



CD-R/RW Drive

Owner's Manual

To enjoy fully all the features and functions of your product, please read this owner's manual carefully and completely.

Website : <http://www.LGService.com>
e-mail : <http://www.LGService.com/techsup.html>



GCE-8400B

CAUTION : The laser used in the CD-R/RW drive can damage your eyes.
Do not attempt to open the cover.
To reduce the risk of electric shock, do not remove cover (or back).
No user-serviceable parts inside.
Refer servicing to qualified service personnel.

Use of controls or performance of procedures other than those specified here in may result in hazardous radiation exposure.

WARNING : To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture

Industry Canada requirement

This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

FCC COMPLIANCE STATEMENT

- Note :** 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 into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an Authorized Service Center for help.
- **FCC WARNING**
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
 - This CD-R/RW Drive is for use only with UL listed personal computers that have installation instructions detailing user-installation of card cage accessory.

This product is manufactured to comply with the radio interference requirements of EEC DIRECTIVE 89/336/EEC, 93/68/EEC and 73/23/EEC.

CAUTION - INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM.

WARNING-OSYNLIG LASERSTRÄLNING NÄR DENNA DEL ÄR ÖPPNAD STRÅLEN ÄR FARLIG.

CLASS 1	LASER PRODUCT
KLASSE 1	LASER PRODUKT
LUOKAN 1	LASER LAITE
KLASS 1	LASER APPARAT

This unit uses CD-ROM discs with the following mark

When you use this unit as a CD player, use compact discs with the following mark

This unit uses CD-R discs with the following mark.

This unit uses CD-RW discs with the following mark.

This unit uses High Speed CD-RW discs with the following mark.

WARNING: Only CD-RW drives bearing the logo Compact Disc ReWritable High Speed can write or erase High Speed CD-RW media.

High Speed CD-RW Media may be recognized by the same Compact Disc ReWritable High Speed logo on the disc label or packaging material, or by the fact that it lists recording speeds of 4X to 10X, or Up to 10X

Attempted writes to High Speed CD-RW media using CD-RW drives NOT bearing the logo Compact Disc ReWritable High Speed may result in data loss.



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- MS-DOS, Windows, and Windows® 95 are trademarks registered in the United States and other countries by the Microsoft Corporation.
- The company names and product names written in this manual are trademarks or registered trademarks of the respective companies.

Introduction

Thank you for
purchasing this
CD-R/RW
Drive.

Features

- Enhanced-IDE (ATAPI) interface.
- Power tray loading and ejection of disc. (The disc can also be ejected manually.)
- The recorded CD-RW media can be played in a DVD player or a multiread CD-ROM Player, maintaining future compatibility
- Supports Windows 95/98/2000/ME/XP & NT 4.0.
- Automatic buffer underrun error prevention technology-Super Link
- 40X max PCAV Writing (CD-R), 12X Writing (CD-RW), and 40X max reading*.

* Writing speed depends on capabilities of discs.
For high speed write/rewrite, you should use media labelled High Speed Writable/ReWritable discs.

Partial CAV technology & Optimun Write Speed control

This drive is equipped with partial CAV technology, so the CD-R write speed can change in the range of 20X - 40X max according to the type of the disc.

In this optimum write control system, the drive automatically selects the best recording speed for the inserted media.

Package Items

Item	Quantity
- Internal CD-R/RW Drive	1
- CD Recording Software	1
- E-IDE (ATAPI) cable	1
- Audio Cable	1
- Mounting Screws	4
- Manual for CD-R/RW Drive	1
- Manual for CD Recording Software	1

Introduction

Important Precautions

Follow these precautions when handling the drive or discs.

Precautions

- Please take notice that the manufacturer of this equipment does not offer any warranty against data loss due to inappropriate installation or handling or direct or indirect damages.
- Please take notice that the manufacturer will bear no responsibility for direct or indirect damages caused by the use of this product or its malfunction.
- Please take notice that the manufacturer will bear no responsibility for damage to data caused by this product.
- Please backup (copy) all important data as protection against data loss.

Installation

- Avoid placing the drive in a location subject to:
 - high humidity
 - high temperature
 - excessive dust
 - mechanical vibration
 - direct sunlight

We recommend using the drive in a horizontal or vertical position. Do not install the drive at an angle.

Operation

- Don't move the drive suddenly from a cold place to a warm one or raise the room temperature suddenly. Condensation may occur, causing abnormal operation.
- Make sure to remove the disc before moving the drive. The disc may be damaged, causing data loss.
- Be careful to prevent foreign objects, such as liquids or metal, from entering the drive. In case a foreign object enters the drive, please consult the dealer where the drive was purchased.
- Don't interrupt the electric power while the drive is operating.
- When connecting two IDE devices to the Primary or Secondary connectors, make sure that the two devices are not configured as both Master, or both Slave. If they are both set the same, Windows may fail to run or recognize the drives.
- The total length of the IDE cable should be no more than 18 inches (about 45 cm).

Introduction

System Environment

Computer

This unit can be operated in the system environment explained here.

System requirements	CPU	350MHz (or faster) Pentium (for 40x speed, 500MHz or faster recommended)
	Memory	Windows 95/98/ME : 64MB or greater. Windows NT Workstation Ver. 4.0: 64MB or greater (128MB or over recommended) Windows 2000/XP: 128MB or greater(256MB or over recommended)
Hard disk		650MB or more free space. (The free space needed for writing depends on the quantity of data.)
Interface		Enhanced-IDE interface (as Primary Slave, Secondary Master or Slave)
Drive bay		5.25-inch half-height bay required
Power		+5V/+12V power socket required
Software Required OS		Windows 95/98/2000/ME/XP, Windows NT Workstation Ver.4.0 or later
CD-R, CD-RW discs		CD-R : LG, Ricoh, Mitsubishi Chemical, Taiyo Yuden, Fuji Film, CMC, or Fusion discs are recommended. (For 40X: Taiyo Yuden, SKC, Acer, Ritek, Maxell, Mitsubishi Chemical) CD-RW : Ricoh, Mitsubishi chemical, TDK, Fuji Film, Sony discs are recommended.

- Occasionally the CD-R and CD-RW discs written by the CD-R/RW drive cannot be read by other CD drives*. These unreadable discs may need to be read using the CD-R/RW drive on that did the original writing.

* The disc written using the CD-R/RW drive might not be readable by CD-ROM drives other than Multi-read compatible (UDF compatible) CD-ROM drives.

Multiread compatible (UDF compatible) CD-ROM drives are:

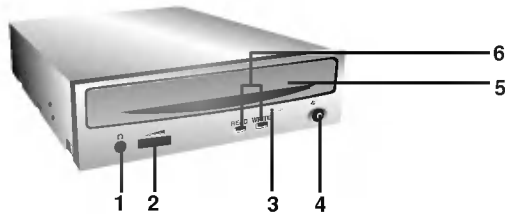
1. CD-ROM drives that can read low reflectance.
2. CD-ROM drives that support Packet Write.

Software

Install the supplied CD Recording Software before using this unit.

Front Panel

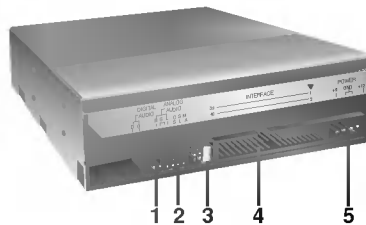
Location and Function of Controls



- 1. **Headphone Jack**
- 2. **Volume Control**
- 3. **Emergency Eject Hole**
- 4. **Stop/Eject Button**
- 5. **Disc Tray**

- 6. **Drive activity indicators**
Two colored LEDs are used to indicate the operation of CD-R/RW Drive.
(1) Read
The orange LED is displayed when the spindle motor begins the spin-up operation: accessing data, reading data, playing Audio, and opening or closing the tray.
(2) Write
The green LED is used during disc writing sessions.

Rear Panel



- 1. **Digital Audio Output Connector**
- 2. **Analog Audio Output Connector**
- 3. **Jumper Connector**
This jumper determines whether the drive is configured as a master or slave. Changing the master-slave configuration takes effect after power-on reset.
- 4. **IDE Interface Connector**
Connect to the IDE (Integrated Device Electronics) Interface using a 40-pin flat IDE cable.
NOTE : Do not connect or disconnect the cable when the power is on, as this could cause a short circuit and damage the system. Always turn the power OFF when connecting or disconnecting the cable.
- 5. **Power Connector**

Before Installation

Installing the Drive

Before installing the drive, please note the following points.

- You will need the following:
 - A screw driver of a suitable size to fit the securing screws for the drive unit.
 - The manual for the computer, so you can find the mounting positions for the IDE controller cable.
- Turn off all peripheral appliances of the computer and the computer itself, and disconnect their power cords from the wall sockets.
- Discharge any static electricity on your person by touching the computer covers, etc.

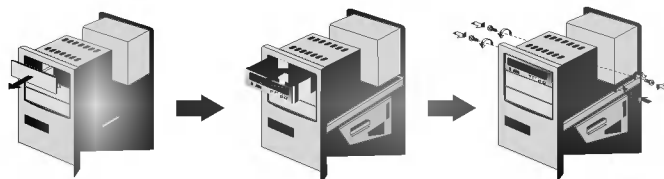
Removing the Computer Cover

Make sure all peripheral devices of the computer and the computer itself are turned off, and then remove the cover. Refer to the manual for the computer for details about removing the cover.

NOTE : There may be sharp edges inside the computer so take care to avoid injury.

Mounting the Drive

1. Remove the 5¼" drive bay panel from the computer. Refer to the manual for the computer for details.
2. Insert the drive unit into the bay. Do not apply excessive pressure to the cables inside the computer.
3. Secure the drive with the screws provided. If there is not enough space behind the drive, connect the IDE and other cables before securing the drive.

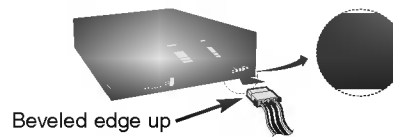


NOTE : This is a general installation guide. If your PC hardware appears different, please consult your hardware manual for installing peripheral devices.

DirectCD™ v2.5b(s)

Connecting the Power Connector

Connect the power cable from the computer's power supply to the socket on the drive unit, fitting the connector firmly into the power in connector. If there is no spare power cable available in the computer, you will have to purchase a splitter cable of a suitable type.

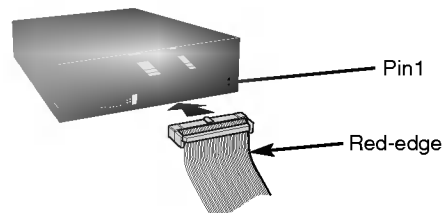


NOTE : Improper connection may damage the drive and void the warranty. Generally, the power connector can only fit one way.

Connecting the Interface Connector

Connect the 40-pin IDE cable to the back of the CD-R/RW Drive, making sure the coloured (red) stripe on the IDE cable is connected to pin 1 on the CD-R/RW drive. Pin 1 is closest to the Power Connector.

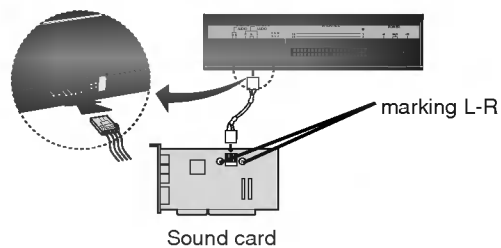
NOTE : Generally, the IDE connector is keyed and will only fit one way.



Connecting the Sound Card

If the computer is using a sound card, the drive is connected to the sound card with an audio cable. The supplied analog audio cable fits most sound cards or one can be purchased at a local computer store.

Refer to the manual for the sound card for detailed information regarding connection.

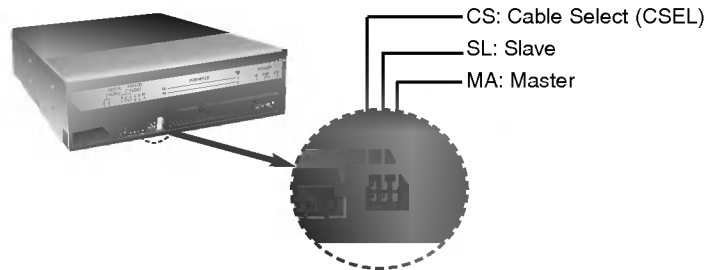


Jumper Setup

Before installation, set the jumper on the jumper connector on the rear panel.

The drive can be connected as the Master or Slave on an EIDE (ATAPI) interface. When several (up to four) EIDE devices are connected, each must be set in a unique way. Specific knowledge of hardware and software is necessary to install the drive.

NOTE : If two peripheral devices with the same settings are both connected to the Primary or to the Secondary EIDE bus, the host computer may fail to run or may malfunction. Careful attention is necessary.



NOTE : Only one jumper should be installed on the jumper connector. If more than one jumper is installed, the drive may malfunction or be damaged.

Master/Slave setting is determined by jumper installation on the Jumper Connector. The following table shows the possible jumper settings.

Name	Function	C S	S L	M A
MA (Master)	Drive set as Master	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
SL (Slave)	Drive set as Slave	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
CS (Cable Select)	Drive mode set by CSEL on the host IDE interface	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>

If you use CSEL setting, the MASTER/SLAVE setting will be made automatically, depending on the hardware configuration.

For details refer to the manual of your computer.

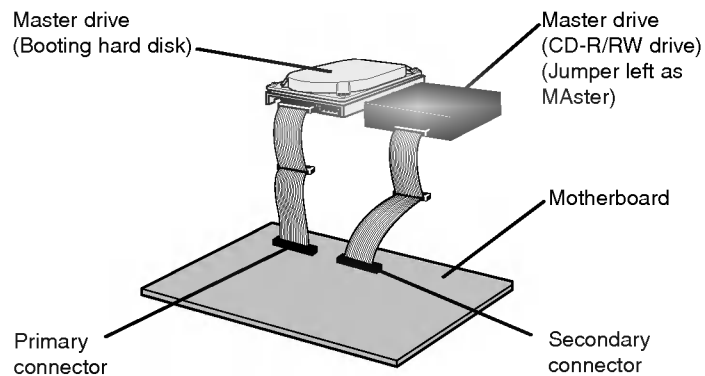
DirectCD™ v2.5b(s)

PC Connection

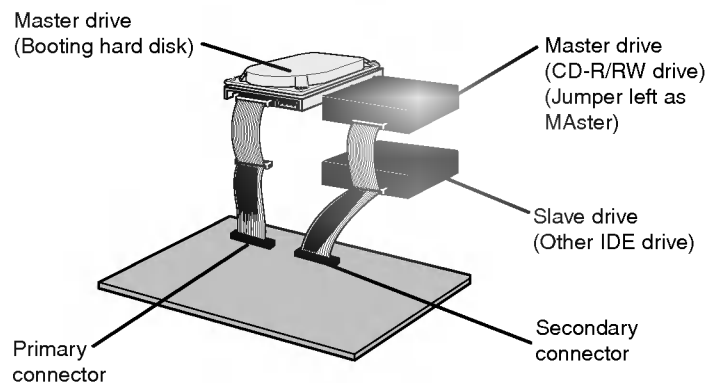
The CD-R/RW drive connects to the motherboard of the host computer using an IDE interface cable. You may connect the CD-R/RW Drive as a Slave or Master device, depending on your computer.

To Install as a Master Drive

To install the drive as a Master, the jumper can be left as supplied from the factory.



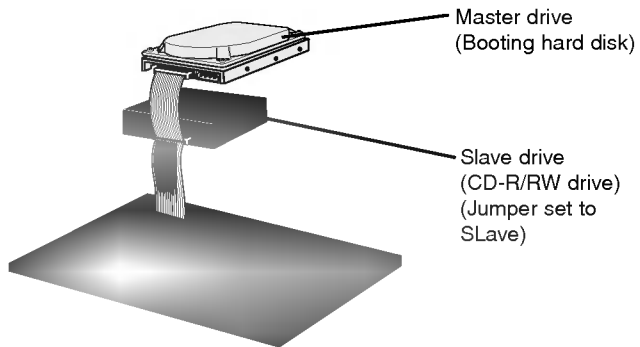
- OR -



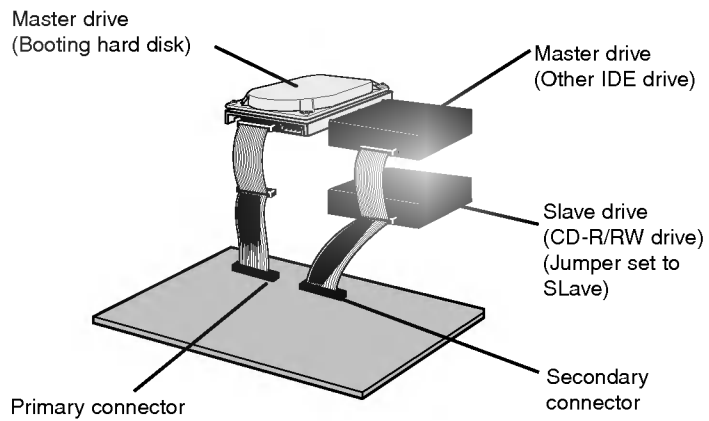
NOTE : A hard disk is normally installed as the Primary Master on the EIDE (ATAPI) interface. Other EIDE peripheral devices such as hard drives and CD-ROMs are then set differently.

**To Install as a
Slave Drive**

To install the drive as a Slave, change the jumper setting on the rear panel to SL.



- OR -



**Replacing the
Computer
Cover**

When the installation of the drive unit is complete, replace the computer cover



Device Drivers

When using Windows 95/98/2000/ME/XP or Window NT Workstation Ver. 4.0, no special device driver is required. Your system, upon Power On and bootup after installing and connecting the new CD-RW drive, will recognize and load native software drivers automatically.

The DOS and Windows 3.1 users can download the DOS Device drivers anytime via internet.

For your information, please consult the following internet sites:

<http://www.lge.com>

<http://www.lgeservice.com/drivers.html>

For Windows 95/98/2000/ME/ XP Users

- In order to ensure normal drive operation, please check the following:

- The drive is displayed in


Windows 95/98/ME : [Control Panel]-[System]-[Device Manager]-
[CD-ROM]

Windows 2000/XP : [Control Panel]-[System]-[Hardware]-[Device
Manager]-[DVD/CD-ROM-Drive]

- 32-bit is displayed in

[Control Panel]-[System]-[Performance]


- If the drive is not recognized by your computer, please check the following items.

- If an  indicator is displayed on the IDE controller in [Control Panel]-[System]-[Devices Manager]-[Hard Disk Controller], you will need to contact your PC's manufacturer or the motherboard's manufacturer and get the appropriate IDE controller driver.

- Run **Add New Hardware** in Control Panel to let PC search again for new device.

For Windows NT Workstation Ver.4.0 Users

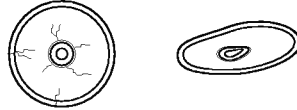
- In order to ensure normal drive operation, please check to see if the drive is displayed on the IDE controller in [Control Panel]-[SCSI Adapter]-[Devices]

- If the drive is not recognized by your computer, an  indicator is displayed on the IDE controller in [Control Panel]-[SCSI Adapter]-[Devices], you will need to contact your PC's manufacturer or the motherboard's manufacturer and get the appropriate IDE controller driver.

How to Use the Discs

When using CD-ROM discs, CD-R discs or CD-RW discs, don't attach any stickers or labels to the discs. Using discs with them attached not only causes read and write errors, but data on the disc may be lost due to damage to the disc itself.

The Discs in this unit operate at a very high speed!
DO NOT use damaged, cracked or warped discs. The drive's optical unit may be damaged if they break.



DO NOT use non-standard discs. NON-standard discs may not play or store data properly.

Non-standard discs are any discs that are not the standard 12 cm CD type discs. This includes 8 cm discs, Sony Walkman™ discs, non-circular discs including promotional, business card discs, and other unusual discs.

Emergency Eject

This drive has a feature that allows the CD to be ejected manually if necessary in an emergency, such as failure of the drive or a power outage.

NOTE: Don't use this feature **except** in an emergency.

- 1) Turn the power to OFF.
- 2) Poke a fine-tipped object (such as a straightened heavy duty paper clip) into the small hole above the eject button. The front door will pop open and the disk tray will come partway out.
- 3) Pull the front door to open it all the way, then grip the disc tray between thumb and forefinger and gently pull it straight out.



NOTE: This feature is a last measure to be used only in an emergency. Using it excessively will cause malfunction.

* If you cannot get a good grip on the disc tray with your fingers, use a steel binder clip or spring clamp to pull it out.

**Before
Requesting
Service**

Troubleshooting

Before calling for service, check this list.

- The drive doesn't have power.
 - Is the power supply cable from the host computer plugged in?
 - Is the Power Connector to the drive securely attached?

- The system doesn't start.
 - Are the Primary and Secondary connections and the Master and Slave settings correct?
 - Is the total length of the IDE cable 18 inches or less?
 - Is each connector completely attached?
Movement of the PC may loosen connections.


- Cannot Read or Write Discs.
 - Is the condition of everything else in the system (CPU, hard disc, and others) as it should be? (See system environment, page 4.)
 - Does the CD-R or CD-RW disc have dirt or scratches?
 - Did a screen saver or other application operate while writing to the disc?
 - Is there enough free space on the CD-R/RW disc?
 - Does writing fail even using the simulation test?
 - Is the disc loaded in the drive with the read/write surface facing the right direction? (label up)
 - Is the drive installed in the correct orientation?
 - Was the drive or disc moved from a low temperature environment to a high temperature environment? (There is a possibility of condensation on the lens in the drive or on the surface of the disc.)

When you call for service, be prepared to give as much information as possible of your system, environment, and the specific problem. (What happened? When? How long? What was going on? Were there any error messages displayed? etc.)

Specifications

Host Interface	E-IDE/ATAPI									
Disc diameters	12cm/8cm, standard size CD's									
Supported discs	CD-Digital Audio & CD-Extra , CD-Plus, CD-ROM, CD-ROM XA Ready, CD-I FMV, CD -TEXT, CD Bridge, CD-R, CD-RW, Video CD, Photo-CD (Single & Multi-Session).									
Mounting direction	Horizontal/Vertical									
Read/Write Speed	Write (CD-R): 8X, 12X, 16X, 24X P-CAV, 32X P-CAV, 40X P-CAV Write (CD-RW): 4X, 10X, 12X Read (CD): max 40X									
Data transfer rate	*Sustained: Write: CD-RW: 600 KB/s (4X), 1500 KB/s (10X), 1800 KB/s (12X) CD-R: 1200 KB/s (8X), 1800 KB/s (12X), 2400 KB/s (16X), 3600 KB/s (24X), 4800 KB/s (32X), 6000 KB/s (40X) P-CAV Read: 2700 to 6000 KB/s (18 to 40X CAV) *Burst (ATAPI): 16.67 MB/s (PIO Mode 4) 16.67 MB/s (Multi DMA- Mode 2)									
Average Access time(Random)	100ms (Typical)									
MTBF	125000 power on hours (Duty cycle 10%)									
Audio output level	Line output: 0.7 Vrms at 47 kohm									
Power	DC 5V, DC12V									
Dimensions(WxDxH)	5.75"x7.27"x1.63" (146x184.7x41.3mm)									
Weight	Less than 2lbs (0.9kg)									
Environmental Conditions	<table border="0"> <thead> <tr> <th></th> <th>When operating</th> <th>When not operating</th> </tr> </thead> <tbody> <tr> <td>Temperature :</td> <td>5 °C to 45 °C (No air cooling)</td> <td>-40 °C to 60 °C</td> </tr> <tr> <td>Humidity :</td> <td>10% to 80% R.H. (No condensation)</td> <td>5% to 90% R.H. (No condensation)</td> </tr> </tbody> </table>		When operating	When not operating	Temperature :	5 °C to 45 °C (No air cooling)	-40 °C to 60 °C	Humidity :	10% to 80% R.H. (No condensation)	5% to 90% R.H. (No condensation)
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Humidity :	10% to 80% R.H. (No condensation)	5% to 90% R.H. (No condensation)								

The drive's appearance and specifications may change without prior notice.

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or <http://www.lge.com.au>

Caution!

The disc rotates at high speed in the drive unit.
Use of worn, damaged, or non-standard CD-ROM discs
can only adversely affect the drive and cause the disc to
shatter or crush while in use.

Disc crush can only occur when you use a damaged
CD-ROM disc in the drive. It is an extremely rare
occurrence, but there are steps which can be taken to
prevent it.

**Always check your discs before inserting them into
the drive.**

- 1. Take care not to use worn, cracked, damaged,
warped or poor quality CD-ROMs, as this may
cause damage to your drive.**
- 2. Check the clear plastic on the center of the disc,
cracks here are the main cause of disc crush.**
- 3. Do not play CD-ROMs which are a non-standard
(i.e. non-circular) shape, such as heart shaped
discs, or discs in the shape of a business card.**

**How can you keep your discs from becoming
damaged?**

- 1. When not in use, remove discs from the drive.**
- 2. Keep discs in the packaging supplied with them
and out of direct sunlight and away from heat
sources.**

Excessive vibration or a sudden jolt to the drive during
operation may cause a malfunction.

Avoid exposing the drive to sudden changes in
temperature as it may cause condensation to collect
inside the drive.



Website ; <http://www.lge.com>
<http://www.LGEService.com>

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