

TOSHIBA

DVD-RAM DRIVE

SD-W1101/SD-W1111 HARDWARE INSTRUCTION MANUAL

VERSION 2.0
MAY 1999



DVD-RAM DRIVE
Hardware Instruction Manual

For the following DVD-RAM Drive:

SD-W1101/SD-W1111

TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC.
DISK PRODUCTS DIVISION

35 Hammond
Irvine, CA 92618

Contents of this manual are subject to change without prior notice.

© 1999 TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC.

All rights reserved

Printed in USA

CERTIFICATION

<i>This equipment complies with the following standards:</i>	
UL 1950 Electrical Business Equipment	
CAN/CSA-C22.2 NO: 950-95, Class: 3862 07	
TUV EN 60950 1992+A1+A2+A3+A4 / EN 60825.1:A994+A11	
FCC Class B - specification limits defined by EN55022 for information Technology Equip.	
IEC Standard: IEC 801-2: 1992 IEC 801-3: 1994, ENV 50140 1994, IEL 801-4: 1988	
European: Directives: 89/336/EEC (EMC directives)	
Harmonized Standard: EN 500821-1: 1992	EN55022: 1992 class B

LASER CAUTION

This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT". To use this model properly, read this Owner's Manual carefully and keep this manual for future reference. In case of any trouble with this model, please contact your nearest "Authorized Repair Center". *To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION!

- **REFLECTIVE OBJECTS SHOULD NOT BE PLACED IN THE DISK SLOT DUE TO POSSIBLE HAZARDOUS RADIATION EXPOSURE.**
- **USE OF CONTROLS, ADJUSTMENTS, OR PROCEDURES OTHER THAN SPECIFIED IN THIS MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

TRADEMARK INFORMATION

IBM is a registered trademark of International Business Machines, Inc. Photo CD symbol is a trademark of Kodak used under license.



Must be used with Kodak approved host adapter board and software driver.

<i>Version</i>	<i>Date Published</i>	<i>Revised Contents</i>
01	January 1999	Initial release
02	May 1999	Added SD-W1111

Table of Contents

Introduction	1
Disc Formats	2
Installing DVD-RAM	3
Installation Requirements	3
Installation	3
DVD-RAM Jumper Settings	4
Placing DVD-RAM inside your computer	7
Cabling	8
Completing Installation	11
Software	11
Using your DVD-RAM	12
The Controls	12
Front Panel	12
Back Panel	13
Operating the DVD Loading Tray	14
DVD-RAM Recording Cartridge	16
Emergency Eject	18
Specifications	19
Performance	19
Environmental Conditions	20
Reliability	21
Physical Characteristics	21
Software Driver	23
Technical Support	24
Repair Center	25
Warranty	26

Introduction

Congratulations on the purchase of your Toshiba DVD-RAM drive. This manual will provide you with the information you will need to install and operate your new DVD-RAM.

The SD-W1101 and SD-W1111 drives combine high storage capacity with unprecedented performance to benefit a range of applications including multimedia development, backup and data archiving. Features include:

- **2.6GB Capacity** *on one side of a 120mm disc.*
- **Playback interchangeability** *Playback a disc either for CD-ROM, CD audio or DVD-ROM.*
- **High Speed Data Transfer Rate** *Possible to record and playback MPEG2 compressed motion pictures in real time.*
- **High Data Recording Rate by Over-writing System** *Phase change recording technology enables you to write the data directory onto the media without waiting for pre-erasing.*



SD-W1101/SD-W1111 Front Panel

DISC FORMATS

The SD-W1101 and SD-W1111 are capable of reading data from a variety of disc formats, some of which are: CD-ROM, CD-audio, CD-R/W, Photo-CD, DVD-ROM*, DVD-Video*, DVD-RAM* and DVD-R*.

** You must have a DVD/MPEG-2 Playback Card installed in your system to utilize DVD options.*

SCSI DRIVES

The SD-W1101 and SD-W1111 are SCSI-2 (Small Computer Systems Interface) devices. Some other SCSI devices you may already have connected to your computer are scanners, tape drives or CD-ROM drives.

PC SYSTEMS: To add a SCSI device to your computer, you must have a SCSI interface card already in place. The interface card fits into one of the slots inside your computer and connects to your DVD-RAM device via a SCSI cable.

Your DVD-RAM also requires a software driver to be installed on your system. A driver should have been included with your drive. See Software Driver section for additional information (page 23).

Installing DVD-RAM

Before you begin to install your DVD-RAM, make sure you have the items listed below. Some of these items will not come with your DVD-RAM. See your local computer retailer to purchase them.

INSTALLATION REQUIREMENTS

- DVD-RAM Software Driver (*“Write DVD” should have been provided with you DVD-RAM*)
- SCSI Host Adapter Board (with interface software)
- DVD/MPEG Card (*optional*)
- SCSI Interface Cable

INSTALLATION

In order to install your DVD-RAM successfully, you will need to complete the following steps:

- ✎ Install SCSI adapter board in your computer system (*if not already installed*).
- ✎ Set jumper settings on DVD-RAM.
- ✎ Install DVD-RAM inside your computer.
- ✎ Using a SCSI cable, connect DVD-RAM to SCSI interface card.
- ✎ Connect computer power cable to internal DVD-RAM drive.
- ✎ Connect a sound cable to your DVD-RAM (*optional*). Additional audio connections may be available when using a DVD/MPEG Card (see MPEG card installation instructions).
- ✎ Load DVD-RAM driver software.

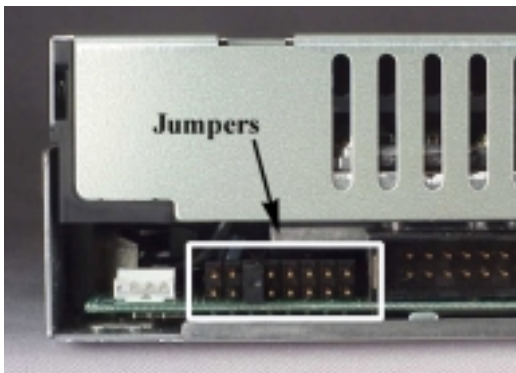
IMPORTANT NOTE

Before you begin installing your DVD-RAM, make sure your computer is switched OFF and the power cable is disconnected.

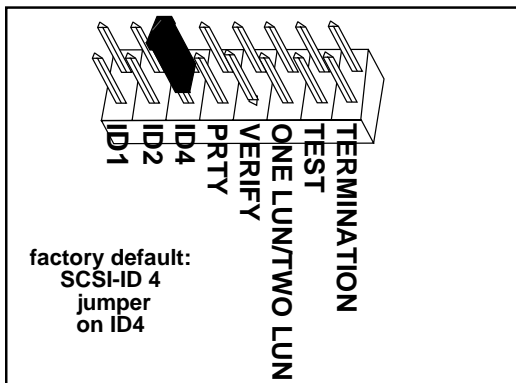
DVD-RAM JUMPER SETTINGS

In order for your DVD-RAM to work properly, it may be necessary for you to change the DVD-RAM's jumper settings.

Locate the block of jumper pins on the back left side of the DVD-RAM. (*Note: Additional jumpers are provided with your drive and can be found in small bag that also contains emergency eject tool.*)

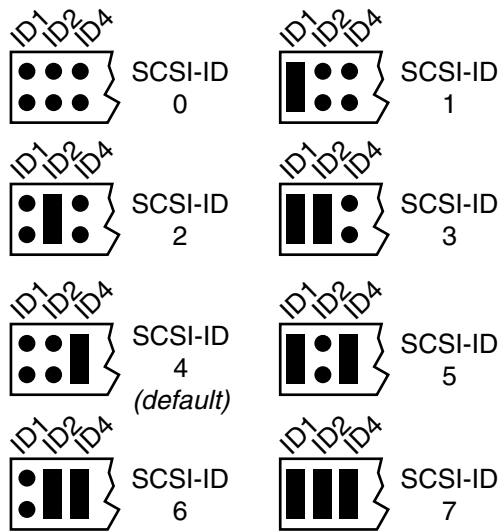


Jumper Location



Jumpers can be set in either an ON mode or OFF mode. If the jumper covers both pins on the jumper block, it is ON; if there is no jumper or only one of the pins is jumpered, the jumper is OFF. This section will discuss the following jumper settings: SCSI ID, Parity, Verify, One Lun/Two Lun and Termination.

All SCSI devices attached to your computer are assigned a SCSI-ID number from 0 to 7. Your DVD-RAM's SCSI ID must be set so that its ID number does not conflict with any other device's SCSI-ID in your system. In most cases your DVD-RAM will come set to SCSI ID 4. If your DVD-RAM is the only SCSI device connected to your computer, you should leave the jumpers as they are. If you have additional SCSI devices (CD-ROM, hard drive, etc.) you will be "daisy-chaining" these devices. Each SCSI device must have a different SCSI ID. Note that your SCSI interface card in most cases has a SCSI ID of 7. The chart below shows the jumper settings for the eight possible ID numbers:



Parity Jumper

The Parity jumper pins should have no jumper present, which sets Parity to OFF mode. In the OFF mode, the parity bit check function on the SCSI data bus is activated which enhances data bus reliability. *Note: if your interface card does not provide "parity generation" function, this jumper will have no effect.*

Verify Jumper

The Verify Jumper pins should be set to OFF mode (no jumper present). When the jumper is in OFF mode, written data on the media is verified after the write operation. Writing speed is lower when in OFF mode, but data reliability is better.

ONE LUN/TWO LUN Jumper

The LUN jumper sets LUN (Logical Unit Number) to ONE LUN or TWO LUN mode. The default setting is no jumper present, which sets drive to ONE LUN mode.

ONE LUN mode: Standard mode

TWO LUN mode: For testing only (*factory use only*)

Terminator ON/OFF Jumper

This jumper turns termination power ON or OFF. The default setting is termination disabled (no jumper). If you are connecting more than one SCSI device to your system, and the DVD-RAM is not at the end of the chain, then terminator jumper is not required.

PLACING DVD-RAM INSIDE YOUR COMPUTER

You are now ready to install your DVD-RAM inside your computer. You should refer to the book that came with your computer as computer casings are different from each other. Usually the casing is attached to the frame by a number of screws at the back. Turn your computer around so the back faces you and look for 4 or 6 screws around the edge of the casing. Remove the screws and put them somewhere safe. Lift or slide casing away from computer frame and place aside (make sure to allow yourself enough workspace for the DVD-RAM installation).

The DVD-RAM drive can be placed in any free half-height drive slot at the front of your computer. (It can be mounted horizontally or vertically.) You most likely will have to remove the cover plate which conceals the front of the open slot (see your computer book on how to remove panel).

Carefully start sliding the DVD-RAM drive into the opening with the disc tray facing the front of the computer. Before you push the drive all the way in you will need to connect the SCSI interface cable and the power cable to the back of the drive.



Installing SD-W1101/SD-W1111

CABLING

SCSI - The internal SCSI interface cable is connected to your SCSI host adapter card and fits into the socket on the back of your DVD-RAM. The stripe side (or red-colored side) of the ribbon cable connects to pin 1 on the drive's SCSI connector which is found next to the drive's power connector. Carefully push the SCSI connector into the socket, making sure it fits snugly.



Attaching SCSI Cable

Power - Apply power to your DVD-RAM by connecting your computer's power cable to the power socket at the back of the drive. One side of the plug has chamfered edges, so the power connector fits only one way. Push plug completely into the socket making sure the plug fits into the socket correctly.

CAUTION!

Severe damage to the DVD-RAM circuits may occur if power cable is plugged in upside-down with power ON.

If there is no power cable in your system, contact your computer dealer. You may need a "power splitter lead" (a Y shaped cable which taps two power outputs from one input).



Installing Power Cable

Sound (optional) - If you have a sound card and speakers and would like to play audio CDs on your computer, you will need to get a sound cable. Contact our small parts supplier, AMC, at 888/262-9700. Sound cables are made for the sound card you are using and the DVD-RAM drive you are connecting it to. Make sure you have this information when purchasing a sound cable. The sound cable connects to your sound card at one end and the audio connector at the left rear of the DVD-RAM at the other end. Refer to the instructions that came with your sound card for details on any sound-driver software required. If you are using a DVD/MPEG card, additional sound options might be available. Refer to the documentation that came with your DVD/MPEG card.



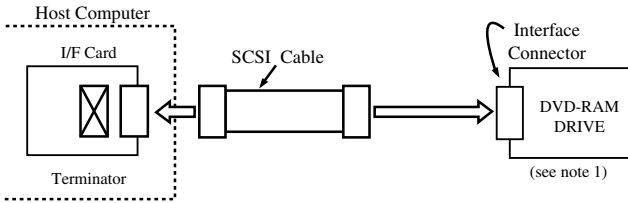
SD-W1101



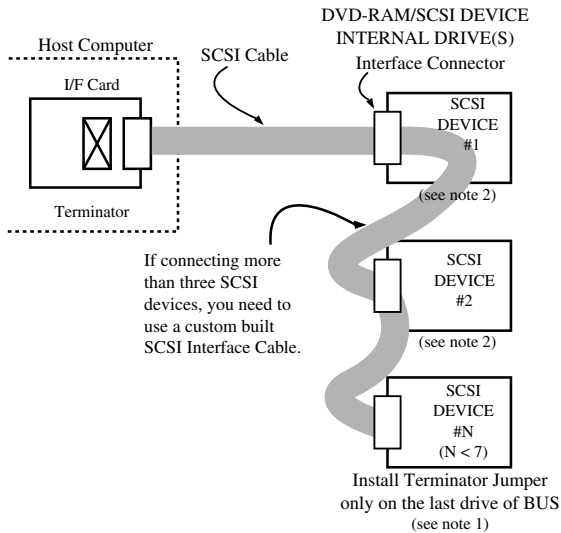
SD-W1111

Installing Sound Cable

Daisy-Chaining - If the DVD-RAM you are installing is one of two or more SCSI devices you have connected to your system, you will need to use a custom built SCSI interface cable. Remember that the terminator jumper on the DVD-RAM drive must have the jumper installed when the drive is the last device in the chain.



DVD-RAM CONNECTION (ONE DRIVE)



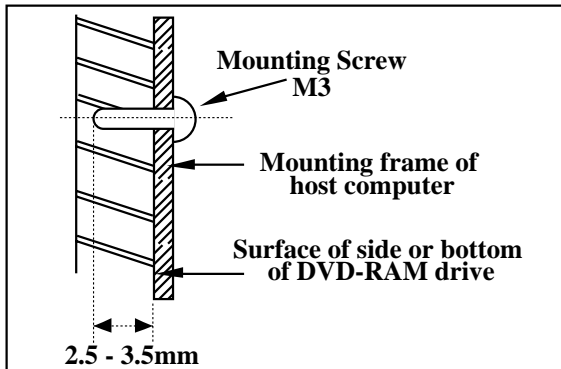
DVD-RAM DAISY-CHAIN CONNECTION (MULTIPLE DRIVES)

Notes:

1. Terminator jumper must be jumpered when DVD-RAM is the last or only device on the SCSI BUS.
2. Terminator jumper should be removed when DVD is in a "daisy-chain" and is NOT the last drive.

COMPLETING INSTALLATION

After you have connected all the necessary cables, you can push the DVD-RAM completely into the slot. There are 8 screw holes on the SD-W1101/SD-W1111 that are used to mount the DVD-RAM into your computer, 4 on the bottom and 2 on each side. Use either the 4 bottom screw holes or the 4 side screw holes, depending on your computer's installation requirements. The screw length should be more than 2.5mm and not exceed 3.5mm (measured from outside surface of side or bottom of DVD-RAM to tip of screw). A clearance of 5mm should surround the DVD-RAM drive to allow for adequate circulation. A .9mm clearance should be maintained around the top cover in order to secure absorbing shock and vibration. Replace the computer's cover, and replace all outer screws.



Mounting DVD-RAM

SOFTWARE

In order for your computer to recognize the DVD-RAM, you must install a DVD software driver. The software driver should have been included with the drive, or if you are installing a DVD/MPEG card, you should use the software driver that came with the card. See Page 23 for software installation instructions.

Using your DVD-RAM

THE CONTROLS

The SD-W1101 and SD-W1111 DVD-RAM drives have the following controls and features:

- ➔ DVD Loading Tray
- ➔ Load/Unload Button
- ➔ Emergency Eject Hole
- ➔ LEDs (ROM, RAM, BUSY)

THE FRONT PANEL



SD-W1101/SD-W1111 Front Panel

(1) Loading Tray - Load disc using tray or recording cartridge.

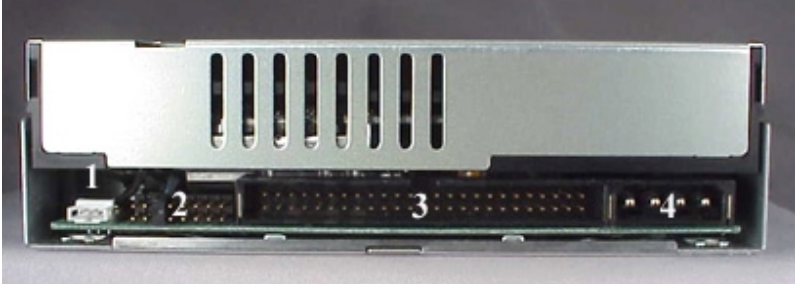
(2,3,4) LEDs- There are three LEDs on the front panel of the SD-W1101 and SD-W1111 DVD-RAMs.

- (2) ROM (green): Lights when either a DVD-ROM, DVD-R or CD is loaded.
- (3) RAM (green): Lights when DVD-RAM disc is loaded.
- (4) BUSY (orange): Lights when the drive operates.

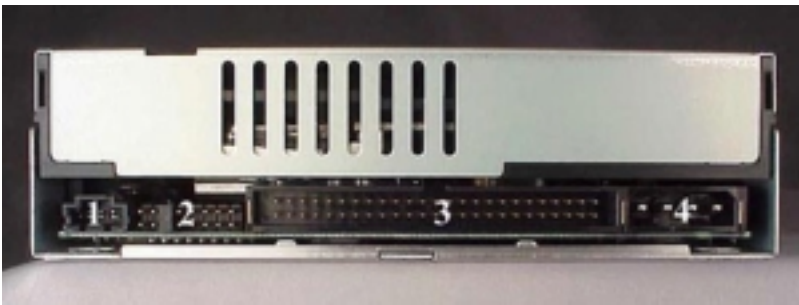
(5) **Load/Unload Button** - The Load/Unload button is used to open the disc tray so you can install or remove a disc or recording cartridge.

(6) **Emergency Eject Hole** - The emergency eject hole is to be used *only* when the DVD tray will not open when Load/Unload button is pressed. See page 18 for additional information.

THE BACK PANEL



SD-W1101 Back Panel



SD-W1111 Back Panel

(1) **Audio Out Connector** - Outputs CD audio on the DVD-RAM.

(2) **Mode Select Headers (jumpers)** - Selects SCSI-ID, Parity, Verify, ONE LUN or TWO LUN and Termination.

(3) **SCSI Connector(s)** - Connects DVD-RAM to computer.

(4) **Power Connector** - Connects DVD-RAM to power source.

OPERATING THE DVD LOADING TRAY

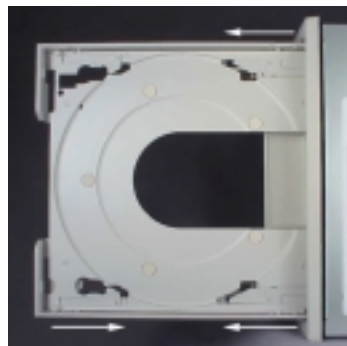
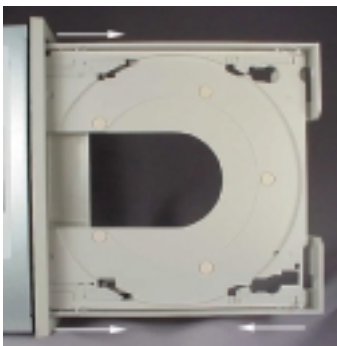
To open the DVD loading tray, just press the Load/Unload button. After inserting or removing a disc or recording cartridge, press the Load/Unload button again.



Vertical Installations

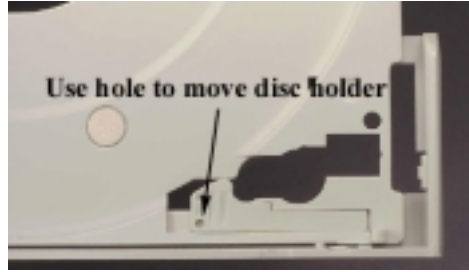
If you are loading a disc into a DVD-RAM drive that has been mounted vertically, perform the following procedures:

1. Locate the four sliding disc holders on the tray (see photo below for location). You will only need to use three of these holders, the two found on the bottom, and the upper rear (closest to drive) holder. Using all four may cause the disc to not set properly in tray. The vertical position of the drive (eject button up or down) determines which holders are used (see photo below).



DVD Loading Tray

2. Gently slide the disc holders towards the center of tray using your finger, opened paper clip or the end of the emergency eject tool. The holder in the upper front side should be pulled away from center of tray.



3. Position the disc behind disc holders on upper and rear side of tray. Then put disc behind bottom front holder.



Installing Disc

4. Check to see that all three disc holders are holding disc securely.



Secure all disc holders

DVD-RAM RECORDING CARTRIDGE

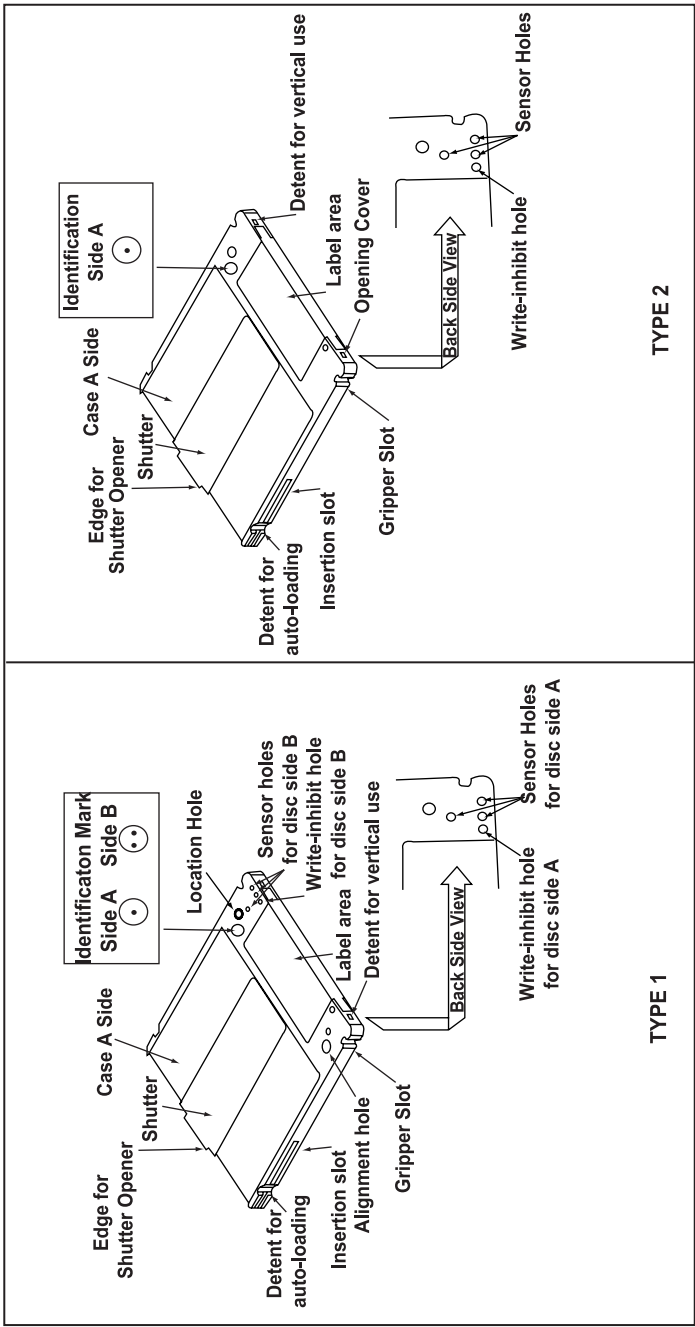
When recording a DVD-RAM, you must use a “recording” cartridge. There are two types of cartridges:

- Type 1:
- Cartridge is reversible (side A & B).
 - Disc can not be taken out of cartridge.
 - Cartridges are available with single-sided* or double-sided discs.
- Type 2:
- Cartridge is not reversible (side A only).
 - Disc in cartridge can be removed and replaced.

* Your SD-W1101/SD-W1111 comes with a Type 1 single-sided cartridge.

Installing Cartridge in DVD-RAM

Place cartridge inside of DVD-RAM tray with label facing front of drive. If using a single-sided DVD-RAM make sure that Side A is facing up.



DVD-RAM Recording Cartridges

EMERGENCY EJECT

CAUTION!

The following procedure is intended only as a last resort when pressing the eject button fails to open the DVD tray.

Insert the “Emergency Eject Tool”, provided with your drive, into the Emergency Eject hole until front bezel opens and inside tray rises. Pull tray out.



If tray does not pull completely forward, use small end of “Emergency Eject Tool” to pull tray completely out. Note that tray must be in a “lifted” position clearing small tab on left side before tray can be pulled out.



Specifications

The following describes the specifications of the SD-W1101 and SD-W1111 DVD-RAMs. (*Specifications are subject to change without notice.*)

PERFORMANCE

■ *Disk Formats¹*

DVD	DVD-RAM, DVD-ROM, DVD-R
CD	Red Book, Yellow Book, CD-ROM XA, CD-I Bridge (Photo CD, Video CD), CD-I, CD-I Ready, CD-G, CD-TEXT, Multisession (Photo-CD, CD EXTRA, CD-RW, CD-R), CD-DA, CD-R, CD-RW

¹*Note: All DVD/CD formats, except CD-Red book (audio), require additional application specific software and/or hardware. The DVD-RAM drive is capable of reading these data formats. However, in order to run applications that use these formats, you must first have the required software and/or hardware.*

■ *Data Capacity*

DVD-RAM (single & double)	2.42 GB
DVD-R	3.9 GB
DVD-ROM SINGLE SIDE-SINGLE LAYER	4.7 GB
DVD-ROM SINGLE SIDE-DOUBLE LAYER	8.5 GB
DVD-ROM DOUBLE SIDE-SINGLE LAYER	9.4 GB
DVD-ROM DOUBLE SIDE-DOUBLE LAYER	17 GB
CD-ROM	650 MB

■ *Rotational Speed*

	SD-1101	SD-W1111
DVD-RAM	1,028 - 2,400rpm	1,130 - 2,640rpm
DVD-ROM/DVD-R (single-layer)	1,200 - 2,800rpm	1,200 - 2,800rpm
(dual-layer/DVD-R)	1,300 - 3,000rpm	1,300 - 3,000rpm
CD-ROM	3,516rpm (16X)	3,516rpm (16X)

- *Transfer Rate*

DVD-RAM	1,350KB/second
DVD-ROM/DVD-R	2,700KB/second
CD-ROM	990 - 2,400KB/second (16X)

- *Access Time*
 - Average Random Access Time:

DVD-RAM	180ms (typ)
DVD-ROM	260ms (typ)
CD-ROM	150ms (typ)
 - Average Random Seek Time:

DVD-RAM	120ms (typ)
DVD-ROM	210ms (typ)
CD-ROM	140ms (typ)
 - Average Start Time:

DVD-RAM	15.0 sec
DVD-ROM	12.0 sec
CD-ROM	7.0 sec

- *Data buffer*

SD-W1101:	256 Kbytes
SD-W1111:	2 Mbytes

- *Acoustic Noise* 45dB (1m away from drive)

- *Power Supply* +5 volts

- *Indicators* BUSY, RAM, ROM

- *Interface Connector* I/F 50pin SCSI connector

ENVIRONMENTAL CONDITIONS

- Operating temperature: 41° to 122° F (+5° to 50° C)
- Operating humidity: 8% to 80% (no condensation)
- Storage/shipping humidity: 5% to 95% (no condensation)
- Storage temperature: 14° to 140° F (-10° to +60° C)
- Shipping temperature: -40° to +149° F (-40° to +65° C)
- Wet bulb temperature: 80.6° F (27° C)

RELIABILITY

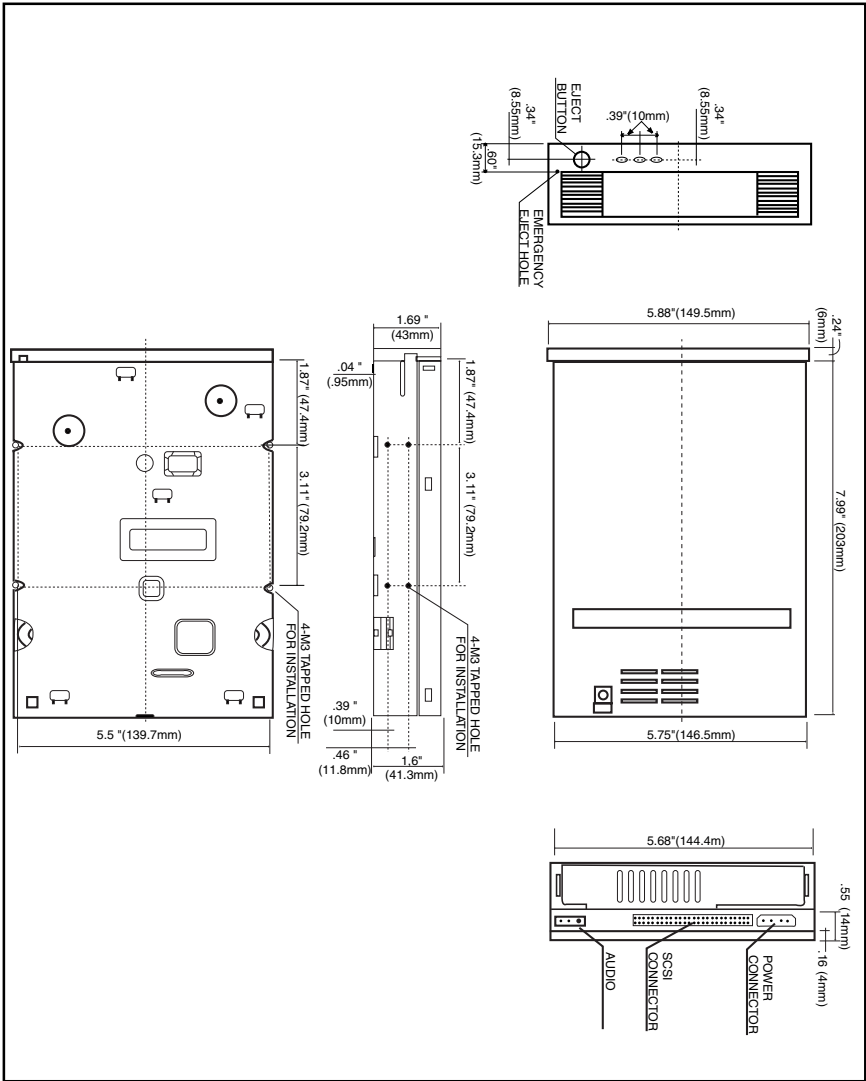
- *Error Rate*
 - DVD-RAM
 - Read Error Rate less than 10^{-15} (Byte error rate)
 - Seek Error Rate less than 10^{-6} error/seek
 - DVD-ROM
 - Read Error Rate less than 10^{-15} (Byte error rate)
 - Seek Error Rate less than 10^{-6} error/seek
 - CD-ROM
 - Read Error Rate (mode 1) less than 10^{-15} (Byte error rate)
 - Read Error Rate (mode 2) less than 10^{-12} (Byte error rate)
 - Seek Error Rate less than 10^{-6} error/seek

- *MTBF* 100,000 hours
- *MTTR* 0.5 hours
- *Drive Life* 15,000/hours or 5 years
- *Load/Eject* 10,000 times or more

PHYSICAL CHARACTERISTICS

- *Dimensions and weight*
 - Dimensions: 5.75 x 8 x 1.6 inches (146 x 203 x 41.3 mm)
 - Weight: SD-W1101: 2.64 lbs (1.2 kg)
SD-W1111: 2.51 lbs (1.14 kg)

- *Operating position* Horizontal and Vertical



External Dimensions

Software Driver

A DVD-RAM software driver must be installed in your system to allow your computer system to recognize the SD-W1101 and SD-W1111 DVD-RAMs. You may also be required to install software that was provided with your DVD/MPEG Card (see DVD/MPEG kit installation instructions).

INSTALLING DVD-RAM SOFTWARE “WRITE DVD” (included with DVD-RAM)

1. Insert “Write DVD” diskette into your A: drive.
2. Go to Start/Run and type *A:\setup.exe* and press OK.
3. Software driver will be installed.
4. Reboot your system.

USING “WRITE DVD”

After installing software, your DVD-RAM drive will be assigned two drive letters. One will be for “read only” media (a CD icon) and the other will be for “DVD-RAM” media (a removable disk icon). The appropriate icon will appear on your desktop depending on what media is installed in your DVD-RAM. Use your DVD-RAM drive just like any other drive on your system. If you want to copy a file from your hard drive to the DVD-RAM, just select file and drag and drop it onto DVD-RAM icon.

Technical Support

Should you require technical support, contact your local distributor. If your distributor is unable to answer your questions, have them call Toshiba Disk Products Technical Support on your behalf.

**Toshiba Disk Products Business Unit
Technical Support
949/455-0407**

Please provide your distributor with the following information before they contact the Toshiba Technical Support Organization:

1. A written, accurate record of any error messages and the sequence of events leading up to the problem.
2. Windows version you are using.
3. Host adapter board and software driver version level you are using.
4. The hardware system configuration of your system including any non-standard hardware.
5. A list of any special additional software or modifications that have been made to the AUTOEXEC.BAT or CONFIG.SYS files.

In addition, please have hardware near the phone or readily accessible. Remember, many problems are caused by the interaction of two or more products in your system. The problem could be related to your latest addition.

You can also obtain technical information and software driver information from our web site at <http://www.toshiba.com>.

Repair Center

Should your DVD-RAM require maintenance, contact Toshiba DPD's Repair Center. In order to return your DVD-RAM a Return Authorization Number (RA#) **must** be obtained from Toshiba's DPD Repair Center (do not send drives without an authorized RA number).

Toshiba Repair Center
510/651-6798
(fax: 510/623-9893)

Warranty

Toshiba America Electronic Components, Inc. (“TAEC”) warrants that all products will, upon delivery by TAEC to the customer in new condition, be free from defects in material and workmanship for a period of twelve (12) months after delivery. TAEC warrants that spare Parts and Accessories will be free from defects in material and workmanship for a period of ninety (90) days. These warranties are effective from the date of shipment by TAEC to the original purchaser and will be extended only to that original purchaser. TAEC will, at its option, repair or replace the defective item under warranty in accordance with TAEC’s published Repair Policy and Procedure.

This warranty is void: (a) if the Products are used under other than normal use and maintenance conditions, (b) if the Products are modified or altered, unless the modification or alteration is expressly authorized by TAEC, (c) if the equipment is subject to abuse, neglect, lightning, electrical fault, or accident, (d) if the Products are repaired by someone other than TAEC, (e) if the serial numbers of the Products are defaced or missing, or (f) if the Products are installed or used in combination or in assembly with products not supplied by and which are not compatible or of inferior quality, design or performance.

This Warranty shall constitute the sole and exclusive liability of the TAEC, it's successors or assigns, in connection with the goods purchased and is in lieu of all other Warranties, expressed or implied, including but not limited to any implied warranty of merchantability, fitness for a particular purpose or fitness for use, and all other obligations or liabilities of TAEC, it's successors or assigns.

Under no circumstances will the customer or any user or other person be entitled to any direct, indirect, special, consequential, or exemplary damages, for Breach of Contract, Tort, or otherwise. Under no circumstances will any such person be entitled to any sum greater than the purchase price paid for the product that is malfunctioning.

This warranty does not apply to expendable parts such as fuses, filters, removable media, and other such parts classified by Seller as expendable.

- All repairs will be performed at TAEC’s Repair facility, except for repairs made at the Purchaser’s site, as specifically agreed by TAEC in writing.
- Purchaser shall bear the cost of shipping to TAEC’s facility those items that fail while under warranty. TAEC shall bear the cost of return shipment to Purchaser’s facility.
- Repairs on products that fail during the new product warranty period are warranted for the remainder of the new product warranty period or 90 days, whichever is the greatest.
- The repair of product that failed after the expiration of the original warranty period is warranted for ninety days from the date the repaired item is shipped back to the customer.
- To obtain service under this warranty, the Purchaser must bring the malfunction of the Product to the attention of TAEC within the twelve (12) month period and no later than thirty (30) days after such malfunction, whichever occurs first. Failure to bring the malfunction to the attention of TAEC, within the prescribed time, will result in the Purchaser being not entitled to warranty service.

Force Majeure: Non-performance by Buyer or Seller shall be excused to the extent that performance is rendered impossible by war, fire, flood, earthquakes, labor disputes, acts of God or the public enemy, or acts of the Government or any other causes beyond the reasonable control of the non-performing party.

General Provisions: The terms and conditions of this Policy shall govern all Releases placed hereunder and implied on any purchase order or acknowledgment form issued by either Buyer or Seller. No other terms or conditions set forth on any purchase order or acknowledgment form shall be binding upon Buyer or Seller unless said terms and conditions are specifically accepted in writing by Buyer or Seller. The failure of Buyer or Seller to enforce at any time this Agreement shall not constitute a waiver of such provisions. If any provision or illegal, it shall be deemed severable from the other validity performance and construction of this Agreement shall be governed by the laws of the State of California. Seller agrees that the Equipment and Spare Parts furnished under this Policy are produced in compliance with all applicable requirements under Sections 6, 7, and 12 of the Fair Labor Standards Act as amended and all valid and applicable regulations and orders of the "Wage and Hour Divisions" issued under Section 14 thereof. Seller also agrees to comply with all provisions of the Equal Opportunity Law of the United States including Executive Order 11246.

Entire Policy: This policy constitutes the entire policy with respect to the subject matter hereof and shall supersede all previous proposals, both oral and written, negotiations, representations, commitments, writings, agreements, and all other communications between the buyer and seller. It may not be released, discharged, changed or modified, except by an instrument in writing signed by duly authorized representative of Toshiba America Electronic Components, Inc.

No person other than an officer of TAEC may extend or modify this warranty. No such modification or extensions are effective, unless it is in writing and signed by the Vice President, General Manager, Disk Products Division.



P/N 470074-B0