135MB Internal IDE Manual

SyQuest®

EZ135 Internal IDE Removable Cartridge Disk Drive for PC-Compatible Systems

Installation Guide

Part Number 107804-001
Revision A

Technical Assistance

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Contents

Before You Begin

EZ135 drives are installed inside your 386™, 486™, or Pentium™ class desktop or tower computer. Your computer must also have the following features to install the EZ135 successfully:

- An empty 3.5-inch or 5.25-inch mounting bay
- An IDE or EIDE controller capable of accepting an additional disk drive
- A compatible operating system, including:
  - MS-DOS™ 3.1 or higher
  - PC-DOS™ 3.1 or higher
  - DR-DOS™ 6.0 or higher
  - OS/2™ 2.1 or higher
  - If you have Windows™ installed, it must be Version 3.0 or higher.

NOTE: EZ135 IDE drives **do not** work with Macintosh™ computers or with notebook computers. If you have an Macintosh or a notebook computer, contact your authorized SyQuest reseller for instructions on exchanging the drive for an Macintosh-compatible EZ135 SCSI or notebook-compatible EZ135 Parallel Port drive.

This installation guide provides detailed step-by-step instructions for installation. Installation typically requires one to two hours, and requires familiarity with computer hardware and software, as well as some mechanical ability. If your level of experience is limited, your authorized SyQuest reseller can provide you with a list of local computer service companies that can install your drive into your computer for a fee.

Check the Package Contents

Your EZ135 IDE drive is shipped with the following items:

- SyQuest EZ135 IDE Drive in 5.25-inch mounting assembly
- SyQuest 135MB cartridge
- 40-pin IDE ribbon cable
- Utility software on 3.5-inch diskettes
- Software Manual
- Installation Guide (this document)
- Product warranty card
- Bag of screws (depending on your computer's configuration, you may not use all the screws provided)

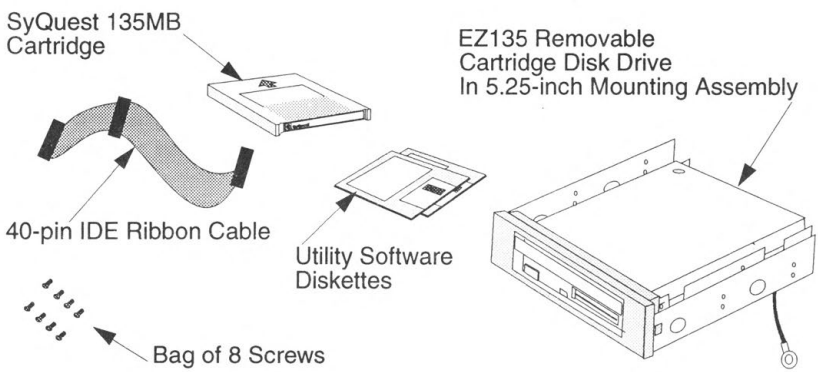

Figure 1. Package Contents

If any of these items are missing, return the package to your authorized SyQuest reseller for instructions.

NOTE: If you install your EZ135 drive in a 3.5-inch mounting bay, you will not need the 5.25-inch mounting assembly. Discard unused parts after you finish the installation.

Overview of a Typical Desktop PC

Pictured below is a typical Desktop PC. Refer to this drawing and the glossary if you have questions about the meaning of any words used in this guide.

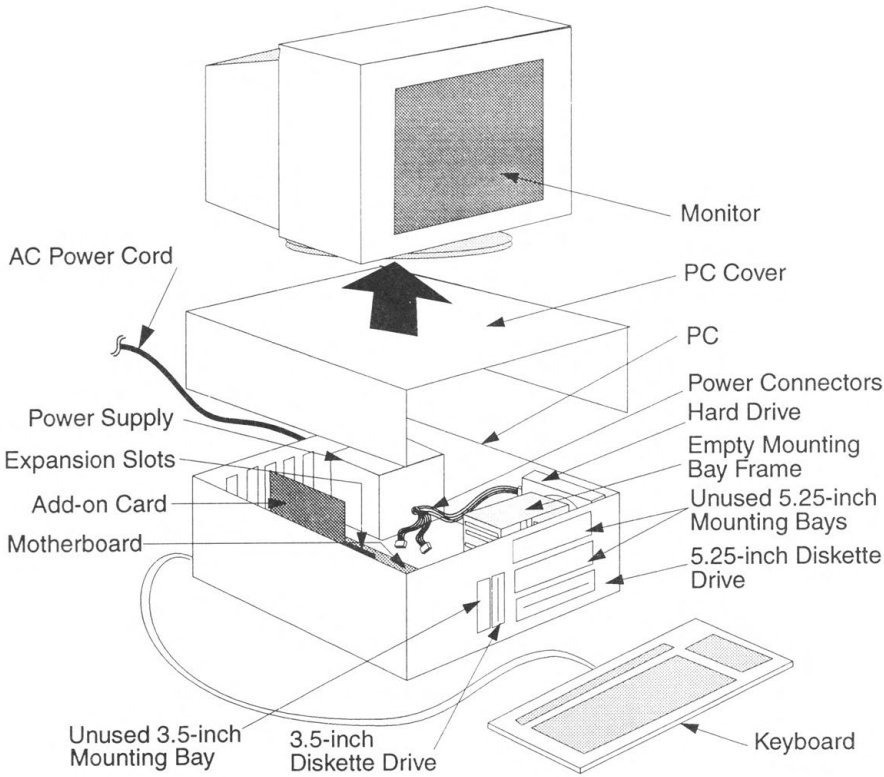

Figure 2. Typical Desktop PC Components

Overview of a Typical Tower PC

Pictured below is a typical Tower PC. Refer to this drawing and the glossary if you have questions about the meaning of any words used in this guide.

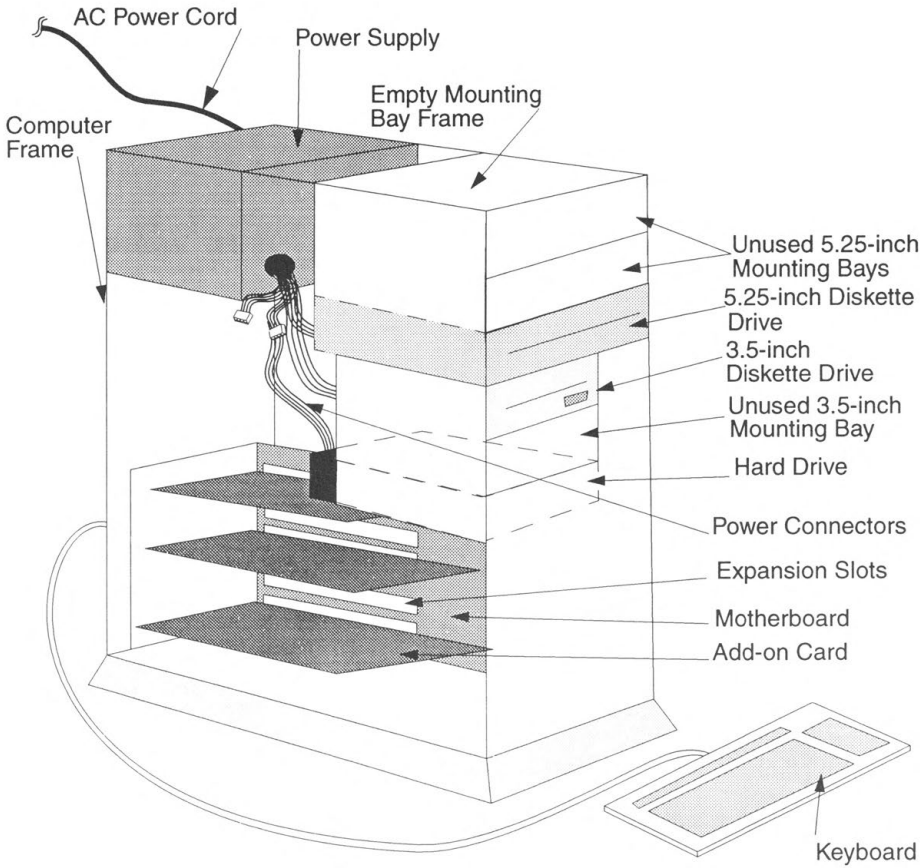

Figure 3. Typical Tower PC Components

Check Out Your Computer

During these steps you will verify that you have an available 3.5-inch or 5.25-inch mounting bay. You will run a program that verifies that you have an IDE or EIDE Controller and record details about your computer's hard drive(s).

1. Visually inspect the outside of your computer for an unused mounting bay.

Unused bays have removable plastic covers that are located next to diskette drives or CD-ROM drives.

⚠ **CAUTION:** Do **not** open your computer or remove the plastic cover yet.

Some computers provide both 3.5-inch and 5.25-inch mounting bays. See Figure 4 for typical locations of unused mounting bays.

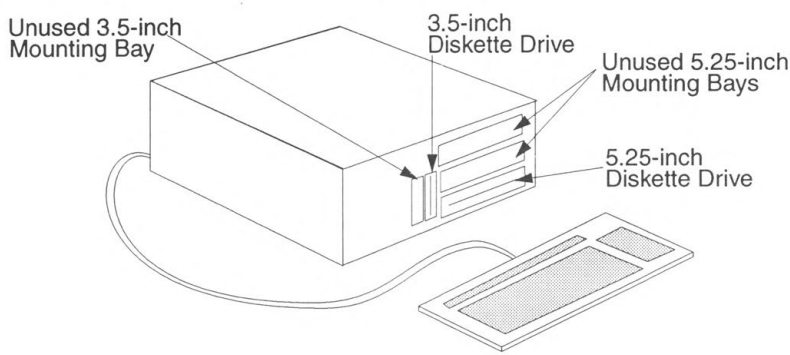

Figure 4. Finding an Unused Mounting Bay

If all your mounting bays are in use, you can exchange your EZ135 IDE internal drive for an EZ135 external drive, or you can remove a device currently using a mounting bay.

An example of a device that you may consider removing if you already have a 3.5-inch diskette drive, is a 5.25-inch diskette drive (Since nearly all software is currently distributed on 3.5-inch diskettes, 5.25-inch drives are becoming less needed). Call SyQuest Technical Assistance at 800-249-2440 for directions on removing a diskette drive.

2. Verify your computer's operating system.

From a DOS prompt, type `VER` and press the Enter key. Verify that your operating system meets the minimum requirements listed below:

- MS-DOS™ 3.1 or higher
- PC-DOS™ 3.1 or higher
- DR-DOS™ 6.0 or higher
- OS/2™ 2.1 or higher
- If you have Windows™ installed, it must be Version 3.0 or higher.

If you are using a lower version of DOS than required, you will have to upgrade your computer to the correct level. If you are using OS/2 2.1 or higher you will have to shutdown your computer and restart your computer with a DOS operating system before continuing with step 3.

3. Run the CHECKSYS program.

This program identifies the characteristics of any existing IDE hard drives. You will have to record certain information from the screen. Be sure to read each step carefully.

NOTE: If your computer only has 5.25-inch diskette drives, see Appendix A.

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a. **Insert the SyQuest Hardware Configuration Utility Diskette into either your `A:` diskette drive (or `B:` diskette drive, if your diskette drive is drive B).**

b. **At a DOS prompt, type `A:` (or `B:`) and press the Enter key.**
The DOS prompt changes to an `A:` prompt (or `B:` prompt).

c. **At the `A:` prompt (or `B:` prompt), type `CHECKSYS` and press the Enter key.**
The program loads and displays the main menu screen. Use the arrow, tab, and Enter keys to navigate through the program.

4. Follow the prompts in the CHECKSYS program to display information about your existing hard drive.

The CHECKSYS program scans the IDE cables in your computer and reports the manufacturer and model of the IDE drives installed.

a. Read the information in the Main Menu screen, select `Continue`, and press the Enter key.

The information in this first screen describes the purpose of the CHECKSYS program.

b. Select the EZ135 drive model from the list of SyQuest drives and press the Enter key.

The CHECKSYS program scans your computer to determine the make and model of existing IDE drives.

NOTE: If you do not have an IDE or EIDE controller, you will **not** be able to install the EZ135 IDE drive. You can purchase and install a controller, or exchange the EZ135 IDE Drive for an EZ135 Drive that is compatible with your computer. Consult your authorized SyQuest reseller for advice.

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c. When the CHECKSYS program reports the IDE drives detected in your computer, select `Continue` and press the Enter key.

Some computers manufactured by Compaq™ require special mounting rails to mount drives in the mounting bays. If the CHECKSYS program indicates that your computer is manufactured by Compaq, you will have to make sure that you have the appropriate mounting rails. Contact your authorized Compaq dealer for assistance.

CAUTION: Do **not** open your computer now. You will check for the mounting rails later.

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d. Follow the prompts in the next screen to verify the make and model of the IDE hard drive and press the Enter key.

Because manufacturers often change the name and model number of hard drives, you will have to verify the make and model by using the database included with the CHECKSYS program.

e. Select the SyQuest recommended setup from the list of setup methods and press the Enter key.
The CHECKSYS program prepares a report of the recommended configuration of the IDE drive and the SyQuest EZ135 drive.

f. If you do not find your specific model hard drive in the CHECKSYS database, select the model number closest to the model reported by the CHECKSYS program and press the Enter key.
The CHECKSYS program makes recommendations for installing the SyQuest IDE drive. The program tells you whether to install the SyQuest drive as a Master drive or a Slave drive, and it reports any changes you need to make to the jumper settings of other IDE hard drives.

5. Record the information about the Master hard drive.

Either print the screen or fill in the Master Drive column of the following table with the information provided by the CHECKSYS program:

	Master Drive	Slave Drive
Manufacturer	Western Digital	Syquest
Model Number	WDC AC31000H	EZ135A
Jumper Settings		MASTER EZ ON SLAVE OFF SINGLE ON
Number of Heads	16	16
Number of Cylinders	2100	512
Sectors per Track	63	32
Write Precomp	0	65536
Landing Zone	0	512
Telephone Number		1800 249 2440

Some IDE hard drive manufacturers (for example, Conner, Maxtor and Seagate) may require jumper changes when adding a Slave drive to a system containing a Master drive. If the CHECKSYS program cannot determine if you need to make jumper changes to your IDE hard drive, refer to your hard drive documentation.

NOTE: If you have to change jumper settings on a non-SyQuest hard drive, refer to Appendix D or your hard drive manual for the location of the jumper pins. If you cannot locate your hard drive manual, call the hard drive manufacturer's technical support phone number you recorded on page 8. Tell the technical support personnel that you are adding another drive to the IDE cable and that you need a chart showing the location of the jumper pins for the drive model you recorded on step 5.

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6. **When finished recording Master hard drive information, select `Continue` and press the Enter key.**
   If jumper changes are required to your Master IDE drive, CHECKSYS displays a diagram of the jumper locations that need changing for several popular hard drives.

7. **Review the diagram on the screen, then select `Continue` and press Enter.**

8. **Record the information about the Slave drive displayed on the next screen.**
   Either print the screen or fill in the Slave Drive column of the table on page 8 with the information provided by the CHECKSYS program.

9. **When finished recording Slave hard drive information, select `Continue` and press the Enter key.**
   Follow the prompts to the end of the program.

10. **Exit from the CHECKSYS program and remove the diskette from the diskette drive.**

Install the EZ135 IDE Drive

You will need the following tools to complete this section:

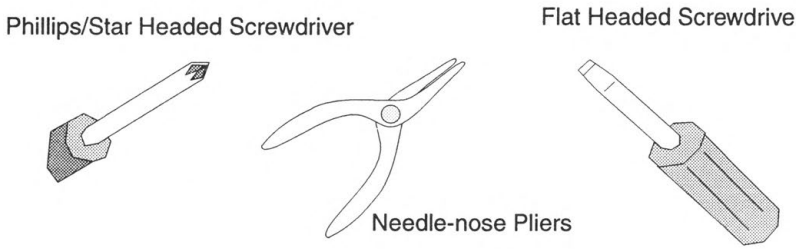

Figure 5. Tools Needed for Installation

Safety Tips

While working inside your computer, always follow these safety rules to avoid damaging the computer or injuring yourself:

- ALWAYS turn off the computer and unplug the power cord.
- If you use a magnetic screwdriver, be sure to keep the screw driver at least 3 inches away from diskettes and SyQuest cartridges. The magnetic field can damage disks.
- Be sure to keep all metal objects, such as screw drivers and screws, away from electronic circuitry within the computer. If a screw drops into your computer, remove it immediately.
- Periodically touch the metal frame of the computer to reduce static electricity build up. In cold dry climates, use of an electrostatic discharge wristband (obtained elsewhere) is recommended.

1. Turn off power to the computer.

Locate the computer's power off button and turn off the computer. Power off buttons vary from computer to computer. Many computers use push buttons while others use rocker switches labeled 0 (for off) and 1 (for power on).

2. Disconnect the AC power cord from the wall outlet.
Find the AC power cord that attaches from an AC wall outlet to the rear of your computer. Remove the power cord from the wall outlet.

3. Open the case of your computer.
Most computers use several screws in back of the computer to attach the cover of the computer to the computer frame (See Figure 6). With some computers, you will need to pull the cover from the front of the computer, while others have a removable top cover. Refer to your computer's manual for detailed instructions on removing the cover.

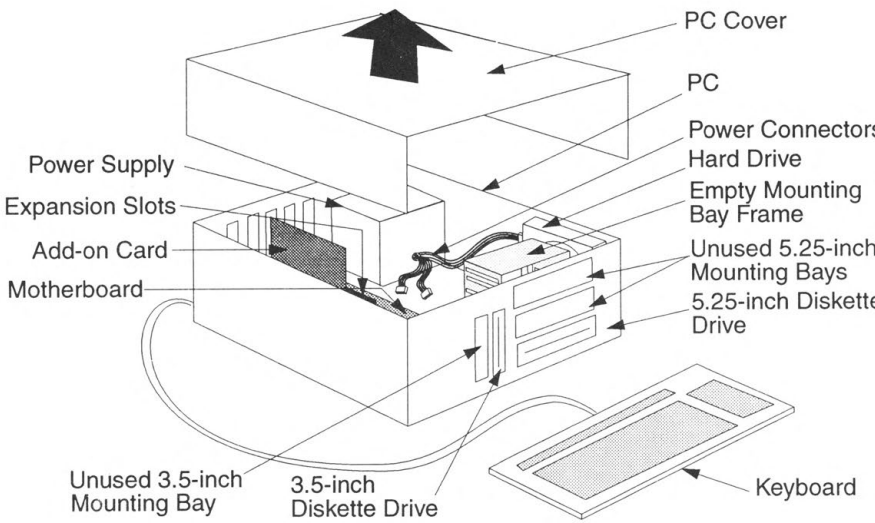

Figure 6. Removing the Cover of your Desktop PC

NOTE: Some computers have a removable front plastic panel. This panel may be held in place by screws or plastic tabs. If your computer has this type of panel, remove it now (refer to your computer's documentation).

4. Remove the mounting bay cover from the unused mounting bay.
Remove the blank plastic mounting bay cover from the cover of your computer. Some covers are held in place by screws, and others use plastic tabs.

5. Locate your existing hard drive.
Internal configurations vary from one computer to another, so your hard drive may not be exactly where the hard drive is shown in Figures 7 and 8.

6. Verify that your existing hard drive is an IDE drive.
Look for the following identifying characteristics of an IDE ribbon cable:

- A flat, 40-wire ribbon cable that measure about 2 inches (5 centimeters) across.
- A plastic 40-pin connector labeled `40-P` attached to the middle of the ribbon cable.
- A ribbon cable that attaches to either the motherboard or an IDE (or EIDE) controller in an expansion slot (See Figure 7 and Figure 8).

If you are unsure that the hard drive has an IDE ribbon cable attached, compare the ribbon cable connected to the IDE hard drive to the ribbon cable provided with your EZ135 drive.

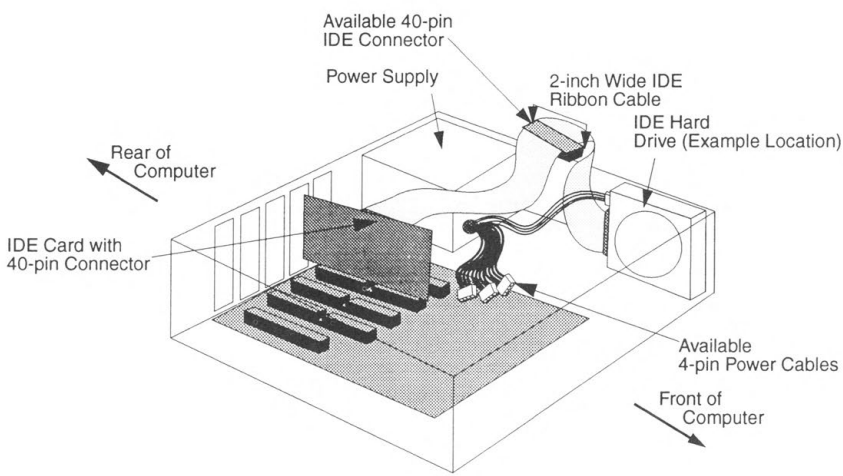

Figure 7. 40 -pin IDE ribbon Cable Attached to an IDE Controller Card

NOTE: Figure 7 and Figure 8 show typical internal desktop PC configurations. Your hard drive may be located in one of many places inside your PC.

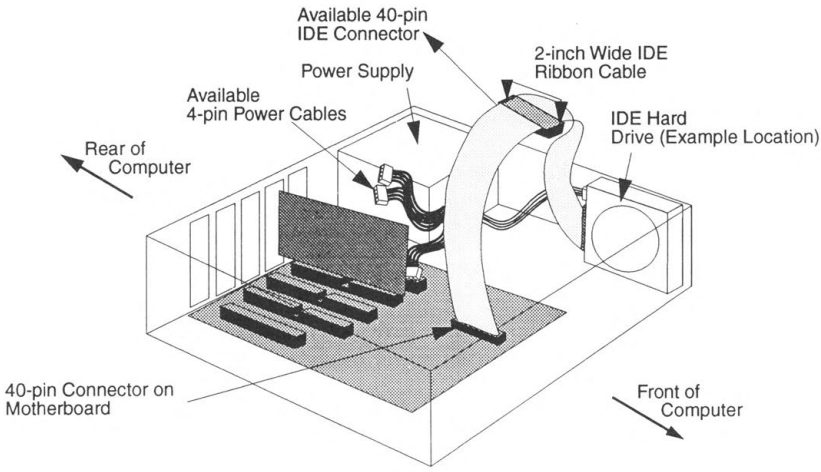

Figure 8. 40 -pin IDE Ribbon Cable Attached to the Computer's Motherboard

NOTE: Don't be confused by other narrower or wider ribbon cables in the computer that are used to connect other devices such as SCSI devices (50-pin cables) or diskette drives (32-pin cables).

Use the IDE ribbon cable provided by SyQuest in the following situations:

- The IDE ribbon cable attached to your hard drive does not support the attachment of more than one hard drive (it does not have two 40-pin connectors for the attachment of hard drives)
- The IDE ribbon cable installed in your computer is too short to reach the mounting bay you want to use to mount your EZ135 drive
- You are installing your EZ135 drive on an EIDE controller that has no second IDE ribbon cable

To replace the IDE ribbon cable (only if required, as discussed on the previous page):

a. **Locate the 40-pin connector attached to the motherboard or the IDE/EIDE controller card.**

b. **Note the orientation of the striped edge (pin 1) of the cable relative to the 40-pin connector on the motherboard or the controller card.**

c. **Remove the connector from the motherboard or the controller card.**

d. **Fold the IDE ribbon cable provided by SyQuest in half lengthwise so that the two ends touch.**
Note that one half of the ribbon cable contains two 40-pin connectors, and the other half of the ribbon cable contains only one 40-pin connector.

e. **Attach the end of the SyQuest-provided ribbon cable with one 40-pin connector to the 40-pin connector on the motherboard or the controller card.**
Be sure to attach the striped edge of the ribbon cable to pin 1 of the 40-pin connector on the motherboard or controller card. Check that the orientation matches the orientation you noted in step b. If you are still unsure of the correct orientation, see Figure 18, on page 25.

f. **Locate the hard drive attached to the end of the original IDE ribbon cable.**

g. **Note the orientation of the striped edge (pin 1) of the cable relative to the 40-pin connector on the IDE hard drive.**

h. **Remove the ribbon cable from the hard drive.**

i. **Connect the ribbon cable provided by SyQuest to the 40-pin connector on the hard drive.**

7. Locate an unused 4-pin DC power connector.

The other cable you need to locate is an unused 4-pin DC power connector. The power connectors are attached to the power supply and have a rectangular plastic end connector. Two corners of the connector are angled so that the connector can be attached in only one orientation (See Figure 9).

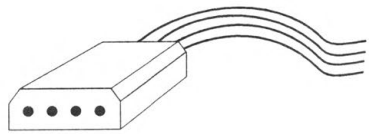

Figure 9. DC Power Connector (End View)

8. Determine the Master/Slave setting for the EZ135 drive.

On page 8, you recorded the jumper settings for the EZ135 IDE drive recommended by the CHECKSYS program. Now that you have looked inside your computer, you can verify this recommendation.

- If one hard drive is already attached to the IDE ribbon cable you are using to install your EZ135, you will have to set the Master/Slave jumper of your EZ135 drive to Slave. See step 9 for details.
- If there are no IDE drives on the IDE ribbon cable, you will have to set the Master/Slave jumper of your EZ135 drive to Master. See step 9 for details.
- If there is a CD-ROM on the secondary cable of an EIDE controller, and you will be attaching your EZ135 drive to the secondary cable, you will have to set your EZ135 to Master. You will also have to change the Master/Slave jumper settings of the CD-ROM drive to Slave. Refer to the CD-ROM documentation for instructions on setting the CD-ROM jumpers.

If you have additional questions about your IDE Master/Slave configuration, refer to Appendix B, "IDE Jumper Setting Rules" on page 35.

If your computer has an IDE controller with two IDE drives on the only IDE ribbon cable, you may need to purchase and install an EIDE controller card in place of your current IDE controller, or purchase a second IDE controller that is capable of operating as a second controller to your current IDE controller. Consult your authorized SyQuest reseller for advice.

9. Set the Master/Slave jumpers on the EZ135 IDE drive.

Your EZ135 IDE drive was shipped with the Master/Slave jumper set to Slave. Refer to the figure below to set the jumpers as determined in step 8.

Jumpers are commonly used by manufacturers to control hardware settings.

- A jumper is set to the On position when it connects two jumper pins in different rows
- A jumper is set to the Off position when it does not connect two jumper pins
- Never connect two jumper pins in the same row—always connect pins in different rows (See Figure 10)

Manufacturers sometimes store an extra jumper on a single jumper pin. The Acknowledge/Change Media jumper shown in Figure 10 is stored this way on your EZ135 drive. Do not change the jumper setting of the Acknowledge/Change Media jumper. Depending on the date your drive was manufactured, the Acknowledge/Change Media jumper pins may not appear on your drive.

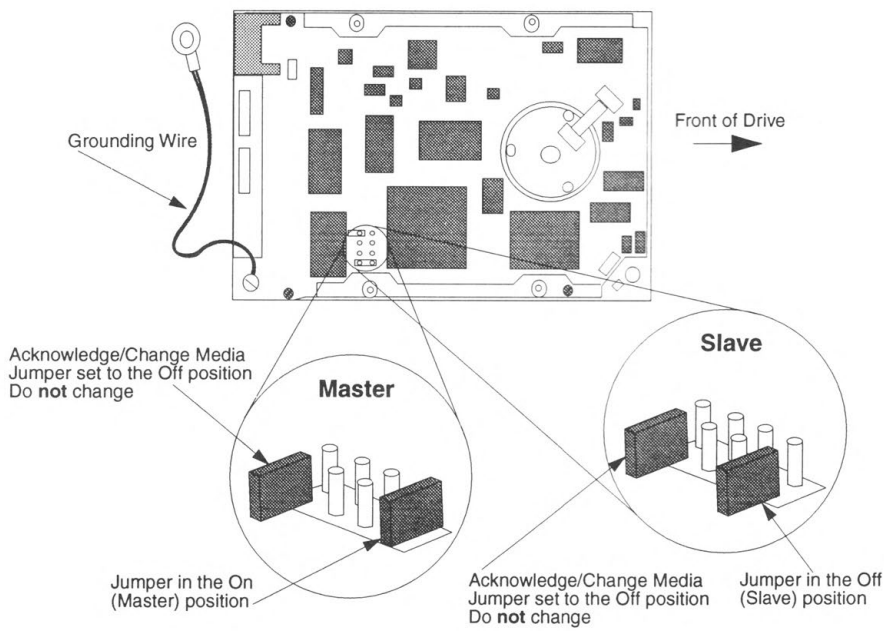

Figure 10. Jumper Positions on the EZ135 Drive

10. Set the jumpers on the primary IDE hard drive.

Some IDE hard drive manufacturers (for example, Conner, Maxtor, and Seagate) may require jumper changes when adding a Slave drive to a system containing a Master drive.

NOTE: Always mark down the current location of the jumpers on your primary hard drive **before** changing the position of any of the jumpers.

- Refer to the information you recorded on page 8, or the CHECKSYS printout of this information.

  If the program reported that you do not need to change the primary IDE drive jumper settings, go to step 11.

- If the program reported that jumper changes are required when adding a Slave drive to the Master drive, you must remove the Master IDE drive from its mounting bay and set the jumper pins on the Master drive to match the jumper pin settings recorded on page 8. Refer to Appendix D to locate the jumper locations for several popular hard drives.

  Some manufacturers use special screws to mount the Master IDE drive to the frame of the computer. If you have trouble removing the Master IDE drive, call the manufacturer's technical support line. (You recorded the phone number on page 8).

  If you have problems locating the jumper pins, call the manufacturer's technical support line. (You recorded the phone number on page 8). After updating the jumper pins on the Master drive, be sure to reconnect the power cable and IDE ribbon cable so that the striped edge on the IDE cable aligns with pin 1 on the IDE connector on the drive. Pin 1 is usually labeled with a "1" or by a square solder joint.

11. Prepare the EZ135 drive for the mounting bay.

Your EZ135 IDE drive may be mounted in either a 3.5-inch or 5.25-inch bay.

- If your computer has a free 3.5-inch bay, go to page 19.
- If you are mounting your EZ135 drive in a 5.25-inch bay, go to page 22.

If all mounting bay slots are occupied, you will have to remove another device to free up space or exchange the EZ135 IDE internal drive for an EZ135 external drive. Consult your authorized SyQuest reseller for advice.

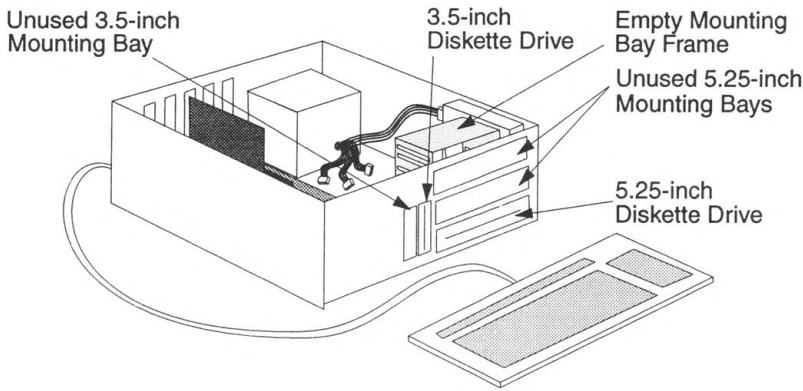

Figure 11. Finding an Unused Mounting Bay

- **Using a 3.5-inch Mounting Bay**

  Your EZ135 drive comes mounted in a 5.25-inch mounting assembly. If you are mounting your drive in a 3.5-inch bay, you must remove the EZ135 drive from the mounting assembly before installing the drive in the 3.5-inch bay.

  a. **Check to see that bay is within 8 inches of the Master IDE drive.**
  If it is more than 8 inches from the Master IDE drive, you will have to move either the Master IDE drive or relocate another device that is within 8 inches of the Master IDE drive to free up its mounting bay.

  b. **Remove the four screws that hold the EZ135 drive into the 5.25-inch mounting assembly as shown in Figure 12.**
  You can reach the screws by inserting a Phillips head screwdriver through the large round holes in the side rails of the mounting assembly.

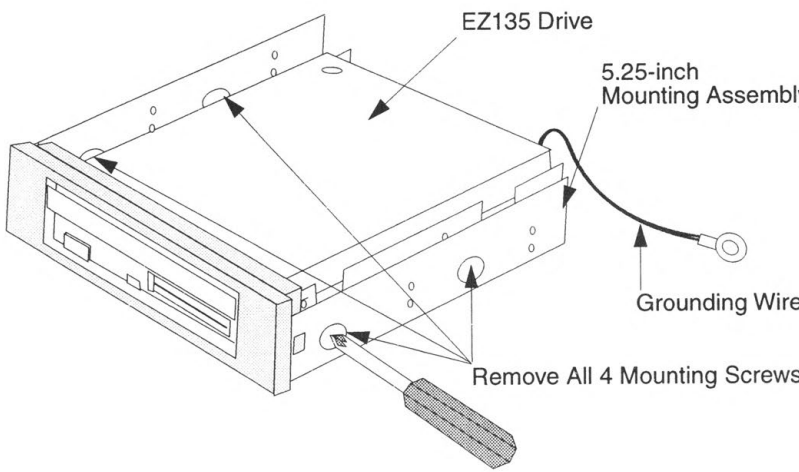

Figure 12. Remove the EZ135 Drive from the Mounting Assembly (3.5-inch Bays Only)

c. Gently lift the EZ135 drive off of the mounting assembly.
Lift up and back to free the drive from the mounting assembly.

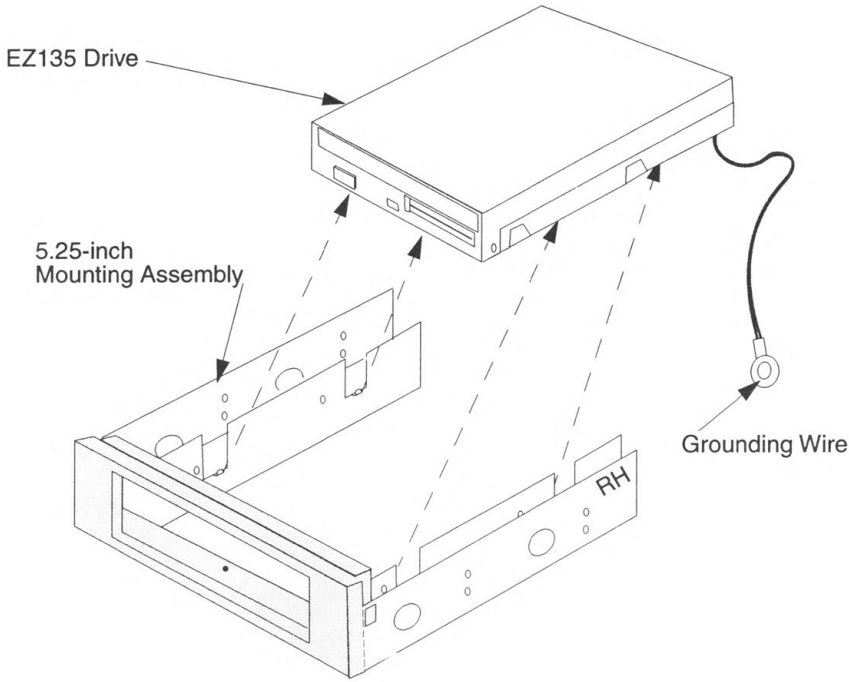

Figure 13. Place the EZ135 drive on to the Mounting Assembly (3.5-inch Bays Only)

d. Insert the EZ135 IDE drive into the bay.
Be sure not to mount the drive upside down. Refer to Figure 14 and Figure 15 for the correct mounting orientation.

e. Using screws provided in the mounting kit, attach a screw through a hole in the side of mounting bay into a hole in the shock mount rails on the EZ135 IDE drive.
Use the narrow, shorter screws to mount the drive in the mounting bay.

f. Adjust the screw so that the drive is flush with the edge of the computer.
This may require some trial and error before the positioning is correct.

g. Attach three additional screws to the drive's shock mount rail.
Use one of these screws to attach the grounding wire (See Figure 15).

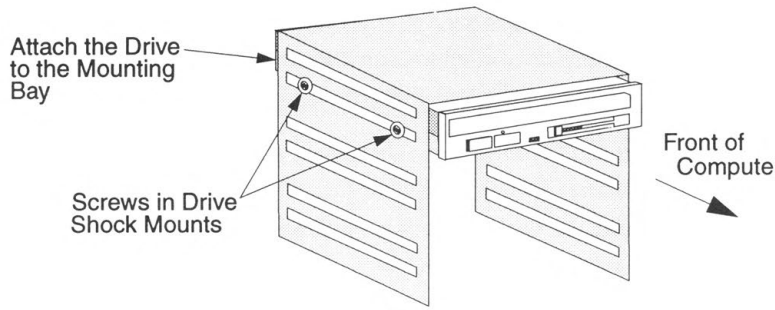

Figure 14. Mounting the Drive In a 3.5-inch Mounting Bay (Front View)

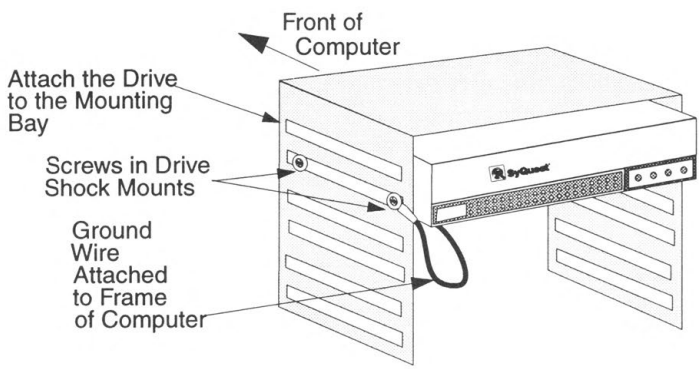

Figure 15. Mounting the Drive In a 3.5-inch Mounting Bay (Rear View)

h. When the EZ135 drive is secure in the mounting bay, go to step 12.

- **Using a 5.25-inch Mounting Bay**

  Your EZ135 drive comes mounted in a 5.25-inch mounting assembly. If you are mounting your drive in a 5.25-inch bay, secure the mounting assembly containing the drive in the 5.25-inch bay.

  a. Check to see that the bay is within 8-inches of the Master IDE drive.
  If the bay is more than 8 inches from the master drive, you will have to move the Master IDE drive or relocate another device that is within 8-inches of the Master IDE drive to free up its mounting bay.

  b. Mount the EZ135 drive assembly in the 5.25-inch bay.
  Mounting bays vary, depending on the computer manufacturer.

  - You may need to attach rails to the drive assembly to mount your EZ135 drive assembly in your computer's 5.25-inch bay. Usually, these rails are provided as accessories with your computer.
  - You have to remove the front faceplate of the computer in order to slide the rails into the mounting bay.

  Refer to the documentation that came with your computer for additional instructions.

NOTE: Some computers manufactured by Compaq require special mounting rails to mount drives in the mounting bays. If the CHECKSYS program indicates that your computer is manufactured by Compaq, you will have to make sure that you have the appropriate mounting rails. Contact your authorized Compaq dealer for assistance.

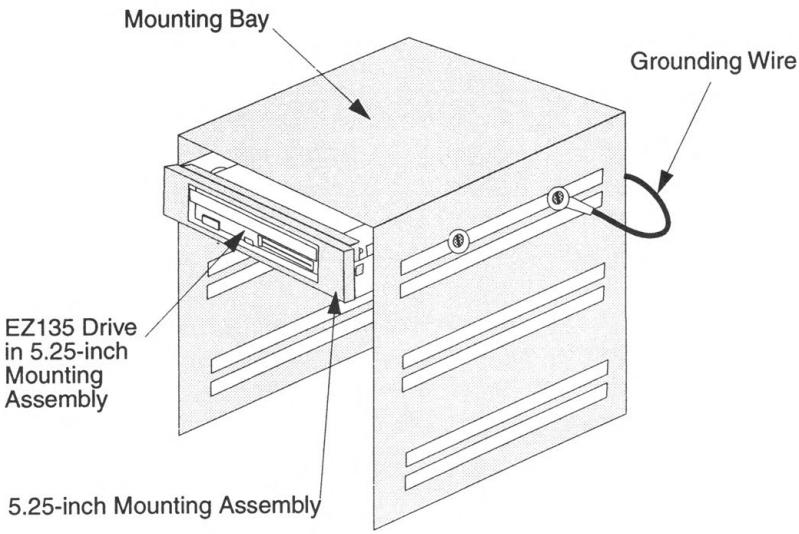

Figure 16. Mount the EZ135 Drive Assembly in the 5.25-inch Bay

After determining the mounting configuration used in your computer, secure the EZ135 assembly into the mounting bay using either the wide, shorter screws or the narrow, longer screws. Use 2 screws on each side of the drive, as shown in Figure 16.

Align the front plate of the EZ135 mounting assembly with the front of the computer. Positioning the drive correctly may require some trial and error.

NOTE: Be sure to attach the grounding wire with one of the rear mounting screws (see Figure 16).

12. Connect the cables.

Attach an unused 40-pin connector on the IDE ribbon cable to the 40-pin connector on the EZ135 IDE drive.

NOTE: Make sure to align Pin 1 of the ribbon cable with Pin 1 of the drive connector. Pin 1 of the cable is marked by a colored stripe along the length of the cable. Pin 1 on the EZ135 drive is usually labeled by a "1" or a square solder joint near the DC power connector (See Figure 17).

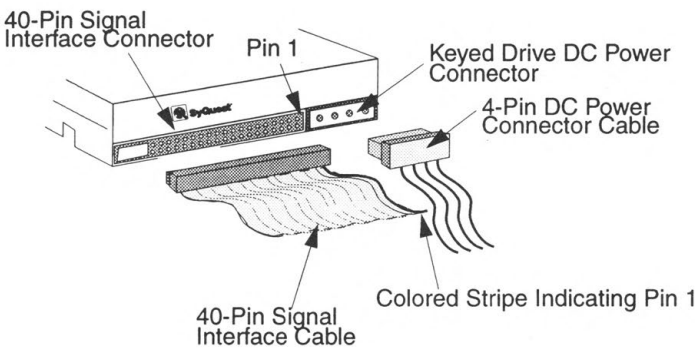

Figure 17. Close-up View of Cables Connected to the EZ135 Drive

If the IDE ribbon cable that came with your computer is too short to connect to both the Master IDE drive and Slave IDE drives, replace it with the IDE ribbon cable shipped with the EZ135 drive. If you still cannot attach the EZ135 to the 40 pin connector, switch the connector between the Master IDE drive and the Slave IDE drive. (The Master or Slave can be attached to either IDE ribbon cable connector). If you still cannot attach the EZ135 IDE drive, you will have to move either the other IDE drive or move another device. Call SyQuest Technical Assistance if you have questions.

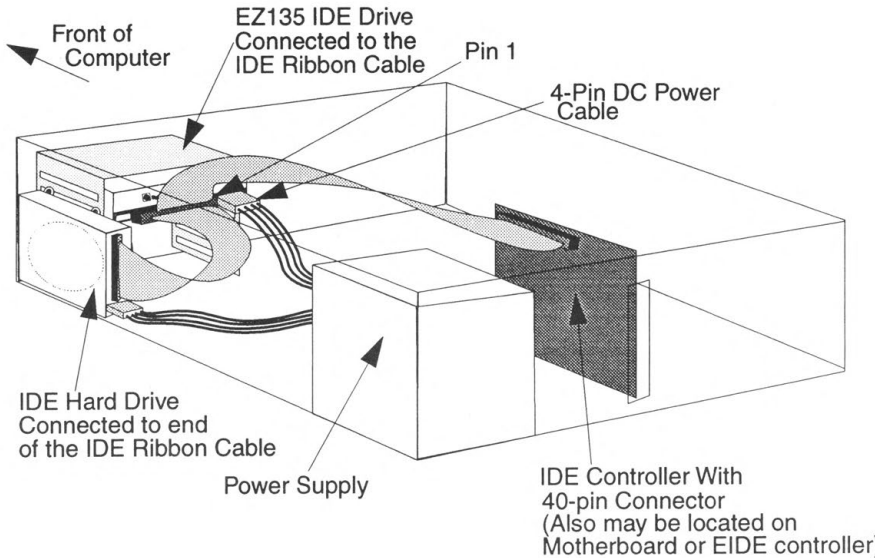

Figure 18. Connecting the Cables

13. Connect the 4-Pin DC Power Connector to EZ135 drive.
Find an unused DC Power connector and attach it to the EZ135 IDE drive (See Figure 17). The power connector is shaped to connect only one way.

14. Check that all cables are attached properly.
Check to make sure that no screws were left in the computer (turn the computer upside down if you are unsure). Check to make sure that all cables are secured tightly.

15. Replace the cover of your computer.
Make sure that you removed the plastic mounting bay cover.

16. Replace the screws that secure the computer cover.

17. Attach the power cord to the rear of your computer.

18. Insert a SyQuest Cartridge

a. Hold the cartridge so the arrow on the cartridge faces the drive.

b. Slide the cartridge into the drive through the drive door.

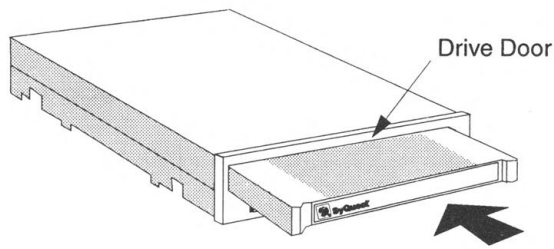

Figure 19. Inserting the Cartridge

c. When the cartridge comes to a stop, the load/unload lever on the front panel of the drive pops out.

d. Push the load/unload lever all the way to the right.

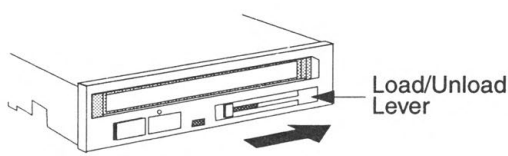

Figure 20. Pushing the Load /Unload Lever to the Right

NOTE: The EZ135 can read only SyQuest 135 MB cartridges. The EZ135 cannot read 105 MB or 270 MB cartridges.

19. Turn on your computer.

- If your computer performs the regular system diagnostics and goes to a DOS prompt, go to "Install the Utility Software" on page 28.
- If your computer reports a BIOS setup error, go to Appendix C.
- If your computer hangs (does not display its normal memory test diagnostics) or reports a hard disk controller failure after a long delay (one minute or more), perform the following likely troubleshooting steps:

a. Eject the SyQuest cartridge and reboot.
Your computer may not access the IDE hard drive if it tries to boot from the SyQuest cartridge. If your computer boots properly after removing the SyQuest cartridge, reinsert the SyQuest cartridge and go to "Install the Utility Software" on page 28.

b. Turn off your computer, disconnect the power cord, and check that the cables inside your computer are connected properly.
Make sure that all cables inside your computer are properly connected.

c. Replace the cover of your computer, connect the power cord, and turn on your computer.
If your computer still does not boot properly after checking all cables, call SyQuest Technical Assistance.

Install the Utility Software

Now that you have installed your drive and inserted a cartridge into the drive, you are ready to install the SyQuest Utility Software.

NOTE: If you installed your EZ135 as a Master drive, you must install an operating system onto the EZ135 cartridge. See your software manual for instructions.

DOS Utility Software

1. **Obtain a DOS prompt.**
   The software cannot be run from the DOS prompt inside Windows (or any other DOS shell program). You must exit Windows (press the Alt and F4 keys at the same time) to a DOS prompt.

2. **Insert the SyQuest IDE Software Utility Diskette into a diskette drive.**

3. **At the DOS prompt, type** `A:INSTALL` **and press the Enter key.**
   Type `B:INSTALL` if your diskette drive is drive B:.

4. **Follow the instructions provided by the installation software.**
   Use the default settings for a standard installation.

5. **After installing the software, remove the installation floppy disk, and restart your computer.**

OS/2 Utility Software

1. **Install the SyQuest IDE Software Utility Diskette in a diskette drive.**
2. **Select and activate the *OS/2 System* icon.**
3. **Select and activate the *OS/2 System Setup* icon.**
4. **Change the source from** `A:` **to** `A:\OS2` **(or** `B:` **to** `B:\OS2`**).**
5. **Select** `SyQuest IDE Internal Drive` **and complete the installation.**
6. **Shutdown and restart your computer.**

Ejecting a SyQuest Cartridge

1. **Press the stop button to spin down the drive.**

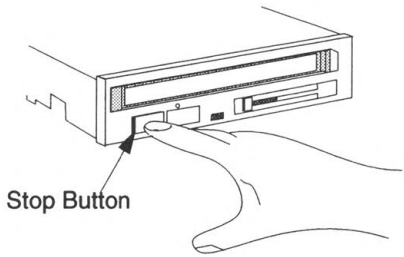

Figure 21. Pressing the Stop Button

NOTE: The stop button may not work if the drive has been software locked. You need to unlock drive by typing UNLOCK and pressing the Enter Key (in DOS), by double-clicking the *Unlock SyQuest Drives* icon (in Windows), or, by clicking the right mouse button on the drive letter icon and selecting *Unlock* (in OS/2). **Do not force the stop button or load/unload lever.**

---

2. **When the drive stops, the cartridge load/unload lever pops out.**

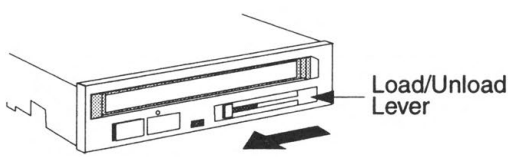

Figure 22. Pushing the Load/Unload Lever to the Left

3. **Push the load/unload lever all the way to the left and remove the cartridge.**

Write-protecting a Cartridge

When you write-protect the cartridge, the data on it cannot be altered or erased. To write-protect the SyQuest cartridge:

1. **Turn the cartridge over and locate the silver write-protect switch.**
2. **Using the end of a ball-point pen, rotate the switch toward the READ ONLY arrow.**

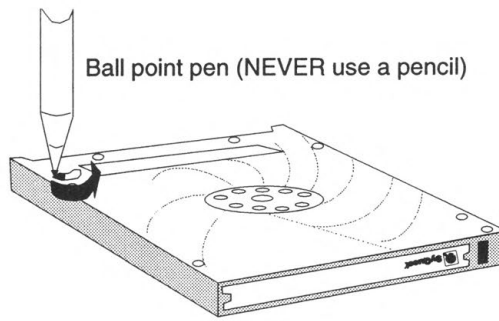

Figure 23. Write-Protecting the Cartridge

3. **Reverse this procedure to "write-enable" the cartridge.**

Appendix A: Copying SyQuest Diskettes

If your computer has only a 5.25-inch diskette drive, you must make 5.25-inch copies of the 3.5-inch SyQuest Utility diskettes.

If you do not have access to a computer that has both 5.25-inch and 3.5-inch diskettes call SyQuest at 1-510-226-4128 to obtain copies of the software on 5.25-inch diskettes.

Copying DOS Software Utilities

To make copies of the DOS software utilities:

1. **Find a DOS or OS/2 computer that has both 3.5-inch and 5.25-inch diskette drives.**
2. **Insert a blank, formatted 5.25-inch diskette into the 5.25-inch diskette drive and insert the SyQuest Utility diskette into the 3.5-inch drive.**
3. **Determine the DOS prompt letters for the 3.5-inch and 5.25-inch diskettes.**
4. **If the 3.5-inch drive letter is A and the 5.25-inch drive letter is B, enter**

   ```
   Copy A:\*.*   B\*.*:
   ```

5. **Repeat the steps 1 through 4 to copy of the second SyQuest Utility diskette.**

If the drive letters for your computer are different than those described in these procedures, substitute those drive letters for the `A:` and `B:` in the procedures above.

Copying OS/2 Software Utilities

If you are an OS/2 user, you will have to copy the OS/2 software to another 5.25-inch diskette. (There is not enough space on one 5.25-inch diskette to hold both the DOS and OS/2 software.)

To copy the OS/2 software to a third 5.25-inch diskette:

1. **Insert the SyQuest IDE Utility Software Diskette into the 3.5-inch diskette drive.**
2. **Insert a blank, formatted 5.25-inch diskette in the 5.25-inch diskette drive.**
3. **Find an OS/2 computer that has both 3.5-inch and 5.25-inch diskette drives.**
4. **Insert a formatted, empty 5.25-inch diskette into the 5.25-inch diskette drive and insert the SyQuest Utility diskette into the 3.5-inch drive.**
5. **Determine the OS/2 prompt letters for the 3.5-inch and 5.25-inch diskettes.**
6. **If the 3.5-inch drive letter is A and the 5.25-inch diskette is the B, enter**

   ```
   MD B:\OS2
   ```

   and then

   ```
   XCOPY A:\OS2\*.* B:\OS2\*.*
   ```

If the drive letters for your computer are different than those described in these procedures, substitute those drive letters for the `A:` and `B:` in the procedures above.

Appendix B: IDE Jumper Setting Rules

There are two basic rules to installing IDE drives in your computer:

- Your computer needs an IDE controller or an EIDE controller in order to access IDE drives. An IDE controller can access up to two IDE drives on a single IDE ribbon cable. An EIDE controller can access an additional pair of IDE drives on a second IDE ribbon cable.
- In order for your computer to recognize IDE drives on an IDE ribbon cable, the Master/Slave jumper of one drive on each IDE ribbon cable must be set to Master. The Master/Slave jumper of a second drive on each cable must be set to Slave.

Appendix C: Updating Your Computer's CMOS

You may need to manually update tables in your computer that define the hardware. These tables are stored in battery powered CMOS (low power consuming memory). Computer manufacturers use several different methods for updating CMOS. Listed below are the most common methods. Refer to your computer's reference manual if you can not use the method listed below. Refer to your EIDE controller manual if you are installing an EZ135 IDE drive on the secondary channel of an EIDE controller.

1. Start the CMOS setup program.

Turn on your computer. You may see a message stating that you should use certain keystrokes to enter "Setup". The exact keystrokes vary from one computer manufacturer to another, but the most common keystrokes are:

Keystroke	BIOS Manufacturer
<Del>	AMI
<Ctrl><Alt><Esc>	Phoenix
<Ctrl><Alt><Ins>	Several Manufacturers
<Ctrl><Alt>><S>	Award
<Esc>	Several Manufacturers
<F1>	Phoenix
<F2>	Phoenix
<Ctrl><Alt><Enter>	Phoenix

On some systems you will only have a few seconds to enter these keystrokes. Power off and on your computer if you failed to enter the keystrokes in the allotted time period. Upon entering the Setup program go to step 2. If you do not see a SETUP message, your computer probably uses a hardware configuration program run from a diskette. (Most IBM computers use this method.) Refer to your computer's reference manual for setting disk drive CMOS.

NOTE: If you are unable to start the CMOS setup program using any of the keystrokes listed above, press the space bar continuously while the system boots. This should display an error message that prompts you to run the setup program.

2. **Select the screen that allows you to change hard drives.**
   Most Setup programs have cautions about changing systems settings. Proceed through these screens until you find the screen that allows you to change the hard drive settings. This screen is often call `STANDARD` or CMOS SETUP.

3. **Locate the entry for the EZ135 IDE hard drive.**
   - To update the entry for a setting a EZ135 IDE drive as the Slave drive on the primary IDE cable (the way that most EZ135 drives are installed), locate the second hard drive entry in the CMOS table (this entry is often called `Drive D:` or `Drive 1:`).
   - To update the entry for installing an EZ135 IDE drive as the Master drive (boot drive) on the primary IDE cable, locate the first drive entry in the CMOS table (this entry is often called `Drive C: or Drive 0:`).

NOTE: When installing an EZ135 IDE drive as the Master drive, you must install the operating system on to the EZ135 cartridge. You will need to have Operating System installation diskettes ready. You will also have to verify that your computer permits booting from diskette drive `A:`. Many computers set these parameters as part of their Advanced BIOS options. Be sure to update your CMOS settings to enable booting from diskette drive `A:`.

4. **Update the CMOS entry.**

CAUTION: If the CHECKSYS program reports that your Master IDE drive has more than 1024 cylinders, do not change the CMOS setup using SyQuest software. Consult the manual that came with your hard drive before you change the CMOS for such a drive.

Depending on the manufacturer of the BIOS on your computer, you may have several ways of defining the CMOS parameters for your computer. Use the table below to select the entry number for a User Definable Drive Type.

NOTE: The BIOS manufacturer name is usually shown in the heading of the `CMOS SETUP` screen.

You will probably see `Not Installed` as the Drive Type prior to updating the table. However, many BIOSs developed since 1993, will automatically detect and update CMOS disk drive parameters. These BIOSs automatically set the Drive Type and update the entry for the EZ135 IDE drive. Go to step 5 if the drive type table has automatically been updated as:

- `Cylinders = 512`
- `Heads = 16`
- `Sectors = 32`

The following table shows the User Definable numbers for several manufacturers of BIOS:

BIOS	Version	User Definable Type
AMI	1991 or later	47
Award	1991 or later	48 or 49
Mr. BIOS	1991 or later	46 or 47
Phoenix	All	48, 49 or USER CONFIG

Enter the following numbers for the EZ135 IDE drive

- Set `HEADS` to `16`
- Set `CYLINDERS` to `512`
- Set `SECTORS` to `32`
- Set `WRITE PRECOMP` to `0`
- Set `LANDING ZONE` to `0`

5. Save the settings and exit the Setup program.

Follow the instructions on the screen for saving the values and exiting the Setup program.

Appendix D: IDE Hard Drive Jumper Locations

Appendix D lists typical IDE hard drive jumper locations for selected manufacturers. The manufacturers listed here sometimes require jumper changes when adding a Slave drive to the IDE cable. These diagrams are examples only. Please refer to the disk drive manufacturer's documentation for detailed information.

Conner

If your drive does not match the configuration shown in Figure 24, Figure 25, or Figure 26, please refer to your Conner IDE hard drive manual or contact Conner technical support at 1 800-426-6637.

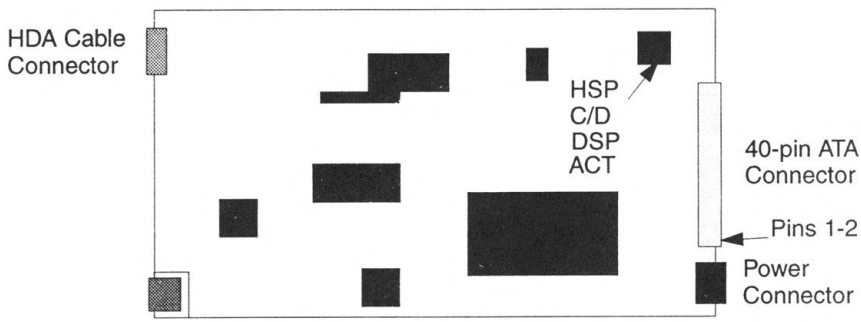

Figure 24. Conner CP-xxxx Series IDE Hard Drive Configuration

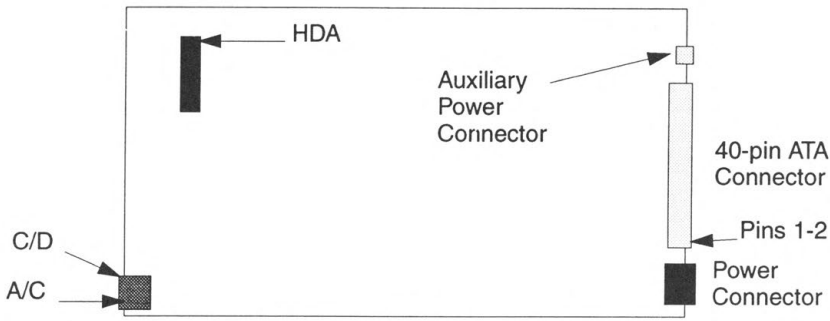

Figure 25. Conner CFA-540A Series IDE Hard Drive Configuration

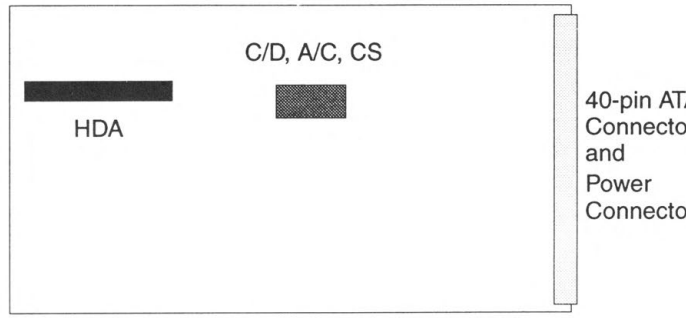

Figure 26. Conner CFL-350A Series IDE Hard Drive Configuration

Table D-1 Conner CFL-350A Series IDE Hard Drive Jumper Settings

Jumper Position			Function
C/D	A/C	CS	
On	Off	Off	CAM Single/Dual Drive Master
Off	Off	Off	CAM Dual Drive Slave
Off	Off	On	CAM Cable Select
On	On	Off	ISA Single/Dual Drive Master
Off	On	Off	ISA Dual Drive Slave
Off	On	On	ISA Cable Select

IBM

If your drive does not match the configuration shown in Figure 27, please refer to your IBM IDE hard drive manual or contact IBM technical support at 1-800-772-2227.

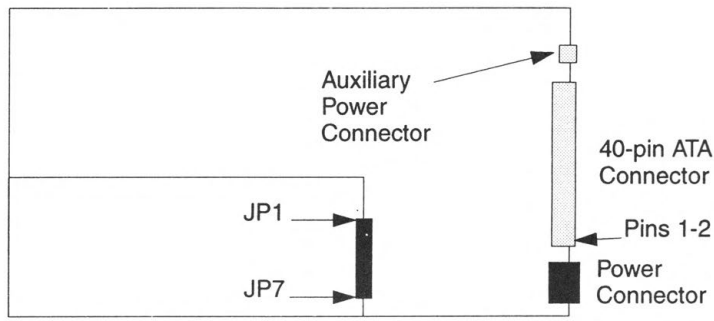

Figure 27. IBM DSxx-xxxx Series IDE Hard Drive Configuration

Maxtor

If your drive does not match the configuration shown in Figure 28 or Figure 29, please refer to your Maxtor IDE hard drive manual or contact Maxtor technical support at 1-800-262-9867.

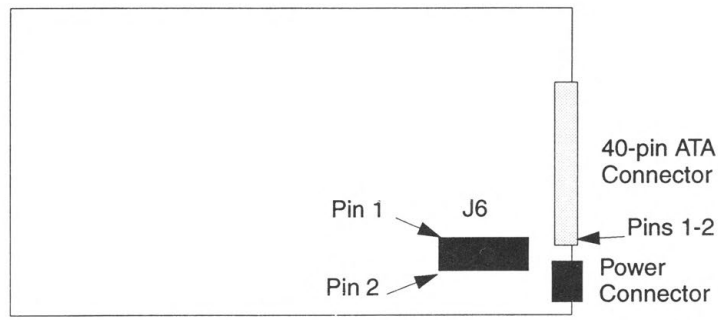

Figure 28. Maxtor LXT Series IDE Hard Drive Configuration

Table D-2 Maxtor LXT Series IDE Hard Drive J6 Jumper Settings

Pin Position	Single	Dual	Slave	Function
9-10	Off	Off	Off	Manufacturing Jumper
7-8	Off	On	Off	Two Drive System
5-6	Off	Off	On/Off	Slave Present
3-4	On/Off	On/Off	Off	Drive Active
1-2	Off	Off	On	Master/Slave

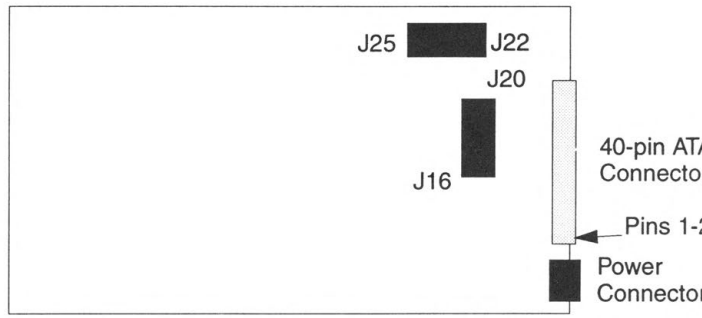

Figure 29. Maxtor 73xx Series IDE Hard Drive Configuration

Quantum

If your drive does not match the configuration shown in Figure 30, Figure 31, or Figure 32, please refer to your Quantum IDE hard drive manual or contact Quantum technical support at 1-800-826-8022.

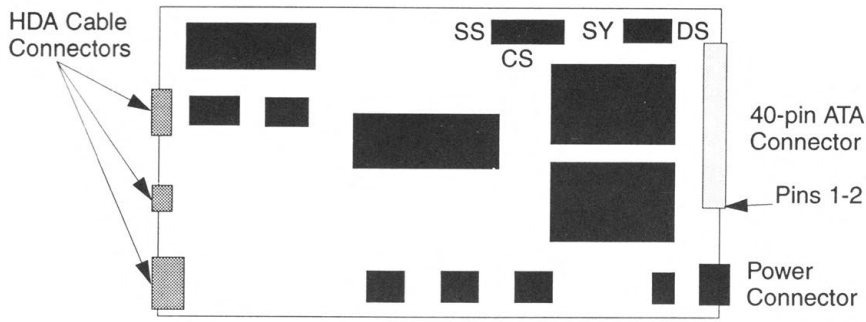

Figure 30. Quantum LPS Series IDE Hard Drive Configuration

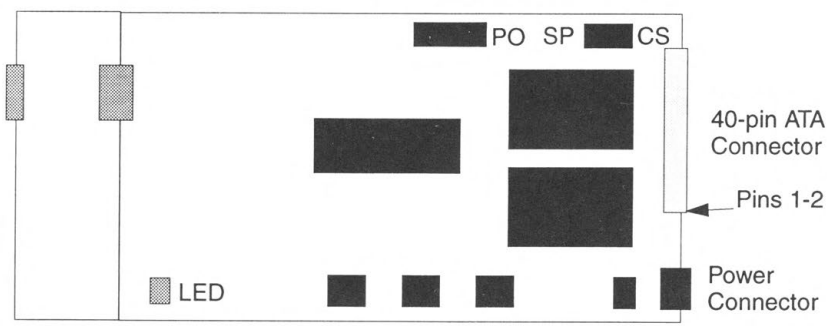

Figure 31. Quantum LT 730AT Series IDE Hard Drive Configuration

Table D-3 Quantum LT 730AT Series IDE Hard Drive Jumper Settings

Jumper Position			Function
SP	DS	CS	
Off	On	On	Single Drive Master
On	On	On	Dual Drive Master
Off	Off	On	Dual Drive Slave

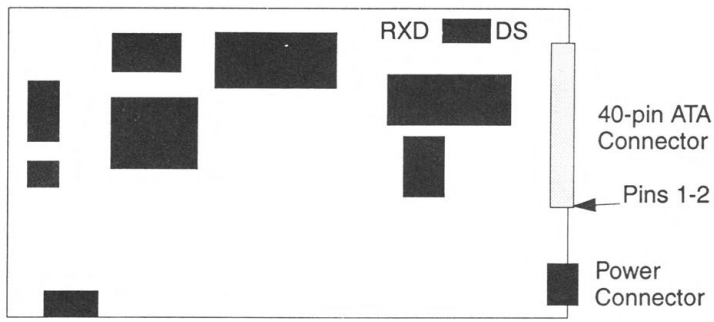

Figure 32. Quantum PRO Series IDE Hard Drive Configuration

Seagate

If your drive does not match the configuration shown in Figure 33 or Figure 34, please refer to your Seagate IDE hard drive manual or contact Seagate technical support at 408-438-8222.

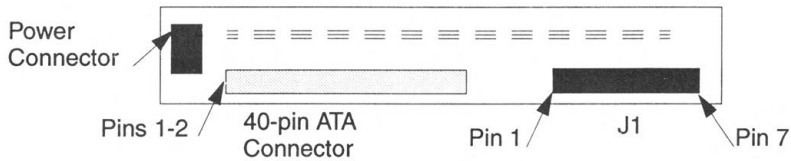

Figure 33. Seagate ST1xxx Series IDE Hard Drive Configuration

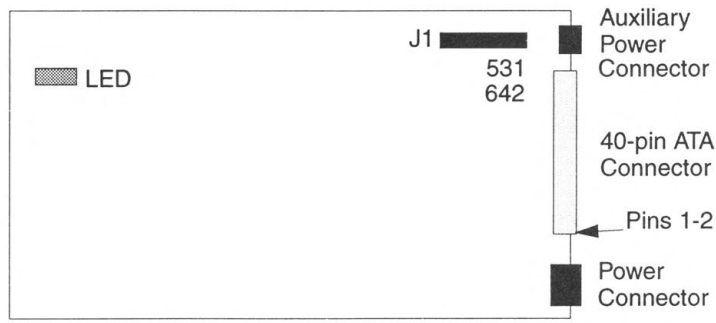

Figure 34. Seagate ST3xxxA Series IDE Hard Drive Configuration

SyQuest

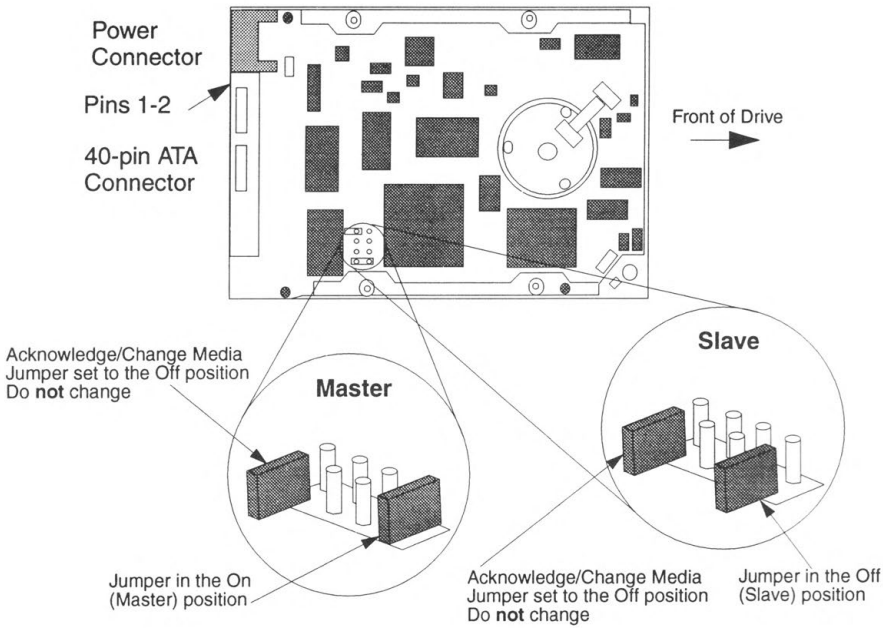

Figure 35. SyQuest EZ135A, SQ3105A, and SQ3270A IDE Drive Configuration

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NOTE: Depending on the date your drive was manufactured, the Acknowledge/Change Media jumper may not be present.

Western Digital

If your drive does not match the configuration shown in Figure 36, please refer to your Western Digital IDE hard drive manual or contact Western Digital technical support at 1-800-832-4778.

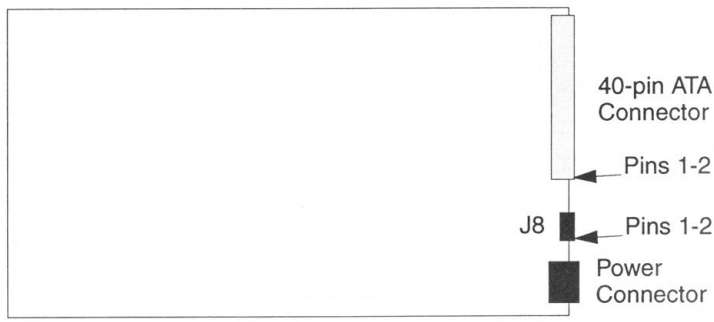

Figure 36. Western Digital ACxxxx Series IDE Hard Drive Configuration

Glossary of Terms

The following definitions will help explain some of the technical language you encounter in the installation guide.

3.5-inch Diskette (Floppy) Drive

A device that reads and writes 3.5-inch diskettes. Because the data recording media used in these diskettes is flexible, these drives are often called Floppy Drives.

5.25-inch Diskette (Floppy) Drive

A device that reads and writes 5.25-inch diskettes.

ATA Interface

The Advanced Technology Adapter (ATA) interface is the 40-pin electrical interface that supports the attachment of IDE drives (IDE drives are called ATA drives by some manufacturers).

BIOS

Basic Input Output System (BIOS) is the software that starts up, tests, and provides basic communication services for a computer's hardware components.

Booting

Initializing and loading a computer's software.

CMOS

Memory that requires very low power. CMOS stores hardware configuration information used by BIOS to bring up and define the hardware. Data stored in CMOS include hard disk drive parameters and floppy disk drive parameters. You can view or change these parameters using the system's Setup Program.

CMOS Setup

see Setup Program.

Desktop PC

A computer that was designed for desktop operation.

Disk Drive CMOS Parameters

Most CMOS contain parameters for two hard disk drive entries. The first entry is for the master drive, labeled C: [or Drive 0]. The second entry is for the slave drive, labeled D: [or Drive 1]. The CMOS disk drive parameters for an EZ135 IDE drive are:

a. Number of Heads (16 for EZ135)
b. Number of Cylinders (512 for EZ135)
c. Sectors per Track (32 for EZ135)
d. Write Precomp (0 for EZ135)
e. Landing Zone (0 for EZ135)

Many BIOS shipped after 1993 detect the presence of IDE drives and automatically set these parameters.

EIDE Controller

An EIDE (Enhanced IDE) controller provides two 40-pin ribbon cables for attaching IDE drives.The Primary Cable attaches to the primary channel and can support both a Master drive and a Slave drive. The Secondary Cable attaches to the secondary channel and can support both a Master drive and a Slave drive.

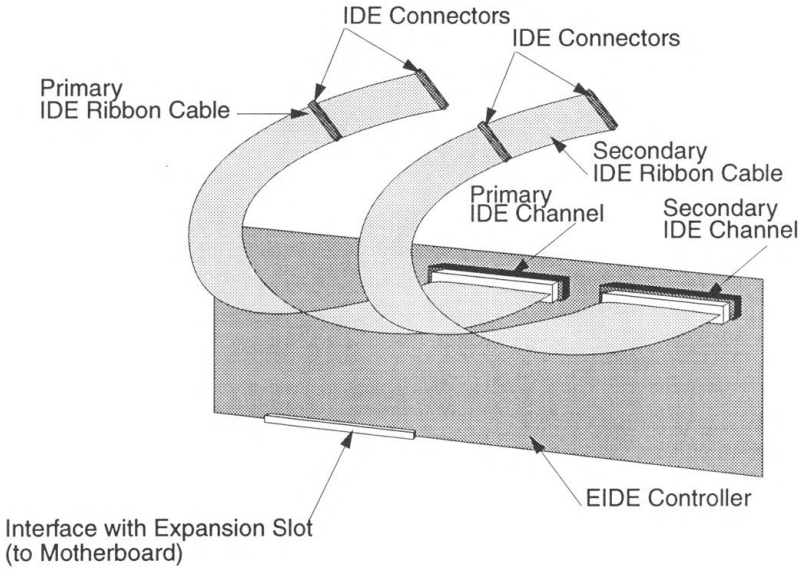

Figure 37. EIDE Controller and IDE Ribbon Cables

IDE (Intelligent Drive Electronics) Drive

A hard disk drive that attaches to a computer through an IDE Controller or an EIDE Controller.

IDE Controller

An IDE controller can attach two drives to a computer on a single cable. The drives and controllers use 40 pin connectors. The IDE Controller can be either an add-on card that plugs into an expansion slot of a computer or can be part of the computer's mother board.

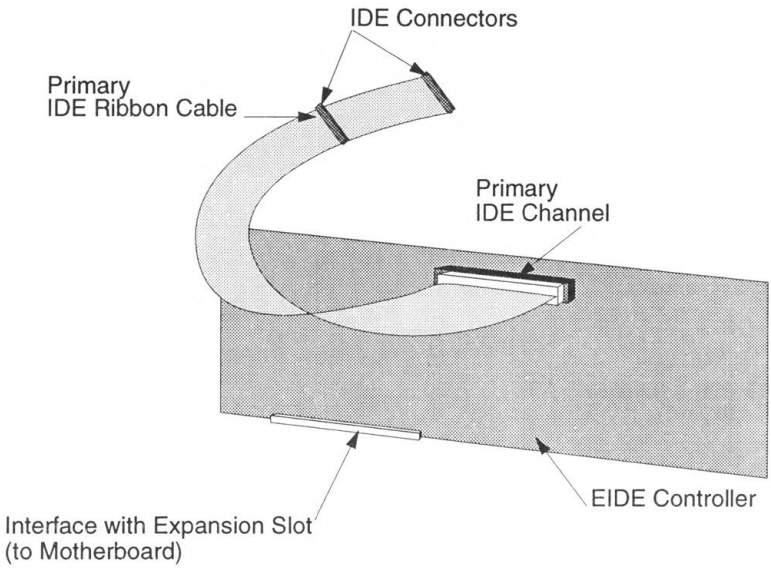

Figure 38. IDE Controller and IDE Ribbon Cables

Jumpers

Jumpers are devices that electrically connect pin pairs. When a pin pair is connected by a jumper, the pin pair is defined to be closed. When a jumper is missing or attached to only one of the pins, the pin pair is open. Jumpers are used to enable or disable functions on disk drives and adapter cards. A closed jumper setting is also referred to as "on" or "in." An open jumper setting is also referred to as "off" or "out." Figure 39 shows the Master/Slave jumper positions on the EZ135 drive.

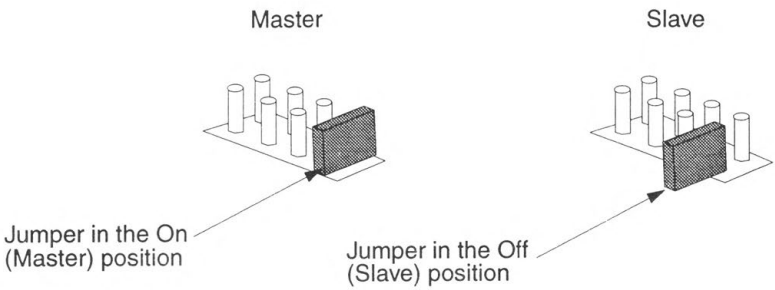

Figure 39. Jumper Positions on the EZ135 Drive

Master Drive

The computer industry standard term for the disk drive on an IDE cable that is responsible for responding to several control signals. The drive can attach to either of the two connectors on an IDE cable. The Master drive on the Primary cable is the C: drive.

Mother Board

The main electronic board of the computer.

Mounting Bay

An area of a PC designed for attaching add-on devices. Mounting bays are designed for either 3.5-inch or 5.25-inch devices. A typical 3.5-inch bay is 3.75 inches wide and 1 inch high. A typical 5.25" bay is 5.75 inches wide and 1 5/8 inches high. An unused bay is normally covered by a removable piece of plastic or metal.

Power Supply

The part of the computer that converts AC (Alternating Current) electrical input into DC (Direct Current) electrical output. Most power supplies provide many four pin Molex connectors for powering diskette drives, disk drives, CD-ROMs, etc. Power supplies are enclosed by metal covers to minimize access to dangerous components.

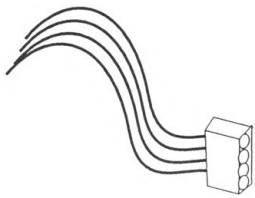

Figure 40. 4-pin Molex Power Connector

Primary Cable

The 40 pin ribbon cable on an EIDE controller that is first searched by BIOS for the existence of hard drives. On EIDE controllers, the primary cable is connected to the Primary IDE Channel. Always align the colored (red) stripe on the cable with pin 1 of the IDE drives and pin 1 of the IDE/EIDE controller. See Figure 37 and Figure 38.

Removability

The ability to remove and exchange data carrying media (e.g. SyQuest cartridges) while the computer is operating.

Slave Drive

The computer industry standard term for the disk drive on an IDE cable that is secondary to the Master drive. The Slave drive is the drive on the IDE cable with its jumpers set to Slave. The drive can be attached to either of the two connectors on the IDE cable.

Secondary Cable

the 40-pin IDE cable attached to the secondary channel on an EIDE controller. See Figure 37.

Setup Program

The program that is sued to change CMOS information. Many computers have a Setup Program on an installation diskette shipped with the computer. Consult your computer's manual for details.

Tower PC

A computer that was designed to be placed on the floor.

Y Power Adapter

A Y power adapter converts a single 4-pin DC power connector into two 4-pin DC power connectors (see step 41).

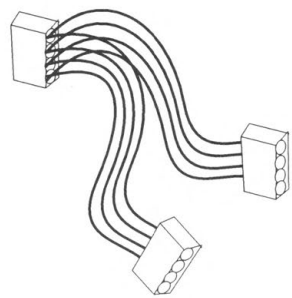

Figure 41. Y Power Adapter

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- Reorient the antenna
- Relocate the equipment with respect to the receiver
- Move the equipment away from the receiver
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits

If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. The booklet entitled *How to Identify and Resolve Radio-TV Interference Problems*, prepared by the Federal Communications Commission, may be helpful. This booklet, Stock No. 004-000-003454, is available from the U.S. Government Printing Office, Washington, DC 20402.

Inquiries

While every effort has been made to ensure that the information provided herein is correct, please notify SyQuest in the event of any errors. Mail comments about this document to SyQuest Technology, Technical Publications, 47071 Bayside Parkway, Fremont, CA 94538, or call (800) 245-2278. Please include your name, address, and telephone number, and the title and part number of the document.

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