Pro

XL

Optical Disc Duplicator

User's Manual

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Printing History

Edition 1.9, #051704

FCC Compliance 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.

For Users in the United States: This product is intended to be supplied by a UL Listed Direct Plug-In Power Supply marked "Class 2" or a UL Listed ITE Power Supply marked "LPS" with output rated 24 V dc, 2.5 A. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Use of shielded cables is required to comply with the Class B limits of Part 15 of the FCC Rules. You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate and/or obtain warranty service for this equipment.

For Users in Canada: This digital apparatus does not exceed the Class B limits for radio noise for digital apparatus set out on the Radio Interference Regulations of the Canadian Department of Communications. Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

CAUTION!

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE. TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE EXTERIOR PANELS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. OPERATE THE UNIT WITH ONLY THE PROPER ELECTRICAL SPECIFICATIONS AS LABELED ON THE PRINTER AND AC ADAPTER.

CAUTION!

THIS PRODUCT CONTAINS A LASER DIODE OF A HIGHER CLASS THAN 1. TO ENSURE CONTINUED SAFETY, DO NOT REMOVE ANY COVERS OR ATTEMPT TO GAIN ACCESS TO THE INSIDE OF THIS PRODUCT. REFER ALL SERVICING TO QUALIFIED PERSONNEL. THE FOLLOWING LABEL APPEARS INSIDE YOUR UNIT:
                    CLASS 1 LASER PRODUCT
                    LASER KLASSE 1

CAUTION!

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION.

NOTE:

The optional DVD-R drive inside this product has laser diode(s) emitting below the limits of Class 3B.

Table of Contents

Interactive Feature in this PDF Document

There are interactive features that will allow you to jump to different locations within the document. Each listing in the Table of Contents is interactive. Place the cursor on either the words or the page number. A small hand with a pointing finger icon appears. Click on the line with the icon and the document will jump to that page. If you want to return to the Table of Contents, move the icon to the top of the page and click on the arrow marked TOC. Navigating through the Index is similar. Place the icon on one of the listings or page numbers, click on it, and it will move to that page. The text relating to the Index listing will appear in red. Returning to the Index can be done by clicking on the arrow marked Index.

Section 1: Getting Started

THANK YOU...

...for purchasing the Optical Disc Duplicator Pro/XL. It is the perfect way for you to copy CDs in jobs of up to 100 discs at a time. You can also print directly onto disc surfaces with an optional ink-jet or thermal printer. A wide variety of disc formats are supported, including audio CDs, Video CDs, data discs and more. Operation is simple and totally automatic once a job has been started.

To begin using your Duplicator, please read this manual carefully. This Operator's Manual is a complete step-by-step guide to quickly and easily copy discs with your new Optical Disc Duplicator.

A separate User's Guide is provided with your Duplicator that explains the operation of the PrimoDVD Software.

NOTE ON TERMS AND CONVENTIONS:

From this point forward, the following terms and conventions will apply:

1. The Optical Disc Duplicator Pro (two drive) and Optical Disc Duplicator XL (single drive) will be abbreviated simply as the Duplicator.

2. Optical discs, which can include many different types of discs including CD-Rs, CD-RWs, DVD-Rs and more are all referred to as CDs or discs. Please note that in order to copy and record DVDs, you need to have purchased the DVD-R version of the Duplicator.

3. This manual assumes that you will be attaching a printer to the Duplicator. It further assumes that you will be using the Ink-Jet CD Printer (CD Printer IV or CD Printer Pro). If you are attaching a Thermal CD Printer, virtually all of the same set-up instructions are valid. In either case, you will need to consult the printers' own Operator's Manuals for details on printer operation.

A. CHOOSING A GOOD LOCATION

- Place the Duplicator in a location with adequate air circulation to prevent internal heat build up. If you will be attaching an optional printer, you'll need a table-top with at least 30" (76cm) of depth for adequate clearance.
- Do not place the duplicator near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Allow for adequate clearance in front of the printer to accommodate the length of the unit with its recorder's CD Tray open. You will also need an area in front of the unit for rejected discs to fall.

B. UNPACKING AND INSPECTION

While unpacking your Duplicator, inspect the carton to ensure that no damage has occurred during shipping. Make sure that all supplied accessories are included with your unit. The following items should be included:
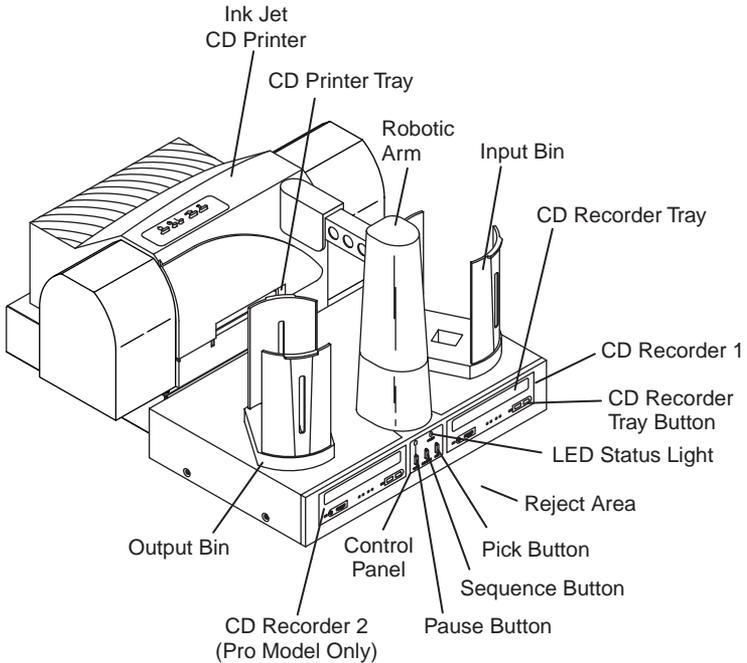
- Duplicator
- Gray Plastic Input and Output Bins
- Power Adapter and Power Cord
- Serial Control Port Cable
- FireWire (IEEE1394) Interface Cable
- PrimoDVD Application Software CD-R
- Warranty Statement and Registration Card
- This Operator's Manual, Quick Start Guide and Other Printed Information

Save the carton and packing materials. They will come in handy later if you ever need to transport the Duplicator and/or any of its parts and accessories.

C. IDENTIFYING THE PARTS

Front Panel and Top

This illustration shows the Duplicator, its Control Panel, Buttons, LED indicator lights, Input and Output Bins and other components. An optional ink-jet CD printer is shown with the unit so that you can see where it is attached:

Ink Jet
CD Printer

CD Printer Tray

Robotic
Arm

Input Bin

CD Recorder Tray

CD Recorder 1

CD Recorder
Tray Button

LED Status Light

Reject Area

Output Bin

Control
Panel

Pick Button

Sequence Button

Pause Button

CD Recorder 2
(Pro Model Only)

CD Recorder 1 is the first drive the Duplicator loads and unloads as discs are copied

CD Recorder 2 is only available on the Optical Disc Duplicator Pro

The **Robotic Arm** transports discs from the Input Bin, to the CD Recorder, to the printer, and finally to the Output Bin

The **CD Tray Button** manually opens or closes the CD Tray. In normal operation, the in/out movement of the CD Tray is controlled automatically and this button is not used.

The **Control Panel** contains LED Status Lights and Buttons to manually control operation of the duplicator.

The **LED Status Lights** indicates that Power is ON and when the Pause Button has been pressed. They also blink in certain patterns to indicate an error or other condition of the Duplicator. See Section 4 for a full explanation of the LED Status Light conditions.

The **Pause Button** immediately pauses the motion of the Robotic Arm. It is also used in combination with other buttons to perform certain reset and error-clearing operations.

The **Sequence Button** moves the Robotic Arm from one position to the next. It is used mainly during the set-up and testing procedures. It is also used in combination with other buttons to perform certain reset and error-clearing operations.

The **Pick Button** is used to manually pick up a disc and to drop it in a Bin, the CD Recorder or the Reject area. It is also used in combination with other buttons

The **Input Bin** is on the right side of the Duplicator. This is where you stack up to 100 blank discs which are to be recorded and printed.

The **Output Bin** is where discs are stacked, up to 100 at a time, after they have been recorded and printed by the Duplicator.

The **Reject Area** is where discs are dropped if they do not pass a software verification test. Discs simply drop on the table-top in front of your Duplicator. In most cases, rejected discs should be discarded.

For reference, the illustration below shows the optional Thermal CD Printer attached to the Duplicator.
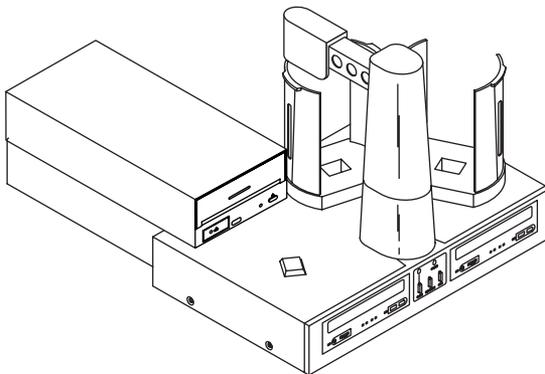
Note that the Thermal CD Printer attaches to the left side of the printer and that the Output Bin is located in a different spot due to the location of the Thermal CD Printer. When you first power-up the Duplicator, it will automatically do a search for where the Input and Output Bins are located and from then on will know where to pick and place discs.

When using the Thermal CD Printer, you will also need to attach a Tray Support Bracket to the top cabinet of the Duplicator. Follow the instructions packed with the optional Printer Stand for the Thermal CD Printer.

Rear Panel

This illustration shows the input ports found on the rear panel of the Duplicator:
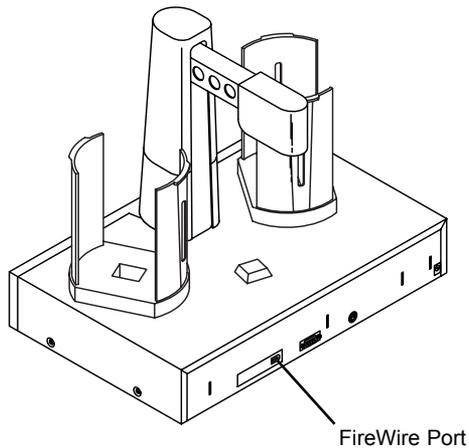
FireWire Port

The **FireWire** (IEEE 1394) Port is for connection to your PC's internal FireWire card.

The **Control Port** is connected to COM1 (or COM2 or COM3) of your PC with a serial cable, included with your Duplicator.

The **Printer Control Port** is connected to the mini-DIN plug on the rear panel of a Thermal CD Printer or an Ink-Jet CD Printer with a mini-DIN cable included with the optional printer stand.

The **Power Input Port** is for connection to the +30VDC Power Adapter included with your Duplicator.

D. MINIMUM SYSTEM REQUIREMENTS

Single Drive Duplicator XL:

- 700MHz or faster genuine Intel Pentium IV
- 512MB or more RAM
- PCI slot based Firewire card (combo cards not recommended)
- Desktop PC (laptops not recommended)
- Video display capable of 800x600 resolution or better
- Windows 2000 with Service Pack 3, or Windows XP with Service Pack 1
- User account with Local Administrator equivalent rights
- 2GB free Hard Drive space, at least 5GB free for DVD Disc Image

Dual Drive Duplicator Pro:

- 1 GHz or faster genuine Intel Pentium IV
- 1 GB or more RAM
- PCI slot based Firewire card (combo cards not recommended)
- Desktop PC (laptops not recommended)
- Video display capable of 800x600 resolution or better
- Windows 2000 with Service Pack 3, or Windows XP with Service Pack 1
- User account with Local Administrator equivalent rights
- 2GB free Hard Drive space, at least 5GB free for DVD Disc Image

If your PC does not meet the minimum specifications listed above, you will encounter serious performance issues when duplicating discs. The high-speed CD-R and DVD-R drives require these hardware specifications.

E. OVERVIEW OF OPERATION

Your new CD Duplicator is an automated, precision device intended for continuous-duty copying and printing of CDs. The following is a description of the complete process of copying and printing a CD job on your Duplicator:

1. Up to 100 blank discs may be loaded at one time into the Input Bin.
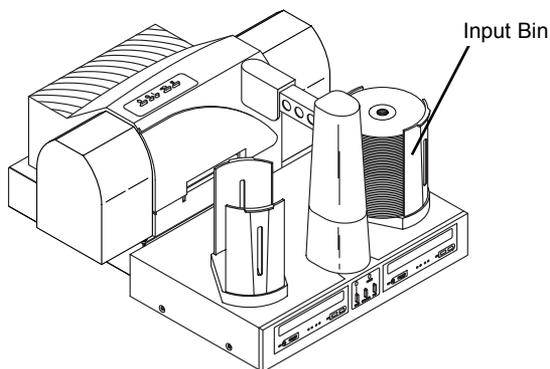
Input Bin

2. The Duplicator has an integrated robotic arm that "picks" one disc one at a time from the Input Bin.

3. The tray of CD Recorder 1 will open automatically and the Robotic Arm will place a disc into the tray of recorder 1.

4. The tray of CD Recorder 2 (if present) will open automatically and the Robotic Arm will place a disc into the tray of recorder 2.
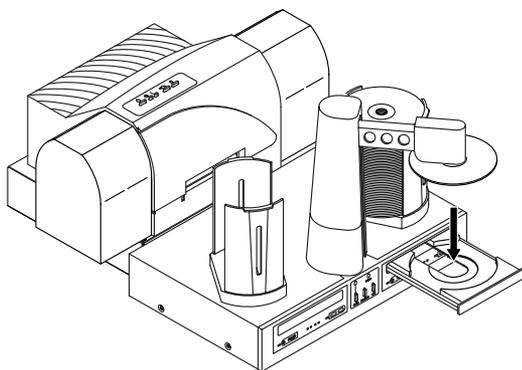

5. Through software control, you can perform a verification test on each CD-R disc before recording. If a disc does not pass (meaning that all or part of that disc is not recordable), the Robotic Arm picks it out of the CD Tray and sends it to the Reject Area, located at the front left side of the Duplicator. Rejected discs simply drop off of the front of the unit.
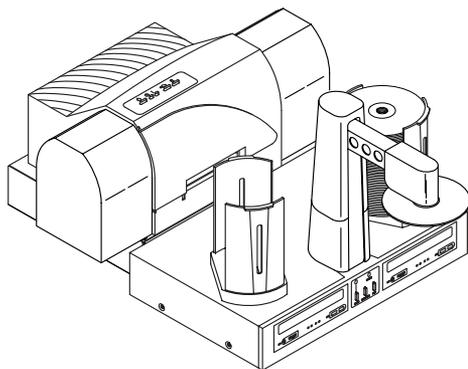
Since most CD-Rs available today are of extremely high quality, you will rarely reject a disc. Nevertheless, it is good practice to test each disc - just in case. You certainly don't want to send out a great looking disc that does not read properly in your customer's CD drive! Keep in mind that verifying each disc will add extra time to the recording process.

6.   The CD-Rs are now recorded. If you were to fill up each CD with data, audio, video or music (650 MB), recording time is about 4 ½ minutes each. Most jobs don't fill the entire CD-R, so recording time is usually less than this.

7.   After recording, CD Recorder 1 will open automatically. The Robotic Arm will pick the disc from the CD Recorder and transport it to the optional printer.
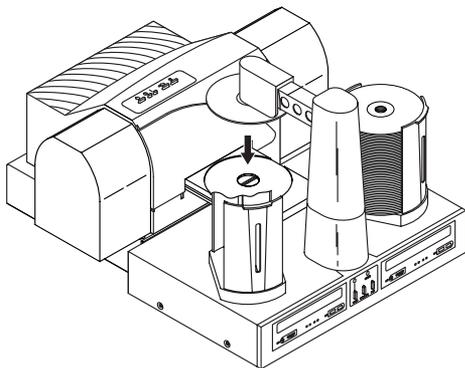
NOTE: *Only the CD version of duplicators can print and record simultaneously. To ensure proper recording, the robotics may pause momentarily when the CD Recorder drives are initializing. This pause is normal. The robotics will continue operating after a short pause. The DVD version does not allow you to print and record simultaneously.*

8. While the first disc is printing, the Robotic Arm moves the second disc from the cd recorder to the Output Bin temporarily. This acts as a holding area to allow simultaneous recording and printing.

9. The Robotic Arm will now load both drives with blank CD-Rs from the input bin to start recording the next round.

10. The recorded disc in the output bin will now be temporarily moved to the input bin.

11. Print time varies according to which printer has been selected. Both ink-jet and thermal printers are available. In most cases, print time takes no more than 1 minute. After printing the first disc, the printer's CD Tray opens automatically. The Robotic Arm transports the finished CD-R to the Output Bin.

12. The Robotic Arm will then pick the recorded disc from the Input Bin and load it into the printer. Once printed, the arm will then deposit the finished disc into the Output Bin.

13. The process starts over and repeats until all blank discs are gone or the number you have specified via software are copied and printed.

Now that you understand the principle and the order of operation, it is time to set up your Duplicator. This is discussed in the next several sections.

Section 2: Hardware and Software Set-Up and Testing

A. CONNECTING INTERFACE CABLES

1. Make sure that your PC is turned off and that it is disconnected from its power source. Leave the PC turned off until you are requested to turn it on later in this set-up procedure.

2. Install a compatible FireWire board inside your PC. Please refer to the board manufacturer's instructions for the proper installation procedure.

3. Connect the FireWire cable. One end is connected to the FireWire port on the rear panel of the Duplicator. The other end is connected to the FireWire board's output port on your PC.
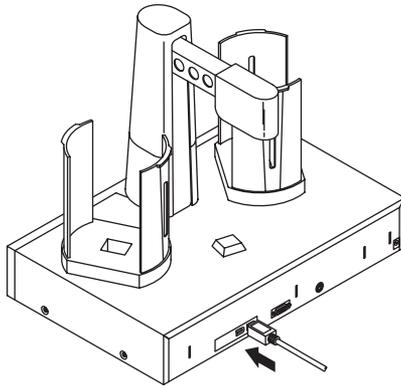
4. Connect the Serial Interface cable. One end is connected to the DB9 connector on the rear panel of the Duplicator. The other end is connected to your PC's DB9 COM1 port. If COM1 is already used for another device, you can use COM2 or COM3 and follow on-screen instructions later in the set-up procedure for changing the default serial port for the Duplicator.
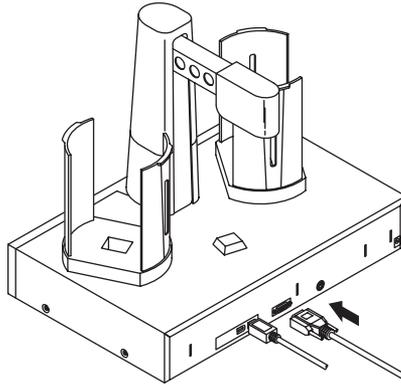

5. Apply power to the Duplicator. One end of the power adapter's cord is attached to the power input port on the rear panel of the Duplicator. The other end is connected to a suitable wall outlet. Use of a high quality, commercially available surge suppressor is highly recommended.
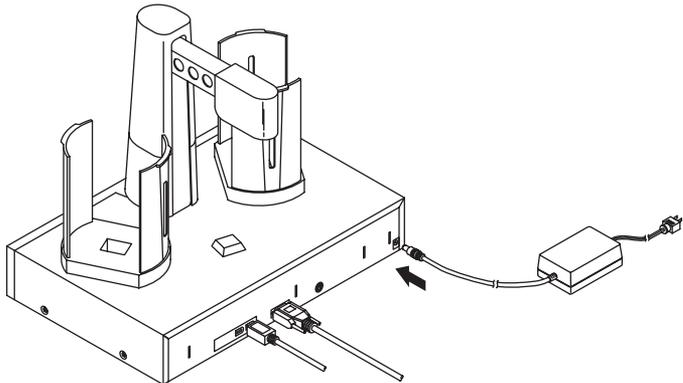

6. If you will be printing as well as duplicating discs, set-up the printer according to its instructions and continue on to step 7.

If you won't be attaching a printer, you have now completed the Hardware and Cabling Set-Up procedure. Proceed to Section B.

7. Connect the 6-pin mini-DIN cable (included with the optional Printer Stand) to the Printer Control Port on the rear panel of the Duplicator. Do not connect the other end yet. You need to attach the Printer Stand and mount the printer first.
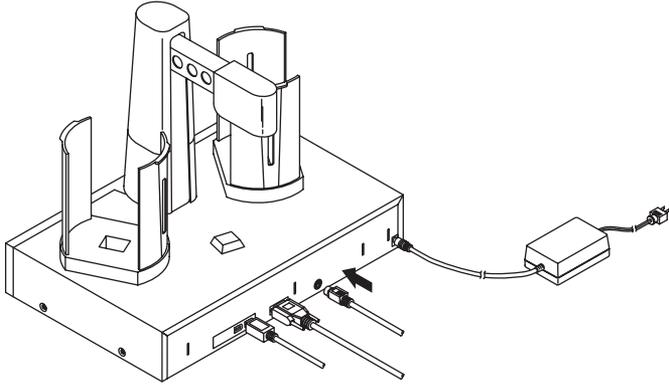

8. Attach the optional printer stand (required for a printer installation) to the Duplicator by locating the connecting tabs and inserting them into the slots on the rear panel of the Duplicator. For the Ink-Jet CD Printer, the stand is attached so that it is on the left side of the Duplicator.
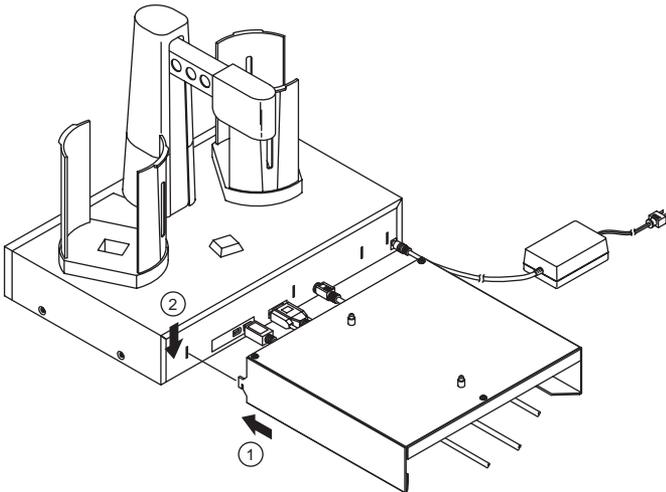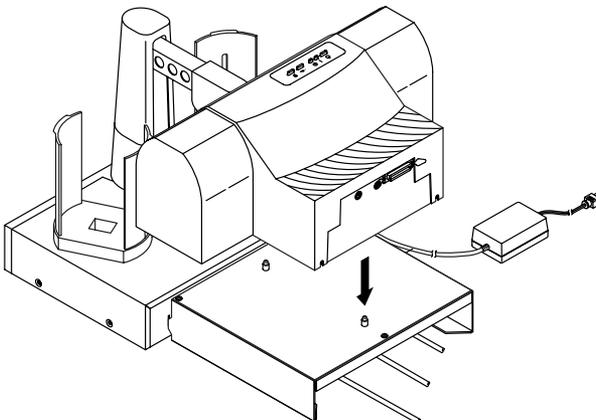
For the Thermal CD Printer, the printer is mounted on the left side of the Duplicator.
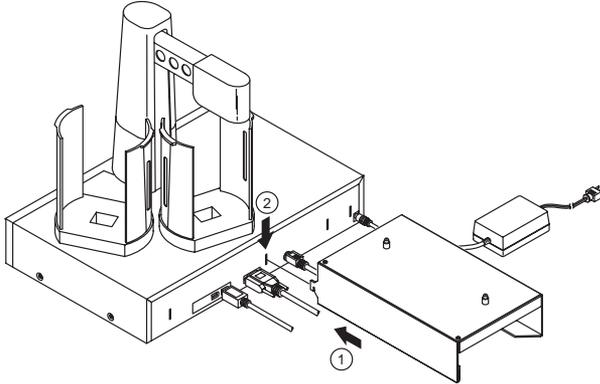
For either printer, find the locating holes on the bottom plate of the printer.
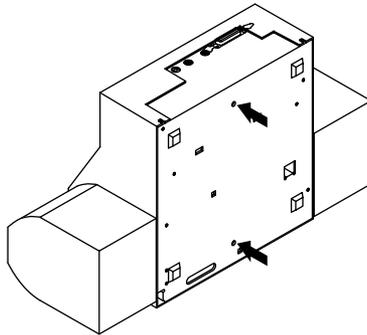

Position the printer on the stand so that the printer stand locating pins are inserted into the locating holes of the printer.

9. Connect the other end of the 6-pin mini-DIN cable to the Printer Control Port on the rear panel of the printer.
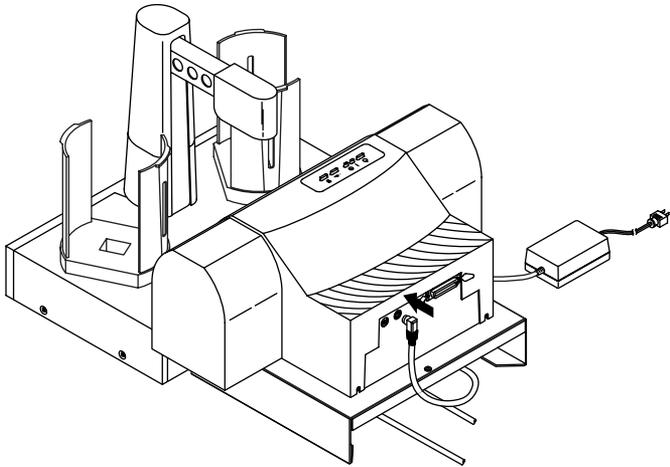
10. Connect the printer with an IEEE 1284 compliant parallel cable. One end is connected to the parallel port on the rear panel of the printer. The other end is connected to the parallel port of your PC. Make sure that your PC's parallel port is set to ECP mode. If you don't know how to check this or how to change it, refer to set-up section of the printer's Operator's Manual.
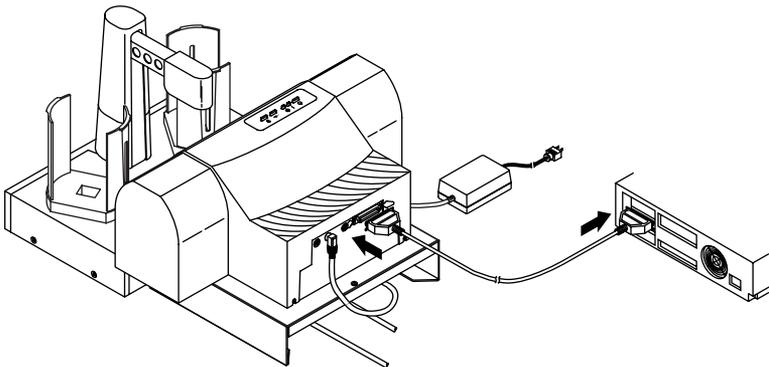
11. Make sure that all cables are routed neatly underneath and out the back of the printer stand and that no cables are underneath the Duplicator or printer stand feet.

12. Apply power to the printer. One end of the Power Adapter is connected to the printer's rear-panel Power Input Port. The other end is attached to a wall outlet.

Note: *The power supply for the inkjet printers is a 30 Volt supply. Both the Thermal Printer and Duplicator require 24 Volt supplies. Please be sure to connect the correct power supply to the correct device.*
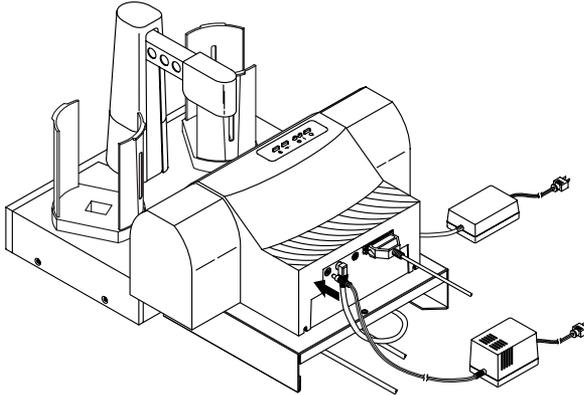

You have now completed the hardware and cabling set-up. Continue on to the Hardware Test and Printer Alignment procedures in the next section.
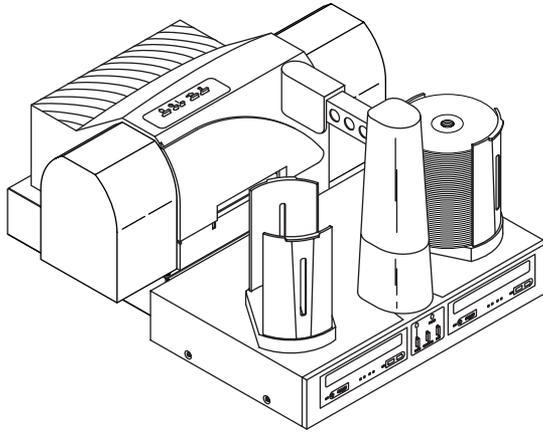
B. HARDWARE TEST AND PRINTER ALIGNMENT

1. Power-up your PC by re-connecting its main power cord. Turn on the PC with its power button.

2. While waiting for Windows to start, perform a Hardware Test as follows:

   a. Place the gray plastic Input and Output Bins on top of the duplicator.
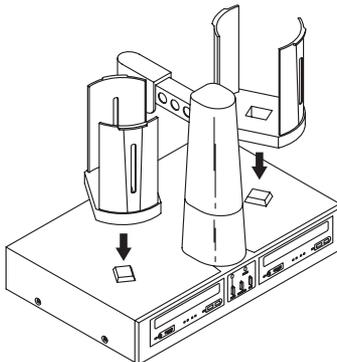
b. Put a stack of blank CDs in the Input Bin (the one on the right side).

c. Press the Sequence button on the Duplicator's front control panel. The Robotic Arm will swing around to do an initial check to detect which printer is installed. It will then go to a position directly above the Input Bin.

d. Press the Pick button on the control panel. The robotic arm will pick up a disc.

e. Open the CD-R Recorder's CD Tray with the CD Tray button.
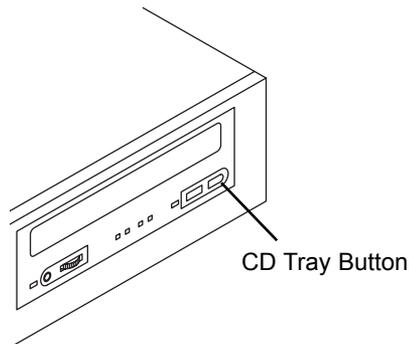
CD Tray Button

f. Press the Sequence button.

g. Press the Pick button. The CD will be placed into the CD Tray.

h. Press the Pick button again. The CD will be lifted out of the CD Tray.

i.   Open the printer tray with the disc in/out button. On the Ink-Jet CD Printer, this is the button with the two arrows pointing different directions. On the Thermal CD Printer, this is the button on the lower right side of the front panel.
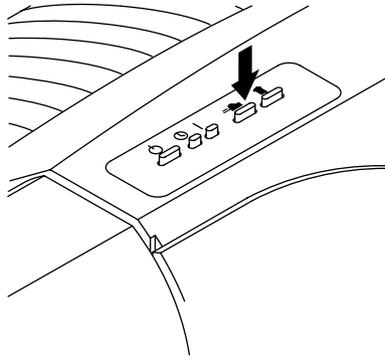

j.   Press the Sequence button repeatedly until the Robotic Arm comes to rest over the Printer's Disc Tray.

k.   Press and hold the Pick button. After 5 seconds, the Robotic Arm will lower the disc to the printer's tray. The disc should align properly with the tray.

If it does not align properly, you will need to adjust the printer stand's Mounting Plate. This is accomplished by loosening the three Phillips-head adjusting screws and moving the printer slightly in one direction or another until the disc is dropped perfectly into the printer's tray. You can repeatedly press the Pick button to test your alignment. When the alignment is correct, tighten down the screws securely.
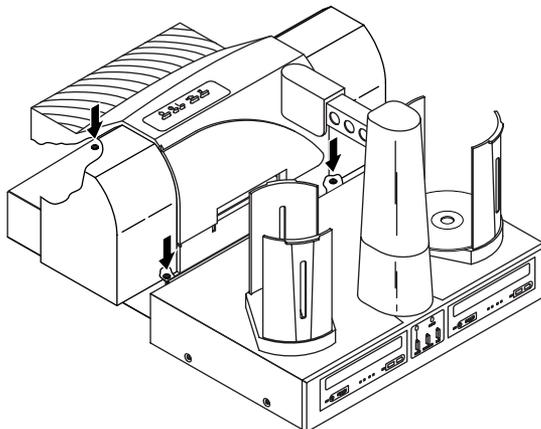
Check one more time for printer alignment by pressing after the screws have been tightened down, just in case something changed while you were making the adjustment. Re-align if necessary.

l.   Press the Sequence button.

m. Press the Pick button. The CD will drop into the Output Bin.

n.   Press the Pick button again. The CD will be picked up out of the Output Bin.

o.   Press the Sequence button several times until the CD is transported back above the Input Bin.

p.   Press the Pick button. The CD will drop into the Input Bin.

C. FINE TUNING THE PRINTER STAND ALIGNMENT

If you find that some discs are not being held tightly in the printer tray and start to move inside the printer while printing, the printer stand may need further alignment. If the discs are not placed in the exact center of the Printer Tray, it is possible you will encounter failed picks or poor print quality. There is a special Fine Tune Alignment built in to the program of the Duplicator to ensure proper picks. To perform this alignment, follow these steps:

1.   Open the Printer Tray by pressing the Printer Tray Button on the top of the Printer Control Panel.

2.   Loosen the three Printer Stand Adjustment Screws shown. Press and hold the Sequence and Pick Buttons on the front of the Duplicator until the Robotic Arm is positioned over the Input Bin.

3.   Press and hold the Pick Button on the Duplicator's Front Control Panel for 5 seconds. Your will see the LEDs on the front of the Duplicator toggle back and forth.

4.   Immediately press the Pause Button, then press the Sequence Button to enter Fine Tune mode. (If using the thermal printer, press the Pause Button twice to enter Fine Tune mode.)

5.   Next, press the Duplicator's Pick Button to perform the Printer Tray Fine Tune Alignment. The Robotic Arm will move to the printer position and hover just above the Printer Tray.

6. With the Robotic Arm holding a disc just over the tray, move the printer around until aligned as close as possible. For a more accurate alignment, press the Sequence Button to step the arm slightly to the right (clockwise), or press the Pause Button to step the arm slightly to the left (counter-clockwise).

7. With the printer aligned, tighten the three Printer Stand Adjustment Screws.

8. Press the Pick Button to exit the Fine Tune Mode.

9. Test your alignment by pressing the Pick Button repeatedly to pick and place a disc into the tray.

You have now completed the Hardware Test and Printer Alignment. Continue on to the Software Installation.

D. SOFTWARE INSTALLATION

Once you have properly set up your Duplicator and optional CD printer, the next step is to install the appropriate software on your PC that you'll need for duplicating and printing.

There are two software programs to install: (1) the printer driver software, and (2) the CD duplicating application software called PrimoDVD. Install one or both of the software programs as follows:

1. Install the printer driver software according to the instructions in that unit's Operator's Manual.

2. Install PrimoDVD software as follows:
   a. Close down all other software applications.
   b. Insert the included CD into your computer's CD-ROM drive. In most computers the software will auto-boot. If it does, proceed to Step 3 below. If it does not, follow these steps:
   c. Double-click the **My Computer** Icon.
   d. Double-click on the icon for the CD drive containing the PrimoDVD software disc.
   e. Double-click on the **Autorun.exe** file to start the installation.

3. The Welcome Screen is now displayed. Press **Install** and follow the on-screen instructions.

4. Re-boot your computer before you proceed.

E. SELECTING YOUR RECORDER DRIVES

Each time PrimoDVD is launched, the following dialogue box will appear:
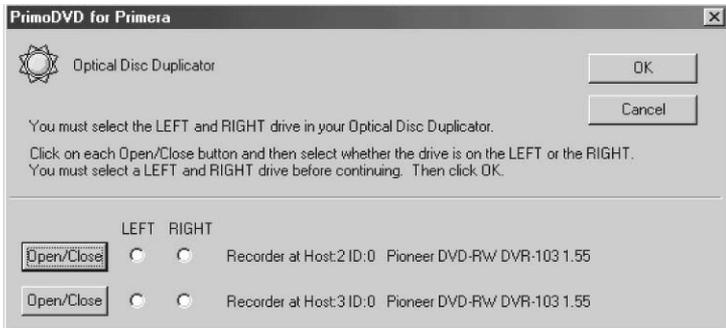
This is necessary for PrimoDVD to identify the drives. All recording drives installed on your PC will be listed in this dialogue box. Click the Open/Close button to see whether the left or right drive opens, then click the corresponding radio button. Proper automated robotic movements require you to select the right drive and left drive correctly!

F. SOFTWARE TEST

The final set-up step before starting your first job is to test the entire hardware/software configuration. This will confirm that the hardware, software and your PC are all communicating properly with each other properly. Follow this procedure:

1. Launch the software from your Windows Desktop or program menu. The main Application Window will appear. Single click on the Duplicator drive in the list of available drives on the lefthand side of the screen to high light it.

2. From the main Application Window, click on Robotics.
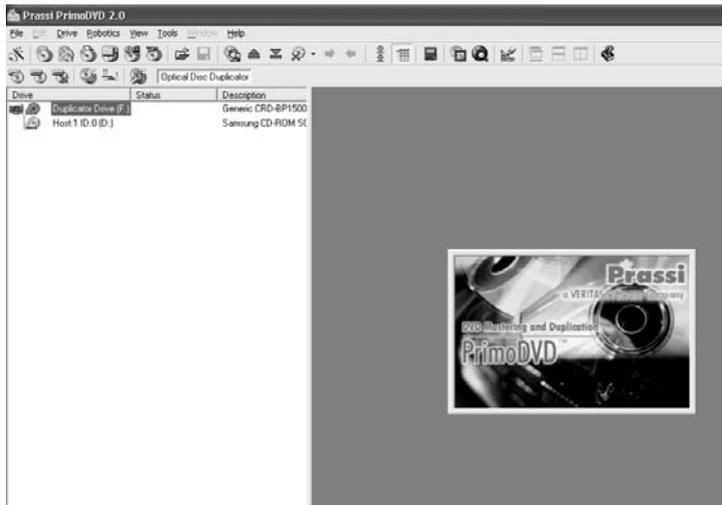
3. In the drop-down menu, go to Services.
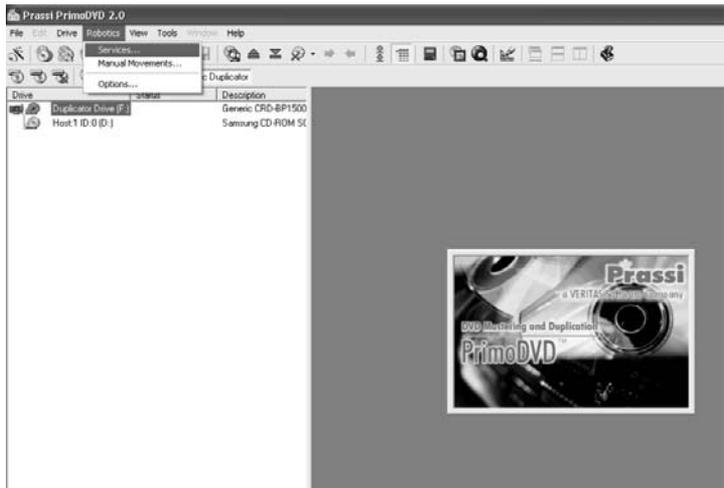
4. Click on Check Communications. You will get a dialog box saying "Communication OK. System Idle." If you don't, check that all cables are connected securely. Or, change the serial cable from COM1 on your PC to COM2 or COM3 and change the setting in the Control Port drop down menu. Try again until you get the "Communication OK" message.
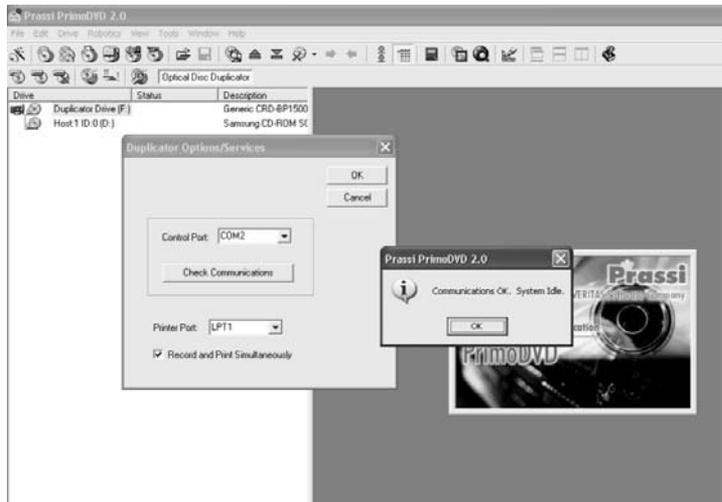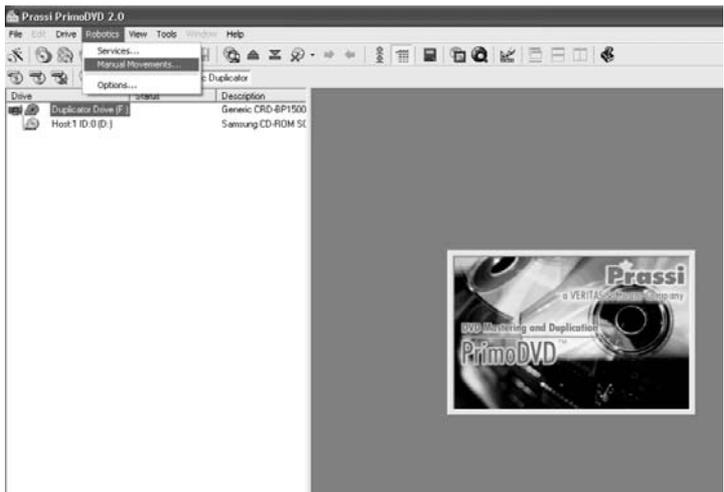

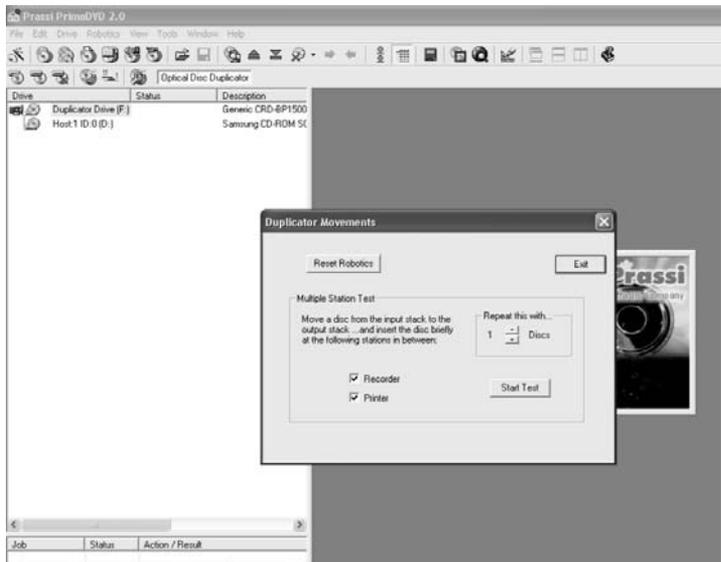5. Click OK to get back to the main screen.

6. Click on Robotics again.
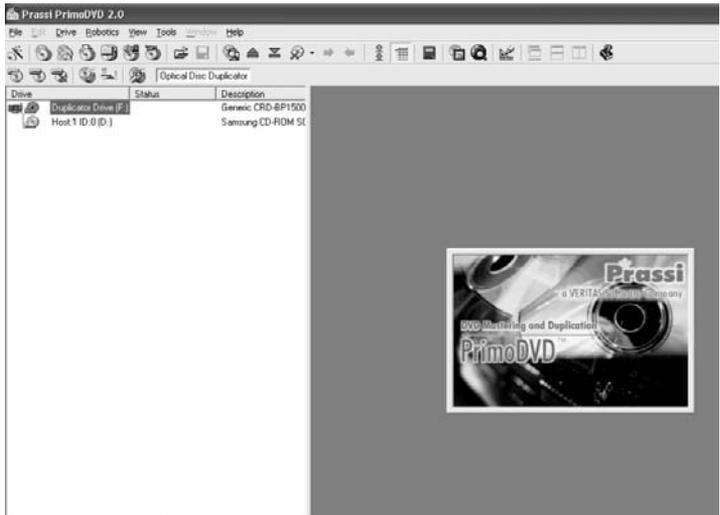
7. Select Manual Movements.

8. Deselect any components you don't have installed in the check boxes in Multiple System Test.

9. Load at least 4-5 discs into the Input Bin.

10. Click on Start Test. The robotic arm will move through its entire sequence automatically. If you specified more than one disc, it will continue until the number you specified is completed or it runs out of discs.

Congratulations! You have now completed the installation process and your Duplicator is ready for operation.

NOTE: *PrimoDVD software is for use only with Windows XP and Windows 2000. A Macintosh version is not available.*

The next section of this Operator's Manual will guide you through a simple audio disc copy procedure. For information on performing more advanced copying jobs or to learn how to copy Video CD's, data discs and other formats, consult the separate PrimoDVD Operator's Guide included with your Duplicator. An excellent on-line Help file is also available from within the PrimoDVD software as well as from the printer driver software.

Section 3:   Running Your First Job

Now that you've completed the hardware set-up, connected all cables, loaded the PrimoDVD Software and the printer driver and performed all tests, you're ready to copy discs.

The example given in this chapter is for a simple audio CD copying job using PrimoDVD software. Please refer to the excellent PrimoDVD Software User's Guide included on the PrimoDVD Installation Disc in Adobe Acrobat format for instructions on performing other types of copying jobs. It is highly suggested that you print this manual before using the software. There is also on-line help available from the PrimoDVD software's Help screens.

A. OPERATING SCREENS

To keep things simple, there is really only one main operating screen you'll need to know about in order to run the PrimoDVD Software. It is called the **Application Window** and it looks like this:
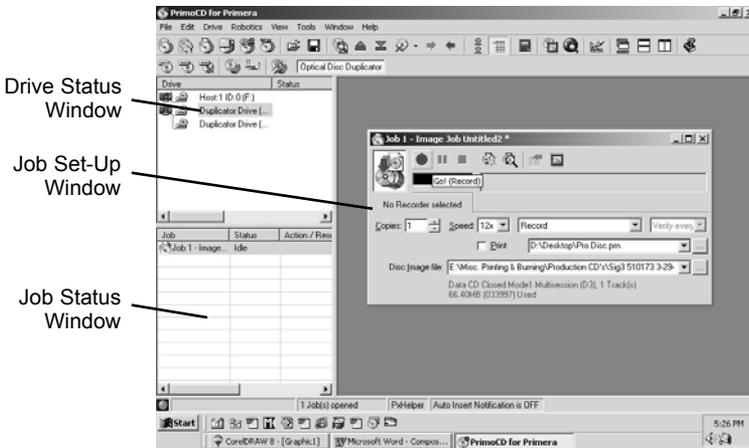
Under this window there are several adjustable-size windows that indicate what you've set-up and what's happening: the Drive Status Window, the Job Status Window, and the Job Setup Window. A sub-Window called the Activity Log is also available, but it is hidden upon initial boot-up of the software.

Here's a short explanation of each Window:

- **Drive Status Window**. Lists all of the available drives for your computer. Your configuration has just two drives: the internal drive in your PC and the CD Recorder installed in your Duplicator.
- **Job Set-Up Window**. This is the space where the Job Setup Panel for each job is displayed. When you select a job by clicking on File: New from the File pull-down menu, a different type of Job Panel will appear in the Job Set-Up Window depending upon the type of job selected. Each Job Panel contains all of the necessary information to run that job, including source file name, number of copies to make, etc. In addition, the Job Panels report status information during the running of the job.
- **Job Status Window**. As each Job Panel is formed, an entry is made in the Job Status Window at the lower left side of the main Application Window. When jobs are started, this list displays the status of each job, including the number of discs copied and the number remaining. This window may be hidden by clicking on the Show Job List Panel under the View menu.

One other sub-window available is called the **Activity Log Panel**. It records all user actions and system responses during the recording process by time of occurrence. If a problem occurs while you're not present in front of the computer, you can browse the log to find out details that may no longer be present on the main screen. Control of the Activity Log is under File: Activity Log. The log may be saved (this happens automatically every time you exit the software). Emptying the log will delete the log -forever.

B. OVERVIEW OF RECORDING

Three basic recording operations are available: (1) actual recording, (2) test recording, and (3) verifying.

Actual recording is self-explanatory. Discs will be recorded without any testing or verifying beforehand. If you have used the Duplicator successfully before with a particular brand of media that is highly reliable, you may choose to record without testing or verifying. This will deliver the highest throughput rate of finished discs.

Test recording performs all of the operations of recording with the drive's laser turned on to reading power. A test recording run will determine if the data source will keep up with the recorder's demand. Normally, a single test run is sufficient to determine if a condition knows as "buffer underrun" will occur. If a buffer underrun occurs during recording, all the discs that are run through your CD Recorder will be wasted! So, a quick test recording is highly recommended before starting a job and walking away.

Verifying will test the CD-R disc itself to make sure that it is capable of receiving data. Discs that do not pass verification will be rejected before recording begins, thus saving valuable recording time.

After your job(s) have been set up, each one may be started by clicking on the red "**Record**" **button** at the top of the Job Setup Panel. Here's what the Job Setup Panel looks like:
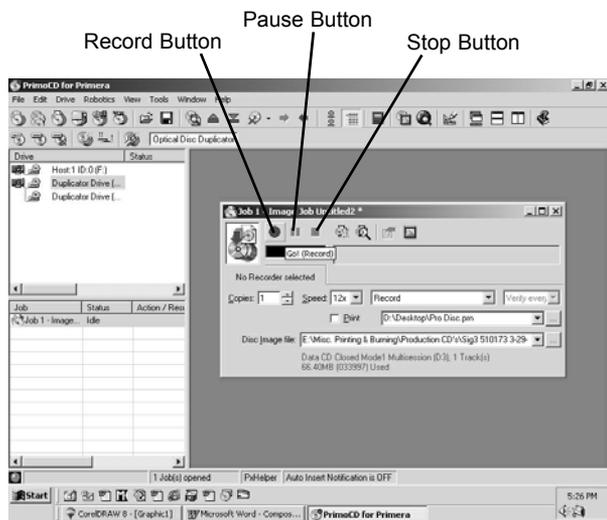
While jobs are running, they may be paused or stopped by clicking on the appropriate buttons on the Job Setup Panel.

The **Pause Button** will allow the current recording to finish, then suspends operations on that job. Recording is resumed by clicking the Pause Button again.

The **Stop Button** will abort any recording in progress and cause the Duplicator to transport the disc to the Reject Area. It will also terminate that job.

Record, Stop and Pause actions for the currently-selected (highlighted) job may also be selected from the Toolbar at the top of the main Application Screen.

C. COPYING AN AUDIO CD

Now, you're ready to start an actual recording job. In this example, we'll perform a simple audio disc copy. More detailed information regarding other types of jobs (data discs, Video CD, etc.) can be found in the PrimoDVD User's Guide and in the Help files included on the main Application Screen Toolbar.

Follow these steps to set-up and perform an audio CD copy job:

1. Launch the PrimoDVD Software from your Windows Desktop or program files.

2. Insert the master disc into your PC's CD drive. In the drive list, right-click on the Host Drive and select "**Disc Explorer and Drive Properties**."

3. The Disc Explorer Window will be displayed. Check in the Disc Explorer that the source disc is correctly read. (Click on the **Force Refresh Button** if the Auto Refresh checkbox is not checked).

4. To copy the entire CD, press the big **Global-Image** button. In the panel that appears at the bottom of the Disc Explorer enter the file name that will contain the disc image. (us a .GI extension). Then press Build.

   Please note that this method of building a disc image creates a saved file on your computer's hard drive. These files can get huge - up to 650MB each. You may want to create only a temporary image that is automatically deleted after your copy job is done. To do this instead, build your job image file using the Disc-to-Disc option from the main File: New Job drop-down menu.

   Be sure to click the checkbox that reads Make a Temporary Image on the Hard Disc and Copy From There. The job will build automatically, make the number of copies you've specified, and delete the disc image afterwards.

HINT: *To copy specific tracks from the CD, highlight the desired tracks then click the Extract Track button. This will allow you to take the individual tracks from the cd and convert them to MP3 or Wave files. This is useful for making a compilation disc of tracks from different CDs. When creating an Audio Job from the Application Window, MP3 and WAV files are converted to CD Audio on the fly.*

5. Wait until the image is completely built and then close the Disc Explorer dialog.

6. From the Menu bar, select **File: New Job** or **New Global-Image** or **Other Image Job**. A Job Window will now open in the right side of the application.

7. In the **Image Job** dialog box, enter the name of the .GI file you just created into the Image field name. A drop-down box will contain all the recent images you created and you can easily select from this list if you choose.

8. Also in the **Image Job** dialog box, check the box labeled **Print** if you have a printer installed and wish to print a print image onto each disc after it has been recorded. The single drive Duplicator XL supports two types of files: (1) .prn files you've previously created using almost any Windows graphics application, or (2) .std files that have been created with the built-in SureThing Labeler software. The two-drive Duplicator Pro currently only supports the .PRN File. Both graphics file types and how to create them are explained in Section D below.

   In the drop down box to the right of the Print checkbox, you can select any recently used .std (Duplicator XL only) or .prn files. Or, click the … box next to the print dialog box to browse for saved .std or .prn files. Find the file you wish to print, highlight it, and click Open. Or, double-click on it. The file appears in the Image Job Window print dialog box with its path.

9. In the **Drive List**, highlight *both* recorders by double clicking each Recorder icon. This will enable your duplicator to use both drives.

10. In the **Image Job** dialog box, set the number of copies, the speed (if you select a speed that the recorder does not support, it will default to the immediate lower one), and the action you desire: Test, Test and Record, Record, Verify and Record, etc.

11. Press the red **Record** button to start recording your copies.

12. If everything worked right, the Duplicator should now be recording and printing your discs.

13. Other types of duplication are explained in PrimoDVD, Select Help, then Index, then Job Preparation from the applications main menu.

D. CREATING PRINT FILES

PrimoDVD 2.0 will support two types of print files:

- *.STD - SureThing CD Labeler
- *.PRN - Print files created through the Publisher Printer Driver

The dual drive Duplicator Pro will support only the *.PRN file type for printing.

*.STD files

These are files created in SureThing CD Labeler, the disc labeling software that shipped with your printer. More information on SureThing is available in your printer's user's manual. This is the recommended file type for printing as it offers the most flexibility.
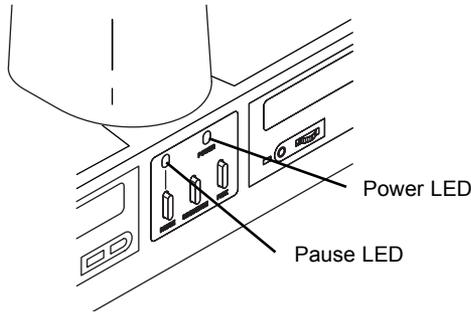
.PRN files

These are files created from virtually any Windows graphics application. Instead of printing to a printer, you print to file. In some programs, you can print directly from that software's Print screen, through the correct printer driver software for the brand and model of printer you've installed on your Publisher, to a *.prn file. Adobe Illustrator and CorelDRAW! are examples of such programs. Most of the popular, higher-end graphics applications give you this option of printing directly to a file.

If your graphics software does not allow a direct print to a file, you will need to go into your Windows Control Panel, Printers where you will be able to select File from your list of available printer ports. This will enable the driver to print to a PRN file from any application.

Note: *When creating print files make sure that the 32 Bit Spooler and Direct to Port options under printer properties are not checked. You will encounter problems if they are checked.*

Section 4: Interpreting the Duplicator's LED Status Lights

The LED Status Lights are located on the front Control Panel. They can tell you a lot about what is happening at any given moment with the Duplicator, including a number of error conditions. To accurately interpret what is meant when the lights are on, off, or flashing, please refer to the following chart:

Power LED

Pause LED

A. POWER LED

Status	Condition
Off	No Power. Plug in Power Adapter.
On Solid	Power is ON. This is the Duplicator's normal "waiting" mode.
Flashing	Power is ON, but an error condition exists: a. Didn't pick up a disc b. Dropped a disc c. Discs out d. Robotic arm stalled; probably hit something while moving. Press any button on Control Panel to re-try.

B. PAUSE LED

Status	Condition
Off	Normal "waiting" mode
On Solid	Duplicator is paused.
Flashing	Duplicator is busy; i.e. motors are running, printer is printing, etc.

Section 5: Maintenance and Troubleshooting

The Duplicator is designed to operate for extended periods of time with very little attention. In fact, no regular maintenance is recommended other than cleaning the outside case.

NOTE: *Do **NOT** attempt to oil or grease the Duplicator's Robotic Arm shaft or other components. You will likely cause more harm than good! Any moving parts are designed to be run for the life of the machine with no additional lubrication required.*

A. CLEANING THE CASE

Use a clean, white rag with a small amount of water or isopropyl alcohol to clean the Duplicator and printer's outside cases and CD trays. Stronger cleaning solutions are NOT recommended because they may damage the paint and plastic materials from which the parts are manufactured.

Always disconnect your Duplicator and printer's power cords before cleaning. Resume operation only after the surfaces are completely dry.
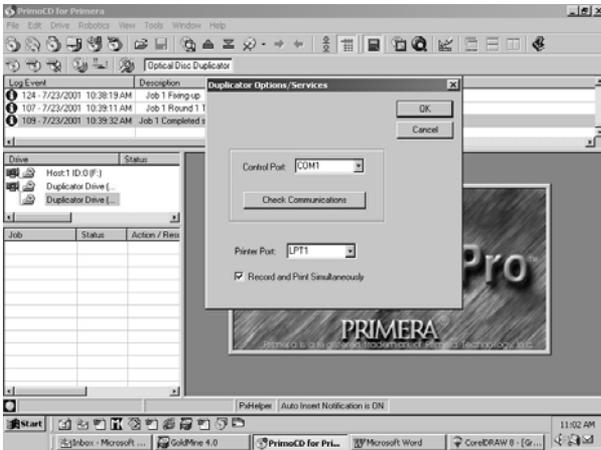
B. RESETTING THE DUPLICATOR

If you find yourself in a situation where the Duplicator is not responding properly, you may need to perform a system reset. A typical cause may be when you stop a job out of sequence. To do so, press the Pause and Pick buttons at the same time.

C. RECORDING ERRORS

If discs are not being recorded properly or are not passing verification, you will want to consult the error log. This is available in PrimoDVD by clicking **View**, then **Show Log** from the drop-down menu.

This will show a history of tasks performed by PrimoDVD. If there are errors, you will see them in this list. For more information on recording errors, you can consult the PrimoDVD manual included with the Duplicator. The most common error is Buffer Underrun. This occurs when data can not be sent fast enough to keep up with the recording drive. The following suggestions are very useful in eliminating buffer underrun errors:

a. Click **Tools**, **Options** and check the box labeled **Enable Burn Proof**. This option enables the drive to slow down its recording speed to match the data.
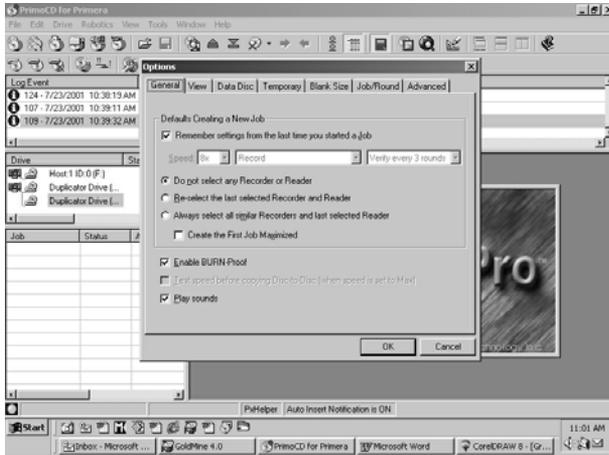
b. Click **Robotics**, **Options** and deselect **Record and Print Simultaneously**. This will cause your jobs to take longer, but will free more computer resources for recording.

c. Examine the type of recording job you are attempting. If you are attempting to record directly from a CD Reader to the Duplicator, the reader or the bus inside your computer may not be able to keep up with recording at 16x speed. Try creating a global image (GI) of the disc as described earlier in this manual and you will most likely have greater success.

D. TECHNICAL SUPPORT

If you have difficulties in operating your Duplicator, the procedures in this manual and the PrimoDVD Software User's Guide should, in most cases, solve the problem. If you still have difficulty, contact the technical support number listed on the insert included in the supply pack that came with your Duplicator. Please also visit www.primera.com for updates and answers to many frequently asked questions.

Section 6: Technical **Specifications**

Model	Optical Disc Duplicator Pro
Configurations	<u>CD-R System</u>: One (XL) or Two (Pro) CD-R recorders, PrimoDVD Software, Robotic Transport Station
	<u>DVD-R System</u>: One (XL) or Two (Pro) General-Purpose DVD-R recorders, PrimoDVD Software, Robotic Transport Station
Optional Printers	Ink-Jet CD Printer or Thermal CD Printer
Minimum System	
Single Drive Duplicator XL:	700MHz or faster genuine Intel Pentium IV, 512MB or more RAM, PCI slot based Firewire card (combo cards not recommended), Desktop PC (laptops not recommended), Video display capable of 800x600 resolution or better, Windows 2000 with Service Pack 3, or Windows XP with Service Pack 1, User account with <u>Local Administrator</u> equivalent rights, 2GB free Hard Drive space, at least 5GB free for DVD Disc Image
Dual Drive Duplicator Pro:	1 GHz or faster genuine Intel Pentium IV, 1 GB or more RAM, PCI slot based Firewire card (combo cards not recommended), Desktop PC (laptops not recommended), Video display capable of 800x600 resolution or better, Windows 2000 with Service Pack 3, or Windows XP with Service Pack 1, User account with <u>Local Administrator</u> equivalent rights, 2GB free Hard Drive space, at least 5GB free for DVD Disc Image
Disc Capacity	100 disc input, 100 disc output

Recordable Formats	<u>CD-R</u>: CD-Audio (CD-DA), CD-ROM, CD-I, Video-CD, MP3 to CD-Audio (on the fly, no hard drive overhead required)
	Writes: DVD-R (4.7 General Only) DVD-RW, CD-R, CD-RW *Reads:* DVD-ROM DVD-R (all types), DVD-RW, CD ROM, CD TEXT, Photo CD, CD-DA, CD Extra
Operating Systems	Windows XP - Service Pack 1 and Windows 2000 - Service Pack 3
Interface	Control: PC serial port Printing: PC parallel port Image data: IEEE1394 FireWire
Power Requirement	100-240 VAC, 50/60 Hz, 60 watts
Weight	Pro - 14 lbs. (6.35kg) XL - 12 lbs. (5.4kg)
Dimensions	16.625"W x 12"H x 10.125"D (422mmW x 328mmH x 257mmD)
Certifications	Emissions: FCC Class B, CE Safety: UL, UL-C, CE
Warranty	One year return-to-depot

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