

# *Installation Guide*

## **HP Colorado 5GB and 8GB External Tape Drives**

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# Chapter 1: Getting Started

This *Installation Guide* shows you how to:

- n Connect the tape drive to your parallel port (and printer, if needed)
- n Install the software
- n Select and use tapes with your drive

When you finish, your tape drive will be ready to make a backup. For more information, see the online *User's Guide*.

## Viewing the Online User's Guide

The Software Installation CD contains a *User's Guide* that shows you how to:

- n Use the Colorado Backup software to back up, restore, and verify data
- n Recover from a hard drive crash

### Windows 95

If the Colorado Backup software has already been installed, from the **Start** menu, select **Programs, Colorado Backup, User's Guide** to view the electronic *User's Guide*.

You can also view the *User's Guide* on the CD. To do this, insert the Software Installation CD, click on **Start, Run**, type D:\SETUP (where D: is your CD-ROM's drive letter), then click on the **User's Guide** button.

### Windows 3.1

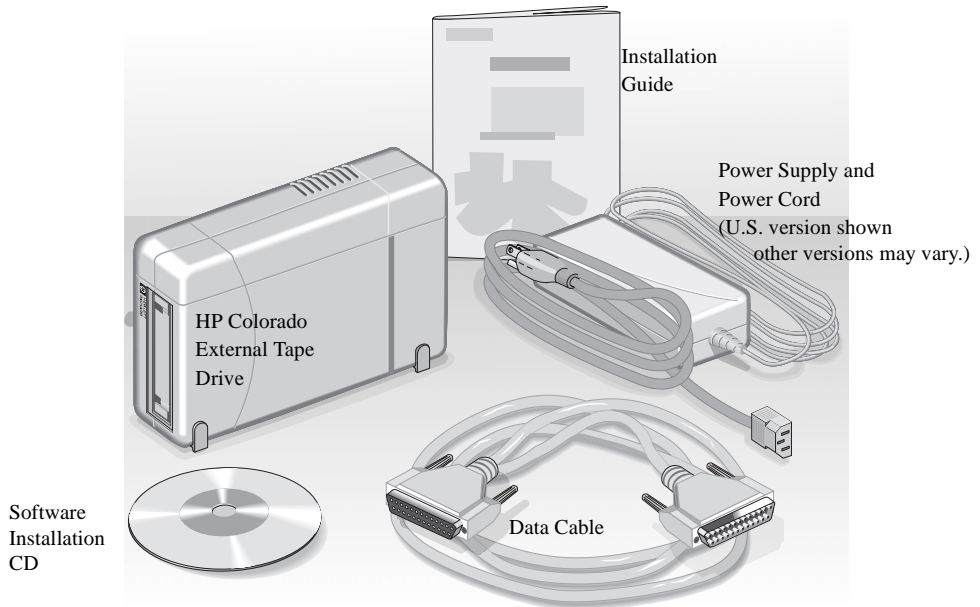
Insert the Software Installation CD, click on **File, Run**, type D:\SETUP (where D: is your CD-ROM's drive letter), then click on the **User's Guide** button. You will have the option of installing the Acrobat Reader software if you do not already have it.

## DOS

If you installed the software from the Software Installation CD, the online *User's Guide* is on your hard drive in the same directory as the software. If you installed the software from a diskette, the online *User's Guide* is on that diskette. To access the *User's Guide*, open the file DOSGUIDE.TXT with any ASCII text editor.

## Checking Your Tape-Drive Package

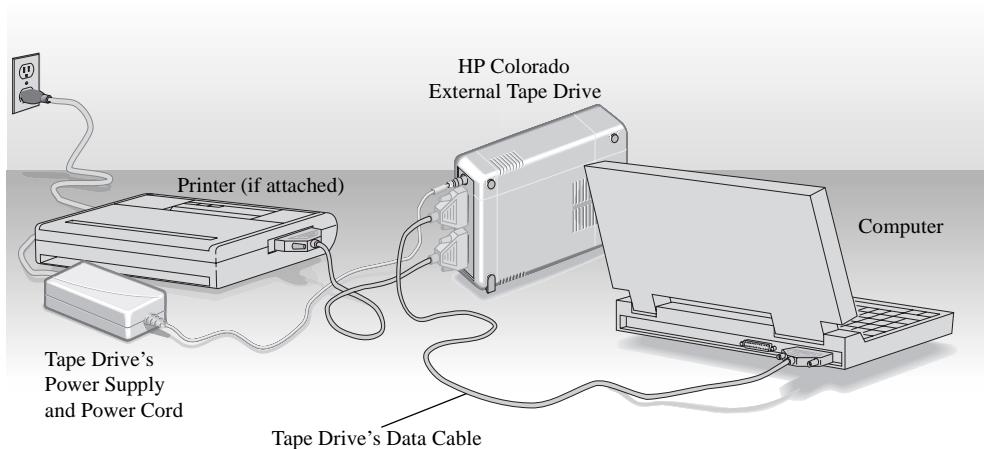
Check each item to ensure you have everything you need.



# Chapter 2: Connecting the Hardware

## Installing Your External Tape Drive

*NOTE: Before you begin this installation, make sure your computer meets the requirements listed in “Minimum System Requirements” on page 35.*



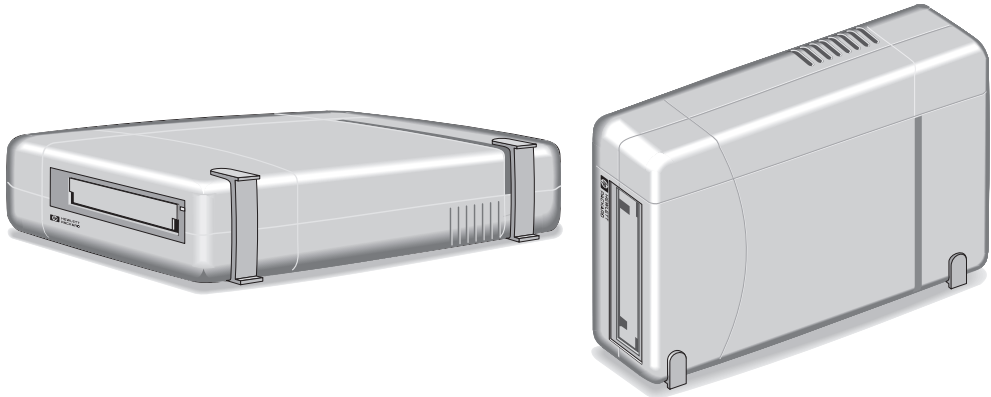
The illustration above shows a hardware setup that will be similar to yours after you complete the step-by-step installation instructions in this section.



**WARNING:** *DO NOT, under any circumstances, open the external tape drive's case. If you suspect problems with your drive, service must be performed by a certified HP technician. See the telephone numbers at the back of this manual.*

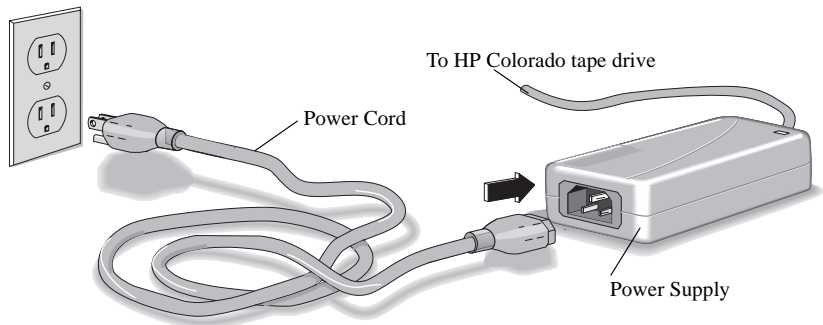
1. Turn OFF your computer.

*NOTE: To save space on your desk, tip the HP Colorado tape drive up on its side.*

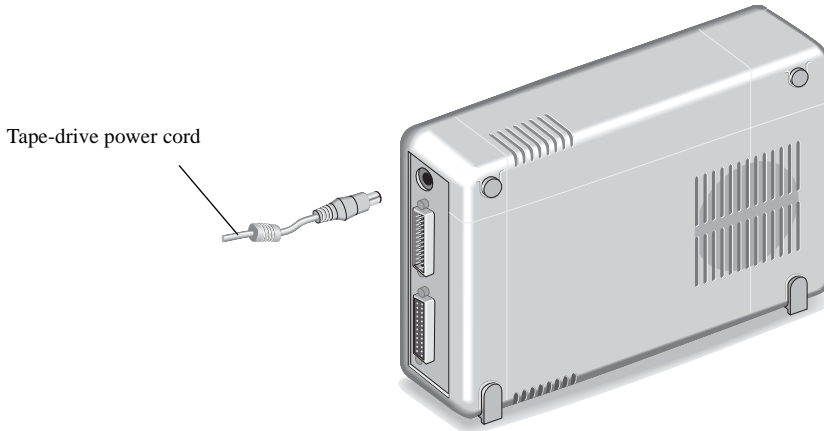


*NOTE: This tape drive can be used with laptops, desktops, and towers that meet minimum system requirements listed on page 35. The following illustrations show it attached to a laptop computer.*

2. Connect one end of the power cord into the power supply and the other end to a wall outlet or power strip. (The power plug and outlet may look different in your country.)



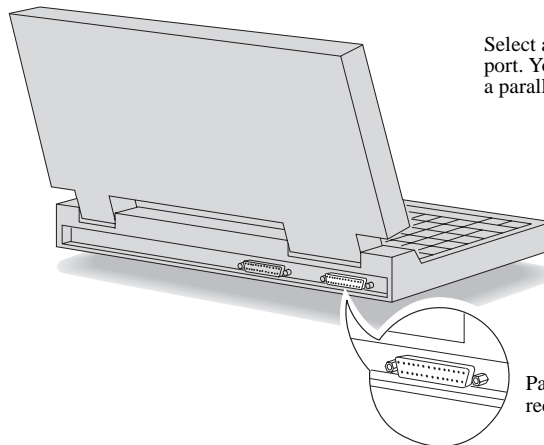
3. Plug the tape-drive power cord into the drive.



*NOTE: If it is ever necessary to cycle the power to your HP Colorado drive, disconnect the power cord from the wall outlet. There is no power switch on the tape drive.*

The power supply is designed to automatically switch into low-energy mode when the drive is not in use. The HP Colorado tape drive may be safely left plugged in at all times.

4. Locate the parallel port connector on your computer (your printer might already be attached to the parallel port).



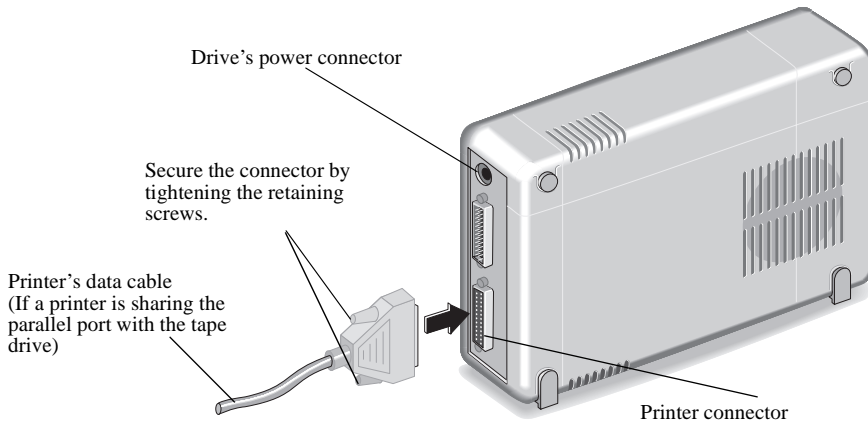
Select any available parallel port. Your tape drive can share a parallel port with a printer.

Parallel ports have receptacles for 25 pins.

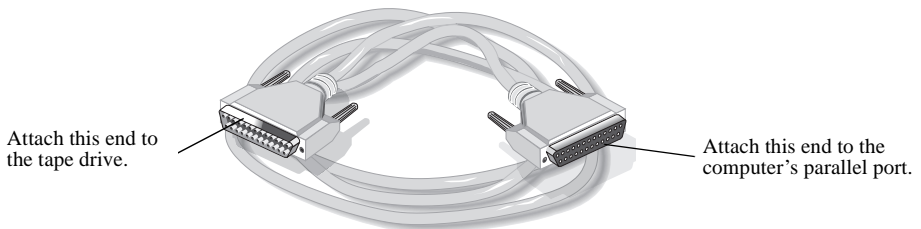
If you have a printer attached to your computer, go to the next step.

If you do not have a printer attached, proceed to step 6.

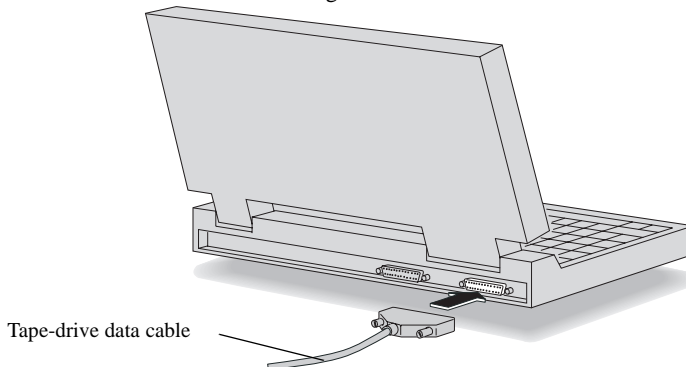
5. If you have a printer cable attached to the computer's parallel port, disconnect it from the computer and plug it into the tape drive's connector shown below.



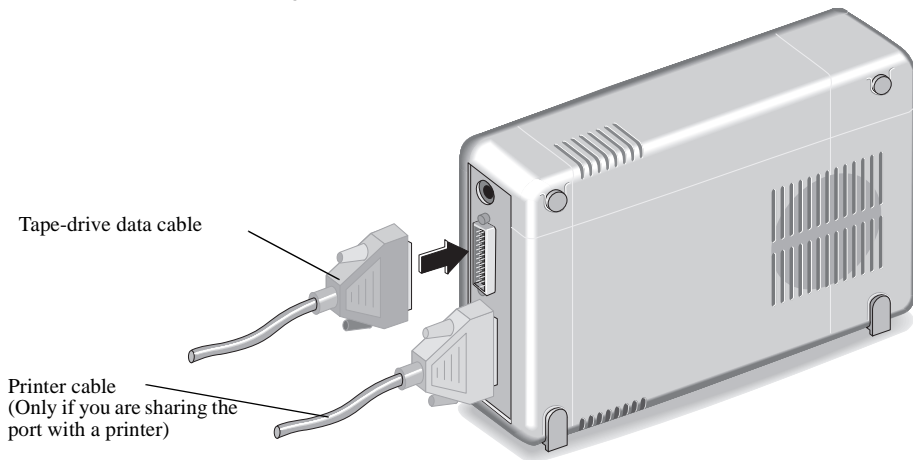
The data cable that came with your drive attaches to the computer's parallel port and the tape drive's remaining 25-pin connector.



6. Attach the tape-drive data cable to your computer's parallel port and hand tighten the connector's retaining screws.



7. Attach the cable's remaining connector to the tape drive and secure it by tightening the retaining screws.



## If You Have Problems

After connecting your tape drive and turning on your computer, the computer should start (boot) as it normally does. If it does not, check the following items:

- n Is the computer power cord plugged in?
- n Is each device plugged in and turned on?
- n Are all cables properly plugged into the back of your computer?
- n If you verify all of these and still have problems, try turning off your computer. Wait at least 20 seconds before turning it back on.
- n If you have a printer connected to the HP Colorado tape drive, turn off the computer's power. Disconnect the tape drive and the printer. Reconnect only your tape drive to the parallel port, then turn the computer on and start Colorado Backup. If tape drive works, it is likely you have a conflict with the printer.



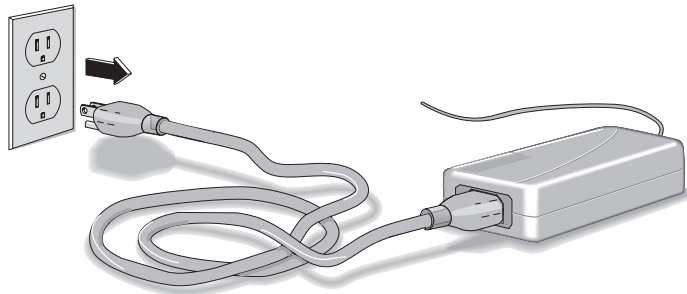
## Using the Tape Drive on Other Computers

The software installation CD that came with your tape drive allows you to install Colorado Backup for DOS, Windows 3.x, and Windows 95. You can disconnect the tape drive and move it to another computer as long as the other computer meets the installation requirements described in the section “Minimum System Requirements” on page 35.

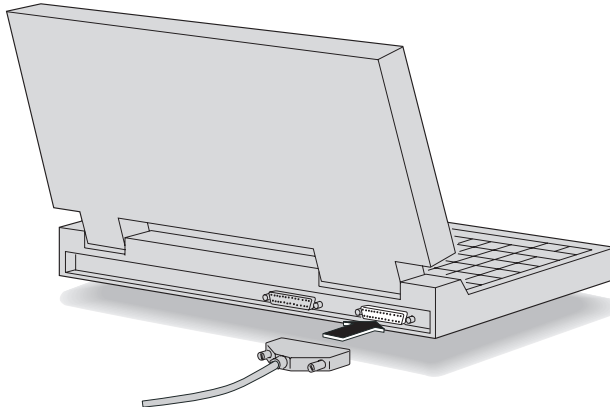
The first time you connect the tape drive to another computer, you must also install any necessary software.

To move the tape drive to another computer:

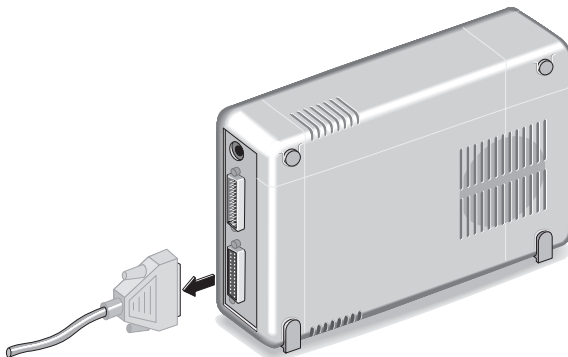
1. Turn OFF your computer.
2. Unplug the tape drive from the outlet or power strip. (There is no power switch on the tape drive.)



3. Disconnect the data cable from the back of your computer.



4. Disconnect the printer cable, if any, from the back of your tape drive.



You can now connect the tape drive to another computer by following the instructions given previously in this manual. See “Connecting the Hardware” on page 4.

*NOTE: Remember to turn the computer OFF before attaching the tape drive.*

The first time you attach the drive to a computer, see “Installing Colorado Backup for Your Operating System” on page 12.

Each additional time, after attaching the tape drive to that computer:

- n turn ON the computer
- n start Colorado Backup

# Chapter 3: Installing the Software

## Checking Your Parallel Ports

Before installing the software, you should check your computer's parallel port settings to ensure the maximum performance from your tape drive. There are currently four types of parallel ports on the market: (listed from the slowest data transfer rate to the fastest) unidirectional, bidirectional, Enhanced Parallel Port (EPP), and Extended Capabilities Port (ECP).

New computers are likely to have at least an Enhanced Parallel Port (EPP), which allows the maximum performance from your tape drive. Consult your computer's documentation to learn if you have an EPP or ECP port. If you have one, verify that it is configured to the fastest possible setting.

## Interchangeability of Tapes

The Colorado Backup software for DOS, Windows 3.1, Windows 95, and the Windows NT applet have the following interchangeability:

You can restore backups using:	You created the backup using:			
	Colorado Backup for DOS ver. 5.0	Colorado Backup for Windows ver. 3.1	Colorado Backup for Windows 95 ver. 3.2	Windows NT 4.0 Backup Applet
Colorado Backup for DOS ver. 5.0	Yes	No	Yes	No
Colorado Backup for Windows ver. 3.1	No	Yes	No	No
Colorado Backup for Windows 95 ver. 3.2	Yes	Yes	Yes	No
Windows NT 4.0 Backup Applet	No	No	No	Yes



*CAUTION: If you create backups under more than one operating system, use a separate set of tapes for each operating system. Label each tape appropriately.*

## Installing Colorado Backup for Your Operating System

Your parallel-port tape drive can easily be shared among computers using different operating systems. Changing the drive between computers is as easy as attaching it to the parallel port and starting Colorado Backup. The Colorado Backup software installation CD includes the files for installing the backup software for DOS, Windows, and Windows 95. Your tape drive can also be configured to work with Windows NT 4.0. Select the environment you work in and turn to the appropriate section for installation instructions:

- n DOS—page 12
- n Windows—page 17
- n Windows 95—page 23
- n Windows NT 4.0—page 27

*NOTE: If your computer has a power-management feature that shuts off your computer after a specified period of time since the last keyboard input, you may experience problems with certain operations that exceed the time limit. Turn off the power-management feature when performing a long running operation such as a total or full-system backup. Check your computer's manuals to find out how to turn off or change the time limit of the power-management feature.*

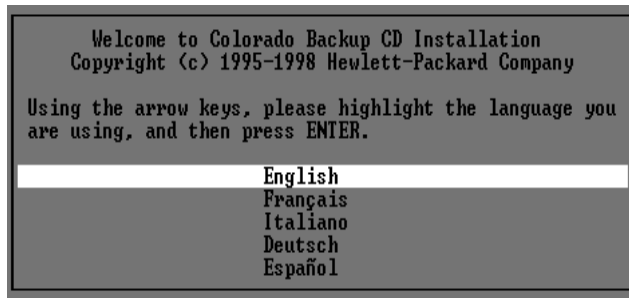
### Installing Colorado Backup for DOS

*NOTE: Do not install Colorado Backup for DOS for use in Windows 95. This application does not support Windows 95 conventions such as long filenames and backups of the registry. See "Installing Colorado Backup for Windows 95" on page 23.*

1. Attach the tape drive to your parallel port as described in "Connecting the Hardware" on page 4. The drive must be attached to install and configure the software.
2. Insert the software installation CD into your CD-ROM drive. If your computer does not have a CD-ROM, see page 35.

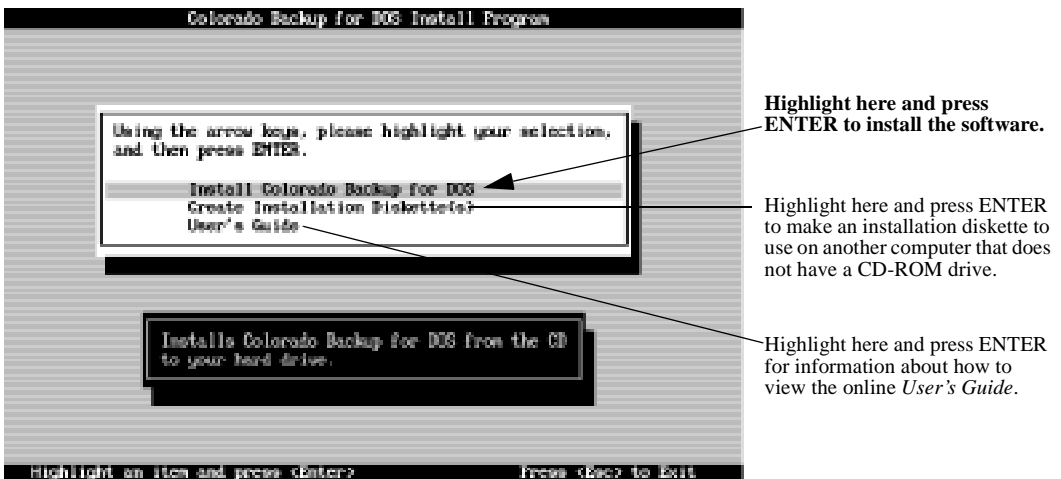
- At the DOS prompt, type `D:\SETUP` and press ENTER (where D: is your CD-ROM's drive letter).

The following screen appears:



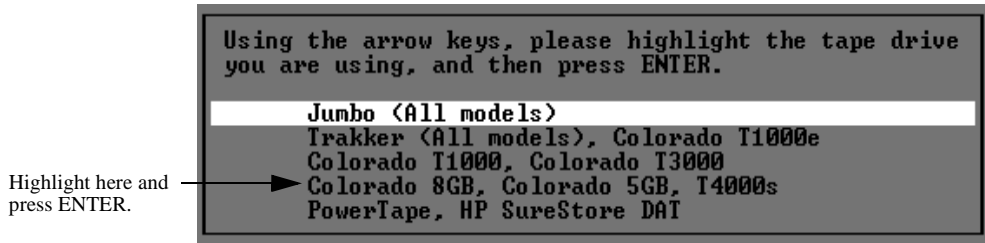
- Select the desired language or leave the default and press ENTER.

The following screen appears:



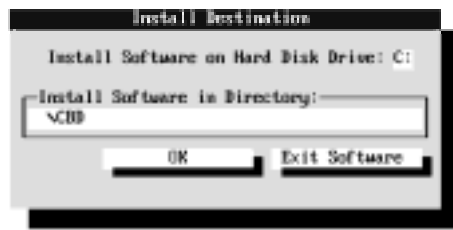
5. Select **Install Colorado Backup for DOS**.

The following screen appears:



6. Select **Colorado 8GB, Colorado 5GB, T4000s** and press ENTER.

The following screen appears.



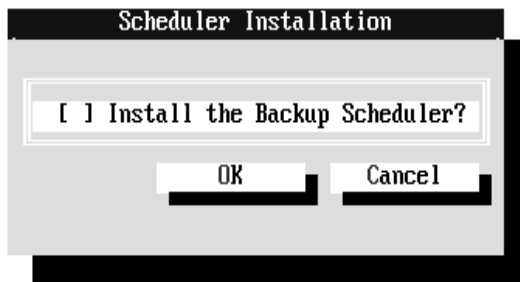
7. Either accept the default directory name of C:\CBD or type a different drive letter and directory name where you want Colorado Backup installed. Select **OK**.

The following screen appears:



8. Highlight **Parallel Port** and select **OK**.

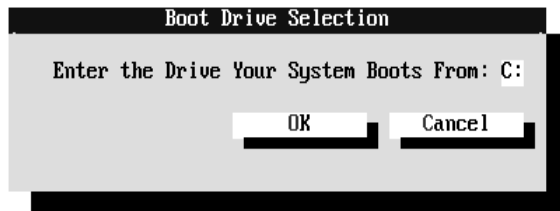
The following screen appears.



9. If you want to be able to schedule backups to start automatically while you are away from your computer, press the spacebar to mark the check box. If you want to save the additional hard drive space required for this feature or do not wish to do unattended backups, leave the check box empty. Select **OK**.

The Colorado Backup files are then copied to your hard drive.

When all the files have been copied to your hard drive, the following screen appears.



10. If the letter of the drive from which your computer boots is not C:, enter the correct letter. (C: is the most common boot drive.) Select **OK**.
11. A screen appears indicating that the software installation was successful. Select **OK**. Colorado Backup automatically closes leaving you at the DOS prompt.
12. Remove the software installation CD from your CD-ROM drive and store it in a safe place.
13. Reboot by pressing CTRL+ALT+DEL.
14. To start the Colorado Backup software, at the DOS prompt type CD \CBD (or the name of the installation directory you entered in step 7) and press ENTER.
15. Type TAPE and press ENTER.

The Main screen appears:

**Menu bar:** Select menu commands from here.

### Command push buttons

To copy files from your hard drive to a tape, select this button.

To restore files on tape to a hard drive, select this button.

To compare files on tape to files on your hard drive (in order to verify that you will be able to restore your backup), select this button.



Status line:  
Displays a short help message.

16. If the Colorado Backup window does not appear or you receive an error message, see “If You Have Problems” on page 29.

If you are ready to perform tape operations, read:

- n “Using Tapes and Caring for Your Drive” on page 32.
- n The online *Colorado Backup User's Guide* or click on **Help!** inside the software to learn how to back up and restore data, compare files, and use the application's options and features.

For more information on accessing the *User's Guide*, see “Viewing the Online User's Guide” on page 2.

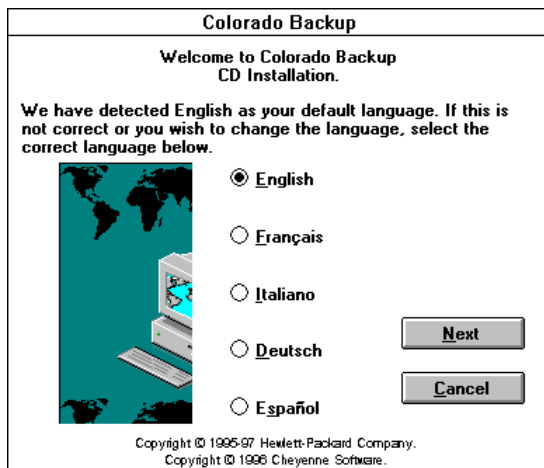


## Installing Colorado Backup for Windows

*NOTE: Do not install Colorado Backup for Windows 3.1 for use in Windows 95. This application does not support Windows 95 conventions such as long filenames and backups of the registry. See "Installing Colorado Backup for Windows 95" on page 23.*

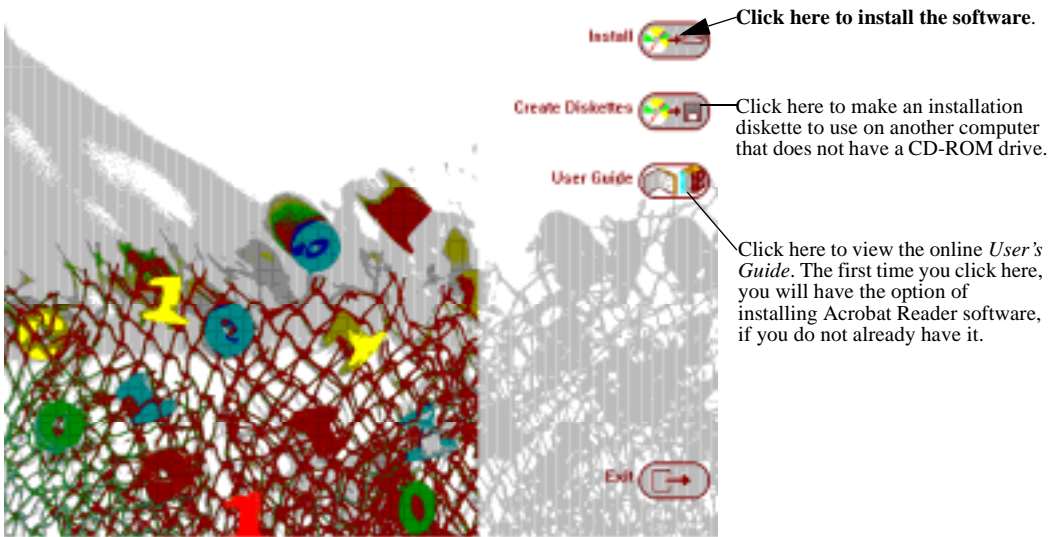
1. Connect the tape drive to your parallel port as described in "Connecting the Hardware" on page 4. The drive must be attached to install and configure the software.
2. Insert the software installation CD into your CD-ROM drive. If your computer does not have a CD-ROM, see page 35.
3. In Windows, open the Program Manager window, if it is not already open.
4. From the Windows' Program Manager, Click on the **File** menu and select **Run**. The Run box appears.
5. In the Command Line box, type D : \SETUP and press ENTER (where D: is your CD-ROM's drive letter).

The following screen appears:



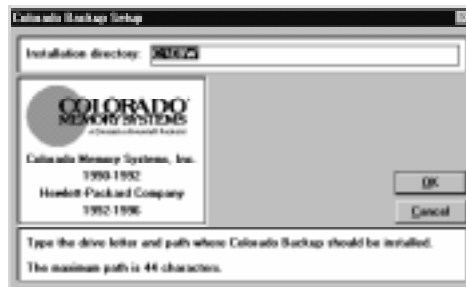
6. Select the desired language or leave the default and click **Next**.

The following screen appears:



7. Click on the **Install** button.

The following screen appears:



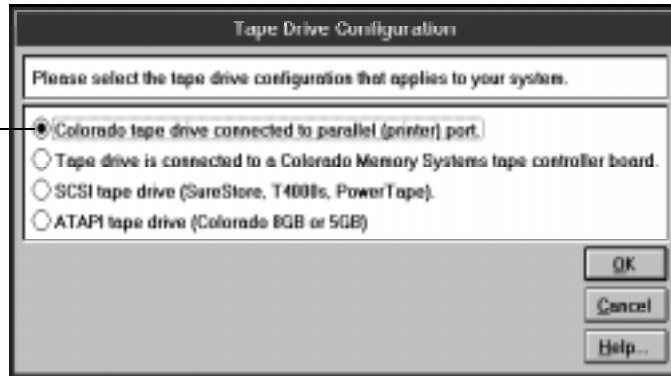
8. Either accept the default installation directory of C:\CBW or type in a new directory name. Then click on **OK**.
9. A dialog box appears explaining that the installation process must alter your AUTOEXEC.BAT, CONFIG.SYS, WIN.INI, and SYSTEM.INI files. Current copies of these files are saved with the extension OLD in the directory indicated in the previous step. Click on **OK** to proceed.

The Colorado Backup files are then copied to the directory indicated in step 8.

10. After the files are copied, the Colorado Backup main window appears with a dialog box indicating that Windows needs to be restarted before Colorado Backup will work properly. Make sure all applications are closed and click on **OK**. Colorado Backup and Windows are exited and restarted. When the main window reappears, you are ready to configure the tape drive.

Configuration begins with the following dialog box. Click on any **Help** button if you need more information about the displayed dialog box.

This is the configuration you are performing.



11. Accept the default setting by clicking on **OK**.

The following screen appears:



12. Click on **Yes**.
13. You are notified that the configuration process was successful. Click on **OK**.

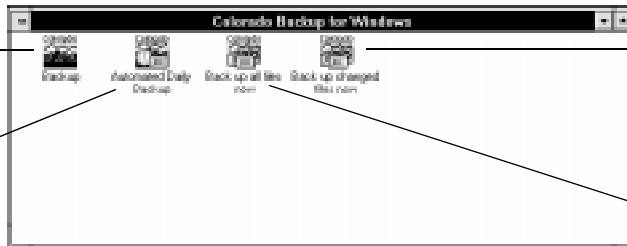
A dialog box appears indicating that the installation is complete and the settings have been saved. It also contains brief instructions for creating an automated backup system.

14. Click on **OK**. Colorado Backup for Windows shuts down, leaving you in Windows' Program Manager with the Colorado Backup for Windows program group displayed.

Double-click on this icon to start Colorado Backup.

Double-click on this icon to backup all files that have changed since your last backup.

Double-click on this icon to set up an automated backup schedule.



Double-click on this icon to start a backup of *all* files on all local hard drives.

15. The software is now installed. You can open the software and make your first backup, or you can set up the Automated Daily Backup as described in the following steps.
16. If you want Colorado Backup to automatically make backups of your files at a designated time each day, double-click on the **Automated Daily Backup** icon in the Colorado Backup for Windows program group.

The scheduling dialog box appears.



When turned on, the Automated Daily Backup feature creates the following operations:

- n **Automated Total**—This operation runs each Monday. The tape is erased to make room for a Total backup of all detected local hard drives. It then copies *all* files—applications, systems files, and data files—from each detected local hard drive. The files on tape are then compared to the original hard drive files to ensure their accuracy. This provides a complete copy of your hard drive(s) at the time of the backup.
- n **Automated Modified**—This operation runs each day from Tuesday to Sunday, backing up only files that have been edited or added since your last backup. Each backup creates a separate volume which is added to the tape after each previous

backup volume. The combination of Monday's Total and the six Modified backups gives you an up-to-date copy of all files.

17. To create an automated backup system, select **On**. The default time of 11:59 p.m. (23:59 if you are using a 24-hour clock) appears as the scheduled time for the daily backup.
18. Accept the default time or enter the time you prefer to have your backups run automatically. Click on **OK**.
19. An explanation of the Automated Daily Backup appears. Click on **OK**.

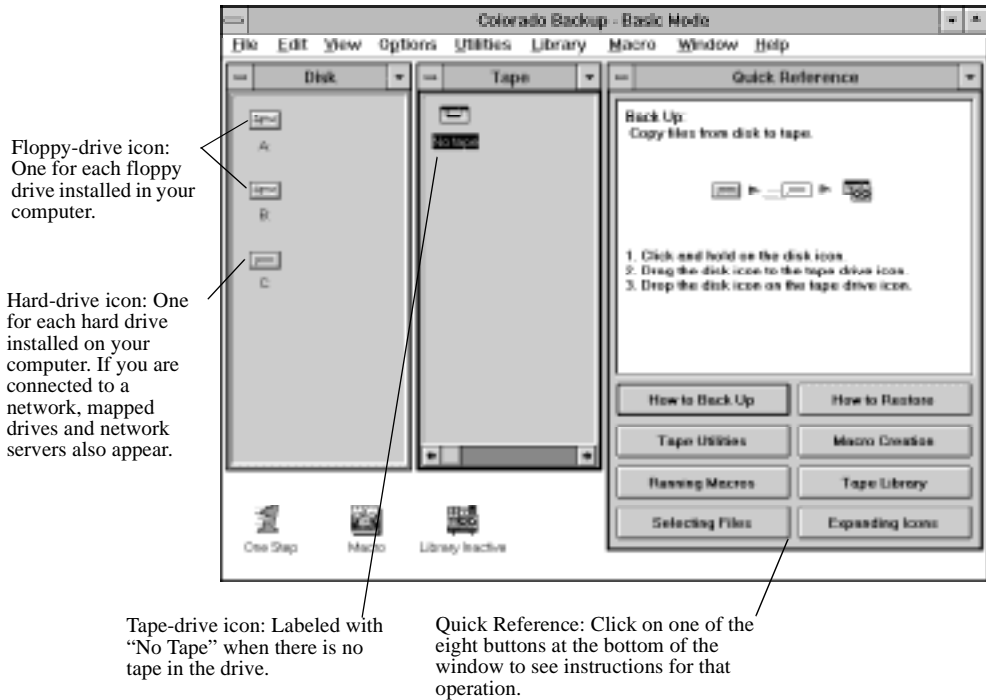
An icon labeled Colorado Scheduler appears on your desktop.



The presence of the Scheduler icon indicates that the macros will run at their specified times if you:

- n Leave a tape in your tape drive
  - n Exit out of Colorado Backup for Windows
  - n Leave your computer on with Windows running
20. Remove the software installation CD from your CD-ROM drive and store it in a safe place.
  21. To open Colorado Backup, double-click on the **Backup** icon.

The Colorado Backup main window appears.



22. If the Colorado Backup window does not appear or you receive an error message, see "If You Have Problems" on page 29.

If you are ready to perform tape operations, read:

- n "Using Tapes and Caring for Your Drive" on page 32.
- n The online *User's Guide* or the online **Help** to learn how to back up and restore data, compare files, and use the application's options and features.

For more information on accessing the *User's Guide*, see "Viewing the Online User's Guide" on page 2.

## Installing Colorado Backup for Windows 95

*NOTE: Do not use Colorado Backup for Windows 95 to backup Novell servers. Colorado Backup for DOS can backup Novell 2.x and 3.x servers or Colorado Backup for Windows (3.1 or 3.11) can backup Novell 3.x servers.*

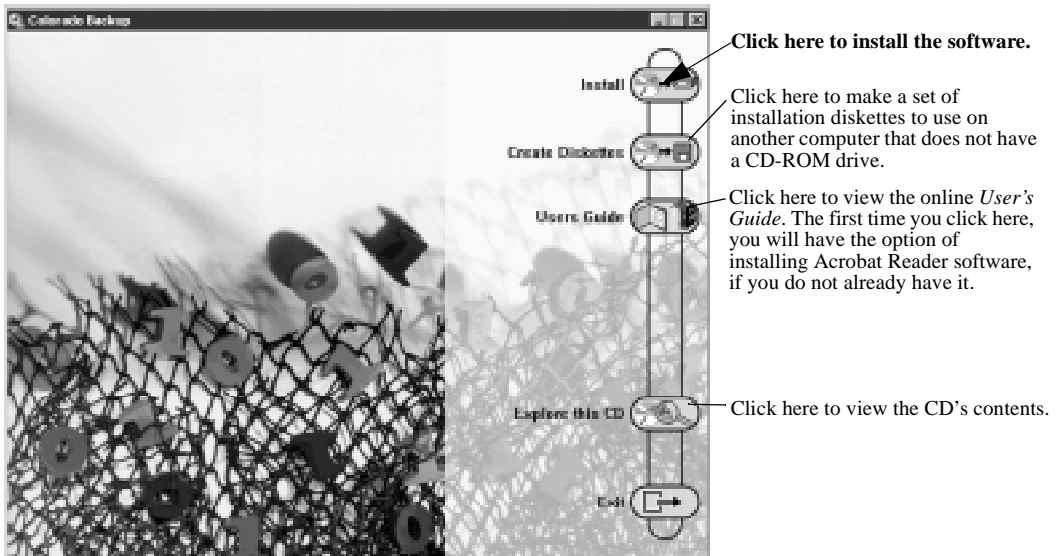
*NOTE: Colorado Backup for Windows 95 can back up computers over your Windows 95 and Windows for Workgroups networks. However, Colorado Backup for Windows 95 will only back up the Windows 95 registry of the computer to which your tape drive is attached. The Windows 95 registry of a remote computer will not be backed up.*

1. You will need two formatted, 3.5" (1.44 MB) diskettes labeled "Recovery Disk #1" and "Recovery Disk #2" to use in step 13.
2. Connect the tape drive to your parallel port as described in "Connecting the Hardware" on page 4. The drive must be attached to install and configure the software.
3. Insert the software installation CD into your CD-ROM drive. If your computer does not have a CD-ROM, see page 35.
4. If the first screen does not appear automatically, click the **Start** button on the Windows 95 task bar, select **Run**, type D:\SETUP (where D: is your CD-ROM's drive letter), then click on **OK**. The following screen appears:



5. Select the desired language or leave the default. Click on **Next**.

The following menu appears:



6. Click on the **Install** button. Follow the instructions on the screen.
7. When prompted to restart your computer, click on **Yes**. Your computer is restarted and Windows 95 reappears with the **Colorado Backup** icon on the desktop.
8. Exit the menu window and remove the software installation CD from your CD-ROM drive and store it in a safe place.
9. To start Colorado Backup, double-click on the **Colorado Backup** icon in the program group that appears on your desktop, *or*:
  - n Click the **Start** button.
  - n Highlight **Programs**.
  - n Select the **Colorado Backup** program group.
  - n Select the **Colorado Backup** program.
10. A registration screen appears. Follow the instructions on the screen to register your Colorado Backup software.



11. The Recovery Disk Creation screen appears:

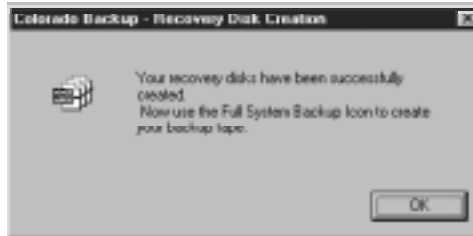


12. Click on the **Create Recovery Disks Now** button. The following screen appears:



13. Insert the formatted, 3.5" (1.44 MB) diskette labeled "Recovery Disk #1" into your floppy drive. You must use your primary, or bootable floppy drive. Click on **Continue**.
14. When prompted, remove Recovery Disk #1 from the drive and insert the diskette labeled "Recovery Disk #2." Click on **OK** to continue.

15. Click on **Continue**. When all the necessary files have been copied to the diskette, the following screen appears:



16. Remove “Recovery Disk #2” from the floppy drive and write protect both diskettes. Store the two recovery disks together in a safe place.
17. Click on **OK**. The Colorado Backup main window appears.



18. If the Colorado Backup window does not appear or you receive an error message, see “If You Have Problems” on page 29.

If you are ready to perform tape operations, read:

- n “Using Tapes and Caring for Your Drive” on page 32.
- n Read the *User’s Guide* or the online **Help** to learn how to back up and restore data, compare files, and use the application’s options and features. To read the online help while you are using Colorado Backup, select **Help** from the menu bar.

For more information on accessing the *User’s Guide*, see “Viewing the Online User’s Guide” on page 2.

## Configuring the Drive for Windows NT 4.0

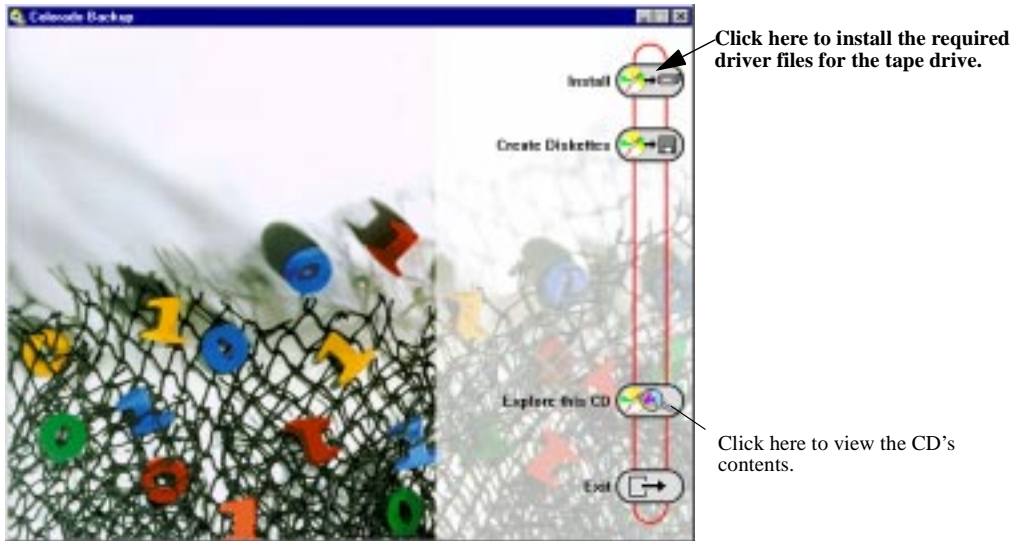
Your HP Colorado tape drive can be successfully installed with Windows NT 4.0. Use the backup application that is part of the standard Windows NT 4.0 setup. Simply install the tape drive's driver files by following the directions below.

1. Attach the tape drive to your parallel port as described in "Connecting the Hardware" on page 4. The drive must be attached to install and configure the software.
2. Start up your computer and log in with Administrative rights.
3. Insert the software installation CD into your CD-ROM drive. If your computer does not have a CD-ROM, see page 35.
4. If the first screen does not appear automatically, click the **Start** button on the Windows NT task bar, select **Run**, type D:\SETUP (where D: is your CD-ROM's drive letter), then click on **OK**. The following screen appears:



5. Select the desired language or leave the default. Click on **Next**.

The following menu appears:



6. Click on the **Install** button.

The following screen appears:



7. Select **Colorado 5GB or 8GB (external)** then click **Next**. Follow the instructions on the screen.
8. You are prompted to install the HP Colorado external driver files. Click on **Yes**.
9. When prompted to restart your computer, click on **Yes**.
10. Your computer is restarted and Windows NT reappears. Log in with Administrative rights.
11. Go to the **Control Panel** and choose the **Tape Devices** icon.

12. Go to the **Drivers** tab and click on **Add**.
13. Windows NT creates a list of tape drives. Click on **Have Disk** button.
14. When prompted to enter the path for the manufacturer's files, type D:\NT (where D: is your CD-ROM's drive letter). If your computer does not have a CD-ROM, see page 35.
15. Click **OK**.
16. A list of tape devices appears. Select **Hewlett-Packard Colorado IDE**. The necessary files are copied to your system.
17. Restart the system. If no services fail, the drive is ready to use. If services fail, please contact our QuickFax service for document 5228. The QuickFax phone numbers are listed on page 46.
18. Start the Backup application by clicking on **Start, Programs, Administrative Tools, and Backup**.
19. Use NT Backup online **Help** to learn how to back up and restore data, compare files, and use the application's options and features.

## If You Have Problems

Try the following suggestions:

- n Exit out of all applications. Turn off the computer's power, wait 20 seconds, then turn it on again. Unplug the tape drive and then plug it in again. (This is called *cycling power*.) Then start Colorado Backup.
- n Verify that your computer meets the requirements listed in "Minimum System Requirements" on page 35 for the operating system in which you are using Colorado Backup.
- n Does the drive move the tape when the tape is inserted? If not, check the power connections to the tape drive.
- n Disconnect all the cables, look for and straighten any pins, and then reconnect the cables. Sometimes just reconnecting a cable aligns it correctly or adjusts the pin connections, fixing a faulty connection.
- n If you have a printer connected to the HP Colorado tape drive, turn off the computer's power. Disconnect the tape drive and the printer. Reconnect only your tape drive to the parallel port, then turn the computer on and start Colorado Backup. If Colorado Backup works properly, it is likely you have a conflict with

the printer.

- n Make sure that there is no switch box anywhere in the HP Colorado drive's cabling configuration.
- n Your parallel port may be using the same IRQ setting as some other device in your computer system. For example, a sound board or fax/modem board may be using the same IRQ. If you discover conflicts, change the IRQ setting on the other device. Refer to the manuals that came with your computer and other devices for instructions.
- n If your tape drive works, but the data transfer rate is noticeably slow or the tape repeatedly starts and stops (as opposed to running continually for long periods), consult your computer's documentation to view and edit the parallel port's CMOS settings. Newer computers are likely to have enhanced parallel ports (EPP) or extended capabilities ports (ECP), which transfer data much faster than unidirectional, bi-directional, or compatible ports. Some factory settings may have the EPP or ECP ports set as a slower unidirectional port. Changing the CMOS settings in this case can greatly improve the tape drive's performance.
- n Make sure you are using the right type of tape. See "Choosing Tapes for Your Tape Drive" on page 32.
- n **Windows and Windows 95 users:** If the tape-drive icon appears with a red mark through it, the software either cannot find the drive at the selected settings, or the inserted tape is not compatible. (Windows 3.x users can click on the tape icon to read the error message.) Exit the software and restart it. If the mark remains, try the operation with a different tape.
- n If your computer has a power-management feature that shuts off your computer after a specified period of time since the last keyboard input, you may experience problems with certain operations that exceed the time limit. Turn off the power-management feature when performing a long running operation such as a total or full-system backup. Check your computer's manuals to find out how to turn off or change the time limit of the power-management feature.
- n Check the read-me file on the software installation CD that came with your tape drive or the HP web site (see page 46) for any late-breaking troubleshooting information.

#### Achieving optimal performance

Run SCANDISK.EXE and DEFRAG.EXE on your hard drive before using your tape drive for the first time (see your DOS, Windows 3.x or Windows 95 manual for more information). Then run them periodically after that. These programs improve access times to the hard drive, which will help improve the tape drive's performance.

### Printer Status Monitor Software

*NOTE: This is only a problem if your printer is connected to the back of the tape drive.*

If your printer came with a program that notifies you about the status of the printer (such as when it is out of paper), this *printer status monitor* software might cause problems. The *printer status monitor* software checks the status of your printer every few seconds. If this happens while you are writing data to your tape, it will cause data corruption. Turn off the *printer status monitor* software to prevent this problem. Check the information that came with your printer to find out how to do this.

### Known Compatibility Problems

- n Check the Readme file on the software installation CD for additional information.
- n Check the web site listed on page 46 for the most recent information.
- n Acer computers, some models P75 to P120  
DO NOT connect the tape drive to the printer (parallel) port. On these models, connecting an external storage device, such as the HP Colorado drive, to the parallel port will damage the port. Contact your computer manufacturer for more information.
- n Okidata printer model 4w  
Printer no longer works or problems printing a file after connecting it to the tape drive
- n Your parallel port may be using the same IRQ setting as some other device in your computer system. For example, a sound board or fax/modem board may be using the same IRQ. If you discover conflicts, change the IRQ setting on the other device. Refer to the manuals that came with your computer and other devices for instructions.
- n If your printer is attached to the tape drive, printing documents while using the tape drive will yield unpredictable results and is not a supported function. This is because the printer and tape drive are sharing the same data cable.

# Chapter 4: Using Tapes and Caring for Your Drive

## Choosing Tapes for Your Tape Drive

To ensure the highest level of performance, HP Colorado brand tapes (which have been fully tested with your drive) are recommended.

Part No	Product	HP Colorado T3000	HP Colorado 5GB	HP Colorado 8GB	HP Colorado 4i/e
C4427A	1 pack TR-3 3.2 GB minicartridge	RW	R	R	
C4427B	2 pack TR-3 3.2 GB minicartridge	RW	R	R	
C4427D	5 pack TR-3 3.2 GB minicartridge	RW	R	R	
C4429A	1 pack HP Colorado 5.0 GB cartridge		RW	RW	RW
C4429B	2 pack HP Colorado 5.0 GB cartridge		RW	RW	RW
C4429D	5 pack HP Colorado 5.0 GB cartridge		RW	RW	RW
C4425A	1 pack TR-4 8.0 GB minicartridge			RW	RW
C4425B	2 pack TR-4 8.0 GB minicartridge			RW	RW
C4425D	5 pack TR-4 8.0 GB minicartridge			RW	RW

RW Read/Write, R Read only



**In Windows 95 only**, your tape drive can also read from but NOT write to backup tapes made using Colorado Backup software and a Jumbo 250, 350, 700, 1400; Trakker 250, 350, or 700; T1000; or T3000 tape drive.

The following section explains how to insert your tapes. Please note the differences between the HP Colorado cartridges and the standard mini-data cartridge when they are fully inserted.



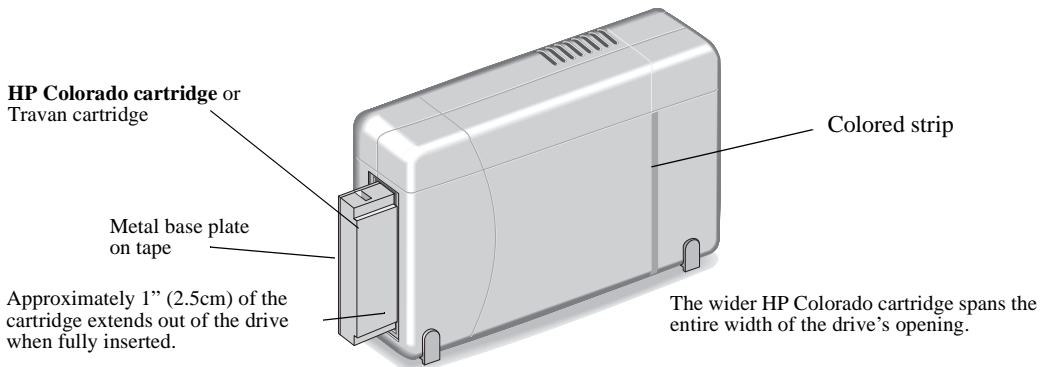
*CAUTION: Do not erase C4425 or C4429 tapes with bulk erasers. Magnetic bulk erasing removes tracking reference points that are placed on the tape at the factory. Without these points, the tapes cannot be read by your tape drive. The Erase utility in Colorado Backup is the safest and quickest method of removing data from your tapes.*

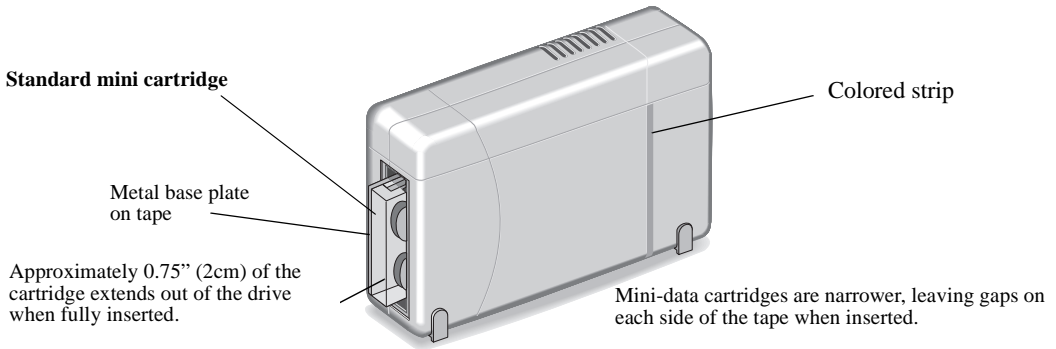
## Inserting a Tape

1. Align the tape with the tape-drive door. The record/play area faces the door and goes in first.
2. Insert the tape with the metal base plate facing away from the colored strip on the tape drive.
3. Steady the drive with one hand and push the tape into the tape drive with the other. You will feel it lock into place.

After the cartridge is inserted, you will hear the sound of the tape being wound back and forth. This sound indicates that the tape drive is finding the beginning of the tape, determining the tape's length and format, and positioning the drive's read/write head.

Note the differences between the two cartridge types when they are fully inserted.





## Removing a Tape

1. Wait until the light on the front of your tape drive quits blinking. (*DO NOT* remove a tape during an operation. See the CAUTION note below.)
2. Steady the drive with one hand and grasp the tape cartridge with the other. Pull the cartridge straight out.



*CAUTION: Interfering with a tape during operations may cause data loss, and may make the tape temporarily unrecordable. If, during a backup, you pull the tape out of the drive, turn off the power to the computer, or firmly bump the tape, you will not be able to read the data currently written to the tape. Also, the tape will not be recordable until it is erased with Colorado Backup's Erase utility. (Never use a magnetic bulk eraser to erase your HP Colorado C4425 or C4429 tapes. Bulk erasers remove reference points on the tape that are vital. Removing these points makes tapes unusable.)*

## Caring for Your Tape Drive

You do not need to perform any routine maintenance on the HP Colorado tape drive.



*CAUTION: Do NOT clean the read/write head of an HP Colorado tape drive.*



*CAUTION: Do NOT degauss or demagnetize the read/write head of an HP Colorado tape drive. Damage to your tape drive will result.*

# Chapter 5: Technical Information

## Minimum System Requirements

### Hardware Requirements

Your computer must meet or exceed these requirements:

- n **An IBM-compatible computer** (486/16 MHz class or higher for DOS and Windows 3.1, 486/25 MHz class or higher for Windows 95 or Windows NT 4.0).
- n **A parallel port.** All IBM-compatible computers (desktop, tower, and laptop computers) have at least one parallel port to send and receive data to and from devices such as printers and tape drives. Ports are commonly referred to as LPT1, LPT2, and LPT3.
- n **A CD-ROM drive to install the backup software.**

**If your computer does not have a CD-ROM drive:**

You can make installation diskettes by using another computer to which you have access.

Insert the software installation CD, run the SETUP program, and select **Create Installation Disks**. From the diskettes, run either INSTALL (DOS) or SETUP (Window 3.x, Windows 95 or NT).

- n See the operating system requirements on the following pages.

## Colorado Backup for DOS Requirements

Installing Colorado Backup for DOS requires:

- n **DOS 5.0 or higher.** To identify your version, type VER at the DOS prompt and press ENTER.
- n **A minimum of 512 KB of conventional memory.** Performance is likely to improve with more available memory. To check free memory, type MEM at the DOS prompt and press ENTER. The value listed after “Largest executable program size” should be at least 524,288.
- n **6 MB of available hard drive space** (1 MB for the software and an additional 5 MB of space for operations overhead). To check available hard drive space, type CHKDSK at the DOS prompt and press ENTER. “Bytes available on hard drive” should be at least 6 MB.

## Colorado Backup for Windows Requirements

Installing Colorado Backup for Windows requires:

- n **Windows version 3.1 or 3.11 running in 386 Enhanced mode.** To verify your version and mode, from the Program Manager, open the **Help** menu, then select **About Program Manager**. The software version is listed and “386 Enhanced Mode” must appear in the box.
- n **4 MB of RAM in Windows 3.1**  
**8 MB of RAM in Windows for Workgroups**
- n **10 MB of available hard drive space** (5 MB for the software and an additional 5 MB of space for operations overhead). To check available hard drive space, double-click on the **File Manager** icon in the **Main** program group. Then click on the icon for the hard drive where Colorado Backup is to be installed (C: is the default). The amount of free hard drive space appears at the bottom of the window. It must be at least 10,000 KB.

In addition, the following is recommended but not required:

- n Your computer might be running either the SHARE.EXE or VSHARE.386 (but not both). If either is running, you will find SHARE.EXE in either your CONFIG.SYS or AUTOEXEC.BAT file, and VSHARE.386 will be in your SYSTEM.INI file.

See your *Microsoft Windows User's Guide* for more information.

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## Colorado Backup for Windows 95 Requirements

Installing Colorado Backup for Windows 95 requires:

- n **Windows 95**
- n **8 MB of RAM**
- n **20 MB of available hard drive space** (15 MB for the software and an additional 5 MB of space for operations overhead). To check available hard drive space, double-click on **My computer**; click on the icon representing the hard drive on which the backup software will be installed; open the **File** menu and select **Properties**. Available hard drive space must be at least 20 MB.

## Windows NT 4.0

You can use the Windows NT Backup applet with this tape drive.

## LAN Installation

When using Colorado Backup on a LAN, the tape drive *hardware* and *software* must be installed in a workstation. Do not install them on the network server. For other LAN installation options, call the Cheyenne Customer Support phone number listed on page 46.

*NOTE: Do not use Colorado Backup for Windows 95 to backup Novell servers. Colorado Backup for DOS can backup Novell 2.x and 3.x servers or Colorado Backup for Windows (3.1 or 3.11) can backup Novell 3.x servers.*

*NOTE: Colorado Backup for Windows 95 can back up computers over your Windows 95 and Windows for Workgroups networks. However, Colorado Backup for Windows 95 will only back up the Windows 95 registry of the computer to which your tape drive is attached. The Windows 95 registry of a remote computer will not be backed up.*

## What Affects Performance

How well your new HP tape drive functions, particularly how fast it writes data to tape, depends on a number of factors. Some of these factors are listed below.

**Processor (CPU).** The type and speed of your processor greatly affects the speed at which your computer transfers data to and from the tape drive.

**RAM.** Your computer must have enough memory available to handle its operating system, the backup software, and the data you are transferring to and from tape. The system should not have to swap data to and from the hard drive. Shut down other programs during a backup to ensure optimal speed.

**Parallel Port Type.** The type of parallel port on your computer has a major influence in determining the speed at which your HP Colorado tape drive runs. Possible parallel port types are:

- n Standard parallel port (SPP) which is sometimes called unidirectional, bi-directional, or compatible
- n Enhanced parallel port (EPP)
- n Extended capabilities port (ECP)

**TIP:** Check your computer's specifications to see which kind of parallel port was installed. Sometimes a fast ECP/EPP port will be set up as a slow standard mode port at the factory (for example, some HP Vectra models). Check your computer's manual to find out how to reset it to the faster speed. If that doesn't work you can also install a faster parallel port.

**I/O and IRQ.** The IRQ (interrupt request level) and I/O (input/output) base address are the computer resources used by the parallel port. The HP Colorado tape drive will have better performance on a parallel port set to:

IRQ 7 with I/O base address 378, *or*

IRQ 5 with I/O base address 278

Most computers automatically assign these. But, depending on your computer's configuration, these settings may be different.

Your parallel port may have a conflict with another device (such as your sound card or FAX/modem) if both are assigned the same IRQ or I/O settings. If there is a conflict, change the settings on the other device. To find out if your computer has a conflict:

In Windows 95, right-click on the **My Computer** icon, select **Properties**, select the **Device Manager** tab, double-click on the computer icon to see a list of which device is using each resource setting on your computer.

**For optimum performance**, run SCANDISK.EXE and DEFRAG.EXE on your hard drive (see “Achieving optimal performance” on page 30).

*Refer to your computer manual or contact your computer vendor if you have any questions about your computer’s configuration or capabilities.*

## Drive Specifications

### Backup Speed

*Performance will vary greatly depending on the speed of your system, the current fragmentation of your hard drive, and the number and type of files being backed up.*

Data transfer rate: up to 648 KBps

Tape speed, Read/write: up to 102 inches per second

Search/rewind: 120 inches per second

Load time: 15 seconds

### Tape Format

QIC-3095

Number of tracks: 73

Bit density: 67,733

Encoding method: RLL1,7

Error Correction: 6-level Reed-Solomon

### Interface

Parallel

### Reliability Specifications

Hard error rate: <1 in  $10^{15}$  bits read with Reed-Solomon ECC

Mean time between failure: 250,000 hours predicted

Warranty: 2-year limited warranty

### Power Requirements

Tape drive: +16 Vdc @ 1.3 A

Power supply: 100-240 VAC, 50/60 Hz, 1.0 A

**Specified Operating Temperature**

Minimum: 5° C (41° F)

Maximum: 35° C (95° F)

**Certifications**

UL, cUL, TÜV, NOM, CE, meets or exceeds FCC Class B requirements

**Federal Communications Commission R.F. Interference Statement**

**WARNING:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- n Reorient or relocate the receiving antenna.
- n Increase the separation between the equipment and receiver.
- n Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- n Consult the dealer or an experienced radio/TV technician for help.

**CAUTION:** Changes or modifications of this equipment not expressly approved by Hewlett-Packard, could result in violation of Part 15 of FCC rules.

To maintain compliance with FCC rules and regulations, use properly shielded cables with this device.

**User's manual statement for VCCI class B product**

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。  
取り扱い説明書に従って正しい取り扱いをして下さい。

**Translation for VCCI class B product**

This equipment is in the Class B category information technology equipment based on the rules of Voluntary Control Council For Interference by Information Technology Equipment (VCCI). Although aimed for residential area operation, radio interference may be caused when used near a radio or TV receiver.

Read the instructions for correct operation.



## Korean RRL Statement

### 사용자 안내문 (B급 기기)

이 기기는 비업무용으로 전자파장해검정을 받은 기기로서, 주거지역은 물론 모든 지역에서 사용할 수 있습니다.

## Notice

Europe: This drive shall be installed only with an EN60950 (IEC950) approved Power supply.

USA/Canada: This drive is for use only with IBM compatible UL<sup>®</sup> listed personal computers.

## FCC Declaration of Conformity

According to 47CFR, Parts 2 and 15, Class B Computer Peripherals:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference (2) this device must accept any interference received including interference that may cause undesired operations. This applies to all product options.

August 1, 1997

Richard M. Spangler, Quality Manager

## Notice for Canada

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

<b>DECLARATION OF CONFORMITY</b>	
according to ISO/IEC Guide 22 and EN 45014	
<b>Manufacturer's Name:</b>	Hewlett-Packard Company
<b>Manufacturer's Address:</b>	815 SW 14th Street, Building E Loveland, Colorado 80537
<b>declares that the product</b>	
<b>Product Name:</b>	HP Colorado 5GB external
<b>Model Number:</b>	C4361A
<b>Product Options:</b>	All
<b>conforms to the following Product Specifications:</b>	
<b>Safety:</b>	EN60950:1992 + A1:1993, + A2:1993, + A3:1995
<b>EMC:</b>	EN 55022:1994 Class B EN 50082-1:1992 IEC 801-2:1991 - 4kV CD, 8kV AD IEC 801-3:1984 - 3V/m IEC 801-4:1988 - 1kV Power Lines, 0.5kV Signal Lines ENV 50140:1993 - 3V/m
<b>Supplementary Information:</b>	
The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC directive 89/336/EEC and carries the "CE" mark accordingly.	
<b>August 01, 1997</b>	<b>Richard Spangler, Quality Manager</b>
European contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HP-TRE, Herrenberger Straße 130, D-71034 Böblingen (FAX: +49-7031-143143).	

<b>DECLARATION OF CONFORMITY</b>	
according to ISO/IEC Guide 22 and EN 45014	
<b>Manufacturer's Name:</b>	Hewlett-Packard Company
<b>Manufacturer's Address:</b>	815 SW 14th Street, Building E Loveland, Colorado 80537
<b>declares that the product</b>	
<b>Product Name:</b>	HP Colorado 8GB external
<b>Model Number:</b>	C4388A
<b>Product Options:</b>	All
<b>conforms to the following Product Specifications:</b>	
<b>Safety:</b>	EN60950:1992 + A1:1993, + A2:1993, + A3:1995
<b>EMC:</b>	EN 55022:1994 Class B EN 50082-1:1992 IEC 801-2:1991 - 4kV CD, 8kV AD IEC 801-3:1984 - 3V/m IEC 801-4:1988 - 1kV Power Lines, 0.5kV Signal Lines ENV 50140:1993 - 3V/m
<b>Supplementary Information:</b>	
The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC directive 89/336/EEC and carries the "CE" mark accordingly.	
<b>August 01, 1997</b>	<b>Richard Spangler, Quality Manager</b>
European contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HP-TRE, Herrenberger Straße 130, D-71034 Böblingen (FAX: +49-7031-143143).	

## Software License Agreement for External Drives

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**Export Requirements.** You may not export or re-export the Software or any copy or adaptation in violation of any applicable laws or regulations.

**U.S. Government Restricted Rights.** The Software and any accompanying documentation have been developed entirely at private expense. They are delivered and licensed as "commercial computer software" as defined in DFARS 252.227-7013 (Oct 1988), DFARS 252.211-7015 (May 1991) or DFARS 252.227-7014 (Jun 1995), as a "commercial item" as defined in FAR 2.101(a), or as "Restricted computer software" as defined in FAR 52.227-19 (Jun 1987) (or any equivalent agency regulation or contract clause), whichever is applicable. You have only those rights provided for such Software and any accompanying documentation by the applicable FAR or DFARS clause or the HP standard software agreement for the product involved.

## Hewlett-Packard Limited Warranty Statement

HP Colorado Tape Drive  
DURATION OF LIMITED WARRANTY  
Hardware - 2 year  
Software - 90 days

1. HP warrants to you, the end-user customer, that HP hardware, accessories and supplies will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or like-new.
2. HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software media which does not execute its programming instructions due to such defects.
3. HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.
4. HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.
5. Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.
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7. TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries, States or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

FOR CONSUMER TRANSACTIONS IN AUSTRALIA AND NEW ZEALAND: THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

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## Returning Your Drive

**All countries other than the USA:** If your Hewlett-Packard product requires repair or replacement, call Customer Support at the phone number listed on page 47 of this guide to receive instructions.

**In the USA:** If your Hewlett-Packard product requires repair or replacement, follow these instructions:

Call the number listed on page 47. Customer Support will help you determine if your drive is defective. Provide the product type, serial number, and date of purchase. You will be given a return authorization number. Keep the return authorization (RA) number for future reference.

Securely repackage the product (in the original packaging if possible) to prevent shipping damage and mark the return authorization number on the box and in the box along with your name and address.

All product returns must have an accompanying return authorization number. To ensure timely and accurate processing of your return, the number must be clearly printed on the outside of the box.

Use the appropriate address for your location. A traceable shipping method is recommended. The postage, shipping and insurance charges incurred in shipping to Hewlett-Packard will be paid by Purchaser and all risk for the product shall remain with Purchaser until such time as Hewlett-Packard takes receipt of the product.

Once your product is received at Hewlett-Packard, we will ship the replacement product. Hewlett-Packard will pay shipping charges to the Purchaser for replacement product covered under warranty.

If the product is still under warranty, there is no charge for the replacement. If the product is not covered under warranty, an exchange cost will be quoted when the return authorization number is issued.

# Chapter 6: Customer Support Services

## Support for Your Tape Drive and Colorado Backup Software

If you need help with your tape drive, your local reseller has the latest information regarding HP products and services and can provide support under HP's comprehensive menu of reseller services. If your reseller is not able to help, or you are having software problems, you can obtain support from HP directly either through free 24-hours/day interactive electronic services or by telephone (free during warranty).

America Online ..... Keyword: hpstor  
CompuServe ..... Go HPSYS  
World Wide Web ..... [http://www.hp.com/go/colorado\\_support](http://www.hp.com/go/colorado_support)  
Bulletin board site (8,N,1,F, 1200-28.8K baud)  
Europe ..... +31 (0)495 546909  
Asia/Pacific  
Australia ..... (03) 9890 0276  
Korea ..... Hitel: (02) 762-0228  
Access: Go HPK  
Chollian: (02) 220-2001  
New Zealand ..... (09) 356 6642  
Taiwan ..... (02)9233233  
First Name: HP  
Last Name: BBS

### QuickFax Faxback Service

Simply dial the fax number from a touch-tone phone or Group 3 fax machine and follow the voice prompts to select the index of available support and product information documents.

USA and Canada ..... 800-368-9673 or 970-635-1510  
Europe  
Austria (free line) ..... 0660 8128  
Belgium (free line)  
- Dutch ..... 0800 11906  
- French ..... 0800 17043  
Denmark (free line) ..... 800 10453  
Finland (free line) ..... 9800 13134  
France (free line) ..... 05 905900  
Germany (free line) ..... 0130 810 061  
Italy (free line) ..... 1678 59020

Netherlands (free line)	06 022 2420
Norway (free line)	800 11319
Spain (free line)	900 993123
Sweden (free line)	020 795743
Switzerland (free line)	
- French	155 1526
- German	155 1527
United Kingdom (free line)	0800 960271
Other locations in Europe (toll line)	+31 (0)20 681 5792
Asia/Pacific	
Australia	(03) 9272 2627
China	(8610) -65055280
Japan	(3) 3335-8622
Korea	(02) 769-0543
New Zealand	(09) 356 6642
Singapore	(65) 291-7951
Taiwan	(02)7195589
E-mail	Colorado_Support@hp.com
FTP Site	ftp.hp.com
<b>Login:</b>	anonymous
<b>Password:</b>	(Your email address)
<b>Directory:</b>	/pub/information_storage/hp-colorado
Telephone USA and Canada (M-F, 6 a.m.- 6 p.m. Mountain time)	
Literature and dealer referral	970-635-1500
Canada (for French-speaking customers)	
pour assistance en français	1-800-387-3867
<i>During warranty period</i>	
- Technical support	970-635-1500
<i>After warranty period (charges begin only when you connect to a Support Technician, prices are subject to change without notice)</i>	
Technical Support	800-810-0130
(Per incident fee of \$25 US dollars charged to Visa, MasterCard or American Express)	
U.S. only Technical Support	900-555-1800
(\$2.50 per minute/maximum of \$25. You must be 18 years of age or have parental permission to call 900 numbers.)	
Europe (M-F, 8:30-18:00 Central European Time)	
<i>Use these Technical Support numbers during and after your warranty period. No charge for Technical Support during warranty period. Per incident charge after warranty period.</i>	
Austria (German)	06 60 63 86
Belgium	
- Dutch	02 626 88 06
- French	02 626 88 07
Denmark	39 29 40 99
Finland	02 03 47 288
France	04 50 43 98 53
Germany	0180 52 58 143
Ireland (English)	01 662 55 25
Italy	02 2 641 0350

Netherlands . . . . .	020 606 8751
Norway . . . . .	.22 11 62 99
Portugal . . . . .	.01 44 17 199
Spain . . . . .	.90 23 21 123
Sweden . . . . .	.08 61 92 170
Switzerland (French, Italian, and German) . . . . .	08 48 80 11 11
United Kingdom . . . . .	.0171 512 52 02
English language support from other countries . . . . .	+44 171 512 52 02
Asia/Pacific	
Australia (M-F 7am-7pm, Eastern Standard Time) . . . . .	(03) 9272 8000
China (M-F 8:30-17:30) . . . . .	(8610)-62625666
extensions 5602 through 5609, 5611 and 5612	
(8610)-62614174	
(8610)-62624175	
(8610)-62614176	
Korea (M-F, 8:30-19:00) . . . . .	(02) 3270-0700 / 080-999-0700 (toll free)
New Zealand (M-F, 9am to 9pm Auckland Time) . . . . .	(09) 356 6640
Singapore (M-F, 9:00-17:00) . . . . .	(65) 271-7233
Taiwan (M-F, 8:30-17:30) . . . . .	(02) 717-9609

## FAX

USA . . . . .	970-667-0997
Asia/Pacific	
Australia . . . . .	(03) 9272 4099
Korea . . . . .	(02) 3270-0707
New Zealand . . . . .	(+61 3) 9272 4099
Singapore . . . . .	(65) 278-9225
Taiwan . . . . .	(02)5140276



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<http://www.404manual.com>

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Email search by domain

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<http://tv.somanuals.com>