

040403-510685-(01)



Bravo™
AUTOPRINTER

**Automated Optical Disc
Printing System**



USER'S MANUAL

PRIMERA

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Printing History

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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 12VDC, 4.5A or higher. 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 présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère 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.

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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 Bravo™ AutoPrinter. Bravo is the perfect all-in-one solution for producing professional looking CD-R and DVD-R discs. Operation is simple and completely automatic once a job has been started.

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

NOTE ON TERMS AND CONVENTIONS:

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

The Bravo AutoPrinter will be abbreviated simply as the Printer.

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.

A. CHOOSING A GOOD LOCATION

- Place the Printer in a location with adequate air circulation to prevent internal heat build up. You will need at least 24" (61 cm) of overhead space to allow the top cover to open freely.
- Do not place the Printer near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

B. UNPACKING AND INSPECTION

While unpacking your Printer, 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:

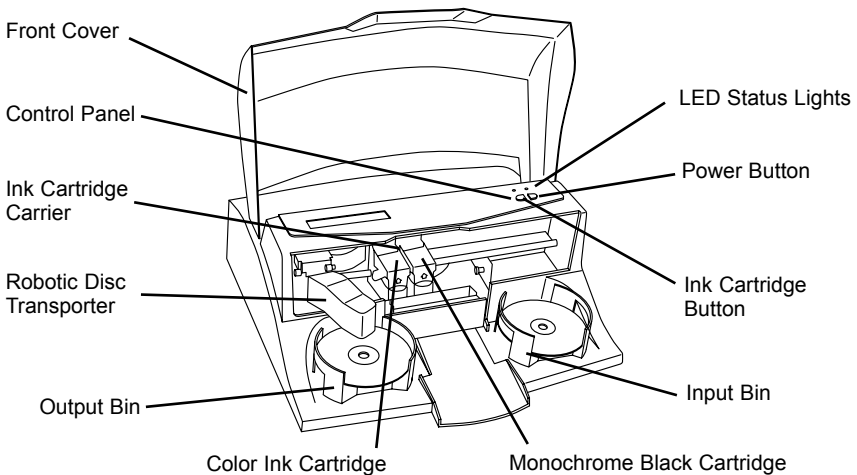
- Bravo AutoPrinter
- Gray Plastic **Input and Output Bins**
- Switching Power Supply with Power Cord
- One Three-Color (CMY) Ink Cartridge
- One Monochrome Black Ink Cartridge
- QuickStart Installer Disc
- USB Interface Cable (Biege)
- Warranty Card
- This Operator's Manual, Quick Start Guide and other printed information

Save the carton and packing materials. They will come in handy later if you ever need to transport the Printer.

C. IDENTIFYING THE PARTS

Front Panel and Top

This illustration shows the Printer, its Control Panel, Buttons, LED indicator lights, Input and Output Bins and other components.



The **Robotic Disc Transporter** moves discs from the Input Bin, to the printer, and finally to the Output Bin.

The **Control Panel** contains LED Status Lights and Buttons to control the Printer.

The **LED Status Lights** indicate that Power is ON. They also blink in certain patterns to indicate an error or other condition of the Printer. See Section 4 for a full explanation of the LED Status Light conditions.

The **Power Button** turns the Printer's power ON and OFF.

When the front cover is opened, the **Ink Cartridge Button** is used to position the Cartridge Carrier for easy ink cartridge replacement.

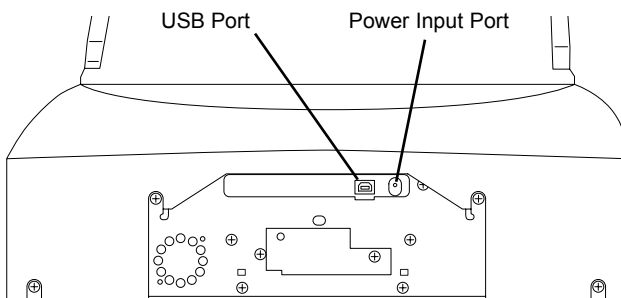
The **Input/Output Bins** are situated under the top cover of the Printer. The bins will hold up to 25 discs. The right-side bin is the Input Bin for unprinted media; the left-side bin is the Output Bin for finished discs.

The **Front Cover** is a durable plastic cover that will protect the Printer from dust and interference.

The **Ink Cartridge Carrier** holds both a color ink cartridge (left-side pen) and a monochrome ink cartridge (right-side pen).

Rear Panel

This illustration shows the input ports found on the rear panel of the Printer:



The **USB Interface** is connected to an open USB port on your computer with a standard USB cable, included with your Printer.

The **Power Input Port** connects to the included 100V~240V 12V switching power supply.

D. SYSTEM REQUIREMENTS

Before getting started, it is important for you to verify that your computer meets the minimum system requirements. Here's what you need in order to successfully print discs with your Bravo:

PC

- 450 MHz or faster Pentium III/ IV processor running Windows 2000 or XP
- 256MB or greater RAM
- Available USB Port

MAC

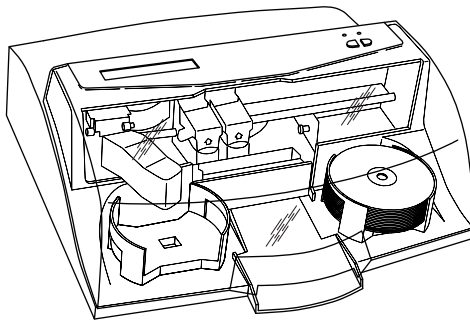
- G4 PowerPC 700MHz or higher running OS X version 10.2 or higher
- 256MB or greater RAM
- Free hard drive space of at least 2 GB
- Available USB and FireWire Ports

If your computer does not have these minimum system requirements, system performance will more than likely not be acceptable.

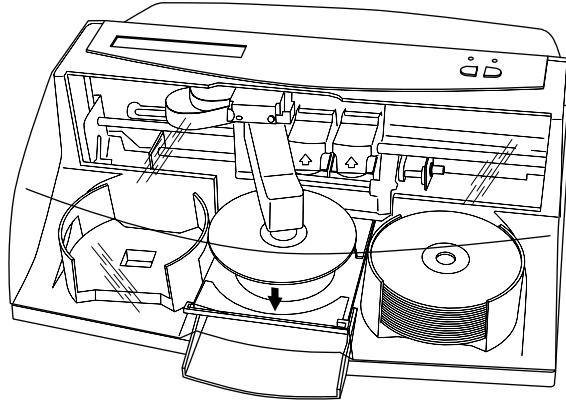
E. OVERVIEW OF OPERATION

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

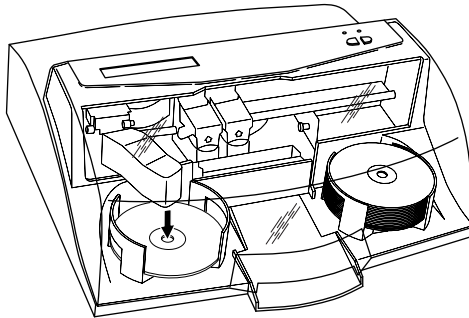
1. Up to 25 blank discs may be loaded at one time into the **Input Bin**.



2. The Printer has an integrated Robotic Disc Transporter that "picks" a disc, one at a time, from the **Input Bin**.
3. The **Printer Tray** automatically opens. The Robotic Disc Transporter will move the disc from the Input Bin to the Printer Tray. The Printer Tray will then close.



4. Print time varies according to which print mode has been selected (section 3-A). In most cases, print time takes no more than 2 minutes. After printing the first disc, the Printer's Disc Tray opens automatically. The Robotic Disc Transporter moves the finished disc to the **Output Bin**.



5. The process starts over and repeats until all blank discs are printed or the number you have specified via software are printed.
6. Now that you understand the order of operation, it is time to set up your Printer.

Section 2: Hardware and Software Set-Up for Windows

This section will describe the step-by-step process of setting up your Printer. This includes information on how to load the supplies (ink and disc media) necessary to start printing discs.

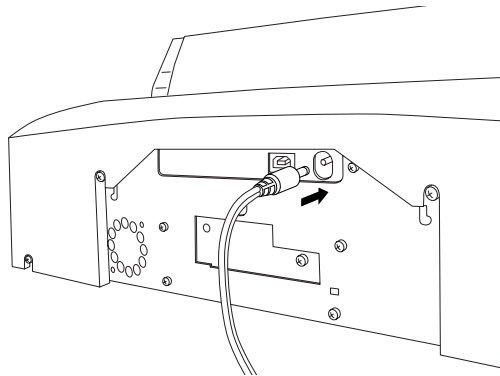
A. QUICKSTART INSTALLER

The Installer Disc has a QuickStart menu that will guide you through the process of setting up your printer. Please refer to the following for more information on each step:

1. Place the AutoPrinter Installer CD in your CD-Rom Drive. The Installer application should automatically launch in a few moments. If it does, proceed to Step 2. If it does not automatically launch, follow these steps:
 - Double-click the My Computer Icon, then double-click the icon of the appropriate CD drive containing the Software Installer disc
 - Double-Click INSTALL.exe
2. In the Installer Application, click the QuickStart Install button. The QuickStart Install will guide you step-by-step through the installation process. As you complete each step, click Next.

Step 1: Applying Power

- Locate the power adapter supplied with your Printer.
- Place one end of the adapter cord into the power port on the rear panel of the Printer.



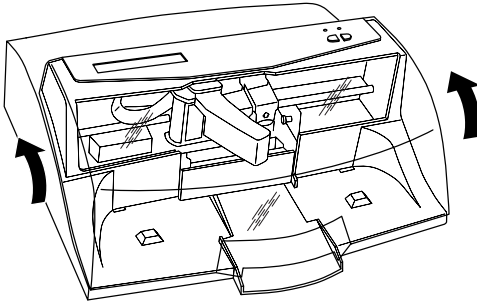
Step 2: Loading Media (Discs)

NOTE: Your Printer can print directly onto virtually any brand of printable-surface CD/DVD media. Since different brands of discs have different printable coatings, however, you may need to adjust the printer driver settings to accommodate your specific brand of CD/DVD media. Refer to Section 3 for further printer driver information.

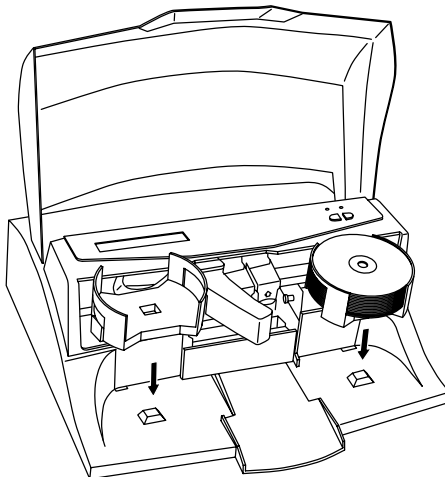
Due to the wide variety of printable-surface CD/DVD media, you may find that certain brands of discs provide higher print quality than others. For maximum print quality, use CD/DVD media authorized by Primera.

Refer to the following steps when loading discs into the Printer:

- Open the front cover of the Printer




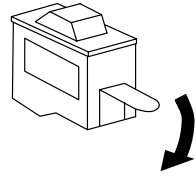
- The Printer will automatically position the cartridge carrier and Robotic Disc Transporter to the center position allowing for easy access to the bins.



- Load the **Input Bin** (the bin located on the right-hand side of the Printer) with 25 blank discs and place the bins on the mounting pegs.

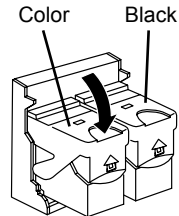
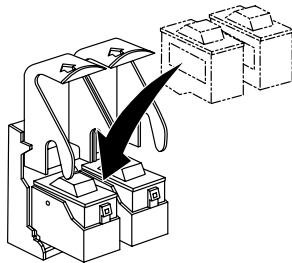
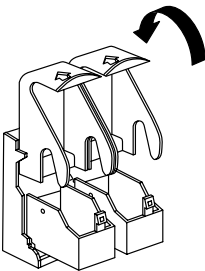
Step 3: Installing Ink Cartridges

- Press the Ink Cartridge Button  to move the Ink Cartridge Carrier to the load position and open the ink cartridge covers
- Remove each ink cartridge from its packaging
- Slowly remove the tape covering the cartridge's print head, being careful to avoid damaging the barcode label on the underside of the cartridge.



DO NOT TOUCH THE COPPER AREA!

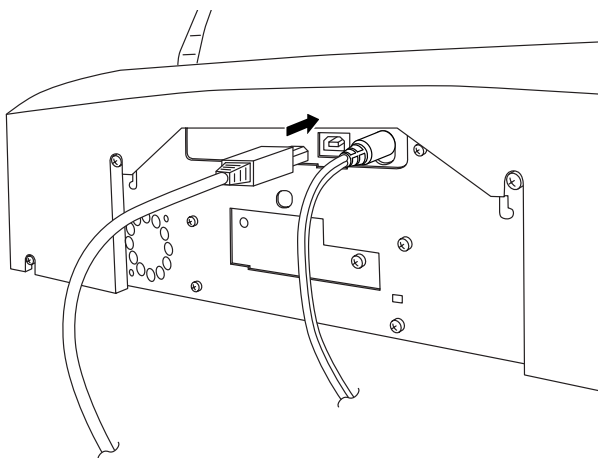
- Insert the ink cartridges into the carrier, copper end first and snap the cartridge cover in place. Insert the color cartridge in the left holder, and the monochrome black in the right cartridge holder.



- Close the Printer's front cover.

Step 4: Connecting the USB Cable

Connect the Printer to your PC with your beige USB Cable. After a few moments, Windows will tell you it has found new hardware and is looking for software to install it.



Select "**Install the software automatically**" and click **Next**.

You may see a notice like the one shown here stating that the Printer has not passed Windows Logo Testing. Click **Install Anyway** to continue installing the printer driver for Bravo.



Step 5: Installing the Software

After the **printer driver software** for Bravo has installed, click **Next**. **SureThing CD Labeler** will now be installed on your PC. Once installation has completed, reboot your computer.

Congratulations, your Bravo has been successfully installed!

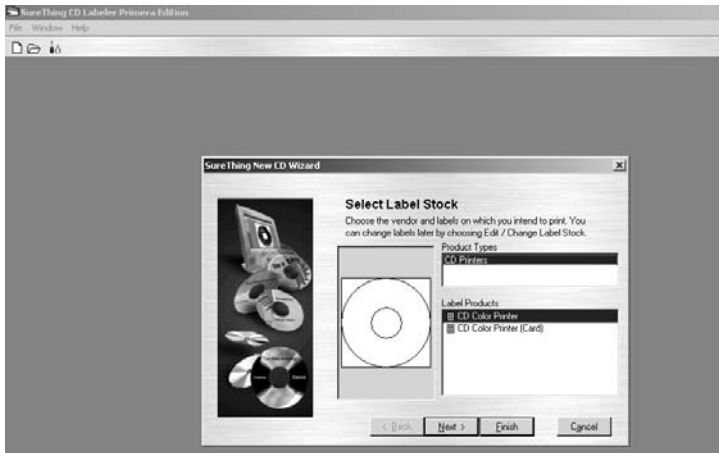
Step 6: Printing Discs

This step is a walk-through of how to create a basic disc with your Printer. More detailed information is available in Section 4 and 5.

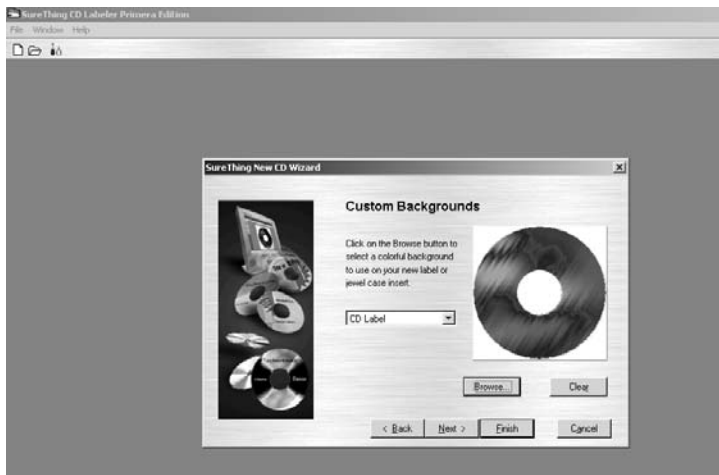
The SureThing Disc Labeler software included with your Printer is a great tool for creating professional looking discs. You can use SureThing's Smart Designs to quickly label a disc, or easily import your own design in many popular file formats.

The On-Line Help section will provide complete instructions on all the features in this package. The following is a tutorial on creating a basic disc design:

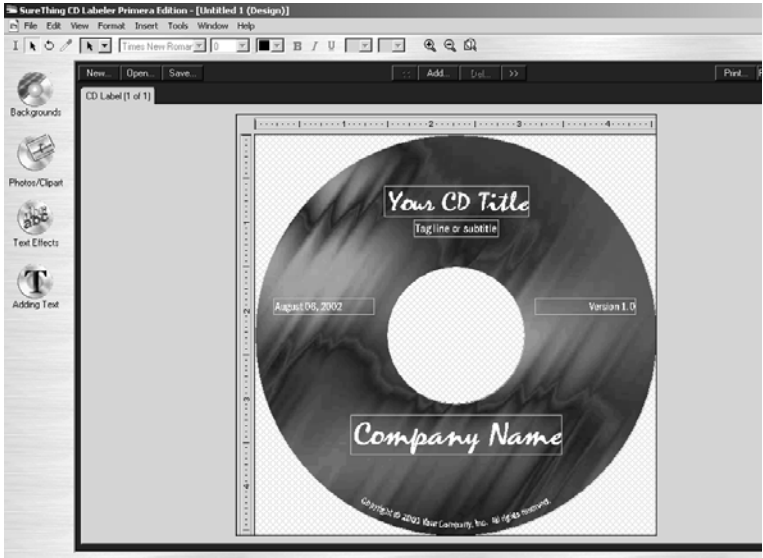
1. Click **New...**



2. Select **CD Color Printer** under Label Products and click **Next**.
3. Click **Browse** to look through the many built-in backgrounds included with SureThing, or click **Clear** if you would like to import your own background or design. Click **Next**.



4. Check **Use Smart Designs** to browse through different built-in designs. Deselect this option if you would like to create your own layout. When finished, click **Next**.
5. Click **Finish**. You should now see your basic layout. Simply double click on text boxes to modify the standard text with your information. If you want to import your own graphics, click **Photos/Clipart** to browse for images. Many standard clipart symbols are included with your software.



6. Once you are happy with your design, save it as a SureThing Design (*.STD) file format.
7. You are now ready to print your discs. Simply click the **Print** button and select the number of copies you wish to print. The default printer settings will produce medium quality discs in just about one minute per disc. Please refer to section 4 for a detailed description of all the driver options.

Section 3: Hardware and Software Set-Up for Macintosh

The installer disc contains a set of programs to design and control the printing of your discs. The following steps will guide you through the installation of software and the setup of the Bravo Disc AutoPrinter.

A. INSTALLING THE MAC SOFTWARE

Before installing Discribe please note that all software must be installed on a hard disk. Once you have installed the software, store the original program CD-ROM in a safe place.

Install the software as follows:

- a. Insert the Bravo Installation CD-ROM in your system's CD-ROM drive.
- b. Double-click the CD-ROM icon.
- c. Double-click on the **Bravo AutoPrinter Installer.mpkg** file icon. Follow the on-screen instructions.
- d. The volume containing the operating system should be selected for installation. Click the **Continue** button. All components will be installed to their proper locations.
- e. Once the installation has completed, click **Quit**.

You have successfully installed all the necessary software! The next section will describe how to connect the Bravo to your Mac.

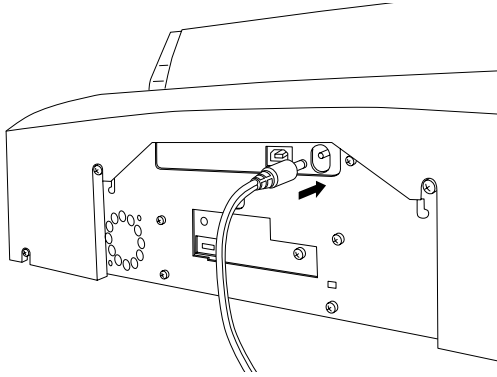
B. HARDWARE SETUP

Bravo connects to your Mac in just 5 easy steps. To connect your new disc AutoPrinter, please do the following:

Be sure you have removed the packing tape and cardboard insert prior to applying power.

Step 1: Applying Power

- Locate the power adapter supplied with your Publisher.
- Place one end of the adapter cord into the power port on the rear panel of the AutoPrinter.
- Unit will initialize for 30 seconds or so.



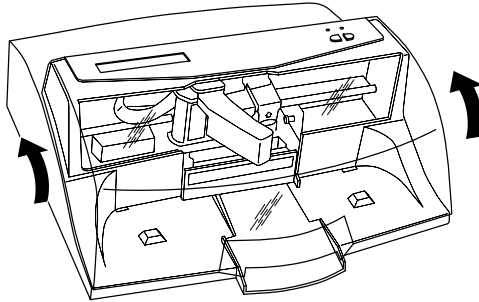
Step 2: Loading Media (Discs)

NOTE: *Your Publisher can print directly onto virtually any brand of printable-surface CD/DVD media. Since different brands of discs have different printable coatings, however, you may need to adjust the printer driver settings to accommodate your specific brand of CD/DVD media. Refer to Section 3 for further printer driver information.*

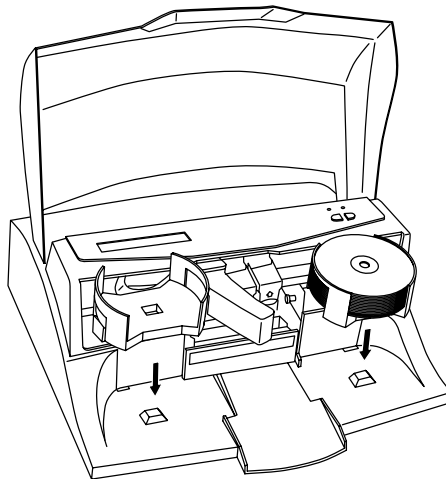
Due to the wide variety of printable-surface CD/DVD media, you may find that certain brands of discs provide higher print quality than others. For maximum print quality, use CD/DVD media authorized by Primera.

Refer to the following steps when loading discs into the AutoPrinter:

- Open the front cover of the AutoPrinter




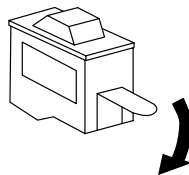
- The AutoPrinter will automatically position the cartridge carrier and Robotic Disc Transporter to the center position allowing for easy access to the bins.



- Load the **Input Bin** (the bin located on the right-hand side of the AutoPrinter) with 25 blank discs and place the bins on the mounting pegs.

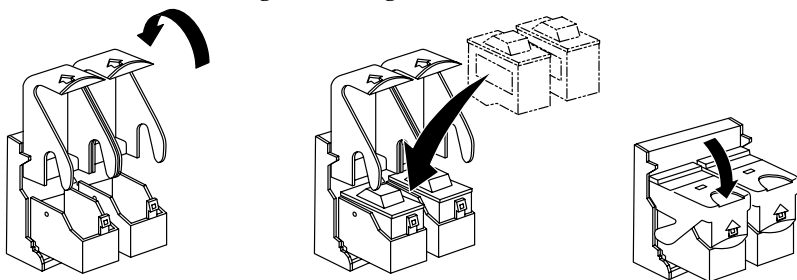
Step 3: Installing Ink Cartridges

- Press the Ink Cartridge Button  to move the Ink Cartridge Carrier to the load position and open the ink cartridge covers
- Remove each ink cartridge from its packaging
- Slowly remove the tape covering the cartridge's print head, being careful to avoid damaging the barcode label on the underside of the cartridge.



DO NOT TOUCH THE COPPER AREA!

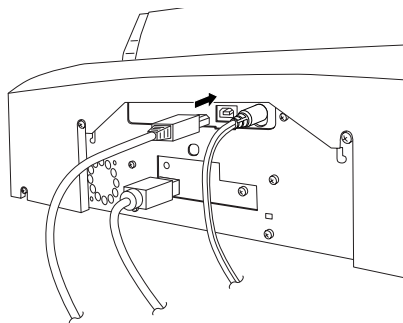
- Insert the ink cartridges into the carrier, copper end first and snap the cartridge cover in place. Insert the color cartridge in the left holder, and the monochrome black in the right cartridge holder.



- Close the Publisher's front cover.

Step 4: Connecting the USB Cable

Connect the Publisher to your computer with the beige USB Cable.



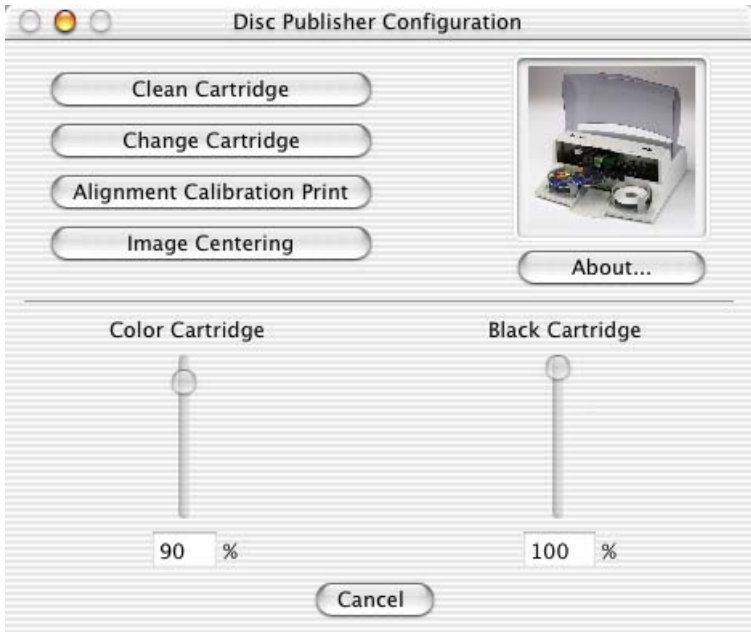
For optimal quality, it is recommended that you run the **Configuration Utility** as described in the following section.

C. CONFIGURATION UTILITY

The Configuration Utility is a program that installs with your Bravo software. This utility allows you to monitor ink levels, maintain and calibrate ink cartridges and align printing on the disc. The Configuration Utility can be launched from the Print Center in OS X by doing the following:

1. Click the **Finder**
2. Click the **Applications** Icon
3. Scroll to **Print Center**
4. Highlight the **Disc Publisher** and click the **Configure** Icon

You can also launch the Configuration Utility from the Disc Publisher printer settings in any printing application by clicking **File** then **Print** and selecting **Publisher Settings**. In **Publisher Settings** you will find a button to launch the **Configuration Utility**. When launched, the following pane appears:



You will see both the Color and Monochrome Ink Levels are displayed. The Color Ink Level represents the lowest color in your cartridge. For instance, if your cartridge has 80% cyan 50% yellow and 65% magenta ink remaining, the level reported would be 50%. You will also see the following buttons:

Clean Cartridge

Cartridges that sit idle in the Bravo for a period of time may start to experience some drying of ink in the tiny nozzles that make up the print head. Clicking the **Clean Cartridge** button will cause the bravo to pick a disc and place in into the **printer tray**. The Bravo will then print a simple pattern that will flush ink through the nozzles. The test pattern will also show you if any nozzles are clogged. In the pattern you will see some diagonal lines which should be continuous; breaks in those lines indicate a clogged nozzle. Please note that it may require more than one cleaning to fully clear all nozzles. If the nozzles are not fully clear after a few cleaning prints, it may be necessary to remove the cartridge and actually clean the print head by gently wiping the nozzles with a moist cloth or paper towel and replace it in the Bravo. If this fails, the cartridge may be empty and in need of replacement.

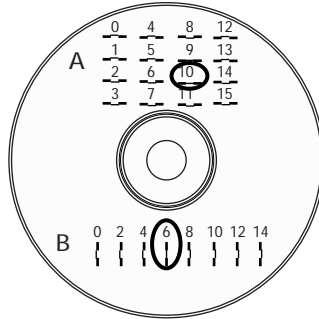
Change Cartridge

If you need to change cartridges, it is a good idea to use the **Change Cartridge** button in the **Configuration Utility**. This ensures the most accurate tracking of ink levels. To change a cartridge, click the **Change Cartridge** button. The cartridge holder will move to the center of the Bravo to make it easier to install the cartridges. Lift the top cover and install the cartridges and described in section 2-B of this manual. You will be prompted to let the system know whether or not you are installing a new or used color or monochrome cartridge. Once installed, click the **OK** button and the system will update your cartridge levels.

Note: It is recommended that you perform and **Alignment Calibration Print** after installing a new cartridge.

Alignment Calibration Print

Clicking this button will print a test disc that will provide a scale by which to calibrate the Color Ink Cartridge to the Monochrome Ink Cartridge. This is crucial when selecting the **Black and Color** Ink Cartridge setting in the Printer Driver as described in section 3-C of this manual. Make certain you have discs and ink installed in your Bravo prior to pressing this button. Once pressed, the Bravo will load a disc and print the following pattern:



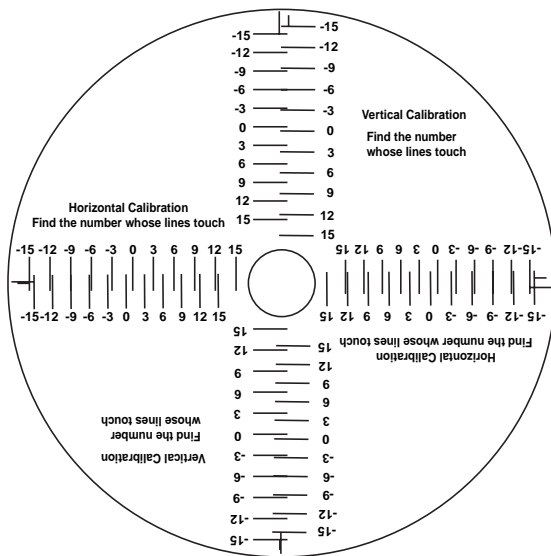
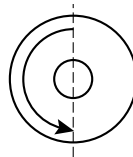
Follow the on-screen instructions and enter the numbers as indicated. For instance, in the example shown, you would choose a value of 10 for the A setting and 6 for the B setting.

It is highly recommended that you perform this calibration whenever you **change cartridges** if using the **Black and Color** ink cartridge setting in the printer driver.

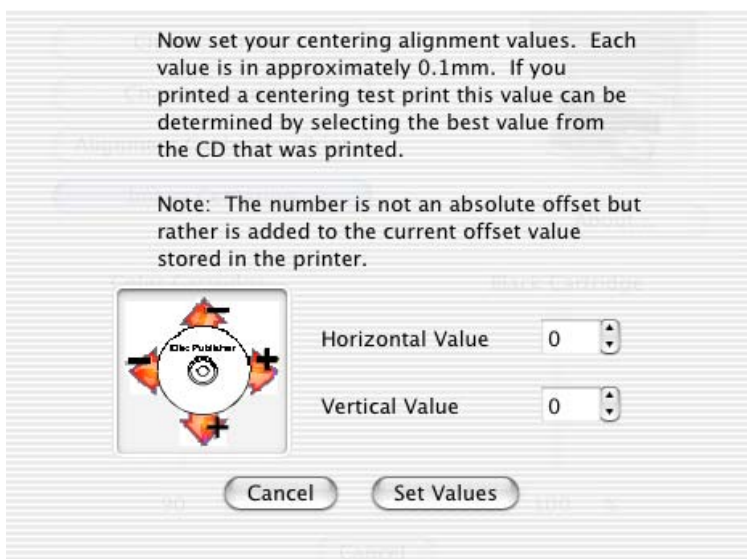
Image Alignment

The Image Alignment button will allow you to nudge the image up, down, left, or right on your disc. To center the image, click the Image Alignment button. You will be prompted with a choice to print a test print or simply enter values to nudge the image alignment on the disc.

If you do not know the direction and distance to move the image in order to center it on your disc, you can opt to print the **centering test print**. Make sure the Bravo has discs and ink cartridges installed, and it is connected and ready to receive a print job, and then click the **Yes** button. The Bravo will pick a disc and print a scale of numbers on it. You will be prompted to open the Bravo's front cover, rotate the printed disc 180 degrees, reload it into the input, and close the cover. Click **OK** when ready and the Bravo will pick the disc and print another scale of numbers. The disc should look like this:



Once the print has finished, you will see the following dialog box:



Look at the finished alignment disc and pick the numbers that come closest to lining up with one another. For instance, on the disc shown in this manual, the vertical alignment is -6 and the horizontal alignment is -9. Enter this in the alignment dialog box.

If you choose not to print the test print, you will simply see the alignment dialog box and can enter values to move the image. The unit of measure is roughly 0.1mm. Making the Horizontal Calibration number smaller or more negative will move the image slightly to the left. Making the Horizontal Calibration a larger value, or more positive will move the image to the right. If the Vertical Calibration number is made smaller, or more negative the image will move slightly up. If the Vertical Calibration is set to a larger value, or more positive value, the image will move down on the disc.

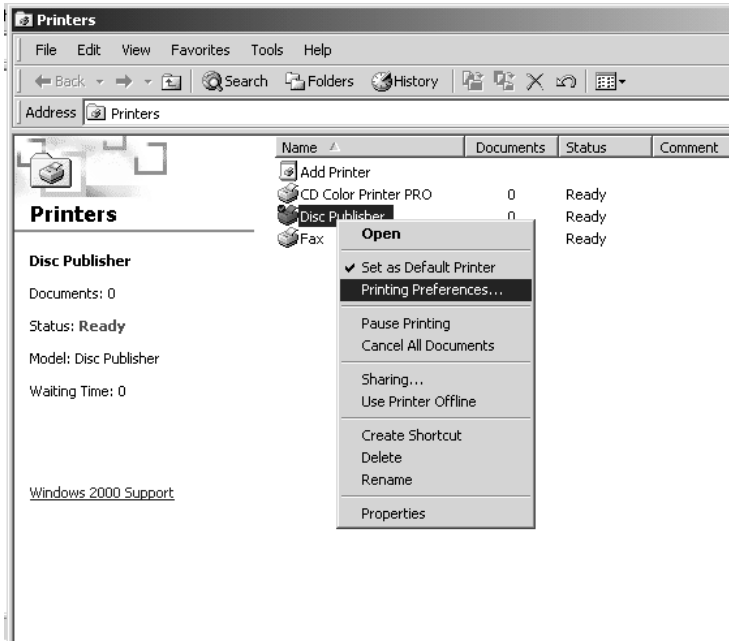
Section 4: Printing Discs From Windows

A. SETTING UP THE PRINTER DRIVER

Once the Printer software has been successfully installed, you will want to take a moment to familiarize yourself with the printer driver settings. These settings affect the print quality of your discs. The default settings of the printer driver will fit most printing needs. Please refer to the following steps to change or verify your printer driver options:

1. Click the **Start** button. For Windows 2000 point to **Settings** and click on **Printers**. For XP Professional click on **Printers and Faxes**. For XP Home click on **Control Panel**, then click on **Printers and Other Hardware**, then click on **Printers and Faxes**.

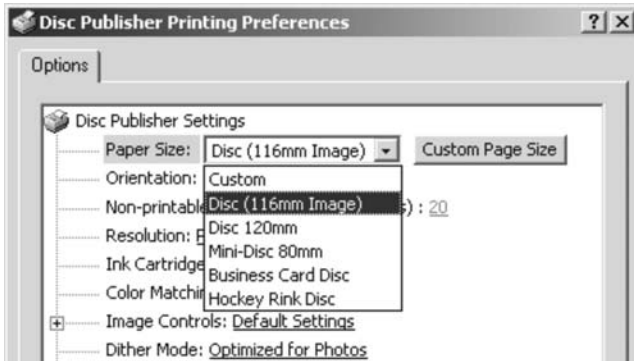
Click on the **AutoPrinter** icon with the right mouse button and select **Printing Preferences**.



NOTE: Most applications allow you to change these same printer driver options from their "Print" and/or "Printer Setup" screens. This means that you don't have to go back to the main printer setup window each time you want to change a setting or option in the printer driver. These applications will usually give you the same choices and options, but in a slightly altered format. Some applications do not save your printer driver option changes, but instead only use your changes for the current image.

Paper Size

The paper size option will be set to CD for printing onto printable surface CDs and DVDs.



The following page sizes are available:

Custom - This setting allows you to set your own outer and inner diameter for printing.

Disc (116mm Image) - This is the default setting. This setting places a 2mm border around the disc. This can be changed in the Non-printable Outer Margin setting.

Disc 120mm - This setting allows for printing to the outer edge of the disc.

Mini-Disc 80mm - This setting prints to Mini-Disc or CD Single size discs (Primera Part Number 53342).

Business Card Disc - This prints to the 58mm by 86mm rectangular business card CD-r media (Primera Part Number 53340).

Hockey Rink Disc - This setting is for the rounded edge or "Hockey Rink", shaped business card CD-r media (Primera Part Number 53341).

Non-printable Outer Margin

This setting allows you to change the size of the border around the disc. Increasing this value increases the non-printable border, decreasing the setting reduces the non-printable border.

Resolution

Select the appropriate print quality option for your image. Keep in mind that **Normal 600** provides the lowest quality but fastest print, and that **Super Photo 2400** provides the highest quality but slowest print. You may wish to experiment with these options to see which one is best for your particular CD media and print quality requirements.

Cartridge Type

The **Color + Black** setting will print discs using both the color and black cartridges. If selecting the **Color + Black** setting it is highly recommended that you perform an **Alignment Print**. Select **Color** to print using only the color cartridge. The **Monochrome Black** setting prints using the monochrome black cartridge only.

Color Matching

Click on the Color Matching down arrow and choose the color matching option that's right for you. Select **None** if you are more interested in print speed rather than color accuracy, if you have already color corrected your image for printing, or if you are using some other third party color matching software.

Select **Algebraic** if you would like the printer driver to make very simple color balance adjustments based on an RGB color model. This option gives you more natural looking images without actually utilizing any specific color matching software.

Select **PrimaColor** to enable color-matching profiles written specifically for the Printer by Candela Color Management System. This setting automatically adjusts the color of your image according to predetermined printer profiles and default system profiles. This results in a very precise color match when attempting to print photographic images.

Dither Mode

Select this option to choose the appropriate dither mode for your image. Select **Optimize for photos** if printing a design primarily composed of photographic images. Select **Optimize for graphics** if mainly printing text, lines, and graphics.

Ink Saturation

This option controls the amount of ink applied to the disc. When printing onto Primera's TuffCoat CD media, this option can be left at its default setting of 50%. When printing onto other brands of printable CD media, you may need to adjust this control in order to optimize the ink saturation. Click on the up and down arrows to change the ink saturation setting. Lower numbers reduce the overall ink saturation, while higher numbers increase it.

Inner Diameter

This value changes the size of the non-printed center. Larger numbers cause the non-printed center to be larger and smaller numbers make the non-printed center smaller. This number is incremented by 0.1mm so a change of 10 for inner diameter changes the diameter by 1mm.

Inner Diameter	Non-Printed Diameter
440	1.733" (44mm) (Default)
383	1.507" (38.3mm) (TuffCoat™)
150	0.591" (15mm) (Physical Center)

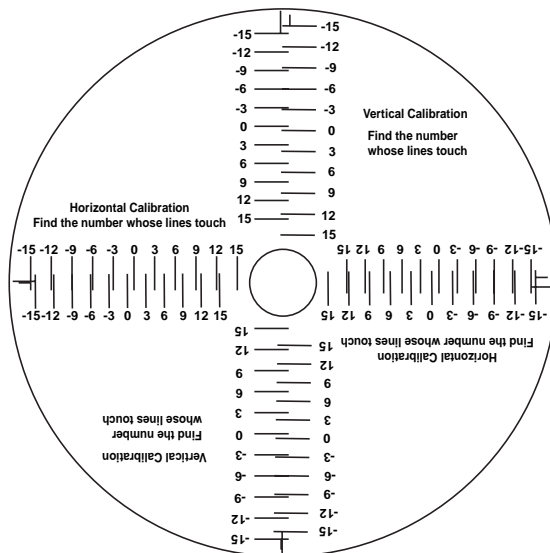
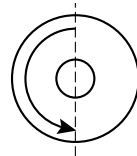
Centering Test Print

NOTE: *Your printer comes from the factory pre-calibrated to print the image in the center of the CD. You can use this adjustment if you need to fine-tune this location.*

If you ever wish to verify your factory-calibrated Vertical and Horizontal calibration settings, you can run a simple calibration procedure to assure that your images will be centered when printed on a CD. To do this, refer to the following steps:

1. Verify that a disc and a color ink cartridge are installed in the Printer. It is important to use the same disc you normally use for your printing because different brands of discs may vary slightly in size. Also, verify that the Printer is powered **ON** and that it is connected to your computer.
2. Click on the **Centering Properties Test Print** button. The printer will begin printing the calibration test print.

- When the print is complete, rotate disc 180° and put the disc back in the **input bin** and repeat step 2 using the same disc.
- When the second run of the print is complete, you should have a test print that looks something like the following:



- Along the Vertical axis of the printed disc, find the number whose lines touch. For example, in the above illustration, the number would be -6 Enter that number into the Vertical box of the Calibration window and -9 would be entered for the Horizontal axis.
- Select the **OK** button. Your images should now be centered when printed on a disc.

After your selections have been made, close out of the printer setup window. You are now ready to go to an application program and print. All printer driver selections will stay the same until you change them.

Enable Ink Low Warning

This setting lets you enable or disable the warning from the printer to tell you when the ink cartridges are getting low.

Ink Levels and Cartridge Maintenance

Select this button to display the current ink levels as well as options for cleaning and changing cartridges.

Select the **Clean** button to send a simple test print pattern to the printer. Be sure to have a disc in the **input bin** and the lid closed. This test print pattern purges the ink cartridge nozzles and lets you know if any one of the Yellow, Magenta, Cyan or Black nozzles is clogged. If one of these colors does not appear on the test print, repeat the cleaning procedure. If nozzles still appear to be clogged, remove the cartridge and gently wipe the nozzle area sideways with a clean water-dampened cloth. If after several cleanings a color still does not appear on the test print, the cartridge may be damaged or empty and may need to be replaced.

Select the **Change** button to install a fresh, new ink cartridge or to switch back and forth between previously used cartridges. After the cartridge has been replaced according to the instructions in Section 2, select either the **New Cartridge Installed** button or the **Old Cartridge Installed** button accordingly. These selections are necessary for the printer to accurately keep track of ink cartridge ink levels.

Enable Bi-di Printing

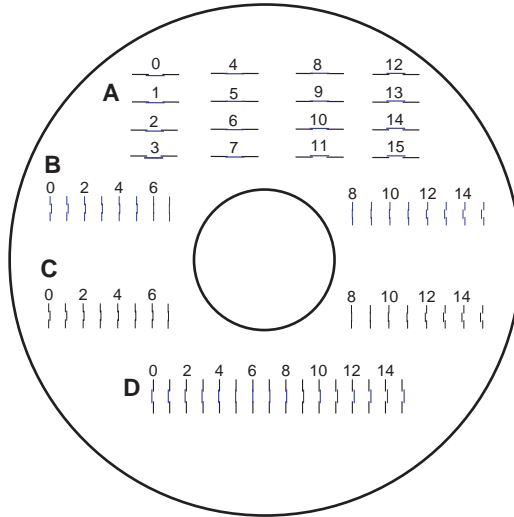
When enabled the Bravo will print bi-directional for faster printing. The default is uni-directional printing. When you enable bi-directional printing, you should perform the Alignment Calibration described later in this section. Please note that the calibration is stored on your computer, so if you move to a new computer you must do the calibration again.

Disc Output Location

This can be set either Normal (Left Bind), or Kiosk (Front Exit). The default is Normal (Left Bin). Note that this will only have an effect when doing printing only – this will have no affect when doing recording and printing through PrimoDVD.

Alignment Calibration

The Alignment Calibration allows you to create a test print that will provide you with values to configure your printer for Bi-Di- Printing and to align the color and black cartridges for Color+Black printing. If Bi-Di Printing is enabled, or if you use Color+Black as a cartridge type in the driver settings, it is important to perform this calibration *every time you change a cartridge*. To print, click the **Alignment Calibration Properties** button then click **Yes..** The print will look like this:



Once the disc has finished printing, you will be prompted to enter the alignment values. For instance, on the sample shown you would use the following values:

- A: 5
- B: 6
- C: 9
- D: 6

B. USING OTHER GRAPHICS PROGRAMS

While SureThing will handle most labeling needs, some people prefer to use other graphic programs. Your printer driver allows you to print from most any graphics application. The driver will center the image and automatically crop it to the shape of a CD. This means you do not necessarily need a template to create a CD in your favorite graphics program. Simply create a custom page size of 116mm (4.567 inches) square and center your image in that area and the driver will do the rest. The center sizes listed on page 15 should guide you in creating your disc. Because the driver crops the image to the shape of a CD, you do not want to make your design round. You will find it is best to "over bleed" your design by filling the whole 116mm area with your image. This ensures the outer and **inner diameters** will print perfectly round on your disc.

Section 5: Printing Discs From Macintosh

A. USING DISCUS

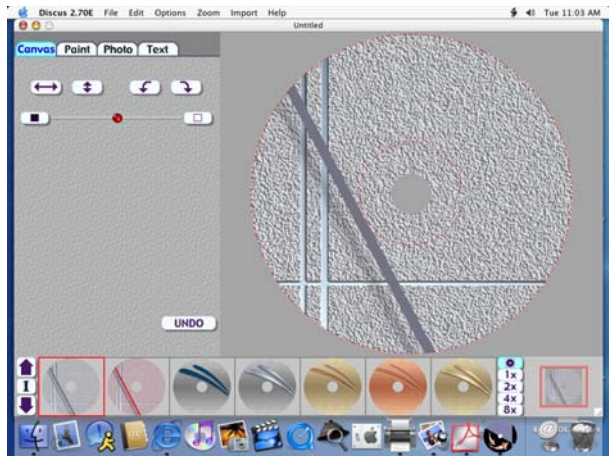
The Discus software included with your Publisher is a great tool for creating professional looking discs. You can use Discus' custom backgrounds and easy to use text features to quickly design a label, or import labels designed in other software packages. The On-Line Help section will provide complete instructions on all the features in this package. The following is a tutorial on creating a basic disc design.

1. Launch Discus
2. Click **New Project**
3. Select a Label type (i.e. Disc, Hockey Rink Business Card, Rectangular Business Card, or 80mm Cd)
4. You will now see your template and 4 Tabs with different tools to help you design your disc. The first tab, **Canvas**, will allow you to select from one of the built in backgrounds.

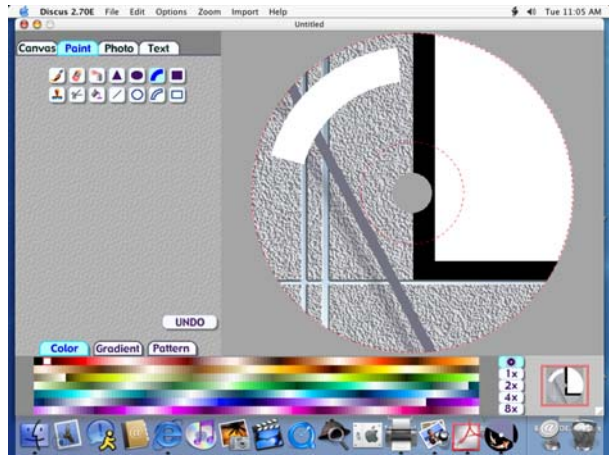
The Up and Down Arrows in the lower left corner of the screen will allow you to browse through the available backgrounds. Simply click on a background will apply it to your template. You also have some tools to invert (or flip), rotate, and adjust brightness of your background.

5. Once you are satisfied with your background, click on the **Paint** tab to "paint" any lines, circles or shapes on your disc. You can select from borders or filled shapes, and pick your desired color at the bottom of the screen. If you make a mistake, click **Undo**.
6. Click on the **Photo** tab if you would like to add a photo or graphic to your design. Click **New** to import a graphic or photo. You will see a browser to allow you to search for your desired graphic. Discus will import BMP, GIF, JPEG, or PICT file formats. The options on the left-hand side of the screen will allow you to crop, flip the image both horizontally and vertically, rotate 90 both clockwise and counter-clockwise, and resize the image. You can simply grab and drag the image to relocate it on your design.

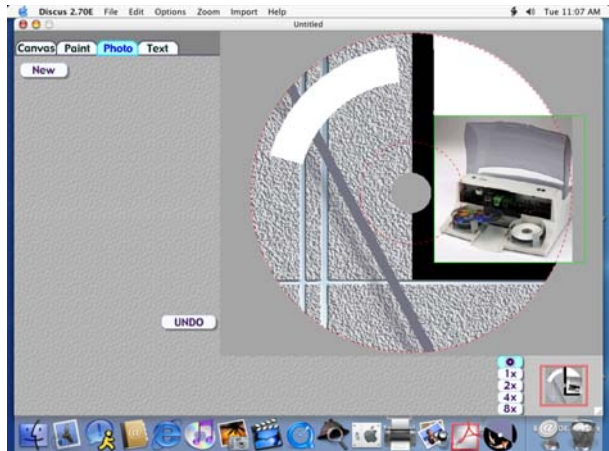
Canvas



Paint

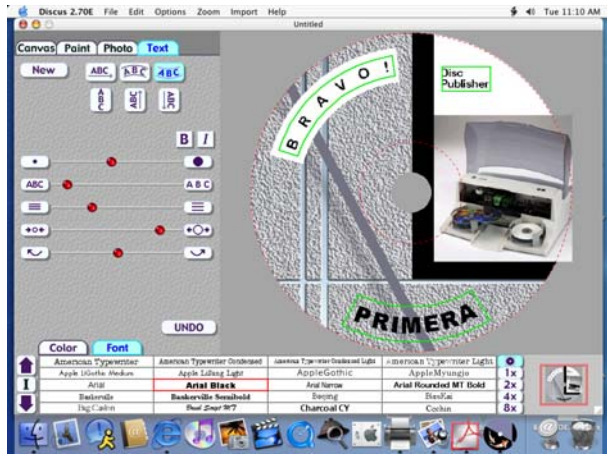


Photo



- Click on the **Text** tab to insert custom text fields on your disc. The same method of browsing used to select backgrounds on the Canvas tab is used here to select fonts. **Discus** uses fonts loaded in your system. If a recently installed font does not appear available, you may need to close Discus and re-open it to refresh the list of fonts. Here you will see easy tools to make arced and straight text fields as well as tools to allow you to position and resize your text.

Text

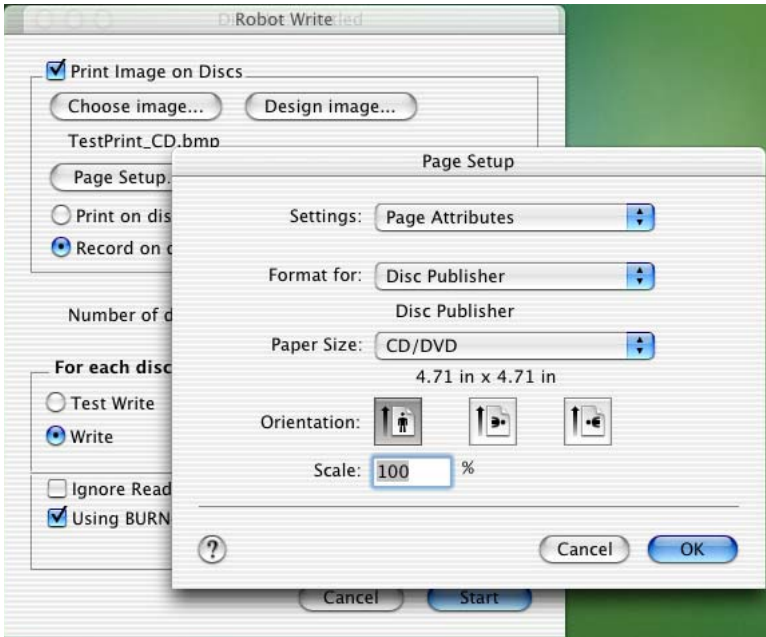


- Click on **File** and select **Save As** from the main menu at the top of the screen. Your design will be saved as a Discus Design Project.
- You can also print files directly from Discus. This is a good way to proof your design prior to doing a disc job. To do this, click **Page Setup** and set **Format For** to **Disc Publisher**. Then, select the proper **Paper Size**, usually CD/DVD. Next, click **File** then **Print** and select **Publisher Settings** from the Copies and Pages pull down menu. This will allow you to select the printer setting you wish for your print. These settings are described in detail in section 5-A of this manual.

B. PRINTER OPTIONS

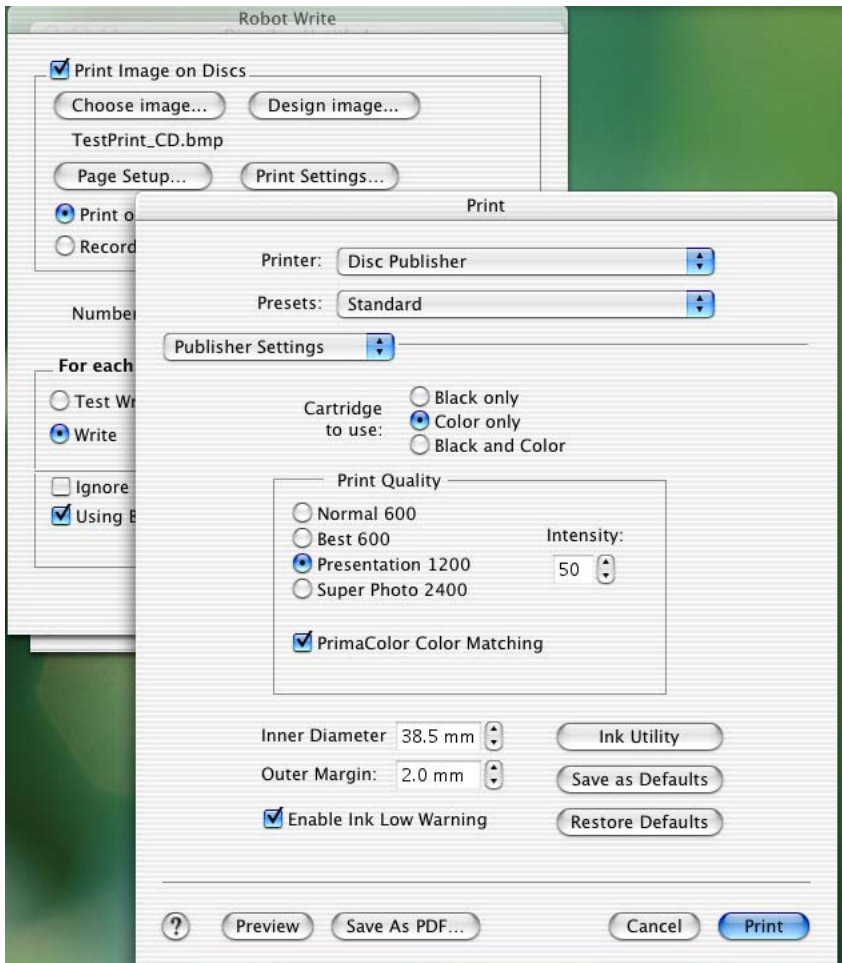
The following section will examine the printer driver settings that affect the print quality of your discs. While the default settings will fit most printing needs, it is a good idea to familiarize yourself with these settings to optimize your print quality. The printer driver settings are contained in two areas, Page Setup and Print Setup. You can access the driver settings as follows:

1. From **Discus**, or any printing application, click the **Page Setup** and set **Format For** to Disc Publisher.
2. The paper sizes for the Disc Publisher refer to the type of disc to which you will be printing. The available sizes are: CD/DVD, Business Card Disc, 80mm CD and Hockey Rink Disc.



Print Settings

Click **Print Setup** to see the driver window and all of its settings. You will want click the **Copies and Pages** button and select **Publisher Settings** option in the drop-down menu to see the full pane and access all the printer driver settings.



The following is a description of the printer driver settings:

- **Cartridge to use**

The **Black and Color** setting will use both cartridges when printing your image. Color will only use the Color Cartridge, and **Black Only** will only use the monochrome cartridge for printing.

Note: If using the *Black and Color Setting*, be sure to perform the Cartridge Alignment found in the *Configuration Utility*. Refer to section 2-B for more details on this calibration.

- **Print Quality**

There are four options for image quality. Keep in mind that Normal 600 provides the fastest print at lower quality while Super Photo 2400 delivers the best quality at a slower print speed.

- **PrimaColor™**

Click on this Check box to enable PrimaColor **color matching**. The PrimaColor profiles were written specifically for the Bravo to give a precise color match when attempting to print photographic images. If you are using a third-party color management system, disable PrimaColor.

- **Intensity**

The Intensity setting will control the amount of **ink saturation** on the disc. When printing onto the Primera ToughCoat discs, 50% is usually sufficient. When printing on to other brands of media, or if you would like to print darker colors, you may wish to increase the Intensity setting. Please note that higher ink saturation could result in discs not drying instantly. Also, higher intensity will result in higher ink usage causing a lower yield of discs per cartridge.

- **Inner Diameter**

The inner diameter refers to the size of the non-printed center on your disc. The size of the center hub can vary from one type of media to the next. This allows you to set the inner diameter in millimeters allowing you to print all the way to the center hub regardless of the type of disc you are using. For the discs that Primera sells, use the following guide for Inner Diameter:

- 38.3 mm for Primera's ToughCoat CDR
- 24.9 mm for the Hockey Rink Disc, Business Card Disc and 80mm CD

- **Outer Margin**

The Outer Margin refers to where the printing will cut off around the outer edge of your disc. The size of the printable surface can vary from one type of media to the next. This allows you to set the outer margin in millimeters allowing you to print all the way to the edge regardless of the type of disc you are using.

- **Config Utility**

This button launches the **Configuration Utility**. This Utility is also available in the Print Center by selecting the Disc Publisher and clicking the Configure Icon. This utility is used to report ink levels, clean and change ink cartridges, and align your color and black cartridges for optimal print quality. In addition, this utility will allow you to center and adjust your printed image. Refer to section 2-B of this manual for a detailed description of this program.

- **Enable Low Ink Warning**

The Low Ink Warning basically keeps you from printing discs if one or more of the colors in your ink cartridge are running out. Your Bravo monitors the amount of ink used when printing and will stop printing if one or more of your colors is within 10% of being empty, and the LEDs on the top will flash in unison. If you press one of the Cartridge button on the top of the Bravo it will continue to print, but you will want to closely monitor the discs that print. If discoloration occurs, you are most likely out of one or more colors and will want to change cartridges. Please refer to section 2-B for instructions on how to change and align ink cartridges.

- **Save As Default**

The Save As Default button will save the current settings as the system-wide defaults.

- **Restore Defaults**

The Restore Defaults button will restore the driver settings to the factory defaults.

Section 6: Interpreting the Printer's Indicator Lights

The Power and Busy LED indicator lights located on the top of the Printer can tell you a lot about what is happening inside the unit. To accurately interpret what it means when these lights are on, off, or flashing, please refer to the following:

Ink Cartridge

LED 

Power LED 

Publisher

off	on solid	Is ready to receive job
on solid	on solid	Has received a job and is waiting for the Robotic Disc Transporter to load a disc
both lights are blinking alternately with one another		Waiting for a cartridge to be installed and the lid to be closed. (See section 2-A).
flashing rapidly	on solid	The printer tray or ink cartridge carrier has stalled. Press the Ink button to retry the operation.
on solid	flashing rapidly	The Publisher has a cartridge problem. Check to make certain that the cartridges are installed correctly and that the bar code labels on the underside of the cartridge are not damaged.
repeating pattern of both lights flashing in unison, then one light momentarily on solid.		This indicates low ink warning. If the left light stays solid after the flash, the Color cartridge is low. If the right light stays on after the flash, the Black Monochrome cartridge should be replaced.

Section 7: Maintenance and Troubleshooting

The Printer 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 Printer's Robotic Arm shaft or other components. You will likely cause more harm than good! Any moving parts are designed to operate for the life of the machine with no additional lubrication required.



A. CLEANING THE PRINTER

Use a clean, lint-free rag with a small amount of ammonia window cleaner to clean the Printer's outside case and trays. This type of cleaner is very effective on inks that may accumulate on the **printer tray**. Stronger cleaning solutions are NOT recommended because they may damage the paint and plastic materials from which the parts are manufactured.

Always disconnect your printer's power cords before cleaning. Resume operation only after the surfaces are completely dry.

B. PERFORMING A ROBOTIC SELF-TEST

To ensure that everything is working properly, a Self-Test feature is built in to your Printer. In this mode, the Robotic Disc Transporter will go through the motions of picking and placing a disc to ensure proper working order. This test may be performed without connecting the Printer to the PC. Perform the test by doing the following steps:

- Make sure the Printer's front cover is closed
- With the Printer turned on, press the Cartridge Button 
- While holding the Cartridge Button, press the Power Button  until the robotics start to move.
- Release both buttons
- To stop the test, wait until the disc has moved to the **Output Bin** and press the Power Button.

C. CLEANING THE INK CARTRIDGES

It may be necessary to clean the ink cartridge nozzles if the printer does not seem to be laying down ink evenly or if you suspect an cartridge nozzle has become slightly dried out or clogged. Refer to section 7-C for more information on performing a clean function through the printer driver.

D. CLEARING A MEDIA JAM

If a disc should become jammed inside the printing area, with the lid closed, press the Cartridge Button. This will eject the **Printer Tray**. Then open the lid. The Cartridge Carrier will move to the center position automatically.

WAIT FOR THE CARTRIDGE CARRIER TO STOP MOVING!

Then carefully move the cartridge carrier assembly to the left to gain access to the printer tray.

E. TECHNICAL SUPPORT

If you have difficulties in operating your Printer, the procedures in this manual, should in most cases, solve the problem. If you still have difficulty, Primera's Technical Support Group is glad to help. Live phone support is available from 8am to 6pm CST, Monday through Friday by calling 763-475-6669. Support is also available by email at: support@primertechnology.com

Section 8: Technical Specifications

Model	Bravo AutoPrinter
Printing Method	Ink-Jet
Printing Resolution	2400 x 1200 dpi, 1200 x 1200 dpi, 1200 x 600 dpi, 600 x 600 dpi
Ink Types	Dual Cartridges: One 3-color (CMY) cartridge, and one Black Monochrome (K)
Media Types	Printable Surface CD-R, CD-RW, DVD-R, DVD RAM
Maximum print width	4.724" (120mm)
Minimum System Requirements (Windows)	Pentium III/IV at 450 Mhz or higher, 256MB RAM, available PCI slot, IEEE 1394 FireWire, one free USB port
Minimum System Requirements (Macintosh)	G4 PowerPC 700MHz or higher, running OS X version 10.2 or higher, 256MB or greater RAM, free hard drive space of at least 2 GB, available USB and FireWire ports
Disc Capacity	25 disc input, 25 disc output
Operating Systems	Windows XP, Windows 2000, Mac OS X v10.2
Interface	Robotic Control and Printing: USB port
Power Requirement	100-240 VAC, 50/60 Hz, 60 watts
Weight	18 lbs. (8.2kg)
Dimensions	17.25"W x 7.25"H x 16"D (438mmW x 184mmH x406mmD)
Certifications	Emissions: FCC Class B, CE
Safety	UL, UL-C, CE
Warranty	One year return-to-depot

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