



aiwa

TD-S8000

TAPE DRIVE

Hardware Installation Manual

To Call Technical Support
AIWA Data Products Services Inc.
(800) 274-7425
8:00AM to 9:00PM eastern standard time,
Monday through Friday

OWNER'S RECORD

For your convenience, record the model number and serial number (you will find them on the bottom of your set) in the space provided below. Please refer to them when you contact your AIWA dealer in case of difficulty.

Model No. Serial No.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

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QIC-WIDE is a trademark of SONY Corporation.

Windows, Windows 95 and Windows NT are trademarks of Microsoft Corporation.

Pentium is a registered trademark of Intel Corporation.

All other names and product names are the property of their respective owners.

Important Notes on Operation

Limitation of liability

Under no circumstances can Aiwa Co., Ltd. accept liability for incidental or consequential damage to data recorded on tapes due to malfunctions or improper operation of this unit.

Warning

- Do not attempt to disassemble or modify this unit. Doing so can result in malfunctions or accidents.
- Do not insert your fingers or other parts of the body into the tape insertion slot. Doing so can result in injury. Be especially careful to keep the hands of small children away from this unit. Do not insert foreign objects into this unit. Doing so can result in malfunctions.
- While this unit is operating, the bottom of the tape cartridge becomes hot. Be careful not to touch it, as this can result in burns.

Caution

- Before beginning the job of installing this unit, disconnect the computer and any connected peripherals from the AC power supply. Carrying out the job while the computer is still connected to the power supply can result in electric shock. After disconnecting the computer from the AC power supply, wait until all components have cooled down before beginning work.

Before beginning the installation, read carefully the instructions with this unit, and observe all warnings and cautions.

- Do not use this unit when it is affected by condensation: this can result in damage to the read/write head, or jammed or broken tapes. The same problems can result when there is condensation inside a tape cartridge. After moving a tape cartridge from a cold to a warm place, wait for two or three hours before inserting it in this unit.

Discharging static electricity

Electronic equipment is very sensitive and may be damaged by static electricity. Before beginning the installation procedure, use the following procedure to discharge any static electricity present:

Hold this unit (still wrapped in its antistatic bag) and ground yourself by touching an unpainted part of the computer system unit chassis with the other hand.

It is important to repeat this grounding process whenever resuming the installation procedure.

Read/write head cleaning

Never power on this unit when cleaning the read/write head with a lint-free cotton swab moistened with more than 90% isopropyl alcohol, until the read/write head is dry.

After cleaning, wait for at least 10 minutes for the read/write head to dry completely before powering on. Failure to do so will damage the head electrically.

Cartridge retensioning

A retensioning pass (running the tape from end to end) is strongly recommended when (a) the cartridge is first loaded into a drive, (b) the cartridge is exposed to temperature changes of 16°C or more, or (c) one section of tape has been used excessively in a single operating period.

Operating conditions

To keep this unit working properly, follow these guidelines.

- Do not operate this unit in a dusty environment.
- Clean the read/write head at the recommended intervals. (*See page 20*)
- Do not leave a tape cartridge loaded when the computer system is not in use.
- Do not remove the tape cartridge when the drive is being accessed (when the indicator blinks).
- Keep tape cartridges away from magnetic fields, sunlight, extreme humidity and extreme temperatures.
- Store tape cartridges in their protective cases.
- Do not use this unit where it may be subject to vibration or shock.

Overview

This tape drive is designed as a backup device for installation into an IBM PC or an IBM compatible PC that has a SCSI host adaptor. This unit can be installed into a 5.25-inch drive bay.

This unit supports the single-ended FAST-SCSI (SCSI-2), so that the data between this unit and the PC will be transferred at the maximum 10MB/sec speed.

This unit can read and write QIC-3095 formatted data, and it has 8GB of compressed data storage capacity.

This unit has capability of reading QIC-3020, QIC-3010, and QIC-80 formatted data.

Compatibility and Capacity

QIC Format	Tape Cartridge		Read	Write	Capacity	
	Type	Model Number			With Compression*	Without Compression
QIC-3095	TRAVAN	IMATION (3M) TR-4	Yes	Yes	8GB	4GB
QIC-3020	TRAVAN	IMATION (3M) TR-3	Yes	No	–	1.6GB
QIC-3020	QIC-EXtra	Verbatim TR-3 EXtra	Yes	No	–	2.2GB
QIC-3020	QIC-EXtra	Verbatim MC3020EXtra	Yes	No	–	1.6GB
QIC-3020	QIC-WIDE	Sony QW3020XLF	Yes	No	–	850MB
QIC-3020	XL	IMATION (3M) MC3000XL-TAUMAT	Yes	No	–	680MB
QIC-3010	TRAVAN	IMATION (3M) TR-2	Yes	No	–	800MB
QIC-3010	QIC-WIDE	Sony QW3010XLF	Yes	No	–	425MB
QIC-3010	XL	IMATION (3M) MC3000XL-PIMAT	Yes	No	–	340MB
QIC-80	TRAVAN	IMATION (3M) TR-1	Yes	No	–	400MB
QIC-80	QIC-EXtra	Verbatim TR-1 EXtra	Yes	No	–	500MB
QIC-80	QIC-EXtra	Verbatim DC2120 EXtra	Yes	No	–	400MB
QIC-80	QIC-WIDE	Sony QW5122F	Yes	No	–	200MB
QIC-80	XL	IMATION (3M) DC2120XL	Yes	No	–	170MB
QIC-80	2120	IMATION (3M) DC2120-XIMAT	Yes	No	–	120MB
		Sony QD2120	Yes	No	–	120MB
QIC-80	2080	IMATION (3M) DC2080-XIMAT	Yes	No	–	80MB
		Sony QD2080	Yes	No	–	80MB

Note

* The figures for capacity with compression are calculated on the basis of 2:1 compression ratio.

The compression is carried out by software, and the compression ratio depends on the data being compressed.

AIWA recommends IMATION (3M) tape cartridge for reading and writing data with this unit.

The 3M cartridges are supplied by Imation Enterprises Corporation.

Note

This unit can read QIC-3020, QIC-3010 and QIC-80 formatted data. If using the following tape cartridges, this unit may not read the data.

- **Tape cartridges not listed in the table on page 6**
- **Tape cartridges which have been used excessively**
- **Tape cartridges which have been dropped so that the aluminum base plate is bent**
- **Tape cartridges recorded on a tape drive with inadequate writing characteristics**
- **Tape cartridges which have been stored incorrectly:**
 - : **with dust or fingerprints adhering to the surface of the tape**
 - : **subjected to environmental conditions outside the specified temperature and humidity ranges for storage**

Checking System Prerequisites

Before you install this unit on your computer, make sure that you have all the necessary hardware and information you'll need.

Hardware Requirements

To install this unit, your computer must be a 386-, 486-, or Pentium-based computer that has the following:

- An available 5.25-inch drive bay, half height.
- An installed single-ended SCSI host adaptor with capacity for an additional device and:
 - The appropriate Advanced SCSI Programming Interface (ASPI) driver for the adaptor.
- A CD-ROM drive to install the backup software.

If your computer does not meet these prerequisites, contact your computer dealer or manufacturer to upgrade your system.

Operating System Requirements

This unit works with either of the following operating systems:

- Microsoft Windows NT Workstation (version 4.0)
- Microsoft Windows 95
- Microsoft Windows (version 3.1 or later)

Tool Requirements

A medium-sized Phillips head screwdriver and flat-blade screwdriver

Overview

About the SCSI

SCSI stands for Small Computer System Interface, which is an industry standard for connecting computer peripherals to personal computers.

A SCSI Daisy Chain is a series of SCSI devices connected to a single SCSI host adaptor. A cable connects the adaptor to the first device on the chain, another cable connects the first device to the second, and so on.

The SCSI daisy chain must be terminated at both ends. One end is terminated by the SCSI host adaptor or by a computer's internal peripheral. On this unit, the SCSI daisy chain is terminated if the termination DISABLE Jumper on SCSI Jumper Switches is in the "OFF" position.

SCSI ID is an address number from 0 to 7 that is assigned to each SCSI device. Each SCSI device must have a different SCSI ID. The SCSI host adaptor itself is usually assigned ID 7, leaving 0 through 6 available for devices attached to the adaptor.

Discharging Static Electricity

Electronic equipment is very sensitive and may be damaged by static electricity. Before beginning the installation procedure, use the following procedure to discharge any static electricity present:

Hold this unit (still wrapped in its antistatic bag) in one hand, and ground yourself by touching an unpainted part of the computer system unit chassis with the other hand.

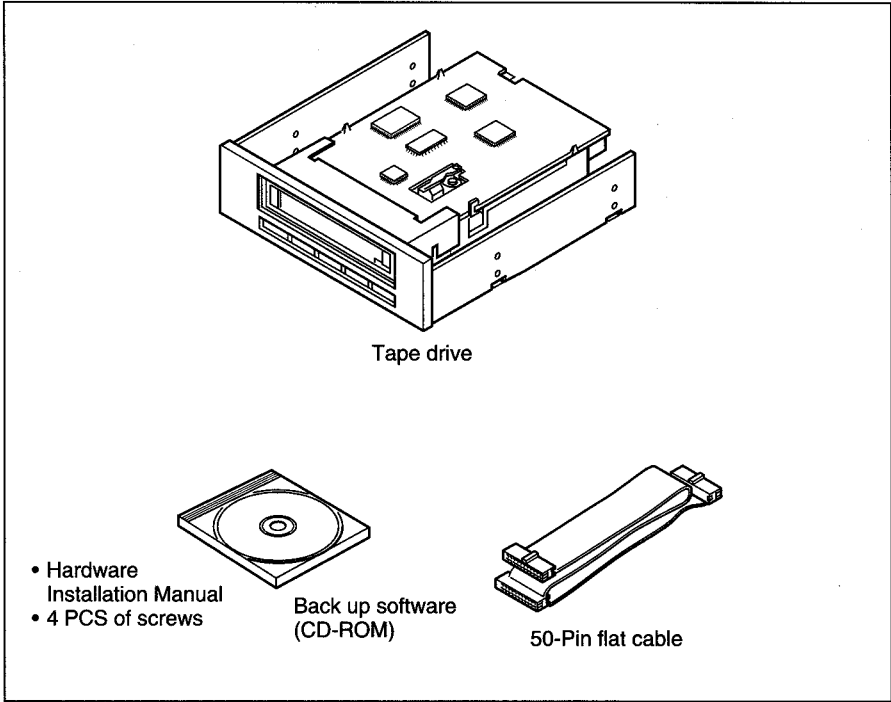
Remove the antistatic bag, being careful not to touch the components.

When performing the installation procedure, touch the unpainted metal surface of the computer as often as possible to prevent static charges from accumulating on your body.

Preparation

Checking the Contents of the Package

Before installing this unit in your computer, make sure that the package contains the following items.

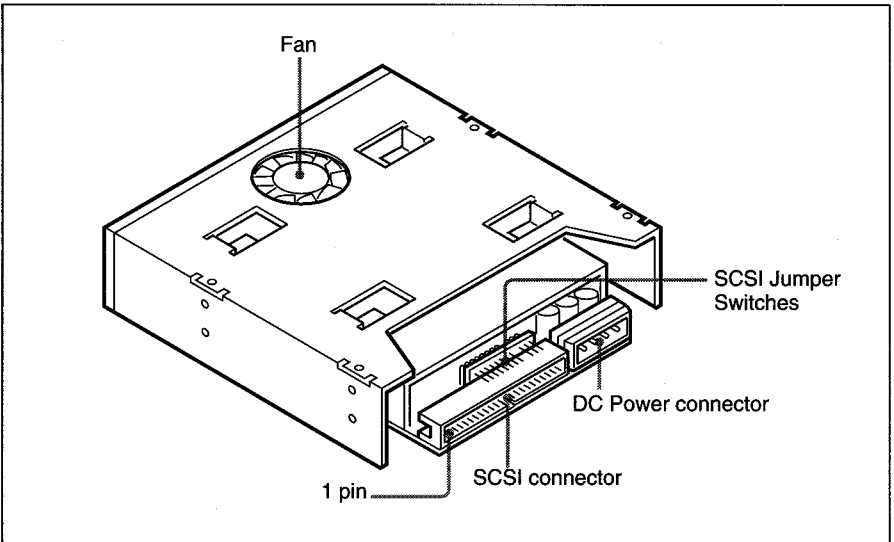
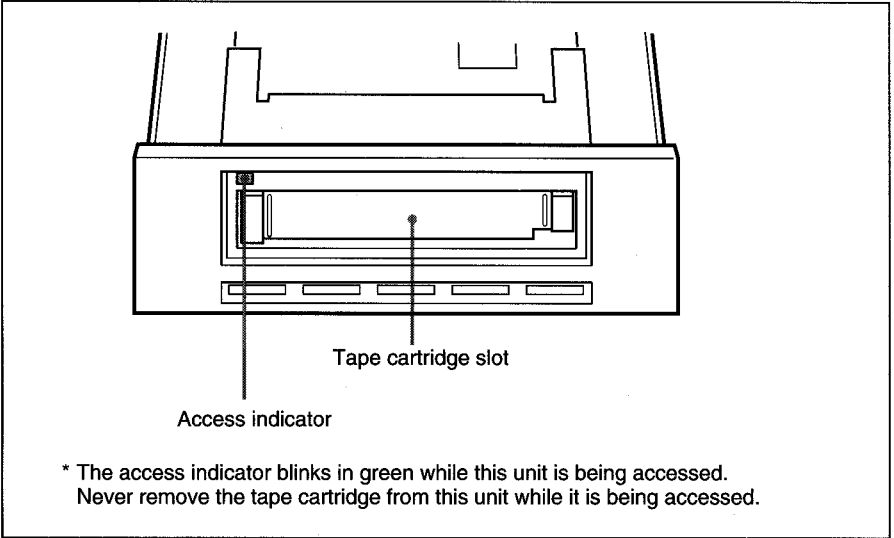


Note

Remember to keep all packing materials for later use, especially the polystyrene foam cushioning and the antistatic bag which contains the tape drive.

Preparation

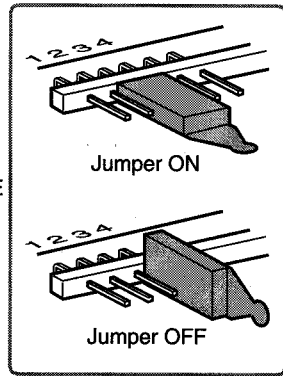
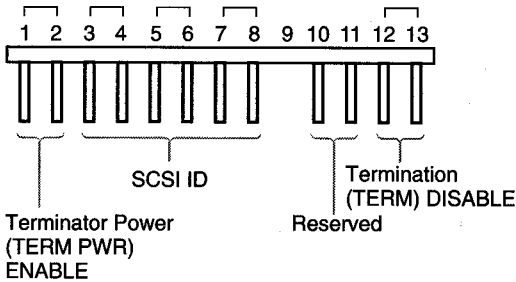
Names and Function of Parts



SCSI Jumper Switches

The illustration and tables below show the SCSI jumper switch settings. In the tables, "ON" means that a jumper is placed over the pair of pins indicated. "OFF" means that the jumper is removed (or attached to one pin only).

Normally, set the SCSI Terminator Power jumper to "OFF" (disabled). If, however, your host SCSI adaptor does not supply Terminator Power, set it to "ON" (enabled).



Pins	Pins	Pins	SCSI ID
3-4	5-6	7-8	
OFF	OFF	OFF	0 (Factory Setting)
OFF	OFF	ON	1
OFF	ON	OFF	2
OFF	ON	ON	3
ON	OFF	OFF	4
ON	OFF	ON	5
ON	ON	OFF	6
ON	ON	ON	7

Pins 1-2	ON = SCSI Terminator Power enabled
	OFF = SCSI Terminator Power disabled. (factory setting)
Pins 12-13	ON = SCSI Termination disabled
	OFF = SCSI Termination enabled. (factory setting)

Note

New SCSI ID and SCSI termination settings only take effect after this unit and the host computer have been powered off and then on again.

SCSI ID Settings

Before you power off the computer, check the SCSI ID numbers for any existing SCSI devices so you can avoid assigning this unit an ID that is already in use. If you use a SCSI ID number the same as other existing SCSI devices, your computer system will not boot-up.

SCSI ID 0 is usually assigned to a hard disk drive; and ID7 is assigned to the SCSI adaptor itself.

The typical methods of checking the SCSI ID numbers are followings:

(1) Most computers display a list of their SCSI devices and ID numbers during the boot-up process.

Press the [Pause] key on the keyboard during boot-up to halt the scrolling and view the SCSI list.

(2) Some computers or host SCSI adaptors come with a utility that lists the SCSI devices and their SCSI IDs.

For example, Adaptec SCSI host adaptors come with a Windows software tool called SHOWSCSI.EXE.

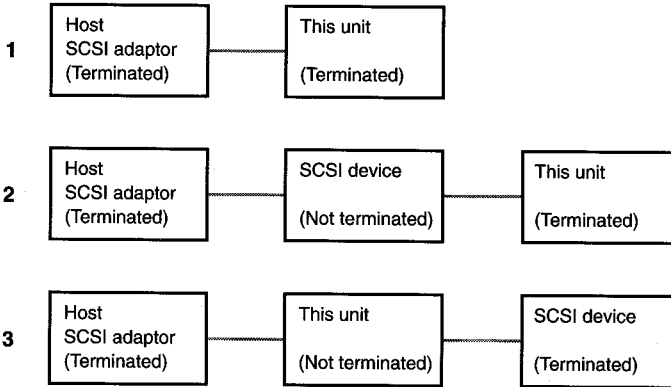
Use the utility to check the SCSI ID numbers.

After looking for an unused SCSI ID number for this unit, close down all applications, power off the computer and any peripherals, and unplug them from the AC power outlets.

- Set the SCSI ID number for this unit by changing the position of the SCSI jumper switch (Refer to page 11).
- The possible settings are from 0 to 7, inclusive.
- The new SCSI ID setting only takes effect after both this unit and the host computer have been powered off and on again.

SCSI Termination Settings

The following illustrations show the SCSI Termination for three SCSI daisy chain configurations. Referring to page 11 and the following illustrations, decide the SCSI Termination setting of this unit.



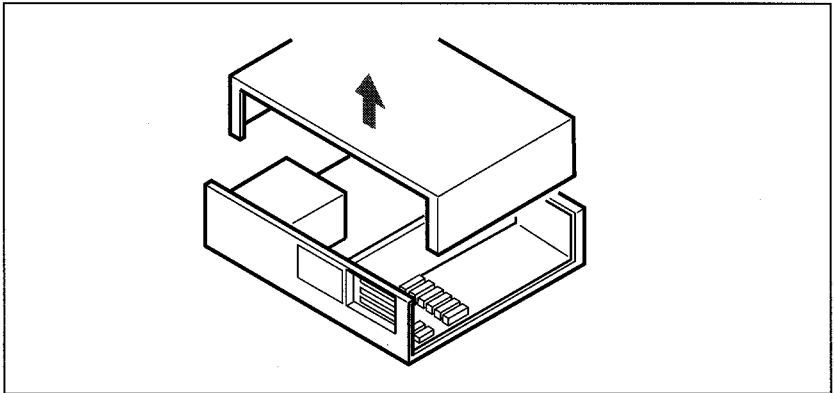
- If connecting this unit at the end of the SCSI daisy chain (illustrations 1 and 2), set SCSI Termination jumper to the OFF (ENABLE) position.
- If connecting this unit at an intermediate point in the SCSI daisy chain(illustration 3), set it to the ON (DISABLE) position.
- A new SCSI termination setting only takes effect after this unit and the computer have been powered off and then on again.

Installation

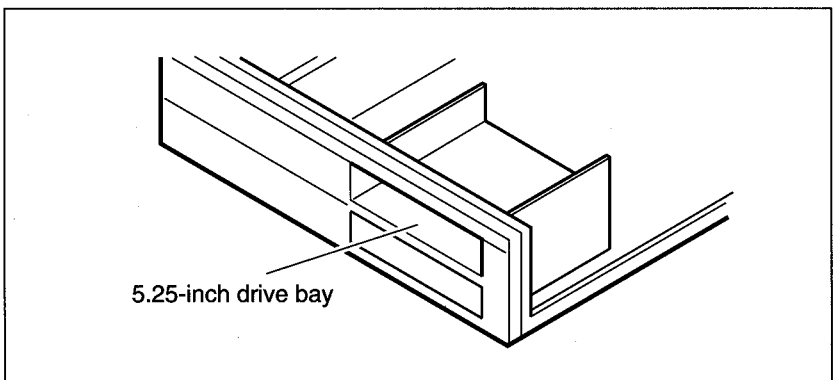
Warning

While performing , be careful not to injure your hands on any sharp edges.

- 1** Power off the computer system, then disconnect the computer and any peripherals from the AC power outlet.
- 2** Remove the cover of the computer, referring to the computer manual for details on removing the cover.

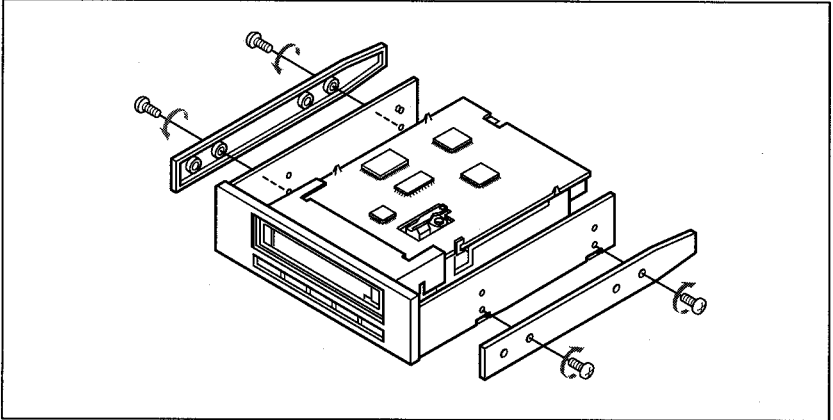


- 3** Remove the cover plate from the 5.25-inch drive bay which you intend to use.



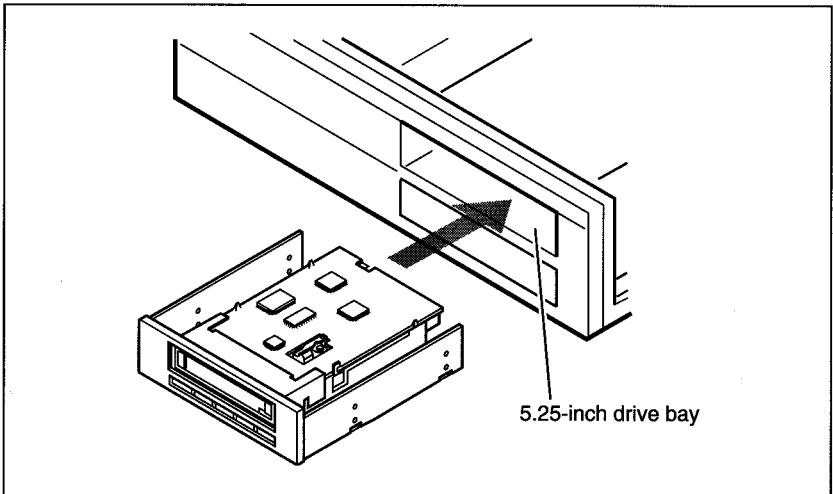
4 Attach side rails to the conversion kit if your drive bay requires them.

AIWA does not supply side rails. If your computer requires them, consult your computer supplier.



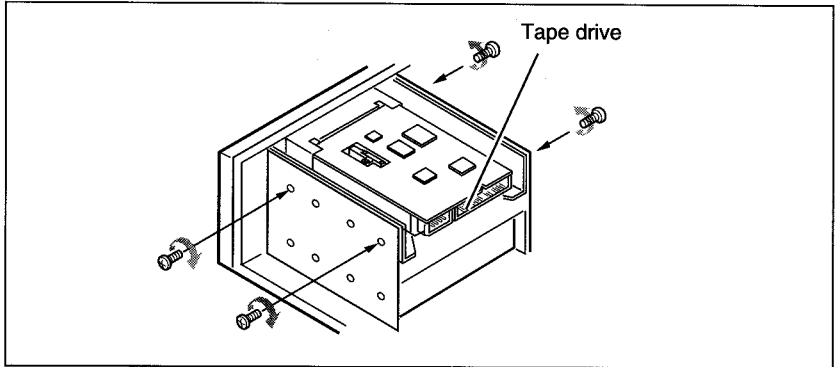
5 Slide this unit into the drive bay.

Before sliding this unit into the 5.25-inch drive bay, make sure that the SCSI jumper switches of this unit have been correctly set.



Installation

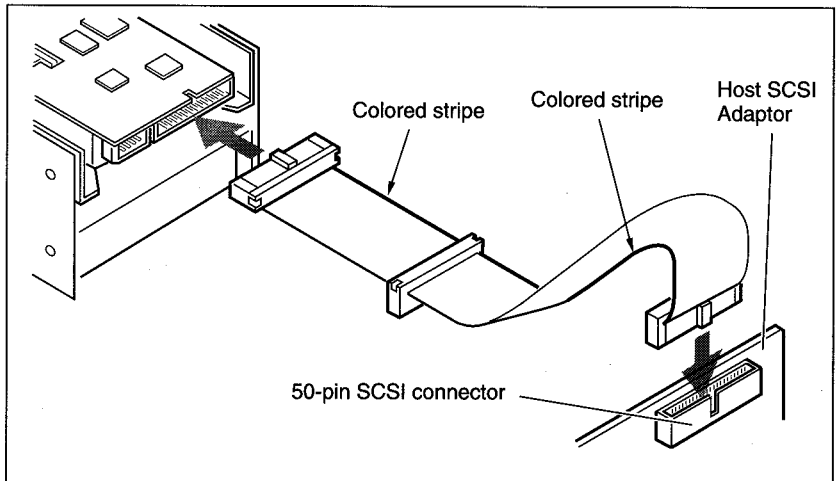
- 6** If required, secure this unit in the drive bay using the screws supplied with this unit.



7 Connecting 50-pin SCSI flat cable

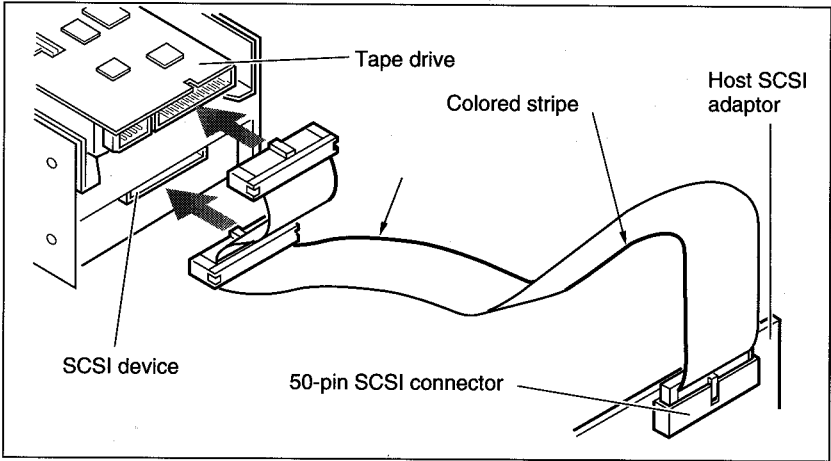
7-1

- If there is no other SCSI device, connect this unit with the host SCSI connector using the cable supplied with this unit as shown below.



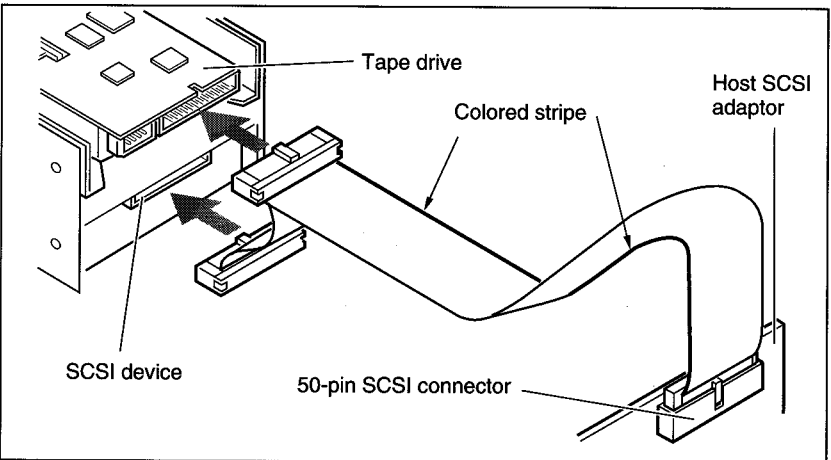
7-2

- If connecting this unit at the end of the SCSI daisy chain, connect the SCSI flat cable with this unit as shown below.



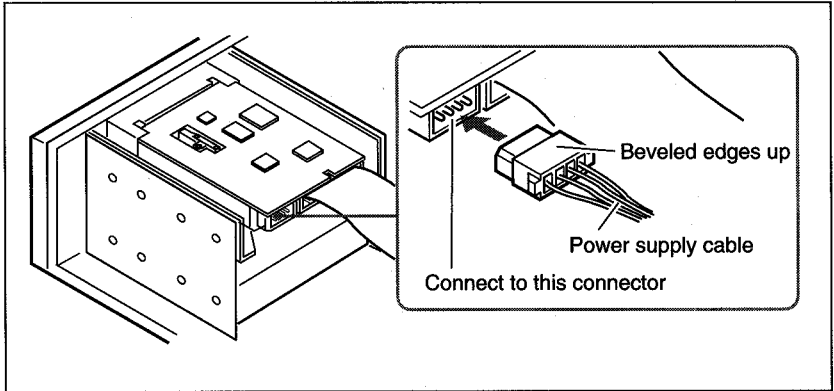
7-3

- If connecting this unit at an intermediate point in the SCSI daisy chain, connect the SCSI flat cable with this unit as shown below.



Installation

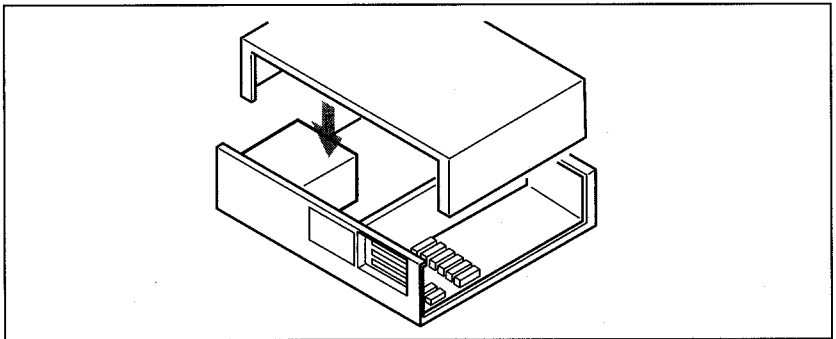
- 8** Find an unused power supply cable inside your computer and connect it to the rear of this unit.



- 9** Arrange the cables to fit them under the cover of the computer and replace the computer cover.

Note

To prevent a read/write error, do not lay the 50-pin SCSI flat cable too close to the power supply unit.



- 10** Connect the power cord and power on the computer.

This completes the hardware installation operation.

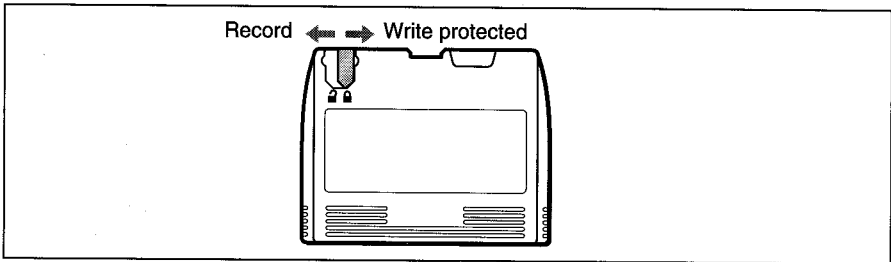
See "Important Notes on Operation" (*pages 4 and 5*) for precautions to take during operation.

Drive Operation and Maintenance

Write Protection

The tape cartridge has a Write-Protect function to prevent recording over existing data on tape. A red Write-Protect tab is located on the top side of the tape cartridge in the upper left corner.

To write protect a tape cartridge, slide the tab completely to the right (locked position). To allow writing to the tape cartridge, slide the tab completely to the left (unlocked position).



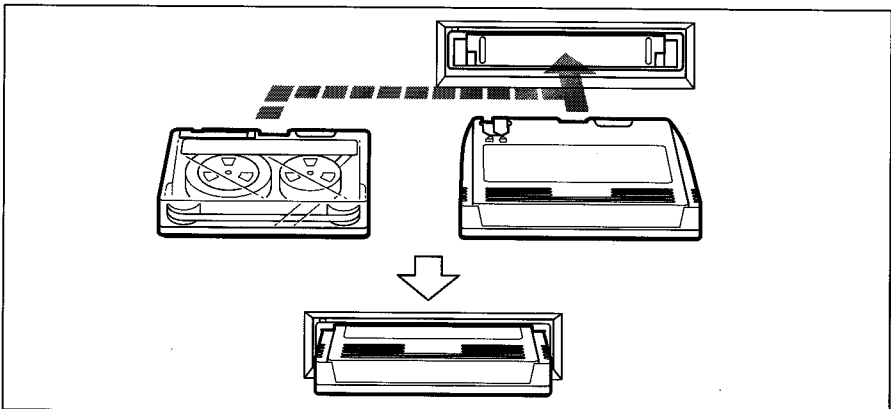
Inserting and Removing Tapes

Hold the tape cartridge and insert it as illustrated below. Push the cartridge in until it locks into place with a click.

When the cartridge is loaded, the Access indicator on the front panel blinks in green.

Once the cartridge is ready for operation at Beginning-Of-Tape (BOT), the Access indicator goes off.

Note that the indicator blinks in green whenever this unit is being accessed. Do not remove the cartridge from this unit while it is being accessed.



Drive Operation and Maintenance

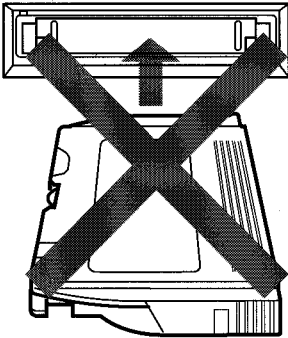
The color of the access indicator will show the state of the unit as shown below.

Color	State	Meaning
—	Off	Tape stopped at BOT or no tape in this unit.
Green	On	Tape stopped, but not at BOT.
	Blinking	Tape in motion
Red	Blinking	Tape drive failure or tape failure

Note

If the access indicator blinks in red, remove the cartridge from the unit, then re-insert it. If the indicator still blinks in red, use a new tape cartridge.

Warning



Be careful to insert the cartridge the correct way round. If inserted sideways, it can damage the read/write head.

Cleaning the Read/Write Head

Caution: The Read/Write Head damage

This unit adopts the MR(Magneto Resistive) Head for the read/write head so that the high density recording is realized. The MR Head is however very sensitive to moisture.

To avoid damaging the head as cleaning:

- Power off your computer before cleaning the head by using a lint-free cotton swab moistened with more than 90% isopropyl alcohol.
- Wait for at least 10 minutes for the head to dry completely.
- Never use QIC-80 Cleaning Cartridge or QIC-80 Cleaning Kit.

Failure to do so will electrically damage the head.

There are two kinds of methods to clean the read/write head.

- One is the method to use the Geneva C³ IRTTAPE Cleaning Cartridge.
- Another is the method to use a swab which is dampened with more than 90% isopropyl alcohol.

Clean the read/write head of this unit in the following cases:

After a new tape cartridge is used.

If a data error occurs.

After every 8 hours of tape operation.

Cleaning the Read/Write Head with the Geneva Cleaning Cartridge

Before cleaning the read/write head, make sure your computer system is powered on.

Follow the instructions included with the cleaning cartridge.

Note

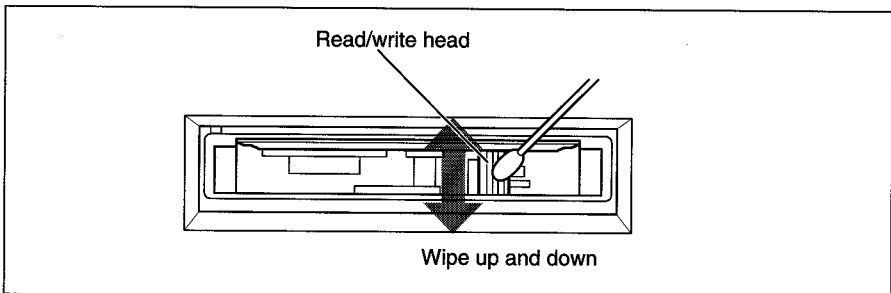
The only cleaning cartridge tested and approved by AIWA for use with this unit is the Geneva C³ IRTTAPE Cleaning Cartridge (Part Number: GEN 100-1)

Cleaning the Read/Write Head manually

Before cleaning the read/write head manually, make sure this unit and your computer are powered off.

Hold the access door open and gently wipe the read/write head up and down as shown below. For cleaning, you may use a lint-free cotton swab moistened with more than 90% isopropyl alcohol. Wait for at least 10 minutes for the head to dry completely after cleaning.

Never power on your computer before the read/write head is dry. Doing so will electrically damage the read/write head.



Installation of the Backup Software

This section provides instructions for loading the software driver to enable Windows 95 to operate this unit. For Windows NT and Windows, refer to the instructions inside the case of backup software CD-ROM.

Before beginning this procedure, make sure that your host SCSI Adaptor has recognized this unit as a SCSI device and that your computer system booted up normally.

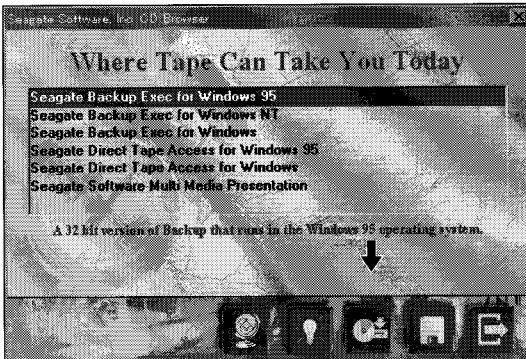
- 1 After starting up Windows 95, the New Hardware Found dialog box is displayed. Click Cancel.**



- 2 Put the backup software CD-ROM in your CD-ROM Drive to install the backup software.**
- 3 The CD Browser is displayed automatically on the Windows 95 desktop.**

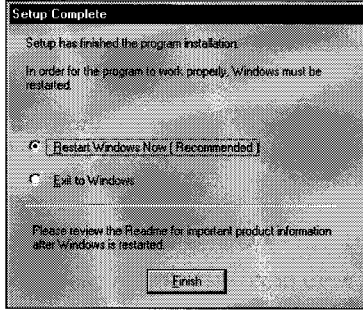
Choose Seagate Backup Exec for Windows 95, then click the installation button.

Follow the instructions of the backup software. After completing the installation, you can use this unit in the Windows 95 environment.



Note

Depending on the circumstances, it may take a few minutes to display the Setup Complete dialog box after all necessary information is input.



Caution

Be careful about the backup destination, when you back up your data to this unit using this backup software for the first time. The default destination of this backup software is a file on the hard disk drive assigned to drive C. Select AIWA Backup Device.



Troubleshooting

- **The tape drive is not recognized**

- a) Check that this unit is correctly connected. (*page 16-18.*)
- b) Check the SCSI ID and the SCSI termination. Refer to section SCSI ID and connection in this manual. (*page 11-13*)

Caution

Before checking the SCSI jumper switch settings, be sure to power off your computer and disconnect the AC power cord from the AC power outlet.

- **It is not possible to carry out a backup**

- a) The tape cartridge is write-protected. In this case slide the tab to the left (unlocked position).
- b) You might be using a QIC-3020-MC, QIC-3010-MC or QIC-80-MC tape cartridge. These tape cartridges are read-only. Use the IMATION (3M) TR-4 tape cartridge.

- **A 8000 MB backup is not possible on a TR-4**

- a) The basic capacity of a TR-4 is 4000 MB. The figure of 8000 MB assumes software data compression at a ratio of 2:1. The compression ratio depends on the data concerned, so a capacity of 8000 MB may not always be attainable.

- **An error message occurs during a compare or restore operation**

- a) Use the Tape Tool provided as part of the backup software to retension the tape. This may eliminate the problem.
- b) The read/write head may be dirty. Carry out head cleaning.
For head cleaning, always follow the instructions in "Cleaning the Read/Write Head" in this Manual. (*page 20*)
- c) If neither of these measures eliminates the problem, try using a new tape cartridge.

- **The time taken for a backup is much longer than expected**

- a) When reading a large number of small files, the file access time is a significant factor. This is not a malfunction.
- b) The drive may be stopping frequently because of the time taken for software data compression. Setting the software compression mode to "Save time" or "Off" may eliminate the problem. This is thus not a malfunction.
- c) If changing the setting for the software compression mode does not improve performance, the computer processing speed may be inadequate.
- d) Use the Tape Tool provided as part of the backup software to retension the tape. This may eliminate the problem.
- e) The read/write head may be dirty. Carry out head cleaning.
For head cleaning, always follow the instructions in "Cleaning the Read/Write Head" in this Manual. (page 20)
- f) If none of these measures eliminates the problem, try using a new tape cartridge.

- **The wrong indicaton of the backup capacity when using Seagate Direct Tape Access for Windows 95 and Windows**

When you check the backup capacity on your tape cartridge with using the properties of Windows 95 or File Manager of Windows 3.1x, the correct backup capacity exceeded about 2GB is not displayed due to the limitation of Windows 95 or DOS. In this case, use the properties of Seagate Direct Tape Access Toolkit.

- **The indication of the remaining capacity on your tape cartridge is N/A when you use Seagate Backup Exec for Windows 95 and Windows NT**

Due to the limitation of Windows 95 and Windows NT, the correct remaining capacity on your tape cartridge is not displayed if you use a tape cartridge exceeding about 2GB capacity.

Technical Support

If the problems arise during the installation or use of an AIWA product, AIWA's Technical Support staff is available to help you 24 hours a day, seven days a week. During regular business hours (8:00 AM to 9:00 PM eastern standard time, Monday through Friday), calls will be directly answered by the Technical Support staff. During the hours of 9:00 PM to 8:00 AM, and on weekends, calls will be automatically transferred to a voice message center. The voice message center will page a technician after your message has been recorded. You will receive a response within the hour.

Before calling, perform the following procedures.

- (a) Have the invoice number and the product serial number readily available. The serial number is listed on the shipping notice and printed on the product.
- (b) Record all error messages, numbers and descriptions. Also, record precisely when the error message was received and what was being done as the failure occurred.
- (c) Check all cable connections (including the cord that connects the computer to the electrical outlet) to make sure that all the cables are connected securely. This is especially important if the computer system has been recently moved.
- (d) Ensure that all add-on cards are properly seated and that the settings correspond to the configuration requirements.
- (e) Make sure the unit is in an area where both it and a telephone are easily accessible.
- (f) Call AIWA Technical Support at the hours and numbers listed on the cover of this manual.
The technical support staff will ask several questions regarding the problem. The staff may also suggest tests for troubleshooting purposes. If the support technicians cannot help resolve the problem by telephone, arrangements will be made for a replacement unit to be sent. A Return Merchandise Authorization number (RMA) will be issued so that the return can be processed. The RMA number cannot be issued unless the above procedure has been followed in full.
No package will be accepted for replacement unless it is labeled with a valid RMA number and returned in its original packaging, or the equivalent.

Important

Never ship electronic products unprotected.

Static electricity can damage or destroy sensitive equipment. The original packaging used by AIWA included an anti-static bag to protect the product.

Use both the original anti-static bag and the exterior box (or an equivalent anti-static bag and box) if an AIWA product needs to be returned to AIWA.

Failure to do so will void the warranty on the product.

Specifications

Interface	8 bit SCSI-2, Single ended.
Recording format	QIC-3095
Formatted capacity	4000 MB (TRAVAN TR-4, 740ft. length)
Data transfer rate:	Sustained: 770 KB/sec Burst: 10 MB/sec
Encoding method	Run Length Limited (RLL 1, 7)
MTBF	200,000 hours (20% duty)
Supply voltage/current	5V±5%, 0.7 A (Head up/down, typical) 12V±5%, 1.0A (FF/REW, typical)
Operating temperature	10°C to 35°C (50°F to 95°F)
Relative humidity	20% to 80% (no condensation)
Dimensions (w/h/d)	149 x 43 x 154 mm (w/h/d) (5.9 x 1.7 x 6.1 inches)
Weight	530 g (18.7 oz.)

Design and specifications are subject to change without notice.

AIWA CO.,LTD.

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