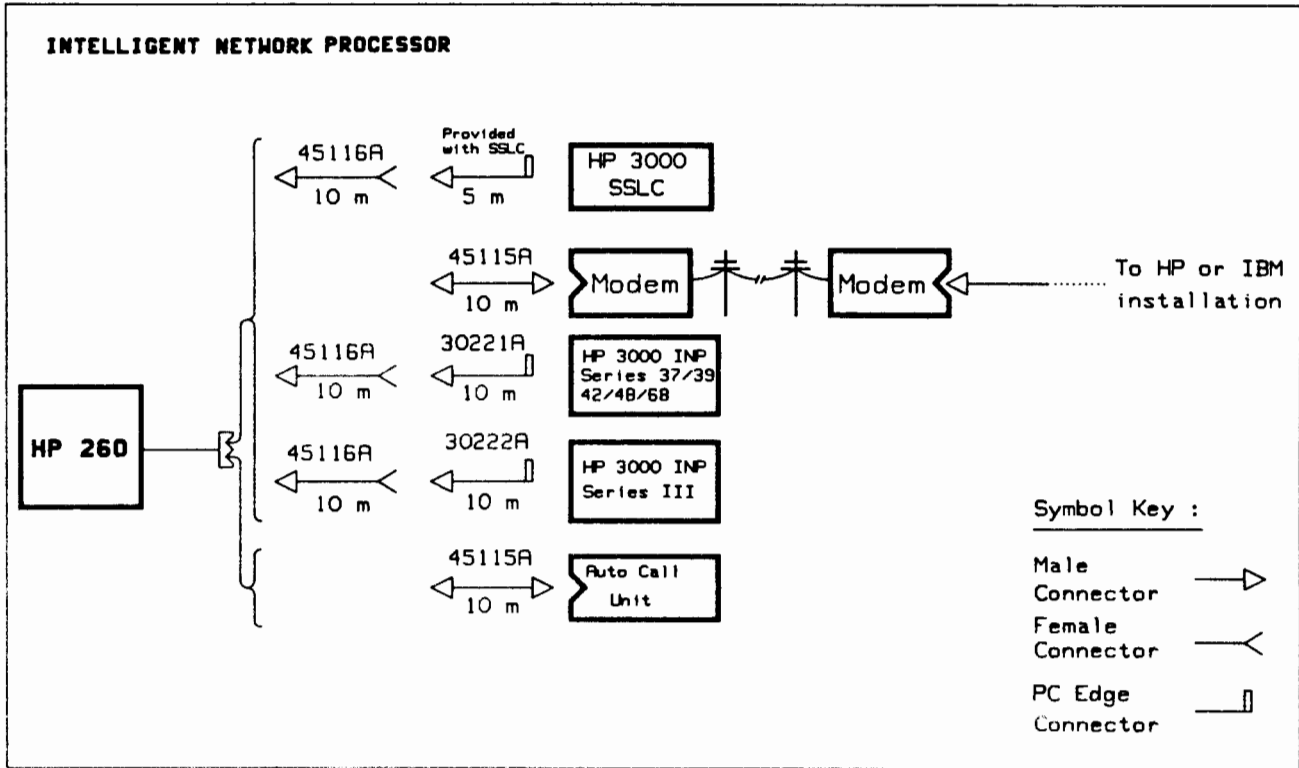
Designed with HP EGS

Video (HP-HIL) Workstations

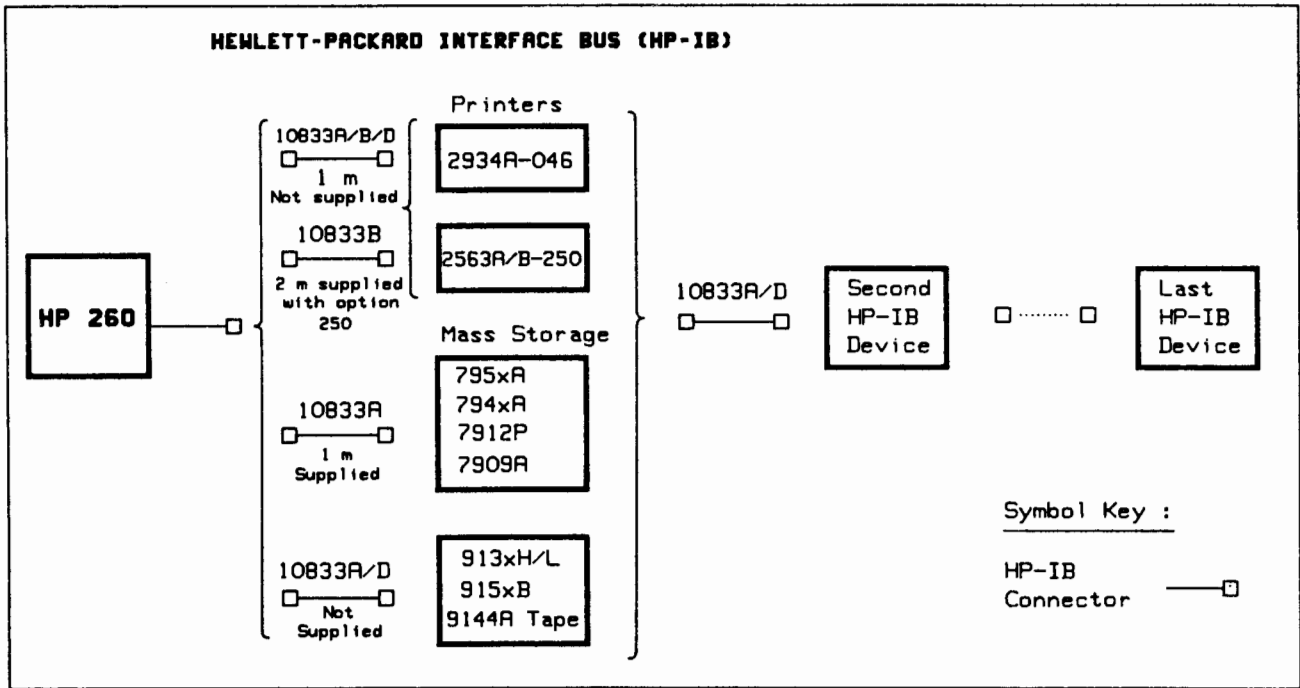


Designed with HP EGS

Synchronous Communication with the Intelligent Network Processor



HP-IB Communication



SERIAL PORT PIN LAYOUT

APPENDIX

D

This appendix lists the pins used by all HP 260 25-pin serial ports. This pin layout applies only to the HP 260. If you use this layout to build serial communication cables, you must verify the corresponding serial pins for the device at the other end of the cable. You can find further cabling information in the Hewlett-Packard Cabling Manual, part number 5957-9918.

Following the serial pin layout is a description of an RS-422 cable.



NOTE

Hewlett-Packard does not support self-built data communication cables. If you build a data cable and a fault occurs due to that cable, you can be charged for the Hewlett-Packard Customer Engineer service visit.

Table of HP 260 Serial Pin Layout

Pin Number	Signal Function	Characteristics With RS-232-C	Characteristics With RS-422	Serial Ports Used
1	Protective Ground	Shield Ground	Shield Ground	All
2	Receive(d) Data	Input	Differential Input A	All
3	Transmitted Data	Output		All
4	Request to Send	Output		-1, -2, 1*3, 6*8
5	Clear to Send	Input		-1, -2, 1*3, 6*8
6	Data Terminal Ready	Output		-1, -2, 1*3, 6*8
7	Signal Ground	Signal Ground	Signal Ground	All
8	Data Carrier Detected	Input		-1, -2, 1*3, 6*8
9	Send Data		Differential Output A	1*10
10	Send Data		Differential Output B	1*10
18	Receive Data		Differential Input B	1*10
20	Data Set Ready	Input		-1, -2, 1*3, 6*8
23	Data Rate Select	Output		-1, -2, 1*3, 6*8

The serial pin layout table columns are explained below.

- **Pin Number.** This is the number of the pin on the HP 260 25-pin serial port.
- **Signal Function.** This is the RS-232-C name of each pin.
- **Characteristics with RS-232-C.** This shows the electrical characteristics of each pin when the HP 260 is communicating using RS-232-C.
- **Characteristics with RS-422.** This shows the electrical characteristics of each pin when the HP 260 is communicating using RS-422.
- **Serial Ports Used.** This shows the serial ports from which the signals are obtainable.

Port Abbreviation	Description
All	Every serial port on the HP 260
1*10	Every serial port on each ASI board (Ports 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10)
1*3, 6*8	The first three serial ports on each ASI board. (Ports 1, 2, 3, 6, 7, and 8) They are labeled 1/6, 2/7, and 3/8 on the ASI board cover
-1, -2	The two serial ports on the SPU board. They are labeled -1 and -2 on the SPU board cover

Typical Pin Use

This table lists the different forms of HP 260 serial communication, with the pins usually required for communication using each serial form.

Pin Number	Direct RS-232-C	Direct RS-232-C for Printers Using Hardware Handshake	RS-232-C With Modems	Direct RS-422
1	Y	Y	Y	Y
2	Y		Y	Y
3	Y	Y	Y	
4			Y	
5			Y	
6			Y	
7	Y	Y	Y	Y
8			Y	
9				Y
10				Y
18				Y
20		Y	Y	
23			Y	

NOTE

All other pins are unused. However, stray signals can appear at unused pins so do not connect them.

RS-422 signals are not available from the serial ports on the SPU board.

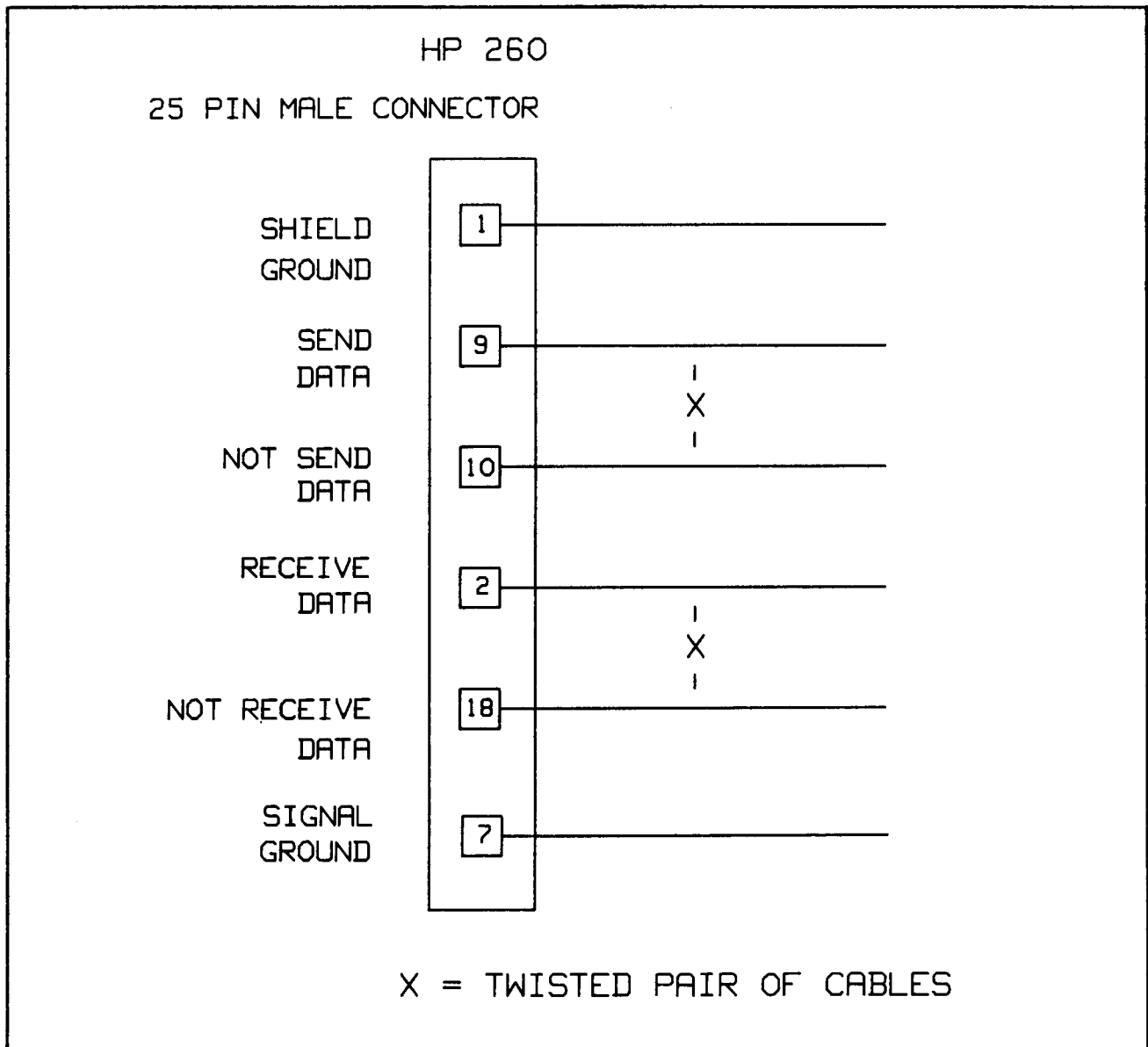
Modems cannot be used from the last two ports on an ASI board.

RS-422 Cables

An RS-422 connection allows you to locate a peripheral up to one kilometer (0.6 mile) from your HP 260. You must supply a cable to connect a peripheral to the HP 260 using the RS-422 interface. The cable should have two twisted pairs of 24 AWG low voltage wire.

You can obtain raw RS-422 cable and connectors from Hewlett-Packard. Consult your Sales Representative or Hewlett-Packard Computer Supplies Catalog.

The illustration below shows the serial data pins used by the HP 260 when communicating with a Hewlett-Packard peripheral via the RS-422 interface. The serial data pins and type of connector at the other end of the cable depend on the peripheral. Consult the peripheral documentation to find out its serial data pins and type of connector.



HP 260 25-pin connector for RS-422 Communication

MODEMS AND MODEM CONFIGURATION

APPENDIX

E

Modems encode and decode computer signals for communication over telephone lines. Modems are either asynchronous, allowing ASI signals to be transferred, or synchronous, serving the Intelligent Network Processor (INP). The HP 260 is fully tested with the following modems; each supported modem is listed, and its configuration values are supplied. If you have any questions concerning the use or acceptability of modems, consult your Hewlett-Packard Customer Engineer.

NOTE

Some countries restrict the installation of modems to government agencies. Consult your electrician to make sure that your installation complies with all local regulations.

ASYNCHRONOUS MODEMS

The following modems operate with the RS-232-C interface. Consult the appendix entitled "Cables and Connections" for the data cables that connect modems to the HP 260.

HP Supported Asynchronous Modems

Data Set	Baud Rate	Type of Line
Bell 103J	300 Baud	Switched, Full Duplex
Bell 212A	300/1200 Baud	Switched, Full Duplex

Modems and Modem Configuration

The configuration for the Bell 103J modem is:

Bell 103J Data Set

Feature	Required Configuration
Receive space disconnect	Yes
Send space disconnect	Yes
Loss of carrier disconnect	Yes
CC indication	Early
CB and CF indications	Common
CC indication for analog loopback	On
Fail safe of CN circuit	Off
Automatic answer	Yes
Common grounds	Yes

The configuration for the Bell 212A modem is shown on the following page.

Bell 212A Data Set Configuration

Option	Feature	Required Configuration
A3	Disconnect Options a. 2. Send space (OUT) b. 1. Receive space IN c. 1. Loss of carrier (IN)	Yes Yes Yes
B3	With automatic answer	Yes
C6	EIA interference and ground a. 1. DSR(CC) indication for analog loop (ON) b. 1. CTS (CB) and DCD (CF) indication (COMMON) c. 1. Signal ground to frame connection (IN) d. 2. Answer mode indication (CE) (OFF) e. Interface speed indication (OUT) f. Speed control (HS button) g. Interface controlled Remote Digital Loop (OUT) h. CN and TM Test Mode Assignments -CN Pin 18 + TM Pin 25	Yes Yes Yes Yes Yes Yes Yes Yes
D8	Modes of operation a. 1. 1200 baud asynchronous start/stop b. 2. Character length-10 bit c. 1. Transmitter timing-internal d. 2. Speed mode-dual (1200 or 300) e. 1. Receiver responds to digital loop (IN) f. 2. Interface speed indications (OUT)	Yes Yes Yes Yes Yes Yes
E10	Make busy/analog loop (CN) circuit disabled (OUT)	Yes

SYNCHRONOUS MODEMS

The following modems operate with the HP 260 Intelligent Network Processor. These, when correctly configured, carry the HP 260's synchronous signals.

Consult the appendix entitled "Cables and Connections" for the data cables that connect modems to the HP 260.

Synchronous Modems and Automatic Calling Units

Modem/ACU	Bit Rate	Type of Line	Line Conditioning
Bell 201C	2400 bps	Public (Switched)	C2 or C4
Bell 208A	4800 bps	Private (Leased)	None
Bell 208B	4800 bps	Public (Switched)	None
Bell 209A	9600 bps	Private (Leased)	D1
Bell 801C-L2	Autocall	Public (Switched)	None

The configuration for the Bell 201C modem is:

Bell 201C Data Set (Switched)

Option	Feature	Required Configuration
A1	Transmitter internally timed	Yes
B3	Without 801 Automatic Calling Unit	Optional
B4	With 801 Automatic Calling Unit	Optional
C5	EIA interface	Yes
D8	With automatic answer	Yes
E9	Automatic answer key-controlled	Optional
--	Grounding	AA to AB

Modems and Modem Configuration

The configuration for the Bell 208A modem is:

Bell 208A Data Set (Leased)

Option	Feature	Required Configuration
A1	Transmitter internally timed	Yes
B3	Continuous carrier	Yes
C6	Continuous Request To Send	Yes
D7	One second holdover used	Yes
E10	Without new sync	Yes
F11	CC ON when analog loop is present	Yes
--	Grounding	AA to AB

The configuration for the Bell 208B modem is:

Bell 208B Data Set (Switched)

Option	Feature	Required Configuration
A1	Transmitter internally timed	Yes
B3	Without 801 Automatic Calling Unit	Optional
B4	With 801 Automatic Calling Unit	Optional
C6	CC ON when analog loop is present	Yes
D8	With automatic answer	Yes
E9	Desk mounting	Either
E10	Rack or cabinet mounting	Either
--	Grounding	AA to AB

Modems and Modem Configuration

The configuration for the Bell 209A modem is:

Bell 209A Data Set (Leased)

Option	Feature	Required Configuration
A1	Transmitter internally timed	Yes
C6	Slaved Transmitter timing by receiver	Out
D8	Elastic store out	Yes
E9	Continuous carrier	Yes
F12	Continuous Request to Send	Yes
--	Data Set Ready circuit	CC off
--	Grounding	AA to AB
--	With or without alternate service	Either

The configuration for the Bell 801C-L2 modem is:

Bell 801C-L2 Auto Call Unit (Switched)

Option	Feature	Required Configuration
A2	Signal ground not connected to frame ground	Yes
B4	Call terminated through data set after DSS on	Yes
C5	ACR timer stopped DSS on	Yes
D8	ACR timing interval specified by customer 1. 7 seconds 2. 14-15 seconds 3. 25-28 seconds	Yes 25-28 seconds

Safety Recommendations and Approvals

The HP 260 has the following approvals for safety:

- UL 478 Electronic Data Processing Units and Systems (for the U.S. A.)
- CSA C22.2 No. 154 Data Processing Equipment (for Canada)

The HP 260 complies with the following safety recommendations:

- IEC 380 International Recommendations for Office Machines (for Europe and Australia)
- IEC 435 International Recommendations for Data Processing Equipment (for Europe and Australia)

Radio Frequency Interference Approvals

The HP 260 has the following approvals for Radio Frequency Interference:

- for Germany, it is in accordance with the Radio Interference Requirements of Directive FTZ 1046/1984
- for the U.S.A., that of Part 15 of the FCC rules for a Class A computing device

Data Communication Approvals

The HP 260 has data communications approvals for the following countries: *

- Australia
- Belgium
- Finland
- Germany
- Sweden
- United Kingdom

* The U.S.A. does not require data communications approval

NOTE

It is your responsibility to ensure that the requirements of all local laws, regulations, and codes for electrical equipment installation are met. (Ask your electrician to explain any local laws).

HP 260

Site Preparation

Kit

SITE PREPARATION CHECKLIST

This form lists every site preparation subject. Each time you complete a subject, record the achievement in the column labeled "Completed", and show the completion date. Mark a cross in the "Completed" column for any subject that does not apply to your site. The site is fully prepared when there is an entry in each "Completed" column.

The entry under "Refer to Section" is the section or appendix in which the topic is discussed.

Physical and Environmental Preparations

Question	Completed	Date	Refer to Section
Has your site been chosen?	<input type="checkbox"/>	-----	2
Has your site plan been made?	<input type="checkbox"/>	-----	2
Is the site large enough?	<input type="checkbox"/>	-----	2
Is the site capable of holding the system weight? (Check that tables and shelves are strong enough)	<input type="checkbox"/>	-----	2
Is the temperature acceptable?	<input type="checkbox"/>	-----	2
Has the system heat output been considered?	<input type="checkbox"/>	-----	2
Is the humidity acceptable?	<input type="checkbox"/>	-----	2
Does the site lie within the altitude range?	<input type="checkbox"/>	-----	2
Have contaminants and interference been considered?	<input type="checkbox"/>	-----	2, 3

Electrical Preparations

Question	Completed	Date	Refer to Section
Is your system safely grounded?	<input type="checkbox"/>	-----	2, 3
Is your system on a dedicated circuit?	<input type="checkbox"/>	-----	3
Have you chosen circuit breakers for the system power consumption plus surge margin?	<input type="checkbox"/>	-----	3
Are line voltage and frequency acceptable?	<input type="checkbox"/>	-----	3
Is the power transient level acceptable?	<input type="checkbox"/>	-----	3
Are your local electrical codes satisfied?	<input type="checkbox"/>	-----	3

Data Communication Preparations

Question	Completed	Date	Refer to Section
Have data cables been entered on the site plan?			2
RS-232-C	<input type="checkbox"/>	-----	
RS-422	<input type="checkbox"/>	-----	
HP-IB	<input type="checkbox"/>	-----	
Video	<input type="checkbox"/>	-----	
INP	<input type="checkbox"/>	-----	
Do the cable lengths and configurations comply with the cable specifications?	<input type="checkbox"/>	-----	2
Have non-supplied data cables been			2, Appendix "Data Cable Construction"
ordered?	<input type="checkbox"/>	-----	
built?	<input type="checkbox"/>	-----	
installed?	<input type="checkbox"/>	-----	
Have modems (both ASI and synchronous) been			2, Appendix "Supported Modems"
ordered?	<input type="checkbox"/>	-----	
installed?	<input type="checkbox"/>	-----	

Organizational Preparations

Question	Completed	Date	Refer to Section
Have you selected your principal operator?	<input type="checkbox"/>	-----	1
Have you ordered consumable supplies?			1
3. 5" microfloppies	<input type="checkbox"/>	-----	
tape cartridges	<input type="checkbox"/>	-----	
8" floppy discs	<input type="checkbox"/>	-----	
printer paper	<input type="checkbox"/>	-----	
printer ribbon	<input type="checkbox"/>	-----	
ink jet cartridges	<input type="checkbox"/>	-----	
plotter paper	<input type="checkbox"/>	-----	
plotter pens	<input type="checkbox"/>	-----	
Have you arranged for the safe storage of consumables?			1
Magnetic media	<input type="checkbox"/>	-----	
Backed-up data and programs	<input type="checkbox"/>	-----	
Other consumables	<input type="checkbox"/>	-----	
Have you scheduled the system installation day?	<input type="checkbox"/>	-----	1

Dates to Remember

	Day	Month	Year
Date the first component arrived	-----	-----	-----
Date the last component arrived	-----	-----	-----
Date the CE is scheduled to install the system	-----	-----	-----

POWER CONSUMPTION WORKSHEET

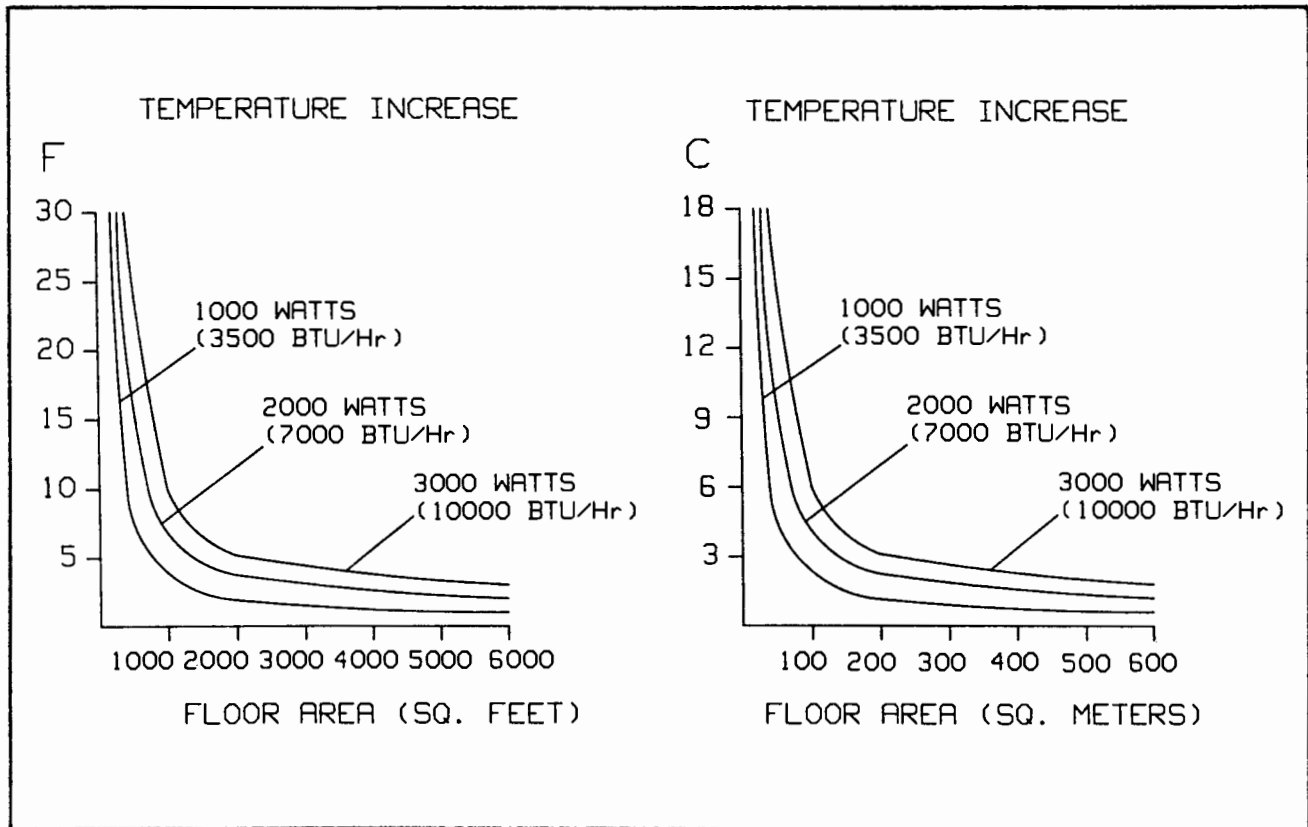
Device	Power Consumed (Watts)	Number of Devices	Total Power Consumed
HP 260 SPU (HP 45070/2A)	220		
I/O Extender (HP 45071A)	220		
Printers			
HP 2225D ThinkJet	8		
HP 2563A/B	600		
HP 2603A	58		
HP 2686A LaserJet	850		
HP 2932/4A	300		
Plotters			
HP 7440A	20		
HP 7475A	35		
HP 7550A	100		
Mass Storage Devices			
HP 7909A	145		
HP 7912P	700		
HP 7941/5A	200		
HP 7942/6A	120		
HP 795xA	200		
HP 9133/4L	125		
HP 9133/4H	125		
HP 9153/4B	125		
HP 9144A Tape	125		
Workstations			
HP 45263D	45		
HP 2392A	60		
HP 150 II	175		
HP Vectra	450		
Other Devices			
HP 3081A Data Entry	70		
HP 39800A Bar Code	20		
HP 2334A Multimux	115		
System Total			_____ Watts

The entry under "Power Consumed" is the maximum power used during operation.
The amperage drawn depends upon the local voltage.

HEAT OUTPUT CALCULATION

Follow these instructions to find out if your system heat output causes the site temperature to exceed the recommended range.

1. Calculate the heat output by your system using the heat output worksheet.
2. Calculate the approximate size of your site.
3. Find the increase in temperature from the graph below, using the system heat output and the room size.
4. Find the new site temperature by adding the existing site temperature to the temperature increase taken from the graph.



Assumes Room Height of 2.8 meters (8 feet approx)

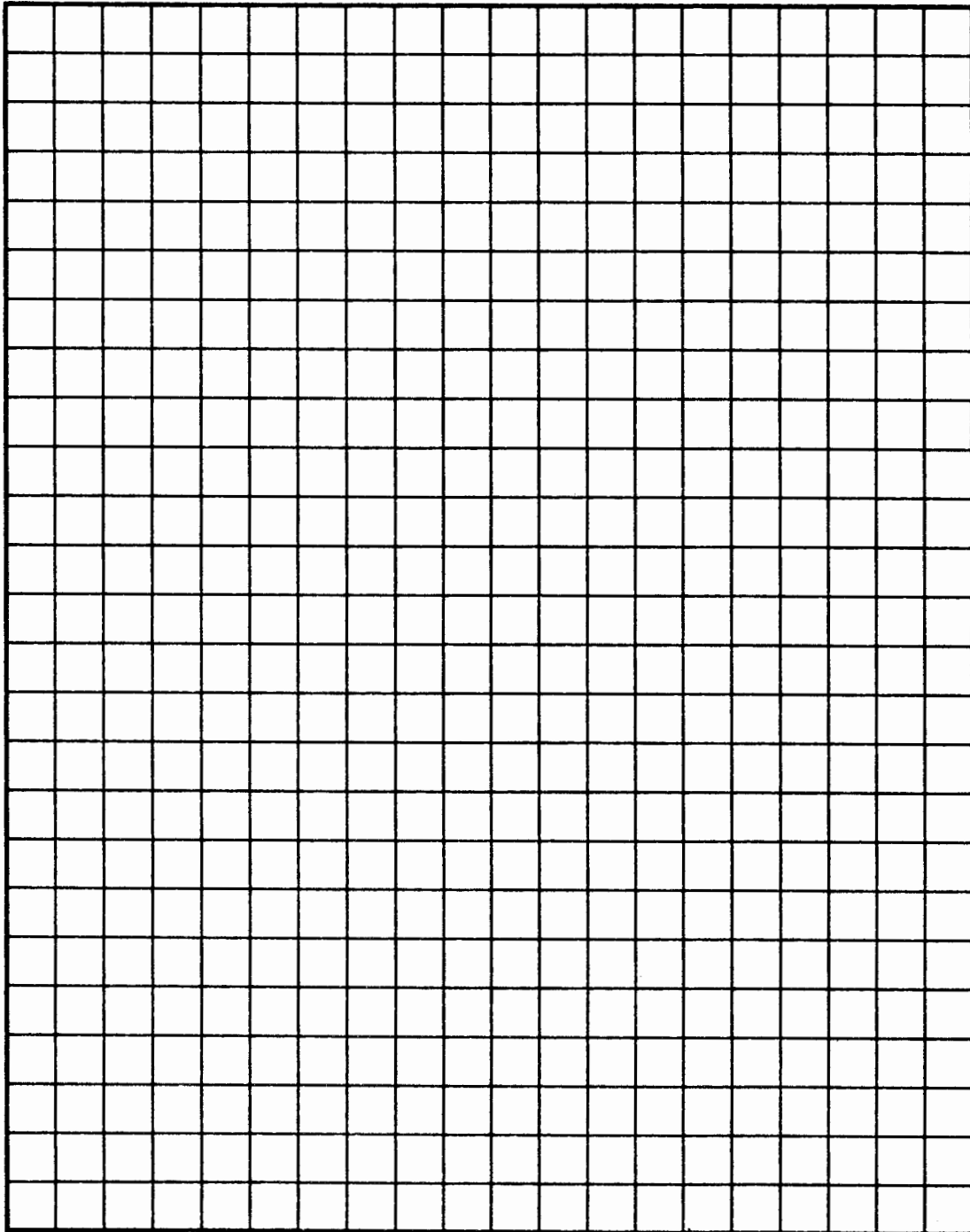
HEAT OUTPUT WORKSHEET


Device	Heat Output per Device (BTU/hr)	Number of Devices	Total Heat Output
HP 260 SPU (HP 45070/2A)	750		
I/O Extender (HP 45071A)	750		
Printers			
HP 2225D ThinkJet	27		
HP 2563A/B	784		
HP 2603A	200		
HP 2686A LaserJet	2900		
HP 2932/4A	1025		
Plotters			
HP 7440A ColorPro	69		
HP 7475A	120		
HP 7550A	343		
Mass Storage			
HP 7909A	495		
HP 7912P	2390		
HP 7941/5A	680		
HP 7942/6A	410		
HP 795xA	680		
HP 9133/4L	425		
HP 9133/4H	425		
HP 9153/4B	425		
HP 9144A Tape	425		
Workstations			
HP 2392A	155		
HP 45263D	200		
HP 150 II	600		
HP Vectra	710		
Other Devices			
HP 3081A Data Entry	240		
HP 39800A Bar Code	68		
HP 2334A Multimux	390		
System Total			_____ BTU/hr

The entry under "Heat Output" is the maximum heat produced during operation.

SITE PLANNING GRID

Use this grid to plan the physical arrangement of your site and its data cable layout. Each HP 260 system component is drawn to scale. Arrange each component on the grid and plan your site. Draw the data and power cables on the plan and estimate their length. You can include office furniture, doors and other non-computer equipment.

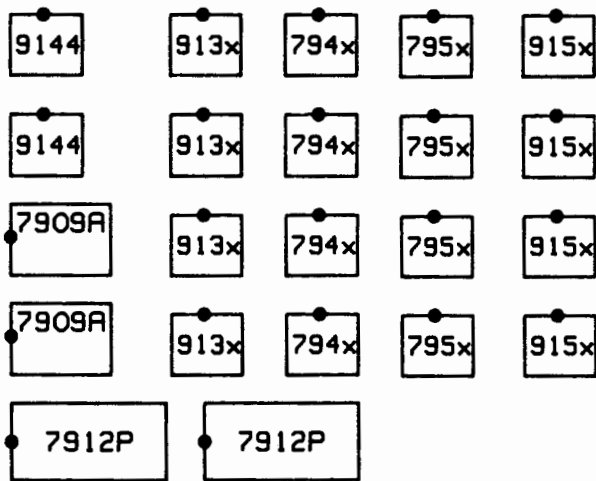


SCALE :  = 250 MM (10 IN APPROX)

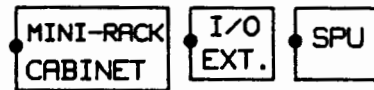
HP 260 SYSTEM COMPONENTS

Every component except the data entry devices is drawn to the same scale as the grid. (The data entry devices are too small to be drawn to scale).

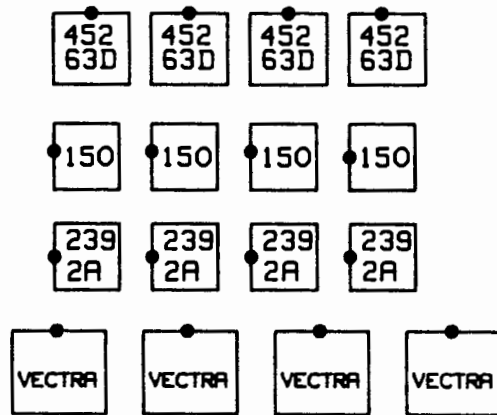
MASS STORAGE DEVICES



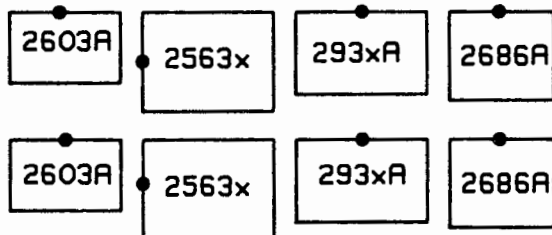
HP 260 SPU



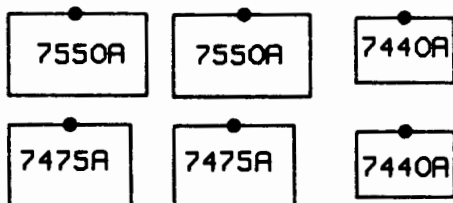
WORKSTATIONS



PRINTERS



PLOTTERS



DATA ENTRY DEVICES (NOT TO SCALE)



MULTIMUX



● DATA AND POWER CABLE CONNECTION
(ALSO INDICATES REAR OF COMPONENT)