
R23RZ

R23RZ Removable SCSI Disk/System Installation and User Guide

Order Number EK-R23RM-IN

digital equipment corporation

1st Edition, March 1991

The postpaid READER'S COMMENTS form on the last page of this document requests the user's critical evaluation to assist in preparing future documentation.

This document was prepared using VAX DOCUMENT, Version 1.2

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Preface

Document Structure

This guide, which explains how to install, configure, and operate an R23RZ Removable SCSI Disk/System, is made up as follows:

- Chapter 1 contains general information about the R23RZ.
- Chapter 2 describes how to unpack a Removable SCSI Disk (RSD). Unpacking the R23RZ pedestal is described in Appendix B. This information is for Digital Customer Services.
- Chapter 3 describes how to set up and operate the RSD for use in a system environment.
- Chapter 4 gives some simple troubleshooting advice which may help to get an inoperative R23RZ working again.
- Chapter 5 describes the service plans available from Digital Customer Services.
- Appendix A lists the option kits available.
- Appendix B explains how to unpack, install, and test an R23RZ Removable SCSI Disk System. This information is for Digital Customer Services personnel.
- Appendix C explains SCSI rules and conventions.

Intended Audience

This guide is intended primarily for computer users, and familiarity with the VMS operating system is assumed. The guide also provides information for Digital Customer S rvices personnel involved in the installation of R23RZs.

NOTE

Certain tasks, such as R23RZ pedestal installation, should be carried out by Digital Customer Services personnel or a trained service engineer. Other tasks, such as SCSI bus configurations should be done by a knowledgeable system manager.

Note

If the system is initially configured with one RSD and then a second RSD is purchased, the system manager will need to reconfigure the SCSI bus. This can be done either by sysgen commands in VMS or by rebooting the system. The system can be reconfigured by following the system power up sequence (refer to Section B.6.) Once the SCSI bus has been configured, RSD's can be interchanged in the same slot AS LONG AS they are properly mounted and dismounted (refer to Section 3.6.)

Associated Documents

R23RZ users may find the following useful:

Document Title	Order No.
VAXstation 3100 - Model 30 Owner's Manual	*EK-265AA-OM*
VAXstation 3100 - Model 40 Owner's Manual	*EK-266AA-OM*
MicroVAX 3100 Owner's Manual	*EK-392AA-IL*
DECstation 2100 | 3100 Documentation Kit	*EK-308AB-DK*
RZ55 | RZ56 | RZ57 Integrated Storage Disk User Guide	*EK-RZ55D-UG*

Digital Customer Services, or other trained service engineers may require:

Document Title	Order No.
R23RZ Removable SCSI Disk/System Technical Manual	*EK-R23RZ-TM*
RZ55 | RZ56 | RZ57 Integrated Storage Disk Installation Manual	*EK-RZ55D-IM*
MicroVAX Systems Maintenance Guide	*EK-O01AA-MG*
MDM User Guide	*AA-FM7A-DN*

VMS VAXcluster Manual	*AA-LA28A-TE*
Guide to VAXclusters	*AA-Y513A-TE*

Customers requiring extra hardcopy documents should contact their Digital representative.

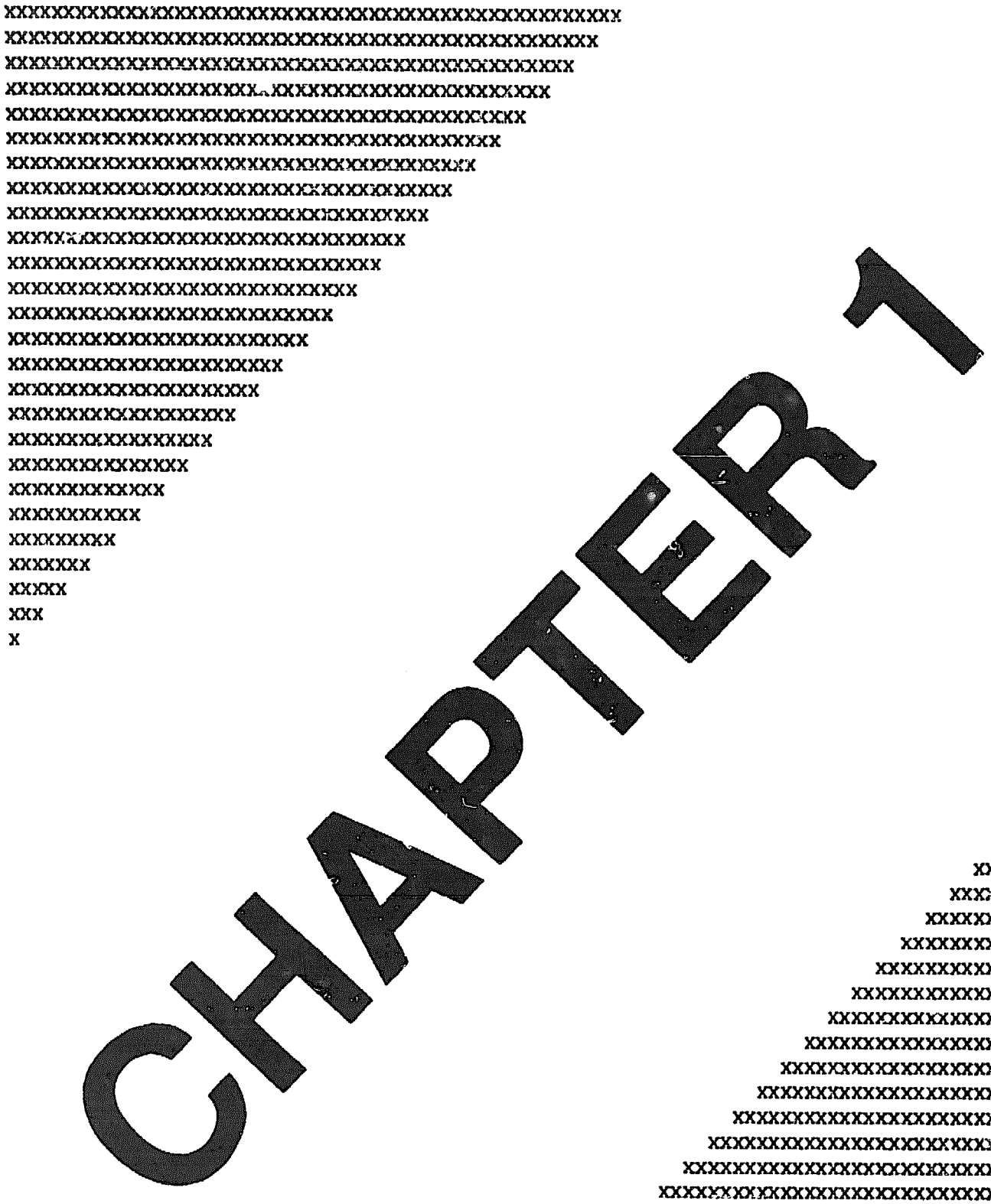
WARNINGS, CAUTIONS and NOTES

Warnings, cautions and notes have the following meanings in this guide:

WARNING	Contains information essential to your personal safety.
CAUTION	Contains information essential to the safety of equipment and software.
NOTE	Contains general information of which you should be aware.

FCC STATEMENT

This equipment generates, uses, and may emit radio frequency energy. The equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such radio frequency interference. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.


CHAPTER 1

1
GENERAL INFORMATION

1.1 Introduction

The R23RZ Removable SCSI Disk System consists of a BA23-style pedestal (refer to Figure 1–1) into which can be inserted two Removable SCSI Disks (RSDs). Each Removable SCSI Disk (RSD) consists of one Integrated SCSI Disk (ISD) and one canister. Thus, the R23RZ allows Integrated SCSI Disks to be removed from the host computer system while still maintaining total data integrity.

The R23RZ Removable SCSI Disk System can be configured with systems with an embedded SCSI controller. This includes the Decstations 2100, 3100, and 5000, the DECsystems 3100, 5000, 5100, and the 5500, the VAXstation 3100, and the Microvax 3100.

The R23RZ system is quiet in operation and designed for an open office environment. Up to three R23RZs can be linked together to provide increased on-line storage capacity. The last R23RZ in the daisy chain must be terminated. Extra RSDs can be ordered separately. (See Appendix A for a list of Options.)

1.2 R23RZ Specifications

The following tables summarize the characteristics, environmental specification, electrical requirements, and space requirements of the R23RZ.

Table 1–1 R23RZ Characteristics

Pedestal Height	24 in (61 cm)
Pedestal Width	10 in (25.5 cm)
Pedestal Depth	28.5 in (72.5 cm)
Pedestal Weight (including 2 RSDs)	74.2 lb (33.7 kg)
RSD Weight	
RZ55	11.5 lb (5.2 kg)
RZ56	11.5 lb (5.2 kg)
RZ57	11.5 lb (5.2 kg)

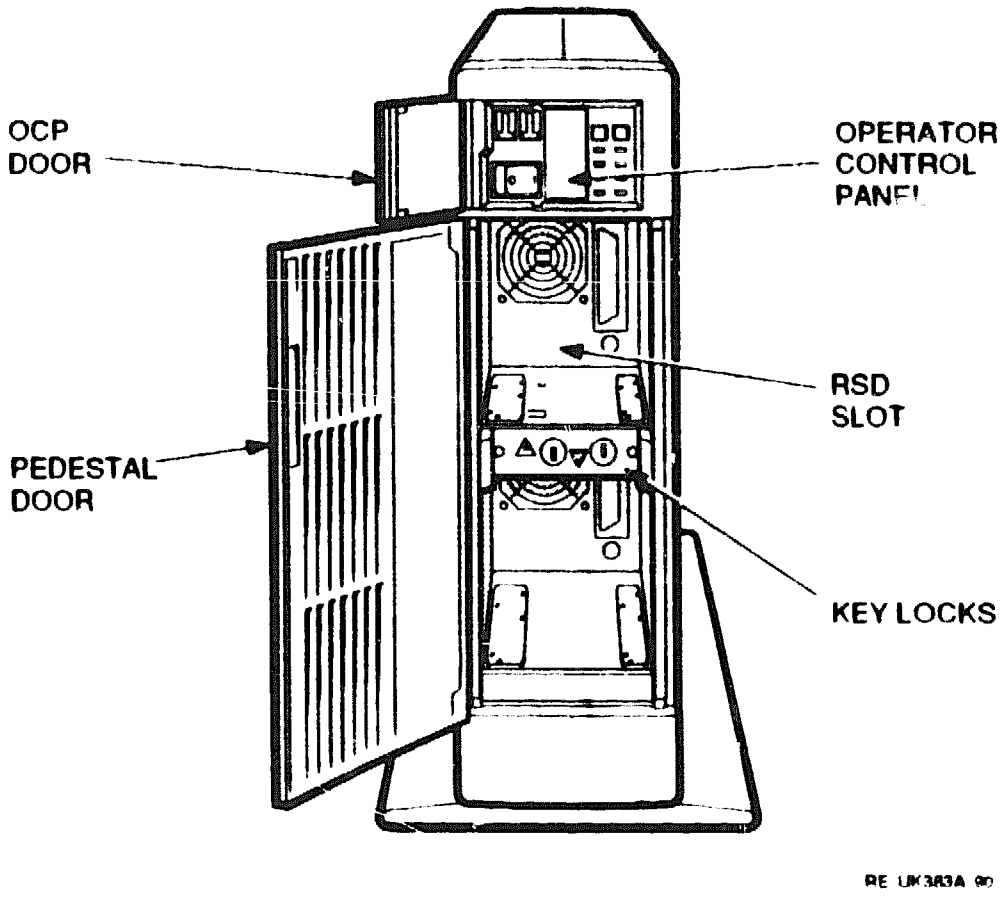


Figure 1–1 Front View of R23RZ Pedestal with Canisters Removed

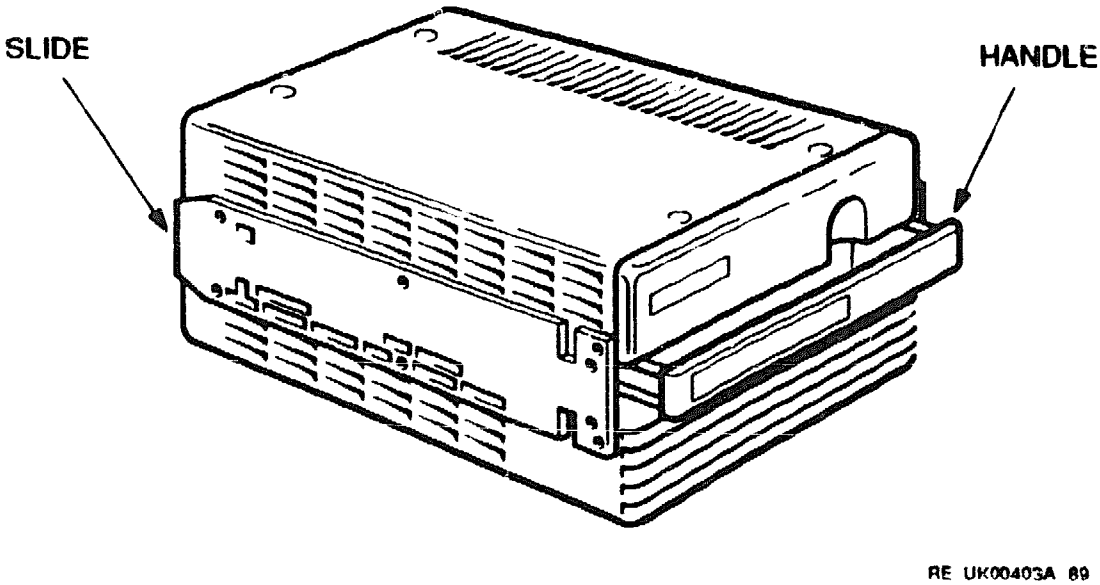


Figure 1–2 Front View of RSD

Table 1–2 Environmental Specification

Temperature	
Operating	10 to 40°C (50 to 104°F)
Non-Operating	-40 to 66°C (-40 to 151°F)
Relative Humidity	
Operating	10 to 90% (non-condensing) maximum wet bulb temperature 28°C (82°F) minimum dew point 2°C (36°F)
Non-Operating	8 to 90% (non-condensing)
Altitude	
Operating	2,438 m (8,000 ft)
Non-Operating	4,876 m (16,000 ft)
Noise	5.0 Bels (Sound Power Level)
Agency Compliance	VDE 0878 Class A FCC Part 15J Class A

Table 1–3 Electrical Requirements

Voltage (V)	220–240	100–120
Power (average) (W)	88	86
Current (A)	0.7	1.3
Frequency (Hz)	50	60

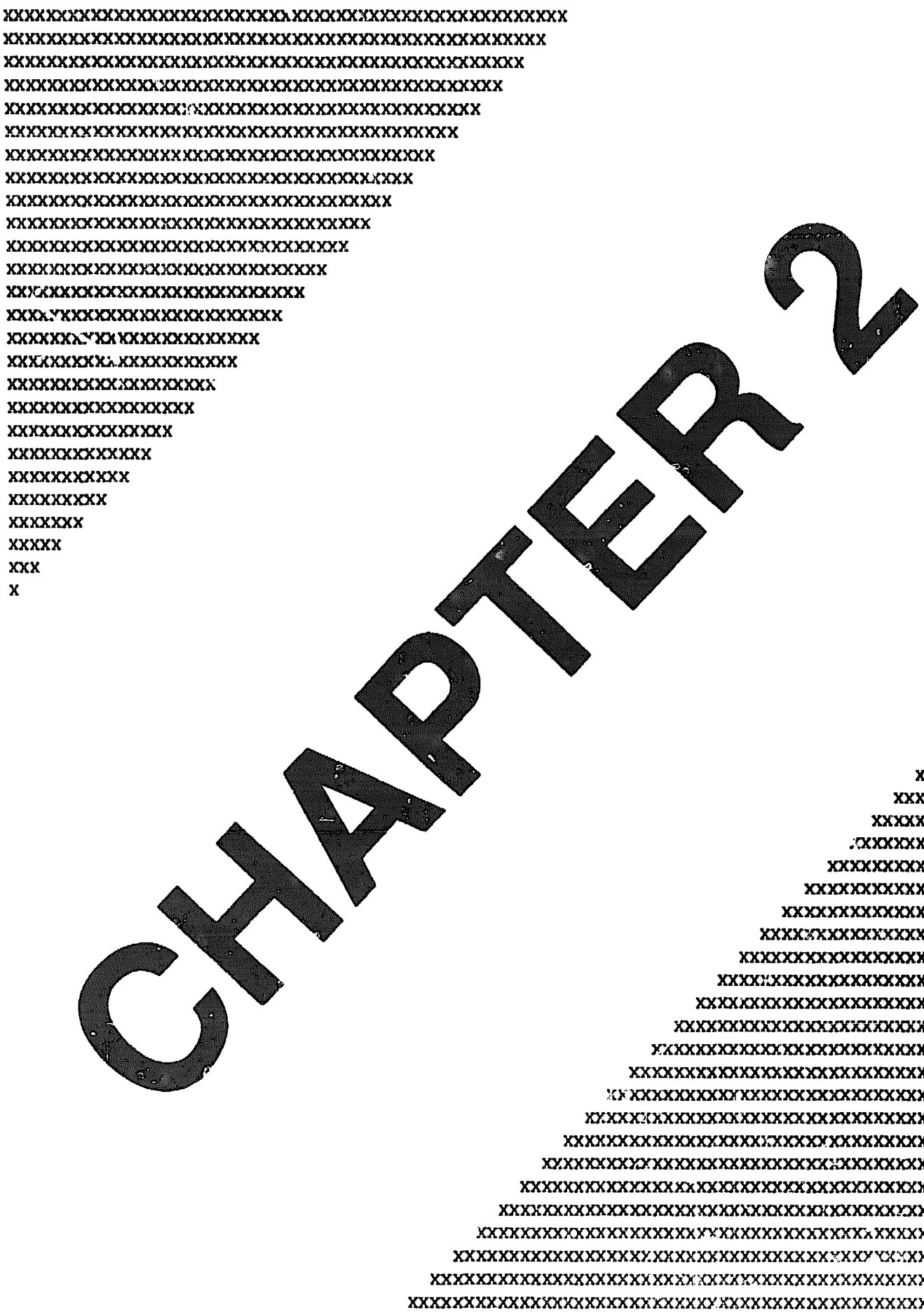
Table 1–4 Space Requirements

Floor Space	10 x 32 in (25.5 x 81 cm)
Maintenance Space	12 x 74 in (30.5 x 188 cm)

1.3 Selecting a Location

The R23RZ is designed to operate in an office environment. To find the most suitable location, use the following guidelines:

- Leave space around the pedestal for air circulation and servicing.
- Place the pedestal away from heaters, photocopiers, and direct sunlight.
- Minimize static by placing the pedestal away from busy office corridors.
- Keep the area free from dust and abrasive materials.
- Keep the pedestal and RSDs away from magnets and equipment that generates magnetic fields, such as motors, transformers, and terminals.
- Set aside a secure, clean area near the pedestal to store the RSDs.


CHAPTER 2

2
UNPACKING INSTRUCTIONS

Whenever an entire R23RZ System is delivered to the user's premises, its unpacking, installation, testing, and demonstration must be carried out by Digital Customer Services or other trained service engineers. These processes are described in Appendix B. Once the pedestal is installed, the RSDs can be unpacked and used.

When extra RSDs are ordered, users can unpack and install the RSDs themselves since, once unpacked, RSDs are ready for use.

2.1 Unpacking RSDs

Each RSD is delivered in a small container to which a shipping list is attached. Since an RSD can weigh up to 11.0 lb (5 kg), always use both hands to lift it.

To unpack the RSD:

- Check the shipping list for compliance with your order.
- Check that the correct number of shipping containers are present.
- Check the shipping containers for damage such as dents, holes and crushed corners.
- Take the containers to the site at which the R23RZ is operating.
- Open and unpack the shipping containers. Check the contents against the shipping list and the order. Retain shipping containers and packing materials for possible future use.
- Remove the transit plates from the sides of each RSD and store them for possible future use (if the drive will be shipped again.)
- Visually inspect each RSD for damage, particularly the shock detector and Low Insertion Force (LIF) socket (refer to Figure 2–1). If the shock detector shows red, contact your Digital representative.
- Report any damage or shortages to the shipper and notify your Digital representative.

CAUTION

The Removable SCSI Disk contains precision equipment. Mishandling may cause damage and lead to the Warranty/Contract being invalidated.

All electronic equipment can be damaged by the static electricity present in most working environments. To prevent damage to the RSD's internal electronics, DO NOT TOUCH the socket at the rear of the RSD. Also, do not allow small objects to fall into the socket, as this may damage the pins on the pedestal or the RSD socket.

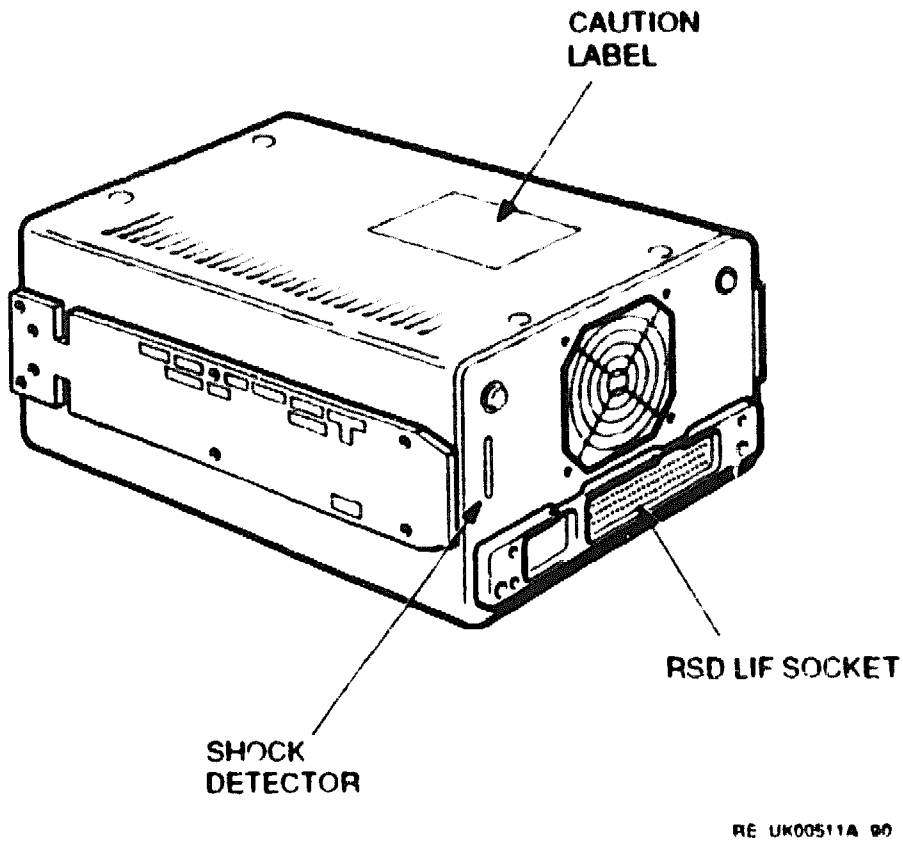
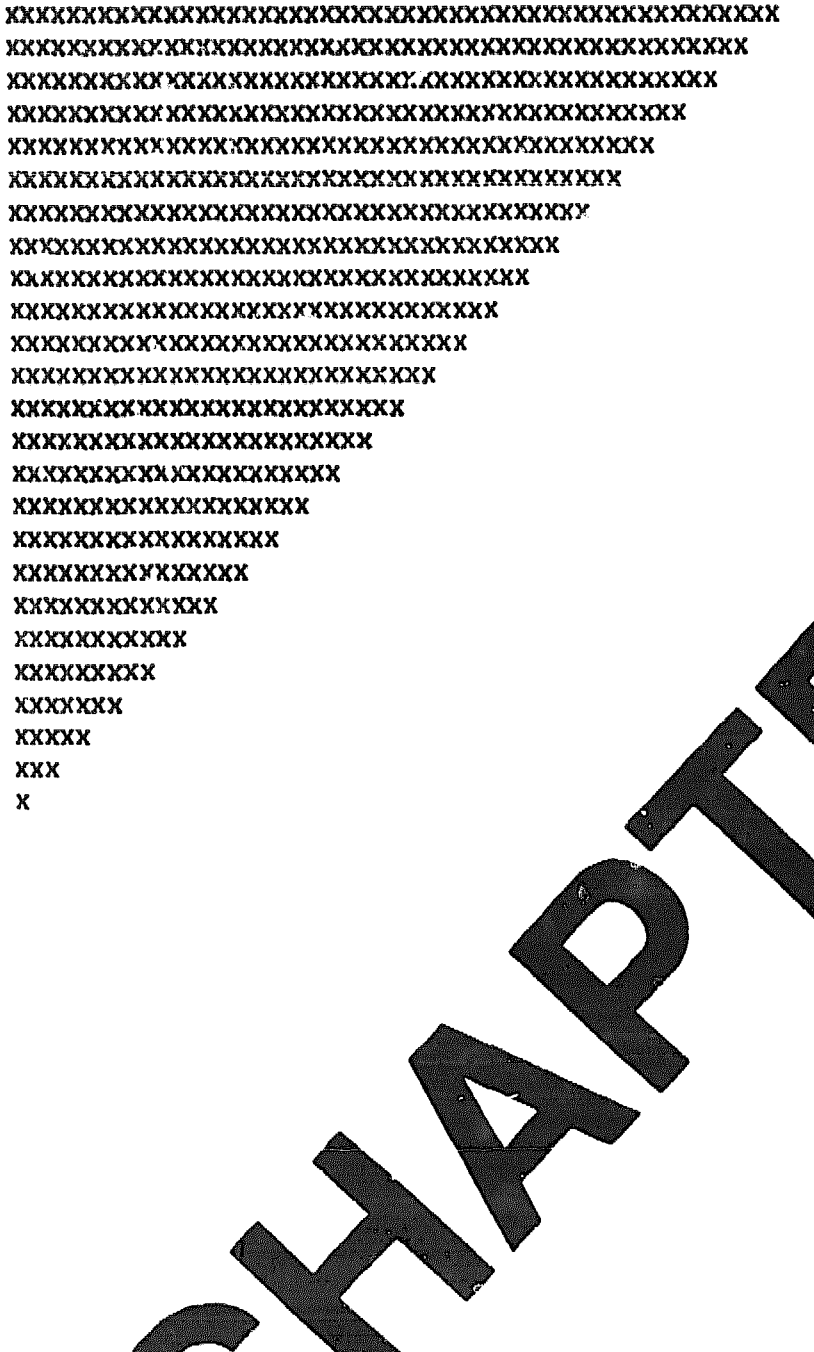
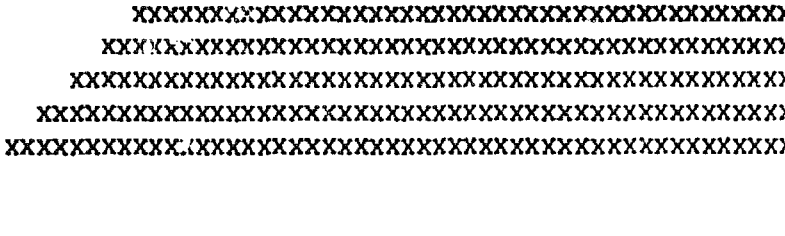


Figure 2–1 Rear View of RSD



CHAPTER 3



3
USING THE R23RZ REMOVABLE STORAGE DEVICE SYSTEM

3.1 Caring for the R23RZ

The R23RZ requires no physical preventative maintenance. There are, however, some simple precautions to take when using the system.

- Never put beverages on top of the pedestal or use an excessive amount of cleaning liquid when cleaning the pedestal. Liquids can be pulled into the pedestal by the forced air circulation inside. Such an incident can destroy the electronics.
- Keep ventilation slots clear and pedestal covers in place. Blocking the ventilation slots or removing pedestal covers can disrupt the flow of air through the system, causing the system to overheat.

3.2 Handling RSDs

To ensure data integrity and high reliability, it is essential to follow these handling procedures for RSDs.

3.2.1 Mechanical Shock

An RSD should not be handled roughly. Since it can weigh up to 11.0 lb (5 kg), always use both hands to lift it. Do not drop an RSD or knock it against a hard surface. A shock detector is installed on each RSD (refer to Figure 2–1):

- If the shock detector shows red, the contract/warranty may be void.
- If the shock detector shows red and the RSD is operative, make a backup copy of the RSD.
- If the shock detector shows red and the RSD is inoperative, contact Digital Customer Services.

3.2.2 Transportation and Storage

When an RSD is not in the pedestal, store it safely in an area set aside for that purpose, and preferably in its carrying case. Use the carrying case (refer to Table A–3) when transporting an RSD from one location to another.

The RSD's recommended storage position is:

- With the rubber feet down
- Out of direct sunlight
- Away from magnetic fields such as electric motors or transformers

CAUTION

The recommended storage temperature range is -40 to 66°C (-40 to 151°F) (refer to Table 1-2). It is preferable to store RSDs in the same environment as the system. If an RSD has been left in a hot/cold place for any length of time, its temperature should be allowed to normalize before use. No normalization is required between 15 and 45°C (59 and 113°F). Below 15°C or above 45°C, allow one hour for every 5°C (9°F) outside these limits.

3.2.3 Static Electricity

CAUTION

The Removable SCSI Disk contains precision equipment. Mishandling may cause damage and lead to the Warranty/Contract being invalidated.

All electronic equipment can be damaged by the static electricity present in most working environments. To prevent damage to the RSD's internal electronics, DO NOT TOUCH the socket at the rear of the RSD. Also, do not allow small objects to fall into the socket, as this may damage the pins on the pedestal or the RSD socket.

3.3 The Operator Control Panel (OCP)

The Operator Control Panel (refer to Figure 3–1) contains all the switches and indicators required to use the R23RZ. The functions of the switches and indicators are as follows:

Behind the small door:

- The SCSI node select plugs. Each RSD must have a unique SCSI ID number. Node select plugs are provided with each R23RZ that give the user the option of identifying their RSD with SCSI ID numbers 0-5 and 7. See Appendix C for SCSI addressing rules and conventions. NOTE: The SCSI ID number allows the controller to identify individual drives. If two drives have the same ID number, the controller cannot distinguish either drive and will log several errors. The ID plugs are set up when the pedestal is installed and do not need to be changed unless more R23RZ systems are added to the bus.
- The ac power OFF/ON rocker switch, labeled O/ I. This switch connects/disconnects ac power to/from the R23RZ pedestal.

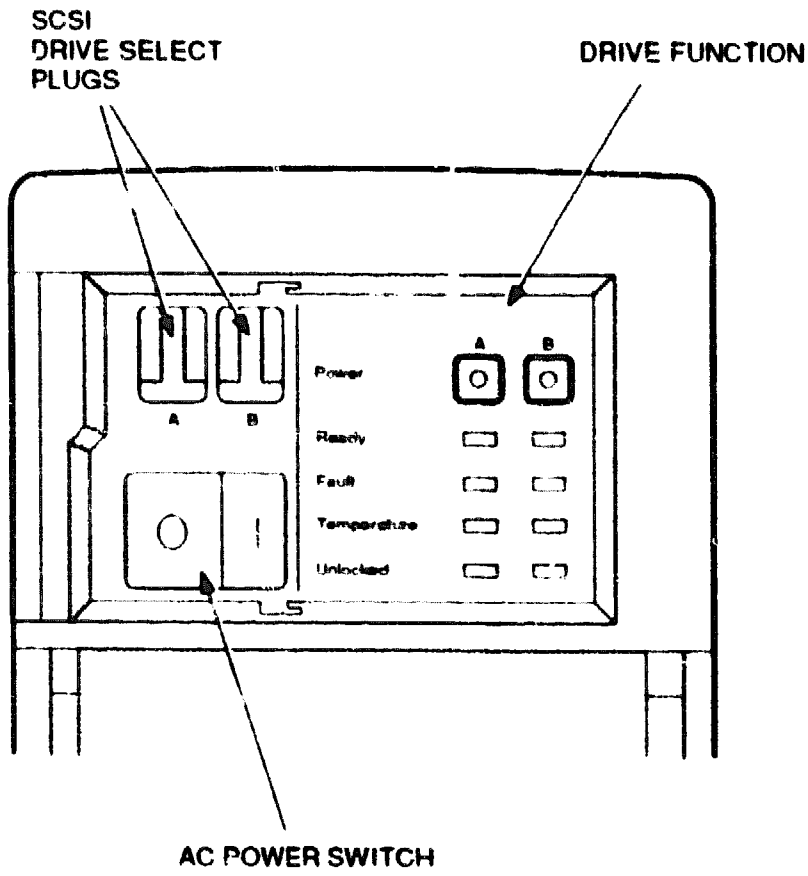


Figure 3–1 Operator Control Panel (OCP)

On the right hand side of the OCP are two columns of switches and indicators, one column for each drive slot (A and B.) The switches and indicators are used as follows:

- The POWER switch is an operator-controlled pushbutton with an integral yellow indicator. When this button is pressed, the RSD interlock (an electromechanical drive lock) is engaged and power is applied to the appropriate RSD. The yellow indicator lights to signify that the RSD is powered.

  When the POWER switch is pressed again, power is removed from the RSD. The indicator flashes for about 15 seconds while the RSD is spinning down. When powering down is complete, the indicator goes out and the interlock disengages. Once the interlock is disengaged, the RSD can be withdrawn from its drive slot by turning the key in the appropriate drive key lock (see Section 3.4).

  Do not power down the RSD until it has been dismounted from the system.

- The green READY indicator lights to indicate that the RSD is ready to be accessed by the operating system. After the drive is mounted, this indicator will remain lit except for brief flickering during seek operations (on certain versions of drives, this indicator will light BEFORE the drive is mounted.)

- The red FAULT indicator lights if a drive error is detected by the RSD's internal diagnostics. Note: The FAULT indicator lights briefly during Power-Up diagnostics and this does not indicate a fault. However, if the indicator remains lit, power down and remove the RSD, and call Digital Customer Services. You may still use other RSDs in the R23RZ.

- The red TEMPERATURE indicator lights if the temperature inside the RSD has risen above its maximum operating limit. If the TEMPERATURE indicator lights, remove the RSD from the drive slot and contact Digital Customer Services. *Do not* use the RSD or place another RSD in the drive slot until the problem has been rectified and the TEMPERATURE indicator is no longer lit.

  Should this over-temperature condition be detected, the RSD automatically powers down at the end of the data transfer. This indicator remains lit until the RSD cools to an acceptable temperature, when it goes out. However, the RSD does *not* power up again automatically: you must press the POWER button.

- When the green UNLOCKED indicator is lit, the drive interlock is disengaged and the RSD may be removed from the drive slot. When the indicator is not lit, the drive interlock is engaged and the RSD may not be removed from its slot. Note that this electromechanical locking is in addition to the drive key locks.

3.4 Drive Key Locks

In addition to the electromechanical drive lock, key locks (refer to Figure 1–1) provide extra security for the RSD since, without a key, the RSD cannot be removed from the drive slot. (However, it is not necessary to have a key to insert the RSD.)

3.5 Inserting an RSD into a Pedestal

The pedestal itself must be powered before an RSD is inserted. If the pedestal is not powered refer to Section B.6.

NOTE

Once the Pedestal is installed and powered up, it should be left on whenever possible and only the individual RSD slots should be turned on and off (as the drive is inserted and removed.)

1. Check that two SCSI node ID plugs have been installed on the Operator Control Panel. These plugs override the RSD's internal drive select switches so that the RSD requires no adjustment or configuration.
2. Check to make sure that the RSD slot power is off (refer to Figure 3–1.) The indicator light will be off.
3. Open the pedestal door.
4. Insert the RSD as follows:
   - Pull the RSD handle out to its full extent.
   - Offer up the RSD to the empty slot as shown in Figure 3–2. (The RSD has slides which are keyed to ensure that it can only be inserted in the correct orientation.)
   - Slide the RSD fully home, making sure that the canister is fully inserted after the lock mechanism clicks. **CAUTION: BEFORE POWERING UP AN INDIVIDUAL DRIVE, MAKE SURE THE CANISTER IS FULLY INSERTED AND THE LOCK MECHANISM CLICKS.**

- Push the RSD handle back in.

5. Close the pedestal door.
6. Press the POWER button to power up the RSD. The POWER button illuminates when the RSD is powered up.

3.6 Mounting and Dismounting a RSD

After Power-up, when the ready LED indicates that the RSD is ready to be accessed, the drive must be brought on-line and mounted.

3.6.1 VMS Operating System

In VMS, the drive is mounted by using the mount command.
For example:

```
$ MOUNT DKB100: VOL_NAME
```

or, if the volume label is not known:

```
$ MOUNT/OVERRIDE=ID DKB100:
```

The RSD is now available for use as a standard disk, using all standard VMS commands. The SCSI ID is unique to the chassis, and the volume label is unique to the drive. When mounted, the system logs both the SCSI ID and the volume label. When another drive is plugged into the same chassis with a different volume label, it will not be recognized if the previous volume was not properly dismounted.

To remove an RSD, first DISMOUNT the drive, using the standard VMS command.
For example:

```
$ DISMOUNT DKB100:
```

CAUTION

Always dismount the disk prior to removing. Failure to do so will cause the drive to remain configured. The system will not permit access to another volume (disk) at that same SCSI ID. If the disk canisters were mistakenly swapped without dismounting, power down and remove the second disk. Replace it with the original disk, power up, and then dismount the volume.

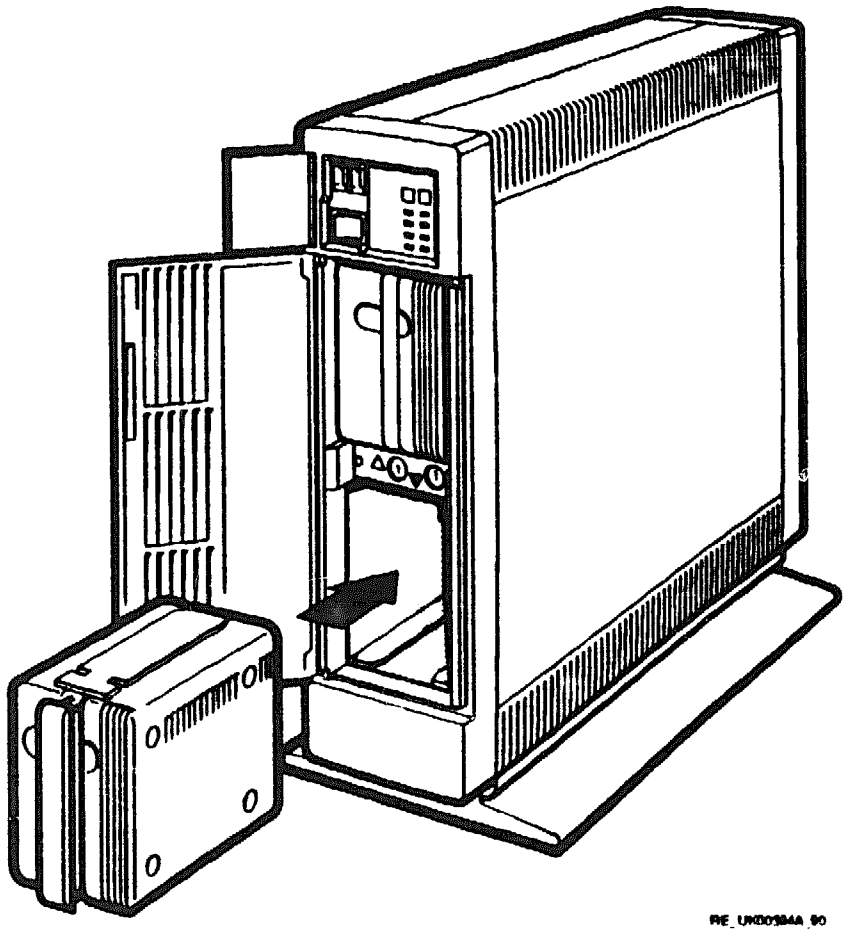


Figure 3–2 Inserting an RSD

After dismounting, press the POWER button to power down the drive. The indicator flashes when the drive is spinning down, and goes out when the drive is powered down. When the green UNLOCKED indicator lights, the drive is unlocked. You can remove the RSD by turning the key in the key lock, and pulling the RSD from its slot.

3.6.2 ULTRIX Operating System

In ULTRIX, the drive is mounted by using the mount command.
For example:

```
# mount /dev/drive/volumn_name
```

The RSD is now available for use as a standard disk, using all standard ULTRIX commands.

To remove an RSD, first DISMOUNT the drive, using the standard ULTRIX command.
For example:

```
# umount /volumn_name
```

CAUTION

When running an ULTRIX operating system, always dismount the disk prior to removing. If the disk is not dismounted, the partition can be corrupted, information lost, and the disk cannot be remounted.

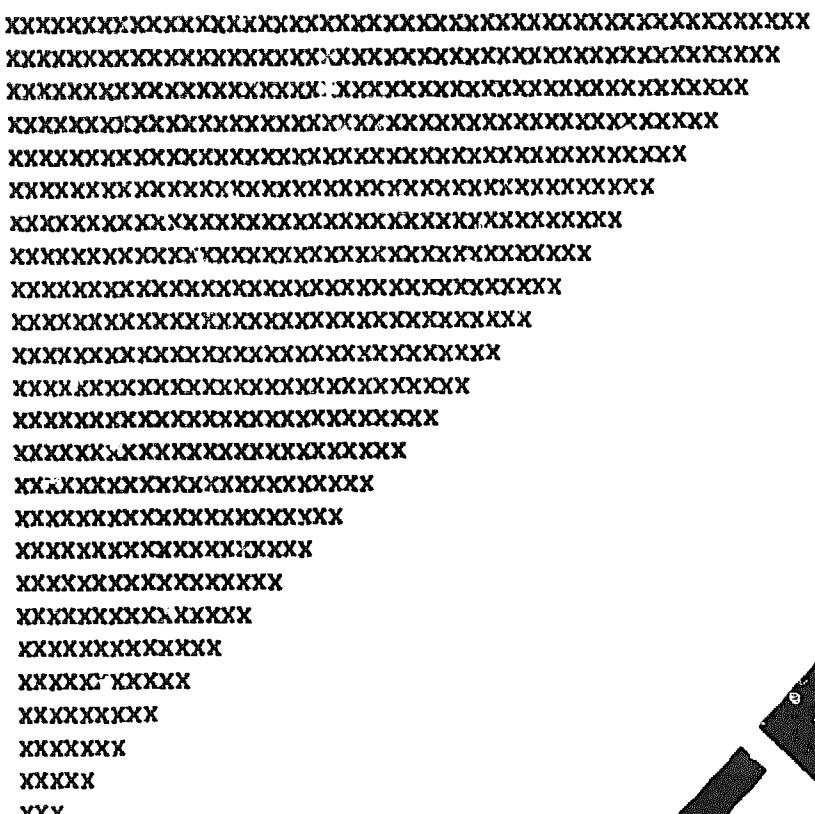
After dismounting, press the POWER button to power down the drive. The indicator flashes when the drive is spinning down, and goes out when the drive is powered down. When the green UNLOCKED indicator lights, the drive is unlocked. You can remove the RSD by turning the key in the key lock, and pulling the RSD from its slot.

3.7 Switching off the Pedestal

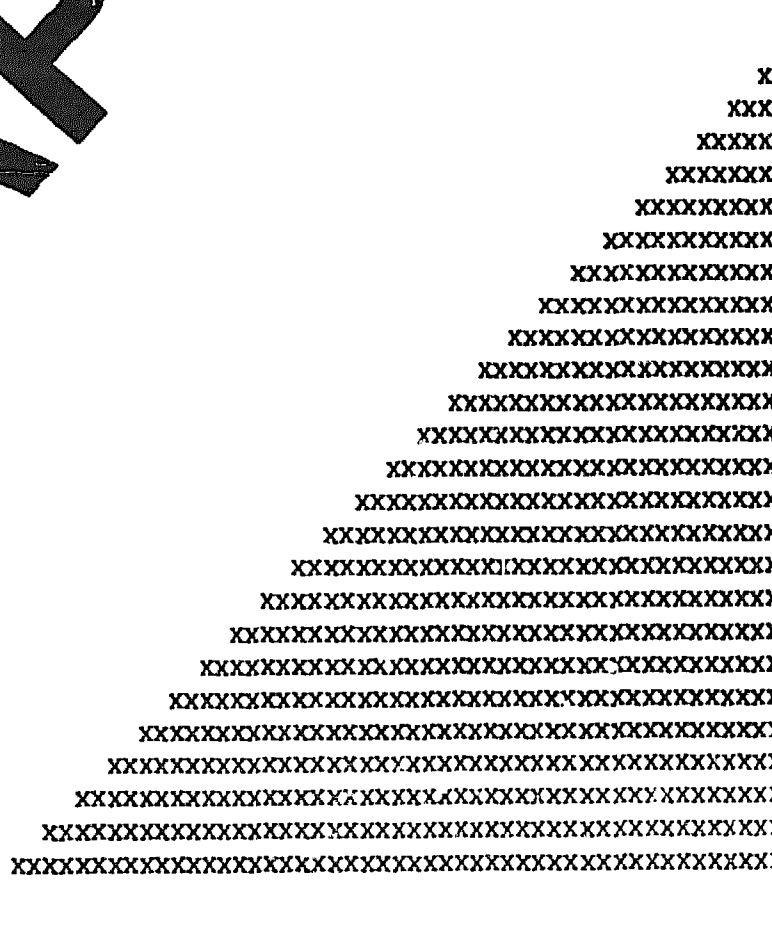
The Pedestal should not be switched off unless one is prepared to go through the process described in Section B.6 to reconfigure the SCSI bus. If the pedestal must be switched off, the following steps should be followed.

- Dismount both drives.
- Switch off both drives.
- Remove the RSDs, if required, and store safely.

- Switch off the pedestal.



CHAPTER 4



4
TROUBLESHOOTING

This chapter describes some simple troubleshooting steps that may help you to get an inoperative RSD working again, or decide that Digital Customer Services should be called. Repairs to the R23RZ should only be attempted by trained service engineers.

4.1 No Power to the Pedestal

Before calling Digital Customer Services, check that:

- The ac power cord is connected.
- The ac power OFF/ON switch is in the ON position.
- The fuse in the ac power plug has not blown (if applicable).
- The fuse in the inlet filter has not blown.

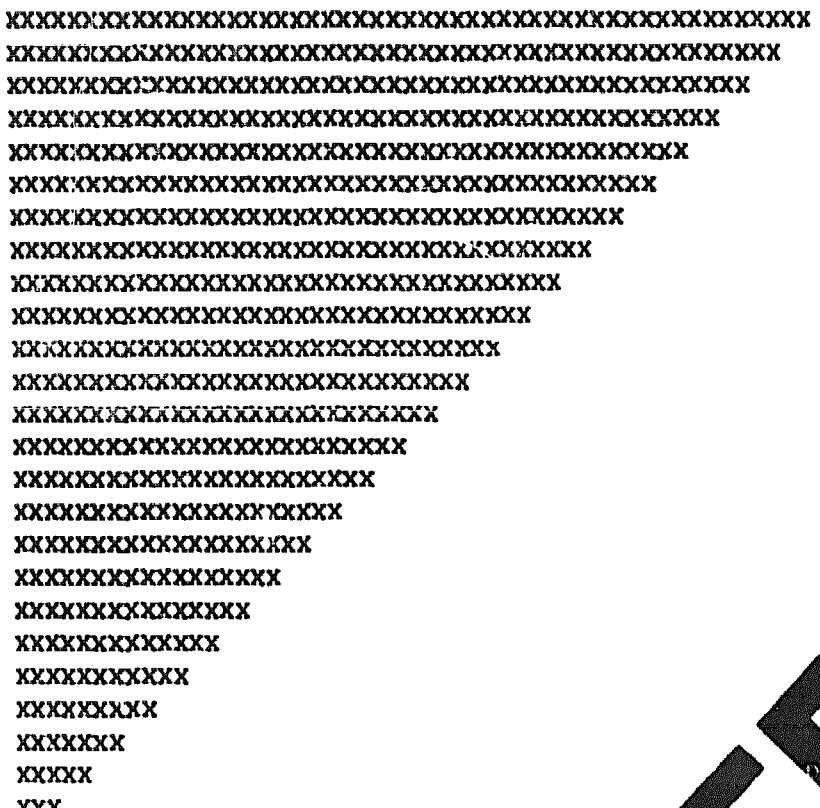
Warning

For continued protection replace only with the same type and rating of fuse.

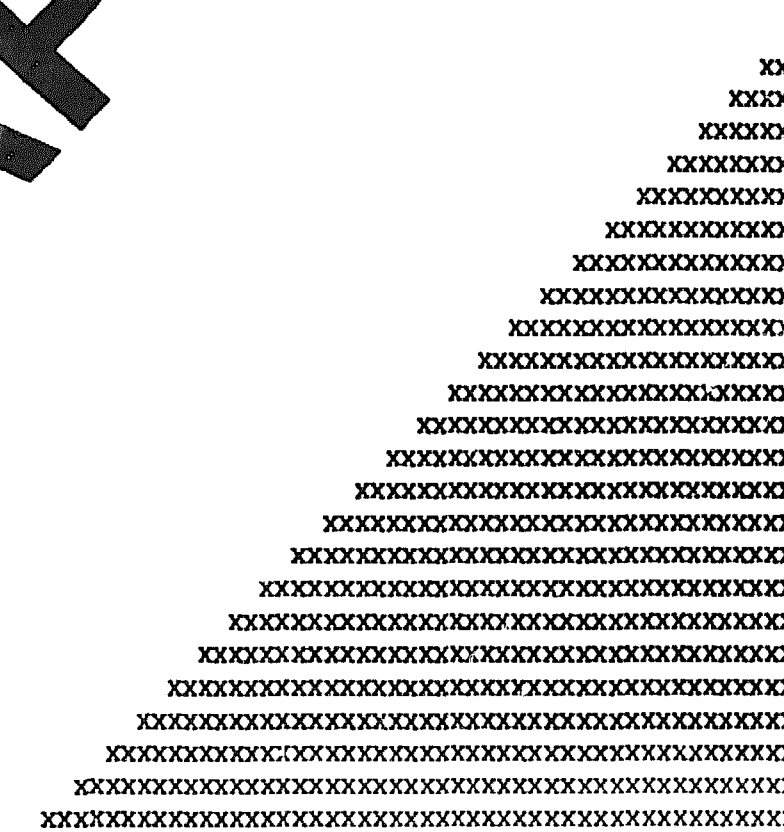
4.2 No Power to the RSD

Before calling Digital Customer Services check that:

- The POWER button was pressed for the correct drive slot.
- The RSD is pushed completely home.
- The SCSI node ID plugs have been installed correctly in the SCSI drive select switches.
- The cabling is correct (refer to Figure B–2 and Figure B–3).



CHAPTER 5



5
DIGITAL REPAIR SERVICES

Digital Customer Services offers a range of flexible service plans.

ON-SITE SERVICE offers the convenience of service at your site and insurance against unplanned repair bills. For a monthly fee, you receive personal service from our service specialists. Within a few hours, the specialist is dispatched to your site with equipment and parts to give you fast and dependable maintenance:

> **BASIC SERVICE** offers full coverage from 8 a.m. to 5 p.m., Monday through Friday. Options are available to extend your coverage to 12-, 16-, or 24-hour periods, and to include Saturdays, Sundays, and holidays.
>
> **DECservice** offers a premium, on-site service providing committed response to remedial service requests made during contracted hours of coverage. Remedial maintenance will be performed continuously until the problem is resolved, which makes this service ideal for customers requiring maximum service performance.

Under Basic Service and DECservice, all parts, material, and labor are covered in full.

PER CALL SERVICE offers a maintenance program on a noncontractual, time-and-materials-cost basis. This service is available with On-Site Service. It is appropriate for customers who have the expertise to perform first-line maintenance, but may occasionally need in-depth support from Digital Customer Services.

> Per Call Service is also offered as a supplementary program for Basic Service customers who need maintenance beyond their contracted coverage hours. There is no materials charge in this case.
> On-Site Per Call Service is provided on a best effort basis, with a normal response time of two to three days. It is available 24 hours a day, seven days a week.

For more information on these Digital Service plans, prices, and special rates for volume customers, call the Digital Customer Services office nearest you.

5.1 Digital International Customer Services Information Numbers

U.S.A.	(800)554-3333
Australia	(02)4125555
Austria	(222)6776410
Belgium	(02)2425095
Canada	(800)267-5251
Denmark	(2)889666
Finland	(0)423511
France	(6)0778292
Holland	(30)640293
Ireland	(1)308433
Italy	(02)617961
Japan	(03)9897161
Norway	(2)160290
Portugal	(1)725402
Spain	(1)7331900
Sweden	(8)7338000
Switzerland	(01)8169111
United Kingdom	(734)868711
West Germany	(089)95910


APPENDIX-A

A
OPTION KITS

The following options are available for the R23RZ Removable SCSI Disk System, and for individual RSDs.

Table A–1 R23RZ Options

Options	Description
RZ55B-KA	One 120V/240V Pedestal (Part No. R23RZ-A2), One RZ55 Removable SCSI Disk with 332 MBF (Part No. RZ55-RA), One SCSI cable (Part No. BC06P-06), One SCSI cable (Part No. BC56H-06), One SCSI terminator, Eight SCSI node ID plugs, One R23RZ Removable SCSI Disk System Installation and User Guide (Part No. EK-R23RM-IN-001)
RZ56B-KA	One 120V/240V Pedestal (Part No. R23RZ-A2), One RZ56 Removable SCSI Disk with 665 MBF (Part No. RZ56-RA), One SCSI cable (Part No. BC06P-06), One SCSI cable (Part No. BC56H-06), One SCSI terminator, Eight SCSI node ID plugs, One R23RZ Removable SCSI Disk System Installation and User Guide (Part No. EK-R23RM-IN-001)
RZ57B-KA	One 120V/240V Pedestal (Part No. R23RZ-A2), One RZ57 Removable SCSI Disk with 1 GBF (Part No. RZ57-RA), One SCSI cable (Part No. BC06P-06), One SCSI cable (Part No. BC56H-06), One SCSI terminator, Eight SCSI node ID plugs, One R23RZ Removable SCSI Disk System Installation and User Guide (Part No. EK-R23RM-IN-001)

Table A–2 R23RZ Cable Options

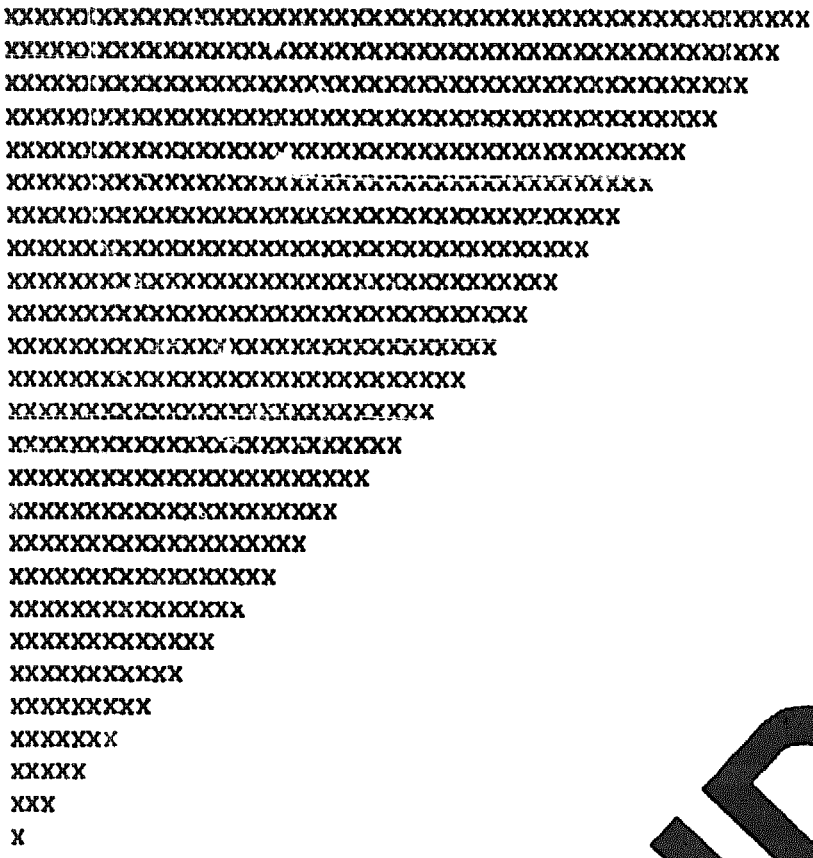
Options	Description
BC06P-xx	SCSI interpedestal or pedestal to host cable, IEEE to IEEE
BC09D-06	SCSI to host cable for DS5000, IEEE to MicroD
BC56H-06	SCSI to host cable, IEEE to MicroD
12-30552-01	Terminator

Table A–3 RSD Options

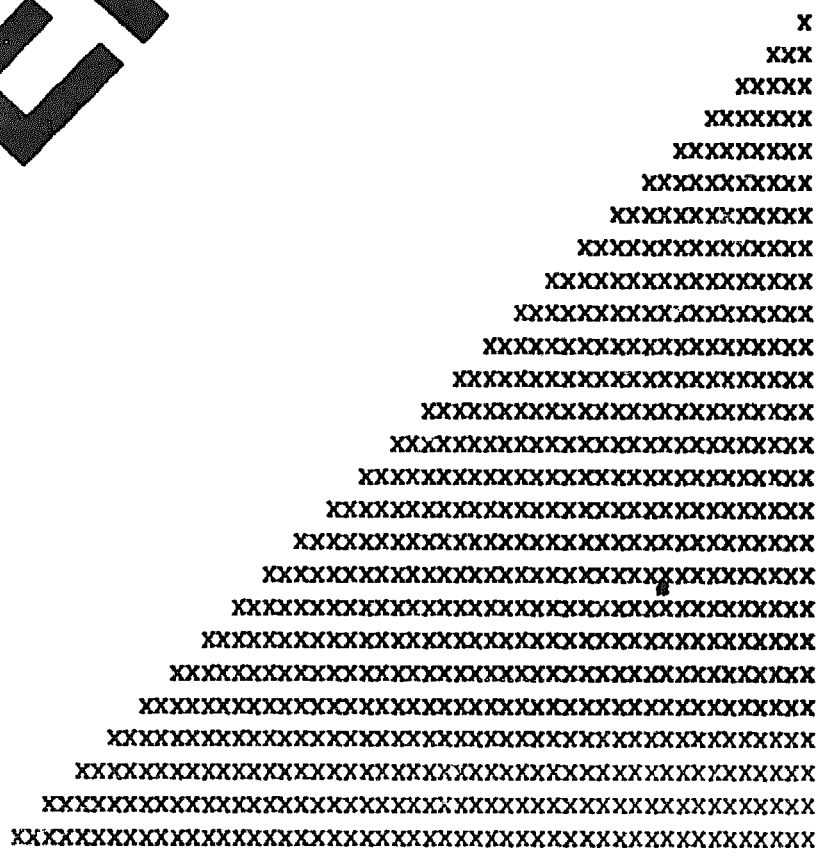
Options	Description
RZ55 -RA	RZ55 Removable SCSI Disk with 332 MBF
RZ56 -RA	RZ56 Removable SCSI Disk with 665 MBF
RZ57 -RA	RZ57 Removable SCSI Disk with 1 GBF
RFXX -CK	RSD carry case

Table A–4 R23RZ AC Power Cords

Options	Description	
BN19P-1K	120 VAC	U.S.A./Japan
BN24R-2E	220 VAC	Australia/New Zealand
BN19W-2E	220 VAC	Central Europe
BN26B-2E	240 VAC	U.K./Ireland
BN19E-2E	220 VAC	Switzerland
BN19K-2E	220 VAC	Denmark
BN19Z-2E	220 VAC	Italy
BN22Z-2E	240 VAC	India/South Africa
BN22P-2E	220 VAC	Israel



APPENDIX-B



B

CUSTOMER SERVICES INSTALLATION

B.1 Introduction

This appendix describes how to unpack, configure, cable, and verify the installation of a R23RZ Removable SCSI Disk System. These procedures should only be carried out by Digital Customer Services or other trained service engineers. (RSDs may be unpacked by users.)

The pedestal should be transported on a trolley and unpacked at its operating location.

B.2 Delivery

The R23RZ is delivered as:

- One large container, containing the pedestal
- One small container, containing the RSD. (There will be more containers if extra RSDs were ordered)
- Documentation, cabling, and SCSI terminator as appropriate to the option ordered

B.3 Unpacking

To unpack the R23RZ Removable SCSI Disk System:

- Check the shipping list for compliance with the customer order.
- Check that the correct number of shipping containers are present.
- Check the shipping containers for damage such as dents, holes and crushed corners.
- Move the containers to the site at which the R23RZ will operate (see Section 1.3).

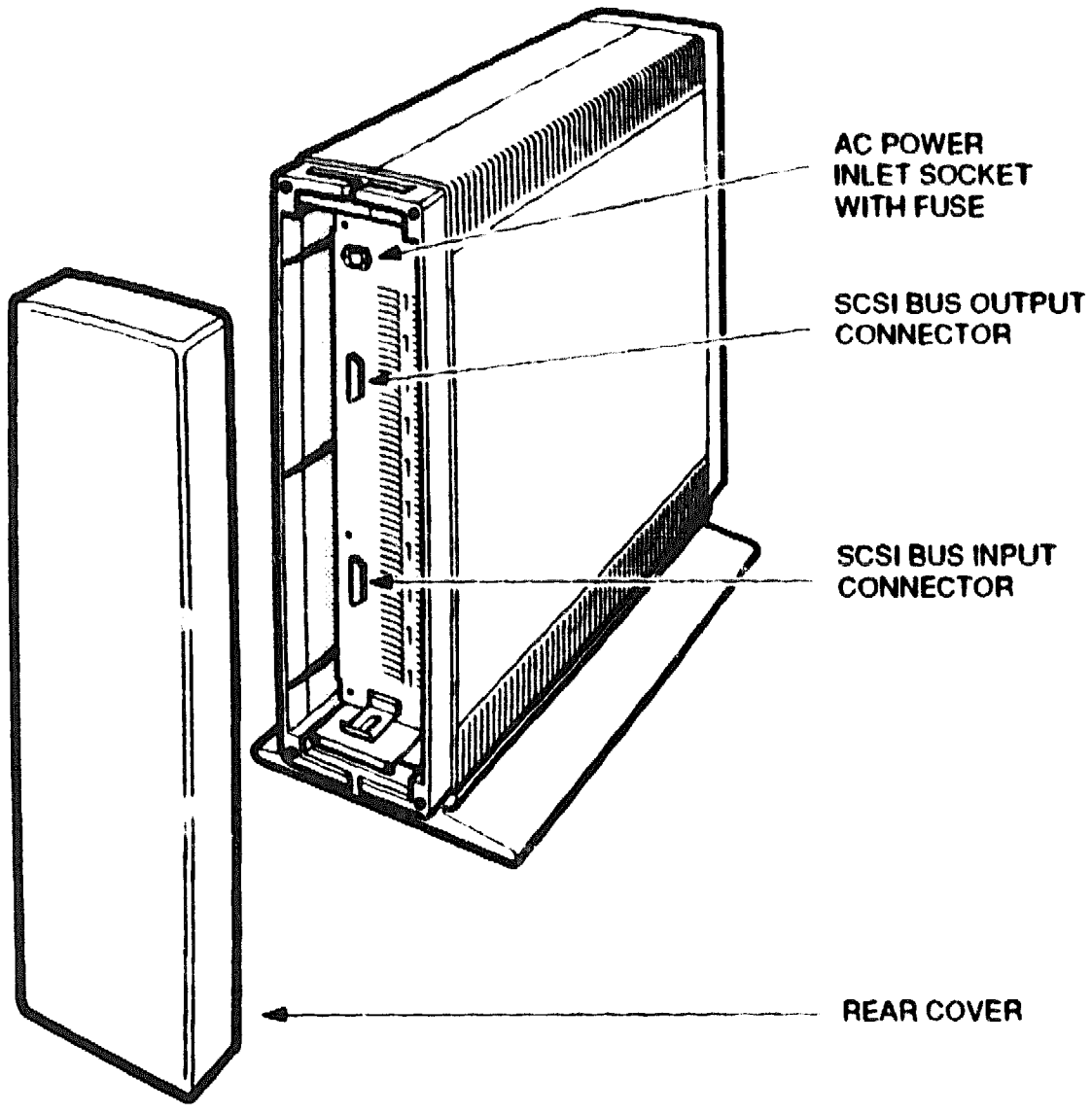


Figure B–1 Rear View of R23RZ Pedestal

- Open and unpack the shipping containers. Check the contents against the shipping list to verify that there are no missing parts. Retain shipping containers and packing materials for possible future use.
- Visually inspect the R23RZ and the RSDs for damage. Check the RSDs' shock detectors, the Low Insertion Force (LIF) socket on each RSD, and the pedestal LIF pins (inside each slot, at the back). If the shock detector shows red, contact the Digital representative.
- Check the voltage setting. The R23RZ System is designed to operate on either 110 VAC or 220 VAC. The pedestal comes preset for 110 VAC but can be easily changed. To check or change the voltage, remove the rear cover by grasping the top and bottom, and pulling the cover away from the fasteners. In the rear of the pedestal, the power supply Voltage Selection switch is located beside the SCSI BUS Output Connector (refer to Figure B–1). The voltage setting can be read from the switch. A nonmetallic tool should be used to change the voltage setting by moving the switch up or down. Note: When changing voltages, make sure the switch is moved completely into the new position.

WARNING

The line voltage select switch must be correctly selected before connecting to any AC line voltage.

CAUTION

The Removable SCSI Disk contains precision equipment. Mishandling may cause damage and lead to the Warranty/Contract being invalidated.

All electronic equipment can be damaged by the static electricity present in most working environments. To prevent damage to the RSD's internal electronics, DO NOT TOUCH the socket at the rear of the RSD. Also, do not allow small objects to fall into the socket, as this may damage the pins on the pedestal or the RSD socket.

B.4 Cabling the Pedestal

Cable configuration is dependent upon single or multiple pedestal configurations. Each of these configurations is discussed below. With both configurations, the SCSI bus must be ended with a terminator.

B.4.1 Single Pedestal Configurations

Refer to Figure B–2. Proceed as follows:

- Pull the rear cover from the pedestal.
- Connect the SCSI bus cable from the host's SCSI I/O panel to the SCSI bus input connector on the R23RZ pedestal.
- Snap into place the connector fastening tabs.
- Connect the ac power cable to the ac power inlet socket on the rear of the R23RZ pedestal.
- For single R23RZ configurations, fit a SCSI bus terminator to the SCSI bus output connector.
- Route the cables behind the slotted cable restraint.
- Refit the rear cover with the slot at the bottom.

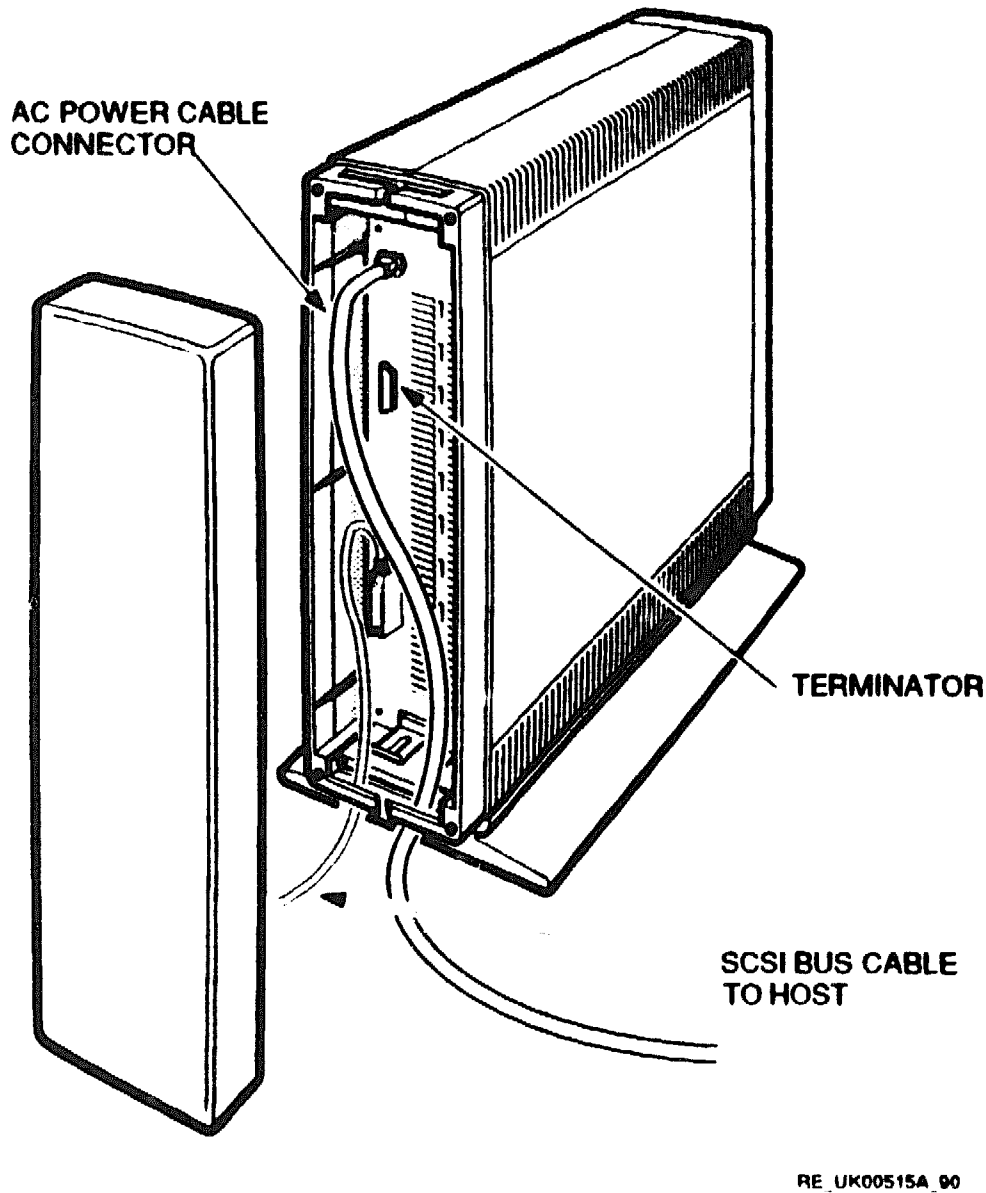


Figure B–2 Cabling the Pedestal

CAUTION

A terminator must be fitted to the bus cable to ensure data integrity.

B.4.2 Multiple Pedestal Configurations

Refer to Figure B–3. Connect the first R23RZ pedestal to the adapter I/O port with either a BC06P-06 SCSI cable or a BC56H-06 cable (system dependent.) Connect the second R23RZ pedestal to the first with a BC06P-06 SCSI cable. Install a SCSI terminator in the remaining SCSI connection on the last R23RZ.

B.5 Installing the SCSI Node ID Plugs

Once the R23RZ has been configured and cabled, install two of the eight supplied SCSI node ID select plugs in the SCSI drive select switches on the Operator Control Panel (refer to Figure 3–1). These plugs, which are numbered 0 to 7, define the SCSI Node ID for each slot. See Appendix C for SCSI addressing rules and conventions.

DO NOT install two SCSI ID plugs with the same number on the same SCSI bus. If several R23RZs are connected together, install plugs numbers which are unique throughout the system. *DO NOT* use node ID plugs that conflict with the adapter node ID (usually 6 or 7).

B.6 Powering Up the Pedestal

When starting your system, set the ON/OFF switch to the ON position for all the devices in the order listed below. Note: Not all of these devices may be cabled to your system.

1. R23RZ System Pedestal with the Canisters installed.

   If the system is initially configured with one RSD and then a second one is purchased, the bus must be reconfigured by following the system power up sequence (refer to Section B.6.) Once the SCSI bus has been configured, RSD's can be interchanged in the same slot AS LONG AS they are properly mounted and dismounted (refer to Section 3.6.)

2. Any hard disk expansion box
3. Any tape expansion box
4. Any compact disc expansion box

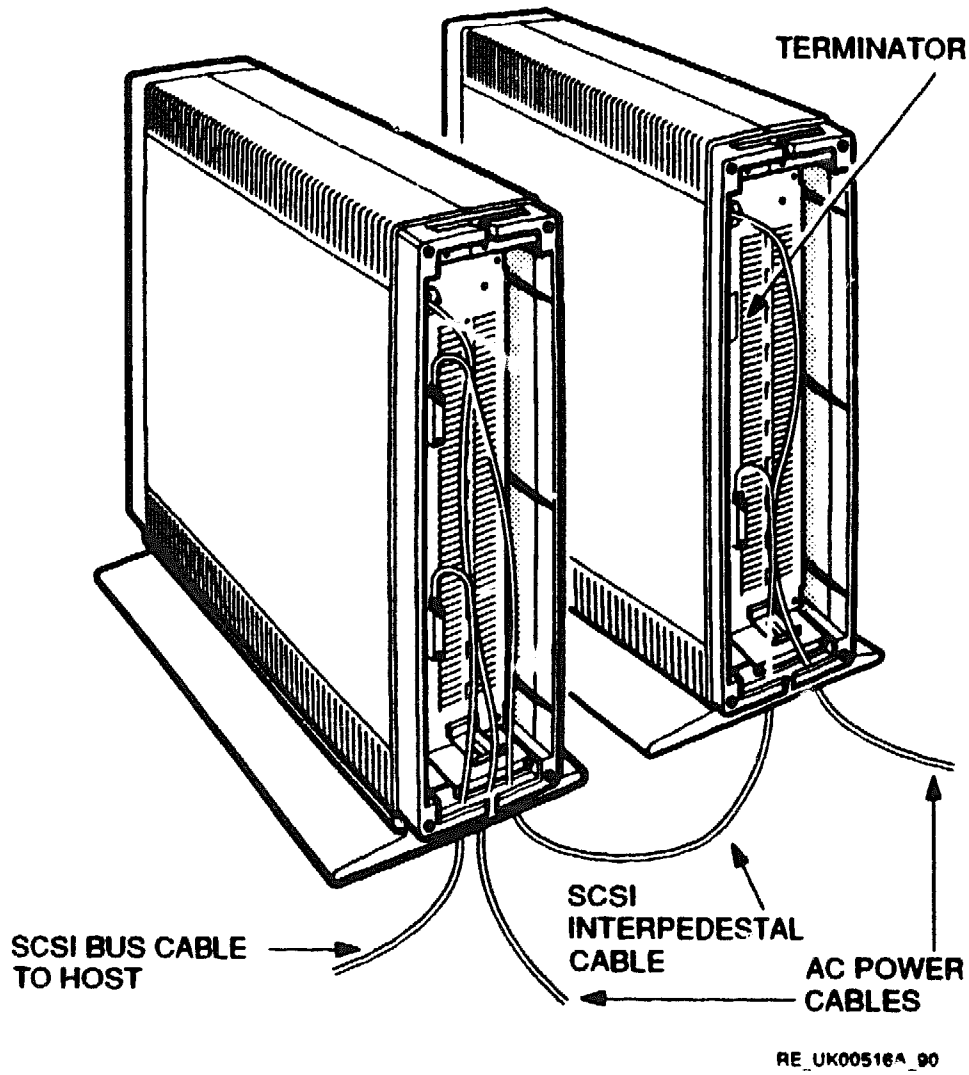


Figure B–3 Interpedestal Cabling

5. Any printers or modems
6. Monitor
7. System

This procedure ensures that the external devices should be ready for use and will be included in the system's firmware configuration. Failure to apply power to any device on the SCSI bus will cause that device to not be seen on the SCSI bus.

NOTE

All SCSI devices must be powered up and the SCSI Removable Disks must be on-line prior to booting up the operating system.

After all members of the SCSI bus have been powered, the system should be booted using the local console language specific to the system. Once the system has booted, the RSDs can be mounted (refer to Section 3.6.)

The system is now ready for testing using MDM Diagnostics (refer to the *MDM User Guide* for details).

The system is now ready for use. Provide the user with a demonstration of how to use it.

B.7 Dynamic Reconfiguration Of Devices

Devices on the SCSI bus may not be added to the bus, removed from the bus, or re-cabled while the system is in operation. Failure to meet this requirement may cause loss of user data or system failure.

B.8 External Boxes

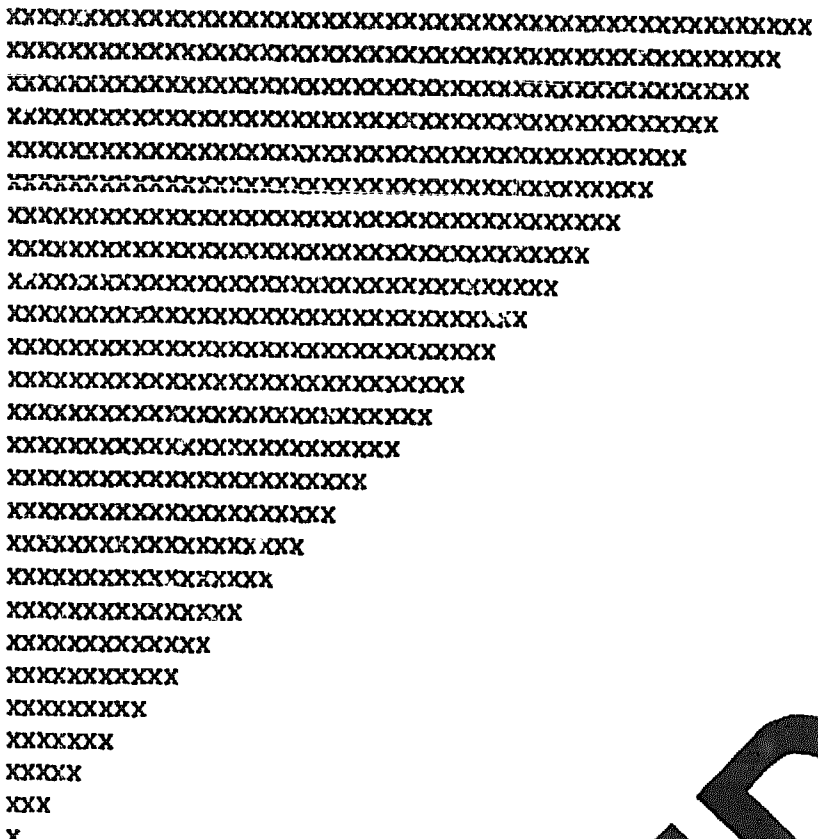
<PZ Devices residing outside the main system box should remain powered on at all times while the system is in operation. The reasons for this include:

- Some powered-off SCSI devices fail to present a high impedance to the SCSI bus, leaving the bus unuseable.
- A powered-off device can reduce the terminator power on the bus to unacceptable level, causing user data corruption or system failure.
- The device can spike various SCSI bus signals during power-on or power-off, leading to user data corruption or system failure.

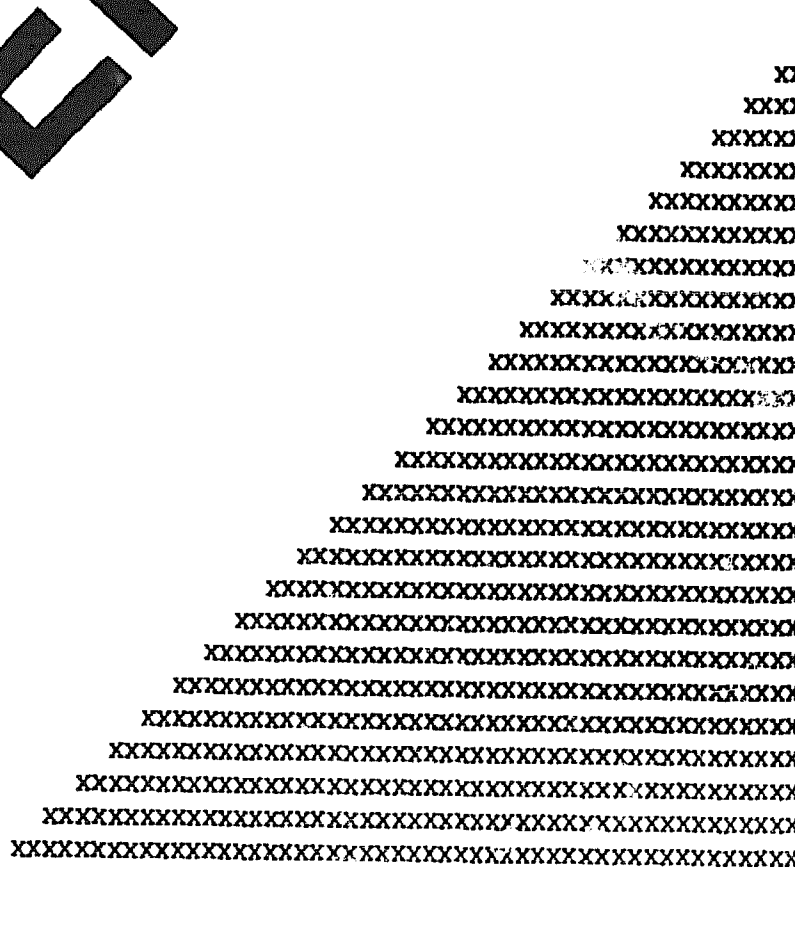
Although you may successfully power on or off external boxes while the system is running, Digital recommends that external devices remain powered-on at all times during system operation.

B.9 Power Failures

In the event of a power failure, power off all devices and the workstation. Follow the power-up procedure in Section B.6 to ensure that all devices and the workstation have been properly powered up.



APPENDIX-C



C
SCSI ADDRESSING RULES AND CONVENTIONS

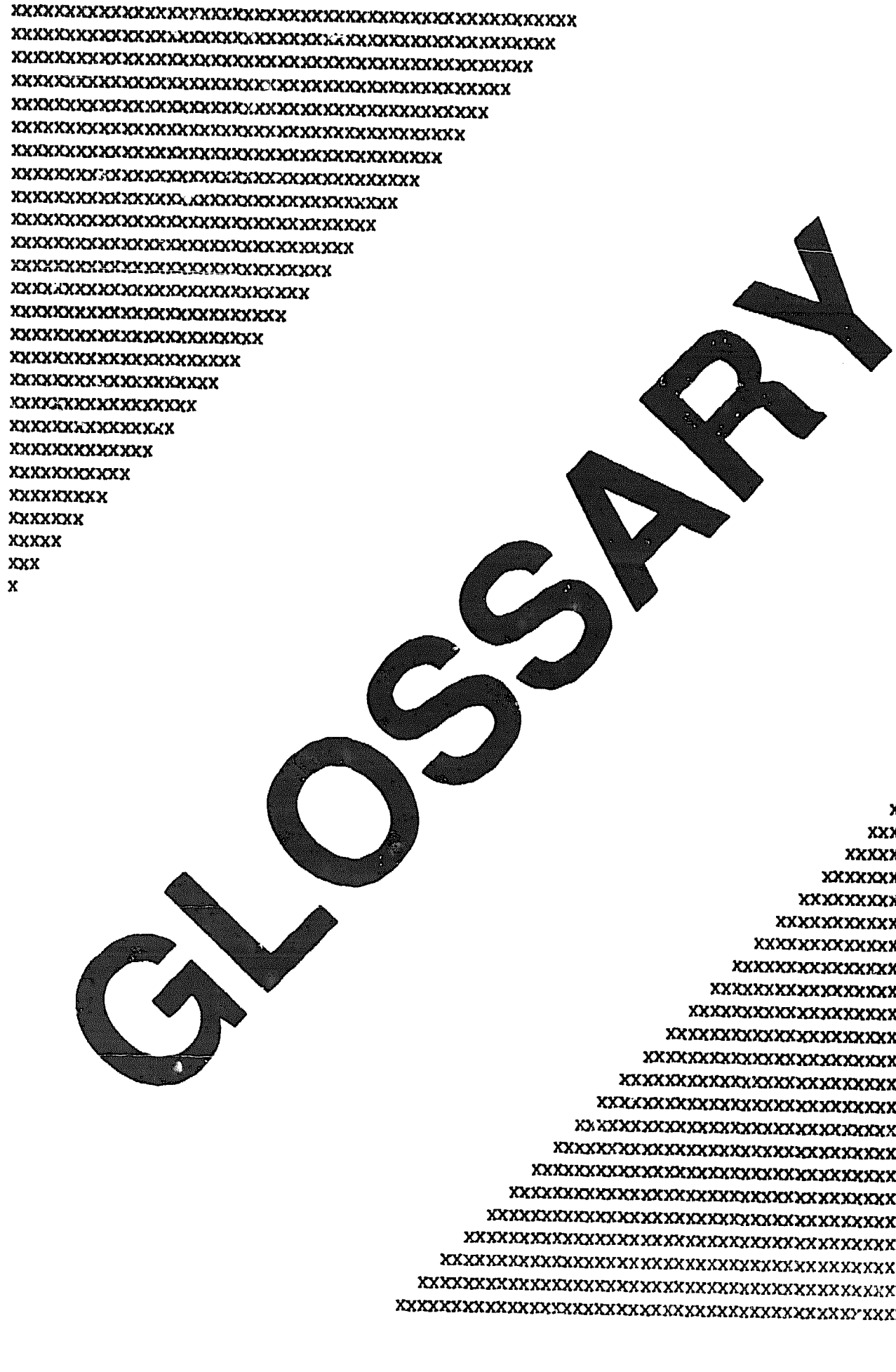
C.1 Introduction

SCSI devices use identification numbers 0 through 7, with 7 being the highest priority ID. Address 7 is reserved and address 6 is used for the SCSI controller. Six device addresses (0-5) are available for custom configuring. Table A-1 lists the suggested addresses for each device connected to the bus.
Follow these rules when you are selecting the SCSI address:

- There can be up to eight SCSI devices (including the controller) on the bus.
- Each device must have a unique address. The same address cannot be used for two or more devices on the same SCSI bus.
- Each SCSI bus must be terminated at the last physical device on the bus.

Table C–1 Unit Select Addresses (Recommended)

Device Address	Device Type	Intended Use
0	Open	SCSI Removable Disk Subsystem (First Unit)
1	Open	SCSI Removable Disk Subsystem (Second Unit)
2	Disk Drive	User Disk
3	Disk Drive	System Disk
4	Disk Drive	RRD40
5	Tape Drive	TK50Z or TZ30
6	Reserved	SCSI Controller
7	Reserved	Reserved


GLOSSARY

Glossary

DSA
Digital Storage Architecture

DUP
Diagnostic Utilities Protocol

ID
Abbreviation for Identification. The SCSI node ID allows ISDs, RSDs, and adapters to address one another on the SCSI.

KA640
The KA640 is the CPU module as used on the MicroVAX 3300/3400. It includes an embedded SCSI adapter.

KFQSA
The KFQSA is an adapter that provides an interconnect between the Q-bus and the Digital Storage System Interconnect (SCSI).

LED
Light Emitting Diode, an illuminated indicator.

LIF
Low Insertion Force, a type of electrical connector.

MDM
MicroVAX Diagnostic Monitor, for testing Digital modules and options.

MSCP
Mass Storage Communications Protocol

OCP
Operator Control Panel, contains all controls for operating the R23RZ.

Peripheral Device

A device that provides the CPU with additional memory storage or communication capability. Examples are disk and diskette drives, video terminals, and printers.

RZ Integrated Storage Disks(ISD)

The RZ family of disks belong to a new generation of storage solutions which contain their own controllers and Mass Storage Communications Protocol (MSCP) Servers. Hence, the name Integrated Storage Device.

RZ55

The RZ55 is a 335 Megabyte, half-height, 5 ¼" ISD.

RZ56

The RZ55 is a 665 Megabyte, full-height, 5 ¼" ISD.

RZ57

The RZ57 is a 1000 Megabyte, full-height, 5 ¼" ISD.

RSD

Removable SCSI Disk.

Small Computer System Interface (SCSI)

It is an interface designed for connecting disks and other peripheral devices to computer systems. SCSI is defined by an American National Standards Institute (ANSI) standard and is used by many computer and peripheral vendors throughout the industry.

System

A combination of system hardware, software, and peripheral devices that performs specific processing operations.

Terminator

A connector used on one end of an SCSI bus that provides the termination resistance needed by the bus.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