

# Roland®

## CD-RACK™

DIGITAL STUDIO STORAGE RACK



CD RECORDING  
AND BACKUP  
SYSTEM FOR  
DIGITAL RECORDING  
STUDIOS & SAMPLERS

# INSTALLATION MANUAL



**Roland**<sup>®</sup>  
**CD-RACK**<sup>™</sup>  
DIGITAL STUDIO STORAGE RACK

**INSTALLATION MANUAL**

# TECHNICAL SUPPORT

## QPS TECHNICAL SUPPORT

Our Customer Support staff are ready to assist you with any problem you may have with your QPS Product.

There are many ways to contact QPS Technical Support.

E-Mail:	techsupport@qps-inc.com
World Wide Web:	<a href="http://www.qps-inc.com">http://www.qps-inc.com</a>
Technical Support:	(714) 692-3588
Technical FAX:	(714) 692-5516

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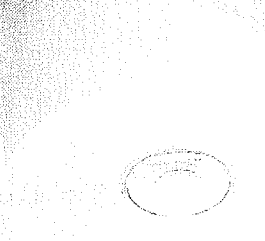
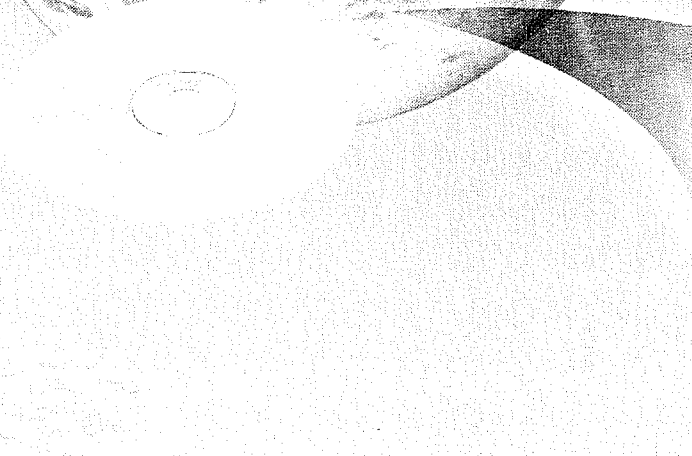
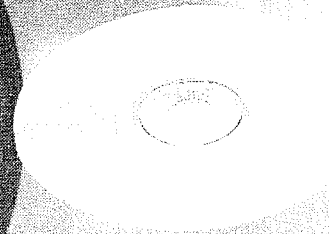
**CONGRATULATIONS!**

**THANK YOU**

**for Choosing QPS!**

Congratulations on your purchase of the CD-RACK™. In this manual, you'll find information designed to help you understand the capability of your new CD-RACK™ as well as a step-by-step explanation of how to install your hardware and software.

# CHAPTER ONE



WELCOME TO  
THE CD-RACK™ WORLD

# WELCOME!

## WELCOME TO THE CD-RACK™ WORLD!

If you're new to CD-Recording, don't worry; it's easy to learn. The CD-RACK™ allows you to store massive amounts of data on one CD. You can fit as much as can be stored on 450 floppies on one CD-R or CD-RW media. Plus, it allows you to store audio, data, MIDI files and applications a number of removable mass storage devices including hard disk, MO™, Zip™ and Orb™ Drives.

In this chapter, we'll tell you more about the features and uses of the CD-Recording technology.

## WHAT CAN THE CD-RACK™ DO FOR ME?

With the CD-RACK™, you have lots of flexibility and a multitude of options. For instance, you can:

1. Produce professional audio CD's that can be read on any CD-ROM drive including audio CD players, PC's, MAC's and more!
2. Backup all of your compatible VS Digital Workstation tracks, mixer settings, scenes, effects, automation data, all levels of undos, all of your markers and locators on CD-R or CD-RW media and free hard disk space on your VS Digital Workstation.
3. Restore your ongoing projects or archived songs with their proprietary settings and effects to your VS Digital Workstation in minutes, and have the songs just the way you left them.
4. Use the CD-RACK™ in conjunction with Roland VP-9000, XV-5080, S760 and other samplers to read and load libraries of CD-ROM Samples.
5. Master your own CD-ROM sample library in several formats including audio CD samples with the VP-9000.
6. Create edit and store large libraries of samples on a removable Hard Disk, MO, Zip and Orb drives for instant online sample retrieval for your favorite sampler.



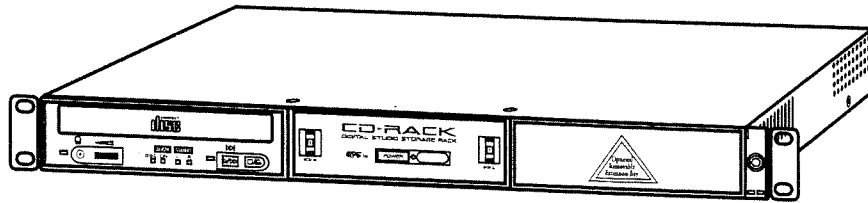
7. Store up to 450 times the volume of a floppy disk onto one removable inexpensive piece of CD-RW media that can be used over and over.
8. Use the advanced hot swappable plug-and-play feature of the removable expansion bay to connect and mount the optional Hard Disk, MO, Zip and Orb drive to your system without having to restart.
9. Take advantage of the revolutionary built-in single/dual SCSI-2 channel selection feature. This feature allows you to configure the expansion bay to be used separately or in daisy-chain with the CD-RW drive (Refer to the Flexible Configuration section of this manual).
10. Use the CD-RACK™ as a superior alternative to tape for backup or disaster recovery.

# PACKAGE LIST

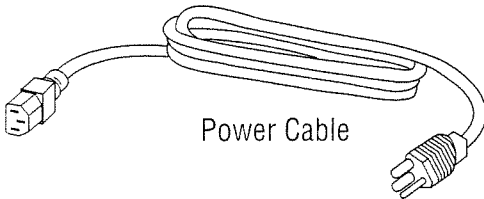


Manuals

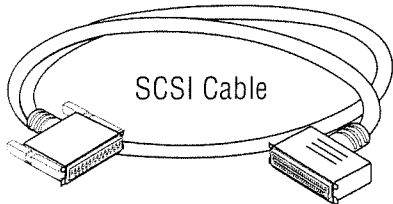
CD-RACK™



## CABLES



Power Cable



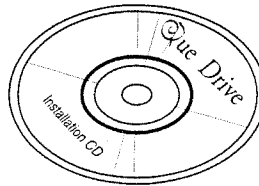
SCSI Cable



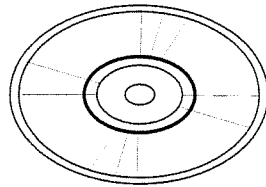
Terminator

## SOFTWARE

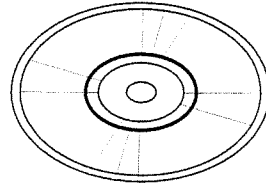
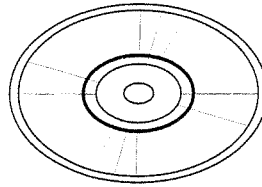
CD Mastering Software



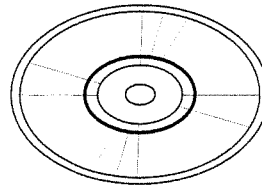
Roland Update Software



Dantz Retrospect Software



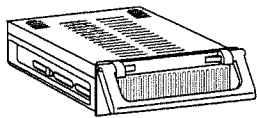
CD-R Media



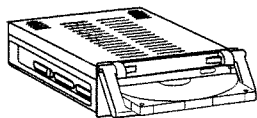
CD-RW Media

## OPTIONAL DRIVES

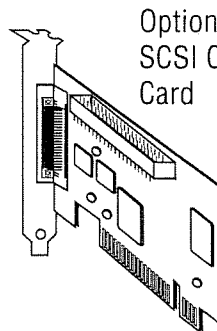
Hot Swappable Upgrade Options



1.3GB SCSI Magneto Optical Drive

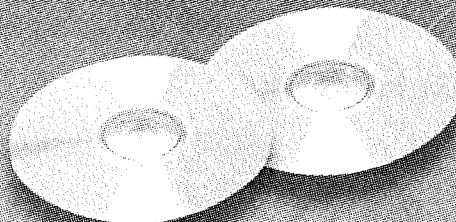


10GB SCSI Hard Drive



Optional SCSI Controller Card

# CHAPTER TWO



## GETTING STARTED

## CHAPTER TWO

### GETTING STARTED!

Before you start using your CD-RACK™, you'll want to make sure you have everything you need. In this chapter, we'll tell you what comes in the package, so you can make sure it's all there.

In this chapter we'll tell you about the minimum requirements your system needs to support the CD-RACK™.

Once you are sure you have everything you need, you can proceed to the next chapter, where we'll show you how to install your hardware and software. The section on hardware installation explains how to connect the CD-RACK™ CD-Recording and Backup System to your Roland hardware gear and computer. The software installation section briefly discusses the procedures for installing each of the software applications that are provided with your CD-RACK™.

As with anything you buy, there are always a few simple guidelines to observe when using the product. With CD-Recording products, this primarily involves the care and handling of CD-Recordable media. These guidelines are provided in the chapter following installation.

The last chapter, Troubleshooting Guidelines and Performance Tips, is provided for the few folks who want to know more about how the CD-RACK™ works, or who had difficulty with installation. Refer to this chapter before contacting Technical Support — the answer to your questions just might be here!

## WHAT YOU SHOULD HAVE!

### • What's in the Package

Refer to the provided package list on page 4 and verify that you have received all of the appropriate parts.

If all the right parts are in the package, then you just need to make sure your system will support the CD-RACK™. Here's what you'll need.

### **For Roland VS Workstation Users:**

Minimum system requirements:

- VS-880 requires system version 3.203A or higher
- VS-880EX requires system version 2.004 or higher
- VS-890 requires system version 1.000 or higher
- VS-1680 requires system version 2.010 or higher
- VS-1880 requires system version 1.000 or higher
- VSR-880 requires system version 1.013 or higher

### **For Roland Sampler Users:**

Minimum system requirements:

- XV-5080 requires system version 1.00 or higher (read only)
- VP-9000 requires system version 1.05 or higher
- S-760 requires system version 2.24 or higher (read only)
- S-770/750 requires system version 2.25 or higher (read only)

# GETTING STARTED

## **For PC User:**

Minimum system requirements:

- Pentium™ 300 MHz Intel-compatible processor or better
- MS Windows 98SE; Windows® NT 4.0
- 64MB RAM
- 650MB free hard disk space for software installation
- 100MB free hard disk space
- SCSI-2 bus mastering adapter card

## **For Mac User:**

Minimum system requirements:

- Macintosh 68040 processor or better
- System 7.1; System 7.5.5 is highly recommended for audio recording or higher
- 64MB RAM
- 15MB free hard disk space for software
- 650MB free hard disk space for disk cache
- SCSI-2 interface

## WHAT ABOUT SOFTWARE?

The CD-RACK™ comes with a variety of software applications that will help you get the most from your CD-RACK™.

### **PC Users Should Install These Applications:**

#### **CD Mastering Software:**

- **Easy CD Creator by Adaptec**

Make CDs Right on Your Desktop. Using Adaptec Easy Creator software, you can copy files from your computer to a Recordable compact disc. Using a special write-once media, Adaptec Easy CD Creator allows you to permanently store data in format that is readable on virtually all CD-R, CD-ROM and DVD-ROM drives. In addition, the audio CDs you create with your CD recorder are playable in your home or car CD player. If you are using a CD-ReWritable drive, you also have the option of using a special erasable media that allows you to rewrite information on a CD.

Using easy CD Creator you can:

- Compile CDs of your favorite music
- Archive data
- Back up a hard drive
- Disseminate information to field offices
- Distribute databases
- Create a test copy of a multimedia CD
- Duplicate CDs
- Erase and rewrite the contents on a CD (with CD-RW drives)
- Make a custom jewel case insert

# GETTING STARTED

- **Direct CD by Adaptec.**

This utility software provides drive letter access, which allows you to drag and drop files between media just as you would for a floppy disk. Because it's so easy to use, it's ideal for archiving data.

## **For the Macintosh, You'll Find These Applications:**

- **Toast software for Macintosh by Adaptec.**

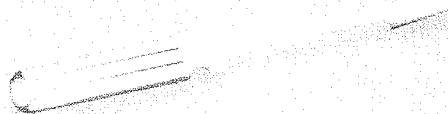
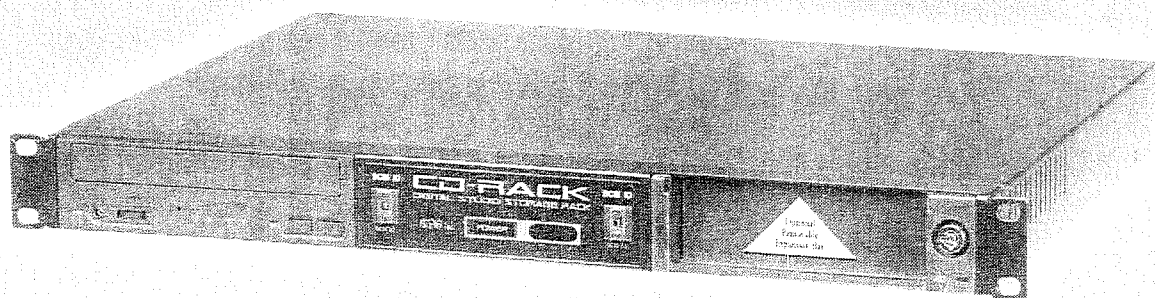
With this CD mastering software, you'll be able to make your own CDs in the most popular formats, that can be read on CD-R, CD-RW, CD-ROM and DVD-ROM drives.

Using Toast Software you can:

- Compile CDs of your favorite music
- Archive data
- Back up a hard drive
- Disseminate information to field offices
- Distribute databases
- Create a test copy of a multimedia CD
- Duplicate CDs
- Erase and rewrite the contents on a CD (with CD-RW drives)
- Make a custom jewel case insert



# CHAPTER THREE

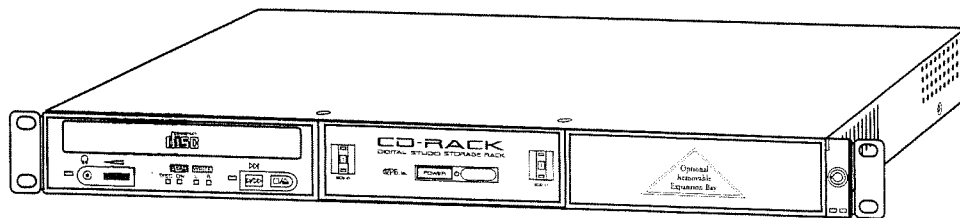


# INSTALLATION

# INSTALLATION

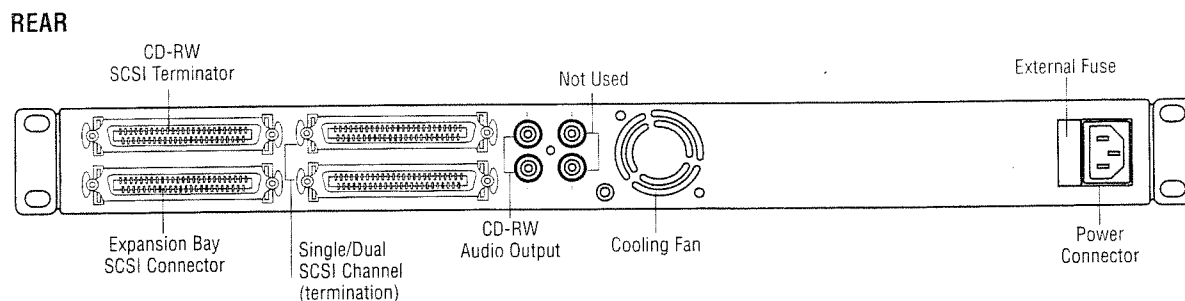
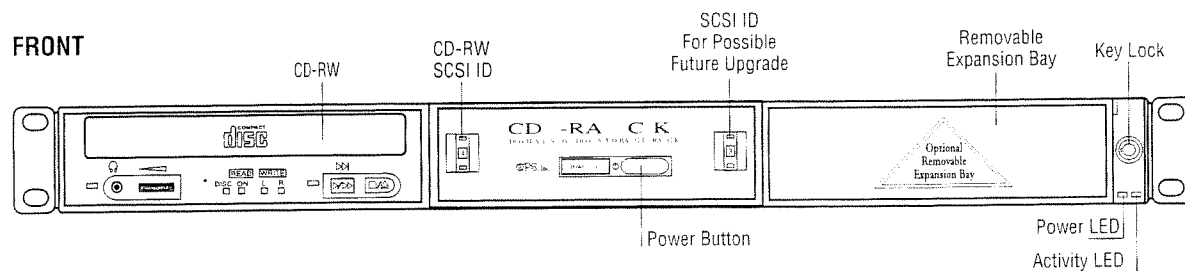
## CHAPTER THREE

### GETTING PLUGGED IN



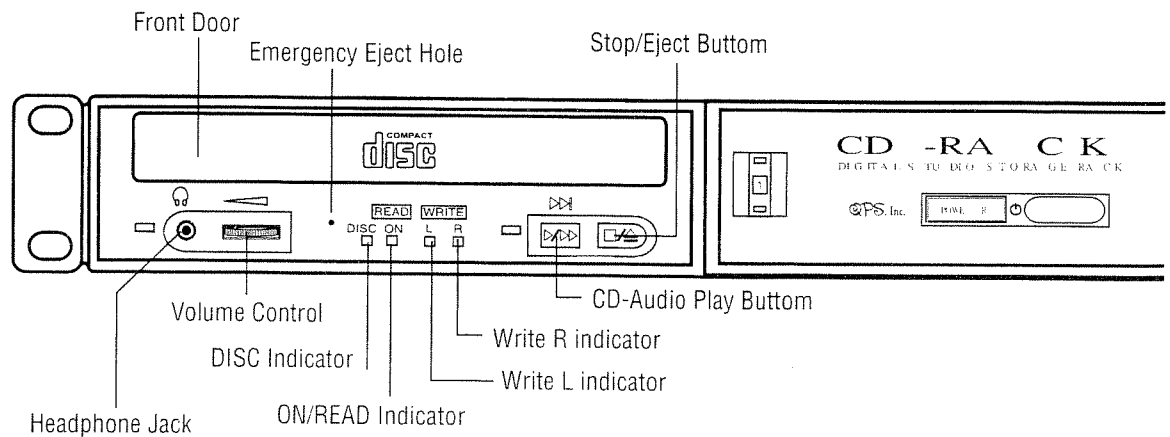
Now that you know you have everything you need, you're ready to install your CD-RACK™ hardware and software. This chapter will show you how.

The figures below show the front and the back panel controls and indicators for the CD-RACK™.



*Note: The appearance of controls may vary from one model to another.*

# INSTALLATION



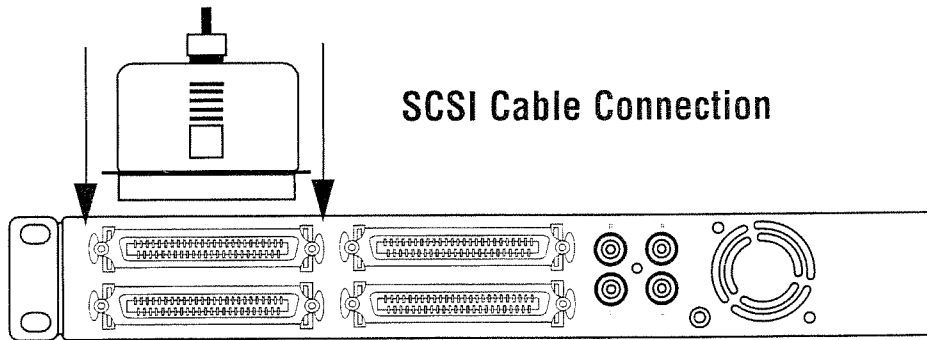
- **Tray Front Door:** Attached to tray drawer.
- **Headphone Jack:** Stereo mini-jack for headphones and powered speakers.
- **Volume Control:** Controls volume of headphone jack. This control has no effect on the rear panel audio outputs.
- **DISC Indicator:** Green when disc is in the drive and power is ON.
- **ON/READ Indicator:** Green when power is ON and no disc is in drive. Green flashing when disc is being accessed.
- The **Write L Indicator** is orange when recording CD-R discs at 1X and 2X speeds.
- The **Write H Indicator** is orange when recording CD-R discs at 4X speeds. Also on (simultaneously with write L Indicator) when recording CD-RW discs at 2 X speed.
- The **CD-Audio Play Button** is used to play an audio CD in your drive. push once to put drive in CD-Audio play mode. Push the button once during CD play mode to skip tracks. Push and hold down play button more than one second to fast forward.
- **Stop/Eject Button:** Push to eject tray. During CD-DA play mode, playback is stopped when pressed once, and the disc ejects when pressed twice.
- **Emergency Eject Hole:** Insert paper clip, or other thin, rigid object to eject tray if automatic eject button does not work.(for Mac users, from the desktop throw disc in trash) Turn OFF power before using this feature.

# INSTALLATION

## SCSI Cable Connection

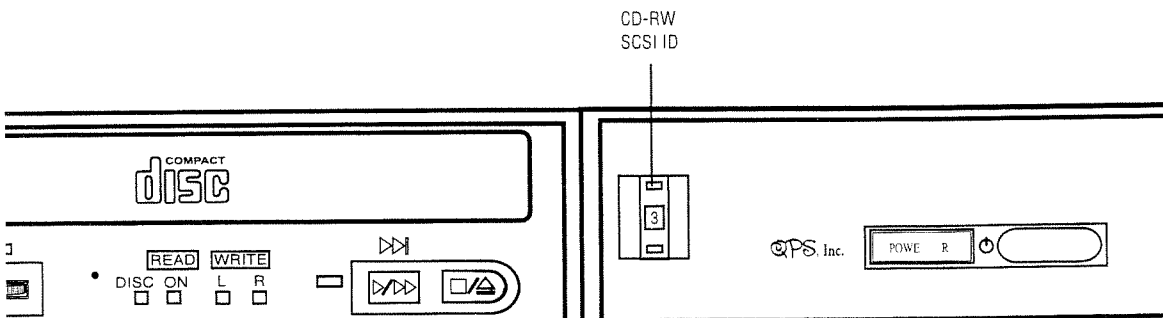
Connect the CD-RW drive of the CD-RACK™ unit to your VS workstation or sampler by performing the following

- Step 1: Turn off the power of the sampler or the VS workstation and any connected external SCSI device.
- Step 2: Using the included 25-to-50 SCSI cable, connect the CR-RW top left SCSI connector located on the back of your CD-RACK™ to the SCSI connector located on the back of your sampler or VS workstation.



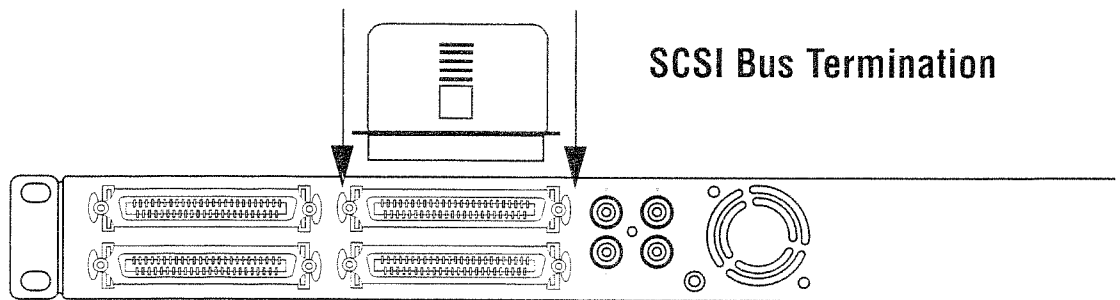
## Setting the SCSI ID

First, you need to make sure the CD-RACK™ can communicate with your system properly. The CD-RACK™ uses SCSI addressing to identify itself to your system. The CD-RACK™'s default SCSI ID is 3 for the CD-RW drive. If another device on the SCSI bus is already using this ID, you can change the SCSI address by using the SCSI ID push-button dial located on the front of the CD-RACK™ next to the CD-RW drive. ( For advanced CD-RACK™ SCSI configurations, refer to the "FLEXIBLE CONFIGURATION" section of this manual).



## SCSI Bus Termination

If the CD-RACK™ is the only SCSI device attached to your system, or if it's the last device in the SCSI chain, you need to connect the external SCSI terminator (included) to the top right SCSI port labeled (Single / Dual SCSI Channel). If this device is connected to the middle of a SCSI chain then you need to connect the daisy chain SCSI cable to the top right SCSI port labeled (Single / Dual SCSI Channel) instead of the external SCSI terminator. ( For advanced CD-RACK™ SCSI configurations, refer to the "FLEXIBLE CONFIGURATION" section of this manual).



## AND NOW FOR THE SOFTWARE

In this section, we'll explain how to install the recording software packages that came with your CD-RACK™.

### **Roland VS Workstation Users:**

Check the system requirements on page 9 to see if your VS Workstation needs to be updated to work with the CD RACK. If you need to update the system, you can find the necessary files on the Update CD along with updating applications for both PC and Macintosh platforms.

#### Step 1: Install the Roland Update

- Insert the Update CD into your computers CD-ROM drive – Do Not insert the Update CD into the CD RACK! This update must be transmitted from your computer to the VS Workstation.
- Double click on the "My Computer" icon.
- Double click on the Roland Update CD software icon.
- This CD-ROM contains update files for the VS-880, VS-880EX, VSR-880 and the VS-1680. These files are in Standard MIDI File format and can be used with any sequencer that supports the Standard MIDI File format and is capable of sending MIDI System Exclusive messages contained in Standard MIDI Files. Please read the PDF file for the VS-Workstation you wish to update before proceeding with the update.
- If your sequencing software does not meet these requirements, we have included two shareware programs that can be used to load these files and update your VS Workstation; MIDIGraphy is a Macintosh program and UpdSMF is a PC program. Please read the PDF file for the program you would like to use before proceeding with the update.

- If your computer is not configured to communicate with external MIDI devices, please contact Roland Product Support at (323) 890-3741 for alternate update options.

## **Roland Sampler Users:**

### Step 1: Install the Roland Update

- Check the system requirements on page 9 to see if your Sampler needs to be updated to work with the CD RACK. If you need to update the system, you can find the necessary files for the VP-9000 on the Update CD along with updating applications for both PC and Macintosh platforms. If you have the S750/760/770 or the XV-5080, you can download the update files from the Roland Corporation US website ([www.rolandus.com](http://www.rolandus.com)) or contact Roland Product Support at (323) 890-3745 for alternate update options.

## **PC User**

### Step 1: Install the Easy CD-Creator software

- Insert the Adaptec Software CD into the CD-ROM Drive.
- Double click on the “My Computer” icon.
- Double click on the Adaptec CD software icon.
- Open the Easy CD Creator folder.
- Select the preferred Language folder.
- Double click on the Setup file.
- Then follow the software instructions.

### Step 2: Install the Direct CD software

- Insert the Adaptec Software CD into the CD-ROM drive.
- Double click on the “My Computer” icon.
- Open the Direct CD folder.
- Double click on the Setup icon.
- Then follow the Software instructions.

# INSTALLATION

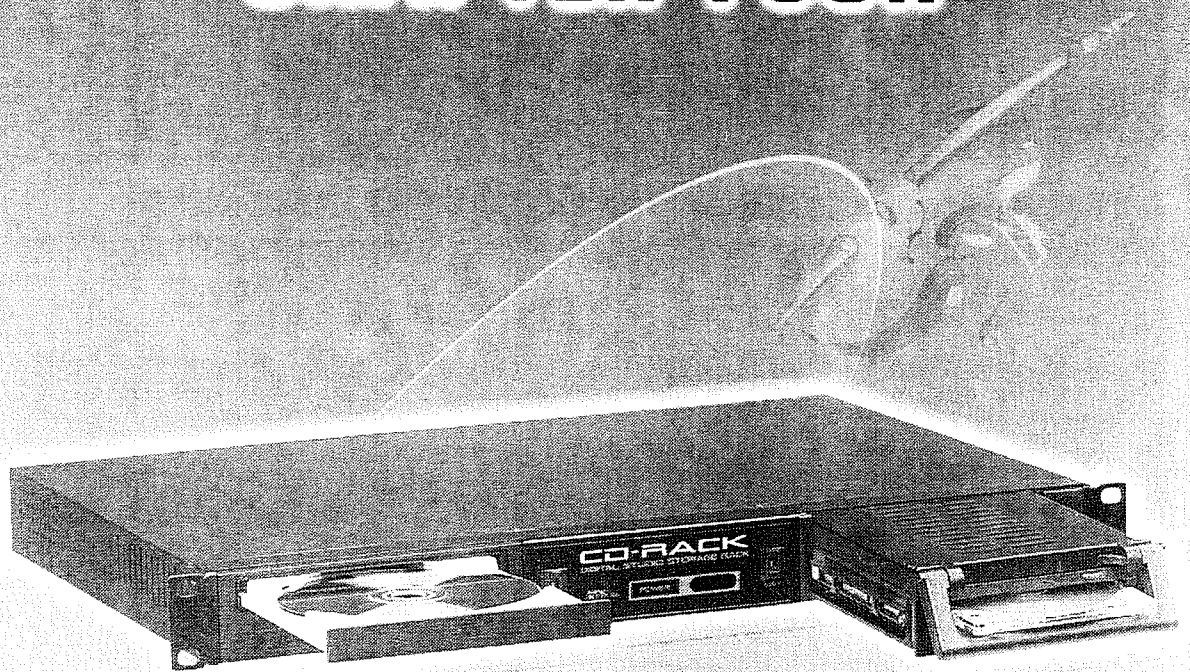
## Mac User

Install the Adaptec Toast program

- Insert the Adaptec Software CD into the CD-ROM drive.
- Double click on the Toast CD-ROM icon.
- Select the preferred Language folder.
- Select Install.
- Then follow the software instructions.



# CHAPTER FOUR



REVOLUTIONARY DESIGN

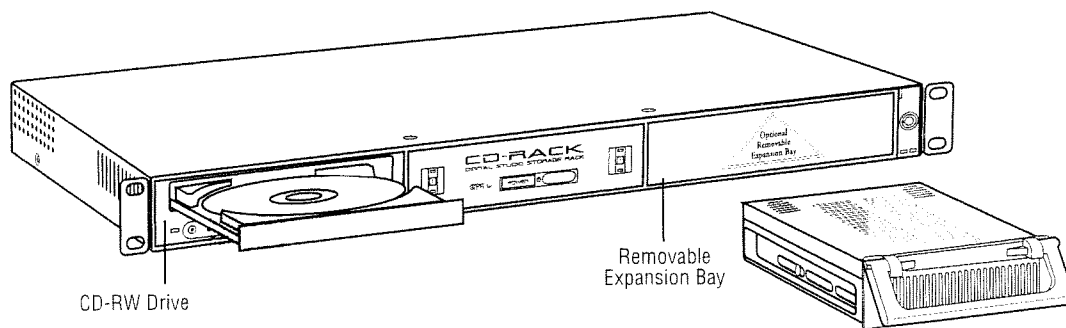
## CHAPTER FOUR

### REVOLUTIONARY DESIGN!

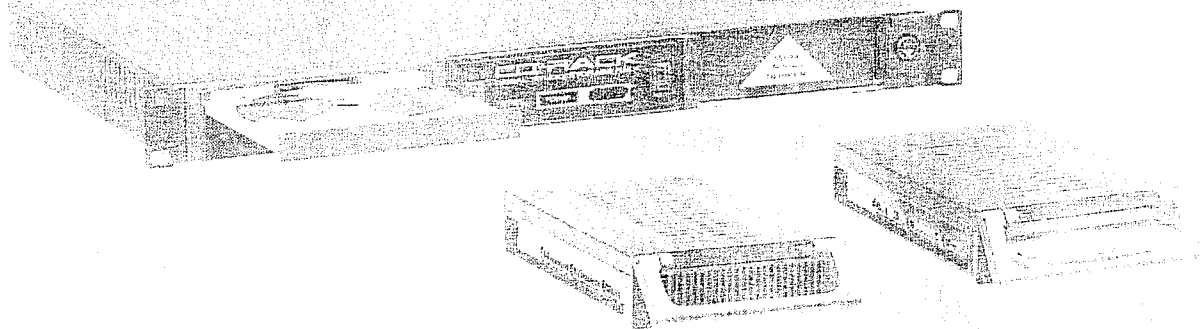
The first and one of a kind 1U CD-RACK™ Digital Studio Storage Rack is designed and engineered to accommodate all of your immediate and future mass storage upgrade needs without having to purchase all new equipment.

The dynamic design of the CD-RACK™ is engineered to accommodate two SCSI devices in 1U rack mount space.

- One CD-RW Drive (Built-in)
- One Removable Expansion Bay (Built-in)



# CHAPTER FIVE



**INSTANT UPGRADABILITY!**

# INSTALLATION

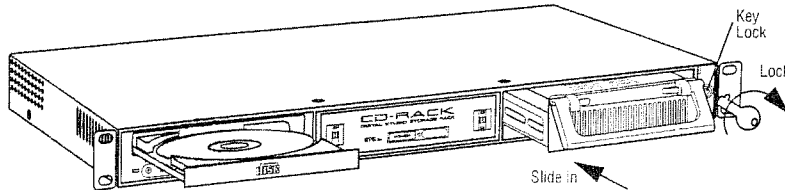
## INSTANT UPGRADABILITY!

The built-in removable storage expansion bay allows for instant upgradability to a wide range of removable mass storage drives including:

- Magneto Optical Drives.
- Orb Drives.
- Zip Drives.
- Hard Disk Drives and more!

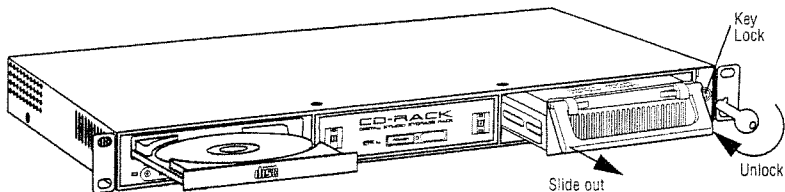
(See QPS drives upgrade catalog).

The advanced hot swappable plug and play feature of the removable expansion bay allows you to connect and mount the optional MO, Zip or Hard Disk drive to your system with out having to restart.



### Adding Optional Removable Drives!

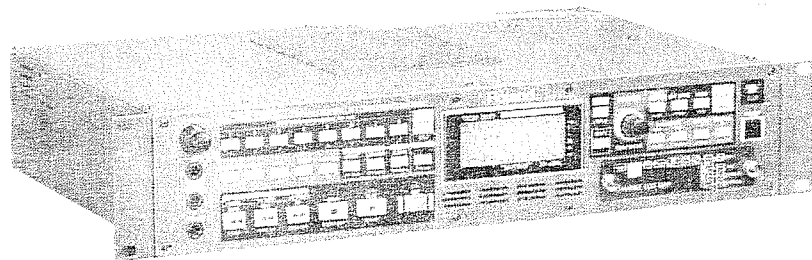
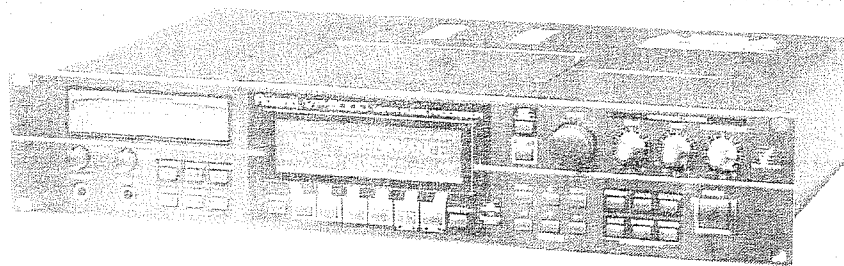
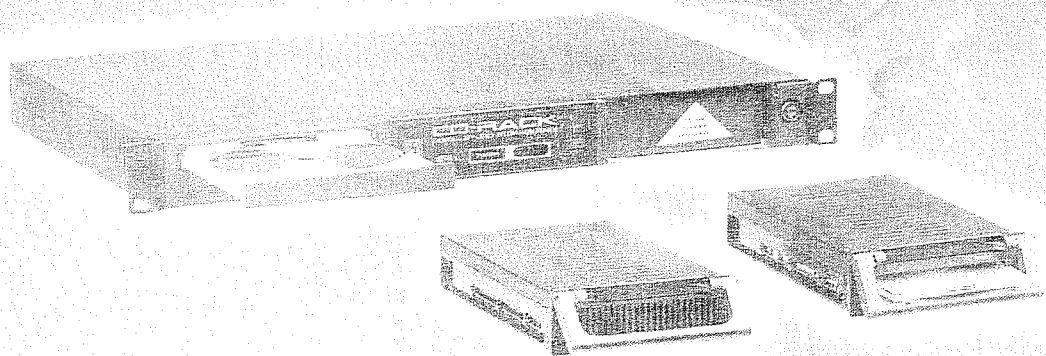
To add an Optional Removable SCSI Drive of your choice to the CD-RACK™, simply slide the optional drive into the expansion bay, lock the device and the device is ready for operation!



### Removing Optional Removable Drives!

To remove an Optional Removable Drive from the CD-RACK™, simply unlock the device and pull on the auto eject/release handel to slide the optional drive out the expansion bay.

# CHAPTER SIX



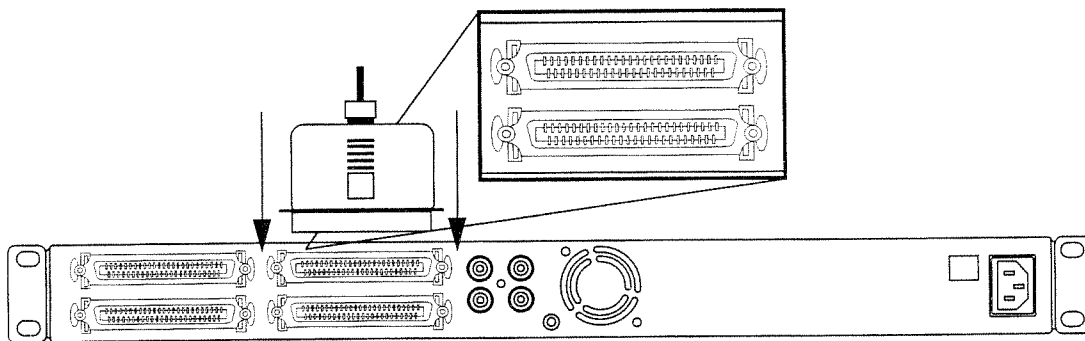
**FLEXIBLE CONFIGURATION!**

# INSTALLATION

## FLEXIBLE CONFIGURATION!

### Single/Dual SCSI-2 Channel Selection

The revolutionary built-in Single/Dual SCSI-2 Channel selection feature allows you to configure the CD-RW Drive to be used separately or in daisy-chain with the Removable Expansion Bay and the optional internal Hard Disk Drive.



Single/Dual SCSI-2 Channel Connectors

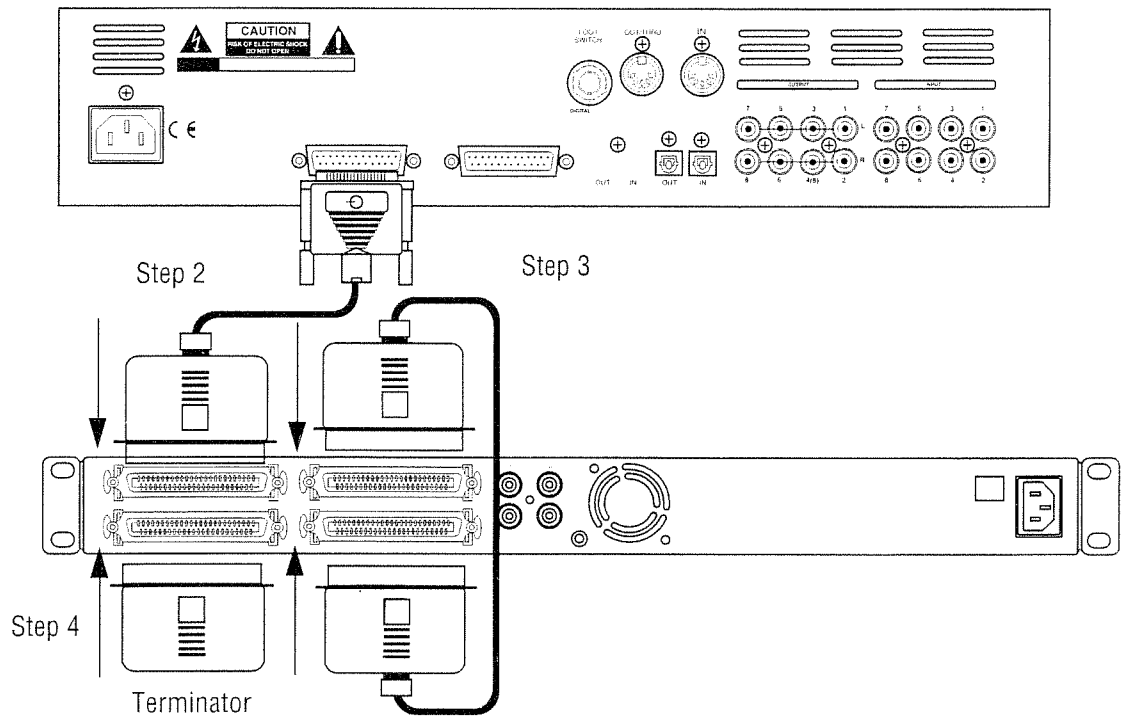
### Single SCSI-2 Channel Selection

This setup enables you to configure both the CD-RW and the Removable Expansion Bay in a simple daisy chain connection to be addressed by one system such as a VS Workstation or a Sampler.

- Step 1: Turn off the power of the Sampler or the VS workstation and any connected external SCSI device.
- Step 2: Using the included 25-to-50 pin SCSI cable, connect the CD-RW top left SCSI connector located on the back of your CD-RACK™ to the SCSI Connector located on the back of your Sampler or VS Workstation.
- Step 3: Connect the 50-to-50pin SCSI cable (Provided with the optional drive upgrade kits) to the top and bottom right SCSI port labeled (Single / Dual SCSI Channel) located on the back of your CD-RACK™.

# INSTALLATION

Step 4: If the CD-RACK™ is the only SCSI device attached to your system, or if it's the last device in the SCSI chain, you need to connect the external SCSI terminator (included) to the bottom left SCSI port labeled (Expansion Bay). If this device is connected to the middle of a SCSI chain then you need to connect the daisy chain SCSI cable to the bottom left SCSI connector instead of the external SCSI terminator.



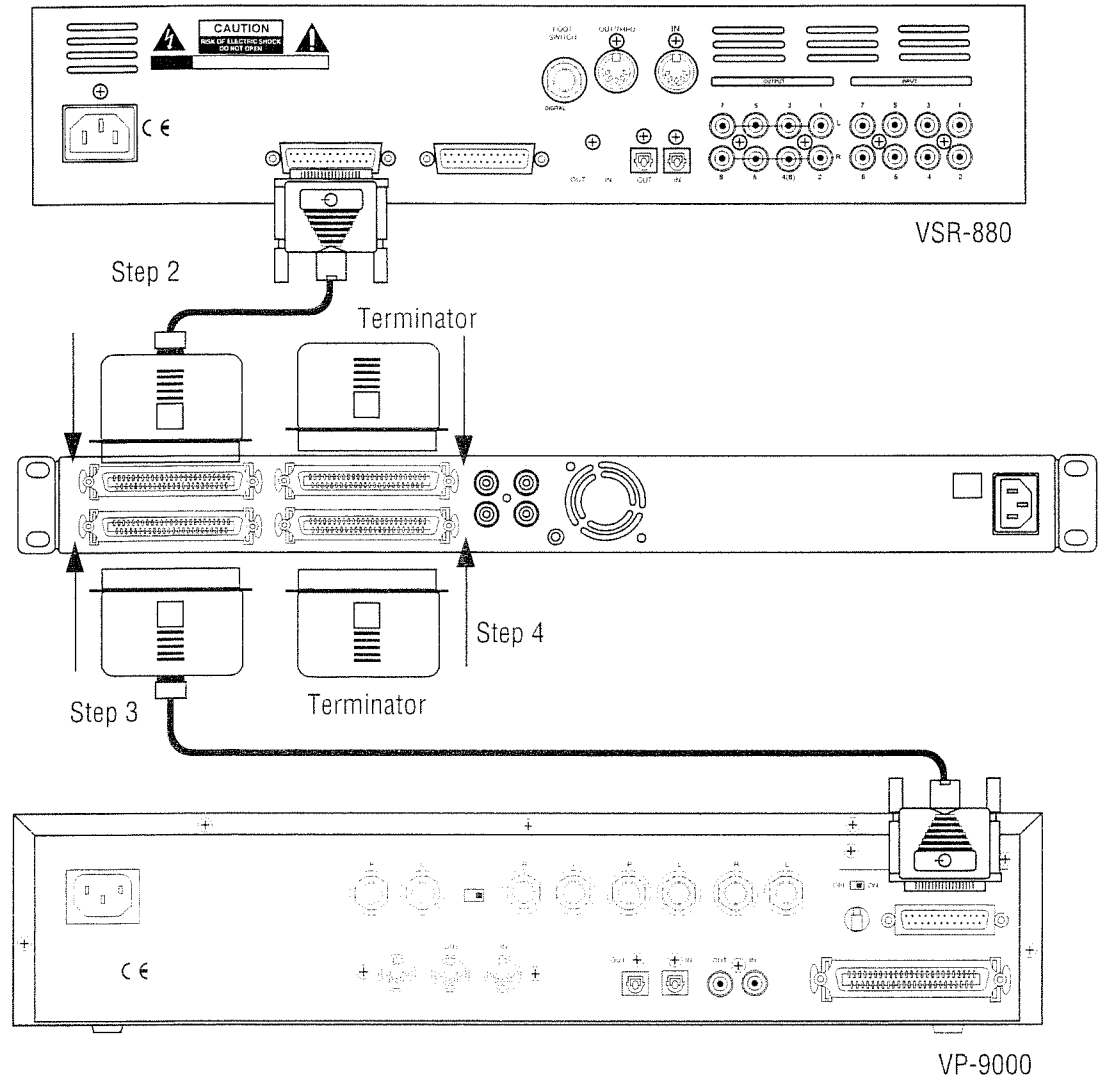
## Dual SCSI-2 Channel Selection

This setup enables you to connect the CD-RW to a VS Workstation while connecting the Removable Expansion Bay to a Sampler or PC/MAC via two SCSI Cables with two separate SCSI channels.

- Step 1: Turn off the power of the Sampler or the VS workstation and any connected external SCSI device.
- Step 2: Using the included 25-to-50 pin SCSI cable, connect the top left SCSI connect to port labeled (CD-RW) located on the back of your CD-RACK™ to the SCSI connector located on the back of your VS Workstation.
- Step 3: Using the 25-to-50 pin or the 50-to-50pin SCSI cable (provided with the optional drive upgrade kits), connect the bottom left SCSI connect to port labeled (Expansion Bay) located on the back of your CD-RACK™ to the SCSI connector located on the back of your Sampler.
- Step 4: Connect the two external SCSI terminators (provided with the optional drive upgrade kit) to the top and bottom right SCSI port labeled (Expansion Single / Dial SCSI Channel). If this device is connected to the middle of a SCSI chain then you need to connect the daisy chain SCSI cable to the right SCSI connectors instead of the external SCSI terminators.



# INSTALLATION

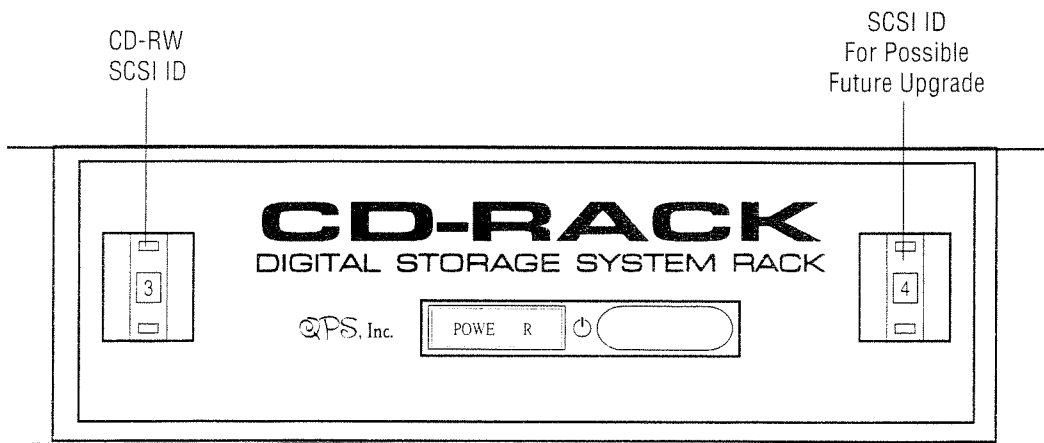


# INSTALLATION

## Setting the CD-RW SCSI ID

First, you need to make sure the CD-RACK™ can communicate with your system properly. The CD-RACK™ uses SCSI addressing to identify itself to your system. The CD-RACK™'s default SCSI ID is 3 for the CD-RW drive, and 5 for the Removable Expansion Bay.

The SCSI ID Switch for the CD-RW Drive is located on the right side of the CD-RW Drive.



The SCSI ID Jumpers for the expansion bay are located on the back of the Hot Swappable SCSI Storage drive upgrade option.

# CHAPTER SEVEN

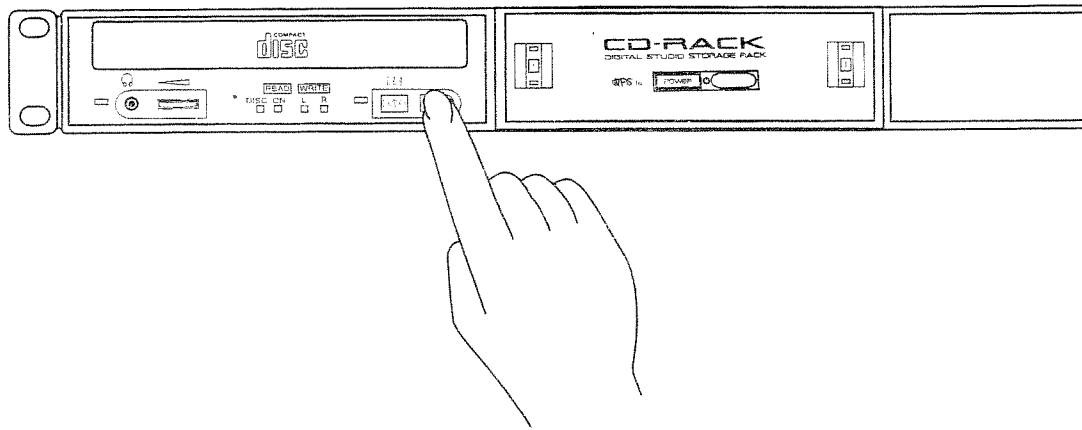


## HANDLING

## CHAPTER SEVEN

### Media Insertion and Removal Guidelines

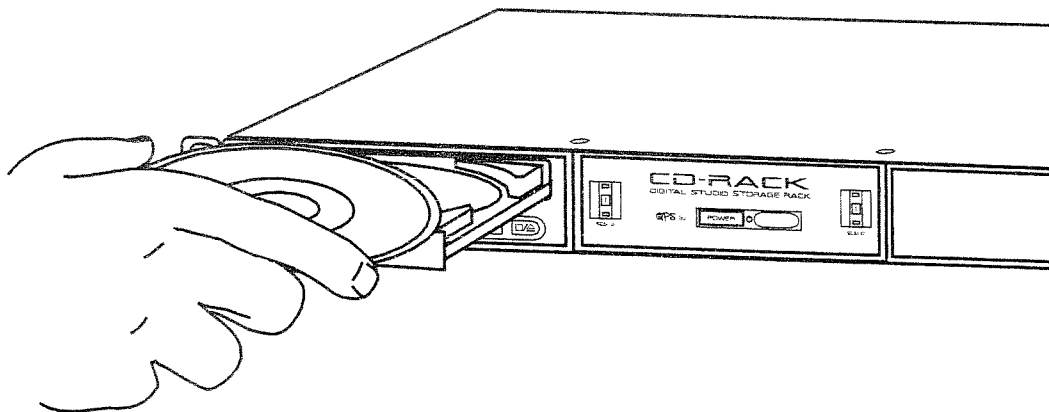
1. To insert the CD-ROM or CD-R disc, press the EJECT button.



2. Once the disc tray has fully extended, place the CD-ROM or CD-R disc into the center of the tray.

*NOTE: The disc surface must be clean and should be inserted shiny side down.*

3. Press the eject button to have the CD-R/RW drive accept the CD.

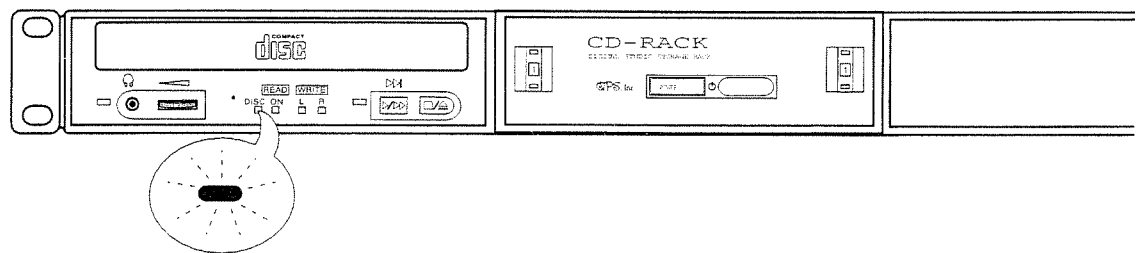


4. The busy lamp will light for a few seconds to indicate that a disc has been loaded and the SPEED LED will stay lit if the CD-R drive has accepted the disc.
5. To eject and insert the disc, press the EJECT button; Mac users eject the disc by dragging the CD-ROM icon located on the Mac OS desktop into the trash icon.

*NOTE: Some software prohibits the use of the EJECT button, so a disc cannot be ejected in this way. Please refer to the instructions supplied with the software.*

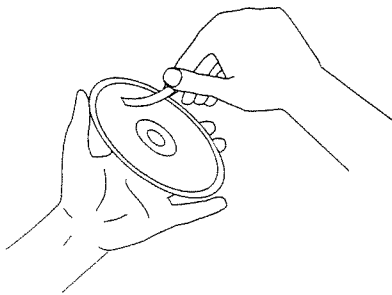
6. Once it has been ejected, remove the disc by hand and return it to its jewel case.

*NOTE: The disc can not be ejected while the drive is reading or writing a disc.*



# HANDLING

The NUMBER ONE cause of premature disc failure with recordable CDs is contamination of the recording surface before recording is completed. To minimize disc failure, use the following disc-handling guidelines.

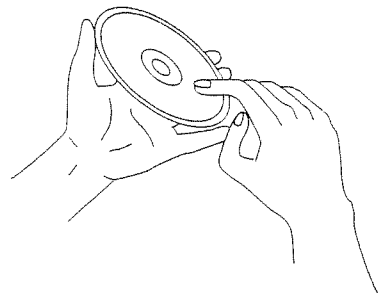


- Keep the media in its sealed package until you are ready to record.



- Keep the disc as clean and dust-free as possible. DO NOT touch the recording surface, and do not expose the disc to dust or dirt.

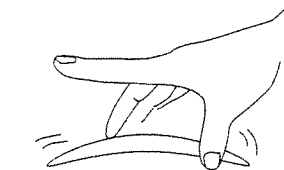
- DO NOT BLOW ON THE DISC to remove dust or dirt. To remove dust from the recording surface use a camera lens cleaner, a lint free cloth or use compressed air. Wipe the disc from the center to the outer edge. NEVER wipe the disc in a circular motion.



- Always record in a dust-free environment. If the disc is to be removed from the CD-RW drive, store the disc in a clean, dust-free environment.

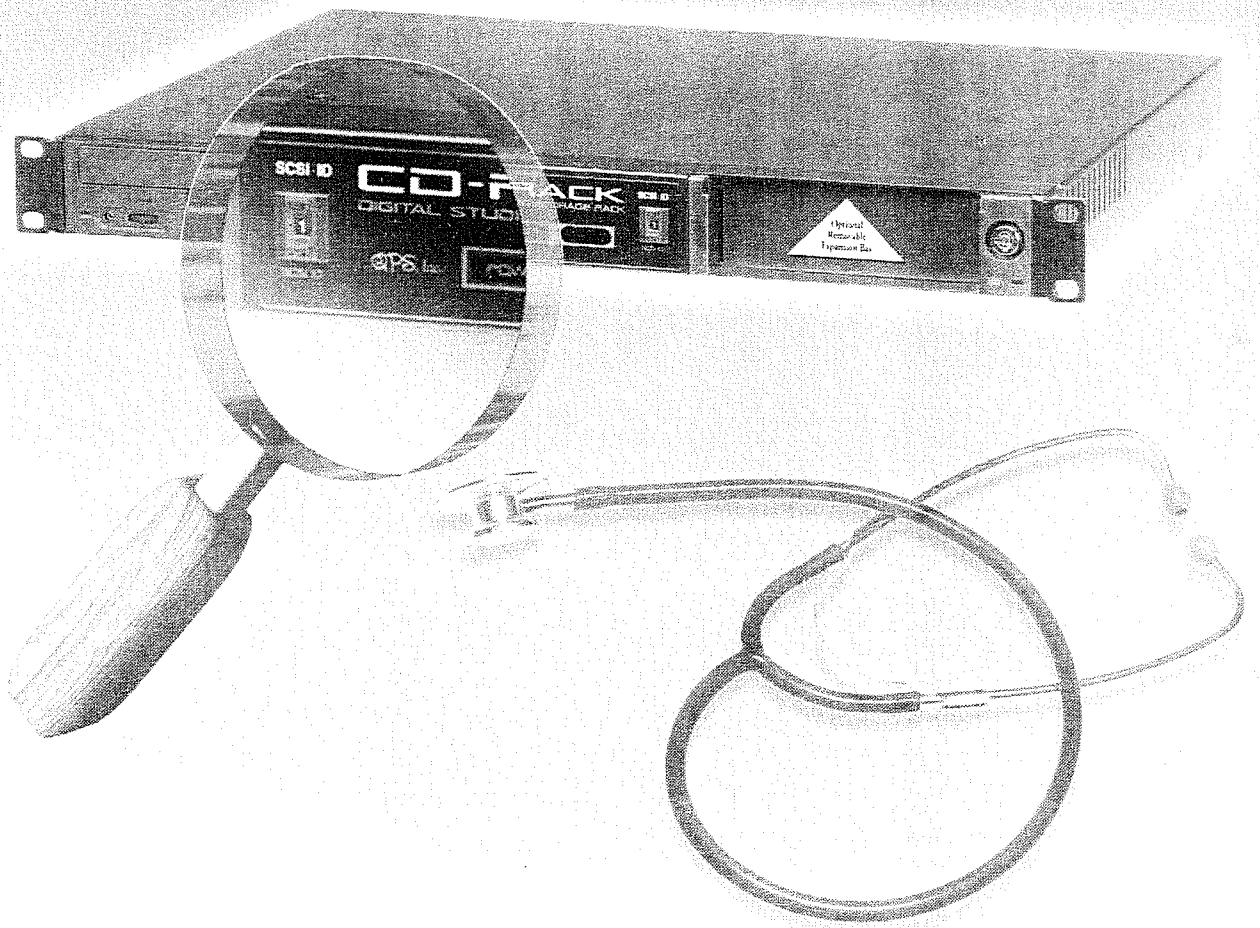
- Never bend or flex the disc. This may warp the disc and leave it unusable.

- Never scratch off the reflective top surface of a CD-R or CD-RW disc. Without the reflective surface the disc is completely unusable.



- If you must write on the CD-R disc surfaced, read the back of the CD-R jewel case for instructions.

# CHAPTER EIGHT



## TROUBLESHOOTING

## CHAPTER EIGHT

### TROUBLESHOOTING GUIDELINES AND PERFORMANCE TIPS

Having trouble with your CD-RACK™. Want to know more about how it works? Check the list of common questions provided in this chapter; you may find the answers you need. If you don't, or if a problem persists, contact QPS Technical Support.

#### **Calling QPS for Assistance**

If you need to get in touch with the QPS Technical Support Department, please have the following information on hand when you call:

- Your name, address, and phone number (so we can register you) or your customer ID if you have called before.
- Your operating system: Windows 98 SE (Second Edition), 2000 or Mac OS and version number.
- Your Computer's CPU and RAM.
- A description of your problem and the exact error message.
- Which QPS model number and the serial number you have.
- For more information go to our website at <http://www.qps-inc.com>. or call us at (714) 692-3588.



**Problem 1:** *Some or all of the SCSI devices are inaccessible or SCSI host adapter failed initialization.*

**Reason 1:** **SCSI host adapter installation is not correct.**

Step 1: Try to power off your PC, wait about 1 minute, and then power it back on (COLD BOOT).

Step 2: If it still fails, continue with other troubleshooting tips.

**Problem 2:** *Your system hangs during the boot sequence after installing the SCSI host adapter.*

**Reason 1:** **SCSI host adapter may not be installed firmly in the bus slot.**

Step 1: Turn off the power to your computer and all peripherals.

Step 2: Remove the cover off of your computer.

Step 3: Remove and reinstall the SCSI host adapter into the bus slot and then power on your system.

Step 4: Check the SCSI cable connection.

**Reason 3: Conflict between motherboard, adapters, and SCSI host adapter settings.**

- Step 1: Turn off the power to your PC and all peripherals.
- Step 2: Remove the cover off your PC and then the SCSI host adapter.
- Step 3: Power on your PC and when you get to the DOS prompt, run Microsoft Diagnostics (MSD.EXE for DOS V6.0 or higher or other equivalent program). Check to see what IRQ and Port Addresses are being used. Change any conflicting setting(s) for the SCSI host adapter.
- Step 4: Reinstall the SCSI host adapter and power on your PC.

**Problem 3: *PC hangs during boot sequence after attaching SCSI peripherals to SCSI host adapter.***

**Reason 1: A SCSI ID conflict exists between the SCSI host adapter and one or more peripherals. Every SCSI device must have its own unique SCSI ID (0~7). By default, most SCSI host adapters are set to SCSI ID #7 and bootable SCSI hard disk controlled by the adapter's BIOS are set to SCSI ID #0 & #1.**

- Step 1: Turn off the power to your PC and all peripherals.
- Step 2: Check the SCSI ID settings for all devices.
- Step 3: If any SCSI ID conflicts exist, change the SCSI ID of the conflicting device(s) by referring to the device's manual for instructions. See page 16 for the SCSI ID selection dial on your QPS CD-RW drive.
- Step 4: Power on all peripherals first and then your PC.
- Step 5: If you still have problems, power down all peripherals and your system, disconnect all your peripherals from the host adapter and begin attaching one peripheral at a time. Boot up your system and add your SCSI devices one at a time until you find the source of the conflict. on all peripheral first and then your PC. By process of elimination, you can find the peripheral which is causing the problem.

**Reason 2: A lack of SCSI termination will disrupt SCSI bus integrity. The first and last devices on the SCSI bus should be terminated. Termination is used so that signals and data can be transmitted successfully to and from all devices on the SCSI bus. By default, most SCSI host adapters are already terminated. Active terminators also recommended over passive terminators.**

Step 1: Turn off the power to your PC and all peripherals.

Step 2: Verify that only the first and last devices are properly terminated with terminator switches or by external terminators.

Step 3: If you are not sure about a device being terminated, refer to the device's manual for details.

Step 4: Power on all peripherals first and then your PC.

Step 5: If you still have problems, power off all peripherals and the PC, disconnect all peripherals from the host adapter and begin attaching one peripheral at a time. Power on all peripherals first and then your PC. By process of elimination, you can find the peripheral which is causing the problem.

**Reason 3: Exceeding the maximum SCSI bus length. It is recommended that the overall maximum SCSI bus length (sum of internal & external cable lengths) should not exceed 6 meter (19.7 feet).**

Step 1: Turn off the power to your PC and all peripherals.

Step 2: Verify that the overall SCSI bus length does not exceed 6 meters (19.7 feet). If it does, remove some SCSI peripherals so that less cable is used or replace longer SCSI cables with shorter length cables.

Step 3: Power on all peripherals first and then your PC.

**Reason 4: Bad SCSI cabling. It is recommended that you always use high-quality “premium” SCSI cables to eliminate data corruption, parity errors and other problems. “Premium” can be defined as double-shielded, layered twisted pair with 25 wire pairs, single-ended impedance of 80-110 ohms, and molded.**

Step 1: Turn off the power to your PC and all peripherals.

Step 2: If possible, verify that all SCSI external cables are “premium” and remove all non-premium external SCSI cables.

Step 3: If you are unsure of the quality of the cables you are using, disconnect all cables and peripherals from your system. Use the supplied cable to attach the CD-R Drive and power on all peripherals and then your PC.

Step 4: If everything boots up fine, power off the PC and all peripherals, and begin attaching another cable and peripheral to your system.

Step 5: Repeat Step 4 until you have a problem. When a problem exists, try using a different SCSI cable and repeat Steps 4 and 5 until you can rule out all possible bad cables by the process of elimination.

***Problem 4: PC boots successfully and SCSI host adapter installation is successful, but no SCSI devices are recognized.***

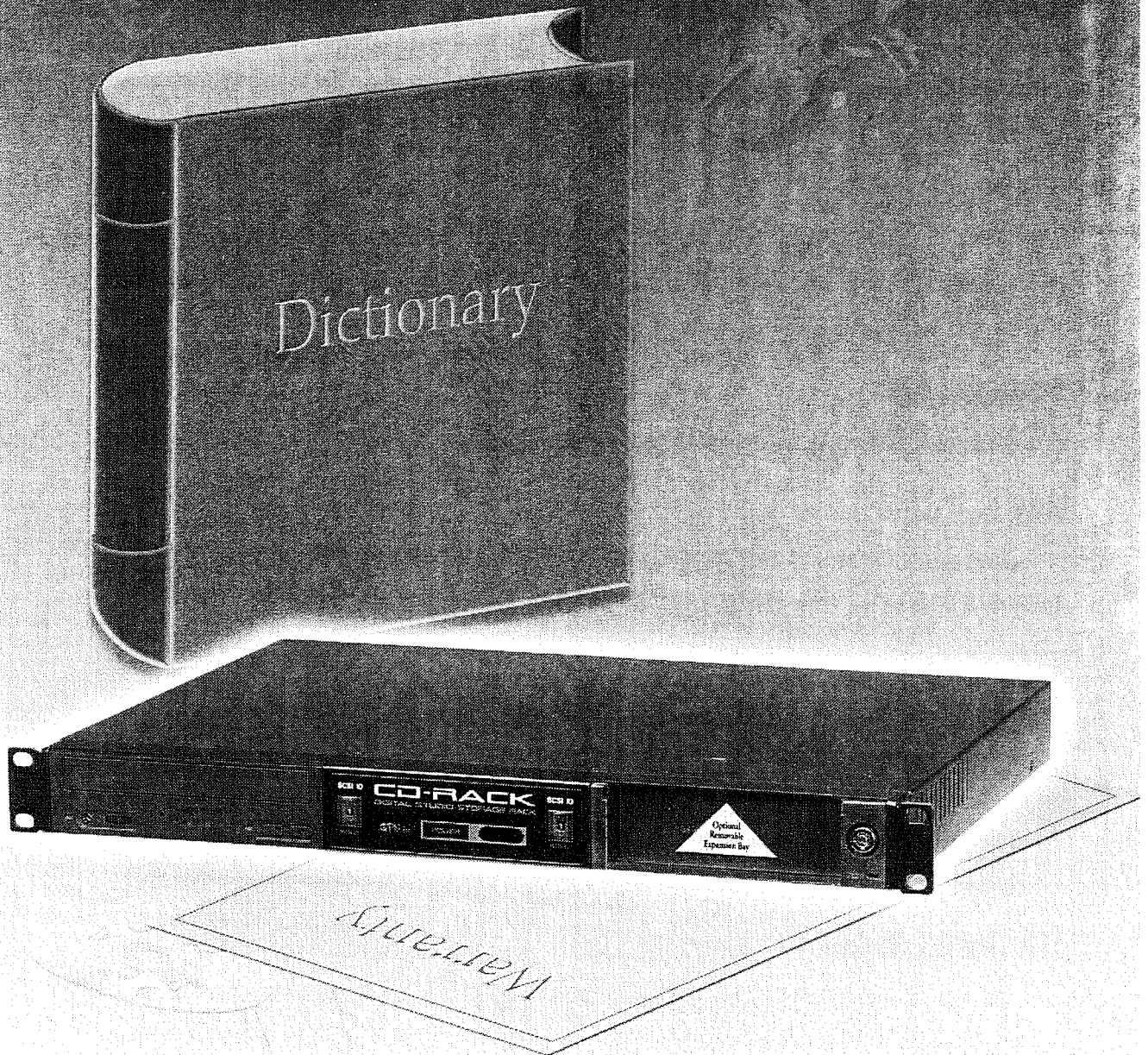
**Reason 1: Improper connections.**

Step 1: Check to make sure that all devices are powered on.

Step 2: Check to make sure that all devices are properly connected to the SCSI cable and the SCSI cable is properly attached to the SCSI host adapter.

Step 3: Check for SCSI bus integrity (Problem 3).

# APPENDIX



## GLOSSARY OF TERMS

### **Adapter Cards**

Adapter cards (a.k.a, controller cards, expansion cards, interface cards, etc.) plug into slots of the computer's main data bus, or bus extensions such as Local Bus. They "adapt" the flow of data and instructions between the CPU and the device (peripheral).

### **ATAPI**

ATA Programmer's Interface. A set of commands designed to address a CD-ROM drive over an IDE interface. Allows people to install and use a CD-ROM drive in much the same manner as a hard disk.

### **Bootable CD**

A bootable CD is one that the PC can boot from.

### **Bus**

In computers, a bus is the main or continuous channel of electrical connection between the CPU, the system memory (RAM), and the peripheral devices.

### **CD**

The Compact Disc was first implemented commercially for storing digital audio data (CD Digital Audio). The CD is made up of a polycarbonate substrate, a thin reflective metallic layer (the mirror-like is layer aluminum), and a lacquer coating. The encoded data track is a spiral, with the pits making a central band. The encoded track is made up of sectors (sometimes erroneously named blocks).

### **CD-Digital Audio**

CD-Digital Audio was implemented to hold about 60 minutes of audio data, in up to 99 tracks (songs) at a sampling rate of 44.1 KHz and a sample size of 16 bits, to produce high quality stereo sound.

## **CD-Recordable**

CD-Recordable technology allows production of CD-ROMs on the desktop (one-offs). It requires a CD-R recorder, appropriate software, a PC, and appropriate media. CD-Recordable involves a special CD, the one-off blank, very different from the mass reproduced or “hot-pressed” CDs. It is sold pre-grooved, in 63 or 74 minute capacities, and it involves a layered structure-with a sensitive chemical recording layer, almost always with a gold reflective layer, and ready for a CD- Recordable drive. Once recorded, the CD-Recordable discs (one-offs) perform in the same way as the mass-reproduced CDs.

## **CD-ROM**

The Compact Disc-Read Only Memory is the standard 12cm CD formatted according to the ISO 9660. Although the physical characteristics and track structure of a CD-ROM are the same as that of CD-Audio, a CD-ROM is used to store computer data (text, graphics). It also involves additional error detection and correction.

## **CD-ROM Drives**

The original drives had a transfer rate of 150 KB/second, but recent drives offer double, quadruple and even higher transfer rates-and are known as 2X, 6X, and so on. Current drives can handle audio tracks and, for multimedia, have connections for the sound card. Some recent drives are also XA-ready, and/or Photo CD ready, with or without multiple session capability.

## **CD-ROM XA**

CD-ROM Extended Architecture, is used for data, graphics, video, and compressed audio, in an interleaved scheme (CD-I structure) making it possible to read and display jointly text, graphics and audio files of various sample sizes, up to 20 hours of 4-bit mono aural sound. Kodak’s Photo CD for example, uses XA tracks, and it can therefore be read by an XA drive.

# APPENDIX A

## **CD-ReWritable**

CD-Rewritable technology allows for the CD-Rewritable media to be erased and rewritten over and over again up to 1000 times.

## **Driver**

In computers, driver refers to a device driver, which is software that, under CPU control, implements device I/O functions or other functionality (video, sharing, graphics, printer, mouse, etc.).

## **DVD**

DVD specifications include a double-layer single-sided CD with a capacity of 4.7GB, with sufficient playing time for a full-length movie, compatible with MPEG-2, and backward compatible.

## **FireWire**

The trademark name that Apple Computer uses to identify its implementation of the IEEE 1394 interface.

## **Format**

In the computer arena, there are physical and logical formats for storage devices. Magnetic storage devices implement a physical structure (MFM, RLE, IDE, SCSI, etc.). The standard logical format is defined by the ISO 9660, which specifies the volume and file structure.

## **IDE**

Integrated Drive Electronics. A standard for interfacing internal peripherals to a PC.

## **I.E.E.E.**

The Institute of Electrical and Electronics Engineers is an association that is a leading authority in technical areas ranging from computer engineering, biomedical technology and telecommunications, to electric power, aerospace and consumer electronics, among others. For more information you can visit their web site at [WWW.IEEE.ORG](http://WWW.IEEE.ORG).



## **ISO**

The International Standards Organization, composed of scores of international specialized committees, with main Secretariats worldwide, is the accepted source of standards for electronic and computerized data communications and information processing.

## **ISO 9660**

Issued by the International Standards Organization, its formal title is ISO 9660: Information Processing-Volume and File Structure of CD-ROM for Information Exchange (1988). This multi-platform logical structure has been the key standard for the growth and worldwide acceptance of CD-ROM as a publishing and information distribution media and, since then, as the basic format structure for other implementations of CD-ROM in the computer arena.

## **Mastering**

In the CD-Recording realm, mastering refers to the actual writing of a first copy of a disc with a CD-Recordable or CD-ReWritable drive. In a Compact Disc factory, mastering involves producing a glass master disc that is necessary for the mass production of Compact Discs.

## **Multisession**

Refers to a disc that has been written to in more than one session. A separate Table of Contents (TOC) is written at the "closing" of each session.

## **Premastering**

This is the process of taking the information you want to put onto a CD and putting it into the proper logical format.

## **SCSI**

Stands for the Small Computer Systems Interface. The interface issues commands to the chain, where each device recognizes the commands addressed to it. SCSI standards include SCSI I (original 5 MHz 8 bit bus specification), SCSI II (extended command set), Wide SCSI (16 bit data path), fast SCSI (10 MHz bus) and SCSI III which includes the features of the other standards.

# APPENDIX B

## FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

*Caution: Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and must have shielded interface cables.*

Any changes or modifications to this equipment by the user not expressly approved by the grantee or manufacturer could result in violation of Part 15 of the FCC rules and void the user's authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesirable operation.

## LIMITED WARRANTY

QPS Inc. warrants its product ("Product") from the date of purchase from QPS (or an authorized QPS agent) against defects in materials and workmanship for a period of 12 months.

This limited warranty extends only to the original purchaser ("Consumer") of the Product and is not transferable (or assignable) to any subsequent purchaser (or end user).

This (limited) warranty does not cover any incompatibilities due to the user's computer, hardware, software or any other related system configuration with which the QPS Product interfaces.

Proof of purchase will be required before any warranty consideration by QPS.

During the limited warranty period, QPS will repair, or replace, at QPS option any defective parts, or any parts that will not properly operate for its intended use with new or factory rebuilt replacement items. No charge will be made to the Consumer for any such parts. QPS will also pay for the labor charges incurred by QPS in repairing or replacing the defective parts. The external housing and cosmetic parts shall be free of defects at the time of shipment and, therefore, shall not be covered under these limited warranty terms.

The Consumer shall bear the cost of shipping the Product to QPS. QPS shall bear the cost of shipping the Product back to the Consumer after the completion of service under this limited warranty.

This limited warranty does not cover any damage caused by negligence, non-authorized modifications or parts installed without prior written permission from QPS.

# APPENDIX C

This limited warranty does not apply if the Product has been damaged by accident, abuse, misuse or misapplication or other acts which are not the fault of QPS or by non-QPS' authorized alterations, modifications and/or repairs.

If the Product is returned to the Customer Service Department at QPS during the limited warranty period, but the problem with the Product cannot be fixed under the terms and conditions of this limited warranty, the Consumer will be notified and given an estimate of the charges the Consumer must pay to have the Product repaired, with all shipping charges billed to the Consumer. If the estimate is refused, the Product will be returned freight collect. If the Product is returned to the Customer Service Department at QPS after the expiration of the warranty period, QPS' normal service policies shall apply and the Consumer will be invoiced for all shipping charges.

QPS SHALL NOT BE LIABLE FOR ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT. THIS INCLUDES DAMAGES TO PROPERTY AND TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow limitation of implied warranties, or exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you (the Consumer). This limited warranty gives you specific legal rights and you may also have other rights which vary from state to state. This limited warranty applies only to this product and is governed by the laws of the State of California.

QPS neither assumes nor authorizes any authorized service center or any person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this limited warranty.

Questions concerning this limited warranty may be directed to the Customer Service Department at QPS, (714) 692-3588.



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