TOSHIBA

DVD-ROM DRIVE

SD-M1401
HARDWARE
INSTRUCTION MANUAL

VERSION 6.0
JULY 2002

DVD-ROM DRIVE
Hardware Instruction Manual

For the following DVD-ROM Drive:

SD-M1401

TOSHIBA AMERICA INFORMATION SYSTEMS, INC.
STORAGE DEVICE DIVISION
9740 Irvine Blvd.
Irvine, CA 92618

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

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Printed in USA

WARNINGS

This equipment (an optical disc drive) handled under the conditions out of equipment specifications may cause heavy load, heat generation, malfunction, erroneous operation and performance degradation. Therefore, please handle this equipment properly in compliance with the warnings provided below. In the event that you do not comply with the warnings, Toshiba cannot guarantee the safety, reliability and performance of the equipment expressly provided in the specification. Manufacturers and resellers of the computer system using this equipment and/or this equipment itself shall notify the end-users of the warnings provided herein and ensure them to comply with these warnings in an appropriate manner.

1. This equipment does not involve any over-current protection circuit. Use an appropriate over-current protection in the computer system which this equipment would be connected. Toshiba shall not be liable for any damages to the system which does not have any over-current protection.
2. **DO NOT** disassemble or modify this equipment. Toshiba shall not make any guarantee to the reliability, safety and performance of this equipment expressly provided in the specification and nor be liable for any damages resulting from such unauthorized disassembly or modification.
3. Manufacturers and resellers of the computer system using this equipment shall be required to consider the safety of such computer system and data integrity in order to avoid the risk of any consequential damages caused by data loss or data corruption and any problems or accident caused by malfunction of the computer system.
   DO NOT use this equipment in the system such as medical equipment which may cause personal injury or property damages resulting from malfunction of this equipment and unexpected data corruption or data error in reading operation.
4. Turn off the power for this equipment and wait more than one (1) minute before you eject the disc using the emergency eject mechanism when a disc cannot be ejected for some reasons in order to avoid the risk of damages to the disc.

NOTICE

1. Turn off the system power before mounting/removing this equipment in order to avoid the risk of damages to this equipment.
2. Insert the DC power plug in correct direction in order to avoid the risk of damages to this equipment.
3. Handle this equipment only in electrostatically safe environment and **do not** touch connecting terminals with empty hands when you build in or pull out this equipment from other product in order to avoid the risk of malfunction of this equipment.
4. **DO NOT** do any of the following:
   - **DO NOT** use storage media (CD's / DVD's) that are not the correct size or shape, or **do not** meet the minimum formatting requirements.
   - **DO NOT** insert more than one (1) CD or DVD disc into the drive at any time. Doing so will damage or destroy this equipment and could damage or destroy the disc or cause data loss or corruption.
   - **DO NOT** load or eject any CD or DVD disc with force. Doing so will damage or destroy this equipment and could damage or destroy the disc or cause data loss or destruction.
   - **DO NOT** eject a CD or DVD disc while the drive is in operation. Doing so will damage or destroy this equipment and could damage or destroy the disc or cause data loss or corruption.
   - **DO NOT** insert anything else into the drive other than a CD or DVD disc. Doing so will damage or destroy this equipment.
5. Before you carry or move this equipment, always turn on this equipment and push a eject button to close the disc tray in order to avoid the risk of damages to this equipment. You can not fix the internal unit of this equipment completely if you close the disc tray while power is not on.

CERTIFICATION

This equipment complies with the following standards:
UL 1950 Electrical Business Equipment
CAN/CSA-C22.2 NO: 950-95, Class: 3862 07
TUV EN 60950 1992+A1+A2+A3+A4+A11 / EN 60825.1:1994+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.

Version	*Date Published*	*Revised Contents*
A0	April 2000	Initial release
B0	June 2000	Misc spec changes
C0	November 2000	Jumper changes
D0	December 2000	Added Warning/Notice. Corrected pg 1 & 12
E0	December 2001	Change TAEC to TAIS. E-mail changes.
F0	July 2002	Phone Number Change

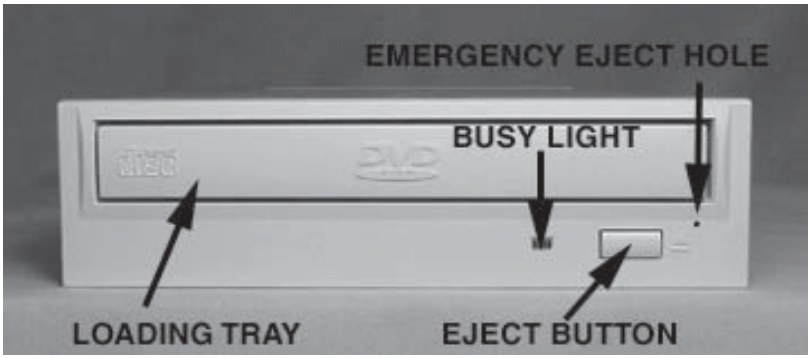
Table of Contents

Introduction

Congratulations on the purchase of your Toshiba SD-M1401 DVD-ROM drive. This manual will provide you with the information you will need to install and operate your new DVD-ROM.

The SD-M1401 combines high storage capacity with unprecedented performance in sound and clarity. Features include:

- **4.38GB Capacity** *single layer/single side*
  15.9GB Capacity *dual layer/double side*
- **Playback Interchangeability** *Playback a disc either for CD-ROM, CD audio, or DVD-ROM.*
- **High Speed Data Transfer Rate** *Possible to playback MPEG2 compressed motion pictures in real time.*
- **Tray Operation** *No need to use a caddy or cartridge. Just open tray, drop in a disc and close tray.*



SD-M1401 Front Panel

DISC FORMATS

The SD-M1401 is capable of reading data from a variety of disc formats, some of which are: CD-ROM, CD-audio, CD-RW†, CD-R†, Photo-CD, DVD-ROM*, and DVD-R*†.

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

† *Read only.*

SCSI DRIVES

The SD-M1401 is a SCSI-2 (Small Computer Systems Interface) device. 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-ROM device via a SCSI cable.

Installing DVD-ROM

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

INSTALLATION REQUIREMENTS

- ❑ SCSI Host Adapter Board and SCSI driver software
- ❑ DVD/MPEG Card *(Optional)*
- ❑ SCSI Interface Cable

INSTALLATION

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

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

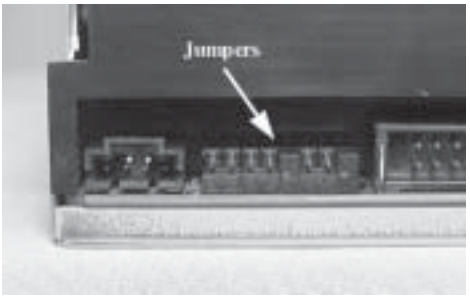
IMPORTANT NOTE

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

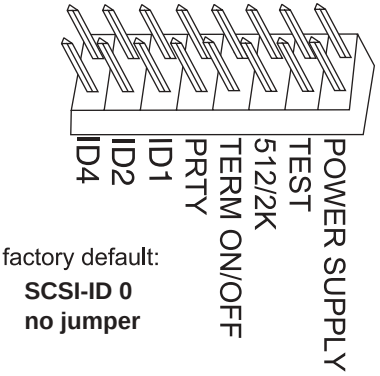
DVD-ROM JUMPER SETTINGS

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

Locate the block of jumper pins on the back left side of the DVD-ROM. *(Note: additional jumpers are provided with your drive.)*



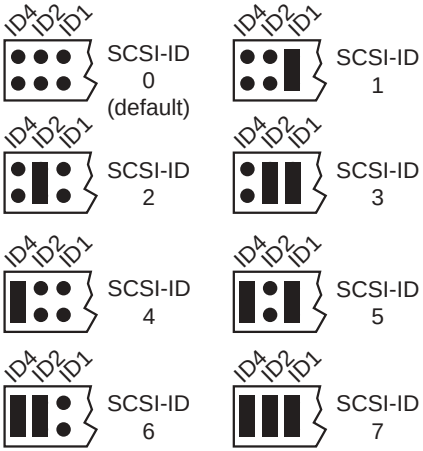
Jumper Location



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 covered, the jumper is OFF. This section will discuss the following jumper settings: SCSI ID, Parity, Termination, Eject, Test/Audio Playback Jumper, and Power Supply.

SCSI ID

All SCSI devices attached to your computer are assigned a SCSI ID number from 0 to 7. Your DVD-ROM'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-ROM will come set to SCSI ID 4. If your DVD-ROM is the only SCSI device connected to your computer, you should leave the jumpers as they are. If you have additional SCSI devices (a 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.

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 SD-M1401 DVD-ROM is not at the end of the chain, then terminator jumper is not required.

512/2K (Block Size Selectability)

This jumper is used to select default block size. When the jumper is present, the default block size equals 512Bytes, when the jumper is not present, the default block size is 2048Bytes. This is effective for CD media only, not DVD media.

Test (Audio Playback Jumper)

This setting selects the drive operation between normal CD-ROM and CD-Audio player mode. When jumper is set to ON position (jumper present), commands from the host computer are ignored (note: SCSI-ID must be set to 0). This jumper is for test purposes only and should be set to OFF (no jumper present) for proper CD-ROM function.

Power Supply (Termination Power Jumper)

Toshiba SCSI DVD-ROM drives can supply power to other equipment on the SCSI BUS. When the jumper is ON, the drive will supply termination power. At least one device on the SCSI BUS must supply the termination power. If you're not sure if any other device supplies termination power, it is fine to leave the jumper ON.

PLACING DVD-ROM INSIDE YOUR COMPUTER

You are now ready to install your DVD-ROM 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-ROM installation).

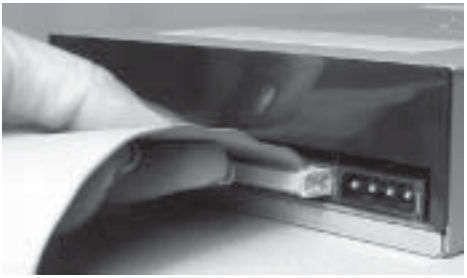
The SD-M1401 DVD-ROM drive can be placed in any free half-height drive slot at the front of your computer. (It can be mounted horizontally or vertically.) You most likely will have to remove the cover plate which conceals the front of the open slot (see your computer book on how to remove panel).

Carefully start sliding the DVD-ROM 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-M1401

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-ROM. 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-ROM 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-ROM circuits may occur if power cable is plugged in upside-down.

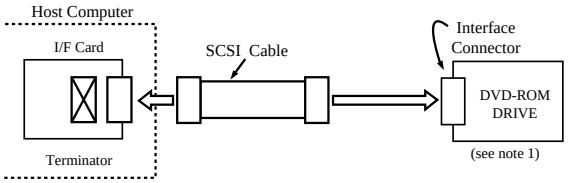
If there is no power cable in your system, contact your computer dealer. You may need a "power splitter lead" (a Y shaped cable which taps two power outputs from one input).

Installing Power Cable

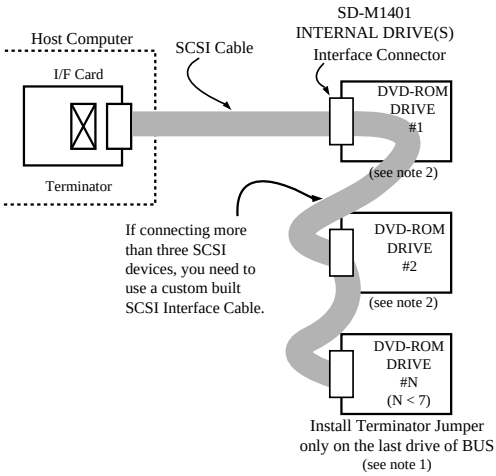
Audio (optional) - If you have a sound card and speakers, and would like to play audio CDs on your computer, you will need to install a CD/DVD-ROM audio cable. Toshiba's DVD-ROMs use a standard 4-pin CD/DVD-ROM audio cable that can be purchased from most local computer suppliers. The sound cable connects to your sound card at one end and the other end connects to the digital audio connector at the left rear of the DVD-ROM (see DVD-ROM Back Panel photo for location). 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.

Installing Audio Cable

Daisy-Chaining **-** If the DVD-ROM 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-ROM drive must have the jumper installed when the drive is the last device in the chain.



SD-M1401 CONNECTION (ONE DRIVE)



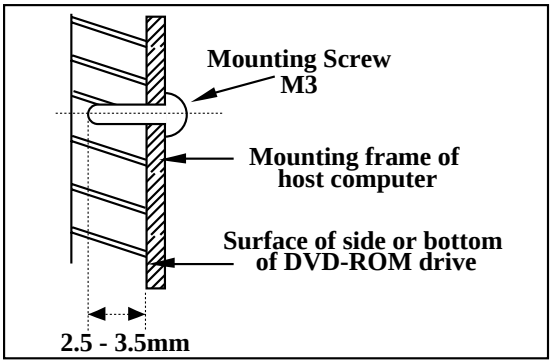
SD-M1401 DAISY-CHAIN CONNECTION (MULTIPLE DRIVES)

Notes:

1. Terminator jumper must be jumpered when DVD-ROM 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-ROM completely into the slot. There are eight screw holes on the SD-M1401 that are used to mount the DVD-ROM into your computer, four on the bottom and two on each side. Use either the four bottom screw holes or the four 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-ROM to tip of screw). A clearance of 5mm should surround the DVD-ROM to allow for adequate circulation. A 0.9mm clearance should be maintained around the top cover in order to provide space to absorb shock and vibration. Replace the computer's cover and all outer screws.



Mounting DVD-ROM

SOFTWARE

If the SCSI host adapter software driver is not already installed in your system, when you apply power to your computer and boot-up, the system should recognize the new SCSI host adapter. Your system will also prompt you to install the SCSI host adapter software driver. If you don't have the SCSI software driver, contact your SCSI host adapter board manufacturer.

Using your DVD-ROM

THE CONTROLS

The SD-M1401 DVD-ROM drive has the following controls and features:

- DVD Loading Tray
- Busy Light
- Eject Button
- Emergency Eject Hole

THE FRONT PANEL

SD-M1401 Front Panel

(1) Loading Tray - Load disc using tray.

(2) Busy Light - When a disc is loaded in the drive, the Busy Light flashes slowly as the drive attempts to locate the disc. Then one of the following will occur:

- BUSY light goes out - The DVD-ROM drive is ready to read data from the disc.
- BUSY light stays on - The media has a problem.
- BUSY light blinks at 1.6 second intervals - The DVD-ROM drive is playing an audio track.
- BUSY light stays on after a command is given - The DVD-ROM drive is accessing or transfering data.

(3) Eject Button **-** Used to open the disc tray so you can install or remove a disc.

(4) Emergency Eject Hole **-** The emergency eject hole is to be used *only* when the DVD tray will not open when eject button is pressed. See page 15 for additional information.

THE BACK PANEL

SD-M1401 Back Panel

(1) Audio Out Connector **-** Outputs CD audio on the SD-M1401.

(2) Mode Select Headers (jumpers) **-** Selects SCSI ID, Parity, Termination, 512/2K Block Size, Test, and Power Supply.

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

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

OPERATING THE DVD LOADING TRAY

To open the DVD loading tray, just press the Eject button. After inserting or removing a disc, press the Eject button again.

Vertical Installations

If you are loading a disc in a SD-M1401 drive that has been mounted vertically, perform the following procedures:

1. The four disc holders are located at the top and bottom of the vertical tray.
2. Position the disc so that the bottom disc holders catch the disc. The disc will not be secured by the top disc holders.

3. Close the drive by gently pushing the tray in or pressing the Eject button.

EMERGENCY EJECT

CAUTION!

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

Inserting Bar to Eject DVD Tray

1. Turn DVD-ROM drive power OFF.
2. Insert a solid bar (i.e. large paper clip*) into Emergency Eject hole and push in as shown in the picture below.
3. DVD tray will open/eject.

This procedure cannot be repeated without cycling the DVD-ROM's power. After the media is removed and the loading tray is closed, the tray will not reopen without first turning the power ON/OFF.

* Use a bar that is less than 1.5mm in diameter. Do not insert more than 50mm in depth as this may damage the drive.

Specifications

The following describes the specifications of the SD-M1401 DVD-ROM. *(Specifications are subject to change without notice.)*

PERFORMANCE

- *Disk Formats*[1]

DVD	DVD-ROM, DVD-R
CD	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, CD-I, CD-I Bridge (Photo-CD, Video-CD), Multisession CD (Photo-CD, CD-EXTRA, CD-R, CD-RW), CD-R (read), CD-RW (read)

[1]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-ROM	2,048 bytes/block
CD-ROM	2,048 bytes/block (mode 1)
	2,336 bytes/block (mode 2)

- *Rotational Speed*

DVD	5,800rpm (4.1-10X) approx.
DVD-R	1,100-2,800rpm (2X) approx.
CD-ROM, CD-R	8,500rpm (17.2-40X) approx.
CD-RW	4,300rpm (8.6-20X) approx.
CD-DA Transfer	1,800-4,300rpm (8.6X) approx.
CD-DA, Video-CD	1,200-2,000rpm (4-5.7X) approx.

- *Transfer Rate*

DVD	5,540-13,500KB/second
CD	2,595-6,000KB/second (mode 1)
	2,959-6,843KB/second (mode 2)

- *Access Time*
  - Average Random Access Time:
    DVD[2] 105ms (typ)
    CD[3] 85ms (typ)
  - Average Random Seek Time:
    DVD[4] 1000ms (typ)
    CD[5] 80ms (typ)
  - Average Full Stroke Access Time:
    DVD[6] 210ms (typ)
    CD[7] 190ms (typ)

- *Data buffer* 128 Kbytes

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

- *Power Supply* +5, +12 volts

[2]Measured by performing multiple accesses which refer to reads of data blocks over the whole area of the media from 0 (h) block to 1E7725(h) (4.089 billion byte:87% of total area) block more than 3,000 times. Includes positioning, setting, latency time, and ECC implementation time (if required).

[3]Measured by performing multiple accesses which refer to reads of data blocks over the whole area of the media from 00 min. 02 sec. 00 frame to 60 min. 01 sec. 74 frame (552.96 million bytes:87% of total area at linear velocity of 1.3 m/s) more than 3,000 times. Includes positioning, setting, latency time, and ECC implementation time (if required).

[4]Measured by performing multiple seek which refer to seeks of data blocks over the whole area of the media from 0 (h) block to 1E7725(h) block more than 3,000 times. Includes positioning, setting time which has the same definition as HDD.

[5]Measured by performing multiple seek which refer to seeks of data blocks over the whole area of the media from 00 min. 02 sec. 00 frame to 60 min. 01 sec. 74 frames more than 3,000 times. Includes positioning, setting time which has the same definition as HDD.

[6]Measured by performing maximum accesses which refer to reads of each data block of 0 (h) block and 1E7725(h) block alternately more than 100 times. Includes positioning, setting, latency time, and ECC implementation time (if required).

[7]Measured by performing maximum accesses which refer to reads of each data block of 00 min. 02 sec. 00 frame and 60 min. 01 sec. 74 frames alternately more than 100 times. Includes positioning, setting, latency time, and ECC implementation time (if required).

ENVIRONMENTAL CONDITIONS

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

RELIABILITY

- *Error Rate*

  DVD

Read Error Rate	10^{-15} (max)
Seek Error Rate	10^{-6} (max)

  CD

Read Error Rate (mode 1)	10^{-15} (max)
Read Error Rate (mode 2)	10^{-12} (max)
Seek Error Rate	10^{-6} (max)

- *MTBF* 100,000 hours
- *MTTR* 0.5 hours
- *Drive Life* 15,000/hours or 5 years
- *Load/Eject* 10,000 times or more
- *Interface Connector Attach/Detach* 20 times or more
- *DC Power Connector Attach/Detach* 20 times or more

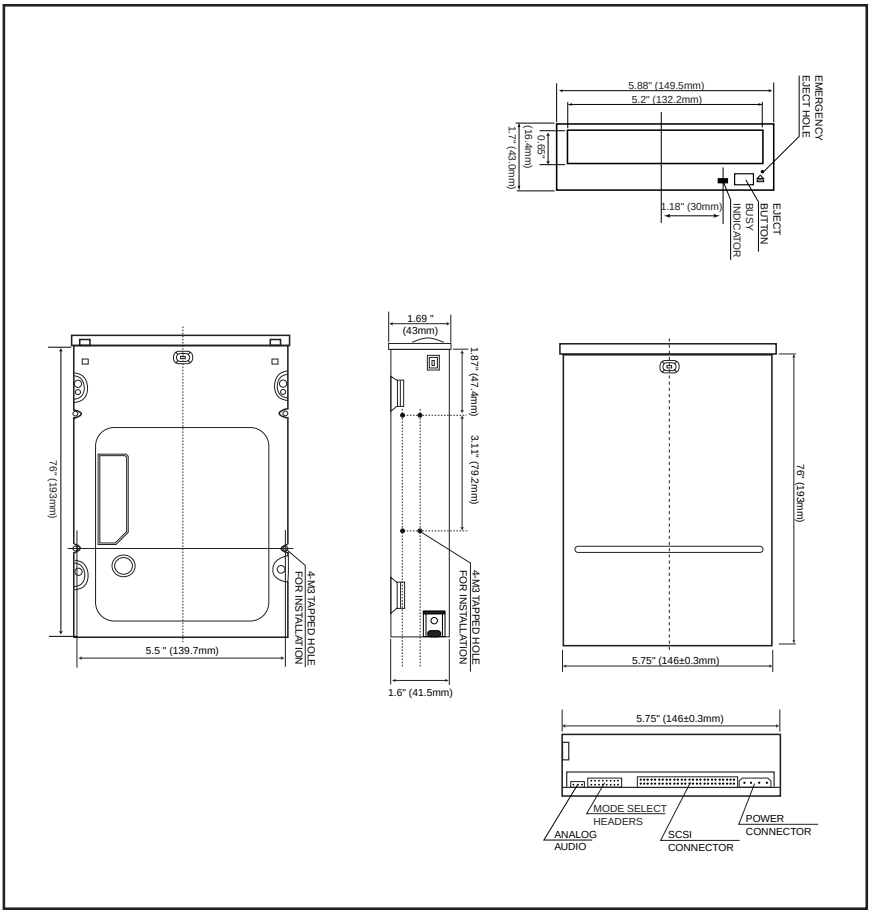
PHYSICAL CHARACTERISTICS

- *Dimensions and weight*

  Dimensions: 5.75 x 7.6 x 1.63 inches (146 x 193 x 41.5 mm)

  Weight: 2.09 lbs (0.95 Kg)

- *Operating position* ±20° Horizontal and ±10° Vertical



External Dimensions

Technical Support

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

Toshiba Storage Device Division
Technical Support
805/644-6350

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 sequenceof 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 obtain technical information and software driver information from our web site at http://www.sdd.toshiba.com or email technical support at: toshibadpd@teleplan-ventura.com.

Repair Center

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

Toshiba Repair Center
510/651-6798
(fax: 510/623-9893)
email: sdd@pcs-sj.com

Warranty

Toshiba America Information Systems, Inc. ("TAIS") warrants that all products will, upon delivery by TAIS to the customer in new condition, be free from defects in material and workmanship for a period of twelve (12) months after delivery. TAIS 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 TAIS to the original purchaser and will be extended only to that original purchaser. TAIS will, at its option, repair or replace the defective item under warranty in accordance with TAIS'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 TAIS, (c) if the equipment is subject to abuse, neglect, lightning, electrical fault, or accident, (d) if the Products are repaired by someone other than TAIS, (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 TAIS, 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 TAIS, 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 TAIS's Repair facility, except for repairs made at the Purchaser's site, as specifically agreed by TAIS in writing.
- Purchaser shall bear the cost of shipping to TAIS's facility those items that fail while under warranty. TAIS 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 TAIS 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 TAIS, 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 of Seller. No other terms or conditions set forth on any purchase order of 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 Information Systems, Inc.

No person other than an officer of TAIS 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, Storage Device Division.

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