hp

HEWLETT
PACKARD

DOS Coprocessor
Installation Reference

HP 9000
Series 300

98531-90001

DOS Coprocessor Installation Reference

HP 9000 Series 300 Computers

HP Part Number 98531-90001

HEWLETT PACKARD

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Printing History

New editions of this manual will incorporate all material updated since the previous edition. Update packages may be issued between editions and contain replacement and additional pages to be merged into the manual by the user. Each updated page will be indicated by a revision date at the bottom of the page. A vertical bar in the margin indicates the changes on each page. Note that pages which are rearranged due to changes on a previous page are not considered revised.

The manual printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates which are incorporated at reprint do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

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Purpose of This Manual

This manual explains how to install the hardware and software needed to run the HP 98286 Series 300 DOS Coprocessor. It contains instructions for installing the HP 98286A DOS Coprocessor interface card and the HP 98531A DOS Coprocessor software, as well as the HP 98515A AXE operating system. It also includes instructions for install an HP 9127A Flexible Disc Drive and an HP 45987A Numeric Coprocessor.

Who Should Read This Manual

You should read this manual if you are either:

- the person responsible for installing the HP DOS Coprocessor System at your company's site, or

- a Hewlett-Packard Customer Engineer or Systems Engineer responsible for installing the HP DOS Coprocessor at a customer's site.

How This Manual Is Organized

This manual contains five chapters.

- **Chapter 1: Introduction** provides introductory and miscellaneous material needed for the installation process.

- **Chapter 2: Installing the Hardware** contains instructions for installing the HP 45987A Numeric Coprocessor chip, the HP 98286A DOS Coprocessor interface card and the HP 9127A 5.25-inch Flexible Disc Drive.

- **Chapter 3: Installing AXE** contains instructions for installing those filesets in the HP 98515A HP-UX AXE operating system needed to run the DOS Coprocessor system.

- **Chapter 4: Installing DOS** contains instructions for installing the DOS software on top of the AXE.

- **Chapter 5: Safeguarding the System** contains instructions for creating a recovery system and backing up your system. It also tells you how to optimize AXE for DOS use only.

What This Manual Doesn't Contain

The DOS Coprocessor software is intended to run on top of HP-UX or its execution-only subset, AXE. Nonetheless, this manual does not contain everything you ever wanted to know about HP-UX but were afraid to ask. It only contains that material needed to accomplish the installation task. If you wish to know more about these topics, there are many excellent sources of information available. The *HP-UX Documentation Roadmap* contains a complete list of all HP-UX documentation and a cross-reference by topic.

Other DOS Coprocessor Manuals

This manual is part of a three-manual set. Other manuals in the set are:

- *Using the HP Series 300 DOS Coprocessor* This manual tells how to run DOS on a Series 300 computer. It discusses keyboard, CRT and other I/O operations, and how to execute some commands.

- *DOS Reference Manual* This manual is the A to Z technical reference for DOS. It is structured in alphabetic order for quick access to any DOS keyword or parameter.

In addition to this manual set, the *MS-DOS Programmer's Reference* for Vectra is completely relevant to the Series 300 DOS Coprocessor.

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Installing the Hardware ## 2

This chapter provides reference information about installing the HP 98286 DOS Coprocessor Card in the backplane of any Series 300 computer and for connecting an HP 9127A Flexible Disc Drive to the computer.

The steps from the *Installation Picture-guide* are repeated here with additional material. You may use the *Picture-guide*, this *Reference*, or jump back and forth at your convenience.

Installing the Coprocessor Card

1. Turn the computer off.
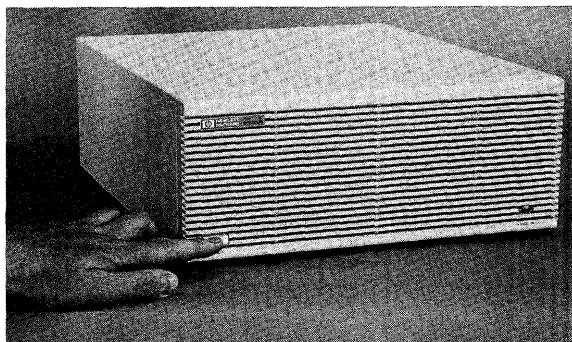
Installing the card with the power turned on may damage the card.

2. Unpack the HP 98286 DOS Coprocessor card.
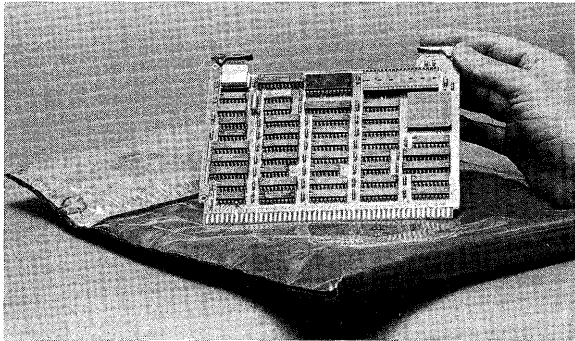
Carefully examine the card for damage during transit. If damage is found, notify the carrier and the nearest HP Sales and Service office. The Sales and Service office will arrange for repair or replacement of the card without waiting for the claim against the carrier to be settled.

3. If you have the optional Numeric Coprocessor, unpack it. If not, skip to Step 5.
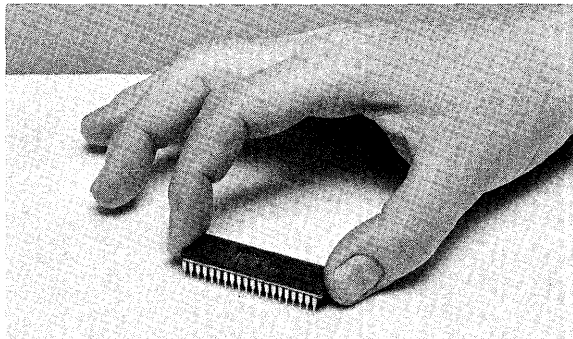
Hewlett-Packard offers an optional Numeric Coprocessor with Product Number HP 45987A. This processor enhances the performance of the DOS Coprocessor while it is doing floating-point math operations.

There are a number of different versions of the Numeric Coprocessor chip. Some of them are not suitable for this application. It is entirely possible for an incorrect chip to find its way onto a DOS Coprocessor card and cause problems.

Here's how to determine whether a given Numeric Coprocessor chip is suitable for this application:

    a. Locate the large, bold, lowercase **i** on the chip.

● X80287−Y

i
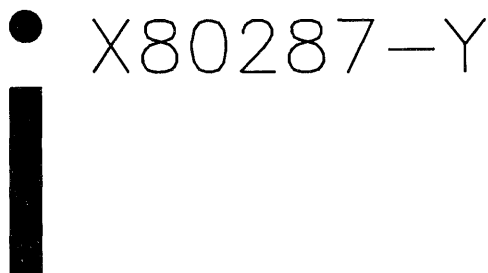
    b. The first line of text to the right of the **i** will contain the number '80287-' preceded by a letter and followed by a one- or two-digit number.

    c. The preceding letter (X) must be a 'D' or later.

    d. The following number (Y) must be a '6' or higher.

    e. If these two conditions are met, the chip is suitable for this application.

NOTE

If your chip is not a correct part (that is, it doesn't meet the above conditions), notify your HP Sales and Service office to arrange for a replacement part. Then continue with the installation and use of your system. The Numeric Coprocessor chip can be installed when it arrives.

---

4. Install the Numeric Coprocessor in its socket.
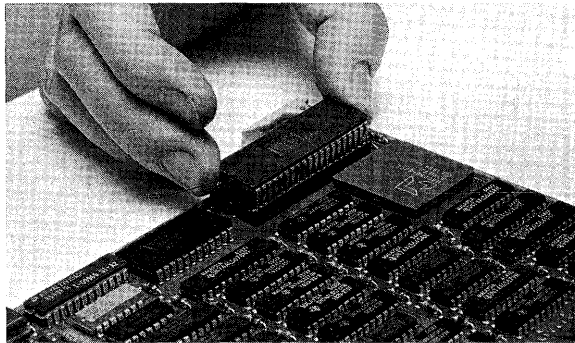
Locate the Numeric Coprocessor socket with this drawing:
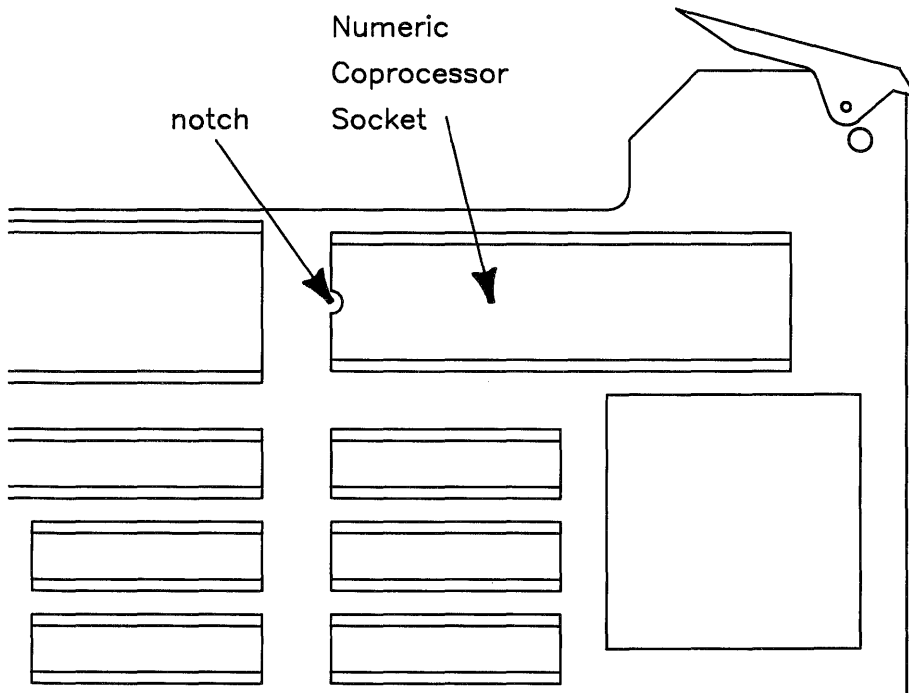
Carefully install the chip in its socket. Press the chip firmly into the socket until it bottoms.

5. Locate an empty backplane slot.
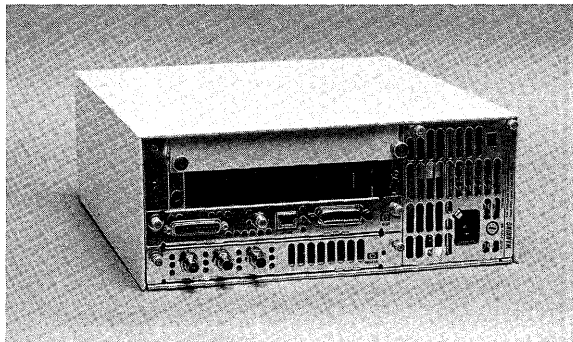
The backplane slots are covered up by metal plates. Remove cover plates until you locate an empty slot. The DOS Coprocessor card can be placed in the slot above an interface card which has a metal back plate. It may also be placed in the HP 98568A Expander if there is no room in your computer.

The DOS card cannot be placed in an HP 9888 Expander, since the card functions as a bus master. Also, it will not work with RAM memory cards installed in an HP 9888 Expander.

6. Install the card in the slot.
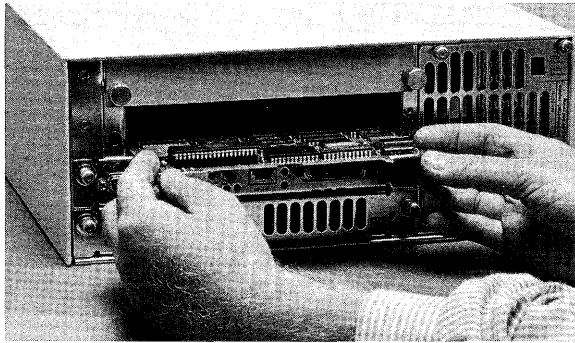
The card goes in the slot with the component side up. Install the side with the edge connector first. Press it firmly into the backplane.

Installing an HP 9127A Flexible Disc Drive

7. If you have a flexible disc drive to install, continue here.

   Otherwise, skip to Step 16.

   The *Picture-guide* also tells how to install the HP 9127A flexible disc drive. If you have already installed the drive (or do not intend to install one), skip down to Step 16. Otherwise, continue here.

8. Locate and unpack the flexible disc drive.
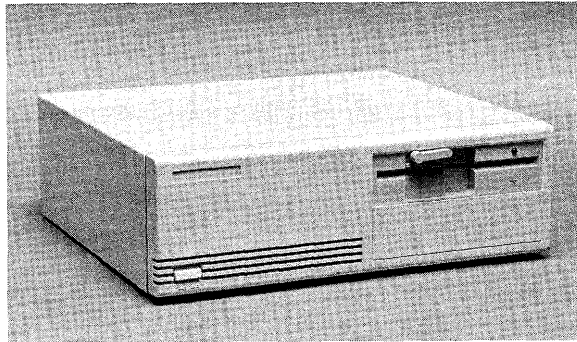
The drive is packed in a carton labelled HP 9127A. Unpack the drive and place it in a convenient location near the computer. A good place might be underneath or on top of the computer.

9. Check that the voltage setting is the same as the computer.
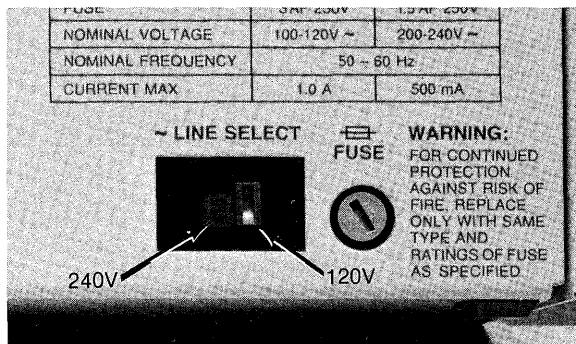
The voltage switch was probably set correctly at the factory. It is a good idea, however, to check that it is set to the correct line voltage for your area.

If the switch is set incorrectly, also check the fuse current rating. Here is a list of the correct fuses:

Voltage Setting	Fuse Rating
115V	3A
230V	1.5A

To check the fuse:

    a. Make sure the power is turned off and the power cord removed.

    b. Locate the fuse holder on the rear panel of the drive.

    c. With a small screwdriver, press in on the fuseholder and turn counterclockwise.

    d. The fuseholder and fuse will pop out.

    e. Check the fuse value stamped on the metal collar.

    f. If it is incorrect, replace it with the correct value. Note that you will need a different fuseholder, also. Extra fuses and fuseholders are packaged with the drive.

10. Set the HP-IB address to 4.
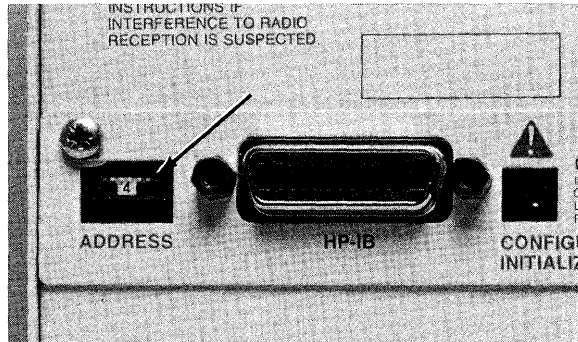
Use 4 as the primary address for the disc drive, unless 4 has already been used. If it has, select an unused number between 1 and 7 for the primary address, and write that number here.

Flexible Disc Drive primary address: _____

11. Locate the HP-IB cable.
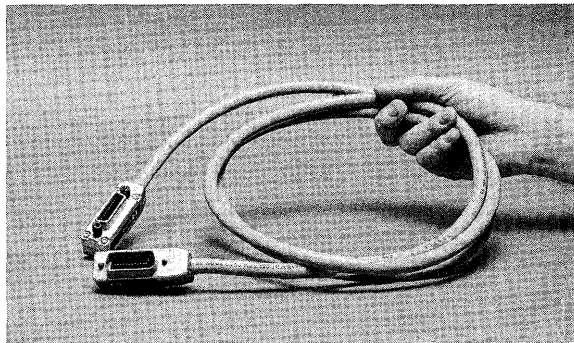
The HP-IB cable is packaged with the disc drive.

12. Connect one end of the cable to the disc drive.
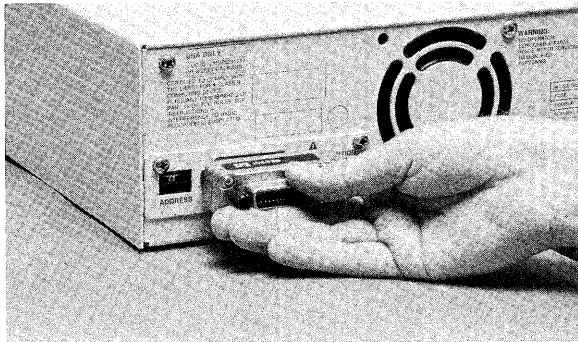
The ends are interchangeable, so connect either end to the disc drive. The cable end fits on the connector in only one way, so if you are having trouble installing it, turn it over or otherwise re-orient it.

13. Connect the other end to the computer.
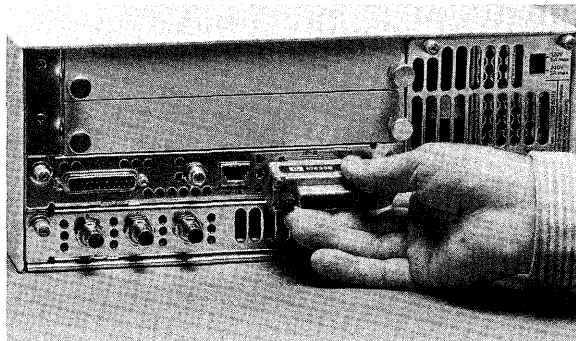
It is recommended that you connect the disc drive to the computer's built-in HP-IB connector, which is at select code 7. However, you may connect it to an add-on interface card. If you do so, write the select code of that interface card here:

Flexible Disc Drive select code: _____

14. Locate the disc drive power cord.

The power cord is packaged in the carton with the disc drive.

15. Connect power to the disc drive.
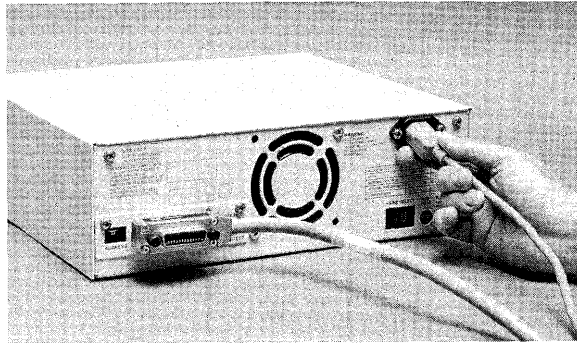
16. If you wish to install AXE just for DOS and don't need to install a hard disc drive, continue here.

Otherwise, refer to Step 16 in the *Installation Reference.*

If your AXE or full HP-UX system is already installed, refer to Chapter 4 of this manual to install the DOS software.

If you are installing the full HP-UX system, refer to the *HP-UX System Administrator Manual.* Then refer to Chapter 4 of this manual to install the DOS software.

If you are installing AXE from tape or wish to use it for purposes other than DOS, refer to the *AXE User's Manual.* Then refer to Chapter 4 of this manual to install the DOS software.

If you have a hard disc drive to set up, refer to Step 6 of the *Peripheral Installation Guide* to set it up. Then return to Step 19 in Chapter 3 of this manual.

Otherwise, continue with Step 17 in Chapter 3 of this manual.

Installing AXE 3

Introduction

This chapter explains how to install the AXE operating system files needed to use the DOS Coprocessor onto an HP 9000 Series 300 computer. It assumes that your AXE is on flexible discs. If you are installing AXE from cartridge tape or wish to install the entire HP-UX system, refer to these other manuals:

- If you are installing the full HP-UX system, refer to the *HP-UX System Administrator Manual.* Then refer to Chapter 4 of this manual to install the DOS software.

- If you are installing AXE from tape, refer to the *AXE User's Manual.* Then refer to Chapter 4 of this manual to install the DOS software.

If your HP-UX system is already installed, refer to Chapter 4 of this manual to install the DOS software.

If you have a hard disc drive to install, refer to Step 6 of the *Peripheral Installation Guide* to install it. Then return to Step 19 below.

Otherwise, continue here with Step 17.

This chapter assumes that all of your hardware is installed and functional. This includes the computer itself, disc drives, peripherals, printed circuit cards and all the cables and so forth needed to properly interconnect them. If any of these items are not installed and checked functional, refer to Chapter 2 of this reference or the *Peripheral Installation Guide.*

You received your AXE system on several flexible discs. Installing AXE involves inserting the discs one by one into a disc drive and loading the contents onto a hard disc (referred to as the **root** disc). After installation, the root disc contains the code needed to boot AXE when you wish to use it.

Overview

For your convenience, here is an overview of the major steps involved in the installation of the AXE operating system.

- Backup and repartition your root disc if desired.
- Fill out the pre-installation checklist on the following page.
- Load the first of the AXE flexible discs.
- Follow and respond to the utility menus presented.
- Load the remaining discs one by one.
- When you have loaded every disc, you are finished with the installation. Go on to Chapter 4 to install the DOS operating system.

The steps from the *Installation Picture-guide* are repeated here with additional material. You may use the *Picture-guide*, this *Reference*, or jump back and forth at your convenience.

You will quickly notice that some display screens are presented here but many others are not. The general rule is that if a screen is presented momentarily and then replaced by another one, it is not included here. However, any point where the process stops and awaits an action on your part is included. Therefore, if you see a screen that you can't find here, just wait a few moments until the process continues on.

Conventions Used

Before starting the procedure, quickly review the conventions used:

- Text appearing in `computer font` must be entered **literally**. For instance, the term `su root` is to be typed in literally.

- Text appearing in *Italics* means for you to substitute the desired information. For instance, *pathname* means to put in the pathname of the desired file at that point. Unless the desired information is obvious, italicized items are defined immediately following their use.

- Words appearing in a keycap form mean to type the key with that word or letter on it. For instance, ⌜Return⌟ means to type the Return key.

- Keys in separate keycaps mean to type the keys individually in sequence. For instance, the instruction

  Type ⌜Stop⌟ ⌜E⌟ ⌜Y⌟

  means to type and release the Stop key, type and release the E key, then type and release the Y key.

- Keys in joined keycaps mean to type the keys as you would type the Shift key and the A key to obtain a capital A. For instance, the instruction

  Type ⌜CTRL⌟⌐⌜D⌟

  means to press and hold down the CTRL key and type the D key. Then release them both.

- A key of the form ⌜f1⌟ to ⌜f8⌟ refers to one of the softkeys at the top of the keyboard.

Backup and Repartition

If your root disc is a hard disc drive which you have already been using, you will want to remove or back up all of the data on it. You may also want to repartition the root disc.

Existing operating systems can be reinstalled on the same hard disc drive as HP-UX or AXE. Procedures for doing so are contained in the appendix. Appendix B contains information on installing a BASIC operating system on the root disc and Appendix C contains this information for Pascal.

17. Backup all of your hard disc files.

Installing the AXE operating system results in the initialization of the root disc. Initialization removes all operating systems, applications software and all other data stored on the disc.

If you wish to retain any data currently on the disc, do a complete back-up of the data and verify the back-up tape before beginning the installation process. Refer to the manuals which came with the operating system currently on the disc for instructions.

18. If you want to repartition your hard disc, do so now.

The HP-UX AXE must be stored in a volume by itself. Thus, if you have other material (BASIC or Pascal files, for instance), it must be stored in a second volume. Many hard disc drives have a multi-volume capability.

Refer to the entry for your drive in Step 6 of the *Peripheral Installation Guide* for instructions on how to repartition the disc drive.

Pre-installation Checklist

Information from this checklist is needed during the installation process, so fill it out now, before you begin installation.

Hardware Information

Will your destination (root) hard disc be connected to an HP 98625A/B high-speed HP-IB interface card? _____

Does your system have an HP 98620B DMA card? _____

Is your flexible disc drive integrated with (in the same case as) the root disc? _____

If you are NOT installing from an integrated disc drive, fill in the following address information for the root disc. If you set it up using the guidelines in the *Peripheral Installation Guide*, you can just copy the information from the worksheet in it.

> Select Code _____
>
> Bus Address _____
>
> Unit Number _____
>
> Volume Number _____
>
> Major Number: Always 0

NOTE

If your root disc is split into 5 Mbyte and 15 Mbyte volumes, the volume number must be a one. This will cause AXE to be installed in the 15 Mbyte volume. For more information on the 5/15 Mbyte split, refer to Appendix A.

Swap Space

Swap space is an area on the root disc reserved for the virtual memory management system to keep an image copy of all existing processes and shared memory objects. Space for the entire image of every existing segment is allocated in the swap space. Therefore, it must be large enough to hold all segments of all existing processes.

Swap space can cause problems if it is too large or too small. If it is too small, the system will return errors or kill current processes. On the other hand, swap space subtracts from the total disc space available. So a swap space that is too large for the application means wasted disc space.

So what figure should you use for swap space? The DOS Coprocessor requires at least 3 000 Kbytes of swap space. However, the AXE operating system always provides a default value that is larger than that. It may be larger than necessary, particularly in the case where you have a large disc drive but no software requiring a large swap space. Go ahead and use the default value unless you have an application which requires a large swap space.

After you have become familiar with your application, you may want to use a different swap space. You may do this at any time by reinstalling AXE.

Installing the Discs

NOTE

The complete installation process takes up to three hours, depending on the size of the root disc.

Follow this procedure to transfer the AXE operating system from the flexible discs onto your root disc:

19. Turn the computer off and all peripheral equipment on.
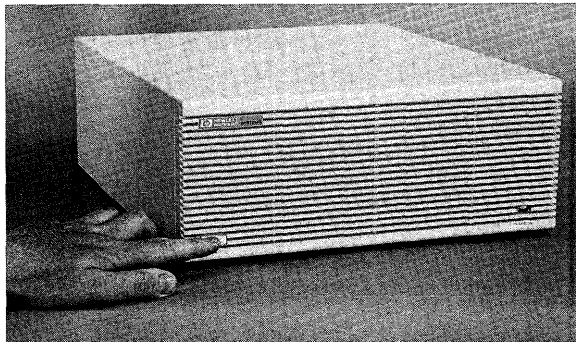
The computer is programmed to only recognize peripherals which are turned on and running at the moment that the computer is turned on.

20. Locate the HP-UX AXE disc set.
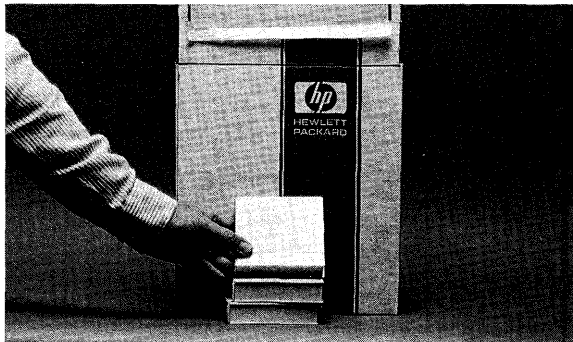
It is located in a box labelled "SOFTWARE".

21. Insert Disc 1 of the **gray** disc set in your disc drive.
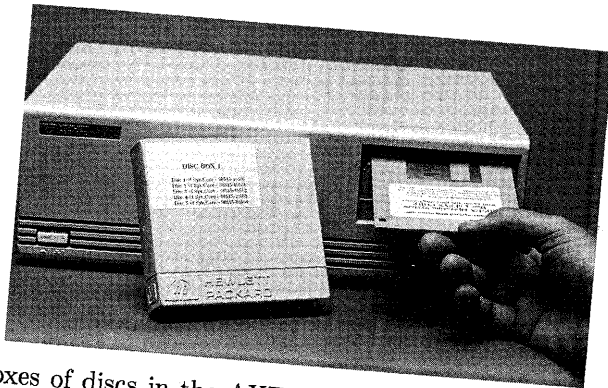
There are three boxes of discs in the AXE carton. Disc box 1 contains gray discs 1-5. Remove gray disc 1 and insert it into your 3.5-inch disc drive.

Make sure that the disc is write-enabled. To check it, look at the back of the disc. The black write-enable switch should be toward the center of the disc.

22. Turn the computer on.
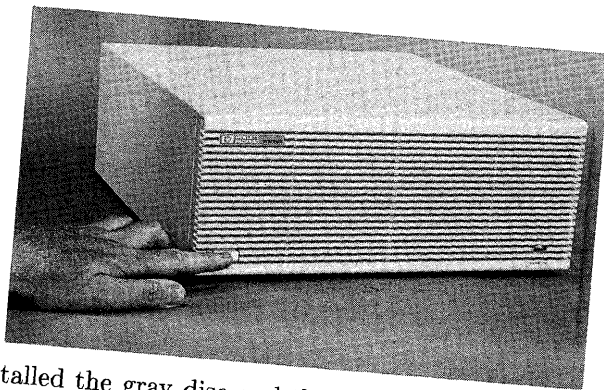
After you have installed the gray disc and the drive light has blinked on and then off, you are ready to turn the computer on.

23. When **Keyboard** appears in the power-up display:

```
Copyright 1985,
Hewlett-Packard Company.
All Rights Reserved.


BOOTROM REV.A
Bit Mapped Display
MC68020 Processor
MC68881 Coprocessor
Keyboard ◄─────────────
HP-IB
HP98644 at 9
HP98625 at 14
2096992 Bytes




SEARCHING FOR A SYSTEM (RETURN To Pause)
RESET To  Power-Up
```

type ⬜1 ⬜H

This is a "one H". You must type this within a few seconds after the word "keyboard" appears in the power-up display. Typed characters are displayed in the lower righthand corner of the screen until the power-up sequence is finished.

The keyboard is inactive before it appears in the display, and keystrokes are not recognized. If you type too soon, the characters will not appear in the lower righthand corner. Wait a moment until the keyboard appears in the list on the left side of the screen.

If you wait too long after it appears, the computer goes into unattended mode, which means that it will select an operating system and start to boot it. If this happens, simply turn the computer off and back on, and start this step over.

24. When this menu appears:

```
*******************************************************
        HP-UX INSTALLATION UTILITY -- MAIN MENU
*******************************************************




     Choice          Description

       b              BEGIN installation process
       e              EXIT installation process



  Please enter choice (b or e), hit [Return] >>
```

type ⬚ b ⬚ ⬚ Return ⬚

Several screens will appear and disappear before this menu is presented. Ignore them and wait a few moments.

25. Determine this information from the *Peripheral Installation Guide* entry for your Destination Device:

        Select Code _____

        Bus Address _____

        Unit Number _____

        Volume Number _____

        Major Number: Always 0

The term "Destination Device" means your root disc—the hard disc you are installing AXE and DOS on.

If you filled out the Pre-installation Checklist at the beginning of this chapter or used the *Peripheral Installation Guide* to install your root disc, just copy these figures. If not, obtain the information by examining your root disc. Remember, if your root disc has the 5/15 volume split, the Volume Number entry is 1.

26. Check the bottom 4 Destination Device entries with your entries in Step 25:

```
**************************************************
        HP-UX INSTALLATION UTILITY -- DEVICE MENU
**************************************************


Source Device                         Destination Device


Major number      4                   Major Number         0
Select code       14                  Select code          XX
Bus address       0                   Bus address          X
Unit number       1                   Unit number          X
Volume number     0                   Volume number        X


Choice          Description

[Return]        CONTINUE installation process
   e            EXIT installation process
   d            change DESTINATION device


Please enter choice (e or d), hit [Return] >>
```

If your Destination Device is integrated with your 3.5-inch flexible disc drive (that is, they are in the same box), these entries will automatically be correct. If they are not integrated, the computer guesses at the correct entries, so you may have to correct them.

To correct them, type [d] [Return], then step through the list with [Return]. When finished, continue the process by typing [Return].

27. If they are correct, continue by typing [Return]

If they are not correct, change them by typing [d] [Return], then continue here.

28. When this menu appears:

```
Will your root disc be on a 98625A/B (disc HP-IB interface card)? [y/n]>>
Does your system have a 98620B (DMA) card? [y/n] >>
```

type ⌐y⌐ or ⌐n⌐ then ⌐Return⌐

You may get both, either or neither of these messages. If either of them appear, answer them from the Pre-installation Checklist or by looking at your system.

29. Verify this information correct:

```
****************************************************
 HP-UX INSTALLATION UTILITY -- DISC PARAMETERS MENU
****************************************************

Swap Size:        10192     Interleave Factor:        1
Block Size:        8192     Free Space Threshold:    10
Fragment Size:     1024     Rpms of the disc:      3600

Choice             Description

[Return]           CONTINUE installation process
   e               EXIT installation process
   b               change disc BLOCK size
   d               change DENSITY (bytes per inode)
   f               change disc FRAGMENT size
   i               change disc INTERLEAVE factor
   r               change disc RPMS
   s               change disc SWAP size
   t               change disc free space THRESHOLD size


Use the values shown above unless you need to change them for tuning.
Enter choice followed by [Return] or hit [Return] to continue >>
```

Type ⌐Return⌐ unless you have a **GOOD** reason to change it.

Normally, you will not need to change these numbers. There may be cases in which you will. For instance, if you decided on a swap space other than the default in the Pre-installation Checklist, now is the time to change it.

When finished with this display, type [Return].

30. When this menu appears:

```
**************************************************
      HP-UX INSTALLATION UTILITY -- INSTALL MENU
**************************************************


                DESTINATION DEVICE


          Major  Number               0
          Select Code                 X
          Bus    Address              X
          Unit   Number               X
          Volume Number               X



Choice           Description


    b            BEGIN Initialization and Installation
    e            EXIT Installation Process


Please enter choice (b or e), hit [Return] >>
```

type [b] [Return]

This menu reflects values which you checked or corrected in the display in Step 26.

When finished with this display, type [b] [Return].

31. Everything on your Destination Device will be erased after this caution:

```
WARNING!!!!!  Proceeding will DESTROY the contents of unit x, volume x of the
Destination Device, do you want to proceed? [y/n] >>
```

If so, type ⌈ y ⌉ ⌈ Return ⌉

Proceeding from this point will cause the disc initialization process to begin. This will erase and overwrite the contents of the Destination Device, turning it into the Root Disc.

The initialization process can take as long as an hour, however 10 to 15 minutes is a more likely figure for smaller discs. The files located on the first gray disc will then be transferred onto the root disc. When finished, you will be prompted to remove the first disc and install the second, and then subsequent discs in the gray disc set.

Type ⌈ y ⌉ ⌈ Return ⌉ to proceed with the installation.

32. When this prompt appears:

```
Please insert media "2" from partition: "SYS_CORE". When BUSY light remains off,
hit [Return] >>
```

install gray Disc 2 and succeeding gray discs.

Install all six gray discs in order. Gray discs 2 through 5 are in disc box 1. Gray disc 6 is in disc box 2.

33. When gray Disc 6 is finished:

```
*******************************************************
     HP-UX INSTALLATION UTILITY -- FILESET  MENU
*******************************************************

Choice          Description


e               EXIT install process
d               DISPLAY installation options for a new fileset

Please enter choice (letter or number), hit [Return] >>
```

type [d] [Return] and install the **blue** disc.

There is one blue disc. It is located in disc box 3.

34. When this screen appears:

```
*********************************************************
     HP-UX INSTALLATION UTILITY -- FILESET  MENU
*********************************************************

Choice           Description


e                EXIT install process
d                DISPLAY installation options for a new fileset
a                Process ALL filesets listed below


1                AC    (Approx)

Please enter choice (letter or number), hit [Return] >>
```

type ⬚ a ⬚ Return

You are being asked which file sets you wish to load.

35. When the blue disc is finished:

```
********************************************************
      HP-UX INSTALLATION UTILITY -- FILESET   MENU
********************************************************

Choice          Description


e               EXIT install process
d               DISPLAY installation options for a new fileset

Please enter choice (letter or number), hit [Return] >>
```

type ⌐d⌐ ⌐Return⌐ and install Disc 1 of
the two **green** discs.

The two green discs are located in disc box 3. Install green disc 1 in the disc drive.

36. When this screen appears:

```
********************************************************
      HP-UX INSTALLATION UTILITY -- FILESET   MENU
********************************************************

Choice           Description


e                EXIT install process
d                DISPLAY installation options for a new fileset
a                Process ALL filesets listed below


1                ACONFIG

Please enter choice (letter or number), hit [Return] >>
```

type a   Return

You are being asked which file sets you wish to load.

37. When this screen appears:

```
Please insert media "2" from partition: "MISC_UTILS".
When BUSY light remains off, hit [Return] >>
```

install green Disc 2.

38. When this screen appears:

```
**********************************************************
    HP-UX INSTALLATION UTILITY -- FILESET  MENU
**********************************************************

Choice          Description


e               EXIT install process
d               DISPLAY installation options for a new fileset

Please enter choice (letter or number), hit [Return] >>
```

You have now completed the transfer of all necessary partitions of the AXE operating system from the flexible discs onto your root disc.

At this point, you have the opportunity to load any fileset beyond those which are mandatory for AXE. In particular, if you want to transfer BASIC or Pascal files back and forth with the DOS Coprocessor, load the ABCMD fileset from the red SYS_TOOLS discs. *ACMD für vi*

If you **do not** wish to load additional filesets,

type [e] [Return]

and continue the installation process with step 39.

If you **do** wish to load additional filesets,

type ⬚d⬚ ⬚Return⬚

This message will appear:

`Insert media from a new partition When BUSY light remains off, hit [Return] >>`

At this point, refer to Appendix D of the *AXE User's Manual*. It contains a listing of the Partitions and File Sets. Decide which SYS_TOOLS filesets you wish to include in your system. If you can't decide (and have room on your root disc) you may want to load them all. They can easily be deleted at a later date, and are easy to add at this point.

Now insert into the flexible disc drive the red disc containing the filesets you wish to transfer and type ⬚Return⬚. This screen will appear:

```
     ********************************************************
         HP-UX INSTALLATION UTILITY -- FILESET  MENU
     ********************************************************

     Choice          Description


     e               EXIT install process
     d               DISPLAY installation options for a new fileset
     a               Process ALL filesets listed below


     2               ABCMD

     Please enter choice (letter or number), hit [Return] >>
```

Type the number associated with the desired fileset, and [Return]

For example, if you wish to load the ABCMD fileset, insert red disc 2 and

type [2] [Return]

This will load all the files in the ABCMD fileset.

When finished loading optional files, type [e] [Return]. Then continue with Step 39, except substitute **red** for **green**.

39. When this screen appears:

```
**************************************************
    HP-UX INSTALLATION UTILITY -- EXECUTION TRACE
**************************************************



unloading media...
When Busy light remains off, hit [Return] >>

cleaning up ...
```

do **not** remove the green disc yet.

The system must do some administrative chores before relinquishing the final disc.

At this point, the system reboots and a program named `reconfig` is loaded. You will not use `reconfig` at this time.

40. When this screen appears:

```
Welcome to the AXE configuration utility.
Use the TAB key to hi-light the operation you
would like performed, and then press the
[Select] softkey to start that operation
For further instructions, press the [Help] softkey.




Add a new user
Delete a user
Add remote terminal support
Configure a line printer
Modify system security
Create a minimally loaded operating system
Create a fully loaded operating system
Create a custom operating system




Select                    Help            Exit
```

type [f8]

This exits you from `reconfig` so you can proceed with the installation.

41. When this message appears:

```
TERM = (hp2622)
```

you have successfully installed your AXE discs.

You have now completed the transfer of the AXE operating system from the flexible discs onto your root disc.

42. Remove the green disc and store the entire disc set in a safe place.

You will need the disc set if you wish to reinstall the AXE or if your system becomes corrupted for any reason.

43. Refer to Chapter 4 of the *Installation Reference* to install the DOS software.

Continue with the following chapter of this manual.

At this point, rather than go on and install the DOS Coprocessor, you may want to take some time to try out the AXE Personal Applications Manager (PAM). Refer to Chapter 4 of the *AXE User's Manual*, and try out some of the material presented there.

Installing the DOS Software 4

Introduction

This chapter contains instructions for installing the DOS coprocessor software.

System Requirements

Here is what your system must look like in terms of hardware and software in order to use this Chapter:

- A Model 310 or 320 computer with at least 2 Mbytes of RAM and an HP 98286A DOS Coprocessor card installed in it.

- A bit-mapped display compatible with your computer (HP 98700 systems are not supported).

- A hard disc of at least 15 Mbytes capacity. An HP 9133H, HP 9134H, HP 9153B or HP 9154B partitioned into 5 and 15 Mbytes is suitable.

- AXE or HP-UX version 5.1 or later (i.e., higher number) installed.

- An HP 9127A flexible disc drive connected to HP-IB.

The HP 9127A flexible disc drive is usually set at address 4 and connected to the internal HP-IB (select code 7). However, other configurations are equally suitable. If you used a different configuration, record it here:

Select code: ___7___

Bus address: ___3___

7ø 3

Optional Configurations

Here are some of the more popular optional, convenience features which DOS supports:

- Windows/9000[1]

- An HP Mouse (HP 46060A)

- An HP-IB printer (an HP 2225 or HP 293X, for instance) or an RS-232 Laserjet or Laserjet+ (HP 2686A or HP 2686A option 300)

- An HP plotter (an HP 7440, or an HP 747X)

- Multi-user HP-UX, Version 5.1 or later

- A second HP 9127A flexible disc drive

---

[1] Windows/9000 will cause DOS to run more slowly.

Software Installation

This procedure assumes that you have at least AXE running already.

Your system must be in a state where the AXE prompt appears. It will either be a $ or a # if you are using root permissions.

Before starting the procedure, quickly review the conventions used:

- Text appearing in `computer font` must be entered **literally**. For instance, the term `su root` is to be typed in literally.

- Text appearing in *Italics* means for you to substitute the desired information. For instance, *pathname* means to put in the pathname of the desired file at that point. Unless the desired information is obvious, italicized items are defined immediately following their use.

- Words appearing in a keycap form mean to type the key with that word on it. For instance, [Return] means to type the Return key.

- Keys in separate keycaps mean to type the keys individually in sequence. For instance, the instruction

  Type [Stop] [E] [Y]

  means to type and release the Stop key, type and release the E key, then type and release the Y key.

- Keys in joined keycaps mean to type the keys simultaneously, as you would type the Shift key and the A key to obtain a capital A. For instance, the instruction

  Type [CTRL]-[D]

  means to type and hold down the CTRL key and type the D key. Then release them both.

- A key of the form [f1] to [f8] refers to one of the softkeys at the top of the keyboard.

Here is the procedure for installing the DOS Coprocessor software:

1. First, determine the pathname of the disc or tape drive you will be using to install DOS. It will be similar to `/dev/rfd` for the 3.5-inch disc drive or `/dev/rct` for the quarter-inch tape drive. Find out what it is and write it here: *input date . src*

2. Now locate the DOS software and insert Disc 1 or the tape in the installation drive.

3. Get root permissions. You must have root permissions in order to install the DOS Coprocessor software.

   Type **su root** [Return] (A password may be required here.)

4. Change to the target directory.

   Type **cd /usr/lib/** [Return]

Note

It is not necessary to place the DOS software in **/usr/lib**. Some advanced users may wish to place it elsewhere. We are illustrating the use of **/usr/lib** for the sake of simplicity only.

---

5. Get the installation script.

   Type **tar xpf** *pathname* [Return]   /dev/update.src

   where *pathname* is the name determined in Step 1.

   If you are loading from tape, wait until the drive light goes out and press the UNLOAD button on the tape drive. Remove the tape and store it in a safe place.

6. Run the script to install the rest of the software.

   Type **dos/install** [Return]

   If the installation script can be located, this message will appear:

   `Welcome to the installation script for the DOS Coprocessor Software.`

   If you attempt to install the DOS Coprocessor software in an invalid directory, this message will appear:

   `Check again to see that you are installing DOS in the correct directory.`

   Step 4 of this process put you into the correct directory. Appearance of this message indicates that you either skipped that step or have changed directories since.

✗ Backup selected files : dos-files

7. If you are installing from tape, skip down to Step 10. If from discs, this question will appear:

```
What is the name of the micro disc device special file? (give full path,
default = /dev/rfd) /dev/update, src
```

Answer this question by typing in the pathname from Step 1.

8. Install Disc 2.

The script will now prompt you to install Disc 2 with this message:

```
Put disc 2 in the drive. When the light goes out, press the RETURN key.
```

Remove Disc 1 and insert Disc 2 in the drive. The light on the drive will blink on and off. Type Return

The script will acknowledge with this message:

```
Loading files from pathname.  Disc 2.
```

If anything is wrong with the disc, this message will appear:

```
Something is wrong. Couldn't load disc 2. Try again.
```

9. Install Disc 3.

When the script is finished with Disc 2, it will prompt you to install Disc 3 with this message:

```
Put disc 3 in the drive. When the light goes out, press the RETURN key.
```

Remove Disc 2 and insert Disc 3 in the drive. The light on the drive will blink on and off. Type Return

The script will acknowledge with this message:

```
Loading files from pathname.  Disc 3.
```

If anything is wrong with the disc, this message will appear:

```
Something is wrong. Couldn't load disc 3. Try again.
```

When the light goes out, remove disc 3.

When the light on the drive goes out, remove the disc.

Replace the three discs in the disc box and store it in a safe place.

10. Record the new device files.

At this point, the script will make some required device files. It will inform you of them with this message:

```
Making required device files: dosdev, r98286A, rhil, hil[1-7], & crt
```

11. Set up HP-HIL devices.

The script needs to know how many HP-HIL devices (such as a data tablet, ID Module or the like) are located between your keyboard and the computer, but is unable to determine the number. It asks you to furnish the number with this prompt:

```
How many HIL devices are between your keyboard and the computer? (0-6,
default = 0)
```

If your keyboard is connected directly to the computer, or indirectly through an HP 46080A Extension Module, HP 46081A Audio Extension Module or HP 46082A/B Remote Extension Module, the number is 0. Type ⌈Return⌉

Otherwise, count the number of devices. The HP 46080A Extension Module, HP 46081A Audio Extension Module and HP 46082A/B Remote Extension Module do not count. The HP 46085A Control Dial Box counts as 3. Enter the number and type ⌈Return⌉

12. Set up your HP 9127A disc drive.

The script needs to know whether you have an HP 9127A disc drive, and if so, what its HP-IB select code and bus address are. It asks you to furnish this information with this prompt:

```
Do you have an HP9127A IBM Compatible 5 1/4 floppy disc drive? (y or n)
```

If you do, type ⌈y⌉ ⌈Return⌉. If not, type ⌈n⌉ ⌈Return⌉

If you answer yes, you are asked the select code and bus address with this prompt:

```
What is the select code of the HP-IB interface connected to the HP9127A? (1-
31, default = 7)
```

```
What is the HP-IB bus address of the HP9127A? (0-9, default = 4)
```

Answer by typing ⌈Return⌉, unless you wrote different numbers in the "System Requirements" section at the beginning of this Chapter.

If the information furnished is not suitable for any reason, an error message will appear.

This message now appears:

```
 Your HP9127A is referred to by DOS as drive A: and by HP-UX as
/dev/rfd9127.
```

13. Configure Your printer.

The script now asks whether you wish to configure a printer with this prompt:

```
Does your system include a printer which DOS will use? (y or n)    y
```

If you answer yes, you are asked whether it is connected via HP-IB or RS-232 with this prompt:

```
What type of interface is used to connect your printer? (h=HP-IB, r=RS-232)   h
```

You are then asked to furnish information about them with these prompts:

```
What is the select code of the HP-IB interface connected to the printer?
(1-31, default = 7)    7
```

```
What is the HP-IB bus address of the printer? (0-9, default = 1)   1
```

or

```
What is the select code of the RS-232 interface connected to the printer?
(1-31, default = 9)
```

```
Is the RS-232 interface a 98642 MUX? (y or n, default = n)
```

If you answer yes, this question will also appear:

```
Which port is to be used?
```

Type the number of the port (0 to 3) and [Return]

If the information furnished is not suitable for any reason, an error message will appear.

This message now appears:

```
 Your printer device special file is /dev/doslp
```

14. Configure your plotter.

The script now asks whether you wish to configure a plotter with this prompt:

`Does your system include a plotter which DOS will use? (y or n)` *y*

If you answer yes, you are asked whether it is connected via HP-IB or RS-232 with this prompt:

`What type of interface is used to connect your plotter? (h=HP-IB, r=RS-232)` *h*

You are then asked to furnish information about them with these prompts:

`What is the select code of the HP-IB interface connected to the plotter?`
`(1-31, default = 7)` *7*

`What is the HP-IB bus address of the plotter? (0-9, default = 1)` *2*

or

`What is the select code of the RS-232 interface connected to the plotter?`
`(1-31, default = 9)`

`Is the RS-232 interface a 98642 MUX? (y or n, default = n)`

If you answer yes, this question will also appear:

`Which port is to be used?`

Type the number of the port (0 to 3) and [Return]

If the information furnished is not suitable for any reason, an error message will appear.

This message now appears:

`Your plotter device special file is /dev/dosplt`

15. Configure your modem.

The script now asks whether you wish to configure a modem or a direct RS-232 link to another computer with this prompt:

`Will DOS use an RS-232 connection for a modem or direct connection? (y or n)` *y*

If you answer yes, you are asked to furnish information about it with these prompts:

`What is the select code of the RS-232 interface? (1-31, default = 9)` *9*

`Is the RS-232 interface a 98642 MUX? (y or n, default = n)` *n*

If you answer yes, this question will also appear:

`Which port is to be used?`

Type the number of the port (0 to 3) and $\boxed{\text{Return}}$

If the information furnished is not suitable for any reason, an error message will appear.

This message now appears:

`Your serial port device special file is /dev/dostty`

This message now appears:

`CONGRATULATIONS! Your DOS Coprocessor Software has been successfully`
`installed!`

Your DOS Coprocessor software is now installed. Continue with the section on "Rebuilding the Kernel".

Rebuilding the Kernel

Follow these instructions to rebuild your kernel to include the DOS system. To start, you must be in **/usr/lib** and have the **$** or **#** prompt. If you are not in **/usr/lib**, type **cd /usr/lib** to change directory.

1. Execute the kernel rebuilding program.

    Type **dos/build_kernel** [Return]

    The program will respond with the message:

    `Customizing system software for HP Series 300 DOS Coprocessor.`

    If you are using HP-UX 5.1 software and you have never before rebuilt your kernel using **build_kernel**, this message will also appear:

    `DOS Coprocessor driver now installed in kernel configuration library.`

    Otherwise, this message will appear:

    `DOS Coprocessor driver already installed in kernel configuration library.`

2. Enter the master file name.

    This message will eventually appear:

    `Enter the path/filename for the 'master' file to use to rebuild the kernel.`
    `(default=/etc/master)`

    In order to rebuild the kernel, the current master file must be altered. The name of your master file is probably **/etc/master**, but may be different if you installed networking or other software. If **/etc/master** is the name of your master file,

    type [Return]

    Otherwise, determine the name (including path) of your master file,

    then type *filename* [Return]

    where *filename* is the path and name of your master file.

    If the filename you entered is inappropriate, this message will appear:

    `The file: ` *filename,* ` is not readable. Try Again! (press BREAK to exit).`

    `Enter the path/filename for the 'master' file to use to rebuild the kernel.`
    `(default=/etc/master)`

Check the path and filename of your master file and reenter it.

3. Enter the description file (dfile) name.

   If the name of your master file was accepted, this message appears:

   ```
   Enter the path/filename for the 'dfile' file to use to rebuild the kernel.
   (default=/etc/config/dfile.full)
   ```

   As with the master file, the current dfile must be altered in order to rebuild the kernel. The name of your dfile is probably /etc/conf/dfile.full, but may be different if you installed networking or other software. If /etc/config/dfile.full is the name of your dfile file,

   type [Return]

   Otherwise, determine the name (including path) of your dfile file.

   Type *filename* [Return]

   Where *filename* is the path and name of your dfile file.

   If the filename you entered is inappropriate, this message will appear:

   ```
   The 'dfile' you entered does not support shared memory. Try Again!
   ```

   ```
   Enter the path/filename for the 'dfile' file to use to rebuild the kernel.
   (default=/etc/config/dfile.full)
   ```

   Check the path and filename of your dfile file and reenter it. The file dfile.min will not work here, because it does not support System V shared memory.

4. Rebuild the kernel.

   If the name of your dfile was acceptable, this message appears:

   ```
   Building a new Kernel. This will take from 1 to 3 minutes.
   ```

   When the kernel has been rebuilt, this message appears:

   ```
   A new kernel has been built. Should this program replace the current kernel
   with the new one and reboot, or just exit now? (y=reboot, n=exit)
   ```

   To replace the old kernel,

   type [y]

Note

You must be running with root permissions in order to answer yes. You will be doing so if you have followed the instructions in this Chapter.

At this point, the program will run **/etc/shutdown** and reboot from the new kernel.

If you do not wish to replace the current kernel with the new one (because you do not have root permissions or some other reason),

type ⌈ n ⌉

The new kernel will not replace the current one, but will be saved instead. This message will appear:

```
New kernel saved in /usr/lib/dos/hp-ux.
To boot from the new kernel, execute the following command sequence:

        /bin/su root
        /bin/mv /hp-ux /SYSBCKUP
        /bin/mv /usr/lib/dos/hp-ux /hp-ux
        cd /
        /etc/shutdown -r
```

Note

In order to boot from the new kernel, your current directory must be **root** and you must have root permissions.

Starting DOS

Here is the process for starting DOS, now that it is installed and the kernel is rebuilt.

1. After the Keyboard appears in the power-up display, boot HP-UX.

   Type ⌷1⌷ ⌷H⌷ (That's one H)

2. If logins are enabled on your system,

   Type *username* ⌷Return⌷ (A password may be required here, also.)

   where *username* is your user name. The default name is:

   window if you are using windows or

   nowindow if you are not.

3. Start DOS.

   Type dos ⌷Return⌷

Trying Demos

To try out the demo programs,

type: D:\usr\lib\dos\demos\demo   ⌷Return⌷

Exiting DOS

To exit from DOS,

type: ⌷Stop⌷ ⌷E⌷ ⌷Y⌷

Where To Go Next

You have now installed the DOS Coprocessor software. Now continue with Chapter 5, which contains information on making your recovery system, doing your first backup and configuring the autoboot capability.

Safeguarding the System   5

This chapter explains how to create a system to allow you to recover from a catastrophic situation, such as a defective root disc drive. It also tells you how to make your first data backup and how to set up the autostart program for your application.

Creating a Recovery System

The purpose of a recovery system is to allow you to reconstruct your system if the root disc is corrupted. It is not likely that your root disc will become corrupt. If it does, you will have to reinstall AXE from scratch or use the recovery system you will create here.

Making Device Files

The first task in creating a recovery system is to make some new device files. You will have to make a device file named **rroot**. If you are creating the recovery system on flexible discs, you will need to make a device file named **fd**. If you are creating the recovery system on magnetic tape, you will need to make a device file named **ct**.

Making the rroot Device File

1. Find the minor number of the **root** device file.

   Type **ll /dev/root** ⌷Return⌷ (that's ell ell)

2. Write down the minor number of **root**. It is an eight-character number starting with **0x**.

   root minor number: _0x 0e 00 0 0_

3. Make the **rroot** device file.

   Type **mknod /dev/rroot c 4** *minor number* ⌷Return⌷

   where *minor number* is the number determined in Step 2.

   Here is an example command: **mknod /dev/rroot c 4 0x070000**

Making the fd Device File

1. Find the minor number of the **rfd** device file.

   Type **ll /dev/rfd**   [Return] (that's ell ell)

2. Write down the minor number of **rfd**. It is an eight-character number starting with 0x.

   rfd minor number: _0x 0e 00 10_

3. Make the **fd** device file.

   Type **mknod /dev/fd b 0** *minor number* [Return]

   where *minor number* is the number determined in Step 2.

   Here is an example command: **mknod /dev/fd b 0 0x070010**

Making the ct Device File

1. Find the minor number of the **rct** device file.

   Type **ll /dev/rct**   [Return] (that's ell ell)

2. Write down the minor number of **rct**. It is an eight-character number starting with 0x.

   rct minor number: _____

3. Make the **ct** device file.

   Type **mknod /dev/ct b 0** *minor number* [Return]

   where *minor number* is the number determined in Step 2.

   Here is an example command: **mknod /dev/ct b 0 0x070010**

Creating the Recovery System

Now that you have made the necessary device files, you can create the recovery system. Follow these instructions:

1. Insert a flexible disc or magnetic tape in the device you are going to create the recovery system on. If you are creating your recovery system on 3.5-inch discs, you will need two discs. You will be prompted to insert the second disc when mkrs is finished with the first.

2. While logged in as root, type

   mkrs [-f *rsdev*] [-r *rootdev*] [-t *type*] [-v] ⌷Return⌷

   rsdev is the name of the **block mode device file** for the device you are creating the recovery system on. If your device files are named ct and rct, you don't need to specify this option since ct is the default. Do not use the full path name (e.g., use fd, not /dev/fd).

   rootdev is assumed to be hd by default. If your root device files are not named hd and rhd, you must use the -r option. Do not use the full path name (e.g., use root, not /dev/root).

   type can be either ct (cartridge tape) or md (3.5-inch flexible disc). The default is ct.

   For example, if your root file system is associated with the device file /dev/root, and will be creating your recovery system on the flexible disc drive associated with the device file /dev/fd, you would type in:

   mkrs -f fd -r root -t md ⌷Return⌷

   The mkrs process takes about 30 minutes on discs and one hour on cartridge tape.

3. Boot the recovery system to check it out. For this step, you will need to shut the system down. You will probably want to test-boot the recovery system during off hours.

   Type cd /⌷Return⌷
   /etc/shutdown -r ⌷Return⌷

Doing the First Backup

At this point, it would be a good idea to do your first backup. Doing it now will show you how, and you will be able to anticipate any problems now with a minimum system.

Initializing Discs

The backup requires from 12 to 20 initialized flexible discs. You cannot initialize discs once you have started the backup, so if you need to initialize any, do so now. Here is how to initialize discs:

1. Insert in the disc drive a disc which is either empty or has data you no longer need.

2. Type `mediainit -i 2 -f3 /dev/rfd` [Return]

Backing Up

To perform the backup, follow these instructions:

1. While logged in as `root`, type `shutdown 0` [Return]

2. Insert an empty flexible disc in the disc drive you loaded the AXE system from.

3. Change to the root directory by typing `cd /` [Return]

4. Now type `/etc/newconfig/backupf -archive` [Return]

5. The system will now begin transferring the data from the root disc onto the flexible disc. When the flexible disc is full, you will see the prompt:

   ```
   errno: 25, Can't write to output
   ```

   `Insert new disc and type device/file name when ready.`

6. Remove the full disc and install an empty one in the drive.

7. Type: `/dev/rfd` [Return]

   The system will resume data transfer.

8. Continue changing discs until the backup is complete.

9. When the backup is finished, you will see this message:

   `Backup complete at` *day month date time year*

10. Remove the final disc from the drive and store the disc set in a safe place.

11. Check the file system by typing `fsck -p` [Return]

Autoboot

A program for automatically booting DOS is included in the software. When enabled, it will set up the AXE system to automatically run DOS anytime AXE is booted. It also shuts AXE down properly when DOS is exited. The program is called **autoboot**. It is of primary interest to those who are buying AXE just to get DOS.

autoboot also contains code for creating the minimum AXE system needed by the DOS Coprocessor. In order to avoid creating the minimum system when you wish to have a larger system, it asks you whether you want a minimum system.

You should configure **autoboot** if:

- You do not want to learn AXE and will be using AXE to run DOS applications only **or**

- Your root disc has a capacity of less than 20 Mbytes and you need more room on it.

Configuring DOS to Autoboot

To set your system up to boot DOS automatically, follow these steps:

1. Move to the correct directory.

   Type **cd /usr/lib/dos** [Return]

2. Log in as super-user.

   Type **su** [Return]

3. Start the autoboot script.

   Type **./autoboot** [Return]

4. This message will appear:

   ```
   This utility will configure the AXE system to automatically start a DOS
   session immediately after AXE is started.  Optionally, it can also reduce
   the amount of file space taken up by AXE functionality not typically needed
   by the DOS user.

   Do you want DOS to autostart whenever AXE does? (default = n)
   ```

   Type [y] [Return]

5. This message appears:

   ```
   DOS will now automatically start whenever AXE does.
   ```

   ```
   Would you like to have AXE files not needed for DOS deleted? (default = n)
   ```

   Type `n` `Return`

6. This message appears next:

   ```
   From this point you should reboot using one of the following commands:
   ```

   ```
   /etc/shutdown -r              : To start a DOS session, or
   /etc/shutdown -r -f ' '       : To boot some other Operating System
           (either must be executed from the file system root)
   ```

7. Reboot to see DOS boot.

   Type `cd /` `Return`
       `/etc/shutdown -r` `Return`

Creating a Minimum System

The AXE system contains up to 2 Mbytes of files which are not used by DOS. They are included to provide a standard initial configuration for all users. An optional routine in autoboot removes these unneeded files.

Caution

Once these files are removed, they can only be restored by using the update program or by completely reinstalling AXE.

You should use this option if:

- you do not wish to use AXE for purposes other than DOS **and**

- you have a small root disc and are receiving messages indicating that it is nearing capacity.

> **Note**
>
> If you are nearing capacity on a large root disc, now is the time to go through and purge any of your files which are no longer needed.

Here is how to minimize your system:

1. Become the root user.

   Type `su` `Return`

2. Shut the system down.

   Type `shutdown 0` `Return`

3. Remove system files.

   Type `/etc/sysrm ACONFIG ACONFIG2 AC APROG` `Return`

4. Move to the correct directory.

   Type `cd /usr/lib/dos` `Return`

5. Start the autoboot script.

   Type `./autoboot` `Return`

6. This message will appear:

   ```
   This utility will configure the AXE system to automatically start a DOS
   session immediately after AXE is started.  Optionally, it can also reduce
   the amount of file space taken up by AXE functionality not typically needed
   by the DOS user.
   ```

   ```
   Do you want DOS to autostart whenever AXE does? (default = n)
   ```

   Type `y` `Return`

7. These message appear:

   ```
   DOS will now automatically start whenever AXE does.
   ```

   ```
   Would you like to have AXE files not needed for DOS deleted? (default = n)
   ```

The program is asking you whether you desire a minimum execution environment. You have a choice of running the full AXE (or HP-UX) system, or removing all HP-UX files not used by DOS in order to conserve space on your disc. If you are contemplating using just the minimum environment, delay minimizing the system until you start receiving messages indicating that your disc is nearing capacity. In the meantime, you may wish to experiment with some of the AXE files which will be removed in the minimization process.

Type [y] [Return]

8. This message will appear:

```
Are you sure you want to limit your use of AXE to DOS alone?
To restore the deleted files you will have to use /etc/update to
reinstall AXE!    Are you sure? (default = n)
```

This message is to provide a double-check before you remove files which are a lot of trouble to replace.

If you wish to go ahead,

type y [Return]

9. This message appears next:

```
Deleting files starting with excess terminfo files.
This will take some time...

Restoring needed terminfo entries.
Removing files from /bin
Removing files from /usr/bin
Removing files from /usr/lib
Removing files from /usr/lib/tabset
Removing files from /etc
Removing files from /usr/spool
Removing files from /etc/conf
Removing files from /etc/filesets
Removing files from /etc/newconfig
Removing files from /system

AXE is now a minimal execution environment for the DOS Coprocessor.

From this point you should reboot using one of the following commands:

   /etc/shutdown.su -r                 : To start a DOS session, or
   /etc/shutdown.su -r -f ' '          : To boot some other Operating System
           (either must be executed from the file system root)
```

10. Reboot DOS.

   Type   cd /⎡Return⎤
              /etc/shutdown.su -r   ⎡Return⎤

Where To Go Next

You have now finished installing and configuring the DOS Coprocessor. Now go to the manual titled *Using the Series 300 DOS Coprocessor.*

Partitioning Hard Discs · A

The ideal configuration for HP 9133H, HP 9134H, HP 9153B and HP 9154B disc drives is two volumes of 5 and 15 megabytes. If you create these two volumes, the 5 Mbyte volume will always be the first one on the disc.

To obtain the 5/15 split on the HP 9153B and HP 9154B disc drives, set the configuration switch to position 5.

If you have an HP 9133H and HP 9134H disc drive, you may or may not be able to split it into this configuration. Newer drives have this capability; older drives do not. Here is a serial number breakdown indicating whether or not you can split it this way:

HP 9133's with Serial number prefixes 2621A and higher have the 5/15 split at configuration switch position 9.

HP 9134's with Serial number prefixes 2622A and higher have the 5/15 split at configuration switch position 9.

Lower or previous serial numbers do not have the 5/15 split capability. Hence, the largest volume you may have is 10 megabytes. A hardware change is available if you wish to have the 5/15 split. This hardware change may be obtained by ordering HP part number 09133-89903. Contact your HP representative for more information.

When you install an operating system on a drive with the 5/15 split, put BASIC or Pascal on the 5 Mbyte volume and HP-UX or AXE on the 15 Mbyte volume. The 5 Mbyte volume is volume number 0 and the 15 Mbyte volume is volume number 1.

Installing BASIC on the Root Disc　B

Procedure Overview

This appendix shows you how to install a BASIC operating system on a hard disc drive which it shares with an HP-UX or AXE system.

The first two steps of this procedure must be performed prior to installing the HP-UX or AXE system. They are identical to steps 17 and 18 in Chapter 3 and the *Installation Picture-guide*.

If you have volumes of different sizes, BASIC should be installed in the smaller volume.

Here's an overview of the process:

1. If you are already using your hard disc for BASIC, you will need to backup your BASIC files on flexible discs. Refer to your *BASIC User's Guide*.

2. Set the configuration switch on your hard disc drive for two or more hard-sectored volumes. Refer to Appendix A or the manual which came with your drive.

3. Initialize the appropriate volume. For initialization information, refer to the INITIALIZE command in the *BASIC User's Guide*.

4. Use the procedure in the next section to install the BASIC system.

5. Copy your data files back to the disc. Refer to your *BASIC User's Guide*.

Installation Process

Here is the procedure for installing BASIC on the same hard disc as HP-UX:

1. If your BASIC system is not loaded into your computer, load it now. Be sure that you have included the MS and EDIT binaries.

2. Determine the Mass Storage Unit Specifier (msus) of both the flexible disc drive you will be loading from and the hard disc volume you are loading BASIC onto. These can be determined from the BASIC System Worksheet in the *Peripheral Installation Guide* or by examining your system.

   Flexible disc drive msus _____Hard disc drive msus _____

3. Set MSI to the msus in Step 2 for the flexible disc.

4. Enter this program:

```
100    DIM Dir$(50)[80],File$[10]
110    ON ERROR GOTO Skip_file ! The file is a duplicate.
120    CAT TO Dir$(*);NO HEADER
130    WHILE LEN(Dir$(I))
140      File$=Dir$(I)[1,10]
150      COPY File$ TO File$&"msus"
160      PRINT File$&" copied."
170 Skip_file:I=I+1
180    END WHILE
190    END
```

   where *msus* is the msus of the hard disc drive volume determined in Step 2.

5. Insert one of your BASIC discs into the disc drive and run the program in step 4.

6. Copy the contents of the other disc(s) in the BASIC disc set in the same manner.

7. To see the results, turn the computer off and back on. Tap the space bar to cause the systems to be displayed. You should see BASIC in one volume and HP-UX (if installed) in another.

Installing Pascal on the Root Disc C

Procedure Overview

This appendix shows you how to install a Pascal operating system on a hard disc drive which it shares with an HP-UX or AXE system.

The first two steps of this procedure must be performed prior to installing the HP-UX or AXE system. They are identical to steps 17 and 18 in Chapter 3 and the *Installation Picture-guide*.

If you have volumes of different sizes, Pascal should be installed in the smaller volume.

Here's an overview of the process:

1. If you are already using your hard disc for Pascal, you will need to backup your Pascal files on flexible discs. Refer to your *Pascal User's Guide*.

2. Set the configuration switch on your hard disc drive for two or more hard-sectored volumes. Refer to Appendix A or the manual which came with your drive.

3. Initialize the appropriate volume. For initialization information, refer to the MEDI-AINIT command in the *Pascal User's Guide*[1].

4. Use the procedure in the next section to install the Pascal system.

5. Copy your data files back to the disc. Refer to your *Pascal User's Guide*.

---

[1] If you are also going to install BASIC in this volume, initialize it with the BASIC **INITIALIZE** command.

Installation Process

Here is the procedure for installing Pascal on the same hard disc as HP-UX:

1. Determine whether your computer contains an HP 98546 Display Compatibility Interface. If it does, use the **BOOT**: disc instead of the **BOOT2**: disc in this procedure.

2. Insert the **BOOT2**: disc of your Pascal system into one of your flexible disc drives.

3. Turn the computer on and select the Pascal system to boot.

4. Follow the instructions presented on the screen until you receive the Command Line.

5. Remove the **BOOT2**: disc and insert the **ACCESS**: disc.

6. Enter the Filer by typing ⌈ F ⌉

7. List all on-line volumes by typing ⌈ V ⌉

8. All on-line volumes will be listed on your screen. Pick the volume you wish to load Pascal into, and write its volume number here:

   Pascal volume number _____

9. Remove the **ACCESS**: disc from the disc drive and insert the **BOOT2**: disc.

10. Invoke the Filecopy command by typing ⌈ F ⌉

11. The prompt, `Filecopy what file ?` will appear.

    Type `BOOT2:=` ⌈ Return ⌉

12. The prompt, `Filecopy to what ?` will appear.

    Type `#vn:$` ⌈ Return ⌉

    where *vn* is the volume number from Step 8.

13. Each file in the `Boot2`: volume is copied to the specified volume.

14. Now copy all needed Pascal files (subsystems, utility programs and libraries) to the Pascal volume.

15. To see the results, turn the computer off and back on. Tap the space bar to cause the systems to be displayed. You should see Pascal in one volume and HP-UX (if installed) in another.

Task Index

HEWLETT PACKARD

98531-90601
For Internal Use Only

MANUAL COMMENT CARD

DOS Coprocessor Installation Reference
for HP 9000 Series 300 Computers
HP Part No.98531-90001

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