PX-716AL

Model PX-716AL Internal ATAPI Drive

**DVD±R DL (DOUBLE LAYER/DUAL LAYER),
DVD±R/RW, CD-R/RW DRIVE
SLOT LOADING**

INSTALLATION AND USERS MANUAL

PLEXTOR®

MAY 2005

Record Your Serial Number

For future reference, record the serial number and the TLA code (found on your drive's label) in the space provided below.

TLA/Firmware Revision Number

FEDERAL COMMUNICATIONS COMMISSION STATEMENT

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, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CANADIAN DEPARTMENT OF COMMUNICATIONS STATEMENT

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme a la norme NMB-003 du Canada.

LASER INFORMATION

These products have been designed and manufactured according to IEC 60825-1 on the Safety of Laser products. This product comes under "Class 1 Laser Products."

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
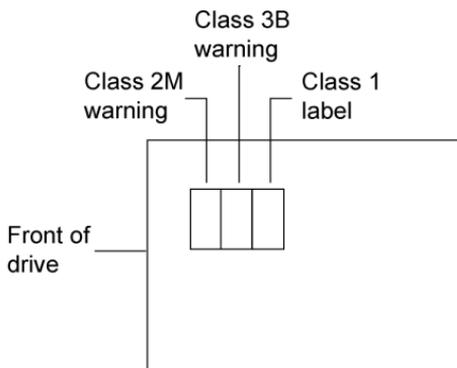
A Laser Caution Label is attached on the top of the internal drive model.

The laser beam emitted from the optical pickup is visible and invisible. Accordingly:

- Do not open the optical pickup housing.
- Obtain service only from Plextor-authorized personnel.

CAUTION: To disconnect the internal DVD/CD drive from an electrical current, pull out the computer's power plug.

Top View of Internal Drive, Showing Caution Label Location

Class 3B
warning

Class 2M
warning

Class 1
label

Front of
drive

Detail of PX-716AL Laser Caution Labels

CAUTION – CLASS 2M VISIBLE LASER RADIATION
WHEN OPEN. DO NOT STARE INTO THE BEAM OR
VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.

VORSICHT – SICHTBARE LASERSTRAHLUNG KLASSE 2M,
WENN ABDECKUNG GEÖFFNET.
NICHT IN DEN STRAHL BLICKEN ODER DIREKT
MIT OPTISCHEN INSTRUMENTEN BETRACHTEN.

CAUTION – CLASS 3B INVISIBLE LASER RADIATION
WHEN OPEN. AVOID EXPOSURE TO THE BEAM.

VORSICHT – UNSICHTBARE LASERSTRAHLUNG KLASSE 3B,
WENN ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.

CLASS 1 LASER PRODUCT
TO IEC 60825-1 : 2001

LASER KLASSE 1 PRODUKT
NACH IEC 60825-1 : 2001

Table of Contents

1. Getting Started

Congratulations! Thank you for purchasing the Plextor® PX-716AL, a reliable, high-performance recordable DVD and CD writer, rewriter, and player. We appreciate the confidence you have shown in us. Our goal is to put you—and keep you—on the leading edge of DVD and CD technology.

About this Manual

Please read this manual carefully and keep it handy for easy reference. Use the manual for installation, operation and troubleshooting. If your drive needs service, see your dealer or call Plextor's Technical Support Department.

In this manual you should find all the information you need to successfully install, operate and troubleshoot your drive. If you run into a problem that doesn't seem to be covered, however, please contact us. (See "Appendix B: Technical Support" for the different ways you can reach us.) You will be connected to our friendly, helpful band of tech support engineers. What might seem like an uncooperative drive to you could very well be a 30-second fix to them. But we will never know unless you contact us.

Meet Your PX-716AL

The PX-716AL is a DVD ReWritable/CD ReWritable drive that provides professional quality DVD and CD performance for writing, rewriting and reading.

What the PX-716AL Does

For DVDs, the PX-716AL:

- Writes DVD+R (recordable DVD, "plus" format) media at up to 16X speed on recommended 16X or 8X media.
- Writes DVD+R DL (double layer) and DVD-R DL (dual layer) media at up to 6X speed.
- Writes DVD-R (recordable DVD, "dash" format) media at up to 16X speed on recommended 16X or 8X media.
- Writes DVD+RW (rewritable DVD, "plus" format) media at up to 8X speed. (Requires 8X media for 8X writing.)
- Writes DVD-RW (rewritable DVD, "dash" format) media at up to 4X speed.
- Supports DVD+VR and DVD-VR format for read and write.
- Reads stamped DVD discs at up to 16X.
- Reads DVD-Video discs with CSS at up to 2X CLV.
- Supports DVD-RW DRT-DM (Distributed Real Time Defect Management)
- Supports DVD+RW background format

For CDs, the PX-716AL:

- Writes to CD-R (recordable CD) media at up to 48X speed.
- Writes to CD-RW (rewritable CD) media at up to 24X speed.
- Reads all CD-ROM, CD-RW, and CD-R data media at a maximum of 48X speed.
- Reads CD-DA (audio) and CD-R audio media at up to 40X speed.
- Reads CD-RW audio media at up to 32X speed.

Features of the PX-716AL

- *ATAPI interface*: The PX-716AL easily installs in virtually any PC with an E-IDE ATAPI interface.

- *Slot loading system*: Provides fast, secure loading for DVD and CD media.

- *High speed transfers*: The PX-716AL supports data transfers via Ultra DMA66, DMA Mode 2, and PIO Mode 4.

- *Intelligent recording*: Achieves recording at high quality and optimum speed using any media, thanks to unique Plextor technology:
  - ❏ *AUTOSTRATEGY®*: Writing technology for unknown media. When a writable or rewritable disc isn't listed in the drive's internal media catalog, AUTOSTRATEGY automatically checks the disc and develops a write strategy for it.

  - ❏ *Intelligent Tilt*: Precise laser control and three-dimensional tilt adjustment for uneven disc surfaces. Ensures optimal recording and reading, especially with double layer media.

  - ❏ *PoweRec for CD-R/RW, DVD+R/RW, DVD-R/RW, DVD+R DL, and DVD-R DL media*: Plextor Optimized Writing Error Reduction Control (PoweRec) adjusts laser power and writing speed so they're at the optimum settings for that particular disc. (For example, when you're writing an 8X-rated DVD, PoweRec checks to see if a higher speed is possible, and sets the optimum write speed—up to a maximum of 16X.)

- *VariRec*: Lets you change the write strategy to record at highest quality on different types of discs. Also provides user adjustment of the recording power above or below a default level. This adjustment lets you customize the optimum laser power to your own needs.

- *Silent Mode*: Unique technology that sets the drive for super-silent operation. By controlling disc loading speed and read/write speed, you reduce drive noise to a whisper.

- *MMC compliance*: Supports the MMC-4 command set.

- *Flash memory*: Allows upgrading the PX-716AL to the latest firmware revision (available from the Plextor web site) without opening the computer or physically accessing the drive.

- *Plug and Play*: Supports Windows Plug and Play.

- *CPRM support*: The PX-716AL supports Content Protection for Recordable Media, so you can play CPRM copy-controlled media.

- *Self-test diagnostics*: The PX-716AL has a self-test diagnostic function for easy troubleshooting.

DVD Features

- *Lossless linking for DVD+R/RW and DVD+R DL*: Allows DVD+RW discs to be edited and still play on DVD-ROM players.

- *Zero Link for DVD-R/RW, DVD-R DL*: Has 0 byte gap between sessions so the discs are compatible with all players. This allows DVD-RW discs to be edited and still play on DVD-ROM players.

- *Double layer and dual layer DVD discs*: Reads and writes DVD+R DL (double layer) and DVD-R DL (dual layer) discs, so you can burn up to 4 hours of high quality MPEG-2/DVD video on a single 8.5-gigabyte DVD disc.

- *Wide DVD+R/RW and DVD-R/RW media compatibility*: Compatible with a wide range of DVD±R and DVD±RW media.

- *Multiple DVD types*: Supports DVD-ROM, DVD-Video, multi-border, multi-session, DVD±VR, for read and write.

- *Versatile recording modes for DVD+R/RW*: Including disc-at-once (DAO), multi-session, and incremental write for DVD+R DL (double layer) discs; DAO, multi-session, and incremental write for DVD+R; and random access write and sequential write for DVD+RW.

- *Recording versatility for DVD-R/RW, too*: Including sequential write for DVD-R DL (dual-layer); DAO, incremental recording, multi-border recording for DVD-R; and DAO, multi-border recording, incremental recording, restricted overwriting, and DRT-DM for DVD-RW.

- *SpeedRead*: For DVD-Video discs equipped with CSS copy protection, you can enable fast playback (SpeedRead) or leave at the factory default for quiet video playback.

CD-R and CD-RW Features

- *Variety of recording modes*: Supports track-at-once, disc-at-once, session-at-once, multi-session, and variable and fixed packet writing.

- *Buffer Underrun Proof Technology*: Eliminates buffer underrun errors, so you can safely use your computer for other tasks while you're writing to a CD-R or CD-RW disc.

- *Wide compatibility*: Wide CD-R and CD-RW media compatibility.

- *Orange Book compatibility*: Compatible with Orange Book, Parts II and III.

- *OPC and ROPC*: Optimum Power Control and Running Optimum Power Control, which adjust the laser power for the optimum write strategy.

- *CD-TEXT, CD+G*: Supports CD-TEXT and CD+G writing.

- *Overburn*: Another way of burning more information onto a CD—audio up to 99 minutes 59 seconds in length, or a data disc up to 875 megabytes in capacity.

Minimum Configuration to Use the PX-716AL

Here's what you'll need in order to install and use the PX-716AL drive.
- **Computer**: Pentium 4, 1.4-GHz or faster CPU.
- **Minimum RAM**: 256 MB.
- **Interface**: The Model PX-716AL requires an IDE ATAPI interface.
- **Hard disk size**: To write to a CD in image mode (that is, to write an image of a CD to your hard disk), you need 1 GB of free space. For a DVD, 10 GB of free space is recommended. (For more accurate guidelines, see the help files or documentation for the recording software you're using.)
- **Operating System**: The Model PX-716AL requires Windows XP, 2000, Me, or 98SE.

NOTE: You cannot use the PX-716AL with early versions of Windows 98; if you are using Windows 98, it must be Windows 98SE (Second Edition).

What You Can Do with the PX-716AL

Just look at some of the things you can do with your PX-716AL:
- Record slide shows or digital video onto DVD+R DL, DVD-R DL, DVD+R, DVD-R, DVD+RW and DVD-RW discs.
- Play DVD-ROM, DVD+R DL, DVD-R DL, DVD+R, DVD+RW, DVD-R, and DVD-RW discs.
- Record data or audio onto writable or rewritable CD media.
- Play music CDs.
- Save photos and other images on rewritable or writable CDs.
- Create a CD or DVD "sneakernet" to share information with colleagues—just use software such as Roxio's Drag-to-Disc to drag and drop files onto DVD+R, DVD+RW, CD-R or CD-RW media, then continue adding files and sharing the same disc.
- Archive images and video to DVD or CD.
- Master new software programs on DVD or CD.

About Software

In order to record on DVD±R DL, DVD±R/RW, and CD-R/RW discs you will need to have mastering, packet writing, or duplication software installed on your computer system. If you purchased a retail kit from Plextor, you'll get software packages that include such software.

You can use Roxio's Easy Media Creator™ 7 to burn DVDs and CDs. The software lets you burn and share anything on CD or DVD, including music, photos, and videos; and you can easily back up your critical data to a CD or DVD. One component of Easy Media Creator is Drag-to-Disc, which makes the Plextor PX-716AL drive as easy to use as a hard disk drive. (For more information about Easy Media Creator, install this application and examine the help files.)

NOTE: Easy Media Creator 7 requires Microsoft Windows XP (service pack 1 or later) or Microsoft Windows 2000 (service pack 4 or later). This product will not work with Windows 95, Windows 98, Windows 98SE, or Windows Me. (If you already have Easy CD & DVD Creator 6, these should work with any operating system supported by the PX-716AL, although they do not support DVD±R DL recording.) In addition, for real-time MPEG-2 capture and burning, Easy Media Creator 7 requires a 1.6-GHz Pentium 4 or equivalent.

For more details about Easy Media Creator system requirements, see: http://www.roxio.com/en/products/ecdc/system_requirements.jhtml

For details on other software that is available for writing to DVDs or CDs, please visit the web sites of the companies whose software you are interested in, refer to their user's manuals, or look at the help option within the software. A list of various software that you can use with your Plextor drive can be found in the Support/Compatibility section of www.plextor.com.

Precautions

Like the rest of your computer system, your PX-716AL requires reasonable care in its installation and use.

- Keep the area around your drive clean from dust, smoke, and other contaminants.

- Do not allow moisture or liquids, including water or cleaning fluids, to touch the drive. Thinner, benzene, or alcohol-based solvents can mar your drive's surface.

- Do not drop or jolt the drive.

- Do not move, carry or transport a disc in the drive because this can cause damage.

- Do not attempt to open the drive and service it yourself. Removing the cover may expose you to harmful electrical voltages or the laser beam. For your safety, entrust service to experienced service personnel only.

- Keep your DVDs and CDs free of dirt or other contaminants, by storing them in jewel cases. Use only industry-standard discs. Do not insert dirty, warped, poorly balanced, or cracked discs into the drive.

- Do not clean discs using a circular motion. Instead, using a soft, dry cloth, wipe gently in a radial motion; start at the center of the disc and proceed to the outer edge.

- Do not attempt to clean your drive using solvent-based cleaners or an air compressor.

- Do not attempt to clean your drive using a CD cleaning disc. These discs can damage your drive permanently.

Where to Go From Here

- See Section 2, beginning on page 9, to learn how to install your drive.

2. Installing the PX-716AL Internal ATAPI Drive

This section explains how to physically install your PX-716AL internal ATAPI drive in your computer.

PX-716AL Drive Features and Controls

Before proceeding, become familiar with the controls and features of your Plextor drive. Match the parts of your drive to the illustrations below.

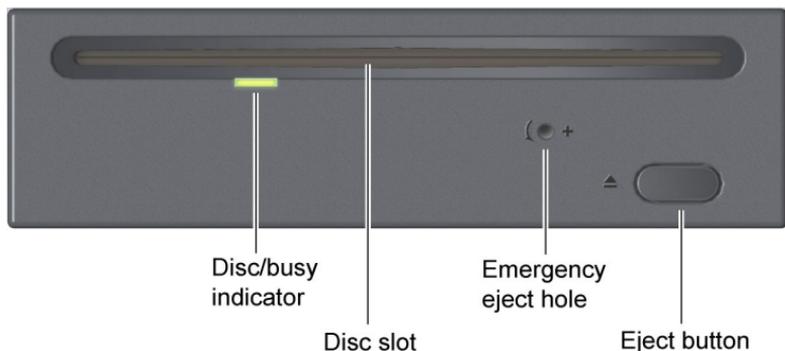## Front Panel—PX-716AL Internal Drive

Figure 1: Front panel of the PX-716AL internal ATAPI drive

- **Disc/busy indicator**: Illuminated yellow for disc initializing, reading, and ejecting. Illuminated amber for writing. (Blink rate indicates writing speed.) Illuminated green during standby and when Buffer Underrun Proof Technology is operational. Illuminated yellow, green and amber when AUTOSTRATEGY is operational.

- **Disc slot**: Accepts CD or DVD disc.

- **Emergency eject hole**: If the automatic eject button does not work, insert a #0 Phillips jeweler's screwdriver and turn counter-clockwise until the disc is ejected. Turn OFF power before using this feature.

- **Eject button**: Push once to eject the disc. Push again to insert the disc back into the PX-716AL.

  This button also enables SpeedRead for DVD-Video discs with CSS protection. To enable SpeedRead, with the drive empty, press and hold the eject button for 3 seconds, then insert a DVD-Video disc. The disc is played back at an accelerated speed.

Rear Panel—PX-716AL Internal Drive

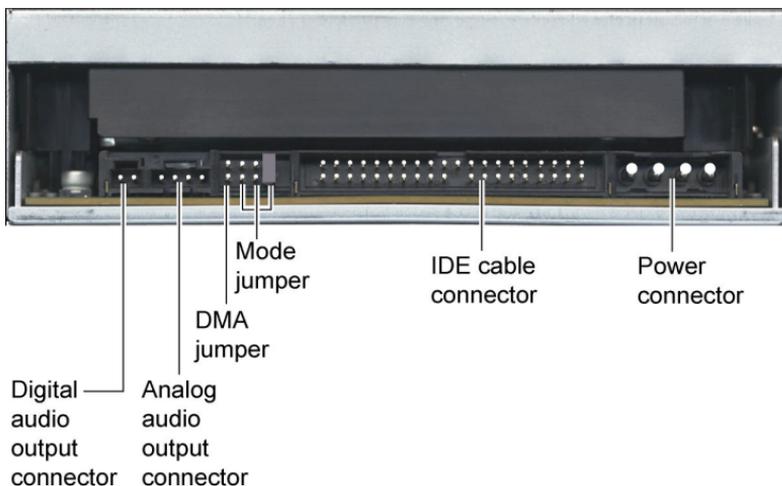Also familiarize yourself with the drive's rear panel.

Figure 2: Rear panel of the PX-716AL internal ATAPI drive

- **Digital audio output connector**: Outputs a digital stereo signal. Use this to connect to a sound board that supports Sony/Philips Digital Interface (SPDIF) or Digital-In.

- **Analog audio output connector**: Outputs an analog stereo signal. Use this to connect to a sound board or audio amplifier. Use a standard MPC-3 type, 4-pin connector.

- **Mode jumper**: Use the mode jumper to select operation as an IDE master or slave, or for cable select. In general, leave this jumper at its factory setting, which is master; and ensure that any other device on the bus is jumpered as slave.

- **DMA jumper**: Use the DMA jumper to convert between Ultra DMA Mode 0-4 (no jumper, default) and multiword DMA Mode 0-2 (with jumper installed). In general, leave this jumper at its factory setting, which is Ultra DMA (that is, no jumper installed).

- **IDE cable connector**: Connects to your computer's IDE (ATAPI) interface using 80-conductor Ultra cable.

  NOTE: Although the PX-716AL will operate with a 40-conductor IDE cable, it may not be able to write DVDs at 16X unless an 80-conductor IDE/ATA cable is used.

- **Power connector**: Connects to your computer's power supply to provide DC +5 volts and +12 volts to the PX-716AL.

What Else Is In the PX-716AL Box

What you find in your Plextor box depends on what the company that sold you the box put in—or took out—while the Plextor drive was in their possession. Plextor currently sells the PX-716AL drive in this configuration:
- PX-716AL DVD±R DL, DVD±R/RW and CD-R/RW drive
- 80-conductor IDE/ATA cable
- 4 mounting screws
- Extra jumper
- Plextor software disc with bundled Roxio Easy Media Creator 7 Basic DVD Edition
- *PX-716AL Installation and Users Manual*
- Quick Installation Guide

Save Your Box!

Be sure to save the box after you have installed your drive. The box and its packaging material were designed and drop tested to ensure your drive can endure rough treatment and still arrive in working order. If you have to ship your drive back to Plextor, you'll want to send it in the original box. (For more details about returning your drive to Plextor, see page 71.)

If the security sticker on top of your box is cut, there may be a good reason: for example, a dealer may have added other components or software. Carefully check the contents to ensure nothing has been removed. If something is missing, contact the party from whom you purchased the box for an explanation.

NOTE: This applies to the Plextor retail kit in the brown box. Your drive may have been shipped in a different box with other contents, depending on whom you purchased the drive from and what they included inside the box.

If your drive came pre-installed, some or all of the items above may have been installed and may not be separately available. See the Plextor web site for locations to purchase additional or replacement accessories.

Mount the PX-716AL Drive

Here's an overview of what you'll do to mount the drive:
1. Turn OFF your computer system.

2. Set the jumpers for your new PX-716AL drive, if necessary.

3. Mount the drive into an available drive bay inside the computer system.

4. Make all necessary cabling connections: IDE cable, power cable, and audio cable.

5. Turn your computer system ON.

The following pages give more details for this procedure.

PX-716AL QuickStart Installation
For Experienced PC Users Only

If you've installed computer peripherals before, use this QuickStart installation to get up and running quickly.

IMPORTANT NOTE: To ensure maximum writing speed, you must connect the PX-716AL to an 80-conductor IDE/ATA flat ribbon cable. (This newer 80-conductor ribbon cable is physically interchangeable with the 40-conductor cable found in older computers.)

Typical Scenario 1: You have a PC with an IDE interface installed, you have Windows 98SE, Me, 2000, or XP, and you have nothing installed on the secondary IDE port. **What to do**: Leave the PX-716AL's jumper set to Master, attach it to the secondary IDE port, and go. Windows will recognize the drive automatically.

Typical Scenario 2: You have a PC with an IDE interface installed, you have Windows 98SE, Me, 2000, or XP, the primary IDE port already has two devices connected and you have a CD-ROM installed on the secondary IDE port. **What to do**: Change the CD-ROM to Slave, leave the PX-716AL's jumper set to Master and attach the PX-716AL to the secondary IDE port. Windows recognizes the new drive automatically.

If neither of these situations applies to you, or you're not comfortable with IDE installation, read the rest of this section for more detailed installation instructions.

Open the Computer and Prepare for Installation

To determine whether your PX-716AL will be a Master or a Slave, open your computer and examine the IDE connections to the motherboard.

To open the computer:
1. Before proceeding, make sure the power to your computer and any external peripherals is OFF and your computer is UNPLUGGED from its power source.

2. Remove your computer's cover, following the directions provided by your computer's manufacturer. Typically, this involves loosening or removing several screws on the back panel of your computer and sliding off the cover. See Figure 3 for an example.
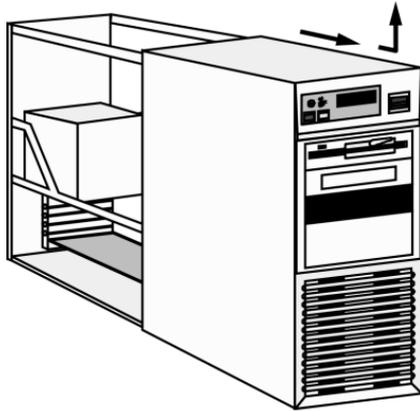
Figure 3: Removing a typical computer's cover

Determine Your Existing IDE Configuration

With your computer open, determine the existing IDE configuration. You can do this by looking at the IDE ribbon cable (or cables—there may be two) and seeing what is connected to them.

One end of the IDE cable connects to the IDE port on your computer's motherboard; and there are usually two other connectors for attaching peripheral devices such as a hard disk, DVD or CD-ROM drive, or your PX-716AL drive. If there are two devices, one is configured as *Master* and the other the *Slave,* as indicated by the position of jumpers on the back of the drive.

If your computer is set up for Cable Select, or CSEL, both devices will be jumpered as *Cable Select*. In older computer, this configuration required a special Cable Select cable.

If there are two IDE cables, one is for the *primary* IDE bus and the other is for the *secondary* bus.

Before you install your PX-716AL, your computer's IDE configuration is usually one of the following:

- **Configuration A**: Hard disks connected as Master and Slave devices on primary IDE port; DVD or CD-ROM drive connected as the Master device on secondary IDE port.
- **Configuration B**: Hard disk connected as Master device and DVD or CD-ROM drive connected as Slave on the primary IDE port; nothing connected to secondary IDE port.
- **Configuration C**: Hard disk connected as Master device on primary IDE port; nothing connected to secondary IDE port.
- **Configuration D**: System uses special "Cable Select" cables; all devices are jumpered for Cable Select.

Inspect Your Computer's Cables

To ensure that it can write at maximum rated speed (16X), you should make sure the PX-716AL is connected to an 80-conductor IDE/ATA flat ribbon cable. If you have an older computer, it may still be equipped with a 40-conductor cable.

NOTE: Although the newer IDE/ATA cable has 80 conductors (wires), its connectors have only 40 pins, so it's physically interchangeable with the older cable. And in fact, your PX-716AL drive **may** work fine with a 40-conductor cable. But to ensure writing at maximum speed, it's best to use the newer 80-conductor cable. The 80-conductor cable cancels interference much better than the older model, allowing faster data transfers.

CAUTION: The length of any IDE cable cannot exceed 18 inches.

Confirm That You Have an 80-Conductor IDE Cable

How can you tell? The 80-conductor cable is slightly wider than the older 40-conductor version. The wires in the 80-conductor version are narrower, too.
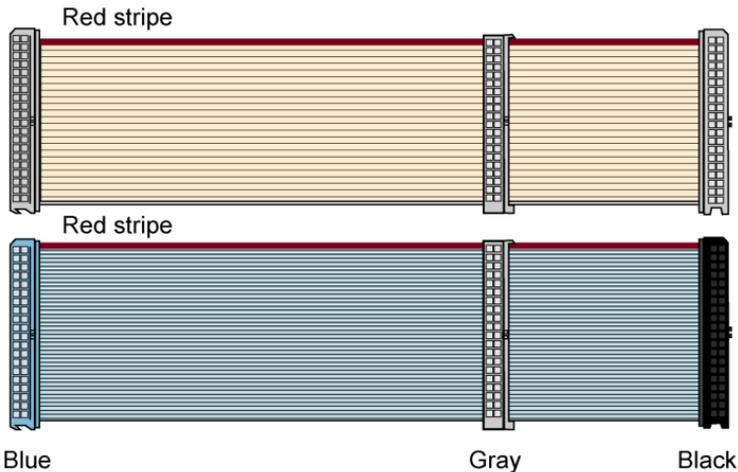

Figure 4: Comparing the older 40-conductor cable (top) to the new 80-conductor type (bottom). Be sure to use the 80-conductor cable.

If you have an older 40-conductor cable, replace it with the 80-conductor cable. You can find 80-conductor IDE/ATA cables at electronics supply stores and on-line sites.

Do You Have Cable Select?

Many computers from major manufacturers use special Cable Select cables. The Cable Select cable typically has markings that identify the connectors for Master, Slave, and Motherboard.
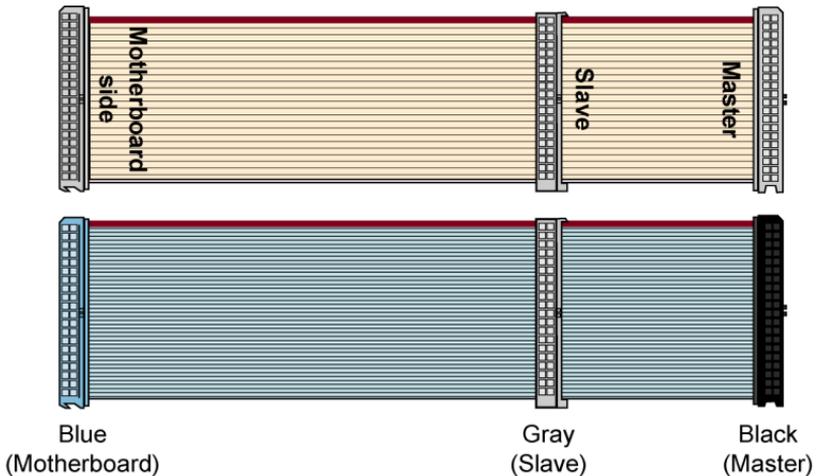

| Blue | Gray | Black |
| (Motherboard) | (Slave) | (Master) |

Figure 5: If you have an older 40-conductor Cable Select cable (top), replace it with the new 80-conductor cable (bottom).

If you have one of these older Cable Select cables, replace it with the 80-conductor IDE/ATA cable from Plextor. (All 80-conductor cables that meet the ATA specifications also support Cable Select.) The connector color identifies master and slave.

With the 80-conductor cable:
- The blue connector attaches to the computer motherboard or controller.
- The gray connector is in the middle of the cable, and goes to any slave (device 1) drive, if present.

- The black connector is at the opposite end from the host connector and goes to the master drive (device 0), or to a single drive if only one is used.

If you are unsure whether or not your system has a Cable Select cable installed, either look at the cable or look at the jumpers on the existing DVD-ROM or CD-ROM drive. If any device is jumpered as Cable Select, then both devices on that cable must be jumpered that way.

Do You Need a Power Cable?

In most computers, you will find extra power connectors in the computer ready for your use. When you open the computer, check the cable running from your power supply to your hard disk drive and see if it has extra connectors on it. If so, you can plug one of these into the power connector found on the rear panel of the PX-716AL.

If you do not find any additional connectors (either because they were not supplied or they are all in use), you will have to buy a "splitter" or a "Y-connector." These can also be found at most retail and mail-order computer stores.

Set the Drive's Mode Jumper

You specify your drive's Master, Slave, or Cable Select setting before installing it. You do this by changing the position of a jumper on the mode jumper block at the rear of the drive.

Your drive ships from our factory with its mode jumper set to operate the PX-716AL as a Master. This will work in most custom system configurations. If your computer is from a large OEM system manufacturer such as IBM, Hewlett Packard/Compaq, Dell, or Gateway, you will need to pay particular attention to whether the computer uses the Cable Select scheme.

NOTE: The jumper configuration on the drive has priority over Cable Select. So if the jumper of one device on a cable is set to Master, the jumper of the other device must be set for Slave. In this case, location of the devices on the cable is not important.
If you have only one device, it must be set to Master or Cable Select, and it must be at the end of the cable.

Changing the Mode Jumper on Your PX-716AL Drive

The drive arrives from the factory with its mode jumper set to Master. (A function is ON if the jumper is installed and OFF if the jumper is removed.)
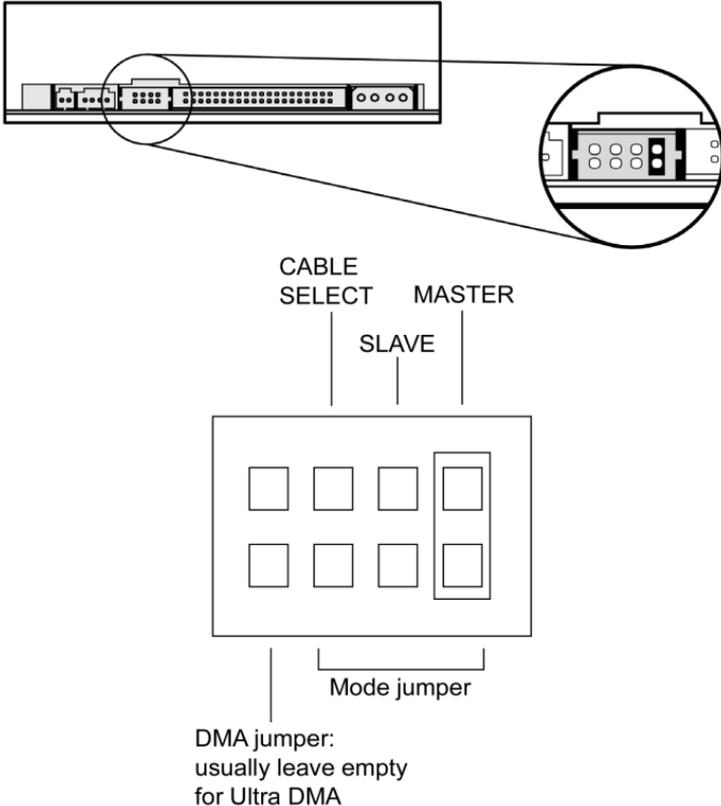
CABLE
SELECT   MASTER

SLAVE

Mode jumper

DMA jumper:
usually leave empty
for Ultra DMA

Figure 6: Factory settings for mode jumper at the rear of the internal drive

Changing to a Master, Slave, or Cable Select

The Master/Slave/Cable Select setting for the drive is determined by the mode jumper. The jumper is placed over one of the sets of mode pins. To change the drive from Master to Slave or to Cable Select, you must move the jumper.

For example, to change the drive to be a Slave, move the jumper to the middle set of mode pins, leaving the other pins uncovered. To change the drive for Cable Select, move the jumper to the left set of mode pins.

Note that if any device is jumpered as Cable Select, then *both* devices connected to that cable must be jumpered as Cable Select. (And if you're not using the newer 80-conductor IDE/ATA cable, the cable you use must be a special Cable Select cable.)

Changing Jumper Settings

- To remove a jumper, pull it off with your fingers or a pair of needle-nose pliers.
- To install a jumper, push it onto the jumper pins.

CAUTION: Ensure power to the drive is OFF before installing or removing a jumper.
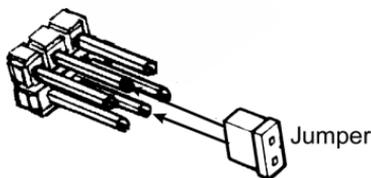
Jumper

Install jumpers this way
(Vertically)

DO NOT install jumpers this way
(Horizontally)

Figure 7: Install the mode jumper across vertical pairs of pins

CAUTION: Install the mode jumper across the pins as shown (vertically). Do not connect one pin switch to another by installing the jumper lengthwise (horizontally). Doing so could result in damage to the drive.

Select an IDE Configuration

Set the PX-716AL's jumper and cable it according to the desired configuration. Keep these rules in mind:

- For best DVD±RW and CD-RW performance, try to connect the PX-716AL to the IDE port that is not connected to the hard disk drive or to a DVD or CD-ROM drive. In most cases, this will be the secondary IDE port.
- For best results, set the PX-716AL to be the Master, if possible.
- If you have only one device on a cable, always set its jumper as the Master, never as the Slave.

	Before PX-716AL Installation	How to Install the PX-716AL
A	Hard disks connected as Master and Slave devices on primary IDE port; DVD-ROM or CD-ROM drive connected as Master device on secondary IDE port.	Remove the DVD-ROM or CD-ROM drive, change it to Slave, and re-connect it to the secondary IDE port. Set the mode jumper to Master, and connect the PX-716AL as Master device to the secondary IDE port.

Figure 8. How to install the PX-716AL if your computer is originally set up in configuration A

NOTE: The configuration shown in Figure 8 can make it very difficult to write from the DVD or CD drive to the PX-716AL at maximum rated speed using "on-the-fly" copying.

System configuration and performance will make a big difference. Depending on how fast the DVD or CD-ROM drive can stream data to the PX-716AL, it may not be fast enough to keep the buffer full. In this case, the buffer may become empty and a buffer underrun error may occur. However, because it is equipped with Buffer Underrun Proof Technology, your PX-716AL can still make successful copies if you use software that supports this feature. (All software shipped with PX-716AL drive retail kits supports Buffer Underrun Proof Technology.)

If you still have problems writing with this configuration, use the image writing method (that is, write an image to your hard drive, then write that image onto the DVD±R/RW or CD-R/RW media), or record at a lower speed. We also recommend that DMA be enabled on your computer, if your system supports it.

	Before PX-716AL Installation	How to Install the PX-716AL
B	Hard disk connected as Master device, and CD-ROM or DVD-ROM drive connected as Slave on the primary IDE port; nothing connected to secondary IDE port.	Set the mode jumper to Master, and connect the PX-716AL as Master to secondary IDE port.

Figure 9. How to install the PX-716AL if your computer is originally set up in configuration B

	Before PX-716AL Installation	How to Install the PX-716AL
C	Hard disk connected as Master device on primary IDE port; nothing connected to secondary IDE port.	Set the mode jumper to Master, and connect the PX-716AL as Master to secondary IDE port.

Figure 10. How to install the PX-716AL if your computer is originally set up in configuration C

	Before PX-716AL Installation	How to Install the PX-716AL
D	System uses special Cable Select cables; all devices are jumpered for Cable Select.	Set the PX-716AL's mode jumper to CSEL, and connect the drive to the end of the cable from the computer's IDE interface connector.
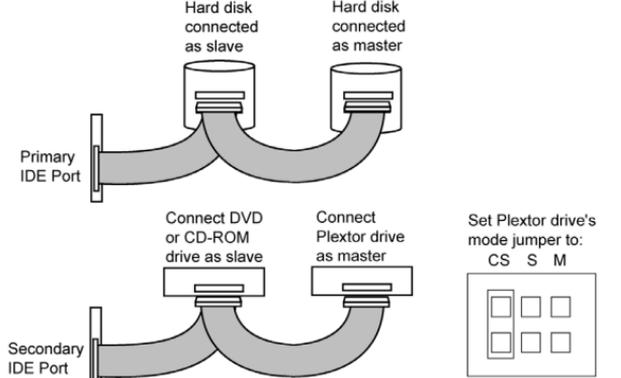
Figure 11: How to install the PX-716AL if your computer is originally set up in configuration D

About Cable Select

The Cable Select jumper position sets the PX-716AL drive to use the CSEL signal from the IDE interface for configuration purposes. This signal automatically selects the correct Master/Slave setting for the drive.
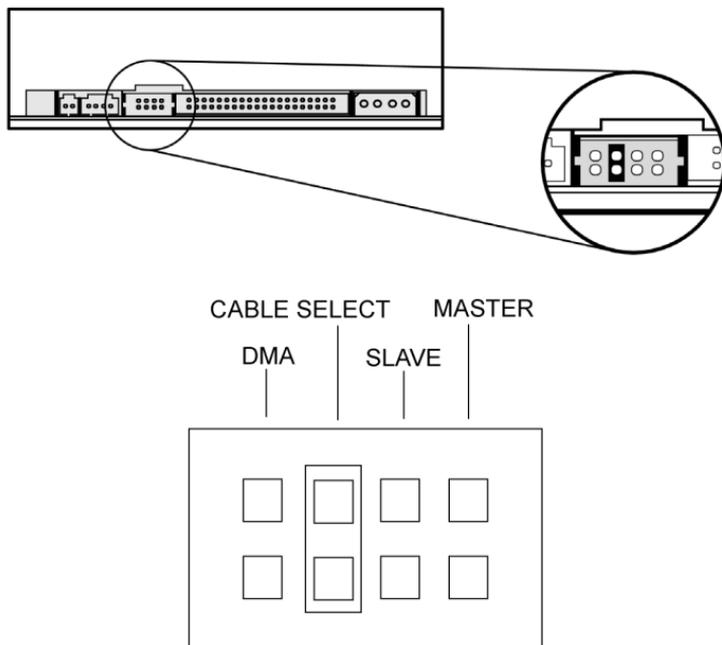

Figure 12: Configuring the PX-716AL drive for Cable Select

To use CSEL, you must have:
- A computer that supports CSEL.
- An IDE cable that supports CSEL (Cable Select). The 80-conductor IDE/ATA cable from Plextor supports CSEL.

Set the PX-716AL DMA Jumper

Your PX-716AL ships from the factory with no DMA jumper installed. (The pins are empty.) The empty pins mean the drive is set to Ultra DMA. This setting should work in most cases, so you don't have to do anything more.

With some personal computers (usually older ones) that do not have an Ultra DMA IDE chipset, the computer may "hang" or crash with the PX-716AL set to the default Ultra DMA setting. If this happens, change the PX-716AL to multiword DMA mode by installing the spare jumper across the two DMA jumper pins just to the left of the mode jumper pins.
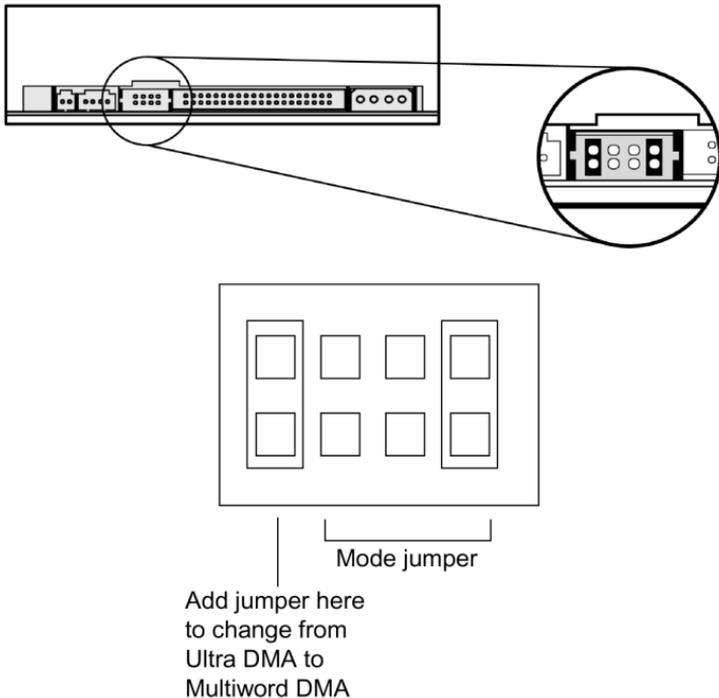
Mode jumper

Add jumper here
to change from
Ultra DMA to
Multiword DMA

*Figure 13: Add the DMA jumper if you need to change
to multiword DMA*

Mount the PX-716AL Drive

Before proceeding to install the PX-716AL drive in your personal computer, double-check your jumper setting.

Record the Serial Number

Record the serial number and TLA number of your drive on the inside front cover of this manual.

Mount the Drive in the Computer

You can mount your internal drive in any available bay. You must remove the small panel that covers the bay that you want to use.

NOTE: The drive can be mounted horizontally or vertically

If you don't have an empty bay, remove the existing IDE DVD-ROM or CD-ROM drive and install the PX-716AL.

You must make a minimum of two cable connections to your PX-716AL. The two cable connections that you must make are:
- IDE cable
- Power cable

There are also two optional cable connections:
- An analog audio cable connection if you are using a sound board in your computer and plan to connect the PX-716AL's audio output to the audio connector on the sound board.

- A digital audio cable connection if the sound board is equipped with SPDIF or Digital-In and you wish to use the digital audio output from your PX-716AL.

To mount the PX-716AL drive:

1. Make sure the power to your computer and any external peripherals is turned OFF and your computer is UNPLUGGED from its power source.

2. If you haven't already removed the cover from your computer, remove it now, following the directions provided by your computer's manufacturer. Typically, this involves loosening or removing several screws on the back panel of your computer and sliding off the cover. See Figure 3 for details.

3. Remove the cover panel from the bay that will hold the drive. To remove the cover panel, pop it out by pressing outward lightly. (In some older computers, you may have to remove screws that hold the panel in place.)
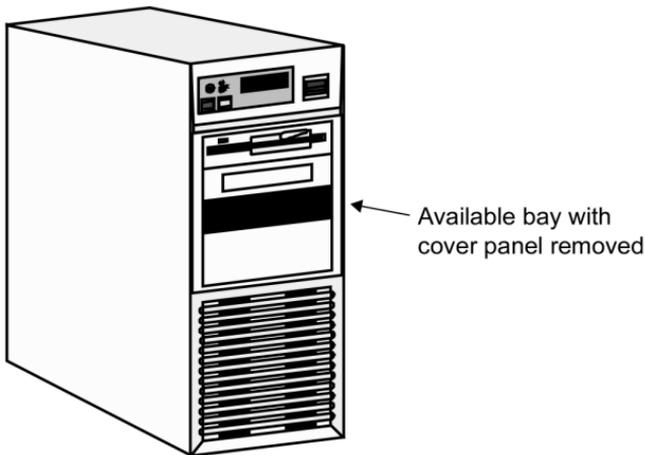

Available bay with
cover panel removed

Figure 14: Removing the cover panel from a bay

4. Determine if you must install mounting rails on the sides of your drive. To do so, insert the drive into the open bay. If the drive fits tightly with little or no clearance on either side of the drive, you will not have to use mounting rails. The drive can be mounted directly into your computer. Go to step 6.

NOTE: Plextor does not provide rails. If you need rails, you can obtain them from the computer manufacturer or from a computer supply retail or mail-order store.

5. If you must use mounting rails, fasten the rails to the lower pair of holes as shown in Figure 15. (In some instances, you may need to fasten the rails to the upper set of holes.) After fastening the rails, check their positioning by sliding the drive into the bay before you mount the drive or connect any cables.

   CAUTION: Be sure not to mistake the inner and outer face of the rail when attaching. Typically, the smooth side of the rail faces away from the drive's chassis.
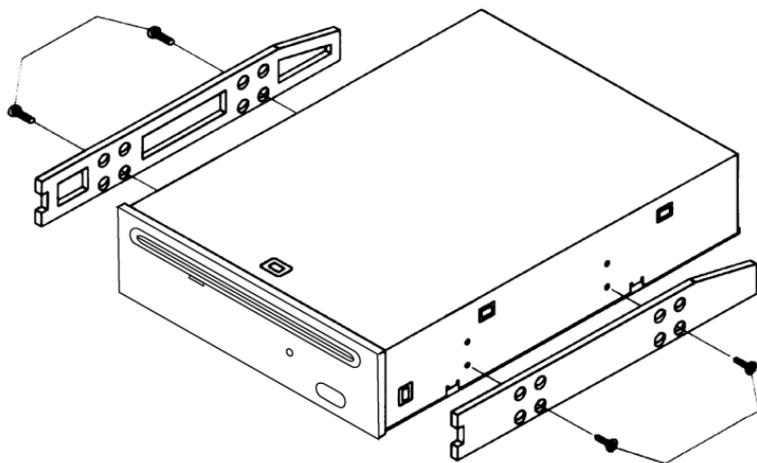

Figure 15: Installing mounting rails (if needed)

6. Plug one connector of the 80-conductor IDE/ATA cable into the IDE connector on the rear panel of the drive before you insert the drive into your computer. Then thread the cable through the front of the open bay and back toward the motherboard. The drive should slide smoothly into the bay. If it does not, check for obstructions in the bay and ensure the side rails are attached properly.

7. If not already connected, attach the other end of the IDE ribbon cable to the connector on the motherboard.
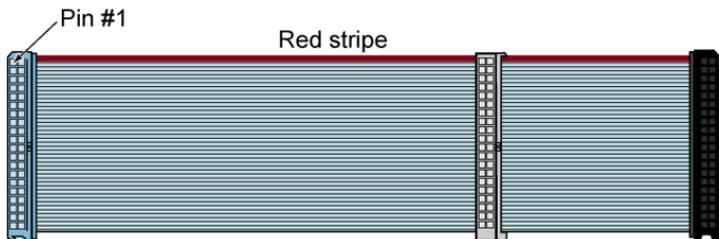
Pin #1

Red stripe

Figure 16: Connect one end of the IDE cable to the motherboard and the other end to the drive. If your Plextor drive is the only device on the cable, attach it at the end of the cable, leaving the center connector free.

CAUTION: With some IDE ribbon cables, it is easy to accidentally plug your IDE cable upside down into both your drive and the motherboard. Be sure you match the red stripe along one side of the IDE cable to Pin 1 on the motherboard and Pin 1 on the drive. (Pin 1 on the drive is closest to the power connector.) Note that each connector on most ribbon cables also has a "key" in the middle. This key should fit into a slot in the middle of each connector of the motherboard, your PX-716AL drive, and any other internal IDE peripherals.

8. Double-check your work. You must ensure the side of the IDE cable with the red stripe is matched to Pin 1 on the interface board and on the drive.

CAUTION: In the case of only one IDE device, you must make certain that one end of the cable is always connected to the IDE connector on the motherboard. The other end of the connector must be connected to a device. The end connector of the cable should never be left unconnected.

9. Connect a power cable from the computer to the power connector (DC INPUT) of the drive. In most computers, you will find free power connectors that are ready for your use.

CAUTION: The power connector on the cable and the receptacle on the drive are keyed. Do not force the power connector into the drive, or the drive and/or the computer may be damaged.
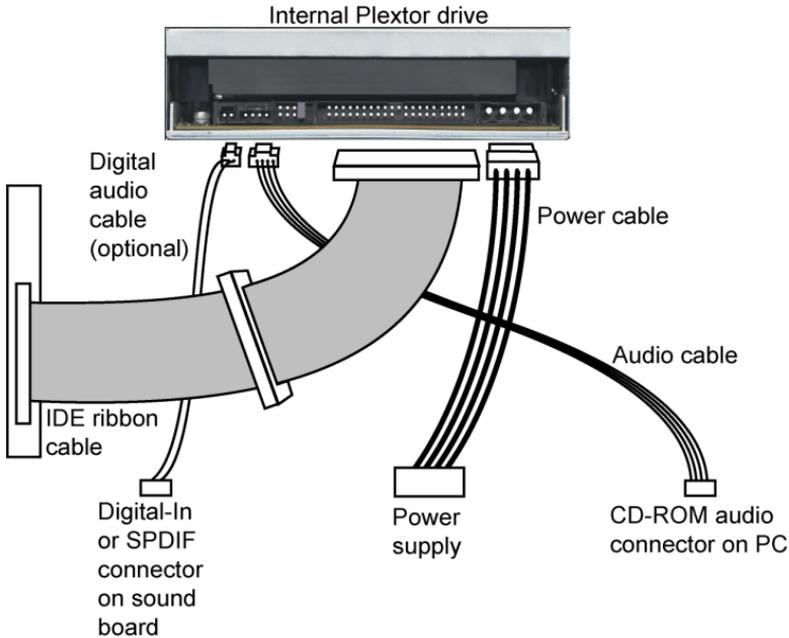

Figure 17: Cable connections for an internal IDE drive

10. Connect the analog audio cable if you want to use a sound board in your system. This cable runs from the four-pin analog audio output connector on the rear panel of your drive to the CD-ROM audio connector on the PC or your sound board. See "Using Sound Boards and Audio Cables" below for more information about audio cables.

11. Connect a digital audio cable if your sound board is equipped with the Sony/Philips Digital Interface (SPDIF) or Digital-In, and you wish to use the digital audio output from your PX-716AL. This cable runs from the digital audio output connector pins on the PX-716AL back panel to the sound board. (This cable is not supplied by Plextor.)

12. Mount the PX-716AL drive in the computer using the four screws that were supplied with your drive. Use only these screws.

CAUTION: Do not mount your drive in your computer using screws other than those supplied by Plextor. You may damage the drive if you insert screws that are too long or the wrong thread type.

Using Sound Boards and Audio Cables

Whichever category your sound board falls into, you will find that the best source of information about installing the sound board in your computer is the board's manual. Once you have successfully installed the sound board in your computer, you can continue below for a description of the different cable connections that need to be made.

If you need audio cables, you will have to purchase them. Refer to the table below. A list of several vendors who offer audio cables is available on Plextor's web site.

Audio Connection	Cable Required	How to Connect It
MPC audio source	MPC-compliant audio cable	Connect to MPC audio source, and to analog audio output connector at the rear of the Plextor drive.
Sound Blaster or compatible sound board	Sound Blaster-compatible analog audio cable	Connect to Sound Blaster-compatible audio board and to analog audio output connector at the rear of the Plextor drive.
Digital audio output	Cable that's compatible with SPDIF or Digital-In.	Connect to SPDIF or Digital-In connector on sound board (if sound board supports digital audio) and to digital audio output connector at the rear of the Plextor drive.

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3. Using Your PX-716AL

This section explains how to use your PX-716AL drive and how to load, handle and care for your DVDs and CDs.

What Media to Use

Use the right media! Your PX-716AL drive's capabilities change depending on which type of compact disc you use.

DVD Media

DVD recordable media is available in two different, non-compatible formats:
- DVD+R, DVD+R DL (double layer) and DVD+RW
- DVD-R, DVD-R DL (dual layer) and DVD-RW

Your PX-716AL can *read* and *write* either media format, in single layer or double layer media. It supports all these types of DVD media:
- **Digital Video Discs**: You can immediately play pre-recorded DVD discs, including movies and other DVDs.
- **DVD+R DL, DVD-R DL, DVD+R, DVD-R**: Recordable DVD. You can record on these discs, but only once. You can also read them.
- **DVD+RW, DVD-RW**: ReWritable DVD. You can record and re-record (up to 1,000 times) on these discs. You can also read them.

Figure 18: The logo identifies the type of DVD media

With double layer media, you don't need to turn the disc over to record on side 2.

CD-ROM Media

In addition, you can use these types of CD media:

- **CD-ROM**: You can immediately play or read prerecorded compact discs, such as audio CDs and data discs.
- **CD-R**: Recordable CD. You can record on these discs, but only once. You can also read them.
- **CD-RW**: Normal Speed, High Speed, and Ultra Speed ReWritable CD. These discs support recording and re-recording (up to 1,000 times). You can also read them.

To achieve a certain writing speed, you must use the appropriate media. To achieve 48X CD-R writing speed you must use certified 48X media; and to achieve 24X CD-RW writing speed you must use Ultra Speed CD-RW media.

Remember:

- Using Normal Speed CD-RW discs (that is, NS-RW media) you can rewrite at 4X.
- Using High Speed CD-RW discs (HS-RW media), you can rewrite at 10X.
- Using Ultra Speed CD-RW discs (US-RW media) in this drive, you can rewrite at up to 24X.

You can write to Ultra Speed CD-RW discs only on drives that support this media. Drives that are capable of writing to Ultra Speed ReWritable media, such as the Plextor PX-716AL, are identified by a "Compact Disc ReWritable Ultra Speed" logo.

Figure 19: The logo also identifies the type of CD-RW media

See "Recommended Media" on page 58 for a list of Plextor-approved media at the time this manual was printed, and see the Plextor web site at www.plextor.com for an updated list.

Disc Loading and Drive Operation

To load and unload a disc:

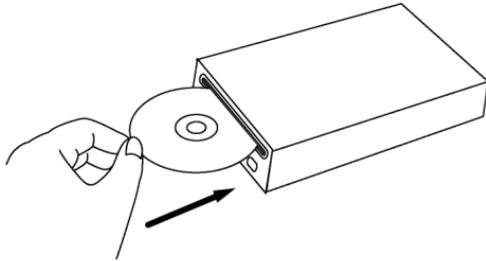1. While the drive is powered up, insert a CD or DVD disc into the disc slot.

Figure 20: Loading a disc

2. Press the eject button to unload the disc from the drive.

CAUTION: Gently insert the disc into the drive. Forcing a disc into the drive is not recommended and risks damage or premature wearing of the mechanism. Also, always use the eject button to unload the disc.

If the automatic eject button does not work, turn OFF the power to the computer, then insert a #0 Phillips jeweler's screwdriver into the emergency eject hole and turn counter-clockwise until the disc is ejected.

Handling DVD and CD Media

Take care when handling blank CD and DVD media. Dust, scratches, and fingerprints on either side of the disc can cause write errors during recording. When picking up or holding blank media you can either place your fingers along the outer edge of the disc, or place one finger through the center hole and one finger on the outer edge. Once you have finished creating a disc, label it by writing on the top using permanent ink.

CAUTION: We recommend using a "non-toxic" marker, such as a Sharpie® pen, that conforms to the ASTM D-4236 standard. Some permanent markers will damage the media. Also, do not press too hard when writing on the disc.

NOTE: We do not recommend placing self-sticking CD-R labels on the disc. The weight of the label may unbalance the disc and cause write errors during recording or read errors during reading. Also, attempting to remove the label may permanently damage the disc.

Cleaning Discs

For proper read and write performance, your discs must be clean. Trying to record on a dirty disc may result in a failed session and ruin the disc.

To clean the disc, wipe the disc using a clean, soft cotton cloth to remove surface dirt such as fingerprints. Use a straight-line motion, wiping from the center out. Do not wipe the disc in a circular motion.
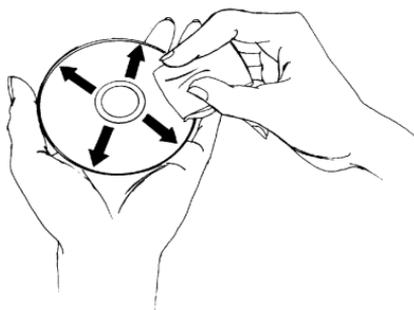
Figure 21: Wipe the disc from the center outward

HINT: Keep your frequently used discs in jewel cases at all times to prevent them from becoming dirty or damaged.

Mounting Position

You can operate your PX-716AL drive in either a horizontal or a vertical position.

Playing DVDs

To play a digital video disc, insert the DVD as you would any other disc. The drive plays both single layer and double layer discs.

The first time: A code on each DVD allows it to be played only on players designed for a certain regional area, such as North America, Europe, etc. When the drive ships from the factory there is no region code set. The first time a DVD that has a region setting is inserted into the drive, the drive is automatically set to that region code.
If you later insert a DVD with a different region code, you are prompted to either accept changing the new region code or not. If you don't accept the change, then that DVD will not play. If you do accept the change, then the region code setting is changed. But remember: you can change the drive's region code only 5 times. After that, you can't change it any more.

Writing to DVD Media

You need special software that supports writing to DVD+R, DVD+R DL, and DVD+RW discs; or to DVD-R, DVD-R DL, and DVD-RW discs. Roxio Easy Media Creator 7 (on the CD that accompanies your PX-716AL retail kit) contains this software.

Specifying +R/RW or -R/RW

You don't need to specify whether to write to +R/RW or -R/RW. The selection is automatically made for you, based on the media you insert in the drive.

Writing to CD-R and CD-RW Media

In conjunction with your drive, mastering and packet writing software such as Roxio Easy Media Creator 7 allows you to write audio, video, data, or other information to writable (CD-R) or rewritable (CD-RW) media. The PX-716AL writes to all types of CD-RW media.

Using the Disc/Busy Indicator

The color and blink rate of the front-panel disc/busy indicator give you information about the drive's operation. When you are writing to a CD-R or CD-RW disc, the color and blink rate of the front-panel disc/busy indicator indicate the speed of writing, as follows:

Operation	LED color	On/Off/Blink	Blinking interval
No disc	–	Off	–
Eject	Yellow	On	–
Loading	–	Off	–
Initialize	Yellow	On	–
Standby	Green	On	–
Read	Yellow	On	–
DVD write, 8X and higher	Amber	Blink	40ms
DVD write, 4-7X	Amber	Blink	80ms
DVD write, less than 4X	Amber	Blink	150ms
CD-R write, 32X and higher	Amber	Blink	40ms
CD-R write, 16-31X	Amber	Blink	80ms
CD-R write, less than 16X	Amber	Blink	150ms
CD-RW write, 24X	Amber	Blink	40ms
CD-RW write, 10-23X; 10X CLV	Amber	Blink	80ms
CD-RW write, 4X	Amber	Blink	150ms
Buffer Underrun Proof / DVD linking active	Green	On	–
Write setting created by AUTOSTRATEGY	Yellow-green-amber	Blink	200ms

Switching to SpeedRead for Video Playback

When you are playing a DVD-Video disc that has CSS (copy protection via the Content Scrambling System), the PX-716AL normally plays at a slow speed with a maximum of 2X CLV speed to reduce drive noise. You can speed up DVD playback by turning on SpeedRead.

To manually enable SpeedRead and speed up DVD playback:
1. Make sure the PX-716AL disc slot is empty.

2. Press and hold the PX-716AL's eject button for at least 3 seconds. The disc/busy indicator blinks green three times to indicate SpeedRead will be active for DVD-Video discs with CSS copy protection.

3. Release the eject button.

4. Insert a DVD-Video disc that is equipped with CSS copy protection.

5. Begin playing the disc.

SpeedRead changes the default DVD read speed to 6X-16X CAV for single layer DVD discs, or 3X-to 8X CAV for double layer DVD discs.

To manually disable SpeedRead:
You can manually disable SpeedRead and return to normal video playback operation (for DVD-Video discs with CSS) in either of two ways:
- Eject the disc.
  -or-
- Turn off power to the drive.

Using AUTOSTRATEGY

AUTOSTRATEGY is an self-adjusting writing technology for unknown media. AUTOSTRATEGY enables high quality disc recording, even if the disc is not listed in the drive's internal media catalog.

Most often you'll want to leave AUTOSTRATEGY enabled, just as it comes from the factory. However, if for some reason you want to disable AUTOSTRATEGY, you can use the SetAS utility program, available from Plextor's web site at www.plextor.com.

4. Maintenance and Troubleshooting

This section explains maintenance and troubleshooting procedures for your PX-716AL drive.

With proper maintenance, you can prevent problems. If trouble arises, you can often solve many simple problems on your own, rather than wait for assistance from a Plextor representative.

Cleaning the PX-716AL Drive

Plextor drives are sealed against external contamination, so in a normal computer environment and with normal use, your drive should not require internal cleaning. However, if your drive has been in use for some time and has just recently started to exhibit read/write problems, it is possible that dust has accumulated on the laser lens. In this case:

- If your drive is still in warranty and you are experiencing problems, send the drive to Plextor. (See "Returns" on page 71.)
- If your drive is out of warranty, before returning the drive for repair you may want to try a short blast of canned air aimed at the center of the drive. Use only electronics-grade canned air: sterile, filtered, and moisture-free. If you notice no improvements after this step, you will need to return the drive for repair.

CAUTION: Do not attempt to clean your drive using any solvent-based cleaners. Also, do not use an air compressor, because the high-pressure blast can damage the drive.

ANOTHER CAUTION: Do not use a CD cleaning disc. Cleaning discs that use a felt pad can scratch the laser lens surface and render the drive inoperable. Cleaning discs with brushes may also scratch the lens. Moreover, these cleaning discs are often out of balance, making their operation very noisy.

Upgrading Firmware

Plextor creates firmware revisions to meet the particular needs of large computer manufacturers. It is rare that these revisions will impact the performance or operation of your drive. However, we advise that you always update your drive with the latest available firmware. Among other benefits, updating firmware ensures that your drive has the latest media catalog. Before troubleshooting a possible problem with your PX-716AL drive please visit our web site at www.plextor.com to check if you have the latest firmware.

To obtain new firmware for your drive:
1. Go to the Plextor web site at www.plextor.com.

2. Look for firmware upgrades in the Support area, on the Downloads page. There is a description of the latest firmware revision and its intended use.

3. Download the firmware to your computer.

To upgrade firmware in your drive's flash memory:
1. Run the executable file that you downloaded from Plextor's web site.

2. Accept all defaults by continuing to click on the Next button until you see the message:
   `Firmware update has completed.`

3. Restart your system.

Emergency Eject

If the computer power is turned off or the automatic eject button at the front of the drive does not work, use this procedure to open the drive.

To use the emergency eject to open the drive:

1. Make sure power to the drive is OFF. (That is, turn off your computer.)

2. Use a small screwdriver, such as a jeweler's screwdriver, Phillips Type No. 0).

3. At the front of the drive, insert the screwdriver into the emergency eject hole.
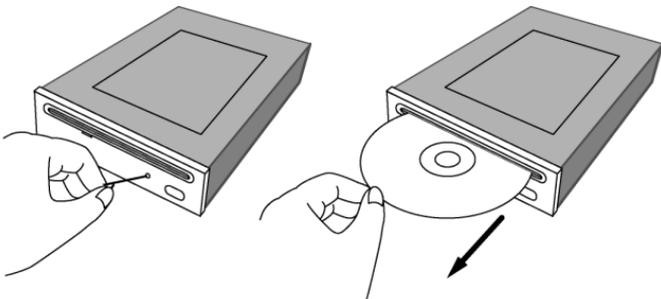
Figure 22: Emergency eject

4. Turn the screwdriver counterclockwise until the disc slides out and you can see the center hole of the disc. (You'll need to make approximately 30 full revolutions of the screwdriver.)

5. Remove the CD from the disc slot.

Troubleshooting

If you have problems during or right after installation of your drive, first make sure the drive is recognized. If you still have problems, visit the Plextor web site for tips and troubleshooting help.

Make Sure the Drive Is Recognized

If you're having trouble after installation, make sure the PX-716AL drive is recognized by your computer. To check whether the drive is recognized:

To see if the drive is recognized in Windows:
1. Turn the computer ON. After the computer boots up, you should see the Windows display.

2. Open Windows Explorer or My Computer and ensure there is an icon for the Plextor drive, the hard disk, and another DVD or CD-ROM drive, if present. The Plextor icon may be D: or E: or another designator.

3. If the PX-716AL drive is not recognized in Windows, reboot the computer and use your computer's setup program to program the BIOS to recognize it.

   NOTE: Refer to the computer's documentation for information on how to run the motherboard BIOS setup program.

   For the PX-716AL, use the motherboard BIOS setup program to set up IDE Master and Slave designations, as needed for your configuration, on the primary or secondary IDE bus. If the IDE interface is disabled on your computer, you will need to enable it. If a Master or Slave device is set to "disable" or "none" or a similar designation, change it as appropriate to "enable" or "auto" (or something similar, depending on your setup program).

4. Save and exit your CMOS setup to restart your computer with the new settings.

5. In Windows 98SE, or Me, once the system comes up click the Start button, then Settings, then Control Panel, then double-click on System icon, then click on Device Manager tab. Click the + sign next to the DVD/CD-ROM drives heading and look for the "PLEXTOR DVDR PX-716AL" entry underneath.
-or-
In Windows 2000 or XP, right-click on the My Computer icon and select Properties. Click on the Hardware tab, then click on the Device Manager button. Click the + sign next to the DVD/CD-ROM drives heading and look for the "PLEXTOR DVDR PX-716AL" entry underneath.

If you do not see this drive listed as one of the devices, or if it has a yellow diamond with an exclamation point (!), contact Plextor Technical Support. (See "Appendix B: Technical Support" for the different ways you can contact us.)

Using the PX-716AL Self-Test Diagnostics

The PX-716AL drive contains a set of self-test diagnostics that can help isolate trouble and determine if a problem is in the drive or elsewhere.

NOTE: Using the self-test diagnostics requires opening the computer and removing a cable from the drive, then replacing the cable at the end of the test. If you previously installed the PX-716AL in your computer, you should have no fear of the simple procedures that are required. However, if you're are not comfortable with opening your PC and disconnecting cables, you may want to let someone with more experience handle this aspect of troubleshooting for you.

To perform the tests you'll need:
- Tools to remove the computer's cover
- An extra jumper (supplied)
- A blank piece of Plextor-recommended DVD+R, DVD-R, or CD-R media. (See page 57 or visit our web site.) The self-test will write to this media, so you won't be able to use this disc again.

This tests three functions of the drive: writing at maximum speed, continuous playback at maximum speed, and random access.

To perform the self-test:

1. Turn the computer's power OFF, unplug it from its power source, and open the computer to gain access to the rear of the PX-716AL drive. Typically, this involves loosening or removing several screws on the back panel of your computer and sliding off the cover. (See Figure 3 for an example.)

   CAUTION: Before you attempt to open your computer be sure to properly ground yourself by wearing an anti-static wristband. This will help prevent static damage to your computer system.

2. You should be able to see the back of the PX-716AL drive connected to the ATAPI cable, power connector, and, optionally, an analog sound cable.

   NOTE: You may have to remove the drive from the computer to perform the next two steps.

3. Hold the ATAPI cable at or near the base of its connection to the PX-716AL drive. Carefully remove the ATAPI cable from the drive by pulling the cable gently rearward.

4. Note the position of the mode jumper at the rear of the PX-716AL. A jumper will be installed on either the CABLE SELECT, SLAVE, or MASTER position. Write down this jumper position. (You'll need to replace the jumper after the test.) Then:
   ❑ If the jumper is on the MASTER position, move it to the SLAVE or CABLE SELECT position for this test.
   ❑ If the jumper is on the SLAVE or CABLE SELECT jumper, leave it in place.
   ❑ The position of the DMA jumper (on or off) doesn't matter. Don't change it.

5. Install an extra jumper so that both the CABLE SELECT and SLAVE positions are jumpered, as shown in Figure 23.

6. If you removed the drive for access to the cable and mode jumpers, slide it back into the computer and connect the power cable to the drive.

7. Replace the computer's cover and re-connect the computer's power cord to the power source.
   CAUTION: Turning on the computer power without first replacing the cover can be dangerous to the computer's components and also to you. Be aware of the danger of electric shock and do not touch any components inside the computer.

8. While pressing the eject button on the PX-716AL, turn the computer power on. Continue to press the eject button. The disc/busy indicator blinks green, then amber, and the disc ejects.
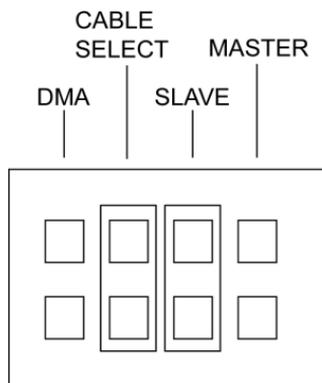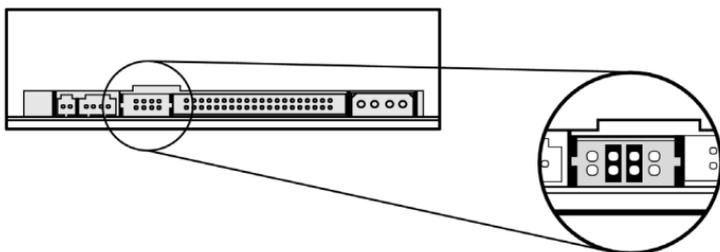
Figure 23: Place jumpers across both the SLAVE and CABLE SELECT pins to perform the self-test diagnostics on the PX-716AL.

9. Insert a blank Plextor-recommended DVD±R or CD-R disc. Be sure to use only media of the type recommended by Plextor.
   ❑ If the disc/busy indicator blinks amber three times, the loaded disc is not a blank DVD±R or CD-R disc. Remove the disc and insert a blank, Plextor-recommended DVD±R or CD-R disc.

10. The drive begins the diagnostic routine. Upon completion of the diagnostic, you see the results:
    ❑ If there was no problem, the disc is ejected automatically.
    ❑ If there was a problem, the disc is not ejected, and you see the disc/busy indicator blink green. One green blink indicates a write or read error. Two green blinks indicate an initialization error.

11. If the disc was not ejected automatically, press the eject button to eject the disc.

12. Turn off the computer power.

13. Reset the mode jumper at the rear of the PX-716AL to its original setting as noted in Step 4 above. Also, remove the extra jumper you installed.

14. Reconnect the IDE cable to the PX-716AL drive. If you removed the drive to gain access to the cable or jumpers, replace the drive in the computer. Then replace the computer cover.

If you discover a problem with the PX-716AL drive, do not attempt to service the drive yourself. Contact us to get an RMA number and take steps to return the drive to Plextor. See "Returns" on page 71 for details.

5. Frequently Asked Questions

Q: Why do I need an 80-conductor IDE cable for the PX-716AL?
Your PX-716AL will operate with either the older 40-conductor cable or the newer 80-conductor IDE/ATA cable. However, the 80-conductor cable improves performance, and the PX-716AL may not be able to write at maximum speed (16X) without it. Although the new cable has 80 conductors (wires), it still has only 40 connector pins, so it's compatible with the connector on your PX-716AL. (The extra wires are present to reduce interference that would slow high-speed transfers.)

Q: Which is better, DVD+R and DVD+RW? Or DVD-R and DVD-RW?
A: Neither is "better" or "worse." They're just different standards, like English versus metric measurement.

Different manufacturers support different standards. The DVD+R and DVD+RW formats are supported by Plextor, Philips, Sony, Hewlett-Packard, Dell, Ricoh, Yamaha and other manufacturers. DVD-R, DVD-RW and DVD-RAM are also supported by Plextor, as well as Panasonic, Toshiba, Apple Computer, Hitachi, NEC, Pioneer, Samsung and Sharp.

No matter which format a DVD disc is recorded in, it can be read by most commercial DVD-ROM players.

Q: What's the difference between "double layer" and "dual layer"?
A: Nothing, really. It's simply a difference of opinion within the industry about how to label media and drive capabilities. DVD+R DL (as named by the DVD+RW Alliance) stands for DVD+R Double Layer. DVD-R DL (from the DVD Forum) stands for DVD-R Dual Layer. Whether your DL media is labeled "double layer" or "dual layer," the PX-716 can handle it.

Q: What is "recommended media"?
A: Recommended media are recordable or rewritable CD and DVD media that have been tested by Plextor and found to operate well consistently, from one manufacturing lot to another. For each drive, Plextor engineers test media from many different manufacturers and manufacturing facilities, creating a recommended media list and determining the optimum write strategy for that particular media type. The results are listed as "recommended media," and are also assembled into a media catalog and stored in firmware in Plextor drives. (See page 58 for a list of recommended media for the PX-716AL at the time this manual was printed, and see the Plextor web site at www.plextor.com for an updated list.)

From time to time, the media catalog is updated with new manufacturers and part numbers as Plextor tests additional media. When this happens, Plextor makes new drive firmware available. You can download this new firmware and update your drive.

Q: In the list of Recommended Media, what's the difference between "rated," "compatible," and "recommended" speeds?
A: "Rated" is the manufacturer's rated write speed for the media; it's what you see on the box. "Compatible" is a looser term that indicates the maximum safe writing speed according to the manufacturer. "Recommended" is the Plextor-recommended speed for ensuring top-quality writing using this media. Plextor tests media and enters the "compatible" and "recommended" speeds into the drive's media catalog.

For example, 8X-rated media listed as "Recommended for 8X writing" and "12X compatible" indicates the manufacturer believes this 8X-rated media can be written at 12X. Plextor factory testing has determined you will achieve the highest quality write at 8X. Plextor's testing also indicates you can write this media at 12X and still achieve good quality, although perhaps not as high as at the recommended speed.

Just because the vendor rates a disc for a certain speed doesn't mean that the disc will give you a high-quality write at that speed. However, the PoweRec technology in your Plextor drive ensures you will write at the highest possible speed that still achieves high quality.

Q: Q: What effect does installing the DMA jumper have on operation?
A: The Ultra DMA setting (no jumper) should work in most cases. If your computer hangs or crashes during data transfers from the PX-716AL drive, add the DMA jumper to switch to multiword DMA mode.

With Ultra DMA mode 4, data transfers are at a maximum of 66.7 megabits per second. When you add the jumper for multiword DMA, maximum data transfer speed slows. For multiword DMA mode 2, maximum speed is 16.7 megabits per second. So with the multiword DMA jumper installed, your drive may not write at maximum speed.

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Appendix A: PX-716AL Specifications

Minimum System Requirements—PX-716AL Internal ATAPI Drive

Computer	Pentium 4, 1.4-GHz or equivalent
Minimum RAM	256 MB
Hard Disk Size	1 GB of free space to write to a CD in image mode, or 10 GB of free space to create DVD images. (For more accurate guidelines, see the help files or documentation for the recording software you're using.)
Interface	IDE (ATAPI) supported
Operating System	Windows XP, 2000, Me, or 98SE
	NOTE: Roxio Easy Media Creator 7 requires Microsoft Windows XP (SP 1 or later) or Microsoft Windows 2000 (SP 4 or later). This product will not work with Windows 95, Windows 98, Windows 98SE, or Windows ME. For real-time MPEG-2 capture and burning, Easy Media Creator 7 requires a 1.6-GHz Pentium 4 or equivalent.

DVD Regional Setting

Compatibility	RPC phase-2-compatible
Changing regional setting	Max. 5 times

Other Features

Data Buffer	8 MB

Usable Formats

Logical DVD Read/Write	DVD-ROM, DVD-Video, multi-border, multi-session, DVD+VR, DVD-VR
Logical CD Read/Write	CD-DA, CD-Extra, CD-ROM Mode-1, CD-ROM Mode-2, CD-ROM XA, Photo CD, Video CD, multi-session, CD-TEXT, CD-I, CD+G, UDF
Write Methods, DVD+R/RW, DVD+R DL	▪ DVD+R: Disc-at-once (DAO), multi-session, incremental ▪ DVD+RW: Random access write, sequential write ▪ DVD+R DL: DAO, multi-session, incremental
Write Methods, DVD-R/RW, DVD-R DL	▪ DVD-R: DAO, incremental recording, multi-border recording ▪ DVD-RW: DAO, multi-border recording, incremental recording, restricted overwriting, DRT-DM ▪ DVD-R DL: Sequential write
Write Methods, CD-R/RW	Track-at-once (TAO), DAO, packet write (variable and fixed), session-at-once (SAO)

Supported Media

Supported Media, DVD	▪ Stamped DVDs: Single layer / Double layer ▪ DVD-R: For General Part 1 Physical Specification Version 2.1 ▪ DVD-R DL: Part 1 Physical Specification 3.0 ▪ DVD-RW: Part 1 Physical Specification Version 1.1/1.2 ▪ DVD+R: Part 1 Volume Basic Format Version 1.3 ▪ DVD+R DL: Part 2 Basic Format Specification Version 1.0 ▪ DVD+RW: Part 1 Volume 1 Basic Format Specification Version 1.3; Part 1 Volume 2 Basic Format Specification Version 1.0
Supported Media, CD	▪ Stamped CDs: Discs compliant with Red/Yellow/Green/White/Blue Book ▪ CD-R: Orange Book Pt II-compliant discs (Type 74, Type 80) ▪ CD-RW: Orange Book Pt III-compliant discs
Supported Media Size	CD: 12 cm DVD: 12 cm, 8cm (DVD-R/RW)

Recommended Media

Recommended media are recordable or rewritable CD and DVD media that have been tested by Plextor. For the latest updated list of recommended media for the PX-716AL, see the Plextor web site at www.plextor.com.

NOTE: For the media below:
Rated means the maximum write speed established by the media vendor.

Recommended is the Plextor-recommended speed, which means that testing by Plextor engineers indicates the media will achieve top quality when written with the PX-716 at that speed.

Compatible means the manufacturer indicates the disc can be written at this higher-than-rated speed, although an increase in errors may occur.

PoweRec in the Plextor drive performs real-time monitoring of write quality and adjusts the write speed up and down to ensure the best quality possible.

DVD+R media   Mitsubishi Chemical/Verbatim, Ricoh, Maxell 16X-rated DVD+R media:
- Recommended for 16X, 12X, 8X, 6X, 4X writing

Taiyo Yuden, Mitsubishi Chemical/Verbatim, Ricoh, Maxell 8X-rated DVD+R media:
- Recommended for 12X, 8X, 6X, 4X writing

Taiyo Yuden, Mitsubishi Chemical/Verbatim, RIcoh, Maxell 4X-rated DVD+R media:
- Recommended for 8X, 6X, 4X writing

Mitsubishi Chemical/Verbatim 2.4X-rated DVD+R media:
- Recommended for 6X, 4X, 2.4X writing

Ricoh 2.4X-rated DVD+R media:
- Recommended for 2.4X writing

Recommended Media (continued)

DVD+RW media
Mitsubishi Chemical/Verbatim, Ricoh 4X-rated DVD+RW media:
- Recommended for 4X, 2.4X writing

Mitsubishi Chemical/Verbatim, Ricoh 2.4X-rated DVD+RW media:
- Recommended for 2.4X writing

NOTE: All DVD+RW media are rewritable up to 1,000 times.

DVD+R DL media
Mitsubishi Chemical/Verbatim 2.4X-rated DVD+R media:
- Recommended for 6X, 4X, 2.4X writing

Ricoh 2.4X-rated DVD+R media:
- Recommended for 2.4X writing

DVD-R media
Taiyo Yuden, Mitsubishi Chemical/Verbatim, Maxell, TDK 16X-rated DVD-R media:
- Recommended for 16X, 12X, 8X, 6X, 4X writing

Taiyo Yuden 8X-rated DVD-R media:
- Recommended for 12X, 8X, 6X, 4X writing

Maxell, Mitsubishi Chemical/Verbatim 8X-rated DVD-R media:
- Recommended for 8X, 6X, 4X writing

TDK 8X-rated DVD-R media:
- Recommended for 8X writing
- 12X compatible

Taiyo Yuden, TDK 4X-rated DVD-R media:
- Recommended for 8X, 6X, 4X writing

Maxell, Mitsubishi Chemical/Verbatim 4X-rated DVD-R media:
- Recommended for 4X writing

Taiyo Yuden, Maxell, Mitsubishi Chemical/Verbatim, TDK 2X-rated DVD-R media:
- Recommended for 2X writing

Recommended Media (continued)

DVD-R DL media	Mitsubishi Chemical/Verbatim 4X-rated DVD-R DL media: ▪ Recommended for 6X, 4X, 2X writing
DVD-RW media	Victor, Mitsubishi Chemical/Verbatim, TDK 4X-rated DVD-RW media: ▪ Recommended for 4X, 2X writing Victor, Mitsubishi Chemical/Verbatim, TDK 2X-rated DVD-RW media: ▪ Recommended for 2X, 1X writing Victor, Mitsubishi Chemical/Verbatim, TDK 1X-rated DVD-RW media: ▪ Recommended for 1X writing **NOTE**: All DVD-RW media are rewritable up to 1,000 times.
CD-R 4-48X media	Taiyo Yuden 80-min; Maxell 80-min, 74-min;
CD-R 4X-32X media	Taiyo Yuden 74-min, 80-min
CD-R 4X-16X media	Ricoh 80-min
CD-RW 24X media	Mitsubishi Chemical/Verbatim 74-min, 80-min
CD-RW 10X media	Ricoh 74-min, 80-min; Mitsubishi Chemical/Verbatim 74-min, 80-min
CD-RW 4X media	Ricoh 74-min, 80-min; Mitsubishi Chemical/Verbatim 74-min, 80-min

Performance Specifications

Read Speed, DVD

Speed	Stamped DVD		DVD ±R	DVD ±RW	DVD ±R DL
	SL	DL			
6-16X CAV	✓	–	–	–	–
5-12X CAV	✓	✓	✓	✓	
3-8X CAV	✓	✓	✓	✓	✓
2-5X CAV	✓	✓	✓	✓	✓
2X CLV	✓	✓	✓	✓	✓

NOTES: SL = Single layer disc, DL = Double layer disc.
When a DVD-Video with CSS (copy protection via the Content Scrambling System) is loaded, the PX-716AL slows its playback speed to reduce drive noise.

Read Speed, CD

Speed	Mode-1 Discs	Mode-2 Discs	CD-DA Discs
20-48X CAV	Stamp,R (48X with SpeedRead; default is 40X)	–	–
17-40X CAV	Stamp,R, RW	Stamp,R, RW	Stamp,R
14-32X CAV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW
10X-24X CAV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW
8X CLV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW
4X CLV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW

NOTE: "Stamp" indicates commercially pressed "silver" discs.

Performance Specifications (continued)

Write Speed,
DVD ± R/RW

Speed	+R	+RW	+R DL	–R DL	–R	–RW
16X CAV	✓	–	–	–	✓	–
12X PCAV	✓	–	–	–	✓	–
6X-8X PCAV	✓	✓	–	–	✓	–
6X CLV	✓	✓	✓	✓	✓	–
4X CLV	✓	✓	✓	✓	✓	✓
2.4X CLV	✓	✓	✓	–	–	–
2X CLV	–	–	–	✓	✓	✓
1X CLV	–	–	–	–	–	✓

Write Speed,
CD-R/RW

Speed	CD-R	Ultra Speed CD-RW Media	High Speed CD-RW Media	Normal Speed CD-RW Media
48X CAV	✓	–	–	–
32X PCAV	✓	–	–	–
24X PCAV	–	✓	–	–
16X CLV	✓	–	–	–
10X CLV	–	–	✓	–
8X CLV	✓	–	–	–
4X CLV	✓	–	–	✓

Performance Specifications (continued)

DVD Transfer Rate

Speed	Write (KB/s)	Read (KB/s)
16X	8310-22160 (CAV)	9280-22160 (CAV)
12X	8310-16620 (PCAV)	6925-16620 (CAV)
8X	8310-11080 (PCAV)	4709-11080 (CAV
6X	8310 (CLV	–
5X	–	2909-6925 (CAV)
4X	5540 (CLV)	–
2.4X	3324 (CLV)	–
2X	2770 (CLV)	2770 (CLV)
1X	1385 (CLV)	–

CD Transfer Rate

Speed	Write (KB/s)	Read (KB/s)
48X	3180-7200 (CAV)	3180-7200 (CAV)
40X	–	2710-6000 (CAV)
32X	3180-4800 (PCAV)	2170-4800 (CAV)
24X	3000-3600 (PCAV)	3000-3600 (CAV)
16X	2400 (CLV)	–
10X	1500 (CLV)	–
8X	1200 (CLV)	1200 (CLV)
4X	600 (CLV	600 (CLV)

Initialization Time
Time measured from power on until disc is available to read:
- DVD: < 18 sec. (typical), < 20 sec. (max.)
- CD: < 13 sec. (typical), < 15 sec. (max.)

Access Time
Time measured from command phase until bus free (no disconnect):
- DVD: < 150 msec. (typical), < 180 msec (max.)
- CD: < 100 msec. (typical), < 130 msec (max.)

Sleep Mode
Entered after 2 minutes of no access to drive (default setting)

Wake Mode
< 5 sec. (max.) to start drive after sleep

Front Panel

Eject   Eject button; manual emergency eject;
                         software eject.

Disc/busy   ▪ Yellow when initializing, reading, or ejecting disc.
Indicator   ▪ Green during standby and when Buffer Underrun
                        Proof Technology or Lossless Linking/Zero Link
                        is active.
                     ▪ Blinking amber when writing to disc. Blink rate
                        indicates writing speed.

Disc Loading   Auto

Rear Panel

Power Supply

	DC +12V, ±10%	DC +5V, ±5%
Typical standby current	100 mA	230 mA
Typical DVD read current (DVD 16X)	1.4 A	700 mA
Typical CD read current (CD 48X)	1.4 A	750 mA
Typical DVD write current (DVD+R 16X)	1.4 A	1.4 A
Typical write current (CD-R 48X)	1.4 A	800 mA
Typical pause current	700 mA	500 mA
Peak current	2.0 A	1.7 A

Power   Average 22.2 W for DVD read/write
Consumption

IDE Interface   IDE bus, 40-pin flat ribbon type. Interface complies
Connector   with ATA/ATAPI-5. Must use 80-conductor IDE/ATA
                         cable.

                         NOTE: Although the PX-716AL will operate with a
                         40-conductor cable, it may not be able to write DVDs
                         at 16X unless an 80-conductor IDE/ATA cable is
                         used.

                         Maximum total cable length cannot exceed 18 in
                         (45.7 cm).

Rear Panel (continued)

Analog Audio Output Connector	Stereo analog output, Molex connector (L*G*G*R), MPC-3 standard: ■ Output voltage (max. volume): 0.55V(rms) ±1V ■ Load impedance: 10 k ohms ■ S/N ratio: Min. 80dB ■ Total harmonic distortion+noise: Max. 0.08% (1kHz) ■ Dynamic range: Typically 75dB (1kHz) ■ Channel separation: Typically 70dB (1kHz) ■ Frequency response: 20Hz to 20kHz (0dB +1/–5dB)
Digital Audio Output Connector	Digital audio output for input to SPDIF or Digital-In input
Mode Jumper	Master (default), slave, cable select (CSEL)
DMA Jumper	Open (no jumper): Ultra DMA mode 0-4 (default) Short (jumper installed): Multiword DMA mode 0-2

Dimensions and Weight, PX-716AL Internal ATAPI Drive

Dimensions (W/H/D) (excluding front panel)	5.75" x 1.63" x 7.05" 146 mm x 41.3 mm x 179 mm
Weight	< 2.3 lbs. (1.05 kg)

Host Interface, PX-716AL Internal ATAPI Drive

Type	ATA/ATAPI-5-compliant
PIO Transfers	Modes 0-4
Multiword DMA Transfers	Modes 0-2
Ultra DMA Transfers	Modes 0-4 (Ultra DMA66)
ATAPI Command Set	Refer to the Plextor ATAPI command manual.
Inquiry string	PLEXTOR sp DVDR sp sp sp PX-716AL sp sp (where "sp" is one space)

Reliability

MTBF	60,000 hours
Disc Loading	20,000 load/unload cycles
Read Error Rate	CD-ROM Mode 1: 1 block/10^{12} bits CD-ROM Mode 2: 1 block/10^{9} bits

Environmental Conditions

Mounting Position	Horizontal or vertical orientation: • Horizontal: ±15 degrees • Vertical: Front side up or down, ±15 degrees
Operating Temperature	5 to 40 degrees Celsius
Operating Humidity	20 to 80% (non-condensing)
Storage Temperature	–40 to 60 degrees Celsius
Storage Humidity	20 to 95 % (non-condensing)
Acoustic Noise	Playing balanced disc: Maximum 48dB Playing unbalanced disc: Maximum 48dB Disc ejecting: Maximum 50dB
Vibration, Operating	Sine sweep 5 minutes: • CD/DVD read: $0.15G_{0-Pk}$ (5-300Hz) • CD-R write: $0.15G_{0-Pk}$ (5-300Hz • CD-RW rewrite: $0.10G_{0-Pk}$ (5-300Hz) • DVD write: $0.10G_{0-Pk}$ (5-300Hz)
Vibration, Non-Operating	Sine sweep 5 minutes: $2.0G_{0-Pk}$ (5-300Hz) (Power off, without disc)
Shock, Operating	11msec half sine, 10 sec interval: • CD read: $3.0G_{0-Pk}$ (5-300Hz) • DVD read: $3.0G_{0-Pk}$ (5-300Hz) • CD-R write: $1.5G_{0-Pk}$ (5-300Hz) • CD-RW rewrite: $0.5G_{0-Pk}$ (5-300Hz) • DVD write: $0.5G_{0-Pk}$ (5-300Hz)

Environmental Conditions (continued)

Shock, Non-operating	Permissible acceleration range (cm/sec):
	▪ Bottom: 594.0
	▪ Top: 420.0
	▪ Left: 507.9
	▪ Right: 507.9
	▪ Front: 462.5
	▪ Rear: 462.5
	(Power off, without disc)
Electrostatic Discharge	±8KV aerial discharge
	±4KV contact discharge
	Both with no hard errors, no damage

Safety, Laser, and EMC Standards

Country/ Region	Type	Agency	Standard
USA	Safety	UL	UL 60950
	Laser	FDA	FDA 21 CFR 1040.10 and 1040.11
	EMC	FCC	FCC Part15B
Canada	Safety	UL (C-UL)	CSA 22.2 No. 60950
	EMC	IC	ICES-003 Class B
Europe	Safety	CE	EN60950/IEC60950
	Laser	CE	EN60825-1
	EMC	CE	EN55024, EN50022 Class B
Taiwan	EMC	BSMI	CNS13438 Class B
Korea	EMC	MIC	
Australia	EMC	C-Tick	EN55022 Class B

Appendix B: Technical Support

Store Plextor's e-mail, web site, phone, and fax numbers in a convenient location. Keep your drive's serial number and a copy of your sales receipt handy as well.

If you experience a problem while installing or operating your drive, please refer first to the relevant sections of this manual regarding setup and installation (Sections 1–3). If you do not uncover the solution there, please refer next to the maintenance and troubleshooting section that begins on page 43. You may also wish to refer to the Frequently Asked Questions (FAQ) section of our web site to assist you in troubleshooting the problem on your own.

NOTE: We encourage you to go the Plextor web site (www.plextor.com) before attempting to contact Technical Support. The answers to the most common questions callers ask can be found quickly in the support area. Select PlexHelper for online troubleshooting or FAQs for answers to common questions.

If you have not been successful in your quest, our Technical Support Department will help you solve problems that relate specifically to your PX-716AL drive. In many cases, a problem that appears to be caused by your Plextor drive actually originates in another part of your computer. In such instances, our technical support staff will try to help you identify the part at fault and will refer you to the manufacturer of that part for further assistance.

How to Contact Plextor Technical Support

There are several ways for you to contact Plextor's Technical Support Department:

- Visit our web site (www.plextor.com) for answers to Frequently Asked Questions.
- Send us e-mail at techsupport@plextor.com. Include your telephone number and the hours during which you can be reached. Be as detailed as possible in describing your problem. Please include system configuration, hardware and software, as well as versions of drivers used.
- Call 1-800-204-0332 or 937-615-1610 and select the tech support option.

Before You E-mail or Call for Support

Please gather as much of the following information as possible before contacting us.

- The serial number and TLA (top level assembly) number of your PX-716AL drive. Your serial number and TLA number appear both on the drive label and on a sticker at the rear of internal drives.

- The latest version of firmware you loaded onto the drive, if applicable.

- The version of the Windows operating system you are using.

- The brand name and model number of your computer (e.g., Dell 466/NP, Hewlett-Packard Pavilion 752n, etc.).

- The type of VGA, Super VGA, or other graphics board you use.

- Brand name and model number of any other peripherals you have installed or connected to your computer (e.g., CD-ROM, scanner, fax board, network board).

Returns

In the unlikely event that you need to return a drive to Plextor, you need an RMA (Returned Materials Authorization) number. You will need this number before any Plextor drive can be returned for replacement. Here's how you get an RMA number and return your drive:

1. Contact Plextor Technical Support. You will receive assistance in troubleshooting your system. If the drive is determined to be defective, you will receive an RMA number.

2. Plextor will e-mail you with the RMA number and shipping information.

3. When you receive the RMA number, pack the Plextor drive securely in a box, and include the RMA number with the drive.

4. Write the RMA number in large bold numbers on the outside of the box, and ship it to Plextor.

Contacting Plextor's RMA Department

You can contact our RMA Department and request RMA forms at:
- rmasupport@plextor.com
- Or by calling us at 1-800-204-0332 or 937-615-1610

Packing Your Drive

Check the drive to make sure there is no disc inside, and if possible, pack your drive in the original box. Some of our customers have not held on to their boxes and have had to resort to less-than-secure methods to get drives back to us.

CAUTION: Never ship the drive with a CD or DVD disc inside it.

If you did not receive a box (for example, your drive came pre-installed in a computer), we recommend you pay a packaging store (such as The UPS Store) to ship your drive. If you don't have a packaging store in your area, ask for packaging pointers when you contact us to get an RMA number before returning any drive.

Shipping Your Drive to Plextor

Be sure to write the RMA number on the outside of the shipping box. Any drive sent to Plextor without an RMA number will not be accepted.

NOTE: The RMA number must be clearly visible on the outside of the shipping box.

Drives must be sent postage prepaid. We recommend that you insure your shipment, as Plextor cannot be held responsible for any damage that may occur during shipment.

Appendix C: Warranty

PLEXTOR CORP. ("Plextor") warrants your PX-716AL or PX-716AL drive against any defect in material and workmanship, under normal use, for a period of one year following its date of purchase. In the event this product is found to be defective within the warranty period, PLEXTOR will, at its option, repair or replace the defective unit.

This warranty is void: a) if the unit is operated or stored under abnormal use and/or conditions; b) if the unit is repaired, modified or altered, unless such repair, modification or alteration is expressly authorized in writing by PLEXTOR;
c) if the unit is subjected to abuse, neglect, lightning strike, electrical fault, improper packaging, or accident; d) if the unit is installed improperly; or e) if the serial number of the unit is defaced or missing.

PLEXTOR will not, under any circumstances, be liable for direct, special, or consequential damages such as, but not limited to, damage or loss of property or equipment, loss of profits or revenues, cost of replacement goods, or expense or inconvenience caused by service interruptions. Under no circumstances will any person be entitled to any sum greater than the purchase price paid for the unit.

To obtain warranty service, you must contact PLEXTOR's Technical Support Department by e-mail (techsupport@plextor.com) or by calling 1-800-204-0332 or 937-615-1610. The Technical Support Department will attempt to diagnose and correct your problem. If the unit does not function properly, they will provide you with a Return Material Authorization (RMA) number. You may be asked to furnish proof of purchase to confirm that the unit is still under warranty.

All product returns must be authorized in advance by PLEXTOR. Authorization is confirmed by issuance of the RMA number, which must be written prominently on the outside of the box in which the defective unit is returned to PLEXTOR.

All drives returned to PLEXTOR must be securely packaged and shipped postage prepaid.

The drive will be returned to the customer at Plextor's expense when originating within the United States. For a drive originating outside of the United States, the customer is responsible for shipping costs in both directions.

NOTE: Warranty validity is limited to that applicable in the location where the drive was originally purchased.

If You're Outside the U.S. or Canada

Note that the warranty and RMA policy only apply to the United States and Canada. If you are in South America, contact your dealer or reseller for all warranty and RMA claims.

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