Installation Process for the Ricoh MediaMaster

Installing a Ricoh MediaMaster drive is a straightforward procedure. Due to the fact that a CD Recorder/Rewriter is a SCSI device, it usually means installing a SCSI host adapter card inside the PC. This is usually where the problems occur. Because each adapter card inside a PC must have unique base & IRQ address, it is possible to have a conflict when the SCSI adapter is installed. The best thing to do is to find out what other cards are already installed in the system and what their addresses are, then set the SCSI adapter card to a base & IRQ address that does not conflict with any other adapter in the system. The installation process goes as follows:

1.   Install the SCSI adapter in the PC
2.   Install the CD-RW drive in the PC
3.   Attach SCSI cable between MP6200S drive & SCSI adapter card. Attach the power cord.
4.   Boot PC and install the software included with the drive.

*Note: Before installing the MP6200S drive into your system, set the terminations and the SCSI ID jumpers on the back of the drive. Please refer to the diagram on the drive's label for more information.

Common Installation Problems

Installing Internal drive into PC bay:

Problem: **Bay is wider than MP6200S drive, can not screw into place**
Solution: Many name brand PC's need drive mounting "rails" that attach to the sides of the drive, then the entire drive rail assembly slides into the chassis. This is common on IBM and Compaq computers. Should you need these rails, please contact your local computer store.   In most cases, the drive will slide perfectly into the PC drive bay and the screw holes on the PC chassis will align with the screw holes on the drive.

Problem: **Type of screw needed to attach drive is not known**
Solution: The Ricoh MP6200S uses a metric thread for the side and bottom holes. Use M3 screw, not longer than 6mm.

Problem: **No DC power cord available to attach to MP6200S drive**
Solution: Get a "Y" power cable. This type of power cable "splits" one DC power cord into two, so there will be an extra cord for the drive. Available at most computer stores in the cable department.

Problem: **How to set the jumpers on the drive**
Solution: Basic jumper settings are for SCSI ID selection & device type selection. In most cases, only have the user set the SCSI ID (valid addresses are from 0-6, 7 is reserved for SCSI host adapter in most cases).   CD-ROM device type in needed for Windows 95 to automatically install MP6200S drive as CD reader.

Problem: **How to set SCSI terminators on the drive**
Solution: *Basic rule of SCSI termination: First & last devices in SCSI chain should have their terminators installed.* All devices in between should have their terminators removed. This gets a little tricky when there are internal and external devices attached to the SCSI card. For example, lets assume a computer has a SCSI adapter installed, with a

CD-ROM drive attached to the internal connector, and a external hard drive attached to the external connector. In this case, the CD-ROM drive and external hard disk drive would have it's terminators installed, and the SCSI controller would have it's terminators removed (the adapter is in the middle of the chain).
Caution: An improperly terminated SCSI bus is one of the most common problems you will encounter, check to be sure the termination rules are observed.

General start-up problems:

Problem: **Computer will not boot up**

Solution: Most likely the SCSI host adapter is improperly configured and is conflicting with another card or system resource in the PC. Check the base I/O address is unique and is not being used by another card. The Factory default address for the PE Logic SCSI Card is in the 0340-035F range. Most computer systems tend to prefer the IO Port Address of 0140-015F. Also check to see if the interrupt setting is conflicting with another card or system resource. Typical IRQ settings for a SCSI adapter will be 10, 11, or 12. The PE Logic cards come defaulted to IRQ 11. One last thing to check if the BIOS on the SCSI Adapter (if equipped with a BIOS). If the CD recorder is attached to a SCSI card that contains a BIOS, and if there is not a bootable hard drive attached, SCSI hard disk drives attached to the adapter. If the BIOS is enabled because there is a bootable SCSI hard drive present, ensure that the memory address of the BIOS is not conflicting with other cards such as video cards.

Note: If the settings of the other cards in the system is not known, remove the SCSI card and boot the system normally. If running Windows 95, use the system properties to determine what cards are present in the system, and their addresses.

Problem: **MP6200S drive not seen on the SCSI bus (when not using the PE Logic SCSI Adapter).**

Solution: There are several reasons why the SCSI bus may not "see" a device. The most common reason is improper termination, or conflicting SCSI Ids. Please refer to the "How to set SCSI Terminators on the drive" question answered previously mentioned to obtain more information on proper termination. As for SCSI ID conflicts, each device on the SCSI bus must have a unique ID number. Possible SCSI numbers are 0-7, but 7 is usually reserved for the SCSI adapter card therefore do not set the drive to ID7. If 2 devices share the same SCSI ID number, usually both devices will not be seen, or only one will be seen. Ensure all devices on the bus have unique ID numbers. Other reasons for a device not to be seen on the SCSI bus is the SCSI adapter may not be properly configured (see above), or , for SCSI Adapters other than PE Logic, the ASPI manager may not be loading for the SCSI devices to the host adapter. If there is no ASPI manager present, run the installation program on the diskette that came with the SCSI host adapter. Of course, check to be sure the cables are connected and the drive is turned on (if external). Finally, check to ensure the SCSI card is being recognized by the system, if the ASPI manager fails to recognize the SCSI adapter, them most likely there is some conflict of the SCSI card with another card system resource.

Problem: **Drive will not read or play a CD**
Solution: The MP6200S drive does not come equipped with an Audio cable to attach to your sound card and the drive for the sound to travel through. Audio cables can be purchased from any Computer Supply Dealer, and do need to have the following configuration:

Left Channel - Ground - Ground - Right Channel

This is a standard four (4) pin configuration for audio cables. Most Sony Audio cables will have this.

For Windows 95 users, the device should automatically be detected and installed as a CD reader. If it is not, check to ensure that the hardware is attached and is being recognized, then run the "Add New Hardware" program in the Control Panel to install the drive.

Problem: **MP6200S mastering software can not see the drive**
Solution: Check to see if the PC has 2 SCSI controllers installed. One common problem is the MP6200S mastering software can only "see" MP6200S drives attached to the first SCSI bus (SCSI bus 0). SCSI bus 0 will be the SCSI card with the lowest base address. For example, if there are 2 SCSI cards in the system, one loading at 240H, and the other loading at 330H, then the card at 240H will be SCSI bus 0. Change base addresses of the SCSI card or move the CD-R drive to the correct SCSI adapter. Also, check with the MP6200S mastering software "Read Me" files to see if they require a certain version of the drives firmware to be compatible with software. Some software companies hardcode a minimum firmware version into their software and will not recognize a drive that does not have the correct minimum firmware version, or tells the user that a firmware upgrade is required to use the software with the drive. This happens because certain features of the drive may have been implemented from a certain firmware version, and the software needs that certain feature to run correctly. Of course, check to be sure that cables are attached and the drive has power.

General performance questions and complaints:

Problem: **The drive does not read as fast as my CD-ROM drive**
Solution: The MP6200S has a more massive pick-up (laser optics head) than a CD-ROM drive, and it takes a little more time to move the pick-up for seeking. This affects the access time. For example: most good quality 4X CD-ROM drives have an average access time of less than 200ms, while a CD-R drive capable of reading at 4X has an average access time of more than 300ms. This is because it takes longer to move the heavy pick-up from one place to the other. This is different from transfer rate, which is how fast the drive is transferring data from the disc to the memory in the drive (cache). A 4X CD-ROM will transfer 600Kb per second from the disc to the cache, and so will a 4X read CD-R drive. So, once the pick-up gets to the right address on the disc, the reading performance is the same. But the slower access time will make CD's with lots of random seeks appear slow.

Problem: **I keep getting buffer underrun errors when I try to record a disc.**
Solution: Optimize the system. Buffer underrun is not a problem of the MP6200S drive, it is a problem of the PC not sending data fast enough to the CD-R drive to keep data in the

buffer. A CD-RW and a CD-R disc is not written like a floppy or hard disk drive, where only sectors at a time are being written, and the drive can start and stop recording data at any time. A MP6200S device is a "track" device and a CD track is the minimum unit to be recorded. A track can be as little as 300CD sectors or as large as the entire disc. Up to 99 tracks can be written on a CD. When the CD mastering software starts to record some files, it creates a track on the disc for writing the data, fills the buffer in the recorder, and begins to record out to the disc. Once the recording has begun, it cannot stop until all data for that track is recorded. To accomplish this reliably, the MP6200S drive has some buffer memory built in such as the 1Mb on the Ricoh MP6200S. The buffer stores a few seconds worth of data to be written to the disc and the PC must send data into the buffer very regularly to ensure that the buffer does not run empty until all the data is written out. Slow hard disk drives, slow computer, networks, screen savers, incoming faxes and other such interruptions are the big cause of buffer underrun errors. They can cause significant interruptions to the system and cause data not to be pumped into the recorders buffer fast enough. The biggest culprit of buffer underrun errors are fragmented files coupled with slower hard disk drives. Using a hard disk optimizer program like Norton Utilities to defrag the hard disk where the data files is a good way to prevent buffer underrun, as well as temporarily disabling screen savers, incoming faxes and networks. If all this fails, usually the recorder can be "stepped down" to 1X recording mode which places less demands on the system in terms of performance required to record successfully.

Problem: **Multi-session CD-ROM disc cannot be read back properly on CD-ROM drive.**
Solution: Check to see if the CD-ROM drive is multi-session compatible. Most CD-ROM drives manufactured after 1992 should be multi-session compatible. The other side of the equation is how the multi-session CD was created with the CD mastering software. Most users expect that when a multi-session CD was created, they can see all the date recorded over several sessions when they look at the disc with the Windows Explorer. This is only true if the session were "appended" together as each session was created. Most CD mastering software will have an option to do this. A multi-session CD-ROM that has each session appended together will be viewable as one logical disc with all the data being visible. The other common way to do multi-session is call "multi-volume". With multi-volume multi-sessions, each session is a stand alone volume with no relationship to the other sessions on the disc. This is common when doing back-ups. The most recently recorded session on the disc (last session) will be the only session viewable by the operating system. Most CD mastering software has the ability to go back and mount a session that is nor the last session if some data must be recovered in that session.

Problem: **Writing aborts with a message that a track following error, tracking error, or servo error has occurred.**
Solution: Most likely the disc that is being written to has excessive finger prints, dust, or the disc is defective. In all cases, these errors are caused by the laser beam being forced off the track Pre-groove because the tracking signal was lost. If different, clean media does not correct the problem, if is possible that the drive needs service.

Problem: **The firmware of my CD recorder needs to be updated, how do I do it?**
Solution: The Ricoh MP6200S uses a "flash ROM" for firmware that means that the firmware is stored in a chip that does not need to be physically replaced, but instead updated by some software commands. At the present time, Ricoh will only distribute the Firmware Flash to those needing the upgrade and are registered with Ricoh. The

Ricoh MediaMaster has firmware that can be updated by the end user using the flashing program and by typing a few simple instructions.

Problem: **My CD-Rom drive will not read the CD-RW disc I just created.**

Solution: The current CD-Rom drives on the market are generally not Multi-Read Compatible. Multi-Read or MR compatible drives are the new standard on the market and allow the drive to read CD-R, CD-Rom, and CD-RW Discs. If the CD-Rom drive that you currently own is not listed as MR Compatible, you may wish to contact the manufacturer of your drive to verify this.

Problem: **My Computer sees the drive as a reader, not a writer.**

Solution: The SCSI Controller card that you are using may need new Mini-Port drivers from the cards manufacturers. For the Adaptec SCSI Host Adapters, please see their website at www.adaptec.com for more information. For any other SCSI Host adapters, please contact the manufacturer. The PE Logic card will not require updated Mini-Port Drivers.

The MP6200S Mastering Software

At the time of this writing, there are over 10 pre-mastering software packages that will create a CD-RW disc with the Ricoh CD recorder family. For the obvious reasons, it is not possible to cover the features, and potential pitfalls of all these packages here. In most cases, each ISV (Independent Software Vendor) will have a Q&A guideline such as this one for support personnel. Check with the software company to inquire about support training and support aids such as this one.

Commonly, the CD-RW pre-mastering software will create a CD-ROM or CD Audio disc, and some of the more advanced software packages can create Photo CD, Video CD, Enhanced CD, CD-XA, and other advanced disc types. Software is available for all platform including Windows 3.x, Windows 95, Windows NT, Macintosh, SunOS, UNIX, Sun Solaris, UNIX DEC Ultrix, HP UNIX, SGI UNIX, and OS 2 systems, however the **Ricoh MediaMaster is only supported under Windows 95, both A and B versions**.