

ULTRIX-32
Basic Installation Guide
for the MicroVAX 3300 and MicroVAX 3400

Order No. AA-LY24A-TE

ULTRIX-32 Operating System, Version 3.0

Digital Equipment Corporation

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About This Manual

This guide tells you how to install ULTRIX-32 software on your MicroVAX 3300 or MicroVAX 3400 processor by performing the basic installation procedure, which creates file systems on default partitions on your system disk and loads the mandatory software subsets. If you plan to tailor your system or to load software subsets other than the mandatory supported software subsets, complete the tasks described in this guide. Then, complete the installation procedure by performing an advanced installation. Read the introductory chapters in the *ULTRIX-32 Advanced Installation Guide* before starting an advanced installation.

If you plan to use the network kit for installation, be sure your system manager has set it up. System managers who want their users to install from the network kit should read both the Guide to the Remote Installation Service and the introductory chapters in the *ULTRIX-32 Advanced Installation Guide*.

Audience

The audience for this guide is anyone installing ULTRIX-32 software on this hardware. The guide assumes that:

- You, or a DIGITAL Field Service representative, have checked the hardware to ensure that it is working properly.
- You have read the documentation supplied with your hardware.
- You know the location and function of the controls and indicators on your hardware.
- You understand how to load and unload the installation media and any disks needed during the installation.

Organization

- | | |
|-----------|---|
| Chapter 1 | Prepare for the Installation |
| | Describes the tasks you must complete before beginning an installation. |
| Chapter 2 | Perform the Installation |

Describes the procedure for installing ULTRIX-32 software.

Related Documentation

You should have read the related documentation in the following order before starting the installation procedure:

1. **Hardware documentation**
Read the hardware documentation, particularly the Owner's Manual, associated with your processor. These manuals show you how to set up the processor and its additional devices, and supply valuable troubleshooting guidelines.
2. **Release Notes**
You should read the current version of the Release Notes.
3. *ULTRIX-32 Advanced Installation Guide*
Read this guide only if you plan to tailor your system or to load software subsets other than the mandatory supported software subsets.
4. **System and network management guides**
Read these guides to help you determine what to do after you complete the basic installation.

Conventions

The following conventions are used in this guide:

- | | |
|----------------|---|
| special | In text, each mention of a specific command, option, partition, pathname, directory, or file is presented in this type. |
| command(x) | In text, cross-references to the programmer's manuals include the section number in the manual where the command is documented. For example, see the <code>cat(1)</code> command in the <i>ULTRIX Reference Pages</i> . |
| UPPERCASE | The ULTRIX system differentiates between lowercase and uppercase characters. Enter uppercase characters only where specifically indicated by an example or a syntax line. |
| example | In examples, computer output text is printed in this type. |
| example | In examples, user input is printed in this bold type. |
| # | This is the default superuser prompt. |

- >>> This is the console subsystem prompt for processors with a single Central Processing Unit (CPU).
- CPU??>>> This is the console subsystem prompt for processors with more than one Central Processing Unit (CPU). The question marks (??) are replaced with the number of the CPU and the number of the slot on the processor containing the board for that CPU.
- .
. In examples, a vertical ellipsis indicates that not all of the lines of the example are shown.
.
- <KEYNAME> In examples, a word or abbreviation in angle brackets indicates that you must press the named key on the terminal keyboard.
- Mbyte Throughout the text, the abbreviation Mbyte is used for megabyte. One megabyte equals 1,048,576 bytes.

Prepare for the Installation 1

This chapter discusses the tasks you must complete before beginning the installation. To prepare for your installation:

- Back up the system if you are currently running an ULTRIX system.
- Check the hardware needed for installation.
- Ensure the hardware is at default CSR addresses.
- Set the console terminal.
- Check the software distribution kit.
- Decide the type of installation.

1.1 Backing Up the System

If you are not currently running an operating system on your system disk, go to Section 1.2. If you are currently running an operating system, back up your system disk before beginning the installation. The backup procedure is described in the Guide to System Backup and Restore. If you plan to perform the advanced installation, you should back up the any nonsystem disks you plan to use.

When you perform a basic installation, the installation software overwrites the entire contents of your system disk. Specifically, if you currently are running ULTRIX, the installation software initializes the system disk, overwrites all files and data residing on the system disk, and overwrites any partition size changes you may have made using the `chpt` command. The installation software does not overwrite partition size changes you have made on nonsystem disks.

After you complete the installation, you may want to restore certain files to retain entries specific to your site. For example, your existing `.login` file might contain numerous entries that you do not want to retype when you set up your new `.login` file after completing the installation.

Table 1-1 lists the site-specific files you might want to restore. Note the files that are not compatible with this version of ULTRIX-32 software.

Table 1-1: Site-Specific Files You Might Want to Save

Filename	Pathname
acucap	/etc/acucap
aculog	/usr/var/adm/aculog
aliases	/etc/aliases
aliases.dir	/etc/aliases.dir
aliases.pag	/etc/aliases.pag
crontab*	/etc/crontab
.cshrc	/.cshrc
dumpdates	/etc/dumpdates
fstab*	/etc/fstab
gettytab	/etc/gettytab
group	/etc/group
hosts	/etc/hosts
hosts.equiv	/etc/hosts.equiv
L.cmds	/usr/var/uucp/L.cmds
L.sys	/usr/var/uucp/L.sys
L_devices	/usr/var/uucp/L_devices
lastlog	/usr/var/adm/lastlog
LIST.DAY	/usr/var/uucp/LIST.DAY
LIST.HOUR	/usr/var/uucp/LIST.HOUR
LIST.NIGHT	/usr/var/uucp/LIST.NIGHT
LIST.NOON	/usr/var/uucp/LIST.NOON
LIST.LONGHALL	/usr/var/uucp/LIST.LONGHALL
local.me	/usr/lib/me/local.me
.login	/.login
lpd-errs	/usr/var/adm/lpd-errs
named.boot	/etc/named.boot
passwd	/etc/passwd
phones	/etc/phones
printcap	/etc/printcap
.profile	/.profile
rc.local*	/etc/rc.local
remote	/etc/remote
resolv.conf	/etc/resolv.conf
sendmail.cf	/etc/sendmail.cf
sendmail.fc	/etc/sendmail.fc
sendmail.hf	/etc/sendmail.hf
sendmail.st	/etc/sendmail.st
svcorder	/etc/svcorder
services	/etc/services
syslog	/usr/var/spool/mqueue/syslog
termcap*	/etc/termcap
ttys*	/etc/ttys
USERFILE	/usr/var/uucp/USERFILE
uucp.day	/usr/var/uucp/uucp.day
uucp.hour	/usr/var/uucp/uucp.hour
uucp.night	/usr/var/uucp/uucp.night
uucp.noon	/usr/var/uucp/uucp.noon
uucp.week	/usr/var/uucp/uucp.week
uucp.longhall	/usr/var/uucp/uucp.longhall

*Not compatible with this version.

If your system runs as a master or a slave Yellow Pages (YP) server, save the following directory for your domain:

`/usr/var/yp/<domain_name>`

If your system runs as the master YP server and the master copies of the files used to create the YP maps are located in a separate directory, such as `/usr/var/yp/src`, save this directory as well.

If your system runs as a BIND server, save the directory specified in the `/etc/named.boot` file. The default directory is named `/etc/namedb`.

1.2 Checking the Hardware Needed for Installation

To perform the installation, you need this hardware:

- MicroVAX 3300 or MicroVAX 3400

You need to understand how to operate the MicroVAX 3300 or MicroVAX 3400 system. The Owner's Manual for the processor provides operating and troubleshooting instructions.

- Software distribution device

The software distribution device for the MicroVAX 3300 or MicroVAX 3400 system is a TK70 tape drive or the network. You load the TK50 tape cartridges supplied with the software distribution kit on the appropriate drive. The User's Guide for the drive provides instructions on how to load media.

Note

TK50 tape cartridges are distribution media to install software on either a TK50 tape cartridge drive or a TK70 tape cartridge drive.

If the software distribution device is the network, then you do not load any media. Make sure your system is connected to the network.

- System disk

The system disk is the fixed disk on which the installation software installs the ULTRIX-32 software.

You should know how to get the disk ready for read/write operations. If you do not, see the User's Guide for your drive.

- **Nonsystem disks**

A nonsystem disk is a device on which you can store data files. You do not need any nonsystem disks to install ULTRIX-32 software. However, you may want to use nonsystem disks if you plan to perform the advanced installation. The advanced installation lets you allocate certain file systems to a disk other than the system disk. You should also back up the data on any nonsystem disks you plan to use before performing the installation.

- **Console terminal**

You use the console terminal to communicate with your system during the installation.

You can perform the installation at either a hardcopy terminal such as an LA120-KDA, or a screen terminal such as a VT220.

Note

The ULTRIX operating system must be installed on a system disk connected to the Mass Storage Interconnect (MSI) that is part of the Central Processing Unit (CPU).

1.3 Ensuring the Hardware Is at Default CSR Addresses

Check with a DIGITAL Field Service representative to ensure that your hardware has been installed at the default control status register (CSR) addresses. If you have hardware installed in the floating address space, and it does not adhere to the standard algorithm for address assignments, then you should perform an advanced installation. The advanced installation lets you modify these address assignments in the system configuration file. After you modify these address assignments, the installation software should successfully build the kernel.

You are expected to understand the format of the configuration file and how to use an editor such as `ed`. If you do not, then you should have a DIGITAL Field Service representative install your hardware at the standard CSR addresses before you start the installation. See the Guide to System Configuration File Maintenance for information about the configuration file.

1.4 Setting the Console Terminal

You must set your console terminal for a 7-bit ASCII environment so that the ULTRIX-32 software can interpret terminal input properly. The Owner's Manual for your console terminal provides instructions on how to set it for a 7-bit ASCII environment.

For VT200 and VT300 series terminals, choose the setting labeled as follows:

7 bit space parity

1.5 Checking the Software Distribution Kit

Use the bill of materials to check your software distribution kit.

The software distribution kit includes one of the following:

- The TK50 tape cartridge kit, for systems with TK50 or TK70 tape cartridge drives
- The network kit, for systems that require a remote server to supply the software distribution kit

The following sections briefly describe the contents of each kit. Read only the section that pertains to your software distribution kit.

1.5.1 The TK50 Magnetic Tape Cartridge Kit

If your kit contains TK50 tape cartridges, you should have:

- One TK50 tape cartridge labeled ULTRIX-32 V3.0 TK50 STANDALONE ULTRIX TK50 #1. This contains the software you need to boot the system.
- One TK50 tape cartridge labeled ULTRIX-32 V3.0 SUPPORTED TK50. This contains the installation software and the supported software subsets.
- One TK50 tape cartridge labeled ULTRIX-32 V3.0 UNSUPPORTED TK50. This contains unsupported and user-contributed software subsets.
- This installation guide.

1.5.2 The Network Kit

If you did not receive a TK50 tape cartridge software distribution kit, see your system manager. Your system manager will tell you when the network kit is set up and ready for use. Use this installation booklet to install the ULTRIX-32 software subsets.

1.6 Deciding the Type of Installation

The basic installation is recommended for users who do not need to tailor their systems.

The basic installation creates the following on default partitions on the system disk:

- The root file system
- The /usr file system
- The /usr/users file system
- The var area as a directory under the /usr file system
- The crash dump space and the swap space

The basic installation loads the following mandatory supported software subsets:

Base System
Kernel Configuration Files
TCP/IP Networking Utilities
Network File System and Utilities
Extended (Berkeley) Mailer
System Exerciser Package

Finally, the basic installation performs the following:

- Builds the ULTRIX operating system kernel.
- Reboots the ULTRIX operating system.

The installation procedure provides an advanced installation option for users who need to tailor their systems. The advanced installation lets you:

- Allocate the /usr and /usr/users file systems, the var area, the crash dump space, and one or two swap areas to any disk partition on your system.
- Select which supported software subsets you want to install.
- Choose configuration file options.

Although many of the procedures in the advanced installation are for experienced ULTRIX or UNIX users, each prompt displayed during the advanced installation lets you accept a default. The *ULTRIX-32 Advanced Installation Guide* contains the information you need to complete the advanced installation.

Perform the Installation 2

This chapter describes the tasks you must perform to complete the installation:

- Prepare the hardware.
- Type the boot command sequence.
- Choose the type of installation.
- Select the software distribution device
- Select the system disk drive.
- Type the boot command sequence.
- Specify the system name.
- Specify the date and time.
- Select the time zone.
- Specify the superuser password.
- Specify the Field Service password.
- Complete the installation.

The following conventions apply throughout the installation procedure:

- You must press the RETURN key after every response or command you type.
- Some installation questions have default responses. These responses appear on the screen in square brackets. If you want to use the default, press the RETURN key in response to the question.
- If an error occurs, the installation software displays an appropriate error message. The error message describes the cause of the error and tells you what to do.

2.1 Preparing the Hardware

To prepare the MicroVAX 3300 or MicroVAX 3400 hardware:

1. Turn on power to the console terminal and any additional disk drives and tape drives.
2. Set the front panel HALT ENABLE/DISABLE switch to the halt enabled position.
3. Turn on power to the MicroVAX 3300 or MicroVAX 3400 processor.
4. Remove any TK50 tape cartridges from their associated drives.

The console subsystem now prints an initial display similar to the following on the console terminal and ends with the console mode prompt:

```
KA640-A   T3.0-10, VMB 2.2
Performing normal system tests.
41..40..39..38..37..36..35..34..33..32..31..30..29..28..27..26..
25..24..23..22..21..20..19..18..17..16..15..14..13..12..11..10..
09..08..07..06..05..04..03..
Tests completed.
>>>
```

2.2 Typing the Boot Command Sequence

The boot command you type depends on the software distribution kit. The boot command for each distribution kit is described in the sections that follow:

- Boot command for the TK50 tape cartridge kit
- Boot command for the network kit

Read only the section that pertains to your software distribution kit.

2.2.1 Boot Command for the TK50 Tape Cartridge Kit

Follow this procedure to boot the system:

1. Make sure your TK50 tape cartridges are write-protected.
2. Load the TK50 tape cartridge labeled ULTRIX-32 V3.0 STANDALONE ULTRIX TK50 #1 into the drive and close the release handle. Wait for the drive to be online and ready.
3. Type the following at the console mode prompt:

```
>>> b mua0
```

The installation software displays some system information, followed by the memory and hardware configurations.

4. Push in the unload switch and wait for the light to go off.
5. Remove the TK50 tape cartridge and store the media in a safe place, along with this installation guide, after you complete your installation.

2.2.2 Boot Command for the Network Kit

Follow this procedure to boot the system from the network:

1. Type the following at the console mode prompt:

```
>>> b esa0
```

2. The installation software displays some system information, followed by the memory and hardware configurations.

2.3 Choosing the Type of Installation

The installation software displays a message briefly describing the basic installation and a menu like the following:

```
Select one of the following options:
```

- ```
1) BASIC Installation
2) ADVANCED Installation
3) System management
```

```
Enter your choice:
```

Type the number corresponding to the type of installation you want to perform.

See the Guide to System Shutdown and Startup section on the standalone ULTRIX environment for information about the system management option.

After you make your selection, the prompt for the next task appears.

If you are using the network kit as your distribution device, skip Section 2.4 and go to Section 2.5.

## **2.4 Selecting the Software Distribution Device**

The installation software displays a table listing the possible software distribution devices for your system. You must select the device on which you will load the distribution media supplied with your kit from this table.

The five columns of the table are:



- **Selection Number**  
Contains the selection number associated with each software distribution device. You type the selection number associated with your software distribution device at the prompt that follows the table.
- **Device Name**  
Lists the DIGITAL name for each software distribution device.
- **Device Number**  
Lists the device number of each software distribution device.
- **Controller Name**  
The name of the peripheral controller to which the device is connected.
- **Controller Number**  
Lists the controller number associated with each software distribution device. You need the controller number only if the table shows two software distribution devices of the same type with the same device number.

To select the software distribution device, type the selection number corresponding to the device you want.

After you respond, a message displays the DIGITAL name for the device, the device number, the controller name, and the controller number of your selection. The message also reminds you to make sure the device is on line after you load the installation media.

Load the media labeled ULTRIX-32 V3.0 SUPPORTED TK50 into the software distribution device you selected from the table. Make sure the device is on line. After you press the RETURN key, the table of system disk drives appears.

## **2.5 Selecting the System Disk Drive**

This task requires you to specify your system disk. The system disk contains the root file system in partition a.

The installation software displays a table listing the possible system disks for your system. You must select the disk to contain the root file system from this table.

The table is like the one that appeared in the previous task, except this table shows possible system disks instead of possible software distribution devices. See the explanation of the table provided in the previous task.

To select the system disk, type the selection number corresponding to the device you want.

## Note

When you type the default boot command (b), or initiate power-fail recovery, the boot programs in ROM will attempt to boot devices in this sequence:

1. Disk drives, starting with the lowest unit number
2. TK50 tape cartridges that are on line and bootable
3. Network
4. If you want the default boot command and the power-fail recovery to boot the system disk, choose a drive whose device number is 0.

After you respond, a message displays the DIGITAL name for the device, the device number, the controller name, and the controller number of your selection. The message also reminds you to make sure the disk drive is on line and write-enabled.

If you chose the basic installation at the beginning of the installation procedure, several informational messages appear after you press the RETURN key.

If you chose to perform an advanced installation, and if you used the chpt utility to change your system disk partitions, after you press the RETURN key a prompt appears asking you to select for display either the default partition table or the existing partition table. See chpt(8) in the *ULTRIX Reference Pages* for information about chpt. See the Guide to System Disk Maintenance for information about disk partitions.

The installation software displays the disk partition table you select, then asks if you want the disk partitions displayed to be allocated on your system disk. After you choose a disk partition table, the installation procedure continues.

Messages tell you that the installation software is allocating, restoring, and checking the root file system to partition a of the system disk. This takes several minutes.

The next prompt that appears tells you what boot command to type.

## 2.6 Typing the Boot Command Sequence

Follow this procedure to boot the system:

1. Read the prompt that tells you what boot sequence to type after the installation software halts the processor. After the installation software halts the processor, it displays the console mode prompt.

2. Type the boot command at the console mode prompt, using the boot sequence provided by the installation software.

After you type the boot command, the installation software displays the memory and hardware configurations.

What appears next depends on which software distribution device you are using. If you are using the network kit, then the system name for your processor that was assigned by the system manager appears. If you are not using the network kit, then you must specify a system name.

## **2.7 Specifying the System Name**

A prompt appears asking for the system name. The prompt tells you the correct format. If you type an inappropriate response, you continue to receive the prompt until you enter a valid system name.

After you type a valid system name, a prompt requests that you confirm your choice. After you confirm your choice, a prompt for the date and time appears.

## **2.8 Specifying the Date and Time**

A prompt appears asking for the date and time. The prompt tells you the correct format. If you type an inappropriate response, you continue to receive the prompt until you enter a valid date and time. After you type a valid date and time, the time zone prompts appear.

## **2.9 Selecting the Time Zone**

Prompts appear asking for the following information:

- Your time zone
- Whether or not your area alternates between daylight savings and standard time
- Your geographic area

Each prompt tells you the correct format for entering the information. If you type an inappropriate response, you continue to receive a prompt until you enter valid information. After you enter the time zone information, the superuser password prompt appears.

## **2.10 Specifying the Superuser Password**

This task requires you to type the superuser password. Choose a superuser password carefully (do not use your birthday, for example) and keep it secure. After you set up the superuser password, anyone who logs

in with the superuser name, root, must use the password you choose here. The installation software prompts for the new password and, to make sure you typed what you thought you did, asks you to retype it. If you make an error, you continue to receive the prompt until the two entries match. The following example illustrates a possible sequence. Do not type the password used in the example. As a security measure, the password you type is not displayed on the terminal.

```
*** SPECIFY THE SUPERUSER PASSWORD ***
New password: tig+ris
Retype new password: tigr+ris
Mismatch - password unchanged
Trying again to set Super User password. . .
New password: tig+ris
Retype new password: tig+ris
```

After you type a superuser password, the Field Service password prompt appears.

## 2.11 Specifying the Field Service Password

This task requires you to type the Field Service password. Choose a Field Service password carefully and keep it secure. After you set up the Field Service password, anyone who logs in with the Field Service name, field, must use the password you choose here.

The installation software prompts for the new password and, to make sure you typed what you thought you did, asks you to retype it. If you make an error, you continue to receive the prompt until the two entries match.

The following example illustrates a possible sequence. Do not type the password used in the example. As a security measure, the password you type is not displayed on the terminal.

```
*** SPECIFY THE FIELD SERVICE PASSWORD ***
New password: pi?lictony
Retype new password: pi?lictony
```

### Note

If you chose to perform the advanced installation, see the *ULTRIX-32 Advanced Installation Guide* for instructions on how to proceed.

If you chose to perform a basic installation, the installation procedure continues.

Making the new file system for /usr on /dev/rra0g RF30

.  
.  
.

If your distribution media is tape, a prompt appears telling you to make sure your installation tape is mounted and on line and to type y when you are ready. Make sure the distribution media containing the supported software subsets is mounted and on line before typing y to the question.

After you type y to the confirmation prompt, the installation software displays several messages similar to these:

Installing mandatory software subsets.

.  
.  
.

The installation procedure has successfully installed the software subsets.

## 2.12 Completing the Installation

The installation software displays messages similar to these:

\*\*\* SYSTEM CONFIGURATION PROCEDURE \*\*\*

Configuration file complete.

\*\*\* PERFORMING SYSTEM CONFIGURATION \*\*\*

.  
.  
.

\*\*\* DEVICE SPECIAL FILE CREATION \*\*\*

.  
.  
.

### 2.12.1 Updating the Console Boot Defaults

A message appears telling you how to set the default boot device. Follow the instructions given in the message. Once you set the default boot device, you can type the command b to boot your processor.

### 2.12.2 Finishing the Installation

The installation software displays messages similar to these:

\*\*\* SOFTWARE INSTALLATION PROCEDURE COMPLETE \*\*\*

The following files were created during the installation procedure:

|                          |                           |
|--------------------------|---------------------------|
| /vmunix                  | - customized kernel       |
| /genvmunix               | - generic kernel          |
| /usr/adm/install.log     | - installation log file   |
| /usr/adm/install.FS.log  | - file systems log file   |
| /usr/adm/install.DEV.log | - special device log file |

The portion of the message referring to the locations of /vmunix, /genvmunix, and the log files is included in the message of the day file, /etc/motd, and will appear each time you log in to your system. You can delete the references from your /etc/motd file if you want. See the Guide to System Environment Setup for information about the /etc/motd file.

Save the log files generated in /usr/adm during your installation. You may need information from those files for system maintenance.

On rebooting your system, messages like these appear:

```
.
. .
Ultrixboot (using VMB version 15)
Loading (a)vmunix ...
. .
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988
. .
ULTRIX-32 V3.0 (mysystem)
login:
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing root at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

| <b>Task</b>                         | <b>Utility</b> |
|-------------------------------------|----------------|
| Adding users                        | adduser(8)     |
| Adding devices                      | MAKEDEV(8)     |
| Setting up printers                 | lprsetup(8)    |
| Setting up a local area network     | netsetup(8)    |
| Setting up a Network File System    | nfssetup(8)    |
| Setting up uucp                     | uucpsetup(8)   |
| Setting up the Yellow Pages Service | ypsetup(8)     |
| Setting up the BIND Service         | bindsetup(8)   |
| Setting up a network kit            | ris(8)         |

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

## Reader's Comments

**Note:** This form is for document comments only. DIGITAL will use comments submitted on this form at the company's discretion. If you require a written reply and are eligible to receive one under Software Performance Report (SPR) service, submit your comments on an SPR form.

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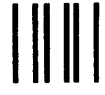
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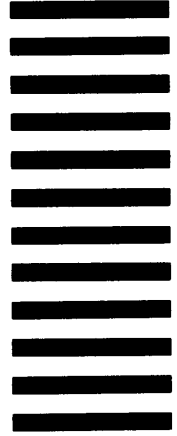


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