



TC-8908tm Series
Disc Tower

UserManual

For use with Version 5 Firmware

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If You're Product Requires Support

If your product requires servicing, you should first contact the place of purchase and request support. If the service request cannot be completed by the place of purchase, you should contact Global DiscWare directly using one of the following methods:

E-Mail: support@globaldiscware.com
Telephone: (800) 859-6927
Fax: (877) 839-0039

Before shipping any item to *Global DiscWare*, first obtain an RMA (Return Material Authorization) Number from *Global DiscWare* support. This number must be placed on the outside of the product packaging where it can be easily found otherwise the item will be refused and returned at the sender's expense.

All products returned to *Global DiscWare* under warranty MUST be in original Global DiscWare / *Global DiscWare* by Global DiscWare supplied packaging. If you do not have the original packaging, new packaging can be supplied for a charge. Please contact Global DiscWare for the cost of replacement packaging, which may vary based on the product, and your location. Your warranty will be voided if original Global DiscWare / *Global DiscWare* by Global DiscWare packaging are not used.

Within the first 30 days of warranty, Global DiscWare will cover the cost of shipping to the Global DiscWare factory via UPS Ground or other similar

transportation method; otherwise you are responsible for the cost of shipping the product to Global DiscWare.

During the warranty period, Global DiscWare will cover the cost of returning the repaired product to you via UPS Ground or other similar transportation method. If you require a more urgent transportation method, upgrades can be arranged for a charge, which in all cases must be pre-paid.

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Quick Start

The TC-8000 Series Disc Tower is designed to allow fast, easy and reliable duplication of CD / DVD or Blu-ray discs.

The following sections will get you started copying or comparing discs quickly. Useful advanced features are in the Operation section of this manual. After getting started using these instructions, we recommend you browse further to become familiar with all the powerful features of your TC-8000 series tower. Possible errors are also mentioned in further sections as well. If you encounter problems see the Error Messages section of this manual.

Box Contents

Carefully remove your TC-8908 Tower from its shipping carton and verify that all parts are present. If there are missing or damaged parts contact *Global DiscWare* or an authorized distributor immediately to correct any mis-packed or missing parts.

You should find the following packaged with your Tower:

- TC-8908 Tower
- Power Cord
- This user manual

NOTE:

If the TC-8908 Tower was damaged during shipment, please contact the freight carrier first, and then contact your distributor or Global DiscWare.

You should save your packaging materials so that if the need arises you can return your Autoloader for service. Sending a unit to Global DiscWare without the original packaging will void the warranty. This packaging was designed specifically for shipping your Autoloader. Other packaging may not be as suitable. If you have already disposed of your packaging materials, you can receive a new set from Global DiscWare for a fee.

Operating Environment

Your TC-8908 Tower system should be used in a climate controlled environment free of dirt, dust, excess humidity, excessive heat or electro-magnetic interference.

Allow at least four (4) inches of clearance around the sides and back of the unit for ventilation.

Power On

After the power is turned on the TC-8908 Tower goes through a series of self tests. If the Main Menu prompt does not appear within a minute or so see the Error Messages section of this manual.

Quick Start Copying

This quick start section assumes the Job Options (Setup Menu|Job Options) are set as shipped from the factory. If these instructions do not work then go to the Operation chapter of this manual for detailed operating instructions.

Use the up **Λ** or down **V** arrow keys to put the **>** cursor (on the Left of the LCD display) next to the Start Copying menu line. Press the ENTER key to select that menu function. If there is already a Disc image on the hard drive the following prompt will be displayed:

Read New Master?

Press the YES key. The next prompt will be for an Image name (this will be the first prompt if there are no images on the hard disk).

Enter Image Name
[_]

To use the default name just press the ENTER key at this point. (See the Entering Text section of the Operation chapter for instructions on entering an image name.) Next the system will ask for the number of discs to copy:

Enter Quantity
[_]

Press the up arrow key **Λ** to set the quantity to [0001]. Then press the ENTER key to accept the quantity. The top drive tray will open and the following prompt will be displayed:

Insert Master Disc...
Press any key.

Put the Master Disc in the tray and press the ENTER key. The tray will close, and the master disk will start analyzing, then reading. When the Master Disc is read the tray will open and the following prompt will be displayed:

Get Master Disc...
Press any key.

Get the Master Disc from the tray, put a blank disc into the tray and press the ENTER key. The disc Writer tray will close and you are copying your first disc! There is a timer at the top right corner of the display. This counts down, and shows the approximate time to go before the end of the recording.

Quick Start Comparing

Using the Compare function is essentially the same as copying. The only difference is that you use the Start Comparing menu selection. So see the Quick Start section above.

NOTE:

Because of the way Audio CDs are recorded, CDs containing Audio tracks cannot be verified. This is not a limitation of the TC-8908 series equipment, but a limitation of the CD error correction system.

Operation

This chapter provides detailed operating instructions for your TC-8908 Disc Tower. Your Tower has many options and features designed to make it more productive and easier to use. Please read through this chapter carefully so that you can take full advantage of all the features of your system.

Turning On

When the TC-8908 Disc Tower is turned on it goes through a series of self-tests and displays several messages.

Following are all the messages displayed during a normal power-up:

First:

TC-8908 Series
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Then several status messages will be displayed. And Finally:

> Copy
Compare
Image Functions
Utilities Menu

If this series of messages are displayed then your Tower is ready for use. If this series of messages are not displayed or different messages are displayed see the Error Messages section of this manual.

Keyboard

Following is the function of each key on the keyboard:

< YES Key

Left arrow or YES – If being prompted to enter a number or character this key moves the cursor 1 character to the left. If prompted with a question this key answers YES.

> NO Key

Right arrow or NO – If being prompted to enter a number or character this key moves the cursor 1 character to the right. If prompted with a question this key answers NO.

^ Key

^ (up arrow) – If being prompted to enter a number or character this key increments the character at the cursor to the next higher character or number. If a menu is being displayed this key moves the cursor to the next menu selection up.

v Key

v (down arrow) – If being prompted to enter a number or character this key decrements the character at the cursor to the next lower character or number. If a menu is being displayed this key moves the cursor to the next menu selection down.

Enter Key

If being prompted to enter a number or name this key accepts the currently displayed selection. If a menu is being displayed the ENTER key moves 1 level deeper into the menu structure. If the next item is executable it starts that process.

Stop Key

This key stops or aborts whatever is going on. When writing discs the system is busy and this key may be sluggish so press and hold it down until prompted to do something else.

While a menu is being displayed the STOP key backs up 1 level higher in the menu structure.

LCD Display

The LCD display is used either to display menus or to show status. For instance while copying it shows what it is doing, the number it has to do, how many it has done and the current mode (Disk at once or track at once).

Menus Structure

Use the up \wedge and down \vee arrow keys to position the cursor (a > character on the left most column of the display) to the desired menu item. Then use the ENTER key to select it.

Following is a description of each menu selection.

Copy

Use this menu option to start copying discs by reading the master to the hard disk and then copy from the hard disk image. See the Copying discs section of this chapter for further instructions

Compare

Use this menu option to start verifying discs. See the Verifying discs section of this chapter for further instructions.

Image Functions

This menu option is used to maintain image files kept on the hard drive. This menu item will not be shown if Multi Image HD is not enabled in the Setup|Job Options function.

Load New Master

Read disc and put the image on the hard drive without copying or verifying.

List of Images

Show all disc images currently stored on the hard drive

Show HD Free Space

Display the currently available hard drive space. If disc images have been erased more space may be created by defragmenting the hard drive using Image Functions|Defragment HD function.

Delete Image

Delete a Disc image stored on the hard drive.

Rename Image

Rename a Disc Image currently stored on the hard drive. See the Entering Text section of this chapter for instructions on inputting text.

Defragment HD

Recover all hard drive space associated with erased Disc images. Depending on the hard drive size and the number and size of erased Disc images this function can take several minutes to complete.

Utilities

The utilities menu provides several useful functions required to maintain and set up your DISC Tower system.

Hard Disk Utilities

These utilities are used to set up and maintain the hard drive in your system. The hard drive provides a temporary storage buffer for the Discs you will be copying or verifying.

Show HD Free Space

Display the currently available hard drive space. If Disc images have been erased more space may be created by defragmenting the hard drive using Image Functions\Defragment HD function.

Show HD Info

Display the installed hard disk information. This includes manufacturer, model, drive firmware revision and total space in megabytes (MB).

Defragment HD

Recover all hard drive space associated with erased Disc images. Depending on the hard drive size and the number and size of erased Disc images this function can take several minutes to complete.

Format Hard Disk

This function re-initializes the hard drive directory structure. It should be run anytime a new hard drive is installed in a system. This function can also be used to quickly erase all images in the hard drive.

NOTE:

This function does not actually remove Images from the hard drive and is not a secure erase of the image data. It simply marks all the hard drive as unused and available for new images. The data remain on the disk until overwritten by another image file.

Firmware Utilities

Firmware Utilities allows the firmware used by the TC-8908 Tower and the Disc drives to be updated (depending on the drive model). Global DiscWare recommends that all writers have the same version of firmware. Drive firmware may be checked using the Utilities|System Information|Writer Info menu function, and upgraded using the Utilities|Firmware Utilities|Load Drive F/W.

Only drive firmware provided by Global DiscWare can be used to upgrade drives within a TC-8908 Series system. Firmware files from the drive manufacturers cannot be used to upgrade firmware with a TC-8908 Series system. While writer firmware is upgraded with manufacturer supplied firmware outside the system, it is not recommended to use firmware which is not approved by Global DiscWare.

Load System F/W

The software that is used by the TC-8908 to copy discs may be updated from time to time, to add new features or support for new drives. The following functions are used to update the firmware in the machine.

Load F/W From CD

This function reads firmware from a firmware CD-R and installs it in the Tower Duplicator electronics. A firmware CD can be created by writing an ISO-9660 CD-R with a TC series firmware file in the root directory. Selecting this option allows the system to read this firmware and update accordingly. Once the system firmware is updated, the system will automatically restart.

Load Drive F/W

The recorder manufacturer may update the software that is used by the recorders from time to time. This could be for bug fixes, new features or format support, or to optimize the recording quality on new media as it becomes available.

A file containing *Global DiscWare* approved recorder firmware can be obtained from the *Global DiscWare web site*, or *Global DiscWare* authorized distributors. This is the **ONLY** file that should be used to update the drives. Do not attempt to use any other file, as it may contain firmware that has not been approved by *Global DiscWare*, and may function incorrectly.

VERY IMPORTANT NOTE:

*It is **VERY IMPORTANT** that you DO NOT turn off the power while this function is running. **Turning off the power before the Duplicator has completed the drive upgrade may leave your recorders in a state where they no longer function correctly.** If you are in any doubt about this, please contact Global DiscWare, or an authorized Global DiscWare distributor before using this feature.*

The update process is very simple, but user confirmation is requested several times before the drives are actually updated. The recorder firmware update file **MUST** be located in the root directory of a standard ISO9660 CD-ROM. Choose the menu item Utilities | Firmware Utilities | Load Drive F/W and follow the prompts on the LCD.

System Information

These functions are used to display information about the various components installed in the TC8908 system.

PCA Info

Display the installed firmware level, amount of RAM and the number of recorders found in the system, and the number of recorders licensed in this system. In addition, network information including IP address, network mast and MAC address are displayed.

Writer Info

Display Recorder manufacturer, model number and firmware revision. While it is possible to use different writer types, and different firmware revisions, *Global DiscWare* recommends using the same writer type and the latest approved writer firmware.

Hard Drive Info

Display the manufacturer, model number and capacity of the installed hard drive.

Upgrade License

Enabled options can be changed via these functions. To get a new key to enable new options contact *Global DiscWare* or an authorized *Global DiscWare* distributor.

Show Current Key

Display current installed options Key String. You **MUST** have this Key String available when contacting *Global DiscWare* or an authorized *Global DiscWare* distributor.

Enter New Key

Enter new installed options Key String. Entering this Key String can change your installed options. Contact *Global DiscWare* or an authorized *Global DiscWare* distributor to get a new key string. See the Entering Text section of this chapter for instructions on entering text.

Setup Menu

These menus are used to select various options available on the Disc Tower.

Job Options

These functions set up options used during the duplication process. Use the up arrow \wedge key to scroll up or press the down arrow key \vee to scroll down. Press the YES or NO key to select the desired values.

When the displayed selections are correct press the ENTER key to save or press the STOP key to exit and leave the options unchanged.

Burn Discs

If set to NO the system is in simulate mode and will not actually write a disc. It goes through all the motions and is a good test to see if the Disc Tower is in operating condition.

NOTE:

If this is set to NO the following warning message will be displayed: WARNING Copier is in SIMULATE mode, Press YES to continue or any other key to cancel and the BURN/SIM field of the LCD will show SIM (for Simulate Burn) while copying DISCs

Compare Master

If set to YES the Master Disc will be read a second time and the new read compared with the first. If the data are not the same a BAD MASTER error will be displayed.

NOTE:

This feature is disabled for any Audio tracks on the CD. This is not a limitation of the TC-8908 series, but a limitation of the CD format low-level error correction systems.

Compare Copy

If set to YES every disc just copied will be reread and compared to the data written (The disc will be Verified). If the data are not the same or there is a read error the disc will be considered bad and rejected.

NOTE:

This feature is disabled for any Audio tracks on the CD. This is not a limitation of the TC-8908 series, but a limitation of the CD format low-level error correction systems.

Multi Image HD

If set to YES CDs read will named and stored on the hard drive for future use. Many Disc images can be kept on the hard drive.

If set to NO a Disc read will still be saved to the hard drive but it will have no name and will be overwritten by the next Disc read.

NOTE:

If Multi Image HD is enabled and Disc Images are stored on the hard drive and then the Disc Tower is operated with Multi Image HD set to NO all the previous images may be lost.

Ask Quantity

If set to YES, the user will be prompted for a quantity to copy/compare. If set to NO, the machine will copy until told to stop by pressing and holding the STOP key.

Check Blank Size

If set to YES, the copier will check that blank disc has enough free space on it before starting to write. If set to NO, the copier will attempt to write the image to the disc even if the blank is not large enough. This may mean that copies are rejected, because the blank disc did not have sufficient room. This feature allows discs to be over burned.

Master Drive

This option allows the user to select which drives (recorder drive if installed) will be used to read the master. Use the left and right arrow keys to select the desired drive.

Recorder Set-up

This menu allows you to select the recorder speeds used for each type of drive I/O. To select higher speeds press the up arrow key **Λ**. To select lower speeds press the down arrow key **V**. Only those speeds supported by the installed drive will be displayed.

When the displayed speeds are the desired speeds press the ENTER key to save or press the STOP key to leave the speeds unchanged at their original values.

NOTE:

Slowing the read speed down can sometimes help reading scratched or otherwise damaged discs.

Read Data

Select the speed used when the Master drive reads data tracks.

Read Audio

Select the speed used when the Master drive reads audio tracks.

Write

Select the speed used when the writing (recording / burning).

NOTE:

Make sure the Disc media being used is rated for the speed being used. For instance if writing DVDs at 16X, ensure the media is rated for 16X write. Global DiscWare cannot guarantee that all recorders will record all media brands at their maximum rated speed. If the recorder firmware is not optimized for this specific brand of media, slower recording speeds may be automatically selected by the recorder's own firmware in order to make the best possible quality recording.

Password Menu

The TC-8908 series copiers allow access to be restricted by passwords. A different password can also be set for general use (Operator Password), and for system setup (Setup Password). The passwords operate independently of each other, so it is possible, for instance, to have a password required for setup, but no password required for Operator use. It is also possible to have a single Operator Password to give access to the whole machine, without additional password requirements for the Setup Menu. Passwords are optional. May users never need to use passwords.

Each password must be setup separately. By default, no password is active, and the machine can be used without passwords. To enable a password, choose either.

Operator Password Or Setup Password from the Setup Menu then select Enable Password.

The system will request a default password. This is a password that is fixed within every machine – and cannot be changed. The default password is **YES ENTER YES ENTER YES ENTER**. The reason for a default password is to prevent passwords being enabled accidentally.

Now enter any six key sequence. The same key sequence will need to be repeated to confirm the new password. From now on this password will need to be entered when prompted. Remember, a different password can be set for Operator and Setup, so be sure to use the correct password.

Each password can be changed or disabled via additional menu items that are displayed once Passwords have been enabled.

Entering Text

Since there are no letters on the keyboard text must be entered with the arrow keys. When text needs to be entered all available character positions are displayed between square brackets as follows:

[_ _ _ _ _]

If the initial text is not defined all blanks will be displayed. Otherwise the starting text will be displayed. Press the left < or right > arrow to move the cursor the desired character location. Then press the up \wedge or down \vee arrow to increment or decrement the displayed character.

Following are the differences for each type of text asked for in various places in the program.

Disc Image Name

Disc Image names are 14 characters long. Available characters are A-Z, 0-9 and space (blank).

Key String

Key Strings are 14 characters long. Available characters are 0-9 and A-F.

Numbers

Numbers are 4 digits long. Available digits are 0-9.

Copying Discs

There are two basic methods of copying discs. The first is to read a master & start copying immediately. The second is to start copying using a master image already stored on the internal hard disk (usually created by a previous Copy job, or by using the Image Functions|Load New Master function).

To start copying from a new master, use the up **Λ** or down **V** arrow keys to put the **>** cursor (on the Left of the LCD display) next to the Start Copying menu line. Press the ENTER key to select that menu function. If there is already a Disc image on the hard drive the following prompt will be displayed:

Read New Master?

If there are no master images currently on the hard disk, this message will not appear. Press the YES key. The next prompt will be for a Disc Image name.

Enter Image Name
[_]

Use the **Λ**, **V**, **>** & **<** keys to enter a name for the image (see Entering Text). To use the default name ("NONAME") just press the ENTER key. Next the system will ask for the number of discs to copy:

Enter Quantity
[_]

Using the **Λ**, **V**, **<** & **>** keys enter a quantity to copy (see Entering Numbers). When the display shows the required count, press the ENTER key. The top drive tray will open and the following prompt will be displayed:

Insert Master Disc...
Press any key.

Put the Master Disc in the tray and press the ENTER key. The drawer will close and the Master Disc will start reading. When the Master Disc is read the tray will open and the following prompt will be displayed:

Get Master Disc...
Press any key.

Get the Master Disc from the tray, put a blank disc into the tray and press the ENTER key. If more than one copy is required, and the tower has more than one drive installed and enabled (see Job Options), other drives will eject their tray and wait for a blank disc. Place a blank disc on all open drawers, and close them. Once all drives have blank Discs, copying will begin. Press the ENTER key to start copying without discs in all drives.

On completing the copy, all drives with good discs will eject the disc and wait for another blank. Insert more blanks in the open drawers and close them again. Copying will automatically start again once all drives are closed, and have blank discs.

If the message “Bad Disc - Press Any Key” appears, a drive has a BAD disc (one that was rejected during the copy or verify operation), the drawer will remain closed. Simply open the drawer using the eject button, and replace the disc with a new blank disc.

To Copy from an image that is already on the hard disk, select the menu item Start Copying as above, but in response to the message

Read New Master?

Press the NO key. A list of the images stored on the hard disk will be displayed on the LCD. Use the **Λ** & **V** keys to place the **>** cursor next to the required image and press ENTER. Enter the quantity required, as above. The drives will open requesting blank discs in the same way as above.

Comparing Discs

Comparing Discs allows a copy to be compared against a master image, to make sure there are no detectable differences. This feature is not available for Audio or Video tracks, because Audio/Video tracks do not have ECC (error correction codes) to guarantee data integrity. Only data tracks have this.

Follow the Copying Discs section above, but instead of inserting blank media, insert the copied discs.

Appendix A - Error Messages

Following is a list of error messages that may be displayed.

No HARD DISK !!

This would appear during the power up sequence if no hard disk could be found. Check that the power cable is correctly installed on the hard disk, and that the data cable is correctly connected between the hard disk and the copy electronics. If in doubt, contact your *Global DiscWare* authorized dealer.

!! ERROR !! No Writers Found

This suggests that either no writers are installed, or that they are incorrectly installed. Check power to each recorder, and check that the SCSI cable is correctly connected to each drive, and to the copy electronics.

For SCSI systems, ensure that every writer on a given bus has a unique SCSI ID. If two SCSI devices have the same ID, they will not work.

For IDE systems, ensure that only one drive be connected to each cable.

!! ERROR !! - No disc in drive

The system cannot detect a Master disc in the drive. If there is a master in the drive, the disc may require cleaning.

!! ERROR !! - Disc in drive appears to be blank

The system tried to read a Master, which appears to be blank. Check the Master disc and try again. Again, the disc may require cleaning.

User Data Corrupt

The user set-up (including Job Options) has become corrupt. The system will automatically reset the options to the factory settings.

Job Cancelled

The user pressed the stop key.

!! WARNING !! Copier is in SIMULATE mode

The job options are set to simulate, and will NOT write to the media. This means that the system will go through all the motions of writing discs, but will not actually burn them. See the menu item Set-up Menu | Job Options | Burn Disc in the Operation section for more info.

Bad Master

The system tried to read a master disc, but found an error. Try reading at a slower speed, try cleaning the master or replace the master with a new one.

Disc Format Not Supported

The system does not currently support this kind of disc format. Contact an authorized *Global DiscWare* dealer for possible firmware upgrades.

Appendix B - Setup

Default Setup

Following is the default or as shipped from the factory configuration.

Job Options Setup

This menu is located at Setup Menu|Job Options. The factory defaults are:

Burn Disc	YES
Compare Master	NO
Compare Copy	NO
Multi Image HD	YES
Ask Quantity	YES
Check Blank Size	YES
Master Drive	1

Read/Write Speed

This menu is located at Set-up Menu | Read/Write Speed.

Read Data	48X
Read Audio	48X
Write	48X

The above speeds assume a NEC 7170 CD/DVD recorder is installed as the first drive. Other speeds will apply for different drive types.

For Blu-ray recorders:

Read	1X
Write	2X
Re-Write	1X

(The above speeds assume a Panasonic SW-5582 Blu-ray recorder is installed as the first drive. Other speeds will apply for different drive types.)

Supported Formats

Following are supported formats as of this writing. Contact your authorized distributor or *Global DiscWare* for an updated list.

- CD-ROM Mode 1, Form 1 (ISO 9660, UFS, HFS etc)
- CD-XA Mode 2, Form 1 & 2
- CD-DA (Audio – with ISRC, UPC and Sub Indexes)
- CD-I (Green Book – CD-Interactive)
- CD-I Ready
- Mixed Mode (Mode 1)
- Mixed Mode (Mode 2)
- Playstation (Developer)
- CD-Extra (Blue Book – a.k.a. Enhanced CD, CD Plus)
- Kodak Photo CD
- Video CD (White Book)
- DOS / Windows / MAC / UNIX / Linux etc
- ISO 9660 for CD/DVD/Blu-ray
- UDF for CD/DVD/Blu-ray
- Single / Multisession
- Track At Once
- Session At Once
- Disc At Once

Many other formats are supported, but are not listed here. These additional formats can be also be copied by the Tower, because they are “logical” formats that adhere to one of the above “physical” formats. If in doubt, please contact your authorised *Global DiscWare* distributor.

Menu Structure

Following is the TC-8908 Tower menu structure.

- Copy
- Compare
- Image Functions
 - Load New Master
 - List of Images
 - Show HD Free Space
 - Delete Image
 - Rename Image
 - Defragment HD
- Utilities
 - Hard Disk Utilities
 - Show HD Free Space
 - Show HD Info
 - Defragment HD
 - System HD Format
 - HD R/W Test
 - Firmware Utilities
 - Load System F/W
 - Load F/W From Disc
 - Load Drive F/W
 - System Information
 - PCA Info
 - Writer Info
 - Hard Drive Info
 - Upgrade License
 - Show Current Key
 - Enter new Key
- Setup Menu
 - Job Options
 - Burn Disc
 - Compare Master
 - Compare Copy
 - Multi Image HD
 - Ask Quantity
 - Check DISC Size
 - Master Drive
 - Enable Drive x (Repeated for all drives)
 - Read/Write Speed
 - Read Data
 - Read Audio
 - Write
 - Password Menu
 - Operator Password
 - Enable Passwords (Only if Operator password is disabled)
 - Disable Passwords (Only if Operator password is enabled)
 - Change Password (Only if Operator password is enabled)
 - Setup Password
 - Enable Passwords (Only if Setup password is disabled)
 - Disable Passwords (Only if Setup password is enabled)
 - Change Password (Only if Setup password is enabled)

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