Seagate

MEDALIST HARD DRIVE
INSTALLATION GUIDE

Medalist 630xe (ST3630A)
Medalist 850xe (ST3850A)
for ATA (IDE)-Compatible PCs

MEDALIST

MICROSOFT WINDOWS NT COMPATIBLE

Designed for Microsoft® Windows®95

FAST ATA

FAST ATA-2

INSTALLING YOUR NEW SEAGATE HARD DRIVE

Thank you for selecting a Seagate® hard drive. Installing your new Seagate drive is easy when you use this easy drive-installation sheet. For technical information and troubleshooting tips, see the back of this sheet. If you have additional questions, call your computer dealer or contact Seagate technical support.

This symbol indicates that there is additional information on the back of this sheet.

BEFORE YOU BEGIN

STOP **Important.** Do not format this drive without first reading the instructions and removing the free drive-support software that is stored on the drive.

- Make sure your computer is turned off before you open the case.
- Read the handling precautions at the right, and inspect the drive to make sure that it is not damaged.
- Save your foam-lined Seagate disc drive box. This box has been approved by Seagate for shipping a Seagate disc drive. Using any other container or packing material voids your drive warranty.

HANDLE WITH CARE!
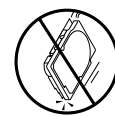
Disc drives are extremely fragile. Do not drop or jar your drive.
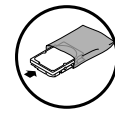
Keep the drive in its antistatic bag until you are ready to install it.

Protect your drive from static discharge by making sure you are well grounded before touching the drive. We recommend wearing a grounded wrist strap throughout the installation process. Do not touch the connectors or any part of the printed circuit board.
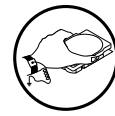
Always handle the drive by its edges or frame.

Do not apply pressure or attach labels to the circuit board or the top of the drive.

WHAT YOU WILL NEED

- Straight-edge and Phillips screwdrivers
- Drive mounting screws
- If you are mounting this 3.5-inch drive in a 5.25-inch drive bay, you need a mounting adapter or frame kit.
- You may need drive mounting rails if your drive bay is not designed for direct mounting.
- A drive host adapter and connector cable with enough connectors for all your drives
- An unused drive power cable to plug into your new drive
- A bootable DOS system diskette (Seagate recommends using DOS Version 5.0 or later.)
- A blank 1.2-Mbyte or 1.4-Mbyte diskette to transfer the drive-support software to after you have mounted the drive

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1. ONE DRIVE OR TWO?

The options jumper block, shown in the drawing below, allows you to configure the drive to work in your system. The default factory configuration allows the drive to operate as a single drive attached to the hard disc controller or as the master drive with an ATA-compatible slave. You can configure the drive to be the slave, to be the master with a non-ATA-compatible slave, or to work in systems that use cable select.

The drawing below shows the available options and how to configure the drive. A brief description of the options is provided on the back of this poster.

Spare jumper	
Single drive or Master with an ATA-compatible slave	
The drive is the slave	
Master with a non-ATA-compatible slave	
Cable select	
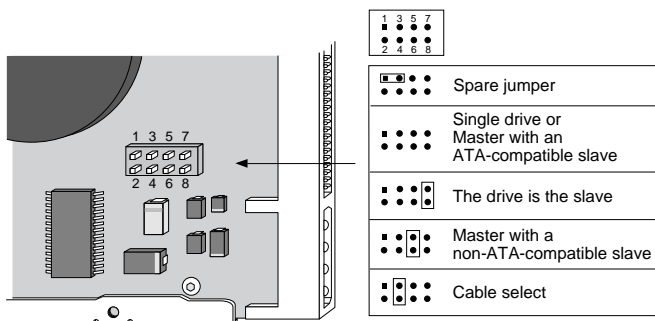
ACCESSING MORE THAN 528 MBYTES

The full capacity of your drive exceeds the maximum capacity many older computers can address. If your computer's BIOS was manufactured before June of 1994, it may not be able to access more than 528 Mbytes. Several options are available for surpassing the 528-Mbyte barrier. We recommend the following:

1 Use a hard drive controller or a BIOS upgrade that supports drives with capacities greater than 528 Mbytes,

or

2 Use the free Disk Manager software stored on your Seagate drive to install the drive.

Caution. You must transfer the replacement 32-bit disk access driver for Windows 3.1, the free Disk Manager software and the other software stored on the drive to a diskette in Drive A before you partition and format the drive. Instructions for transferring the software are provided in Section 2, "Transferring the Free Seagate Software."

ATTACHING CABLES

1 Attach one end of the 40-pin drive interface cable to the interface connector on your computer or host adapter as shown below. After threading the cable through the drive bay, attach your drive or drives to one of the connectors on the interface cable.

Caution. Make sure to align pin 1 of the computer's interface connector or the host adapter with pin 1 of your drive or drives.


Pin 1
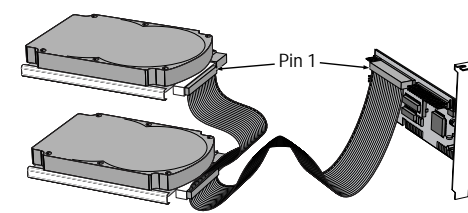
2 Attach a power cable to each drive as shown.

Pin 1

Power connector

Interface connector
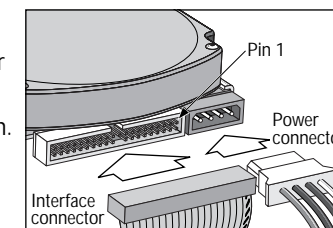
MOUNTING THE DRIVE

You can mount the drive in any orientation. Secure the drive with four 6-32 UNC-2A mounting screws not more than six full turns into the drive frame in either the side mounting holes or the bottom mounting holes. Do not overtighten. Do not use metric screws. After mounting the drive, replace the computer cover.

If you are mounting the drive in a 5.25-inch drive bay, you need a mounting adapter or frame kit. Contact your computer dealer. Some computers may also require drive mounting rails, which can be obtained from your distributor or computer manufacturer.

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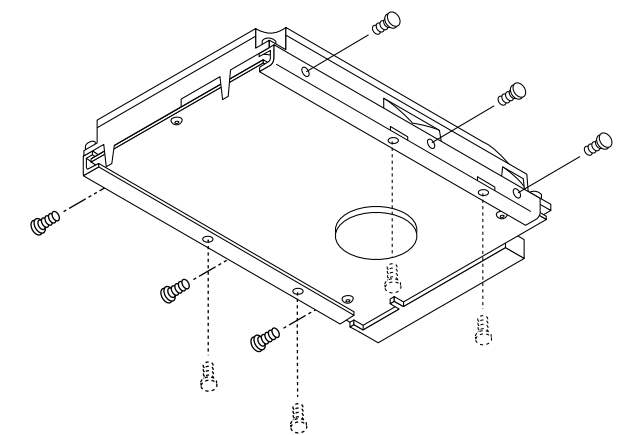
2. TRANSFERRING THE FREE SEAGATE SOFTWARE

The factory creates a partition on the drive and stores free software files that 1) allow your computer to access the drive's full capacity when the 528-Mbyte barrier is imposed; 2) you can use to partition and format the drive; and 3) allow you to display some of the features available on an attached ATA drive. You must transfer the files to a blank, bootable diskette in Drive A before you partition and format the drive. A transfer program, Seamove, is provided to transfer the files and prepare them for use. Seamove also erases the partition when the transfer is complete. The software programs are:

SEG32BIT.386. A replacement 32-bit disk access driver for Windows 3.1 that provides full 32-bit disk access mode support for drives with capacities greater than 528 Mbytes in Windows.

Disk Manager. Installation software that partitions and formats your drive and installs a software driver to surpass the 528-Mbyte barrier if necessary.

DRVINF11. A program that reads an installed ATA drive and displays the drive's major features.

Seamove. Transfers the above software programs to a diskette in Drive A and erases the factory partition and format after the files are transferred.

To make a bootable diskette and transfer the files:

1 Turn your computer on and enter Setup. See your computer or motherboard reference manual for instructions on how to enter Setup. It may be called System Setup, BIOS Setup or CMOS Setup.

2 Locate the hard disc configuration settings.

3 Select user-defined or custom, and configure the drive for 615 cylinders, 4 heads and 17 sectors (Drive-type 2). Save and exit Setup.

4 Immediately insert your DOS diskette into Drive A.

5 At the A prompt, type **format a: /s** and press ENTER. The /s switch makes the new diskette bootable.

6 The computer reads the DOS diskette and prompts you to insert a blank diskette into Drive A when it is ready to format the new diskette.

7 When the format is complete, reboot the computer with the new diskette.

8 Access the prompt assigned for your new Seagate drive.

9 Type **seamove**. Seamove transfers the files from the drive to your diskette. It erases the partition and the files when the transfer is complete. We refer to this diskette as the Seagate software diskette.

3. CONFIGURING SETUP

You must configure the computer to recognize the full capacity of your drive. If your BIOS cannot access the full capacity of the drive and you choose to use Disk Manager, you can leave the hard drive parameters you used for transferring the software file in Setup. Go to Section 4A "Installation with Disk Manager Software." Disk Manager will install its software driver, Dynamic Drive Overlay (DDO), to make the drive's full capacity available.

If your BIOS can accept more than 528 Mbytes, use the steps below to configure the BIOS. Many BIOSs use logical block addressing (LBA) mode to access drives with capacities greater than 528 Mbytes. Check your documentation for this feature.

1 Turn your computer on and enter Setup.

2 Enable LBA mode if it is available.

3 Locate the hard disc configuration settings.

4 If your Setup has an Auto option, select it. Save and exit Setup. The computer automatically determines the drive parameters and configures Setup.

If there is no Auto option and LBA mode is enabled, select user-defined or custom, and enter the LBA parameters shown for your drive in the table. If Setup does not accept all of the LBA parameters,

use the CHS (cylinder, head and sector) parameters.

If there is no Auto option and no LBA mode, select user-defined or custom and enter the CHS parameters.
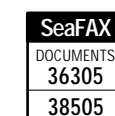
SeaFAX DOCUMENTS 36305 38505	Drive Model	Mode	Cylinders	Heads	Sectors per track
	ST3630A	CHS	1,223	16	63
	ST3850A	CHS	1,648	16	63
	ST3630A	LBA	611	32	63
	ST3850A	LBA	824	32	63

Note. Your drive does not use write precomp or landing zone parameters; set these parameters to zero.

5 Save the settings and exit Setup. Your computer will continue the startup sequence.

After the BIOS is configured, you can use either Disk Manager to partition and format the drive (see Section 4A "Installation with Disk Manager Software") or the standard partition and format (see Section 4B "Standard Partitioning and Formatting").

4A. INSTALLATION WITH DISK MANAGER SOFTWARE

1 Boot your computer with the Seagate software diskette. This is a precaution to ensure that the Disk Manager installation does not conflict with any terminate-and-stay resident programs that may load into memory.

2 At the DOS prompt, type **dm** and press ENTER.

3 Follow the screen instructions until the Select an Install Option dialog box appears. Select (E)asy Disk Installation and press ENTER. This puts a single partition and a quick format on the drive.

4 Verify that the drive model number appears on the screen. If you have two drives, both model numbers must appear. Select the drive you want to install and press ENTER. Disk Manager partitions and formats the drive and makes it bootable if it is Drive C.

If the model number is not shown, exit Disk Manager and turn off the computer. Check all cables and jumper settings. Try again.

5 Follow the instructions in the post-installation screens.

If the BIOS cannot accept your drive's geometry, Disk Manager installs a software driver, Dynamic Drive Overlay (DDO), on Drive C that allows the computer to access your drive's full capacity. Read the *Important Information—Please Read* screen carefully; it tells you how to boot with a diskette when your computer requires the Disk Manager software driver to access your drive.

If your computer requires DDO to access your new Seagate drive, the Disk Manager banner must appear when you boot the computer after installing the drive. If the banner does not appear, the computer will not recognize the drive. Make sure that Drive A is empty when you boot. Try again.

YOU'RE DONE!

4B. STANDARD PARTITIONING AND FORMATTING

Caution. Partitioning or formatting a drive erases all of the data on it. Seagate assumes no liability if you erase your data. Before you partition or format the drive, be sure to transfer the free software files stored on the drive at the factory.

Drive Partitioning

1 Insert a bootable DOS diskette into Drive A and boot your computer.

2 At the A: prompt, type **fdisk** and press ENTER.

Note. If you have two drives installed, the menu displays five options. Option five allows you to select the drive you want to partition. Make sure you select the correct drive.

3 Type 1 for "Create DOS partition or logical DOS drive" and press ENTER.

4 Type 1 and press ENTER to "Create primary DOS partition." Type yes and press ENTER. This puts the entire drive on one partition and makes the partition active. When the partitioning is complete, FDISK reboots your computer.

Drive Formatting

At the A: prompt, type **format d: /s**, where *d* is the letter of your new hard drive (DOS automatically assigns a letter for each partition you create).

Caution. Make sure that you use the correct drive letter. All data on the drive is erased during the format.

When the formatting completes, your drive is ready.

YOU'RE DONE!

WINDOWS 32-BIT DISK ACCESS

The 32-bit disk access feature in Windows 3.1 does not work with drives that have capacities greater than 528 Mbytes. If you want to use this feature, install the Seagate replacement 32-bit access driver, SEG32BIT.386, located on your Seagate software diskette.

If, during installation, Windows 3.1 activates the 32-bit disk access feature in your system, a message suggesting that you disable 32-bit disk access appears the first time Windows loads into memory. Choose to disable 32-bit disk access to open Windows.

To install the Seagate 32-bit disk access replacement driver:

1 Place your Seagate software diskette into Drive A.
2 Open the Windows Program Manager menu and select File.
3 Select Run.
4 In the command line box, type **a: \stsetup.exe**.
5 Read the license agreement that appears on the screen. If you agree to the terms, select Accept Agreement to continue.
6 The next screen lists the features the SEG32BIT.386 driver supports. If your computer supports these features, they will be active in 32-bit disk access mode with SEG32BIT.386 for all drives that support them. Select Install Driver to continue.

To make the feature active, you must enable the 32-bit disk access option in the Windows control panel. Open the Control Panel. Select 386 Enhanced. Select Virtual Memory. Select Change>>. Select Use 32-Bit Disk Access (an X in the box enables the feature). Save the change.

INSTALLATION OPTIONS

This section provides a brief discussion of the options on the options jumper block. The drive comes with a spare jumper on pins 1 and 3.

Single Drive or Master with an ATA-Compatible Slave

This is the factory-default setting.

Slave

To make the drive the slave, place a jumper on pins 7 and 8.

Master with Slave Present

This option allows you to use a non-ATA-compatible slave with your Seagate drive as the master. Place a jumper on pins 5 and 6.

Cable Select

Some computers differentiate between master and slave drives using specially designed interface cables that have the line to pin 28 (the Cable Select pin) removed or cut at one end. The connector that has pin 28 disabled is used for the slave drive. See your computer manual to determine whether your computer supports this feature. To configure the drive for cable select, place a jumper on pins 3 and 4.

ADVANCED DISK MANAGER OPTIONS

General

Disk Manager partitions and formats your drive. It installs the Dynamic Drive Overlay (DDO) software driver to provide access to the drive's full capacity if your computer's BIOS is not configured to access more than 528 Mbytes. DDO bypasses the BIOS during the boot sequence and loads the drive information before DOS is loaded. Disk Manager:

• Provides an easy installation option that partitions and formats the new drive in seconds

• Provides an easy-to-use format if you want to customize your drive installation

• Installs a software driver, Dynamic Drive Overlay, that allows the computer to access the full capacity of your Seagate drive when the BIOS limits the drive capacity to 528 Mbytes

• Modifies the boot record with geometry for the new drive if the Dynamic Drive Overlay driver is required

• Copies the system files onto the new Drive C to make it bootable

• Enables read/write multiple, a feature that increases performance by allowing multiple blocks of data to be transferred in a single burst if your computer also supports this feature

• Provides full drive-capacity support for several operating systems

• Provides complete, easy-to-use online documentation

Booting with a Diskette

If Disk Manager installs DDO to access the full capacity of your drive, the information DDO uses to access the drive must load into memory before the operating system loads into memory. This occurs automatically when you boot to Drive C. To gain access to the drive when booting to Drive A:

1 Boot the computer with the Drive A door open.
2 When the Disk Manager banner appears, immediately press the SPACEBAR (you have about 2 seconds).
3 Insert the boot diskette and press the SPACEBAR.

If you boot with a diskette regularly, you can create a Dynamic Drive Overlay boot diskette. It loads DDO into memory before loading the operating system. See the online manual for information on how to create a Dynamic Drive Overlay boot diskette.

Supported Operating Systems

Dynamic Drive Overlay provides full drive-capacity support for the following operating systems:

MS-DOS
Windows 3.x
Windows NT 3.51
Window NT 3.50 (requires DM upgrade drivers)
Windows 95
OS/2 V3.0 (Warp full pack)
OS/2 V2.0–3.0 (requires DM upgrade drivers)

If you are installing an operating system other than DOS, you must first install your drive with DDO and make sure that it is bootable before you install the other operating system. Installation instructions for other operating systems are available in the online manual. To open the online manual:

1 Go to the Select an Installation Option menu.
2 Select (V)iew/Print Online Manual.

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3 Select Operating System Installation.
4 Select the operating system you want to install.

You can also open the online manual from the command line. Type **dm/h** and press ENTER. Press ENTER again to open the online table of contents menu.

Note. If your are installing OS/2 or Windows NT, we suggest that you print the instructions before you start the installation.

To use DDO with OS/2 and Windows NT V3.5, you must replace up to four of the original files with files supplied by Disk Manager. The replacement files are located in the OS2 and the NT subdirectories on your Seagate software diskette. The online manual tells you which files you need to replace and under what conditions to replace them. If you need assistance renaming a file, refer to your DOS reference manual. If you need to make a copy of an installation diskette, follow the instructions below—the installation diskette will not install if you use the standard copy command to copy it.

1 Insert the original diskette into Drive A and access the drive.
2 Type **diskcopy a: a:**. The computer will read the original diskette and prompt you to insert the destination diskette into Drive A.
3 Insert a blank diskette into Drive A and press any key.

Erase the files you need to replace on the new diskette, and copy the replacement files using the standard copy command. (If only one diskette drive is available for copying, first copy the required files to the hard drive from the appropriate subdirectory, then copy the files to your new diskette.)

Removing the Dynamic Drive Overlay

If Disk Manager installs your drive with DDO, you can, in many cases, remove DDO without losing your data. However, you will lose access to the full capacity of your drive unless you use another method that supports more than 528 Mbytes (see "Accessing More Than 528 Mbytes" on the front side). Three steps are required to remove DDO safely: 1) migrating the data, 2) configuring Setup with the drive's translation and 3) uninstalling DDO. Follow the instructions below to remove DDO safely.

⚠ **Caution.** Before you attempt to remove DDO, back up your data files. You may need to use the backup files to restore your disc if your data is lost.

If the migration encounters a media defect or is interrupted by a power loss or hardware failure, the migration will fail and your data will be lost. Run CHKDSK, SCANDISK or a third-party equivalent to detect and repair any media defects before you attempt the migration.

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1 Boot the computer to Drive C.
2 Put your Seagate software diskette into Drive A and access the A prompt.
3 Type **dm** and go to the Select Installation Options menu.
4 Select (M)aintenance Menu.
5 Select (M)igrate Dynamic Drive. This program shifts the data to where the standard format can find it. The migration may take up to an hour to complete, depending on the size of your drive.
6 When the Migration is complete, exit Disk Manager.
7 Remove the diskette, reboot the computer and enter Setup.
8 Configure the hard drive with the parameters shown for your drive in the translation geometry table in Section 3, "Configuring Setup," on the front side of this guide. Save your changes and exit Setup.
9 When the boot is complete, insert the diskette and access the drive.
10 Type **dm** and go to the Maintenance Menu.
11 Select Uninstall (D)isk Manager.
12 Select the correct drive to uninstall.
When the uninstall is complete, exit Disk Manager and reboot.

GENERAL TROUBLESHOOTING

Basic Troubleshooting Techniques

🛑 **Warning.** Always turn off the computer before changing jumpers or unplugging cables and cards. Wear a ground strap or take other antistatic precautions while handling your drive.

If you have installed your drive and it does not function properly, perform the following basic checks:

• **Verify compatibility.** Verify that the host adapter and the drive are appropriately matched to each other and to your computer. Refer to relevant documentation for details.

• **Check all cards.** Verify that all cards are seated in their slots on the motherboard and are secured with mounting screws.

• **Check all cables.** Make sure all ribbon and power cables are securely connected. Ribbon cables are easily damaged, especially at the connector. Try a new cable or a known good cable. Make sure no socket pins were bent when the cable was inserted. For each cable, verify that pin 1 on the cable is aligned with pin 1 on the drive and host adapter. The edge-stripe on the ribbon cable is used to denote pin 1.

⚠ **Caution.** Do not reverse-plug the power connector. This can damage your drive.

• **Verify equipment configuration.** Review the instructions in this guide and the host adapter installation guide, and make sure that all appropriate jumpers are installed, or removed, to suit your application.

• **Check the power-supply specifications.** If new devices are installed, your computer's power supply may not support the new total power requirement. Consult your dealer.

• **Verify the drive-type settings in Setup.** The drive-type settings in Setup must not exceed the physical specifications of your drive. Also, the settings must not exceed the limitations set by the operating system and BIOS.

• **Check for viruses.** Before you use someone else's diskette in your system for the first time, scan the diskette for viruses.

Advanced Troubleshooting

If you have performed the preceding basic checks but the problem persists, follow these guidelines for troubleshooting specific cases:

The system does not recognize the drive.

• Check all cables.
• Make sure the power supply is adequate for system needs.

• Reboot the computer and make sure the drive motor runs. If the drive is very quiet, it may be difficult to hear its discs reach operating speed. Recheck all drive cables if the drive is not running.

• Verify that each drive has a drive-type value in Setup.

• Try rebooting your computer by pressing the CTRL, ALT, and DELETE keys simultaneously. If the drive is recognized after the warm boot, the computer BIOS setup test may be completing before the drive is ready.

One solution is to slow the processor speed during startup. If your computer has a turbo switch, set it to slow speed before turning the computer on. If there is no turbo switch, you may be able to use keyboard commands; see your computer manual for details. After the computer is up and running, return the processor to the fast speed.

Another solution is to warm-boot your computer after every power-on.

• Check for I/O address conflicts. To isolate the conflict, verify that the drive and host adapter are configured with your computer by removing all the peripheral adapter cards (power must be off) except for the video card. Reinstall the drive and host adapter card and boot the computer. If this is successful, reinstall the other peripherals one at a time until the conflict occurs. After you have isolated the source of the address conflict, you can resolve the conflict by changing the I/O address of the peripheral that appears to cause the conflict.

• If you are booting from a diskette and Disk Manager installed your drive using DDO, the information in the boot record for the drive was not loaded. Make sure there is not a diskette in Drive A and reboot. If you want to boot with the diskette, follow the "Booting with a Diskette" instructions in column one.

The dealer partitioned and formatted the drive for you in the store, but the drive does not respond when you install it.

• Reboot the computer and make sure the drive spins up. Check all cables.

• Make sure the power supply has adequate power for your system.

• Make sure the DOS version the dealer used to partition and format the drive is the same version you have installed on your computer. If it isn't, see your dealer.

• Verify the Setup drive-type values. You must install the drive using the same drive-type values your dealer used to partition the drive.

• Check for I/O address conflicts between peripheral cards.
• Check for viruses.

The screen remains blank when you power up the system.

• Make sure the monitor is plugged in and turned on.
• Check all cards.
• Make sure the video card is seated in its slot and secured with mounting screws.
• While the computer is powered down, remove the drive host adapter. If the screen turns on after you reboot, the host adapter may be incompatible or defective. If so, see your dealer.

The system hangs in FDISK or fails to create or save the partition record.

• Check all cables.
• The DOS utilities diskette may be corrupted. Try your backup DOS diskette.
• Make the partitions smaller.
• Change the interrupt jumper setting on the host adapter.
• Check for media defects at the beginning of the drive. Use CHKDSK, SCANDISK or a third-party surface scan utility.
• Some BIOSs have a Track 0 protection feature that protects Track 0 from viruses. This can cause FDISK to hang the system. You must disable this feature in Setup before you can use FDISK. See your computer reference guide for assistance. Be sure to re-enable this important feature when FDISK is done.

The system error message, "Drive not Ready," appears.

• Check all cable connections. Make sure that pin 1 of the drive is connected to pin 1 of the hard disc controller or host adapter.
• Make sure the power supply is adequate for system needs.
• Reboot the computer and make sure the drive spins up.

The FDISK error message, "No Fixed Disk Present," appears.

• Make sure the power supply is adequate for your system.
• Verify the Setup drive-type values.
• Check for I/O address conflicts.

The drive does not format to full capacity.

• Verify the drive-type values in Setup. One of the following problems may have occurred:
  – The values may be set with an incorrect translation characteristic.
  – You may have entered a parameter value that exceeds the physical capacity of the drive.
  – You entered a translation characteristic that does not take full advantage of the drive's capacity.
  – The drive's physical specifications exceed the translation limits imposed by the BIOS.

Note. If you reset the Setup drive-type values, you must partition and format the drive again.

• If you have partitioned the drive into individual logical drives, you may need to make the partitions smaller so that the computer can use all of the drive's capacity.

• If your computer supports LBA mode, you may need to enable the LBA mode function in Setup to get the drive's full capacity. Refer to your computer's reference guide.

• You can use the Disk Manager software to install the drive.

The DOS messages "Disk Boot Failure," "Non-System Disk" or "No ROM Basic – SYSTEM HALTED" appear.

• Reinstall the DOS system files using the DOS SYS utility.
• Check all cables.
• Use FDISK to verify that the primary partition is active.
• Check for viruses.

System error message, "HDD controller failure" appears.

• Confirm the jumper settings on the drive.
• Verify the Setup drive-type values.