

**User's Guide**  
**for**  
**NovaJet 4, NovaJet<sup>®</sup> Pro-36, and NovaJet Pro-50**  
**P/N 205883 Rev. C**  
(text P/N 206454)

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**REVISION HISTORY**

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## FCC Statement (U.S.A.)

The United States Federal Communications Commission has specified that the following notice be brought to the attention of users of the NovaJet printers.

FEDERAL COMMUNICATIONS COMMISSION RADIO AND  
TELEVISION INTERFERENCE FOR CLASS B DEVICE

### Statement

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.

User Instructions:

If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient 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.

Changes or modifications not expressly approved by ENCAD, Inc. could void the user's authority to operate the equipment.

Note: This product was FCC certified under test conditions that included the use of shielded I/O cables and connectors between system components. To be in compliance with FCC regulations, the user must use shielded cables and connectors and install them properly.

### VDE Statement

Hiermit wird bescheinigt, daß der NovaJet Pro in Übereinstimmung mit den Bestimmungen der BMPT-AmstbIVfg 234/1991 funkenstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung.

Dem Zentralamt für Zulassungen im Fernmeldewesen würde den Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf die Einhaltung der Bestimmungen eingeräumt.

ENCAD, Inc. U.S.A.

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## WARRANTY OR DAMAGE CLAIMS

### United States

ENCAD® Inc., warrants its NovaJet printers ("PRODUCT") to be free from defects in workmanship and materials for a period of one year from the date of purchase. This Warranty applies only to NovaJet printers purchased from ENCAD, or authorized ENCAD distributors or dealers. The intent of this Warranty is to repair or replace Products subjected to normal wear and tear when operated according to ENCAD instructions, and this Warranty does not apply to any defects or damage caused by accident; misapplication; adverse environmental conditions; unauthorized or improper use, modification or service; or negligence.

Within thirty (30) days of purchase, a defective Product will be replaced with new Product, and ENCAD will then arrange for return of the defective Product at ENCAD's expense. Subsequent to thirty (30) days after purchase (and for the remainder of the Warranty period), at ENCAD's option, a defective Product will be repaired or will be exchanged and replaced with a factory refurbished Product. In the event of a Warranty exchange, ENCAD will ship replacement Product, next day air, to Buyer at ENCAD's expense, and Buyer will return the defective Product to ENCAD within ten (10) days of receipt of a replacement Product, at Buyer's expense.

In order to submit a Warranty claim, please contact the ENCAD Help Desk at (619) 452-4350. When a defect is confirmed, ENCAD will issue Buyer a Return Material Authorization number (RMA) to be used by Buyer when shipping the Product to ENCAD in San Diego, California. If Product is damaged during shipment, Buyer is to notify the carrier (ENCAD does not assume any responsibility for loss or damage to Product in transit.)

ENCAD reserves the right to make changes or improvements to Products, without incurring any obligation to similarly alter Products previously purchased.

Buyer's sole and exclusive rights pursuant to this Warranty shall be for the repair or replacement of defective Product. ENCAD specifically disclaims any and all other warranties, expressed or implied, including but not limited to, implied warranties of merchantability and fitness for a particular purpose. In no event shall ENCAD be liable for any loss of profit or other commercial damages, special, incidental or consequential damages, or any other damages or claims, whatsoever.

This Warranty gives Buyer specific legal rights, and Buyer may also have other rights that vary from state to state.

#### **The following actions will VOID THE WARRANTY:**

- **Using cartridges or ink other than those supplied by ENCAD.**
- **Lubricating any part of the printer.**
- **Using SIMMS other than those specified by ENCAD.**
- **Intentionally modifying the cartridge carrier.**

Internationally: Contact your dealer or distributor for warranty information.

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## Material safety data sheet

ENCAD QIS ink is non-hazardous, requiring no special disposal or handling. It can be harmful if swallowed, and should be kept away from children.

To obtain a material safety data sheet, contact ENCAD, Inc. at:

6059 Cornerstone Court West  
San Diego, California 92121-3734  
(619) 452-4350

International users should contact their local dealer or distributors.

## Other reference materials

In addition to this User Guide, the following additional guides are included with your printer:

**Installation Guide** - Tells you how to assemble and install the printer's hardware.

**Software Drivers** - Readme files on the driver disks contain information for installing and using the various drivers and utilities.

## Manual conventions

This user guide covers three printer models: NovaJet 4, NovaJet Pro-36, and NovaJet Pro-50. Unless specifically noted, all functions are identical on all three models. Where instructions or features are unique for a particular model, a note is included in the margin.



Indicates a procedure for you to follow in order to perform a specific function. Read the accompanying explanatory text before following the step-by-step procedure.



Indicates a warning. Ignoring the warning can damage the printer or result in an unsatisfactorily printed image.



Indicates a tip or suggestion that can make using the printer easier or improve your printed images.

## Manual organization

It is not necessary to read this manual from cover to cover. Reading Chapters 1 through 3 will give you an understanding of printer's basic operation. Your particular needs will determine how you use the rest of the guide.

**Chapter 1 Introduction** - Introduces the printer and provides basic guidelines for getting the best print quality.

**Chapter 2 Getting started** - Describes the printer's components and explains the basic steps needed for using the printer after it has been assembled and connected to your computer. Includes procedures for installing and priming ink cartridges and loading media.

**Chapter 3 Setting printer options** - Explains how to use some of the printer's features.

**Chapter 4 Positioning an image** - Explains how to choose a media size that fits your required print area and how to change the size of the print area.

**Chapter 5 Choosing plotting parameters** - Explains how to choose the print mode that will give you the quality you want and how to set other options that also affect quality.

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**Chapter 6 Working with your application** - Explains how to set up the printer and your application for printing.

**Chapter 7 Plotting vector data** - Explains how to use the options available for printing vector files when you override software control and give control to the printer.

**Chapter 8 Taking your printer out of service** - Explains how to drain the ink delivery system and prepare the printer for shipping or storage.

**Appendix A Calibration** - Explains what to look for in the calibration plots and how to make the adjustments.

**Appendix B Installing additional memory** - Explains how to install additional memory for printing large raster files.

**Appendix C Menu tree** - Explains the menu structure.

**Appendix D Error messages** - Explains the error messages and provides suggestions of what to do when you see them.

**Appendix E Glossary** - Explains terms used in the manual.

**Appendix F Technical information** - Lists the technical specifications for NovaJet series printers.

**Appendix G Supplies** - Includes a complete list of ENCAD QIS media, ink, cartridges, and spare parts and information for ordering supplies for your printer.

**Appendix H Serial cable** - Provides the printer's serial cable requirements.

**Appendix I Maintenance** - Includes instructions for periodic maintenance functions such as refilling ink reservoirs, replacing ink cartridges, and periodic cleaning of the ink cartridges and service station.

**Appendix J Troubleshooting** - Provides answers to commonly asked questions and solutions to typical problems.

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This user guide covers three models of NovaJet series printers:

- NovaJet 4 (NJ4)
- NovaJet Pro-36 (NJP-36)
- NovaJet Pro-50 (NJP-50).

The table that follows summarizes the differences between the three models.

	<b>NJ4</b>	<b>NJP-36</b>	<b>NJP-50</b>
Refillable cartridges	x		
Extended ink supply		x	x
36" max media width	x	x	
50" max media width			x
Media feeder and takeup			x

NovaJet series printers are wide-format color inkjet printers that give you professional-quality output with all the brilliance and gloss of liquid ink. For artists, designers, engineers, and business professionals, ENCAD printers let you experience the creative freedom of exceptional graphics quality. The NovaJet series of printers cuts hours of production time, while giving you the dramatic impact of high fidelity, photorealistic images.

NovaJet series printers are being used for many types of printing needs:

- Posters
- DTP
- Packaging prototypes
- Imposition proofing
- Fine art
- Textile design
- Banners
- Signs
- Displays
- Point of purchase
- Proofing
- Exhibits

- CAD/Engineering drawings

Until recently, producing short runs of full-color materials has been time consuming and costly, with the need for color separations, printer's proofs, and four color presses. And, the designs that live in your imagination were limited by color output technology.

Color laser printers are restricted to a narrow range of paper sizes and stocks. Their powder toners lack brilliance. Thermal wax systems have the same media limitations. And, slow output times hamper production. Neither of these technologies comes close to the brilliance and speed of inkjet technology.

## Printing with NovaJet printers

The NovaJet series of wide format inkjet printers lets you print on almost anything that will run through the printer, including ENCAD special coated canvas, vinyl, film, and paper. You can create huge designs—the length of your printed piece can be the length of a roll of media (100' or more). Only Extreme Color Printing combines the technical sophistication of the NovaJet series with the unique qualities of ENCAD QIS proprietary inks and media.

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**NJ4** The NJ4 uses refillable ink cartridges.

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### **NJP-36 & NJP-50**

NJP-36 and NJP-50 feature a continuous-feeding ink system which uses 470 ml reservoirs for each color, so you never have to worry about running out of ink halfway through a big print job. Just look through the clear plastic reservoirs to check the ink supply. When the ink supply is low, just open the cap and refill.

Note: Some illustrations in this manual show printers with extended ink, but the concept illustrated applies to all printers covered in this manual unless noted.

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The printers accept raster-oriented data in the form of HP RTL format. In this mode, printing begins immediately after the first complete line of HP RTL data is received. Depending on the software used, thousands of colors are possible, yielding superb results for continuous-tone images or 3D renderings.

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If your applications do not support HP RTL, there are several software utilities available to convert various raster file formats (TIFF, GIF, BMP, etc.) into HP RTL. There are also many Raster Image Processors (RIPs) which convert Postscript or CGM to HP RTL. When choosing a RIP or a file format converter for output to the printer, make sure it has the features you need. (Contact your ENCAD distributor or dealer for an up-to-date listing.)

## Obtaining quality results

You have probably seen a demonstration of your printer's capabilities or sample output. If so, you are aware of the superb color graphics which can be obtained, and the variety of papers and films you can use. Note, however, that to obtain high-quality results, you must consider several factors. Follow the simple guidelines in the sections that follow to obtain excellent results.

## Use the right inks and media

ENCAD's commitment to Extreme Color extends beyond inkjet technology to encompass media, ink, and cartridges. A team of color scientists and media specialists work with the world's leading ink and media manufacturers to develop supplies that are scientifically matched to the printer. Used together, ENCAD QIS inks and media provide the widest color gamut available, which makes our Quality Image Supplies ideal for applications from proofs to presentations. (See Appendix G for descriptions of media and ink offerings.)

ENCAD QIS inks and media give you:

- Scientifically matched ink and media
- Optimal image quality
- Ultra-wide color gamut
- Wide range of media: matte paper, photo paper, film, vinyl, canvas etc.

High quality pen plotter paper gives good results for line drawings or for light area fill. However, using this paper for heavier fills or pictorial images may result in ink saturation, bleeding, and dull colors. For these applications, be sure to use ENCAD media.

## **Choose the correct printing mode**

There are five total modes of printing, giving you freedom to tradeoff drawing quality and speed. When printing heavier renderings, maps, or art graphics, choose between the three enhanced printing modes. Some types of media also require the use of enhanced print modes. See Chapter 7 for more information.

## **Use the right software**

The quality of the software driver or the RIP can be very important, especially when printing continuous tone images or 3D renderings. Error diffusion or stochastic screening algorithms can yield photo-like images, even when these images are scaled to full size. Software without advanced imaging features may produce images which are grainy when enlarged.

## **Use the right ink**

ENCAD media and inks are scientifically matched for best color results. Be sure to use GO inks with GO media, and GA inks with other ENCAD media. For outdoor applications, use ONLY GO inks.

Do not mix inks.

Do not shake ink refill containers.

## **Align cartridges**

Drawings containing both black and color elements require alignment of the cartridges to each other. See Appendix A for details.

## **Caring for your inkjet cartridges**

Do not remove an inkjet cartridge from its packaging until you are ready to use it.

Use care in handling the cartridges. Do not touch the copper contact area or the inkjet plate.

Do not shake the cartridges. If cartridge does not seem to be printing correctly, use the prime function.

Do not remove inkjet cartridges from the printer except to replace or clean them.

If you remove a cartridge from the printer, do not leave it exposed to the air for an extended period because the jets may clog. Place the cartridge in a sealed plastic bag and store it in a closed area at room temperature. Keep it out of direct sunlight.

When installing cartridges, be sure that the inkjets are clean.

For best results, use only ENCAD ink and inkjet cartridges.

Unless you use an ENCAD certified refill kit, refilling cartridges will void your printer warranty. Tests with non-ENCAD inks have resulted in smearing, fading, bleeding, and other undesirable effects. Non-ENCAD inks may damage the print head and other printer components. Be sure to refill with the same color ink that was originally in the cartridge.

## Choose the right media

Job	Media
Check prints Working drawings	Presentation Bond 24#
CAD drawings (final)	Drafting Film/Vellum
Color maps Flip charts Renderings	Premium Matte Specialty Matte
Overhead projection Overlays	Clear Film
Art specialty	Canvas
Backlight displays	Backlit Display
Banners Client, courtroom or marketing presentations Photo-realistic images Point-of-purchase signs Posters Trade shows	Photo Gloss and Semi-Gloss Premium Matte Specialty Matte Vinyl Ultra White Film Backlit Display
Indoor signs	Vinyl
Outdoor signs	GO media and overlaminates; be sure to use with GO inks

## Caring for your media

Store media in its original packaging in a cool, dry area until you are ready to use it. The environment should be stable; i.e., no extremes of heat and cold, and non-condensing humidity. If conditions are outside the operating ranges recommended for the printer, allow the media to acclimate in the operating environment for at least 48 hours before using it.

If you remove a roll of media from the printer, be sure to store it in a manner which keeps it clean and dust-free. Ideally, you should return it to its original packaging for storage.

**Print on the correct side!** Roll media is wound with the preferred side out. Media should feed over the top of the roll. Cut sheet media has an ink-receptive and a non-ink-receptive side. The sheets are notched to help you orient them correctly. To assure that you print on the correct side, be sure that the notch is in the upper right corner when you feed the sheet into the printer.

**Handle with care!** Handle your media carefully to avoid creases, scrapes, and tears. Avoid crushing or damaging roll media edges.

**Wear gloves! Film-based and photographic paper-based media are very susceptible to scratching and creasing and may absorb skin oils. Fingerprints on the media prior to printing may result in visible fingerprints after ink is applied.**

## Using the correct print mode and printer settings

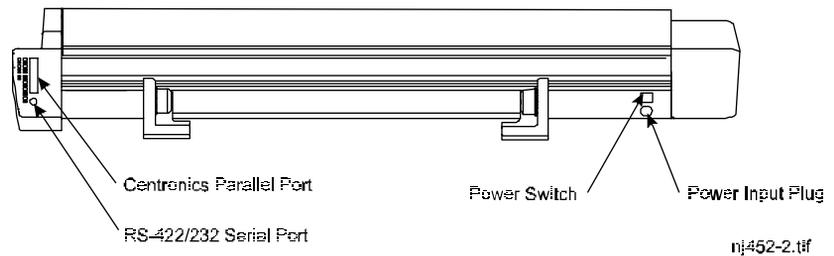
When printing on photo paper-based or film-based media, use Enhanced Printing mode. Using other print modes may result in ink pooling, smears, or banding. Always use an Enhanced Printing mode for images. Line drawings can be printed in Draft or Normal modes.

If necessary, set the dry time as described in this guide.

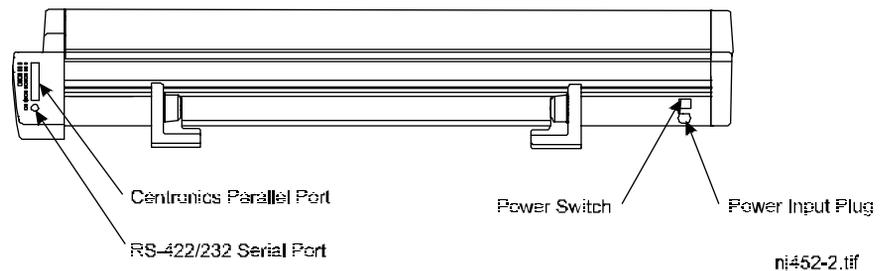
This chapter gives you details on setting up your printer and using the functions available on its panels.

Before you start, be sure that:

- the power cord is plugged in
- you have connected your printer to your computer using either a parallel or serial cable
- the printer is turned on before attempting to print
- driver software is installed. Refer to the Readme files on the driver disks provided with your printer.

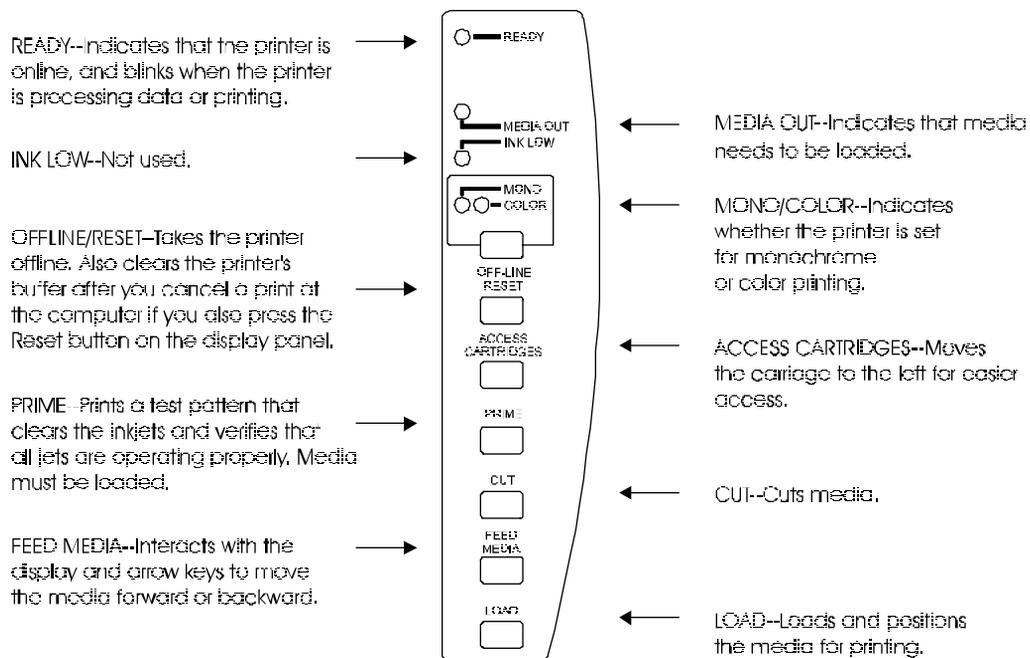


## NovaJet Pro-36 and NovaJet Pro-50



## NovaJet 4

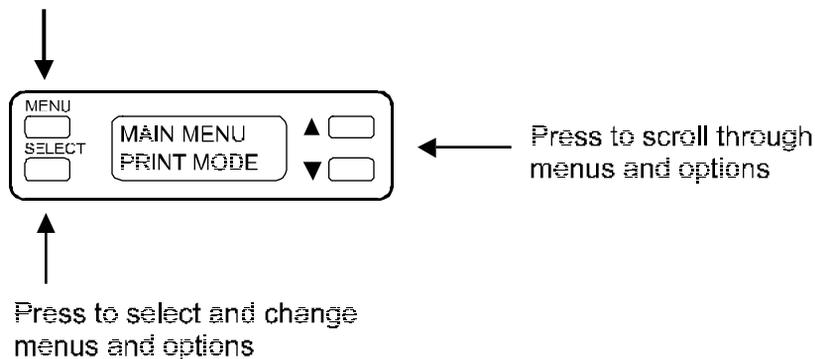
Look at the front of the printer. The panel at the right side includes a vertical line of buttons and LEDs. The following illustration briefly explains the purpose of each button and LED. Later in this chapter you'll find more detailed explanations and the procedures for using the buttons.



njp2-2a.tif

At the right of the printer you will see a display like the one in the following illustration. With this part of the front panel, you scroll through the menu, select various options and set parameters.

Press to return to the previous menu level



The menu tree in the top cover of the printer shows the layout of the menu. (The menu tree is also listed in Appendix C.) As you can see, there are eight Main menu topics, each having several submenus. Submenu items with an arrow next to them have additional submenus. The menu item or option that appears on the menu tree next to the equals sign is the printer default. If you press the Select button when an option with an "=" is displayed, the equals sign blinks, indicating that you can change the setting for that option. While the equals sign is blinking, you can use the arrow buttons to scroll through the values available for the option. When you press the Select button again, the equals sign stops blinking, and the value displayed next to it is set for that option.

Shaded menu items on the menu tree are advanced options. To see these options in your menu, follow the procedure for "Displaying the advanced options" in Chapter 3.

## **To use the printer menu**

- 1 Press any button to alert the printer (if it's in sleep mode).
- 2 Press the arrow keys to scroll through the Main menu topics.
- 3 Press Select to choose a menu topic.
- 4 Press the arrow keys to scroll through the submenus.
- 5 Press Select to change a submenu option or set a parameter.

The equals sign (=) blinks while you use the arrow keys to scroll through the values for that option. Holding the arrow keys down lets you scroll faster.

- 6 Press Select to set a value or parameter. The equals sign (=) stops blinking, indicating that the value displayed is set.
- 7 Press the Menu button to move back to the previous menu level.

## **Setting the language**

Your printer can display menu items and messages in English, German, French, Italian, Portuguese, or Spanish.

## **To change the language**

- 1 Press the arrow keys to scroll through the Main menu topics.
- 2 When Printer Setup is displayed, press Select.
- 3 Press the up arrow key three times (or until Language displays).
- 4 Press Select. The equals sign (=) blinks while you use the arrow keys to scroll through the language options.
- 5 When the language you wish to use displays, press Select. The equals sign (=) stops blinking, indicating that the language displayed is set.

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## Loading media

You can use either roll media or cut sheets; the default is roll media. To ensure straight paper loading and avoid skewing, be sure to hold the media perpendicular to the platen. Use the load lines on the left side of the platen as a guide to correctly loading media. If the media does not load straight, press the Feed Media button on the printer's keypad, then push the up arrow key to back the media out of the printer.

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### NJ4 and NJP-36

Roll media used on the NJ4 and NJP-36 must have an inside diameter of 2" and a maximum outside diameter of 4".

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### NJP-50

Roll media used on the NJP-50 must have an inside diameter of 2" and a maximum outside diameter of 6".

**!** **IMPORTANT!** The NJP-50 can use media up to 50" wide. The rolls can be heavy, so you may want to have someone help you to load them. Before starting, be sure that you have a takeup roll available which is the same width as the media you are loading.

If you plan to store prints on the takeup roll, you may want to order extras. Refer to Appendix G for ordering information.

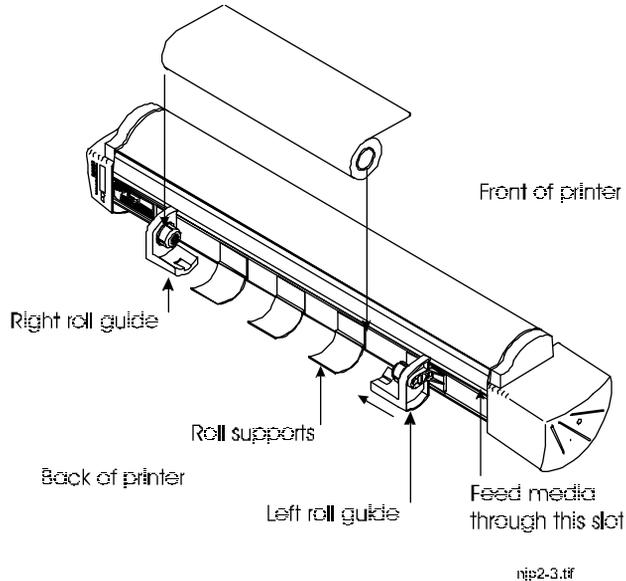
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**!** If your roll media has wrinkled or damaged edges, cut off the damaged part of the roll prior to loading to prevent the media from jamming in the printer.



### To load roll media on the NJ4 and NJP-36 printers

- 1 Orient the roll so the media feeds over the top of the roll. Load the media as shown in the illustration that follows.



- 2 Move the right roll guide (viewed from the front) to align the media to the alignment mark on the front of the platen. Lock the right roll guide in place with the indented tab on the rear of the platen.
- 3 Move the left roll guide (viewed from the front) toward the center of the printer until it fits firmly in the left side of the media roll.
- 4 Align the media to the white line on the back of the platen and feed the media through the slot at the back of the printer until it touches the rollers on the platen.
- 5 Press the Load button. The media will be pulled into the printer, sized and positioned for printing. The display indicates the status of the Roll, Cut and Save Media options, as shown below (the printer default).

**ROLL=ON, CUT=ON**  
**SAVE MEDIA=ON**

## Using the power media feed and takeup system

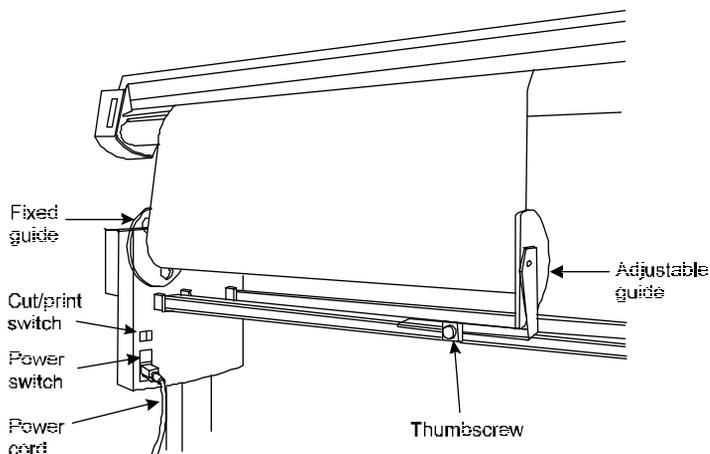
The power media feed and takeup system facilitates long, unattended printing runs by automatically unwinding and rewinding media as prints are generated. It includes a feeder roll, a takeup roll, and a sensor which prevents media from coming into contact with the floor. The unit is standard on the NJP-50 and optional on other models.

The unit has a separate power cord and power switch. Be sure it is plugged in and turned on before using it! The power switch is at the right rear of the unit. There is also a Cut/Print switch. Be sure to set it to "Print" for printing. Setting the switch to "Cut" reverses the direction of the rewinder so that you can bring a plot back and cut it using the printer's cutter.

When the unit is first turned on, the unwinder will turn for a few seconds. If the rewinder turns, the sensor is blocked. Clear anything blocking the sensor before proceeding.

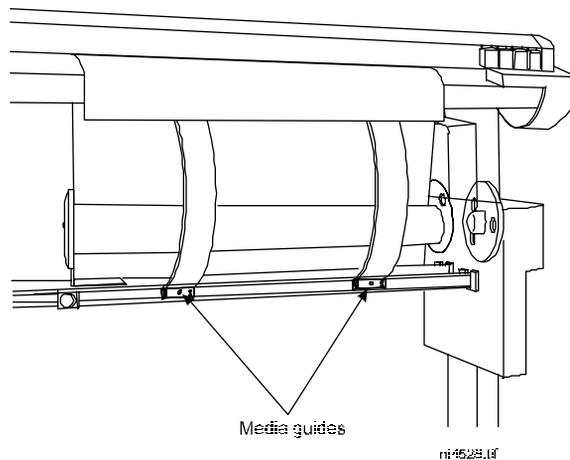
### ➡ To load roll media

- 1 Load the media so it is oriented as shown in the illustration that follows. Push the media roll onto the fixed roll guide. Slide the adjustable roll guide until it fits firmly into the other end of the media core. Lock the adjustable roll guide into place by tightening the thumbscrew.



nj4527.cdr

- 2 While lifting the leading edge of the media, press the switch on the unwinder unit to advance approximately 18" of media.
- 3 Align the media to the white line on the back of the platen and feed it through the slot at the back of the printer until it touches the rollers on the platen.
- 4 Press the Load button. The media will be pulled into the printer and positioned for printing. The display indicates the status of the Roll, Cut and Save Media options.
- 5 Be sure the Roll option is set to ON or TAKEUP, depending on whether you are using demand or takeup mode.
- 6 If you are not using the takeup roll, be sure to attach the media guides as shown in the figure below. Using these guides prevents the media from accidentally touching the printer and smearing ink. Install the media guides and position them approximately 6" from each edge of the media.



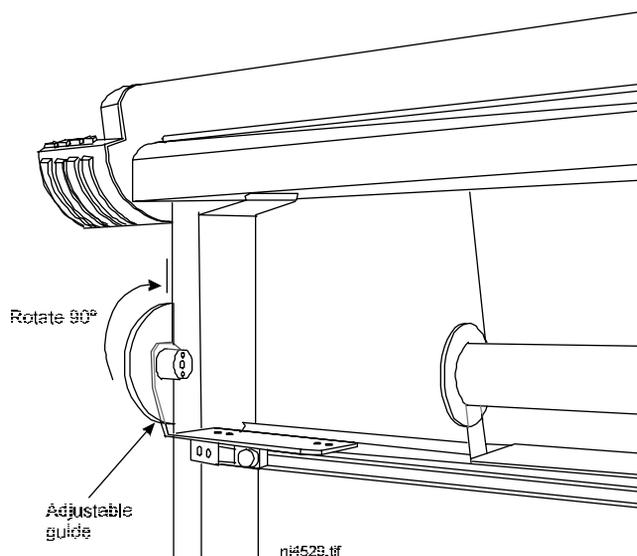
---

## Using the takeup roll

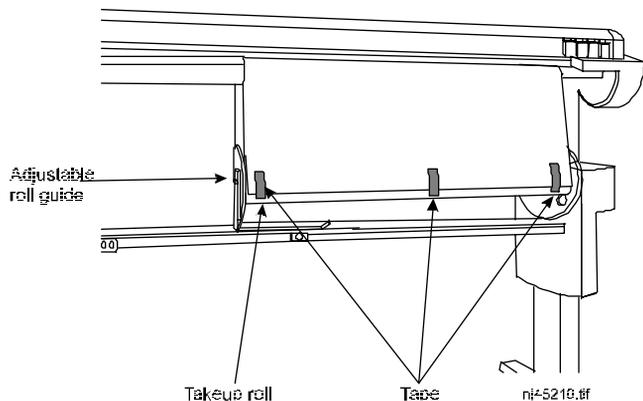
The takeup roll allows unattended printing by automatically wind printed media onto a core. When using this option, be sure that the media sensor on the printer's right leg is not blocked.

### ➔ To use the takeup roll

- 1 In the Printer Setup menu, set the Roll option to TAKEUP. This disables the cutter.
- 2 Install a core onto the takeup guides. Be sure that the core width matches the width of the media you are using. If you are using 50" media, rotate the adjustable roll guide 90° to push it past the printer's leg.



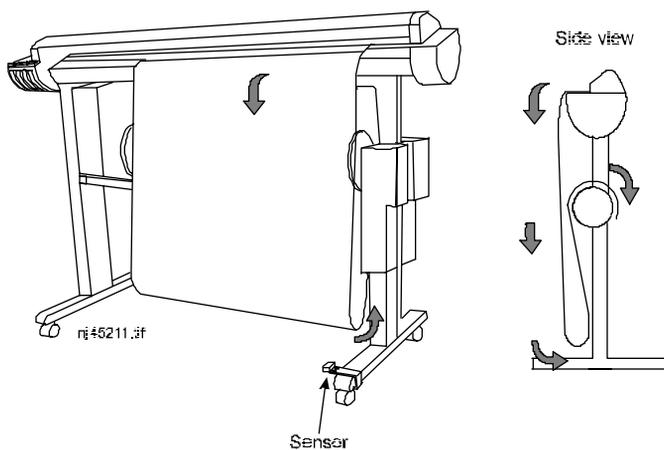
- 3 Fit the adjustable roll guide firmly into the core. Tighten the roll guide using the thumbscrew.
- 4 Using the media advance button on the printer's display panel, advance enough media to allow its leading edge to come to the center of the takeup roll. Orient the media so it goes to the outside of the takeup roll.



- 5 Tape the media securely in place at the left and right sides and center. Use at least three pieces of tape.

As printing progresses, the media is looped down in front of the takeup core until it is detected by the sensor on the printer leg. The takeup roll is then activated to roll the media.

Be sure not to block the sensor!



Note: If you are running 11" media, you may want to set a dry time if you are running a long plot. Because of the print speed, the ink may otherwise not have sufficient time to dry before the media is rolled onto the takeup core.

---

## To unload the takeup roll

- 1 When your printing is finished, press the Wind button on the takeup unit to wind any excess media.
- 2 Press the Cut button on the printer's panel to cut the media.
- 3 Release the adjustable roll guide and remove the roll.

## To load sheet media (all models)

Note: If you are using sheet media on the NJP-50, be sure the media guides are installed.

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select.
- 2 Press the arrow buttons to advance to the Roll option, then press Select. The equals sign (=) blinks.



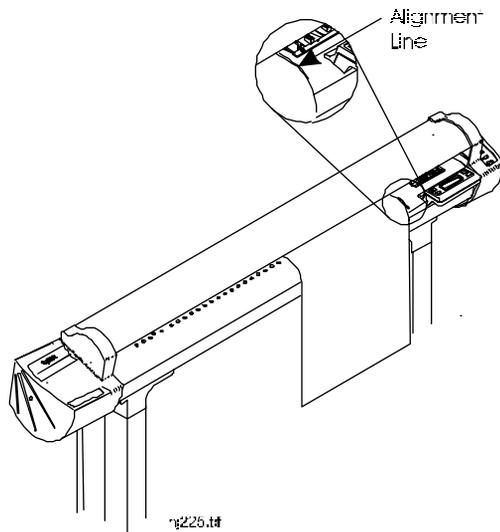
**PRINTER SETUP**  
**ROLL=ON**

- 3 Press the arrow buttons to set the Roll option to Off, then press Select. The equals sign (=) stops blinking.



**PRINTER SETUP**  
**ROLL=OFF**

- 4 Place a sheet of media on the platen. Align the right side of the media with the alignment mark.



- 5 Make sure that the media is flat and under the rollers. Keeping your hands clear of the carriage, press the Load button. The media is sized and pulled to the back of the printer until it reaches the start position on the platen.

## Manual media loading

In some cases the printer may not sense or correctly size certain media. If this happens, you may use the manual loading feature in the advanced menus. The following procedure applies to both roll and sheet media.

### ➡ Setting the manual load option

- 1 From the Main menu, press the arrow buttons to advance to the Utilities menu, then press Select.
- 2 Press the arrow key to advance to the Options menu, then press Select. The equals sign (=) blinks.

UTILITIES  
OPTIONS=EASY

- 3 Press the arrow buttons to set Options to Advanced, then press Select. The equals sign (=) stops blinking.



UTILITIES  
OPTIONS=ADVANCED

- 4 Press the Menu key to return to the Main menu. Press the arrow buttons to advance to the Printer Setup menu, then press Select.
- 5 Press the arrow key to advance to the Load menu, then press Select. The equals sign (=) blinks.



PRINTER SETUP  
LOAD=AUTO

- 6 Press the arrow key to set the Load option to Manual, then press Select. The equals sign (=) stops blinking.



## To manually load media

- 1 Insert media into the printer as shown in the illustrations earlier in this chapter. Press the Feed Media key and the display will read as follows:



BACKWARD  
FORWARD

- 2 Using the arrow keys, up arrow for Backward and down arrow for Forward, align the front edge of the media with the front of the groove in the platen.
- 3 Press the Load key, the display shows the following:



SELECT MEDIA  
SIZE=US ARCH 3

- 4 Press Select, the equals (=) sign will blink. Press the arrow key to advance to the desired media size, then press Select. The equals (=) sign stops blinking and the media is loaded. If your media size is not listed, you will need to select a different media standard, refer to the "Selecting the media standard" section in Chapter 4.

## Moving the carriage

When not in use, the cartridges rest in the service station at the right side of the printer. This device seals the inkjets to prevent them from drying out. **If power is turned on, always use the Access Cartridges button on the printer's front panel to move the carriage away from the service station so that you can install, change, adjust or clean the ink cartridges or the service station.**

## Installing the cutter

You need to install the cutter if you want the printer to automatically cut the media after printing.

- ! Be careful when handling the cutter to avoid injury.

### To install the cutter

- 1 Press the Access Cartridges button to move the carriage to the left, out of the service station.

The cutter fits in the printer on the left side of the carriage. Install the cutter by inserting it into the carriage.

- 2 Push the cutter into the slot until it clicks into place.
- 3 Press the Access Cartridges button to move the carriage back into the service station. This ensures that the cutter blade is in the home position.



## To remove the cutter

- 1 Press the Access Cartridges button to move the carriage to the center of the platen.
- 2 Press the knife latch down.
- 3 Pull the cutter out of the carriage.

When the cutter becomes worn, it can cause the carriage to jam or the media to be cut raggedly. In extreme cases, you might see an error message stating "Carriage Axis Failure".

You can order replacement cutters from ENCAD by calling 800-45-ENCAD, (619-677-5071) or fax ENCAD at 619-549-7894. International users can call their local ENCAD sales center.

## Filling the ink reservoir (NJP-36 and NJP-50 only)

- ! Use of inks other than those supplied by ENCAD will void your printer warranty.
- ! If you are changing ink types, for example, from GA to GO inks, see Appendix I for changeover instructions.

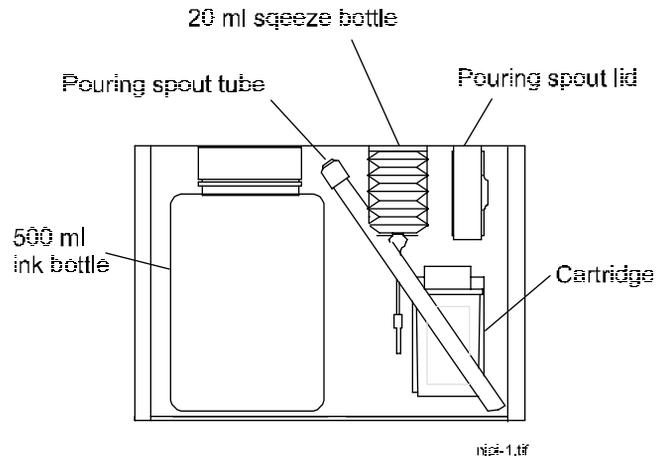
NJP-36 and NJP-50 support long, uninterrupted printing runs because of their ink reservoirs, which hold 470 ml of each of four colors. The ink reservoirs are located at the printer's left side. You can refill the reservoirs even while printing.

You receive new ink cartridges with each refill kit. To assure good print quality, replace the cartridge whenever you refill the reservoir. However, cartridges should also be replaced if they are not firing properly. Also, when you refill an ink reservoir, you do not need to drain the reservoir or the ink delivery line.

Your NovaInk Accessory Kit contains the following items: 500 ml bottle of ink, 20 ml squeeze bottle of ink, a cartridge, pouring cap and spout.

You may want to save the 500 ml ink bottle and the pouring cap in case you ever need to drain the ink reservoir and store the ink. Be sure to thoroughly rinse and dry the ink bottle and cap before storing it.

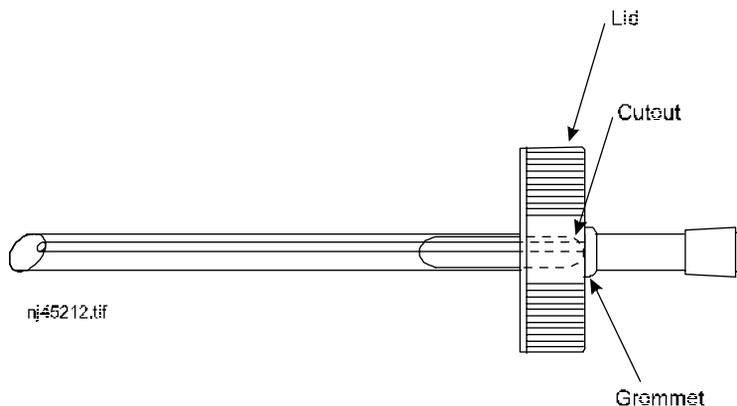
If you want to store ink, be sure to use a bottle which originally held the same color of ink. The ink originally in the bottle permeates the surface of the bottle and particles of the previous ink may mix with the new ink and may affect plotting quality if the colors aren't the same. Store the ink away from direct sunlight.



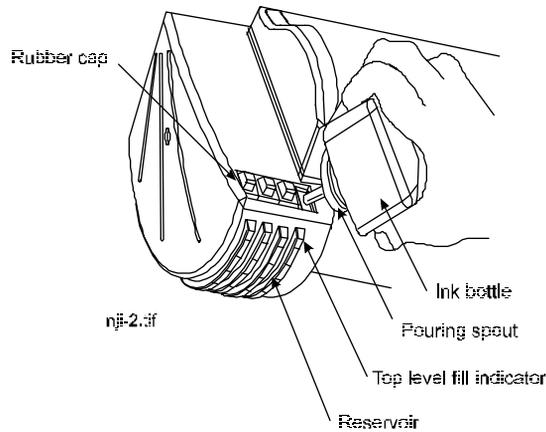
## ➡ To fill the ink reservoir (NJP-36 and NJP-50 only)

*Note: Before starting, you may want to do the following:*

- Place a drop cloth under the printer.
  - Have paper towels handy.
  - Wear disposable gloves.
- !** Open only one reservoir at a time to prevent ink from accidentally spilling and contaminating another color.
- 1 Assemble the pouring spout by attaching the tube to the lid. Be sure the cutout on the pouring tube is fully contained under the grommet in the lid.



- 2 Replace the lid of the 500 ml ink bottle with the pouring spout.



- 3 Remove the cap from the pouring spout.
- 4 Remove the rubber cap on the reservoir you want to fill.
- 5 Verify that the ink color and the reservoir color match.
- 6 Pour the ink into the reservoir until it reaches the top level indicator on the front of the reservoir. **DO NOT OVERFILL**. There will be some ink left in the bottle. Replace the lid on the bottle and store the remaining ink.
- 7 Replace the rubber cap on the reservoir.
- 8 Repeat this procedure for the remaining colors.

## **Priming the ink delivery lines (NJP-36 and NJP-50 only)**

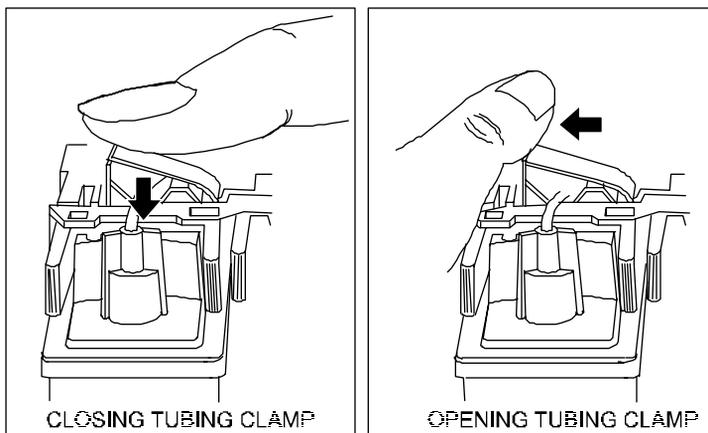
You will need to prime each of the four ink delivery lines to establish an ink siphon and bleed any air bubbles out of the lines before attaching the cartridges. A priming pump with a black rubber tip is provided in the NovaInk Tool Kit for this purpose. This procedure only needs to be done the first time you set up the printer. It is not necessary when refilling the reservoirs or replacing cartridges.

## To prime the delivery lines (NJP-36 and NJP-50 only)

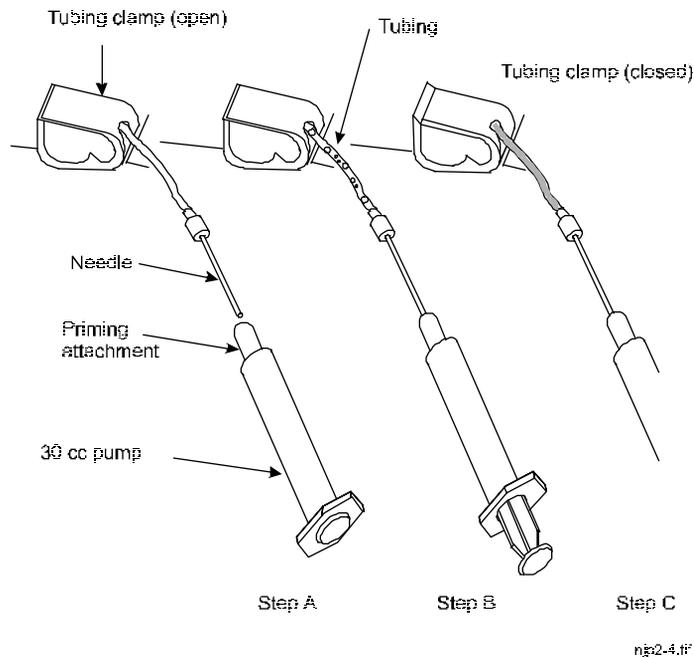
- 1 Press Access Cartridges to move the cartridge carrier out of the service station.
- 2 Be sure the tubing clamps are open.

The carriage assembly has four blue tubing clamps on the top which close and open the ink delivery lines. To close the tubing clamp, press down on its left side until it snaps under the overhang.

To open the tubing clamp, press the overhang to the left until the tubing clamp pops up.



- 3 Remove a 30 cc pump and rubber priming attachment from the Novalnk tool kit. Two sets are provided; either can be used.
- 4 Attach the priming attachment to the 30 cc pump.
- 5 Fully close the plunger on the priming pump.
- 6 Slide the rubber priming attachment over the delivery needle (Step B in the illustration that follows).



- 7 Slowly open the priming pump and draw the ink from the reservoir into the priming pump. Watch the line for the flow of ink and for any air bubbles. Stop drawing when ink is flowing into the pump and no air remains in the delivery line (approximately 8 cc).
- 8 Close the tubing clamp to trap the ink in the delivery line (Step C in the illustration above).
- 9 Remove the pump and dispense any ink in the pump. Clean the pump with water before priming the next line.
- 10 Repeat the previous steps for the remaining colors.

## Filling the ink cartridges (NJP-36 and NJP-50 only)

The NovaJet series printers are designed to use only ENCAD cartridges. Intentional modification of the carriage to accommodate non-ENCAD cartridges will void the warranty.

Installation of new ink cartridges involves filling the ink cartridges, connecting the cartridge to the tubing and fitting, priming the jet plate (with the priming bulb) and installing the cartridge on the carriage. Each refill kit contains a 20 ml container of ink (squeeze bottle) which is enough to fill the cartridge approximately half full and is the proper amount for correct function of the ink system.

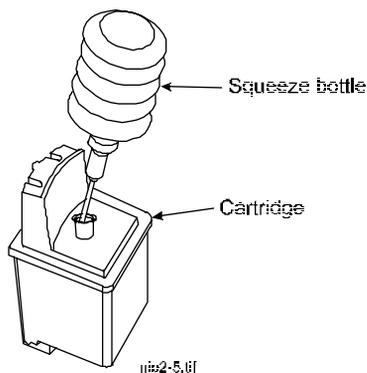
Note: you should fill, connect, and prime one color at a time.

When filling more than one color of ink, be sure to thoroughly rinse and dry the priming pump before working with the next color to avoid the possibility of colors being mixed.

### ➡ To fill the ink cartridges (NJP-36 and NJP-50 only)

*Note: Before starting, you may want to have paper towels handy and wear disposable gloves.*

- ! Leave the blue tape over the jet area until you are ready to install the cartridge in the carriage.
- ! Do not touch the jet area or the flex contact area of the cartridge.
- 1 Remove the cap on the squeeze bottle.



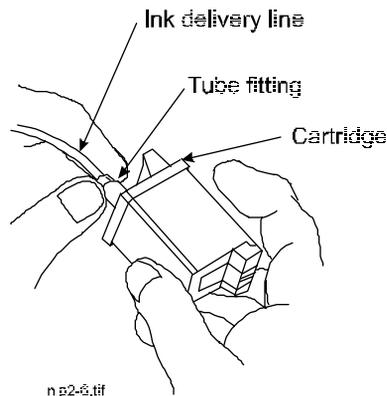
- 2 Insert the needle of the squeeze bottle into the hole on the top of the empty cartridge.
- 3 Slowly squeeze the bottle, dispensing all of the ink into the cartridge.
- 4 Recap the bottle.

## Installing the ink cartridges (NJP-36 and NJP-50 only)

Installing cartridges requires connecting them to the ink delivery line and establishing ink flow through them. Each time you place new ink cartridges in the printer, prime and calibrate them to ensure the highest quality printed images. Priming procedures are discussed later in this chapter.

### To connect the ink cartridges to the ink delivery line (NJP-36 and NJP-50 only)

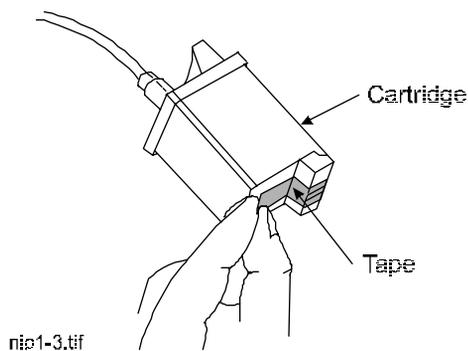
- ! Caution: do not remove the blue tape yet.
- 1 Hold the cartridge upright so no ink comes out of the top.
  - 2 Insert the ink delivery line needle into the hole in the top of the cartridge.



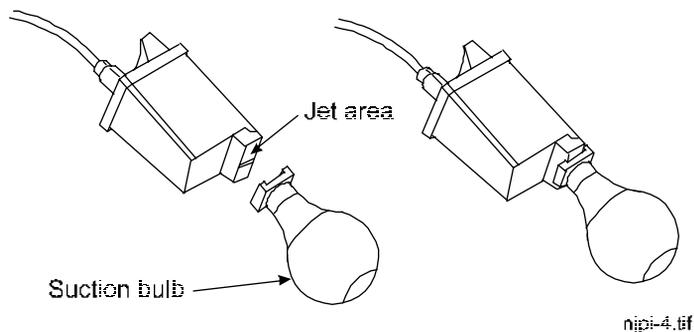
- 3 Hold the tube fitting while turning the cartridge to screw the fitting into the cartridge. (This prevents the ink delivery line from twisting.) Gently tighten the fitting to prevent air leaks. Do not overtighten.
  - 4 Release the tubing clamp on the carriage to establish the ink flow.
-

## ➔ To install the ink cartridges and initialize printing (NJP-36 and NJP-50 only)

- 1 Open the tubing clamp on the ink delivery line.  
If you leave the clamp shut, no ink will be delivered into the cartridge.
- 2 Remove the blue tape from the jet area of the cartridge.



- 3 Squeeze the suction bulb to expel as much air as possible.
- 4 Place the suction bulb over the jet area of the cartridge.

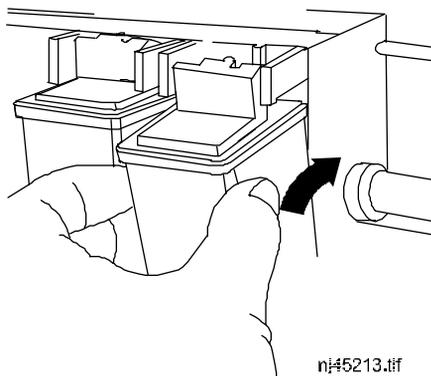


- 5 Make sure the suction bulb is making good contact with the jet area. Release the pressure on the suction bulb so it draws ink through the jet area of the cartridge. If you don't see ink in the jet area, repeat the process. Gently blot the nozzle with a lint-free cloth.

- 6 Turn the cartridge so there are no twists in the ink delivery line and install the cartridge in its corresponding carriage position. Cartridge positions are labeled in the carriage.

Note: It is very important that the ink delivery line is not twisted. To prevent this, be sure the ink delivery line is completely relaxed before installing the cartridge.

Put the cartridge in "bottom first" and then press the top of the cartridge toward the carriage to snap into place. It is possible that the nozzle plate will drip some ink when the cartridge is first installed.



- 7 Repeat the previous steps to install the remaining cartridges.
- 8 Run the Prime function as described in the next section, then perform a calibration as described in Appendix A.

---

## Installing the ink cartridges (NJ4)

NJ4 ink cartridges are supplied filled and can be refilled. (See Appendix I for a discussion on refilling the cartridges.)

Color images require one cartridge each of cyan, magenta, yellow, and black. Details on ordering replacement cartridges and ink refills are included in Appendix G.

- ! The ink used in the cartridges can be harmful if swallowed. Keep the ink cartridges away from small children.
- ✓ Ink cartridges can dry out quickly, so keep them sealed in the original containers until you're ready to install them.

Each time you place new ink cartridges in the printer, prime and calibrate them to ensure the highest quality printed images. Priming and calibration procedures are discussed later in this chapter.

### To install the ink cartridges (NJ4)

- 1 Press the Access Cartridges button to move the carriage to the center of the platen.
- 2 Holding the cartridge by the blue or black areas only, gently remove the protective tape.
- ! Touching the copper area that houses the electrical interconnect and the inkjets can damage the cartridge.
- 3 Put the cartridge in "bottom first" and then press the top of the cartridge toward the carriage to snap it into place.
- 4 Repeat the previous steps to install the remaining cartridges.
- 5 Run the Prime function as described in the next section, then perform a calibration as described in Appendix A.
- 6 If you are using the Ink Level Indicators, reset the counter to 100% as described in the section called "Setting the ink level estimator" in Chapter 3.

## Priming for cartridge print check

Before printing and at regular intervals during printing, the printer wipes the ink cartridge jets at the service station. Still, ink cartridge jets can become clogged, especially with prolonged exposure to the air or with disuse. Use the Prime function to clear the jets and to check that the ink cartridges fire properly. ENCAD recommends that you prime the cartridges when they have not been used for a few days to ensure the best possible print quality. When you press Prime, a test pattern is printed. See the back of this manual for a sample test pattern.

The test pattern consists of a band of black, bands of each color from the cartridges, and a series of segmented sloping lines. Each segment in the sloping lines represents one jet.

The bands should be smooth, without dark streaks or white lines. The sloping lines should not look fuzzy or contain gaps. If you see discrepancies in the pattern, prime the cartridges several more times. If you still see discrepancies after priming the printer several times, you should clean the cartridge jet plate. See “Cleaning the ink cartridge jet plate” in Appendix I for the procedure.

If you suspect an ink cartridge has become clogged during printing, press the Prime button to cause the cartridges to fire into the ink well (purging the jets). Printing will resume after this purging.

### To prime the ink cartridges

- 1 With media loaded, press the Prime button. A test pattern prints. See the back of this manual for a sample test pattern.
- 2 Examine the pattern for streaks or white lines in the bands and for gaps or fuzzy lines in the sloping horizontal lines.
- 3 If any of these discrepancies appear, prime the printer several more times to try to clear the jets.

---

## Aligning the ink cartridges

Color calibration aligns the inkjets of the cartridges to each other. Misalignment can result from minute variations in cartridges during manufacturing and from cartridge alignment in the printer. Color test patterns let you check the current horizontal and vertical alignment value and adjust them for the best printing results. You should check the calibration each time you replace one of the ink cartridges. See Appendix A, "Calibration" for the calibration procedures.

## Taking the printer offline/Canceling a print

To cancel a print, first send a cancel order from the computer using the appropriate command for your software application. For example, you can delete the file in the Print Manager/Print Options.

To clear the buffer after cancelling a file, press the Offline/Reset button and Select button. This clears the buffer of any stored data but doesn't reset any other printer options or parameters. The printer stops printing when the data that remains in the printer's buffer has been printed. Be sure the "Ready" indicator is not flashing before resending the file. If it continues to flash, reboot the printer by turning it off, then on.

- ✓ If you cannot get to the computer to immediately cancel the print, press the Access Cartridges button to pause the printer, then cancel the print from your computer and press the Offline/Reset button and Select button to clear the printer's buffer of any residual data.

You may want to take the printer offline for a variety of reasons, including to load media, replace ink cartridges, clear a paper jam, or perform other maintenance. All printer keypad and menu functions are available while the printer is offline.

To take the printer offline, press the Offline/Reset button on the keypad. The display will show the following:



Pressing the Offline/Reset button a second time returns the printer online.

If you press Select while the printer is offline, the printer is reset and the buffer is cleared.

You can define printer options through your application software or by choosing settings from the printer's menus. NovaJet series printers have the following options:

- Language
- Dry time
- Automatic cutter on/off
- Wiper on/off
- Media save
- Save user settings
- Initialize (return to default settings)
- Options, advanced/easy
- Memory configuration

---

**NJ4**

- Ink level options
- 

## Choosing a language

Printer menus and options can be displayed in the following languages: English, German, French, Italian, Portuguese, and Spanish.



### To choose a language:

- 1 From the Main menu press the arrow buttons to advance to the Printer Setup menu, then press Select.

MAIN MENU  
PRINTER SETUP

- 2 Press the arrow buttons to advance to the Language option, then press Select. The equals sign (=) blinks.

LANGUAGE  
LANG=ENG

- 3 Press the arrow buttons to scroll through the language options. When the language you want to use is displayed, press Select. The equals sign stops blinking, indicating that the language is set.

## Setting a dry time

Unattended prints might require drying time to prevent the ink from smearing when the image touches the basket (or takeup roll if the power media feed unit is installed) or previously printed images. In addition, you may want to change drying time depending on the media you are using and the humidity. Dry Time values range from 0 seconds to 100 minutes. When the Dry Time has expired, the printer unloads or cuts the image and begins printing the next image in the buffer.

### To set the dry time

- 1 From the Main menu, press the arrow key to advance to the Printer Setup menu, then press Select.



MAIN MENU  
PRINTER SETUP

- 2 Press the arrow key to advance to the Dry Time option, then press Select. The equals sign (=) blinks.



PRINTER SETUP  
DRYTIME=0:00

- 3 Press the arrow key to increment the Dry Time values, and press Select to choose the value you want. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back up to the previous menu level.

---

## Cutting the media

If the Cut option is set to On (the default), the printer automatically cuts the media when the image is complete. If you want to let the image dry before cutting, specify a Dry Time. See “Setting a Dry Time” in this chapter for the procedure. You can use the Cut button on the printer’s front panel at any time to cut the media.

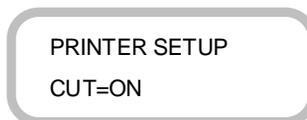
---

**NJP-50** On the NJP-50 (or other units equipped with the power media feeder unit), automatic cutting is disabled when the Roll Feed option is set to TAKEUP. Be sure the Cut/Print switch is set to "cut".

---

### To turn off the automatic cutter

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select.
- 2 Press the arrow buttons to advance to the Cutter option, then press Select. The equals sign (=) blinks.



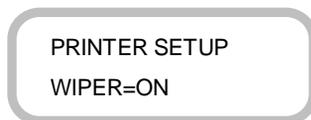
- 3 Press the arrow key to display OFF, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Turning the wiper off

The cartridge jet plates are normally wiped each time the carriage enters the service station during printing. The default for this function is ON. However, if you are having problems with banding, you can sometimes solve the problem by setting the wiper to OFF.

### To turn off the wiper

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select.
- 2 Press the arrow buttons to advance to the Wiper option, then press Select. The equals sign (=) blinks.



- 3 Press the arrow key to show OFF, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Turning off Save Media

When the Save Media is On (the default), the media advances only as far as needed to print the image. With the Save Media option turned off, the printer advances the full print area of the loaded media. For example, if a 36 inch roll is loaded, the printer advances the length of the print area for an E size sheet (about 48 inches) even if the printed image is only 30 inches long. For more information about the print areas of different media sizes, see "Selecting the media size" in Chapter 5.



## To turn off the Save Media option

- 1 From the Main menu, press the arrow keys to advance to the Printer Setup menu, then press Select.
- 2 Press the arrow buttons to advance to the Save Media option, then press Select. The equals sign (=) blinks.



PRINTER SETUP  
SAVE MEDIA=ON

- 3 Press the arrow buttons to show OFF, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Saving user settings

You can save as many as eight different printer configurations under the User Settings options. You can save the options you use most frequently so you don't have to reconfigure the printer each time you print an image. Select the option set you want to use before sending an image to the printer.

You can save settings for the following options:

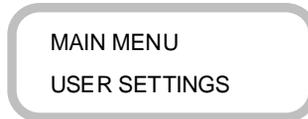
- Cut On or Off
- Print Mode
- Monochrome or Color
- Emulation
- Normal or Expanded Margins
- Drying Time
- Save Media On or Off
- Wait Time
- Memory & I/O configuration
- Media
- DTR Bypass indicator
- Frame Length
- Handshake
- Parity
- Baud Rate
- Ink Limit

You can save settings for the following options for HP-GL and HP-GL/2 emulations only:

- Pen Width
- Pen Color
- P1/P2 scaling values
- Intersect Control
- Rotation

## To save user settings

- 1 From the Main menu, press the arrow buttons to advance to the User Settings menu, then press Select.



- 2 Press the arrow buttons to advance to the Save User options, then press Select. The equals sign (=) blinks.

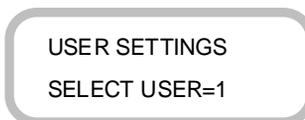


- 3 Press the arrow buttons to scroll through the Save User numbers, then press Select to assign a number to a set of user options. The equals sign (=) stops blinking, indicating that the current settings have been saved and can be retrieved using the assigned number.

---

## ➔ To use a previously saved user setting

- 1 From the Main menu, press the arrow buttons to advance to the User Settings menu, then press Select. The display changes to the Select User option.



- 2 Press Select. The equals sign (=) blinks.
- 3 Press the arrow buttons to scroll through the Select User numbers, then press Select. The equals sign (=) sign stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Returning to the default settings

Using the Initialize option returns all printer options to the factory defaults. All saved user settings will be lost. The table that follows shows the printer defaults. See Appendix C for a complete list of settings and defaults.

**Note 1.** HP-RTL is not selectable from the menu; it is embedded in HP-GL/2.

**Note 2.** Takeup is standard on the NJP-50 and is available on the NJP-36 if the feeder/takeup option is installed. It is not available on the NJ4.

MENU ITEM (* = HP-GL and HP-GL/2 only)	DEFAULT	OTHER OPTIONS
MODE	4 PASS ENHANCED (NJ Pro) Normal (NJ4)	DRAFT, NORMAL, 3-PASS DRAFT, 3-PASS ENHANCED, 4-PASS ENHANCED, MONO 600x600, USER DEFINE
OPTIONS	EASY	ADVANCED
SELECT USER	1	1 TO 8
SAVE USER	1	1 TO 8
MARGINS	NORMAL	EXPANDED
MEDIA	ALL	ALL, US ENGR, US ARCH, ISO A, GRAPHICS, MET OVER A, ISO B, SPECIAL
FRAME LENGTH	AUTO	5" TO 50" (126mm TO 1269mm)
NESTING* (advanced option)	OFF	ON
ROTATION*	0	90, 180, 270
EMULATION	HPGL2/RTL	HPGL, HP7475, HP7550, HP758X, HP759X, EN RTL (See note 1.)
CONTROL	SOFTWARE	PRINTER
ROLL FEED	ON	OFF, TAKEUP (See note 2.)
CUTTER	ON	OFF
LOAD	AUTO	MANUAL
# OF REPLOTS*	0	0 TO 100
DRY TIME	00:00	0 TO 60 min
INK REDUCTION	0%	12.5%, 25%, 37.5%, 50%
INK LIMIT (advanced option)*	ON	OFF
WAIT TIME	00:00	0 to 60 min
MEMORY CONFIG	I/O = 128K, RAS-3M	Varies by available memory
VECTOR PALETTE* (advanced option on NJ Pro only)	DEFAULT	NJ II
COLOR*	ADD	SINGLE
BAUD	9600	300, 600, 1200, 2400, 4800, 19200, 38400
PARITY	EVEN, 7 BITS	ODD, 7 BITS; OFF, 8 BITS; EVEN, 8 BITS; ODD, 8 BITS; OFF, 7 BITS
HANDSHK	HARDWARE	NONE, XON/XOFF, ENQ/ACK
DTR	NORMAL	BY PASS
<b>NJ4 ONLY</b>		
ALARM BEEP (advanced option)	ON	OFF
INK LOW LVL	0% (OFF)	0 TO 50%
INK LOW STOP	NO	YES
CURRENT INK LVL	100% (ALL CARTRIDGES)	SET AUTOMATICALLY

---

## To return to the default settings

**!** When you choose the **Initialize** option, all saved user options are lost. See “Saving User Settings” in this chapter for more information.

- 1 From the Main menu, press the arrow buttons to advance to the Utilities menu, then press Select.
- 2 Press the arrow buttons to advance to the Initialize option, then press Select. You will see a message saying that Initialization is complete.



- 3 Press the Menu button to move back to the previous menu level.

## Displaying the advanced options

The printer provides two settings for menu options, Easy and Advanced. Easy options provide access to predefined print modes and the most commonly used printer options. The easy options will satisfy the needs of most users.

Advanced options provide the flexibility to “fine-tune” printing and address unique requirements. Because the printer defaults were designed to give you the highest quality at the fastest speed, you cannot enhance one without sacrificing the other.

When you select Advanced options, you will be able to select the options that are shaded in the menu tree located inside the printer's cover.

## To display advanced options

- 1 From the Main menu, press the arrow buttons to advance to the Utilities menu, then press Select.
- 2 Press the arrow buttons to advance to Options, then press Select. The equals sign (=) blinks.

UTILITIES  
INITIALIZE

- 3 Press the arrow buttons to change Option to Advanced, then press Select. The equals sign (=) stops blinking indicating that the Advanced options are selected.
- 4 Press the Menu button to move back to the previous menu level.

## Setting the memory configuration

The memory option is used to allocate memory to the I/O or the raster buffer. The I/O buffer is used to transfer and configure the data sent from the computer to the printer. The raster buffer is used to store the image to be printed. If you are sending raster files you will want to increase the size of the I/O buffer, which will decrease the transfer time, freeing up your computer sooner.

If you are sending vector files or merged vector/raster files, you will want to increase the size of the raster buffer to allow as much space as possible to store and rasterize the complete file.



### To set the memory configuration (HP-GL only)

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select.

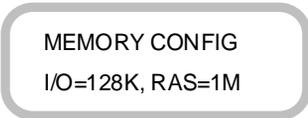
MAIN MENU  
PRINTER SETUP

- 2 Press the arrow buttons to advance to Memory Config, press Select twice. The equals sign (=) blinks.

PRINTER SETUP  
MEMORY CONFIG

---

---



MEMORY CONFIG  
I/O=128K, RAS=1M

- 3 Press the arrow button to scroll the memory options. Press Select, the equals signs (=) stops blinking.

## Setting the ink level estimator (NJ4 only)

Over time and depending on what you're printing, one or more of the ink cartridges will start to run low on ink. The NJ4 provides a unique ink level estimation feature called ink counting, so that you can monitor the amount of ink in each cartridge. With ink counting, the printer estimates the amount of ink remaining in the cartridges by counting the ink droplets fired from the jets. Before using the ink counting feature however, you should be aware that it may slow your printing time.

The ink counting procedure requires you to set values for three options in the Utilities menu:

- Ink Low Level
- Ink Low Stop
- Current Ink Level

The Ink Low Level option lets you specify an estimated ink level at which you want to be alerted by the Ink Low light on the printer's front panel and an audible beep which sounds once. If you specify a Low Level value, such as 10%, the Ink Low light turns on when the estimated ink in a cartridge falls to approximately 10%. To see which cartridge is low, use the Current Ink Level menu, discussed later in this chapter. **Ink counting is disabled when the Ink Low Level option is set to 0%** (the default).

## ➡ To set the Ink Low Level (NJ4 only)

- 1 From the Main menu press the arrow buttons to advance to the Utilities menu, then press Select.



MAIN MENU  
UTILITIES

- 2 Press the arrow buttons to advance to the Ink Low Level option, then press Select, the equals sign (=) blinks.



UTILITIES  
INK LOW LEVEL=0%

- 3 Press the arrow buttons to scroll through the ink percentages at which you want to be alerted by the Ink Low warning light, then press Select. The equals sign stops blinking, indicating that the value is set.
- 4 Follow the procedures (below) for setting the Ink Low Stop and the Current Ink Level options.

If you've set the printer to print multiple images while you're away, you can also tell it to stop printing if any cartridge reaches 0% ink, by setting the Ink Low Stop option to Yes.

## ➡ To set the Ink Low Stop (NJ4 only)

- 1 With Ink Low Level option displayed, press the down arrow to display the Ink Low Stop option.



UTILITIES  
INK LOW STOP=NO

- 2 Press Select. The equals sign (=) blinks.
- 3 Press the arrow buttons to move between Yes and No, then press Select. The equals sign stops blinking.

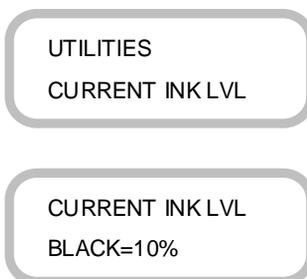
- 
- 4 Follow the procedure (below) for setting the Current Ink Level option.

The Current Ink Level value displayed in the printer menu automatically changes as the ink level drops. When installing new cartridges, reset the current level to 100%.



### To reset the Current Ink Level (NJ4 only)

- 1 Follow the procedures above for setting the Ink Low Level and the Low Level Stop options.
- 2 Press the down arrow to advance to the Current Ink Level option, then press Select. The menu changes as shown below.



- 3 If resetting the level for the black cartridge, press Select twice to reset to 100%, or press the arrow keys to set another value.
- 4 Press Select to save the value. The equals sign (=) stops blinking.
- 5 Press the arrow buttons to advanced through each of the colors, repeating steps 3 and 4 until you have set the Current Ink Level for each cartridge.
- 6 Press the Menu button to return to previous menu level.

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When you draw an image, you determine its size at the computer. It's important that you know the size of the image and load the appropriate size media because the printer automatically defines the print area based on the loaded media's width. If the image you send from the computer is of a different length or width than the print area defined for the loaded media size, you can change one or all of the following:

- **Print area width**—If the loaded media causes the print area to be the wrong width, consult the media standard tables and use media of the appropriate width.
- **Print area length**—If the loaded media causes the print area to be the wrong length, set the **Frame Length** option in the **Page Format** menu to the appropriate length, or use roll media.
- **Print area margin**—If you require a narrower margin, set the **Margins** option in the **Page Format** menu to **Expand**. (The **Expand** setting for the **Margins** option expands the print area and decreases the margins.)

## Selecting the media standard

Some media sizes, particularly sheet media, are non-standard or so similar to other media sizes that the printer “assumes” the standard and defines a print area for media of a similar size within a different standard. If this happens, you should specify a standard for the media option so that the printer can match the loaded media to the closest media size within the specified standard and define the appropriate print area.

You can choose from the following standards:

- U.S. Engineering
- U.S. Architectural
- U.S. Offset (Graphics)
- ISO A
- ISO B
- Met Over A
- Special

The following tables show both the normal and expanded print areas for the media sizes within each media standard. Use these tables to scale your image before sending it to the printer.

- ! If you are using C size architectural sheets, set the media option to US ARCH to prevent the print from falling to the floor when printing is complete.
- ! The minimum paper size on the NJP-50 is 11" wide. If you are printing an 8.5 x 11" image, rotate it so that it becomes landscape rather than portrait.

## Media Sizes and Maximum Printing Areas for Rollfed Media

Paper Size			Normal Print Area			Expanded Print Area			
<b>GRAPHICS (U.S. OFFSET)</b>									
11.0"	x	14.0"	9.8"	x	12.8"	10.6"	x	13.6"	
11.0"	x	17.0"	9.8"	x	15.8"	10.6"	x	16.6"	
17.0"	x	22.0"	15.8"	x	20.8"	16.6"	x	21.6"	
19.0"	x	25.0"	17.8"	x	23.8"	18.6"	x	24.6"	
20.0"	x	28.0"	18.8"	x	26.8"	19.6"	x	27.6"	
22.0"	x	26.0"	20.8"	x	24.8"	21.6"	x	25.6"	
22.0"	x	34.0"	20.8"	x	32.8"	21.6"	x	33.6"	
23.0"	x	35.0"	21.8"	x	33.8"	22.6"	x	34.6"	
24.0"	x	29.0"	22.8"	x	27.8"	23.6"	x	28.6"	
25.0"	x	38.0"	23.8"	x	36.8"	24.6"	x	37.6"	
26.0"	x	38.0"	24.8"	x	36.8"	25.6"	x	37.6"	
27.0"	x	39.0"	25.8"	x	37.8"	26.6"	x	38.6"	
30.0"	x	42.0"	28.8"	x	40.8"	29.6"	x	41.6"	
32.0"	x	44.0"	30.8"	x	42.8"	31.6"	x	43.6"	
34.0"	x	44.0"	32.8"	x	42.8"	33.6"	x	43.6"	
35.0"	x	45.0"	33.8"	x	43.8"	34.6"	x	44.6"	
36.0"	x	45.0"	34.8"	x	43.8"	35.6"	x	44.6"	
40.0"	x	50.0"	38.8"	x	48.0"	38.6"	x	49.6"	
48.0"	x	65.0"	46.8"	x	63.0"	46.6"	x	64.6"	
50.0"	x	65.0"	48.8"	x	63.0"	48.6"	x	64.6"	
<b>U.S. ARCHITECTURAL</b>									
A	9.0"	x	12.0"	7.8"	x	10.8"	8.6"	x	11.6"
B	12.0"	x	18.0"	10.8"	x	16.8"	11.6"	x	17.6"
C	18.0"	x	24.0"	16.8"	x	22.8"	17.6"	x	23.6"
D	24.0"	x	36.0"	22.8"	x	34.8"	23.6"	x	35.6"
E	36.0"	x	48.0"	34.8"	x	46.8"	35.6"	x	47.6"
<b>U.S. ENGINEERING</b>									
B	11.0"	x	17.0"	9.8"	x	15.8"	11.6"	x	16.6"
C	17.0"	x	22.0"	15.8"	x	20.8"	16.6"	x	21.6"
D	22.0"	x	34.0"	20.8"	x	32.8"	21.6"	x	33.6"
E	34.0"	x	44.0"	32.8"	x	42.8"	33.6"	x	43.6"
<b>ISO-A</b>									
A3	297	x	420 mm	267	x	390 mm	287	x	410 mm
A2	420	x	594 mm	390	x	564 mm	410	x	584 mm
A1	594	x	840 mm	564	x	811 mm	584	x	831 mm
	625	x	880 mm	595	x	850 mm	615	x	870 mm
A0	841	x	1189 mm	811	x	1159 mm	831	x	1179 mm
<b>METRIC-DIN</b>									
A3	337	x	460 mm	307	x	430 mm	327	x	450 mm
A2	460	x	634 mm	430	x	604 mm	450	x	624 mm
	610	x	860 mm	580	x	830 mm	600	x	850 mm
A1	634	x	881 mm	604	x	851 mm	624	x	871 mm
	860	x	1220 mm	830	x	1190 mm	850	x	1210 mm
A0	881	x	1229 mm	851	x	1199 mm	871	x	1219 mm
	1000	x	1414 mm	970	x	1384 mm	990	x	1404 mm
	1189	x	1682 mm	1159	x	1652 mm	1179	x	1672 mm
<b>ISO-B</b>									
B4	250	x	353 mm	220	x	323 mm	240	x	343 mm
B3	353	x	500 mm	323	x	470 mm	343	x	490 mm
B2	500	x	707 mm	470	x	677 mm	490	x	697 mm
B1	707	x	1000 mm	677	x	970 mm	697	x	990 mm

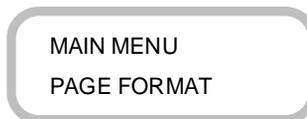
**Media Sizes and Maximum Printing Areas for Sheet Media**

Paper Size		Normal Print Area		Expanded Print Area	
<b>GRAPHICS (U.S. OFFSET)</b>					
11.0"	x 14.0"	9.8"	x 12.0"	10.6"	x 12.4"
11.0"	x 17.0"	9.8"	x 15.0"	10.6"	x 15.4"
17.0"	x 22.0"	15.8"	x 20.0"	16.6"	x 20.4"
19.0"	x 25.0"	17.8"	x 23.0"	18.6"	x 23.4"
20.0"	x 28.0"	18.8"	x 26.0"	19.6"	x 26.4"
22.0"	x 26.0"	20.8"	x 24.0"	21.6"	x 24.4"
22.0"	x 34.0"	20.8"	x 32.0"	21.6"	x 32.4"
23.0"	x 35.0"	21.8"	x 33.0"	22.6"	x 33.4"
24.0"	x 29.0"	22.8"	x 27.0"	23.6"	x 27.4"
25.0"	x 38.0"	23.8"	x 36.0"	24.6"	x 36.4"
26.0"	x 38.0"	24.8"	x 36.0"	25.6"	x 36.4"
27.0"	x 39.0"	25.8"	x 37.0"	26.6"	x 37.4"
30.0"	x 42.0"	28.8"	x 40.0"	29.6"	x 40.4"
32.0"	x 44.0"	30.8"	x 42.0"	31.6"	x 42.4"
34.0"	x 44.0"	32.8"	x 42.0"	33.6"	x 42.4"
35.0"	x 45.0"	33.8"	x 43.0"	34.6"	x 43.4"
36.0"	x 45.0"	34.8"	x 43.0"	35.6"	x 43.4"
40.0"	x 50.0"	38.8"	x 48.0"	39.6"	x 48.4"
48.0"	x 65.0"	46.8"	x 63.0"	47.6"	x 63.4"
50.0"	x 65.0"	48.8"	x 63.0"	49.6"	x 63.4"
<b>U.S. ARCHITECTURAL</b>					
A	9.0" x 12.0"	7.8" x 10.0"		8.6" x 10.4"	
B	12.0" x 18.0"	10.8" x 16.0"		11.6" x 16.4"	
C	18.0" x 24.0"	16.8" x 22.0"		17.6" x 22.4"	
D	24.0" x 36.0"	22.8" x 34.0"		23.6" x 34.4"	
E	36.0" x 48.0"	34.8" x 46.0"		35.6" x 46.4"	
<b>U.S. ENGINEERING</b>					
B	11.0" x 17.0"	9.8" x 15.0"		10.6" x 15.4"	
C	17.0" x 22.0"	15.8" x 20.0"		16.6" x 20.4"	
D	22.0" x 34.0"	20.8" x 32.0"		21.6" x 32.4"	
E	34.0" x 44.0"	32.8" x 42.0"		33.6" x 42.4"	
<b>ISO-A</b>					
A3	297 x 420 mm	267 x 370 mm		287 x 380 mm	
A2	420 x 594 mm	390 x 544 mm		410 x 554 mm	
A1	594 x 840 mm	564 x 790 mm		584 x 800 mm	
	625 x 880 mm	595 x 830 mm		615 x 840 mm	
A0	841 x 1189 mm	811 x 1139 mm		831 x 1149 mm	
<b>METRIC-DIN</b>					
A3	337 x 460 mm	307 x 410 mm		327 x 420 mm	
A2	460 x 634 mm	430 x 584 mm		450 x 594 mm	
	610 x 860 mm	580 x 810 mm		600 x 820 mm	
A1	634 x 881 mm	604 x 831 mm		624 x 841 mm	
	860 x 1220 mm	830 x 1170 mm		850 x 1180 mm	
A0	881 x 1229 mm	851 x 1179 mm		871 x 1189 mm	
	1000 x 1414 mm	970 x 1364 mm		990 x 1374 mm	
<b>ISO-B</b>					
B4	250 x 353 mm	220 x 303 mm		240 x 313 mm	
B3	353 x 500 mm	323 x 450 mm		343 x 460 mm	
B2	500 x 707 mm	470 x 657 mm		490 x 667 mm	
B1	707 x 1000 mm	677 x 950 mm		697 x 960 mm	

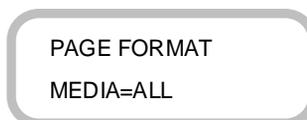
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## ➡ To select the media standard

- 1 From the Main menu, press the arrow buttons to advance to the Page Format menu, then press Select.



- 2 Press the arrow buttons to advance to the Media option, then press Select. The equals sign (=) blinks.



- 3 Press the arrow buttons to scroll through the Media options, then press Select for the media standard you want. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Changing the length of the print area

The Print Area option in the Page Format menu displays the size of the print area for the currently loaded media. If no media is loaded, the Print Area option shows the size of the print area for the last media sized by the printer. The default size of the print area is always laid out with the length in the rollfeed (vertical) direction and the width in the carriage (horizontal) direction.

If you require a print area length different from the one specified by the media width you're using, you can:

- **Select a media width that supports the length of the print area you require or**
- **Change the length of the print area using the Frame Length option in the Page Format menu.**

When the Frame Length option is set to Auto (the default), the printer assigns the length of the print area based on the width of the media and the Margin option selected (Normal or Expand). For example, your Frame Length is set to Auto and your Margins are set to Normal. Load media which is 36" wide, and your Print Area will be set to 34.8" wide x 46.0" long.

The Frame Length option adjusts the length in 0.1" or 1.0 mm increments to a maximum of A0 or E size paper. The value shown on the display will scroll slowly for the first second, then faster, until you release the button.

Note that this setting changes only the length of the print area. To increase the width, you must use wider media. See "Selecting the media standard" in this chapter to determine the print area width for different media sizes.

When printing images that are longer than the standard sheet sizes; i.e., long prints, you must use roll media and set the Frame Length option to Auto, Roll option to On, and the Control option to Software.

When setting a custom print length, remember to allow room for the margin (the margin lies outside the print area). See "Print area margins" in this chapter for information about margin sizes.

## To change the length of the print area

- 1 From the Main menu, press the arrow keys to advance to the Page Format menu, then press Select.



MAIN MENU  
PAGE FORMAT

- 2 Press the arrow buttons to advance to Frame Length, then press Select two times. The equals sign (=) blinks.



PAGE FORMAT  
FRAME LENGTH

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FRAME LENGTH  
=AUTO

- 3 Press the arrow buttons to scroll through the frame length values, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Print area margins

Margins can be set to Normal or Expanded.

- ✓ The Expand setting for the Margins option expands the print area and decreases the margins.

Any part of the image that extends into the margin will be clipped. When the Margins option is set to Expand, make sure that you align the media accurately using the guide on the right of the platen so that the ink doesn't exceed the edge of the media.

## Cut sheet maximum printing area

**Normal:** 0.59" (15 mm) margin on each of three sides and 1.38" (35 mm) margin on the fourth side.

**Expanded:** 0.197" (5 mm) margin on each of three sides and a 1.38" (35 mm) margin on the fourth side.

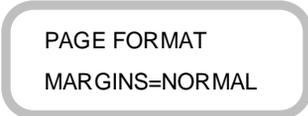
## Rollfeed maximum printing area

**Normal:** 0.59" (15 mm) margin on all sides.

**Expanded:** 0.197" (5 mm) margin on all sides.

## To change the print area margins

- 1 From the Main menu, press the arrow buttons to advance to the Page Format menu, then press Select.
- 2 Press the down arrow to advance to the Margins option, then press select. The equals sign (=) blinks.



PAGE FORMAT  
MARGINS=NORMAL

- 3 Press the arrow buttons to move between Normal and Expand, then press Select for the Margins option you want. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

This chapter discusses setting printing parameters, including the print mode and advanced print mode options such as firing rate and nesting.

Your printer offers several print modes which let you make tradeoffs between speed and quality.

The print mode you use depends on various factors, such as your drawing application, whether you're printing in color or monochrome, and what type of media you're using. Each print mode directly affects the printing speed and quality of the image you print, so you should understand the differences.

Each of the print modes attempts to strike a balance between speed and quality, with Normal being the mode developed to provide quality images at a reasonable printing speed for most users. Whenever you choose a print mode other than Normal, you will choose to emphasize either speed or quality.

## CAD printing modes (HP-GL and HP-GL/2 only)

Draft and Normal modes are suited for line drawings and drawings with light solid fills, the types of images created by most CAD users. These modes are not recommended for printing images, because bleeding may occur in areas of heavy fills or dark shading when printed with these modes.

**DRAFT MODE.** Select Draft mode when printing speed is more important than the quality of your print.

**NORMAL MODE.** Normal mode is the factory default and offers good quality without sacrificing speed.

## Graphics print modes

There are three graphics print modes: three pass draft, three pass enhanced, and four pass enhanced. The modes vary between models; refer to the tables that follow to determine the modes available on your printer.

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Use these modes for continuous tone images or renderings with heavy shading or fill. Because enhanced mode splits inking into three or four passes, it reduces print anomalies such as banding (stripes through fills) and over-inking, but it may take three to four times longer to produce your print. Some experimentation may be required to pick the mode best for your needs.

The enhanced modes are not available when Monochrome is selected.

**Three Pass Draft Mode (DRFT 3 PASS)** - This mode is faster than three pass enhanced mode with a slight decrease in output quality.

**Three Pass Enhanced Mode (ENHC 3 PASS)** - This mode provides a balance of speed and quality. It produces excellent quality prints for the majority of your images on any of ENCAD's premium papers and film. This is the enhanced print mode the graphics users will use most often.

**Four Pass Enhanced Mode (ENHC 4 PASS)** - This mode will provide the best quality image on any of ENCAD's premium papers and film, but is considerably slower than the other print modes. If you have printed your image in three pass enhanced and are not satisfied with the quality, try this mode.

NovaJet Pro-36 and NovaJet Pro-50				
MODE	PRINT METHOD	UNI- OR BI-DIRECTIONAL	# OF PASSES	FIRING RATE (Hz)
DRAFT	300X300	BI	1	5000
NORMAL	300X300	UNI	1	5000
DRAFT 3 PASS	300X300	BI	3	8000
ENHC 3 PASS	300X300	BI	3	5000
ENHC 4 PASS	300X300	UNI	4	5000

NovaJet 4				
MODE	PRINT METHOD	UNI- OR BI-DIRECTIONAL	# OF PASSES	FIRING RATE (Hz)
DRAFT	300X300	BI	1	5000
NORMAL	300X300	UNI	1	5000
	600x600 (MONO ONLY)	BI	1	5000
DRAFT 3 PASS	300x300	BI	3	8000
ENHC 3 PASS	300X300	BI	3	5000
ENHC 4 PASS	300X300	UNI	4	5000



### To choose the print mode

- 1 Select Mono or Color from the front panel.
- 2 From the Main menu, press the arrow buttons to advance to the Print Mode menu, then press Select.

MAIN MENU  
PRINT MODE

- 3 The menu will advance to the Mode option. Press Select, the equals sign (=) blinks.

PRINT MODE  
MODE=NORMAL

- 4 Press the arrow buttons to scroll through the Print Mode options, then press Select for the option you want. The equals sign (=) stops blinking.
- 5 Press the Menu button to move back up to the previous menu level.

## User defined print modes using advanced options

The printer lets you customize your own print modes using the Advanced options. When any options are changed, the Mode option will display User Defined. The changes you make will be saved as the User Defined print mode until they are changed. To display the Advanced Print Mode options, select Advanced for Options in the Utilities menu. For information, see Chapter 3, "Setting printer options".

The Advanced print mode options are:

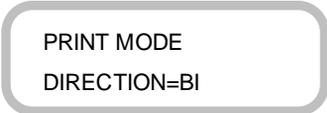
- Direction
- Firing Rate
- # of Passes
- Print Method

### Changing the firing direction

Direction specifies whether the ink jets fire on both passes of the carriage over the print area (bidirectional), or just on the return pass (unidirectional). If you're printing an image with heavy fill or shading, unidirectional can reduce running and ink bleeding. If you're more concerned with printer speed, bidirectional firing can decrease your printing time.

#### To change the firing direction

- 1 Follow the procedure in Chapter 3 for displaying the advanced options.
- 2 From the Main menu, press the arrow buttons to advance to the Print Mode menu, then press Select.
- 3 Press the arrow buttons to advance to the Direction option, then press Select. The equals sign (=) blinks.



```
PRINT MODE
DIRECTION=BI
```

- 4 Press the arrow buttons to show Uni or Bi, then press Select for the direction you want. The equals sign (=) stops blinking.
- 5 Press the Menu button to move back up to the previous menu level.

---

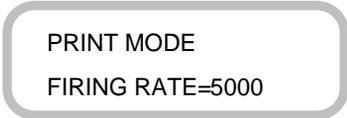
## Changing the firing rate

Firing rate specifies the time between each firing of the ink jets. The predefined print modes are optimized with the most appropriate firing rate. However, you can set the range from 3000 Hz to 10.0 kHz in 100 Hz increments. In general, the slower you set the firing rate, the less overspray will be apparent.

Note: Setting the firing rate higher than 8000 Hz may produce poor results.

### To change the firing rate

- 1 Follow the procedure in Chapter 3 for displaying the advanced options.
- 2 From the Main menu, press the arrow buttons to advance to the Print Mode menu.
- 3 Press the arrow buttons to advance to the Firing Rate option, then press Select. The equals sign (=) blinks.



```
PRINT MODE
FIRING RATE=5000
```

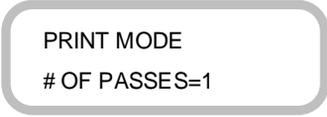
- 4 Press the arrow buttons to increment the firing rate, then press Select. The equals sign (=) stops blinking.
- 5 Press Menu to move back to the previous menu level.

## Changing the number of passes

The number of passes indicates how many times the cartridges must fire to lay down the ink for a complete scan line. You may select three or four passes, so that on a single pass, the jets fire a third (or a quarter) of the dots. If you're printing an image with heavy fill or shading, setting the print mode to an option that lays down less ink (e.g., four pass) can help prevent running and bleeding.

## To change the number of passes

- 1 Follow the procedure in Chapter 3 for displaying the advanced options.
- 2 From the Main menu, press the arrow buttons to advance to the Print Mode menu.
- 3 Press the arrow buttons to advance to the # of Passes option, then press Select. The equals sign (=) blinks.



PRINT MODE  
# OF PASSES=1

- 4 Press the arrow buttons to increment the number of passes, then press Select. The equals sign (=) stops blinking.
- 5 Press Menu to move back up to the previous menu level.

## Changing the print method

The Print Method option allows you to select Color, Monochrome, or Grayscale. Selecting the Print Method also changes the indicator on the side panel between Color or Monochrome. Options for print method are as follows:

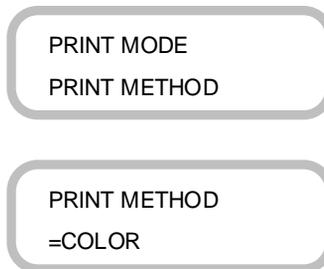
Color - 300 x 300 only

Mono - 300 x 300 (600x600 on NJ4 only)

Grayscale - 1 head 300x300

## To change the print method

- 1 Follow the procedure in Chapter 3 for displaying the advanced options.
  - 2 From the Main menu, press the arrow buttons to advance to the Print Mode menu.
  - 3 Press the arrow buttons to advance to the Print Method option, then press Select. The display will enter the Print Method submenu.
-



- 4 Press select, the equals sign (=) blinks.
- 5 Press the arrow buttons to display the desired Print Method option, then press Select. The equals sign (=) stops blinking.
- 6 Press Menu to move back to the previous menu level.

## Nesting (HP-GL and HP-GL/2 only)

Nesting lets you save media by arranging prints across the width of the media. It is available in Roll Feed mode only. The nesting feature is available for HP-GL and HP-GL/2 prints only and uses a first come, first fit algorithm. (However, it will not nest HP-GL2/RTL merge or RTL-only prints.) This feature is enabled by choosing it from the printer's menu. It also lets you set a wait time which defines how long to wait for another plot to be queued before it starts printing.

The printer nests in the horizontal orientation only, so a print cannot be placed between two nests.

Nesting prints all images within the nest at the highest quality specified. For example, if print 1 is specified at draft print mode, and print 2 is specified as normal print mode, both would be printed in normal mode.

The following rules are applied to nested prints:

1. White space is turned off if a mixed plot mode situation exists.
2. Monochrome and color prints may be nested.
3. When a plot requires dry time, the default is the longest dry time set for any plot in the nest.
4. Margins surrounding each print are maintained.
5. Prints are automatically rotated if the printer determines that the rotation will efficiently save media. If the Auto Rotate feature is deactivated, prints will not be rotated by the nesting algorithm.

The following types of prints cannot be nested:

- Prints with different margins or media size standards
- Prints specified with the P1/P2 option
- Prints with different intersect controls
- Prints with mixed emulation modes
- Prints with different memory requirements.

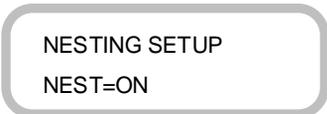
## To enable nesting

- 1 From the Main menu, press the arrow buttons to advance to the Page Format menu, then press Select.



MAIN MENU  
PAGE FORMAT

- 2 Press the arrow buttons to advance to the Nesting Setup option, then press Select. The equals sign (=) blinks.
- 3 Press the arrow buttons to increment the value to ON, then press Select. The equals sign (=) stops blinking.



NESTING SETUP  
NEST=ON

- 4 Press the Menu button to move back to the previous menu level.

## Nesting wait time

Nesting Wait Time is the amount of time the printer waits for the next plot to fill the current nest. (Don't confuse Nest Wait Time with Printer Setup Wait time, which determines when an HP-GL file without a PG instruction has been completed.)

---

The printer waits to print a nest until one of the following conditions has been met:

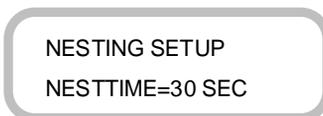
- Enough prints have been received to fill the width of the loaded media.
- An insufficient memory condition occurs and the printer must proceed to plot with as many prints as will fit in the vector buffer list.
- When the nesting algorithm does not support the mixing of two modes between prints.
- When the printer receives a merge HP-GL/RTL or RTL only print.
- When a time out condition occurs.

Set the wait time less than the Nest Wait time when sending older HP-GL print files. For best results when sending older HP-GL files without PG instructions, set the Plot Setup Wait time to 30 seconds and the Nest Wait time to 2 minutes. Send each HP-GL print one minute apart.



### To define nesting wait time

- 1 From the Nesting Setup menu, press the arrow buttons to advance to the Nest Time= option. Press Select. The equals sign (=) blinks.
- 2 Press the arrow buttons to select the wait time: 30 seconds, 1 minute, or 2 minutes, then press Select. The equals sign (=) stops blinking.



- 3 Press the Menu button to move back the previous menu level.

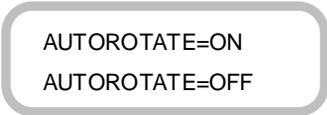
## Nesting auto rotate

When Nesting Auto Rotate is on, the Nesting algorithm automatically rotates prints to fit the most images on the media.



### To enable auto rotate

- 1 From the Page Format menu, press the arrow buttons to advance to Auto Rotate=. Press Select. The equals sign (=) blinks.
- 2 Press the arrow buttons to select ON or OFF, then press Select. The equals sign (=) stops blinking.

A screenshot of a printer's menu showing two options: "AUTOROTATE=ON" and "AUTOROTATE=OFF". The text is centered within a rounded rectangular border.

AUTOROTATE=ON  
AUTOROTATE=OFF

- 3 Press the Menu button to move back to the previous menu level.

Before starting, be sure that you have loaded the NovaJet DOS utilities, and any other drivers that may be appropriate to your application, for example, the ADI driver or Windows driver. Your application software will usually come with a set of printer drivers used to print hard copies of your working files. The instructions for installing the applications drivers should be included with your application. For additional information on drivers supplied with your printer, refer to the Software Driver Guide which is included with your printer.

## Choosing an emulation format

The emulation formats supported by the printer are HP-GL, HP-GL/2, and HP RTL®. In general, HP-GL and HP-GL/2 are necessary when printing from CAD-related applications. HP RTL or EN RTL are used with graphics-based applications such as CorelDRAW, QuarkXpress, PageMaker, and Photoshop.

If your software application supports the ENCAD NovaJet® 840, ENCAD NovaJet II, or ENCAD NovaJet Pro printers, or HP-GL, HP-GL/2 or HP RTL, follow the instructions in your software application's user documentation for configuring your software for the printer. Check your software for the following printer drivers in the order listed.

- NovaJet III (HP-GL/2 or HP RTL)
- NovaJet II (HP-GL/2 or HP RTL)
- Generic HP-GL/2 or HP RTL
- Other HP-GL/2 devices
- Generic HP-GL devices

If your software only supports HP-GL, it may require specific serial interface settings; follow the instructions for entering them in RS-422/232 menu. If your software communicates via Centronics Parallel, no special settings are required.

The printer can automatically sense whether your file is HP-GL/2 or HP RTL, but cannot sense whether the file is HP-GL. The printer's default emulation setting is HP-GL/2, which will plot HP-GL/2, HP RTL and files that contain both HP-GL/2 and HP RTL data (merged vector/raster files). If your software application only has a driver for HP-GL, you must select HP-GL emulation from the printer's menu.

The table that follows will help you determine which emulation format to select.

<b>Software Application Output Options</b>	<b>Typical Interface</b>	<b>Plotter Emulation Mode</b>
HP7475 (B SIZE MAX)	SERIAL (RS-232)	HP7475 (ADVANCED OPTION)
HP7550 (B SIZE MAX)	SERIAL (RS-232)	HP7550 (ADVANCED OPTION)
HP7580 (D SIZE MAX)	SERIAL (RS-232)	HP758X (ADVANCED OPTION)
HP7585 (E SIZE MAX)	SERIAL (RS-232)	HP758X (ADVANCED OPTION)
HP7586 (E SIZE MAX)	SERIAL (RS-232)	HP758X (ADVANCED OPTION)
HP7586B (E SIZE ROLL)	SERIAL (RS-232)	HP758X (ADVANCED OPTION)
HP7595 (E SIZE MAX)	SERIAL (RS-232)	HPGL
HP7496A (E SIZE ROLL)	SERIAL (RS-232)	HPGL
DRAFTMASTER (E SIZE ROLL)	SERIAL (RS-232)	HPGL
NOVAJET ALL MODELS	PARALLEL	HPGL2
HP7600 COLOR	PARALLEL	HPGL2
DESIGNJET ALL MODELS	PARALLEL	HPGL2
DRAFTMASTER SX/RX/MX	PARALLEL	HPGL2
POSTSCRIPT*	PARALLEL	HPGL2
TIFF, TARGA, GIF, ETC**	PARALLEL	HPGL2

**\* Requires a PostScript® interpreter for conversion to HP RTL. Refer to the Software Reference Guide available from ENCAD.**

**\*\* Requires a conversion utility for conversion to HP RTL. Refer to the Software Reference Guide available from ENCAD.**

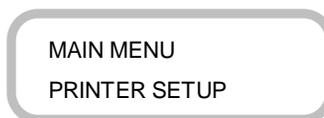
If your software doesn't state that it supports any of the formats listed above, contact the software vendor and ask for the availability of a suitable driver.



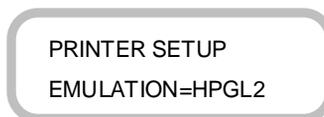
## To choose an emulation format

Note: EN RTL and HP RTL are advanced emulation options. To select these, be sure to choose Advanced in the Utilities/Options menu.

- 1 Press the arrow buttons to advance to the Printer Setup menu, then press Select.



- 2 Press the arrow buttons to advance to the Emulation menu, then press Select. The equals sign (=) blinks.



- 3 Press the arrow buttons to scroll through the Emulation formats, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back up to the previous menu level.

## Setting the serial communication parameters

If your software or hardware platform only has serial communication capability, check the manuals provided with your system for the required communication parameters prior to setting the RS-422/232 options on the printer. (See Appendix H for serial cabling information.)

### Setting the baud rate

Baud rate is the data transmission rate (in bits per second) between your computer and the printer. The RS-422/232 Setup menu lets you select from the following baud rates:

300	600	1200	2400
4800	9600	19200	38400



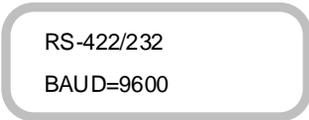
### To set the baud rate

- 1 Press the arrow buttons to advance to the RS-422/232 Setup menu, then press Select.



MAIN MENU  
RS-422/232

- 2 Press the arrow buttons to advance to the Baud menu, then press Select. The equals sign (=) blinks.
- 3 Press the arrow buttons to scroll through the baud rates. Press Select for the baud rate you want. The equals sign (=) stops blinking.



RS-422/232  
BAUD=9600

- 4 Press the down arrow to advance to the Parity option.

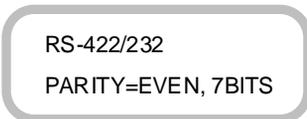
## Setting the parity

The RS-422/232 Setup menu lets you select from the following parity options:

ODD, 7 BITS	OFF, 8 BITS
EVEN, 8 BITS	ODD, 8 BITS
OFF, 7 BITS	EVEN, 7 BITS

### To set the parity

- 1 Press the arrow buttons to advance to the Parity menu, then press Select. The equals sign (=) blinks.



RS-422/232  
PARITY=EVEN, 7BITS

- 2 Press the arrow buttons to scroll through the Parity options, then press Select for the option you want. The equals sign (=) stops blinking.
- 3 Press the down arrow to move to the Handshake option.

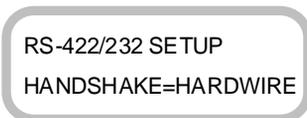
## Setting the handshake mode

The Handshake options are:

Hardwire	None
Xon/Xoff	Enq/Ack

### To set the handshake mode

- 1 Press the arrow key to advance to the Handshake=Hardwire menu, then press Select. The equals sign (=) blinks.



RS-422/232 SETUP  
HANDSHAKE=HARDWARE

- 2 Press the arrow key to scroll through the Handshake options, then press Select. The equals sign (=) stops blinking.
- 3 Press the down arrow to move to the DTR option.

### Setting the DTR option

The DTR (Data Terminal Ready) options are:

DTR=NORMAL

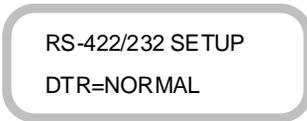
DTR=BYPASS

Set DTR to Normal if the Handshake option is set to Hardwire and to Bypass if Handshake is XON/XOFF.



### To set the DTR option

- 1 Press the arrow key to advance to the DTR menu, then press Select. The equals sign (=) blinks.



- 2 Press the arrow key to scroll through the Handshake options, then press Select. The equals sign (=) stops blinking.
- 3 Press the Menu button to move back to the previous menu level.

**This chapter applies only to files that you print using the HP-GL or HP-GL/2 emulations. These functions are otherwise not available.**

When printing vector data, you can control certain options from your software application, or you can assign control to the printer and set its options. Whether you assign control to the software (the default) or the printer depends on your personal preferences. You might choose to override software control because the software is not providing the features you want.

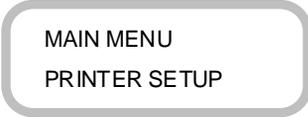
If you decide to use printer control, you can use only 16 simultaneous colors and cannot print an image over 50 inches (127 cm) long.

Printer control lets you set the following options:

- Palette Selection
  - Pen Color
  - Pen Width
  - Intersect Control
  - Rotation (Advanced option)
  - Reprint (Advanced option)
  - Wait Time
  - P1/P2 (Advanced option)
  - XY Calibration (Advanced option)
- ✓ Do not override software control when sending merged raster/vector data to the printer.

## To override software control

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select.



MAIN MENU  
PRINTER SETUP

- 2 Press the arrow buttons to advance to the Control option, then press Select. The equals sign (=) blinks.



PRINTER SETUP  
CONTROL=SOFTWARE

- 3 Press the arrow button to show PRINTER, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Using the vector palette

The printer vector palette has 256 colors and 15 line widths.

## Printing the color palette

Printing the demo print will print the color palette. The appearance of the colors will vary slightly depending on the media selected, therefore it is a good idea to run a test print on each media type that you will be using, to avoid unexpected results.

## Setting pen colors

The method for setting pen colors depends on whether you print using software control or printer control.

---

## Setting pen colors using software control

If your application has the ability to use 256 simultaneous colors, Software control (the default) should be your preferred method. If you have kept the Control option set for Software in the Printer Setup menu, draw each entity with the color in which you want it to print. Then configure your software's plot option so that each pen is assigned its own color. For example, Pen #1 = Color #1, Pen #2 = Color #2, etc. For more information on setting pen colors in your drawing application, see your application's user manual.

## Setting pen colors using printer control

If you've set the Control option for Printer in the Printer Setup menu, you must use the Pen Settings option in the Vector Palette menu to assign the desired pen colors to correspond to the color in which your entities are drawn. Using this method, printing is limited to 16 simultaneous colors.

## Setting pen widths using software control

If you have kept the Control option set to Software (the default) in the Printer Setup menu, assign a width to Pen #1 in your drawing application. When you send the image to the printer, you assign pen widths in the option sheet that your drawing application displays. For more information on setting pen widths using software control, see the user's manual for your drawing application.

## Setting pen widths using printer control

If you have set the Control option for Printer in the Printer Setup menu, you use the Pen Settings option in the Vector Palette menu to assign a width to Pen #1. All settings in the Vector Palette menu can be stored to a User # for future use.

Choose from the following pen widths:

0.08 mm	0.17 mm	0.25 mm
0.34 mm	0.42 mm	0.51 mm
0.59 mm	0.68 mm	0.76 mm
0.85 mm	0.93 mm	1.01 mm
1.10 mm	1.18 mm	1.27 mm

## To set pen colors and pen widths

- 1 From the Main menu, press the arrow buttons to advance to the Vector Palette menu, then press Select.



MAIN MENU  
VECTOR PALETTE

- 2 Press the arrow buttons to advance to the Pen Settings option, then press Select.

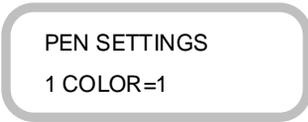


VECTOR PALETTE  
PEN SETTINGS



PEN SETTINGS  
PEN#=1

- 3 Press Select, the equals sign (=) blinks. Press the arrow buttons to increment the pen numbers.
- 4 Press Select to choose an individual pen number. The equals sign (=) stops blinking.
- 5 Press the down arrow to advance to Color, then press Select. The equals sign (=) blinks.



PEN SETTINGS  
1 COLOR=1

- 6 Press the arrow buttons to scroll through the 256 colors. Press Select to choose a color, the equals sign (=) stops blinking.
- 7 Press the down arrow to advance to Width, then press Select. The equals sign (=) blinks.

PEN SETTINGS  
1 WIDTH=0.17

- 8 Press the arrow buttons to scroll through the 15 pen widths. Press Select to choose the desired pen width, the equals sign (=) stops blinking.
- 9 Press the down arrow to move back to choose the next pen number to set and repeat steps 5 through 8.
- 10 When all pen colors and widths are set, press the Menu button to move back to the previous menu level.

## Using intersect control

Vector layers of an image are printed in the order in which the printer receives them from the computer. Typically, this is the order in which they were drawn. Unless you specify otherwise, a yellow line crossing a cyan line appears green at the point where they intersect when the Intersect Control option is set to Add. Because all colors are applied where lines intersect, you may see some bleeding of darker lines on the lighter lines near the intersection. When printing line drawings, you should set the Intersect Control option to Single Color to prevent color changes and bleeding at the intersect points.

The Single Color option prints only the last received vector layer of an image, so when a yellow line is laid down over a cyan line, the printer prints just the yellow line. When using the Single Color option, you might need to reorder the image so that all the layers print.



### To control intersect colors

- 1 From the Main menu, press the arrow buttons to advance to the Vector Palette menu, then press Select.
- 2 Press the arrow buttons to advance to Intersect Control, then press Select. The equals sign (=) blinks.

VECTOR PALETTE  
INTERSECT CONTRL

- 3 Press the arrow buttons to move between Add and Single, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Improving line-length accuracy

The printer should not require XY calibration, therefore by default the Use XY Calibration option (advanced option) is set to No. If you are printing vector data on very heavy media, you may want to perform XY Calibration. See Appendix A for calibration procedures.

- ✓ XY Calibration should never be used for merged vector/raster files.

## ➡ Turning XY Calibration on

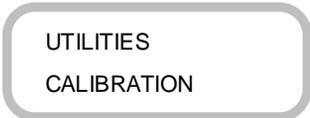
- 1 Press the arrow buttons to advance to the Utilities menu and press Select.

MAIN MENU  
UTILITIES

- 2 Press the arrow buttons to advance to the Options menu. Press Select, the equals sign (=) blinks.

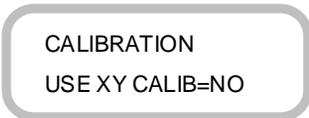
UTILITIES  
OPTION=EASY

- 3 Press the arrow buttons to show **ADVANCED**. Press **Select**, the equals sign (=) stops blinking. Press the up arrow to move to the **Calibration** menu and press **Select**.



UTILITIES  
CALIBRATION

- 4 Press the down arrow to advance to the **Use XY Calibration** option. Press **Select**, the equals sign (=) blinks.



CALIBRATION  
USE XY CALIB=NO

- 5 Press the arrow buttons to show **YES**. Press **Select**, the equals sign (=) stops blinking. Press the **Menu** button to move back to the previous menu level.

## Rotating the image (advanced option)

The printer automatically prints an image with the long side on the paper axis. To better fit images and save media, you can set **Control to Printer** and use the **Rotation** option to turn vector files counterclockwise 90 degrees at a time. For more information, see “To override software control” at the beginning of this chapter.

**Note:** Rotation is supported for HP-GL and HP-GL/2 files only. It is not supported for RTL files.

- ✓ To rotate images using software control, select paper size that is twice the size of your printed image and select rotate 90 degrees from the print configuration function in your drawing application. For example, to rotate a D size print on E size media, select an E size sheet in your drawing application. Scale your drawing so that it is D size and select rotate 90 degrees from your drawing application.

E SIZE  
SHEET

D SIZE  
DRAWING

### **To rotate the image**

- 1 Follow the procedure for changing the Control option discussed earlier in this chapter. Be sure Advanced options are selected.
- 2 From the Main menu, press the arrow buttons to advance to the Page Format menu, then press Select.

MAIN MENU  
PAGE FORMAT

- 3 Press the arrow buttons to advance to the Rotation option, then press Select. The equals sign (=) blinks.

PAGE FORMAT  
ROTATION=0

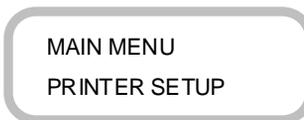
- 4 Press the arrow buttons to increment the Rotation values, then press Select for the value you want. The equals sign (=) stops blinking.
- 5 Press the Menu button to move back to the previous menu level.

## Making multiple prints

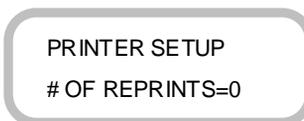
You can set the printer to print a specific number of vector files, during printing, as long as there is data in the buffer. When the Reprints option is set to 0, only one image at a time prints.

### ➔ To make multiple prints

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select. Be sure Advanced Options are selected.



- 2 Press the arrow buttons to advance to the # of Reprints option, then press Select. The equals sign (=) blinks.



- 3 Press the arrow buttons to increment the number, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Scaling the print area using the P1/P2 coordinates

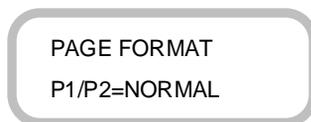
When drafting by hand, the drafter sometimes superimposes on the graph media a second grid, scaled to suit the drawing. If you have selected the advanced options, you can similarly scale the print area using the P1 and P2 coordinates.

P1 and P2 are the imaginary points located near the lower left and upper right corners of the print area, when the print is not rotated. Rotating the print causes the location of P1 and P2 to shift, relative to their original positions. For all HP-GL emulations, P1 and P2 defaults are located 0.6 inches inside the printing area (the Normal setting).

With HP-GL/2 emulation, the P1 and P2 defaults are at the corners of the printing area (the Maximum setting). If your CAD software lets you specify the location of P1 and P2, you can choose either normal or maximum locations to reduce or enlarge the printed image.

## To scale the print area

- 1 From the Main menu, press the arrow buttons to advance to the Page Format menu, then press Select.
- 2 Press the arrow buttons to advance to the P1/P2 option, then press Select. The equals sign (=) blinks.



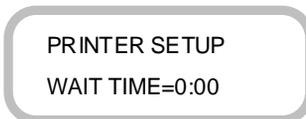
- 3 Press the arrow buttons to move between Normal and Maximum, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Setting the wait time

Some software programs or drivers do not signal the printer with an end-of-file command when the sending process completes. This is particularly true if you use HP7580 and HP7585 emulations. You can tell if the program you are using does not send an end-of-file command because the Processing # of bytes message on the printer's front panel stops incrementing and the image does not print. When using HP-GL emulation, the Wait Time option is set automatically so that the printer waits 30 seconds for the end-of-file command, then begins printing. The Wait Time option lets you increase or decrease the length of time the printer waits before printing without receiving the end-of-file command. The default Wait Time, when in any other emulation mode than HP-GL, is 0:00 (the Off condition).

## To set the wait time

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, then press Select.
- 2 Press the arrow buttons to advance to the Wait Time option, then press Select. The equals sign (=) blinks.



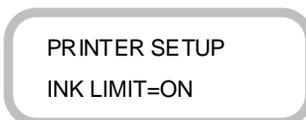
- 3 Press the arrow buttons to increment the minutes and seconds, then press Select. The equals sign (=) stops blinking.
- 4 Press the Menu button to move back to the previous menu level.

## Setting the ink limit (NJ4 only)

The printer uses a method for assigning an Ink Limit (advanced option) to polygon fills and wide polylines without affecting the color of your image. This helps prevent bleeding when printing on inexpensive inkjet media. The default for this option is On. If you are using high quality media, this option may not be needed and can be turned off.

## To turn off the ink limit

- 1 Follow the procedure for displaying advanced options, discussed earlier in this chapter.
- 2 Press the arrow buttons to advance to the Printer Setup menu, and press Select.
- 3 Press the down arrow to advance to the Ink Limit menu. Press Select, the equals sign (=) blinks.



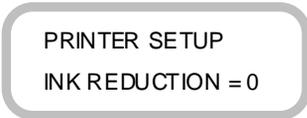
- 4 Press either arrow button to display OFF. Press Select, the equals sign (=) stops blinking.
- 5 Press the Menu button to move back to the previous menu level.

## Setting ink reduction

Ink reduction lets you reduce the percentage of ink laid down by the printer. This is specially useful for images with large amounts of printed area and helps to avoid bleeding or over-saturating the media. It does, however, change the appearance of colors, so you may want to run a small test print.

### To set ink reduction

- 1 From the Main menu, press the arrow buttons to advance to the Printer Setup menu, and press Select.
- 2 Press the down arrow to advance to the Ink Reduction menu. Press Select, the equals sign (=) blinks.



PRINTER SETUP  
INK REDUCTION = 0

- 3 Press the arrow buttons to scroll through the options: 0, 12.5, 25, 37.5, and 50%, then press Select. The equals sign (=) stops blinking.

# Preparing your printer for transport or storage

---

## Storing the NJ4

Preparing the NJ4 for storage requires only that you remove the ink cartridges. If you saved the blue sealing tape originally on the cartridges, carefully replace it on the inkjets. If you did not save the blue tape, do not use masking tape or any other type of tape, as this may damage the inkjets. Store the cartridges in a sealed plastic bag.

## Storing the NJP-36 and NJP-50

NovaJet series printers with extended ink systems have special requirements. If you need to take your printer out of service, for example, to ship it to another location or to send it to a repair depot, you must first remove the cartridges, purge the ink in the delivery lines, and drain the reservoirs as described in the paragraphs that follow.

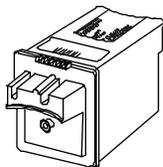
Notes (general):

- Before starting, be sure to have a supply of paper towels handy.
- You may want to put a drop cloth under the printer.
- Load a D or E-size sheet of paper into the printer to cover the platen.
- You may want to wear disposable gloves.

## Removing the ink cartridges

### ➔ To remove cartridges

- ! Do not touch the flex contact area of the cartridge.
- 1 Press the Access Cartridges button to move the cartridges out of the service station.
- 2 Close the tube clamps on the lines leading to the cartridges.
- 3 Remove the cartridge from the carriage by gently pulling the top edge toward you, then lifting it out of the carriage. Unscrew the tube fitting and remove the cartridge from the carrier. As soon as the cartridge is removed, set it down to avoid leaking.



- 4 Remove the cartridge from the ink delivery line. Wipe the outside of the line using a lint-free cloth to remove any ink.
- 5 Discard (or store) the cartridge and repeat the previous steps for the remaining cartridges.

#### Notes:

- *If you lay down a cartridge with ink in it, lay it on its front side so that the flex contacts face up. This prevents ink from leaking out either the top opening or out the jet area on the bottom.*
- *If you are returning the cartridge to ENCAD, please drain as much of the ink out of the cartridge as possible, enclose it in a plastic bag, and seal the bag.*
- *If you are returning the printer to ENCAD, remove all four cartridges. Be sure the ink delivery lines are purged and that the service station has been cleaned of excess ink.*
- *If you are storing the cartridge, seal it in a plastic bag.*

---

## Purging ink delivery lines

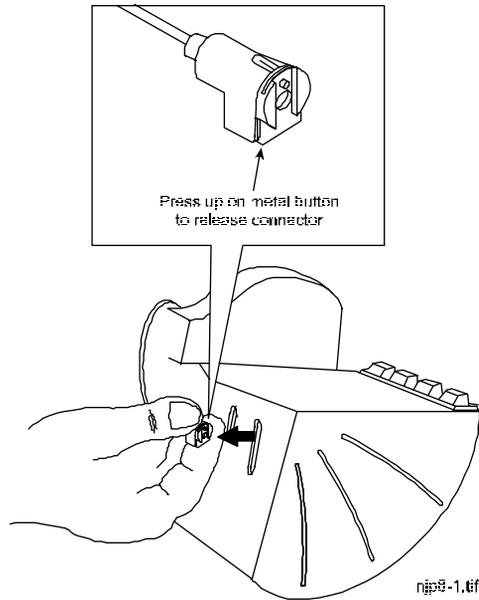
Purge ink delivery lines completely with distilled water so that no ink remains in them. Otherwise, ink may dry in the lines and cause printing problems later.

### To purge ink delivery lines

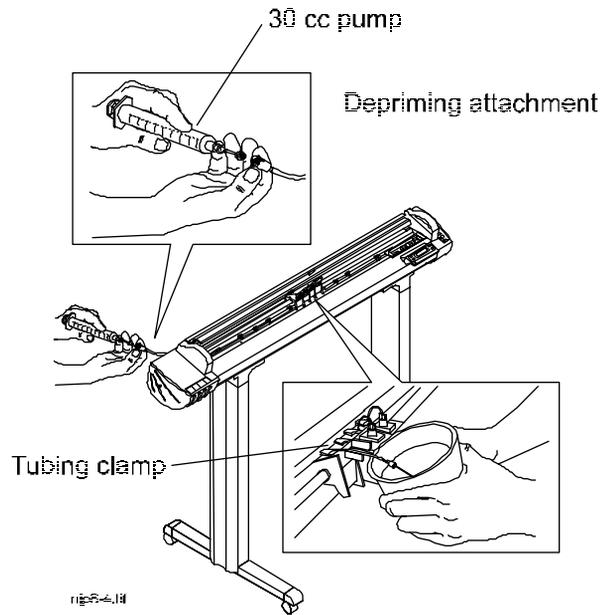
*Notes:*

- *Perform this procedure only when you are preparing the printer for shipment or storage.*
  - *This step is best performed by two people.*
  - *Wear disposable plastic gloves when disconnecting the ink delivery lines.*
  - *Be sure to use only distilled water when purging the lines.*
- 1 Make sure the tubing clamps on the carriage are closed so that no ink comes out.
  - 2 Remove all four cartridges before purging the ink lines.
  - 3 Remove the printer's top cover by sliding the retracting stop on the left end of the top cover to the right. (The retracting stop and spring will come out of the top cover if the left end is tipped down, so be careful not to lose them.)
  - 4 Disconnect the ink delivery lines from the back of the ink reservoirs, one at a time. There is a shiny, metal button (facing downward) on the connector. Reach through the opening in the back of the left cover and press up on the metal plate to release the connector from the ink reservoir. Hold the connector upright to prevent ink spills.

The connector has an automatic shutoff to prevent ink from leaking out of the line, but a few drops will exist inside the connector. Carefully wipe this excess ink from each connector using a paper towel before proceeding.



- 5 After an ink delivery line has been disconnected, drain the ink from the line. You will need a cup of distilled water and someone to assist you with this part of the procedure. Fit the end of the depriming attachment from the Novalnk toolkit into the end of the connector which was disconnected from the ink reservoir. Attach the other end to the 30 cc pump.



- 6 The person assisting you should place the needle at the end of the ink delivery line into a cup of water. The assistant should then open the tubing clamp for that line.
- 7 Draw the ink into the depriming attachment. Keep drawing out the ink until clean water emerges. At this point, you may remove the needle from the cup of water.
- 8 Continue drawing the water in the ink delivery line into the depriming attachment until the line is essentially empty (some water drops will remain).
- 9 Press the metal button on the connector to release the ink delivery line from the depriming attachment. Be sure to hold end of the depriming attachment up so that ink does not drip out of the end. Discard the ink in the depriming attachment and thoroughly rinse it out with water.
- 10 Repeat the same procedure until all of the lines are drained.

## Draining the ink reservoirs

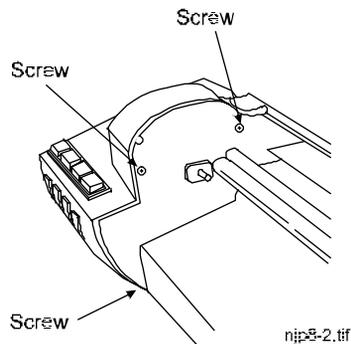
Use this procedure if you plan to transport the printer to another site, store the printer, or not use it for a prolonged period of time. This prevents the ink from drying out and clogging the ink delivery lines. It also will help to avoid any ink spills which could cause damage to the printer.

ENCAD recommends that tubing clamps on the ink delivery lines be left open during storage or shipment.

### ⇒ To drain the ink reservoirs

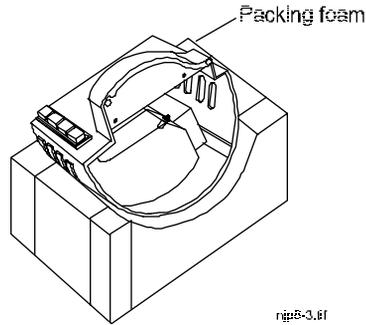
*Note: This step requires two people.*

- 1 Remove all the cartridges and drain all the lines before beginning to remove the left cover assembly.
- 2 Three Phillips head screws hold the left cover assembly onto the left side plate. One of them is on the bottom of the left cover assembly. The other two are on the inside of the left side plate.

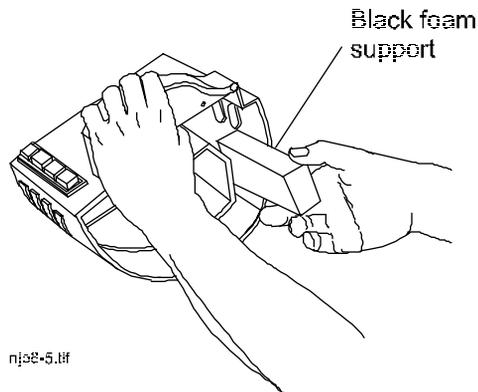


- 3 Leave the rubber caps in place on the ink reservoirs. Use a #2 Phillips screwdriver to remove the screws. As the three screws are removed, one person should hold the left cover assembly to keep it from falling. Keep the left cover assembly level to prevent ink spills from the reservoirs.

- 4 After removing the left cover assembly, place it in the packing foam that came with the plotter (or otherwise brace the print head to prevent it from tipping) so that the ink does not spill or leak out of the air vents in the top of the ink reservoirs.



- 5 Remove the black foam support from the inside of the left cover assembly.



- 6 Remove each ink reservoir. If you save the ink, store it in a clean container which can be sealed and will allow you to easily refill the reservoir. Otherwise, you should dispose of the ink. Label each reservoir to indicate the color of ink that it contained.
- 7 Thoroughly rinse each reservoir with distilled or reverse osmosis (R/O) water. Allow each reservoir to dry completely.

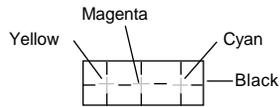
- 8 Put the reservoirs back in the left cover assembly in the reverse order in which they were removed and reinsert the black foam support.
- 9 Have someone help you reinstall the left cover assembly on the printer. Do not overtighten the three Phillips screws.
- 10 Reconnect each ink delivery line to the appropriate reservoir and open all the tubing clamps.
- 11 Replace the top cover.
- 12 Ensure that the tubing clamps are open. Keeping the clamps closed for long periods of time may cause the tubing to permanently crimp.

## Returning the printer for service

If for any reason, you need to return your printer to ENCAD for service, **you must remove the ink reservoir assembly and purge the ink supply lines.** Before returning the printer, contact ENCAD Technical Support for an RMA number and for complete instructions on preparing your printer for shipment.

## Cartridge calibration

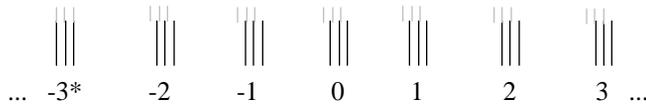
For best results, the cartridge calibration must be performed each time you install a new cartridge. The printer draws a series of three patterns. The first pattern, labeled “Current Heads (Y, M, C),” shows yellow, magenta, and cyan “+”s which represent the horizontal and vertical alignment between the cartridges.



**Current Heads (Y, M, C)**

When the colored + lines up horizontally and vertically with the black alignment marks, no adjustment is required.

The second pattern, labeled “Color Horizontal Head-To-Head Calibration,” horizontally aligns the cartridges. Three lines similar to the example below are printed with the following color combinations: yellow/magenta, magenta/cyan, and cyan/black.



**Color Horizontal Head-to-Head Calibration**

The third pattern, labeled “Color Vertical Head-To-Head Calibration,” vertically aligns the cartridges.



**Color Vertical Head-to-Head Calibration**

The numbers below each set of lines represent the different horizontal and vertical alignment values.

Examine the patterns to determine which value shows the best horizontal and vertical alignment between cartridges. These are the values you will set in the printer menu.

## To print a color pattern for calibration

- 1 Install ink cartridges in the printer. (See Chapter 2 "Getting started" for cartridge installation instructions.)
- 2 Load media that is at least 11 inches (280 mm) wide. (See Chapter 2 "Getting started" for media loading instructions.)
- 3 Prime the heads to ensure that all cartridges fire correctly. Make sure the Color LED on the panel is on.
- 4 Press the arrow buttons to advance to the Utilities menu and press Select.



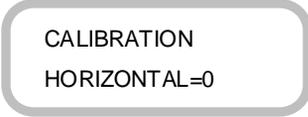
UTILITIES  
CALIBRATION

- 5 Press Select to advance to the Color Calibration submenu.



CALIBRATION  
COLOR

- 6 Press Select to draw the calibration alignment pattern. As the pattern prints, the display changes to the first adjustment menu.



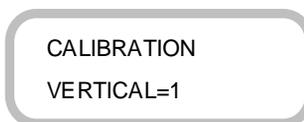
CALIBRATION  
HORIZONTAL=0

- 7 Examine the Current Heads pattern; the colored +'s should align with the black lines. If any of the "+"s don't align, perform the procedure for adjusting the alignment values.



## To adjust the alignment values

- 1 Examine the Horizontal Head-To-Head pattern and determine which value shows the best horizontal alignment. The printer menu shows the current value for the horizontal alignment.
- 2 If the best alignment for the Horizontal Head-To-Head pattern is different from the current value, press Select. The equals sign (=) blinks.
- 3 Press the arrow buttons to increase or decrease the current value. Press Select. The equals sign (=) stops blinking.
- 4 Press the down arrow button to advance the menu to VERTICAL = (value). The printer menu shows the current value for the vertical alignment.



- 5 Examine the Vertical Head-To-Head pattern and determine which value shows the best vertical alignment.
- 6 If the best vertical alignment on the Vertical Head-To-Head pattern is different from the current value, press Select. The equals sign (=) blinks.
- 7 Press the arrow buttons to increase or decrease the current value, then press Select. The equals sign (=) stops blinking.
- 8 Press the Menu button to move back to the previous menu level. If you wish, you may reprint the pattern now or press the Menu button again to backup another menu level.

## XY calibration

When you perform XY calibration, the printer draws a set of vertical marks to calibrate the paper axis and a set of horizontal marks to measure the carriage axis. To measure the marks laid down by the printer, you will need a ruler or scale at least 33 inches (838.2 mm) long. The vertical marks, as indicated by the printer display, should be exactly 33.00 inches (838.2 mm) apart. The horizontal marks, as indicated by the printer display, should be exactly 21.00 inches (533.4 mm) apart. If the distance between the marks is different from that shown on the display, you adjust the printer by setting its values to match the length or width you measured. You can increase or decrease the axis values on the printer by using the arrow buttons.

When you set the XY calibration values, all subsequent images are printed using the new values until you manually reset the calibration. The XY calibration values are only used when the Use XY Calibration option is set to On (see Chapter 2). XY calibration should not be used for merged vector/raster images.

This is an advanced option. To display it, select Advanced for the Option setting in the Utilities menu. For more information see “Using the Advanced Options” in Chapter 2.

### To calibrate the vertical axis

- 1 Load the printer with media that is at least 36 inches (910 mm) long (or the media that you are going to run; you cannot load a 36" sheet and then run the calibration from a roll feed because the line lengths will not match).
- 2 From the Main menu, press the arrow buttons to advance to the Utilities menu, then press Select.



- 3 Press the arrow buttons to advance to the Calibration menu, then press Select.

---



UTILITIES  
CALIBRATION

- 4 Press the arrow buttons to advance to the XY units option, then press Select to choose whether to measure in inches (English) or millimeters (metric).



CALIBRATION  
XY=ENGLISH

- 5 Press the arrow buttons to advance to the Paper Axis option, then press Select.



CALIBRATION  
PAPER AXIS

The printer prints two marks, and the display changes.

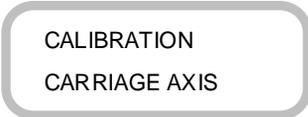


PAPER AXIS  
LENGTH=33.00

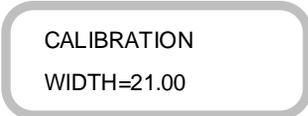
- 6 Remove the media from the printer and measure the distance between the witness marks. The distance between the marks should be exactly 33.00 inches (838.2 mm) +/- 0.2% of the line length.
- 7 Press Select, the equals (=) sign blinks. Press the arrow buttons until the value on the printer display matches the distance you measured, then press Select to set the value, the equals (=) sign stops blinking.
- 8 Press the Menu button to return to the previous menu level and continue the XY calibration for the carriage axis.

## To calibrate the horizontal axis

- 1 Load the printer with media that is at least 24 inches (610 mm) wide.
- 2 From the Paper Axis menu, press the down arrow to advance to the Carriage Axis menu.
- 3 Press Select. The printer prints marks and the display changes.
- 4 Remove the media from the printer and measure between the witness marks. The distance between the marks should be exactly 21 inches (533.4 mm) +/- 0.2% of the line length.
- 5 Press Select, the equals sign (=) blinks. Press the arrow buttons until the displayed value matches the distance you measured, then press Select to set the value. The equals sign (=) stops blinking.



CALIBRATION  
CARRIAGE AXIS



CALIBRATION  
WIDTH=21.00

# Installing additional memory

## B

Your printer is shipped with 4 MB of RAM and is upgradable to a maximum of 68 MB, 32 MB per socket. If you are plotting large HP-GL, HP-GL/2 or merged vector/raster files and are receiving the "MEMORY FULL" error, you will need to purchase and install additional memory.

**HP-GL Note** | If you are using the HP-GL or HP-GL/2 emulation, consider using ENCAD's vector to raster conversion utility (VRCU). Contact ENCAD or your dealer for details.

### Acceptable SIMM sizes

Printer memory may be upgraded by installing 72-pin SIMMs that are either 32 or 36 bits wide. (The printer does not use parity bits.) The SIMMs must not exceed a height of 2 inches (5 cm) and must conform to JEDEC Std. 21-C, release 4.

The printer will accept 4 MB, 8 MB, 16 MB or 32 MB SIMMs.

The SIMMs in the following table have been tested and found to function properly in ENCAD printers. Other manufacturer's SIMMs may be used if they are within the height limitation and conform to JEDEC specifications; however, ENCAD does not guarantee compatibility. ENCAD's bulletin board and Web page provide further information on SIMM compatibility. You may want to check there for the latest information.

Vendor	4 Megabyte	8 Megabyte
Micron	MT8D132M-6,-7	MT16D232M-6,-7
Samsung	KMM5321200AW-6,-7	-
Siemens	-	HYM322140S60,70
Toshiba	THM3210B0ASG-60,-70	THM3220C0ASG-60,-70
	<b>16 Megabyte</b>	<b>32 Megabyte</b>
Micron	MT8D432M-6,-7	MT16D832M-6,-7
Samsung	KMM5324100AK-6,-7	KMM5328100AK-6

Note: ENCAD printers do not use parity. Either 32-bit or 36-bit wide SIMMs may be used.

## SIMM installation

The SIMMs are located on the PCB inside the right cover. The PCB comes with both SIMM slots empty and 4 MB RAM permanently mounted on the board. The following procedures describe how to remove the right cover, remove any currently installed SIMM(s), install new SIMM(s) and replace the right cover. You will need a #2 Phillips screwdriver to complete the procedures.

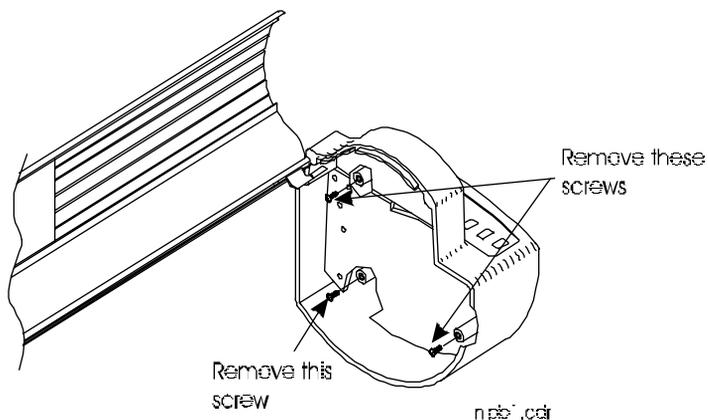
**! ALWAYS UNPLUG THE POWER CORD BEFORE BEGINNING.**

**!** To avoid static damage to the printer, never touch the circuit board or its components without first touching the bright metal portions of the printer and then the circuit board. Static damage is more likely when the relative humidity is low.



### To remove the right cover

- 1 Disconnect the power and the interface cables.
- 2 Remove the top cover. (Don't loosen the spring and post at the right end of the top cover.)
- 3 Place a rubber band around the connector clips on the parallel port.
- 4 Move the carriage to the center of the platen.
- 5 Remove (or loosen) the three screws on the inside of the right cover as follows:
  - a. Remove the back screw - located at the bottom of the back, inside the right cover assembly.
  - b. Loosen the top screw - lift the top cover, move the carriage to the middle of the platen to access the screw located on the top back, inside the right cover assembly.
  - c. Loosen the front screw - located below the keypad on the front, inside the right cover assembly.

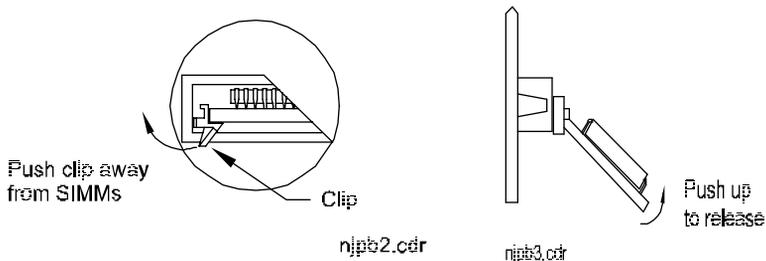


- 6 Move the right cover toward the back of the printer as you remove it, so that it clears the parallel port on the back of the unit. Be careful not to damage the LEDs on the PCB.

Note: Integrated circuits can be weakened or inactivated by electrical discharge. It is recommended that you be grounded to a static station by an ESD wrist strap to prevent ESD damage. For storage or shipment of printed circuit boards, anti-static bags are highly recommended.

## ➔ To remove the SIMMs

Facing the top of the SIMMs, push the side clips gently to the outside (away from the SIMM) and lift up and pull out, being careful not to damage the fingers on the top.



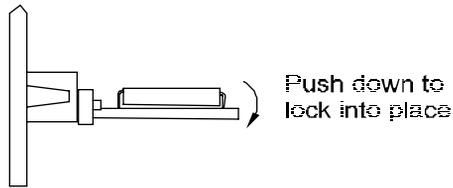
---

## To install the new SIMMs

Note: If you are installing two SIMMs:

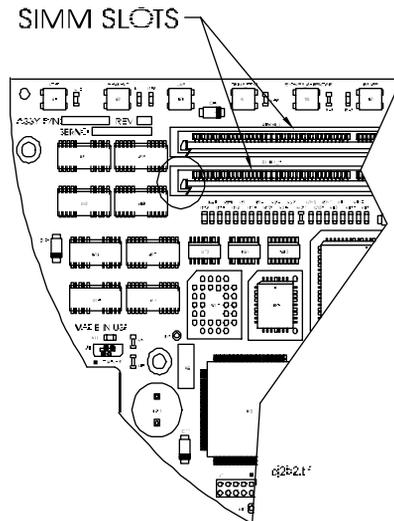
- Install the bottom one first.
- The SIMM in the top slot **MUST** contain **AS MUCH OR MORE** capacity as the SIMM in the bottom slot.

- 1 If necessary, remove the plug from the SIMM socket.
- 2 SIMM slots are at a 45 degree angle. Place the SIMM straight into the connector.



njpb4.cdr

- 3 Slowly push the SIMM down until the two side clips snap into place. Make sure the SIMM is fully seated.





## To reinstall the right cover

- 1 Make sure that all wires are inside the right cover area as you begin to put the right cover back into position, so that none of the wires is pinched between the right cover and the side plate.
- 2 Align the back of the right cover over the connector clips on the parallel port.
- 3 Reinstall and firmly tighten all three screws. **DO NOT OVER-TIGHTEN!**
- 4 Remove rubber band from the connector clips on the parallel port.
- 5 Replace the top cover.

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This section contains an overview of the printer's menu tree. Menus vary depending on the printer model; differences for the various models are noted. The use of the options is explained elsewhere in this guide.

**Note:** Advanced menu items are in *italics*.

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## MAIN MENU

- PRINT MODE - contains options for selecting the printing quality.
- UTILITIES - contains options for calibrating the ink cartridges, displaying advanced options, and setting the Ink Low warning light.
- USER SETTINGS - contains options for creating and using eight sets of pre-configured printer options.
- PAGE FORMAT - contains options for the layout of a print.
- PRINTER SETUP - contains options for configuring the printer.
- VECTOR PALETTE - contains options for selecting the palette and defining intersect control and pen settings. (Not advanced on NJ4.)*

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### **NJ4 only**

- DEMO PLOT - leads to the option that prints the demo plot which prints a representation of the internal color palettes.

- 
- RS-422/232 SETUP - contains options for the printer-computer interface.

## PRINT MODE

**MODE=** - Allows the selection of the predefined print modes.

**Options:** NORMAL (default for NJ4)  
DRAFT  
USER DEFINE  
DRAFT 3 PASS  
MONO 600x600  
ENHC 3 PASS (color only)  
ENHC 4 PASS (color only) (default for NJPro)

**DIRECTION=** - *Selects whether the printer will print in one or both directions across the platen.*

**Options:** UNI (default)  
BI

**FIRING RATE=** - *Selects the speed at which the inkjets will fire.*

**Options:** 3000 - 10KHz (100 Hz increments) (7000 is the default for NJ4, 5000 is the default for NJPro) For best results, do not set higher than 8000 Hz.

**# OF PASSES=** - *Selects the number of passes the printer will take to print one scan line.*

**Options:** 1 (default for NJ4)  
3  
4 (default for NJPro)

**PRINT METHOD=** - *Selects the method of printing, including dots per inch.*

**Options:** COLOR (default)  
GRAY 1H 300 x 300  
GRAY 1H 600 x 600  
MONO 1H 300 x 300  
MONO 1H 600 x 600

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**UTILITIES**

- CALIBRATION** - Provides access to the calibration procedures.
- Options: COLOR (default)  
Vertical and horizontal calibrations for cyan, magenta, and yellow  
*USE XY CALIB=NO [YES]*  
*XY=ENGLISH [METRIC]*  
*PAPER AXIS*  
*CARRIAGE AXIS*
- OPTIONS=** - Selects the menu mode
- Options: EASY (default)  
ADVANCED
- 

**NJ4 ONLY**

- INK LOW LVL=** - Enables ink counting by entering a percentage other than 0%. If any cartridge falls below the selected percentage, the INK LOW indicator will turn on and an alarm will sound.
- Options: 0 to 50% in 5% increments (0% turn ink counting off)
- INK LOW STOP=** - If enabled with the INK LOW LVL option, printing will stop when any cartridge reaches 0% ink
- Options: NO (default)  
YES
- CURRENT INK LVL** - Allows you to tell the printer how much ink is in each cartridge. This must be done if using the ink counting function. (100% is the default.)
- Options: YELLOW = 100% - 5% in 5% increments  
MAGENTA = 100% - 5% in 5% increments  
CYAN = 100% - 5% in 5% increments  
BLACK = 100% - 5% in 5% increments
-

INITIALIZE - Resets the printer to the factory defaults.

Options: None

*SELF TEST Use only at the direction of Tech Support.*

*MANUFACTURING Use only at the direction of Tech Support.*

*SERVICE Use only at the direction of Tech Support.*

## **USER SETTINGS**

SELECT USER= - Selects a previously saved USER configuration.

Options: 1 - 8 (Default is 1.)

SAVE USER= - Saves the current printer configuration to the selected USER number.

Options: 1 - 8 (Default is 1.)

## **PAGE FORMAT**

MARGINS= - Changes the available plot area based on the margin size selected.

Options: NORMAL (default)  
EXPANDED

MEDIA= - Selects the media standard. Allows the printer to assign a plot area based on the media standard selected.

Options: ALL (default)  
GRAPHICS  
SPECIAL  
ISO B  
MET OVER A  
ISO A  
US ARCH  
US ENGR

---

FRAME LENGTH - Allows you to specify odd sizes for the length of your media.

Options: AUTO 5" to 50" in 0.1" (126mm to 1269mm in 2mm and 3mm increments) (default)  
UNITS = INCHES (default)  
MM

ROTATION= - (HP-GL and HP-GL/2 emulations only) Rotates vector plots.

Options: 0° (default),  
90°  
180°  
270°

NESTING SETUP= - (HP-GL and HP-GL/2 emulations only) Nests plots.

Options:  
Nest=  
ON  
OFF (default)  
Nest Time=  
30 sec  
1 min.  
2 min. (default)  
Auto Rotate=  
ON (default)  
OFF

PLOT AREA - Displays the plot area for the currently loaded or last loaded media.

Options: None

P1/P2= (HP-GL and HP-GL/2 emulations only) *Allows selection of the P1/P2 scaling parameters for vector files.*

Options: *NORMAL (default)*  
*MAXIMUM*

## PRINTER SETUP

- EMULATION= - Sets the printer's emulation mode. The printer automatically senses between HP-GL/2 and HP RTL. Change default only when using HP-GL.
- Options: HP-GL (only available when Easy is selected as the Utilities option)  
HP-GL2/RTL (default)  
*EN-RTL*  
*HP7475*  
*HP7550*  
*HP758X*  
*HP759X*
- CONTROL= - Sets whether the printer will override the command in the file. For vector plotting only.
- Options: SOFTWARE (default)  
PRINTER
- ROLLFEED= - Tells the printer that you are using roll media.
- Options: ON (default)  
OFF  
TAKEUP (NJP-50 and units with optional power feeder only)
- CUTTER= - Tell the printer to cut the media after the plot is complete.
- Options: ON (default)  
OFF
- WIPER = - Enables/disables wiping of the cartridges during printing.
- Options: ON (default)  
OFF
- LOAD= - Enables the Manual load option, for use when the printer does not properly sense the media.
- Options: AUTO (default)
-

---

 MANUAL

SAVE MEDIA= - When enabled, will stop at the end of the plot if the frame length is longer.

Options: ON (default)  
OFF

# OF REPLOTS= (HP-GL and HP-GL/2 emulations only) - Replots the vector file in the printer's buffer the selected number of times.

Options: 0 to 100 (Default is 0)

DRY TIME= - When enabled, waits the selected amount of time after printing before cutting the media.

Options: 0 - 60 min.

INK REDUCTION=- Allows you to reduce the percentage of ink being laid down by the printer. This changes the appearance of colors.

Options: 0% (off) (default), 12.5%, 25%, 37.5%, 50%

*INK LIMIT* (HP-GL and HP-GL/2 emulations only)= - *When enabled (default), limits the amount of ink laid down for polygon fills and wide polylines to 120% to prevent bleeding.*

Options: ON (default)  
OFF

PLOT VECTOR FILE (HP-GL and HP-GL/2 emulations only) - When selected, plots the vector file in the printer's buffer. Used when a file has been sent to the printer but did not plot. (Advanced function on NJPro.)

Options: None

WAIT TIME (HP-GL and HP-GL/2 emulations only) - When enabled, plots the vector file in the printer's buffer if it has not plotted within the selected wait time.

Options: 0 (off) (default) to 60 min.

LANGUAGE= - Selects the language used for the printer's display.

---

Options: English (default), French, German, Italian, Portuguese, Spanish

MEMORY CONFIG= - Allocates memory for the I/O buffer and the raster buffer.

Options: Depends on the amount of RAM installed

---

#### **NJ4 ONLY**

**ALARM BEEP=** - ALLOWS YOU TO TURN THE PRINTERS ALARM BEEP OFF.

Options: *ON (default)*  
OFF

---

#### **VECTOR PALETTE (HP-GL AND HP-GL/2 EMULATIONS ONLY) (NOT ADVANCED ON NJ4)**

PALETTE= - Selects which internal color palette to use.

Options: Default  
NJII

PEN SETTINGS (HP-GL and HP-GL/2 emulations only) - Leads to the submenus for setting pen color and pen width for the 16 internal pens. These settings will only be used if the Control option is set to Printer.

Options: PEN#= 1-16 (default)  
ALL  
1 COLOR = 0-255 (Default is 1.)  
1 WIDTH = (Default is 0.25mm.)  
0.08 mm, 0.17 mm, 0.25 mm, 0.34 mm,  
0.42 mm, 0.51 mm, 0.59 mm, 0.68 mm,  
0.76 mm, 0.85 mm, 0.93 mm, 1.02 mm,  
1.10 mm, 1.19 mm, 1.27 mm

INTERSECT CONTROL= (HP-GL and HP-GL/2 emulations only) - Controls whether all color will be laid down at the intersections or only the last color sent will be printed at the intersections.

---

---

Options:           COLOR= ADD (default)  
  SINGLE

---

#### **NJ4 ONLY**

**PEN CONTROL=** (HP-GL and HP-GL/2 emulations only) - Determines whether pen settings are defined through the printer's settings or by the application software.

Options:           SOFTWARE (default)  
  PRINTER

---

#### **RS-422/232 SETUP**

**BAUD=** - Sets the baud rate

Options:           300  
  600  
  1200  
  2400  
  4800  
  9600 (default)  
  19200  
  38400

**PARITY=** - Sets the Serial Parity

Options:           ODD,7BTS  
  OFF,8BTS  
  EVEN,8BTS  
  ODD,8BTS  
  OFF,7BTS  
  EVEN,7BTS (default)

**HANDSHK=** - Sets the communication handshake.

Options:           HARDWIRE (default)  
  NONE  
  XON/XOFF  
  ENQ/ACK

**DTR=** - Sets the DTR

---

Options:      NORMAL (default)  
                  BYPASS

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## Front panel messages

These display messages are helpful in determining the status of the printer and possible corrective action when operation does not appear to be normal.

PLOT RECEIVED  
UNABLE TO CHANGE

The user has attempted to make a change to the printer parameters after the plot data has been received. Printing parameters must be set prior to the data transmission. Set the parameters and press ENTER after each before sending the plot.

DRYING TIME  
X MIN X SEC

With ROLL enabled, the printer waits a specified amount of time before cutting the media and allowing the plot to fall. If cut sheet media is being used, there will be *no printer action* after the dry-time elapses. The user may release the media at any time.

INSERT MEDIA  
USE LOAD MEDIA

Data has been received, but no media has been loaded. Load media for plotting.

MEMORY FULL

The I/O buffer has overflowed. The plot being sent will probably not be complete. Buffer allocation should be reset. If this does not resolve the problem, additional buffer must be installed.

PRINTER ERROR  
CARRIAGE AXIS

The carriage has stopped moving in its normal direction due to an obstruction; i.e., paper jam, or a hand. Turn the printer OFF, and remove any obvious obstruction and the media. Turn the printer ON, load new media, and resend the plot. If this same message appears, contact ENCAD Technical Support for further instructions.

## HP-GL emulation error messages

The following messages result from sending the printer an HP-GL emulation output error (OE) command. These error codes do not necessarily indicate that the plot will be incomplete or aborted. In some cases, plotting operation may be normal; however, please contact ENCAD's Technical Support Department or your dealer, so the source of the error can be determined.

- Error 1      Instruction not recognized.
- Error 2      Wrong number of parameters. Not enough parameters have been sent with the instruction.
- Error 3      Parameter out of range.
- Error 4      Not used.
- Error 5      Unknown character set. A character is out of range. -1 through 60, 70, 80, or 99 have been designated as either the standard or alternate character set.
- Error 6      Position overflow. An attempt to draw a character (LB or UC) or perform a CP that is located outside the printer's numeric range.
- Error 7      Polygon buffer or downloadable character buffer overflow.

---

## RS-422/232 error messages

- |    |   |
|----|---|
| 0  | No I/O error has occurred.  |
| 10 | Output instruction received while another output instruction is being executed. The first is executed while the next instructions are ignored.          |
| 11 | Invalid byte received after the first two characters, ESC., in a device control instruction.  |
| 12 | Invalid byte received while parsing a device control instruction. The parameter containing the invalid byte and all following parameters are defaulted. |
| 13 | Parameter out of range.   |
| 14 | Too many parameters received. Additional parameters after the correct number are ignored.   |
| 15 | A framing error, parity error or overrun error has occurred.  |
| 16 | Input buffer overflow. This will result in the loss of data and probably an HP-GL emulation error.  |
| 17 | Baud rate mismatch.   |
| 18 | I/O error indeterminate.  |
| 20 | RS-422/232 serial xtda/xrda failure. (Occurs only with a loop back connector in test.)  |
| 21 | RS-422/232 DTR or test failure. (Occurs only with a loop back connector in test.)   |

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<b>baud rate</b>	The rate of data transfer (bits per second between the computer and printer.
<b>bit</b>	The smallest unit of digital information used by a computer or printer.
<b>buffer</b>	The part of the printer's memory that is used for receiving and processing plot files.
<b>calibration</b>	The procedures to adjust the ink cartridge alignment and line length accuracy.
<b>carriage axis</b>	The plot area measured parallel to the platen.
<b>Centronics</b>	A standard parallel interface.
<b>configuration</b>	The way that the computer and printer are connected.
<b>dpi</b>	Dots per inch (dpi), the number of dots the printer lays down in an inch.
<b>handshake</b>	A method the computer and printer use to communicate.
<b>inkjet</b>	The nozzle part of the ink cartridge.
<b>interface cable</b>	The cable used to connect the printer to the computer. NovaJet printers use a serial or parallel interface cable.
<b>media</b>	The surface on which the printer prints the image. Media comes in a variety of types, including paper, polyester, canvas, and film.
<b>monochrome</b>	An image that is printed in only one color (usually black).
<b>orientation</b>	The direction of the plotted image on the page.
<b>palette</b>	The available colors for the printer.
<b>paper axis</b>	The long side of the plot area measured at right angles to the platen.
<b>parallel interface</b>	An interface type in which all bytes are transferred simultaneously, making it faster than a serial interface.

<b>parity</b>	A method for checking the transfer of information between the computer and printer.
<b>platen</b>	The surface on which the printer prints.
<b>plot area</b>	The area in which the printer prints the image, determined by the width of the media.
<b>prime</b>	To clear the ink cartridges by forcing them to fire rapidly.
<b>raster image</b>	A graphic created by dots called bitmaps.
<b>resolution</b>	The sharpness of a printed image as measured by dots per inch.
<b>roll feed</b>	Media that is packaged on a roll and is loaded and fed through the back of the printer.
<b>sheet media</b>	Media that is packaged in individual sheets and is loaded and fed through the front of the printer.
<b>vector</b>	A graphic created by geometric lines. HP-GL and HP-GL/2 files are vector files.

# Technical information

# F

## MEDIA SIZES:

\*= NJP-50 only

ANSI E	34 x 44"
ANSI D	22 x 34"
ANSI C	17 x 22"
ANSI B	11 x 17"
ANSI A	8.5 x 11"

ISO A0	841 x 1189 mm
ISO A1	594 x 840 mm
ISO A2	420 x 594 mm
ISO A3	297 x 420 mm
ISO A4	210 x 297 mm

ISO B4	250 x 353 mm
ISO B3	353 x 500 mm
ISO B2	500 x 707 mm
ISO B1	707 x 1000 mm

ARCH E	36 x 48"
ARCH D	24 x 36"
ARCH C	18 x 24"
ARCH B	12 x 18"
ARCH A	9 x 12"

MET DIN A0	881 x 1229 mm
MET DIN A1	634 x 881 mm
MET DIN A2	460 x 634 mm
MET DIN A3	337 x 460 mm
MET DIN A4	250 x 337 mm

E1	30 x 42"
E2	26 x 38"
E3	27 x 39"

JIS Full A1	625 x 888 mm
-------------	--------------

Graphic Arts:

19 x 25"
20 x 28"
22 x 26"
23 x 35"
24 x 29"
25 x 38"
32 x 44"

35 x 45"
36 x 45"
40 x 50**
48 x 65**
50 x 65**

4 MB permanently installed  
User upgradeable to 4, 8, 16,  
32 or 68 MB, 70 ns or faster,  
ENCAD approved.

Graphics Arts (mm)  
1189 x 1682 mm\*  
1000 x 1414 mm\*  
860 x 1220 mm  
610 x 860 mm

## MEDIA TYPES:

Photopaper, paper matte, drafting  
films, and specialty.  
See Appendix G for details.

## RESOLUTION:

300 x 300 dpi  
600 x 600 dpi addressable

## STANDARD FEATURES:

Cut sheet or rollfeed with cutter  
Low ink-level indicator  
8 user-savable settings  
Replot & multiple copies  
Merged vector/raster images  
Ink reduction  
Plotnesting

## LINE LENGTH ACCURACY:

+/-0.015" (.38 mm) or +/-0.2% of  
the specified vector line length,  
whichever is greater

## LONG PLOT:

Plot Length: 50' (depending on  
software application used)  
Frame to Frame Registration:  
.01"  
Distance Accuracy: 0.2% of  
total length

## BUFFER:

Two 72-pin, 32-bit wide DRAM  
sockets.

## EMULATIONS:

HP-GL, HP-GL/2  
HP RTL, EN RTL

## INTERFACES:

Centronics Parallel  
RS-422/232

## BAUD RATES:

300; 600; 1200; 2400; 4800;  
9600; 19200; 38400

## POWER:

90-246 VAC 47-63 Hz  
Consumption:  
24 W Typical  
63 W Maximum

## OPERATING ENVIRONMENT:

41° - 104°F (5° - 40°C)  
20-80% RH, Non-condensing

## STORAGE ENVIRONMENT:

-40° - 140°F (-40° - 60°C)  
10-80% RH, Non-condensing

## CERTIFICATIONS:

Safety  
CSA C22.2 950  
CE Mark  
UL1950  
EN60950  
EMI  
FCC Class B  
CE Mark  
EN50082-1  
EN55022 Class B

**Made in the U.S.A.**

**NJ4 - D size**

**DIMENSIONS:**

Height - 42" (105 cm)  
Width - 44" (112 cm)  
Depth - 28" (72 cm)

**WEIGHT:**

53 lbs (24 kg) Assembled  
50 lbs (22.7 kg) Shpg: Plothead  
39 lbs (17.7 kg) Shpg: Stand

**NJ4 - E size**

**DIMENSIONS:**

Height - 48" (121 cm)  
Width - 55" (140 cm)  
Depth - 28" (72 cm)

**WEIGHT:**

58 lbs (26.5 kg) Assembled  
58 lbs (26.5 kg) Shpg: Plothead  
43 lbs (19.5 kg) Shpg: Stand

**NJP-36**

**DIMENSIONS:**

Height - 48" (121 cm)  
Width - 60.5" (154 cm)  
Depth - 28.5" (72.39 cm)

**WEIGHT:**

56 lbs (25.4 kg) Assembled  
76 lbs (34.5 kg) Shpg: Plothead  
41 lbs (18.6 kg) Shpg: Stand

**NJP-50**

**DIMENSIONS:**

Height - 48" (121 cm)  
Width - 74.5" (189.2 cm)  
Depth - 28.5" (72.39 cm)

**WEIGHT:**

86 lbs (39 kg) Assembled  
85 lbs (38.6 kg) Shpg: Plothead  
41 lbs (18.6 kg) Shpg: Stand  
26 lbs (11.8 kg) Shpg: Media Feed

---

## ENCAD media for NovaJet series printers

ENCAD offers a full line of inkjet media which gives you brighter, crisper color from your printer. Choose from a variety of sheet and roll sizes. ENCAD ink and media are optimized to work together and were designed for optimal results on your printer. You can count on:

- Brilliant, saturated colors
- Sharp lines and edges
- No visible bleeding between colors

**Note: Supplies are interchangeable between models unless indicated. Be sure to order supplies specifically for the NovaJet model you are using.**

## ENCAD supplies ordering information

You can order ENCAD supplies from your Authorized ENCAD Distributor, ENCAD Supplies Dealer or order directly from ENCAD:

For the names of authorized distributors in Europe, Asia, and Latin America, call:

<i>Europe:</i>	Paris, France	Phone: 1-3051-0041	Fax: 1-3051-7080
<i>Latin America:</i>	Austin, TX	Phone: 512-219-8022	Fax: 512-219-7863
<i>Asia:</i>	Hong Kong	Phone: 2-2881-8969	Fax: 2-2881-0912

## **NJ Pro Ink and cartridges**

NovaJet Pro printers use the proprietary NovaInk system.

### **Novalnk (NI) System**

NovaInk is an extended ink system which reduces the interval between cartridge changes. This system is ideal for unattended printing and large batch runs. Each ENCAD NI proprietary cartridge includes the nozzle mechanics, and electrical connections. It draws ink from a reservoir in the printer. The ink reservoirs can be filled at any time, for uninterrupted printing. After extensive use, the cartridges do experience some wear and should be replaced.

NovaInk cartridges use ENCAD's special graphics arts (GA) or graphic outdoor (GO) inks which not only give you vivid color, but actually extend the cartridge's life. The NovaInk System includes:

- ENCAD proprietary NI cartridges
- 500 ml bottles of ink. Available in GA or GO cyan, magenta, yellow, and black.

Be sure to order media matched to the type of ink you are using.

Note: Always refill cartridges with the same type and color of ink.

### **Novalnk Reservoir Change Kit**

This kit contains everything you need to change your printer over from GA to GO inks. It includes ink reservoir assemblies, cartridge storage "garages", reservoir storage containers, tools, and instructions for changing inks. Ink and cartridges should be ordered separately.

---

## NJ4 Ink and cartridges

The NovaJet 4 uses refillable cartridges. Each cartridge includes the nozzle mechanics, electrical connections, and a self-contained ink supply.

NJ4 cartridges use ENCAD's special graphics arts (GA) inks which not only give you vivid color, but actually extend the cartridge's life.

Refill kits include:

- ENCAD proprietary refillable cartridge
- One 20 ml bottle of ink. Available in GA cyan, GA magenta, GA yellow, and GA black.

## Inkjet media for NovaJet Series printers

ENCAD Quality Imaging Supplies (QIS) expand the range of projects you can produce with your printer. Put your ENCAD inkjet printer to work creating dazzling presentations, quality fine art, photo-realistic images, impressive signs, eye-catching trade show displays, vivid charts, colorful maps, and more.

Choose from photo and matte media in a variety of thicknesses and coatings, films of various types, and specialty materials including canvas and vinyl.

ENCAD media features proprietary coatings which provide the highest image quality when used with ENCAD inks. Our stringent quality assurance program guarantees consistent coatings, repeatable colors, and outstanding compatibility with ENCAD inks.

### Photo Paper\*

This photographic-based media is excellent for posters, photo-realistic images, and framed art. Renderings benefit from quality output with this paper. It is also ideal for client, courtroom, or marketing presentations, as well as point-of-purchase signs. Choose the weight and finish appropriate to your project:

#### **QIS Photo Gloss - 7 mil**

#### **QIS Photo Semi-Gloss - 7 mil**

\* Use with Enhanced Printing mode only.

## **Gloss and Semi-Gloss Papers\***

When a thinner base is acceptable for your project, you can choose QIS Gloss and Semi-Gloss papers have the same coating as photo papers, but on a thinner base for a more cost-effective solution.

### **QIS Gloss - 4 mil**

### **QIS Semi-Gloss - 4 mil**

\* Use with Enhanced Printing mode only.

## **Matte Paper**

Premium and Specialty matte offer brilliant colors, minimal color bleeding, sharp lines and edges. Both papers are ideal for images with medium to light color fill, such as maps, mechanical or architectural renderings, PC board layouts, and presentation flip charts.

### **QIS Premium Matte 100 gram (Rolls only)**

This paper produces high resolution, no bleed output with no strikethrough for medium color fill and minimal cockle.

### **QIS Specialty Matte 3 mil (Rolls only)**

Excellent for preliminary or working drawings of CAD designs, renderings, maps, or presentation graphics. Images produced on Specialty Matte are far more water-resistant than those produced on other papers.

### **QIS CAD 24 lb. (Rolls only)**

Opaque paper with a coating optimized for inkjet printing. Ideal for preliminary or working drawings of CAD designs, renderings, maps, or presentation graphics

## **Film**

ENCAD polyester-based films are engineered for high-impact and vivid color. Five types of film give you the flexibility to create brilliant overlays, overhead projections, signs, posters, and banners.

---

**QIS Clear Film - 4 mil\***

Optically clear. Its polymer coating gives excellent resolution and color saturation. Use for overlays, such as printed circuit boards, mapping, screen printing, and overhead projection. May be imaged on both sides.

\* Use only with Enhanced Printing mode.

**QIS Backlit Display - 5 mil\***

Tough, translucent polyester for high quality, backlight displays. Graphics, scanned images, and photos become even more exciting with backlight illumination. Great for trade shows and point-of-purchase signs.

\* Use only with Enhanced Printing mode.

**QIS Ultra White - 4 mil\***

Tough, dimensionally stable, glossy, bright white polyester film. Brilliant for signs, posters, banners, and presentations. Can be imaged on both sides.

\* Use only with Enhanced Printing mode.

**Drafting Film - 4 mil**

A coated polyester film, matte on both sides. Ideal for final CAD drawings. More dimensionally stable and durable than bonds or vellums.

**Specialty****Canvas (36" x 35' and 50" x 35' roll only)\***

Inkjet coated artist canvas for photo-realistic images, art work, portraits, any image which requires an artist canvas look. Quality comparable to photographic glossy media.

\* NovaJet cutter will not cut this media because of its thickness.

Use only with Enhanced Printing mode.

### **Vinyl for GA inks (36" x 40' and 50" x 35' roll only)\***

Adhesive backed, matte finish vinyl for large banners, posters, signs, lettering, and point-of-sale.

\* Use only with Enhanced Printing mode.

### **Vinyl for GO inks**

A flexible, white, opaque calendered vinyl designed for excellent ink receptivity and durability when used with ENCAD's Graphic Outdoor (GO) inks and NovaJet printers. Outstanding for outdoor signs.

\* Use only with Enhanced Printing mode.

## **Overlaminates**

Overlaminates are used with ENCAD GO media to seal and protect the graphic. They are available with gloss, matte, or luster surfaces.

### **Matte Clear Vinyl Cast Overlamine Film**

A premium quality, clear, matte, cast vinyl overlamine film for use with ENCAD Graphic Outdoor (GO) media. Recommended for outdoor applications which require glare resistance and durability.

### **Gloss Clear Vinyl Overlamine Film**

A premium quality, clear, high gloss, cast vinyl overlamine film for use with ENCAD Graphic Outdoor (GO) media. Recommended for applications which require extended glossy colors and durability.

### **Luster Clear Vinyl Overlamine Film**

A clear, flexible, semi-gloss calendered vinyl overlamine film for use with ENCAD Graphic Outdoor (GO) media. Recommended for outdoor applications which require vibrant colors and durability.

---

## Media Sizes

Media is typically available in the sizes listed below. Call your authorized ENCAD media dealer for availability.

### Rolls

- 12" x 100'
- 24" x 100'
- 24" x 50'
- 30" x 100'
- 36" x 100'
- 50" x 100'
- 50" x 120'
- 50" x 6" O.D.

\* Special order

### Specialty matte

- 24" x 150'
- 36" x 150'
- 50" x 150'

### Premium matte

- 24" x 100'
- 36" x 100'
- 50" x 150'

### Sheets (in boxes of 25 sheets)

- 8.5" x 11"
- 11" x 17"
- 18" x 24"
- 24" x 36"
- A1\*
- A2\*
- A3\*

### Canvas

- 36" x 40'
- 50" x 35'
- 50" x 6" O.D.

### Vinyl

- 30" x 40'
- 50" x 40'
- 50" x 6" O.D.

## Media Samples

Media samples are available so that you may experiment with a variety of media for your application. Because we are always adding new media, call your authorized ENCAD media dealer for a list of current offerings.

## Media Cutter (pkg. of 5)

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This section defines the serial cable requirements for connecting the printer to your DOS or UNIX based systems. You may build this cable or purchase it from ENCAD, Inc.

For connecting to an Apple Macintosh, use the standard LaserWriter cable.

## RS-232 cable requirements

### Mini-Din-8 Plug

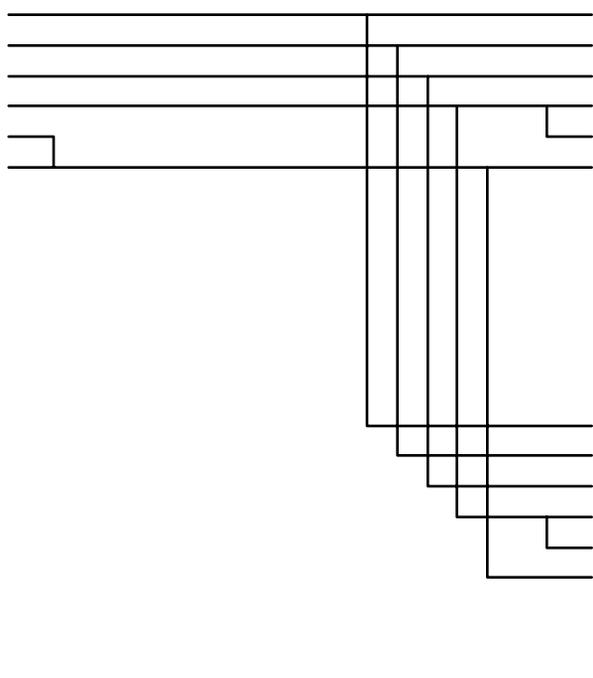
RXD- 5  
TXD- 3  
HSKI 2  
HSKO 1  
RXD+ 8  
GND 4  
TXD+ 6  
GPI 7

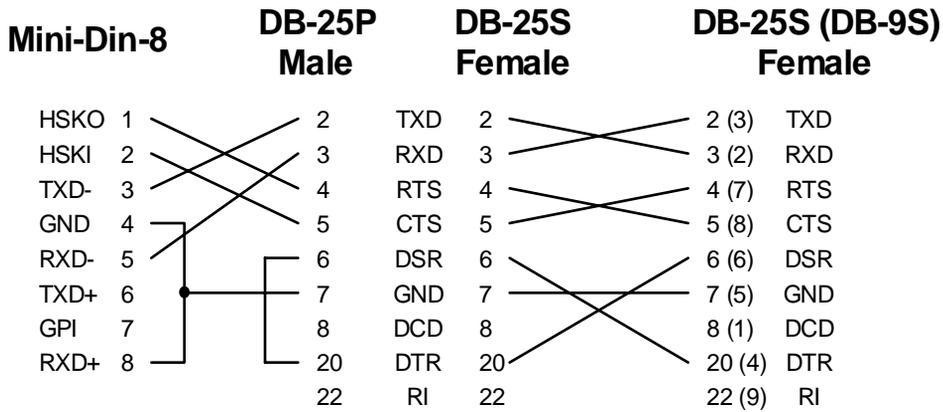
### DB-25S Female

2 TXD  
3 RXD  
4 RTS  
5 CTS  
6 DSR  
7 GND  
8 DCD  
20 DTR  
22 RI

### DB-9S Female

3 TXD  
2 RXD  
7 RTS  
8 CTS  
6 DSR  
5 GND  
1 DCD  
4 DTR  
9 RI





Mac to Hayes Modem Cable  
Belkin F2V088 or equivalent.  
Do not use cable from  
PC Accessories!



Laplink® Serial Cable.

This appendix covers periodic maintenance functions which you will want to perform to assure continued quality printing. These tasks include:

- Refilling the ink reservoirs (NJP-36 and NJP-50 only)
- Refilling ink cartridges (NJ4 only)
- Replacing ink cartridges
- Cleaning the ink cartridges
- Cleaning the service station.

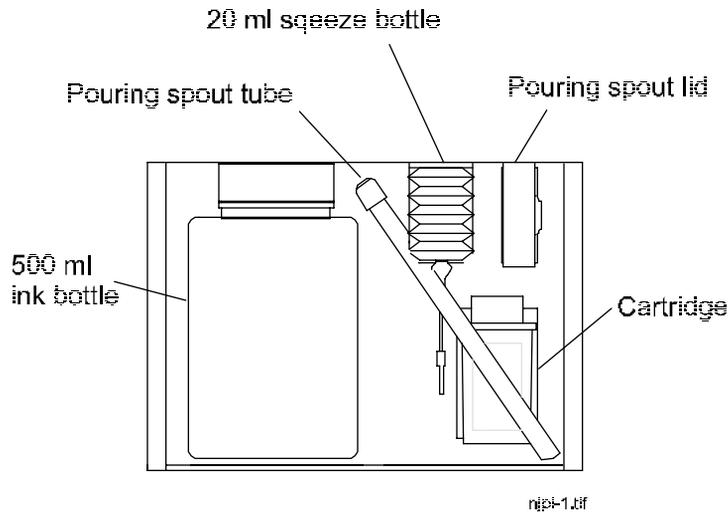
## Refilling ink reservoirs (NJP-36 and NJP-50 only)

! Use of inks other than those supplied by ENCAD will void your printer warranty.

The NJP-36 and NJP-50 support long, uninterrupted printing runs because of their ink reservoirs, which hold 470 ml of each of four colors. The ink reservoirs are located at the left side of the printer. You can refill any time, even while printing. Be sure the reservoirs are not allowed to run dry. Allowing a reservoir to run out of ink causes the ink delivery lines to deprime and may cause ink leakage and damage to the ink cartridges.

When you refill an ink reservoir, you do not need to drain the reservoir or the ink delivery line.

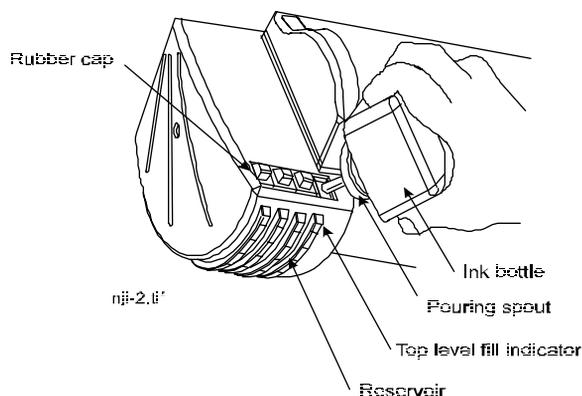
Your NovaInk Accessory Kit contains the following items: 500 ml bottle of ink, 20 ml squeeze bottle of ink, a cartridge, pouring cap and spout. You may want to save the 500 ml ink bottle and the pouring cap in case you ever need to drain the ink reservoir and store the ink. Be sure to thoroughly rinse and dry the ink bottle and cap before storing it.



## To fill the ink reservoir

*Note: Before starting, you may want to do the following:*

- *Place a drop cloth under the printer.*
  - *Have paper towels handy.*
  - *Wear disposable gloves.*
- !
- 1 Assemble the pouring spout by attaching the tube to the lid.
  - 2 Replace the lid of the 500 ml ink bottle with the pouring spout.
  - 3 Be sure that the opening in the pouring spout tube is below the pouring spout lid or ink will spill.



- 4 Remove the cap from the pouring spout.
- 5 Remove the rubber cap on the reservoir you want to fill.
- 6 Verify that the ink color and the reservoir color match.
- 7 Pour the ink into the reservoir until it reaches the top level indicator on the front of the reservoir. Do not overfill.
- 8 Replace the rubber cap on the reservoir.

## Changing ink types

If you are changing from one ink type to another, for example, from ENCAD GA to ENCAD GO ink, you will want to use the Novaink Reservoir Change Kit. This procedure gives you all the information you need to changeover your ENCAD NovaJet Pro printer from Graphic Arts (GA) and Graphic Standard (GS) to Graphic Outdoor (GO) inks. This is essential if you are planning to print on GO media.

For best results, **DO NOT USE GA or GS inks with GO media.**  
**NEVER MIX INKS!**

---

## Novaink reservoir change kit

The Novaink Reservoir Change Kit provides all the tools and parts necessary to:

- Make the initial ink changeover simple.
- Ensure proper storage and handling of the ink, cartridges, and reservoirs for later use.
- Provide tools for future ink changeovers.

Ink and cartridges should be ordered separately.

Component	Purpose
4 Novalnk reservoir assemblies	Lets you store the reservoirs you remove from the printer without transferring ink and flushing out reservoirs.
1 corrugated 4-reservoir shipping and storage container	Used for shipping a 4 pack of reservoirs without damage and for storing and supporting a four-pack of partially filled reservoirs.
4 Novalnk cartridge garages	Clips onto Novalnk cartridges that you want to store. They protect the jet plate from leaking and corrosion.
4 empty bellows bottles	Used to cap the Luer fitting on the cartridges and also to draw a vacuum on the cartridge so it does not leak while being installed on the garage.
4 latex gloves	To keep your hands clean.
2 CPC reservoir adapters	To flush the steel tubing in the reservoir.
4 Phillips head screws for side cover	For convenience, in case other screws are misplaced during changeover.
Changeover Instructions	Reference

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## Ink changeover procedure

To change from one type of ink system to another, you will need to do the following:

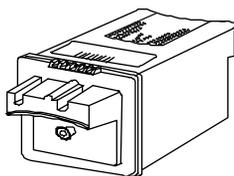
- Remove and store ink cartridges
- Purge delivery lines
- Remove and store ink reservoirs (or flush existing ink reservoirs)
- Install new ink reservoirs
- Install GO ink cartridges

## Removing and storing ink cartridges

### ➡ To remove cartridges

**Note:** *If you lay down a cartridge with ink in it, lay it on its front side so that the flex contacts face up. This prevents ink from leaking out either the top opening or out the jet area on the bottom.*

- ! Do not touch the flex contact area of the cartridge.
- 1 Press the Access Cartridges button to move the cartridges out of the service station.
  - 2 Close the tube clamps on the lines leading to the cartridges.
  - 3 Remove the cartridge from the carriage by gently pulling the top edge toward you, then lifting it out of the carriage. Unscrew the tube fitting and remove the cartridge from the carrier. As soon as the cartridge is removed, set it down to avoid leaking.



- 4 Remove the cartridge from the ink delivery line. Wipe the outside of the line using a lint-free cloth to remove any ink.
- 5 Store (or discard) the cartridge and repeat the previous steps for the remaining cartridges.



## To store cartridges

1. Attach a bellows bottle (part of the Novalnk Reservoir Change Kit) to the Luer fitting on the top of the cartridge. Squeeze bellows while installing tightly on cartridge.
2. Dab the jet plate on the cartridge with a lint-free wipe until it stops bleeding.
3. Snap the cartridge into the garage (part of the Novalnk Reservoir Change Kit).

## Purging ink delivery lines

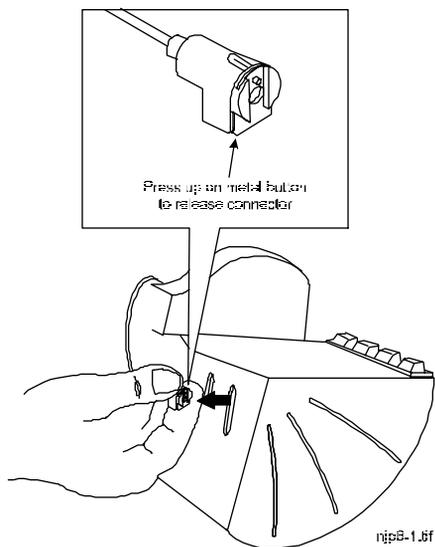
Purge ink delivery lines completely with distilled water so that no ink remains in them. Otherwise, ink may dry in the lines and cause printing problems later.



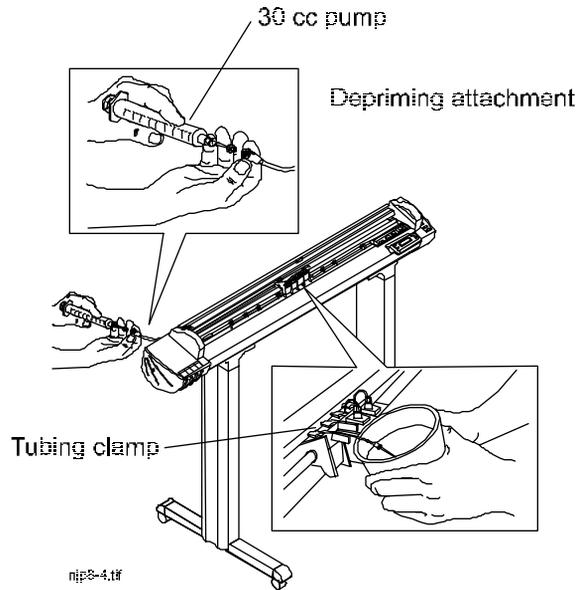
## To purge ink delivery lines

*Notes:*

- *This step is best performed by two people.*
  - *Wear disposable plastic gloves when disconnecting the ink delivery lines.*
  - *Be sure to use only distilled water when purging the lines.*
- 1 Make sure the tubing clamps on the carriage are closed so that no ink comes out.
  - 2 Remove all four cartridges before purging the ink lines.
  - 3 Remove the printer's top cover by sliding the retracting stop on the left end of the top cover to the right. (The retracting stop and spring will come out of the top cover if the left end is tipped down, so be careful not to lose them.)
  - 4 Disconnect the ink delivery lines from the back of the ink reservoirs, one at a time. There is a shiny, metal button (facing downward) on the connector. Reach through the opening in the back of the left cover and press up on the metal plate to release the connector from the ink reservoir. Hold the connector upright to prevent ink spills.
  - 5 The connector has an automatic shutoff to prevent ink from leaking out of the line, but a few drops will exist inside the connector. Carefully wipe this excess ink from each connector using a paper towel before proceeding.



- 6 After an ink delivery line has been disconnected, drain the ink from the line. You will need a cup of distilled water and someone to assist you with this part of the procedure. Fit the end of the depriming attachment from the Novalnk toolkit into the end of the connector which was disconnected from the ink reservoir. Attach the other end to the 30 cc pump.



- 7 The person assisting you should place the needle at the end of the ink delivery line into a cup of water. The assistant should then open the tubing clamp for that line.
- 8 Draw the ink into the depriming attachment. Keep drawing out the ink until clean water emerges. At this point, you may remove the needle from the cup of water.
- 9 Continue drawing the water in the ink delivery line into the depriming attachment until the line is essentially empty (some water drops will remain).
- 10 Press the metal button on the connector to release the ink delivery line from the depriming attachment. Be sure to hold end of the depriming attachment up so that ink does not drip out of the end. Discard the ink in the depriming attachment and thoroughly rinse it out with water.
- 11 Repeat the same procedure until all of the lines are drained.

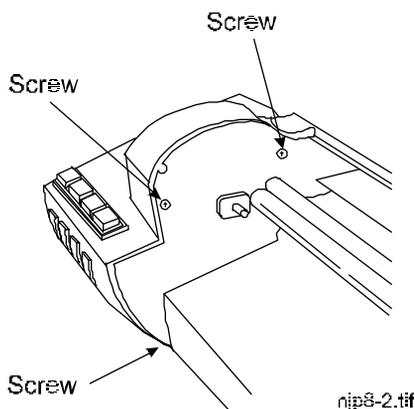
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## Removing the reservoirs

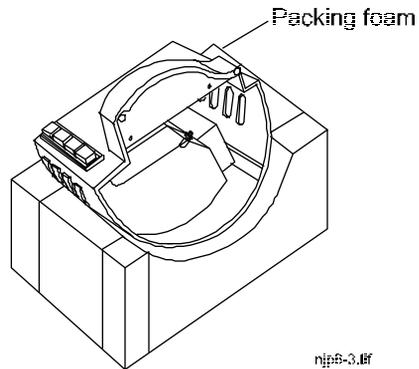
Tool needed: Phillips head screwdriver

*Note: This step requires two people.*

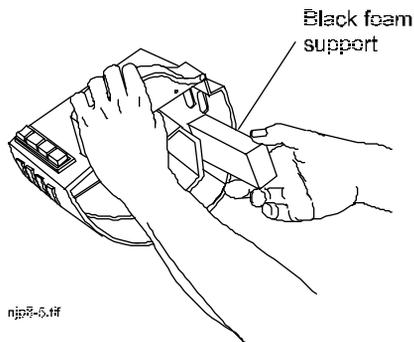
- 1 Remove all the cartridges and drain all the lines before beginning to remove the left cover assembly.
- 2 Three Phillips head screws hold the left cover assembly onto the left side plate. One of them is on the bottom of the left cover assembly. The other two are on the inside of the left side plate.



- 3 Leave the rubber caps on the ink reservoirs. Use a #2 Phillips screwdriver to remove the screws. As the three screws are removed, one person should hold the left cover assembly to keep it from falling. Keep the left cover assembly level to prevent ink spills from the reservoirs.
- 4 After removing the left cover assembly, place it in the packing foam that came with the plotter (or otherwise brace the print head to prevent it from tipping) so that the ink does not spill or leak out of the air vents in the top of the ink reservoirs.



- 5 Remove the black foam support from the inside of the left cover assembly.



At this point, you can either drain, flush, and store the reservoirs or install clean reservoirs provided with the Novalnk Reservoir Change Kit.

### **Draining and flushing ink out of reservoir (do this only if you decide not to replace the reservoir)**

Tool needed: Phillips head screwdriver

- 1 Remove each ink reservoir from the side cover. If you save the ink, store it in a clean container which can be sealed and will allow you to easily refill the reservoir. Otherwise, you should dispose of the ink. Label each reservoir to indicate the color of ink that it contained.
- 2 Thoroughly wash the reservoirs with distilled or RO water.

- 
- 3 Thoroughly wash rubber caps with distilled or RO water.
  - 4 Flush out the steel tube and CPC fitting on the reservoir using the CPC reservoir adapter. This adapter opens the valve on the reservoir's tubing connection. Then a syringe can be attached to the adapter and the ink captured in the reservoir tube can be purged.

#### CPC Reservoir Adapter

- 5 Rinse reservoirs once more with RO water and allow to dry.
- 6 Put the reservoirs back in the left cover assembly in the reverse order in which they were removed and reinsert the black foam support.
- 7 Have someone help you reinstall the left cover assembly on the printer. Do not overtighten the three Phillips screws.
- 8 Reconnect each ink delivery line to the appropriate reservoir and open all the tubing clamps.
- 9 Replace the top cover.
- 10 Ensure that the tubing clamps are open. Keeping the clamps closed for long periods of time may cause the tubing to permanently crimp.
- 11 You are now ready to fill reservoirs with the new ink.

## Installing new cartridges

Be sure the cartridges you are installing contain GO ink.

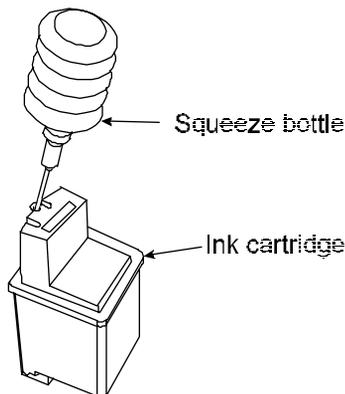
Prime, fill, and install the cartridges as described in Chapter 2.

## Refilling ink cartridges (NJ4 only)

- ! Use only the ink provided with your NJ4 cartridge or ENCAD refill kit. Use of any other ink will void your warranty and may damage the printer. Be sure to refill the cartridge with the same color ink it originally contained.
- ! Don't attempt to install or remove an ink cartridge from the carriage without first pressing the Access Cartridges button to move the carriage away from the service station. Don't attempt to manually pull the carriage out of the service station while the printer is turned on. This can damage the printer.
- ! Handle the cartridge only on the blue or black areas. Touching the copper electrical interconnect or the inkjets can damage the cartridge.

### ➞ To refill the NJ4 ink cartridge

- 1 Remove the cartridge from the carriage.
- 2 Remove the cap from needle on the ink bottle. Be careful not to squeeze the ink bottle, ink may squirt out.
- 3 Insert the needle into the refill hole at the top front of the cartridge.



nj45i-1.tif

- 4 Gently squeeze the ink bottle until ink is depleted. Do not release pressure on the ink bottle until you remove the needle from the cartridge.

- 
- ! DO NOT OVERFILL. The cartridge is overfilled if ink begins to surface from the refill hole. Stop squeezing the ink bottle and allow it to slightly re-inflate (release pressure). This will draw some of the ink back into the bottle to prevent overflowing.
  - ! DO NOT SQUEEZE AIR INTO THE CARTRIDGE. Air bubbles in the cartridge may cause quality defects.
  - 5 Slowly remove the needle from the cartridge. Allow the ink bottle to completely re-inflate.
  - 6 Recap the ink bottle, saving any remaining ink for future refilling.
  - 7 Wipe any drops that may have leaked from the refill hole. Allow the cartridge to stand for a moment until ink droplets stop forming on the inkjets. If the cartridge is overfilled, ink droplets will continue to form. If necessary, remove excess ink by drawing it back into the ink bottle through the refill hole.
  - 8 Reinstall the cartridge into the carriage.

## Replacing ink cartridges

- ! Don't attempt to install or remove an ink cartridge from the carriage at any time without first pressing the Access Cartridges button to move the carriage away from the service station. Don't attempt to manually pull the carriage out of the service station while the printer is turned on. This can damage the printer.
- ! Touching the copper area that houses the electrical interconnect and the inkjets can damage the cartridge.

When you remove ink cartridges from the printer, they are open and exposed to air. Store them upright in sealed plastic bags to prevent the jets from drying.

Each time you place new ink cartridges in the printer, prime and calibrate them to ensure the highest quality printed images. Priming is covered in Chapter 2 and calibration procedures are discussed in Appendix A.

---

## NJP-36 and NJP-50

Before installing the cartridge in the carrier, you need to prime it to remove any air bubbles inside it and start the flow of ink. Before starting this process, locate the NovaInk Tool Kit supplied with your printer. You will need the jet plate suction bulb.

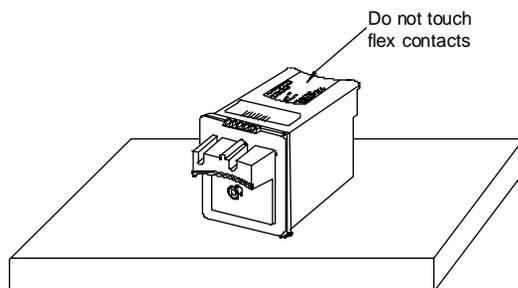
Ink cartridges generally last as long as the ink in a reservoir. When a cartridge misfires or the quality deteriorates, you will want to replace it.

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### To remove ink cartridges (NJP-36 and NJP-50 only)

*Note: Before starting, you may want to do the following:*

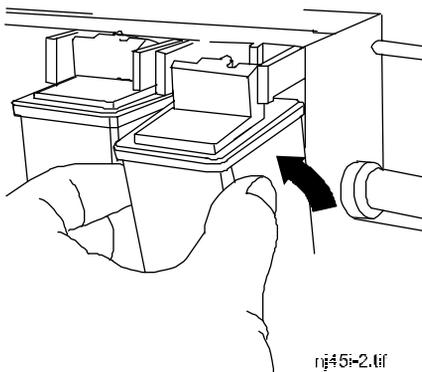
- *Have paper towels handy.*
  - *Wear disposable gloves.*
  - *Load a D-size (24" x 36") sheet of paper in the printer to protect the platen from accidental ink spills.*
- 1 Press the Access Cartridges button to move the carriage out of the service station.
  - 2 Close the tubing clamp on the line leading to the cartridge you are removing.
  - 3 Unscrew the tube fitting and remove the cartridge from the carriage.
  - 4 Lay the cartridge on its front side so the flex contacts are facing up. This prevents the ink from leaking out either the opening in the top or out of the jet area on the bottom.



- 
- 5 If you are returning the cartridge to ENCAD, drain or extract as much of the ink out of the cartridge as possible, enclose it in a plastic bag, and seal the bag.
- !
- Do not put the blue tape (or any other tape) over the jet area of the cartridge; doing so may damage the jets.

### ➔ To remove ink cartridges (NJ4 only)

- !
- Do not touch the flex area of the cartridge.
- 1 Press the Access Cartridges button to move the carriage out of the service station.
  - 2 Pull the top of the cartridge toward you and up to remove it from the carriage.



### ➔ To install new ink cartridges (NJ 4)

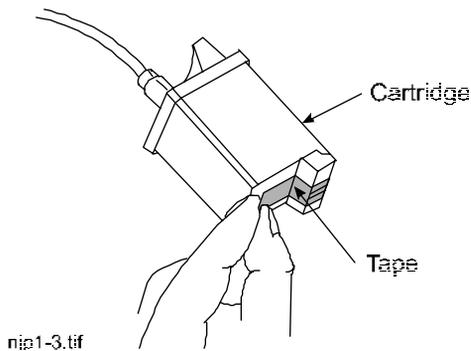
- !
- Do not touch the dimpled contact area of the cartridge.
- 1 Remove the protective tape from the bottom of the cartridge.
  - 2 Press the Access Cartridges button to move the carriage out of the service station.
  - 3 Put the cartridge in "bottom first" and then press the top of the cartridge toward the carriage to snap into place. Be sure to match the cartridge color to the color bars on the carriage.
-

## ➡ To install new ink cartridges (NJP-36 and NJP-50 only)

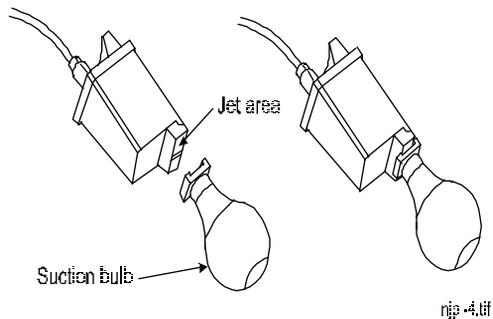
All new cartridges must be filled, connected to the ink delivery line, primed, and snapped into the carriage.

- ! Caution: do not remove the blue tape yet.
- ! Hold the cartridge upright.
- ! Do not touch the flex area of the cartridge.

- 1 Hold the cartridge upright so no ink comes out the top.
- 2 Insert the delivery line needle into the hole in the top of the cartridge.
- 3 Remove the blue tape from the jet area of the cartridge.

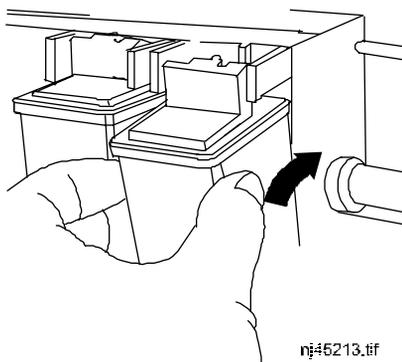


- 4 Open the tubing clamp on the ink delivery line.  
If you leave the clamp shut, no ink will be delivered into the cartridge.
- 5 Squeeze the suction bulb to expel as much air as possible.
- 6 Place the suction bulb over the jet area of the cartridge.



- 7 Make sure the suction bulb is making good contact with the jet area. Release the pressure on the suction bulb so it draws ink through the jet area of the cartridge. If you don't see ink in the jet area, repeat the process. Gently blot the nozzle with a lint-free cloth.
- 8 Turn the cartridge so there are no twists in the ink delivery line and install the cartridge in its corresponding carriage position. Cartridge positions are labeled in the carriage.

Put the cartridge in "bottom first" and then press the top of the cartridge toward the carriage to snap into place. It is normal for the nozzle plate to leak slightly when the cartridge is re-installed and there is no tape on it.



- 9 Press the Prime button and run the prime plot to check that the cartridge is firing properly. You may need to run Prime more than once.

If the cartridge is firing properly, the bands in the plot will be smooth without dark streaks or white lines. The diagonal lines should not look fuzzy or contain gaps. If the cartridge is not firing properly, repeat the priming and installation procedure.

- 10 Perform the cartridge calibration described in Appendix A.

## Periodic cleaning

To assure the best quality printing, you should periodically clean the cartridges and service station. In addition, you should wipe any areas of the printer exposed to ink and the print shaft using a lint-free cloth moistened with water.

**Note:** Do not lubricate the print shaft!

## Cleaning the ink cartridge jet plate

The ink cartridges may require occasional maintenance when used in low humidity. If repeated priming doesn't unclog the head, follow the cleaning procedure below. In addition, cartridges will wear out after prolonged use. If cleaning the cartridge does not restore print quality, replace it.

### To clean the ink cartridge jet plate

- 1 Press the Access Cartridges button to move the carriage away from the service station.
- 2 Remove the ink cartridge from the printer by gently pulling the top of the cartridge toward you, then lifting it up out of the carriage.
- 3 Press lightly against the jets with a water-moistened, lint-free, non-paper cloth (do not use alcohol). Gently blot any excess ink. Blot - do not wipe. Wiping may damage the jets. (Ink will appear on the cloth; this is normal.) Reinstall the cartridge.

**! Never use alcohol to clean the jet area of the cartridge.**

- 4 Insert the cartridge into the carriage and press the Access Cartridges button to return the carriage to the service station.
- 5 Press the Prime button to check the cartridges. Repeat two more times, if

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necessary. If the cartridges fire correctly, perform the appropriate calibration procedure from Appendix A.

- 6 If the cartridge continues to misfire, close the tubing clamp, remove the tube fitting, and remove the cartridge. Rinse the ink from the bottom of the cartridge using warm distilled water.
- 7 Dry all surfaces of the cartridge, except for the bottom, or jet area and the circuit plate.

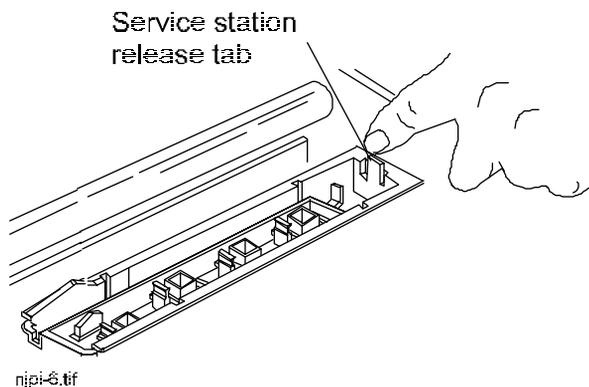
## Cleaning the service station

Ink and dust can accumulate in the service station causing poor print quality. Depending on how frequently you print, you may want to clean the service station every week using the following procedure.



### To clean the service station

- 1 Press the Access Cartridges button to move the carriage away from the service station.
- 2 Raise the printer cover.
- 3 Locate the service station release tab at the right end of the service station base. Move it gently to the left and lift to remove the entire service station assembly.



- 4 Rinse the service station and wipers with warm water.
-

- 
- 5 Dry the service station and replace it, making sure the release tab re-latches.
  - 6 Press the Access Cartridges button to return the carriage to the service station.

## Periodic cleaning

The table that follows identifies periodic cleaning which you can perform to keep your printer in top operating condition.

Interval	Component	Cleaning Agent
<b>Immediately</b>	Any - clean up ink spills	Distilled water
<b>Biweekly</b>	Service station seals and wipers	Distilled water
<b>Monthly</b>	Slide shaft	Isopropyl alcohol
	Encoder strip top and bottom	Distilled water
	Cartridge jet area	Distilled water
<b>Semiannually</b>	External areas	Distilled water
	Pinch rollers and lower drive rollers	Distilled water
<b>Annually</b>	Encoder sensor	Canned air or alcohol-moistened cloth.
	Inner platen	Distilled water
	Carriage	Distilled water
<b>Other</b>		
When a cartridge is changed or there is a problem with the prime	Cartridge dimples/flex driver cables	Isopropyl alcohol

## Materials to use for cleaning

- Isopropyl alcohol (industrial grade)
  - Lint-free soft cloth/paper wipe
  - Dry lint-free cloth
  - Cotton swabs
  - Ultrasonic cleaner (if available)
  - Distilled/Reverse osmosis water (purified water)
  - Canned/compressed air.
-

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## Components to annually inspect

The following components should be cleaned and inspected for damage on an annual basis and replaced if necessary.

- Carriage belt
- Trailing cable
- Service station seals and wipers
- Motors
- Cutter

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This appendix contains valuable information to help you solve the most common printer problems for NovaJet series printers.

The problems addressed are divided into these types:

- Printer health
- Print quality
- Data transfer
- Application software
- HP-GL

A separate index is provided at the end of this appendix to help you quickly locate discussions of symptoms and their solutions.

## **Troubleshooting quick list**

Many common problems can be solved by checking for just three items:

- Is the printer connected to a good power source?
- If using a serial cable, do serial I/O settings match on the printer and computer?
- Does the printer driver software match the emulation selected on the printer?

## **Isolating problems**

You can quickly isolate problems to either the printer, computer/printer interface, or application software using the following procedure:

1. Turn the printer OFF, then ON. Does it count through the memory?
2. Run a prime to assure that all jets fire. (See "Priming for Cartridge Print Check" in Chapter 2.)
3. Perform a color calibration. (See Appendix A.)

If your printer fails during any of the above steps, call your ENCAD distributor/dealer or call ENCAD Technical Support. Otherwise, continue with the steps that follow.

4. Send the demo print directly to the printer. For example, on a PC, type:  
**go /b \*.rtl lpt1**. The demo print and other sample prints are provided on your utility disk.
5. If your computer is running on a network, login and copy the sample file to the printer over the network.
6. If steps 4 or 5 fail, repeat them using another computer.

If any of these steps fail, your printer may not be correctly connected to your computer and/or network. Contact your network administrator or your ENCAD dealer. Otherwise, continue with the steps that follow.

7. Print directly to the printer from several software applications.
8. If you are networked, login and try printing from several software applications.
9. If steps 7 or 8 fail, repeat them using another computer or remove from the network and test standalone.

If one application fails, but others print successfully, that can indicate a problem with a specific software package. Call technical support of the failed product. If all the applications fail, determine what they have in common; for example, a RIP box or Windows driver. Call technical support of the particular vendor.

## Printer Health

### Printer will not turn on

Make sure the power cord is securely attached to the printer and plugged into an operating outlet.

Make sure the power switch is turned on.

---

### **Printer intermittently reboots**

Clean and reseat memory SIMMs if extra memory SIMMs have been installed.

Test and replace memory SIMMs. (See Appendix B.)

Check that power is coming to the printer.

### **Display does not come on**

Check that the power cord is plugged in and the printer switch is turned on.

Push the Menu button. The display should come on.

### **I/O error 20 displays when running self-test**

No loopback connector is plugged into the printer's serial port. This does not affect your printer's operation.

### **Printing doesn't start immediately when a file is sent**

If you are using the serial port, make sure you're using the correct interface cable and that it is securely connected to the proper ports on both the printer and the computer. (ENCAD serial cable PN 203977)

If you are using a serial interface, make sure that the RS-232/422 settings match the requirements of your hardware and software. (See Appendix H.)

If you are using a Windows application, be sure the Print Manager is OFF. Turn off the Print Manager with the ENCAD Windows driver.

Make sure the printer's Emulation option matches the device interface requirements of your software. (See "Choosing an Emulation Format" in Chapter 3.)

If the printer finishes processing and doesn't start printing, set a Wait Time of 5 (or more) seconds. Some software drivers do not create an "end of file" command, signaling the printer that the total file has been sent. (See "Setting Wait Time" in Chapter 7.)

### **File will not print**

If you are using a serial cable, check that it is ENCAD PN 203977. Be sure that RS232/422 settings in your software match those on your printer.

Check your electrical connections.

From your software application, print to a file and send the file to the printer in DOS using the DOS Copy command. At the DOS prompt, type `COPY filename portname` (LPT or COM port). Alternately, use the GO.EXE program. To print the file, type `GO filename`. This program is supplied on your Utilities disk and can also be downloaded from the ENCAD BBS.

### **Slow printing under Windows**

Windows applications naturally print slower than DOS applications. Be sure the Windows Print Manager is turned OFF.

### **MEMORY FULL message**

Check the buffer allocation. Try setting the I/O buffer to 128K and retransmit the file. If it still doesn't work, go to the next step. (See "Setting Memory Configuration" in Chapter 3.)

If you are sending an RTL file and the Memory Full message displays, call Technical Support.

If you are using AutoCAD, use the ENCAD ADI driver.

### **Media not grabbed when loading cut sheets**

Do not use media thicker than 20 mil.

Make sure the Roll option in the Printer Setup menu is set to OFF. When Roll is ON (the default), the printer expects the media to be fed from the back, so the rollers turn toward the front of the printer. (See "Manual Media Loading" in Chapter 2.)

Press paper firmly against pinch wheels.

Use ENCAD-recommended papers.

### **Takeup roll doesn't turn (printers with power media feed)**

Be sure the power media feed unit is plugged in and turned on.

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### **Takeup roll doesn't stop turning (printers with power media feed)**

Check that the sensor is not blocked. There should be nothing between the sensor and media.

### **Takeup roll doesn't turn when using clear media**

Block takeup sensor to be sure that take-up rollers advance. Call Technical Support for instructions on applying a smaller cover over the sensor lens.

### **Cut sheet media falls to the floor after the print is completed**

Some media sizes are very similar to each other and the printer may incorrectly size the sheet. To prevent this, set the Media option for the media standard you are using (US ARCH, US ENG., etc.). (See "Selecting the Media Standard" in Chapter 4.)

### **Automatic cutter doesn't work or tears the paper**

Make sure the Cut option in the Printer Setup menu is set to ON (the default).

Make sure the cutter is properly installed. (See "Installing the Cutter" in Chapter 2.)

**TURN POWER OFF** and clean the inside of the black belt using alcohol and a lint-free cloth. Push the carriage back and forth to access all areas of the belt. Manually push the carriage all the way to the left to force the cutter to drop. Turn power on.

If the cutter is worn, replace it. You should replace the cutter after every 200 plots (more or less, depending on the type of media used). (See Appendix G for ordering information.)

### **Carriage jams**

Check for paper jams or blockage.

Be sure the service station is lowering. If it does not lower, push it left and down, or the cutter will not disengage.

## Carriage axis failure

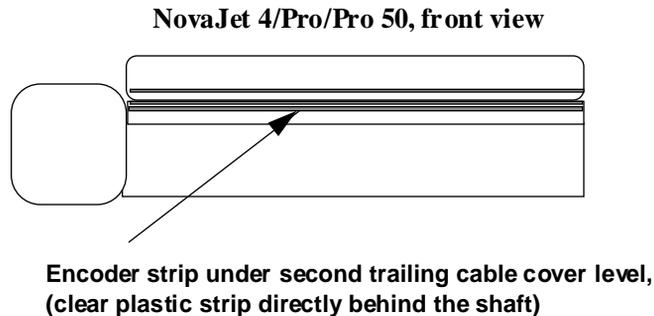
This may be caused by using matte paper which may curl and cause carriage axis failure. Be sure to use inkjet quality media. (See Appendix G.)

An obstruction in the path of the carriage assembly is hindering carriage movement. The obstruction may or may not be visible. Other common causes include dirty encoder strip, media interference, worn carriage bushings, cutter malfunction, and loose trailing cable connections.

After checking the following items, reboot the printer to ensure proper operation.

**Note:** If the error re-occurs, observe whether the carriage is in the same or different location.

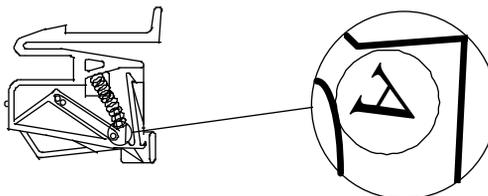
If the carriage is in the same spot, check the encoder strip for visible damage (clear plastic strip under the trailing cable tray and above the belt) Refer to the figure which follows.



Verify that carriage movement is free and smooth by turning the power off and moving the carriage from one end of the shaft to the other (make sure there is no binding and that nothing is blocking the carriage movement). **(MAKE SURE POWER IS OFF BEFORE PERFORMING THIS STEP.)**

Clean the top and bottom of the encoder strip using a q-tip and distilled water (let it dry completely ~ approximately 30 minutes) before trying to operate the plotter).

Remove the cutter from the left side of the carriage and check it for visible damage. Make sure cutter version A is installed (see the figure below).



Check the shaft for visible damage (carriage moves back and forth on it during operation).

Clean the shaft with a lint free cloth and isopropyl alcohol (let it dry completely before trying to operate the plotter).

Check the belt for visible damage such as fraying and pieces coming off it.

Check the trailing cable (cable that moves during printer operation) for visible damage.

Check whether the idler assembly (located at the left end of the belt) moves freely, is it cracked or broken.

Re-seat the trailing cable at the Main Printed Circuit Board. Remove the right end cover by unscrewing three retaining screws and pulling the cover off at angle. **(MAKE SURE POWER IS OFF BEFORE PERFORMING THIS STEP.)**

Also, see below, "Printer displays 'move left/down' or 'carriage axis error'".

### **Ink siphon is lost after the cartridge is connected and the clamp released (NovaJet Pro models only)**

Reprime and make sure all bubbles are out of the line.

Be sure that 20 ml of ink has been poured into the cartridge before the ink delivery lines are attached.

Check that the Luer fitting is tightly secured. If a leak appears at the Luer-steel tubing connection, call Technical Support.

**Cannot draw ink during initial siphon (NovaJet Pro models only)**

Check that the clamp on the carrier is open.

Check that the CPC connection to the ink reservoir is secure.

Check whether contaminants have blocked the ink delivery lines. If necessary, flush the lines with distilled water, then reprime.

**Initial siphon cannot be established (NovaJet Pro models only)**

Check that ink reservoirs are full.

Check ink delivery system for leaks in the lines, at the Luer-tubing connection, and at the CPC coupling to the reservoir. If leaks cannot be stopped, call Technical Support.

**Ink cartridges do not fire properly**

**(All models)**

Be sure that cartridges and the service station are cleaned periodically to maintain good print quality. (See "Cleaning Cartridges" in Appendix I.)

Cartridges may wear out after extended use. Try replacing the cartridge.

Store cartridges in a sealed container at room temperature when not in use for extended periods of time.

Make sure the protective tape is removed from the cartridges. Contacts on the cartridges should be co-planar to the contacts on the carriage for positive contact.

Remove the cartridge and reinstall it, or clean the electrical contact on the cartridge and carrier. Be sure it is clean and dry. Be sure the cartridge is seated properly. (See "Installing Ink Cartridges" and "Cleaning Cartridges" in Appendix I.)

**(NovaJet Pro models only)**

Make sure the four clamps on the cartridge carrier are released.

Check that ink is being fed through the delivery lines. If necessary, use the suction bulb to pull ink out of the nozzle plate to remove trapped air bubbles.

---

Be sure the ink reservoirs are not empty.

Make sure there are no air bubbles in the ink delivery lines. (Ink reservoirs do not need to be emptied unless the unit is being shipped or put into storage.)

### **Cartridges leaking (NovaJet Pro models only)**

Check that reservoirs are not overfilled. They should not be filled above the level indicator on the front of the reservoirs.

### **Various nozzles are clogged or stop firing**

Repeat prime several times.

Remove, clean, and reinstall cartridge; repeat prime. Do not use alcohol on the jet area.

Clean service station; clean cartridge again; repeat prime.

Clean cartridge electrical contacts using a cotton swab moistened with water. Dry contact. Repeat prime. Do not use acetone or any other harsh cleaner as this may cause damage to the flex cable.

Nozzle may have failed. Replace cartridge. Check for nozzle clogs by using the suction bulb on the cartridge nozzle plate.

Check to see whether spray from plotting has contaminated the flex contact. Remove the cartridge and wipe the carrier flex and cartridge flex with a cotton swab dipped in alcohol.

Run prime. If sections of the print are missing, replace the cartridge.

### **Ink spills on the flex cable**

Clean the flex cable gently with a cotton swab moistened with water. Do not use acetone or any other harsh cleaner as this may cause damage to the flex cable.

### **Printer settings are lost when printer is turned off or rebooted**

Be sure to save your printer settings to a User number. (See "Saving User Settings" in Chapter 3.) When you are ready to print, select the User number that you saved.

### **What if I need a firmware upgrade?**

You can download firmware upgrades from ENCAD's BBS or from the Internet WEB page. (See Technical Bulletins 42 and 55 on either the BBS or WEB page.)

## **Print Quality**

### **No print appears**

Check that tape has been removed from the printhead before using the cartridge.

### **White lines or large gaps on print or portions of characters missing**

Contacts may be dirty or nozzles may be blocked. Blot the printhead using a lint-free cloth moistened with distilled water. Wipe, then dry, the contacts (entire copper area) to remove dried ink.

Check if the ink reservoir is empty. Refill if necessary.

Prime the cartridges several times. If the problem persists, replace the cartridge.

Make sure the media feeds freely.

### **Raster file does not print or displays an error**

Set the emulation option to EN RTL (ENCAD RTL).

### **Merged vector/raster files print incorrectly**

Make sure Control=Software is selected under Printer Setup. Some parameters are ignored when Control is set to Printer, causing the print to be incorrect or not print at all.

### **Overall print quality is poor**

For best print quality, priming and color calibration are highly recommended. Check the calibration values each time you install, remove, or replace cartridges. (See Appendix A.)

---

Prime the ink cartridges. They may have become clogged if the printer has not been operated for a period of time. (See "Priming for Cartridge Print Check" in Chapter 2.)

Make sure the printer is positioned on level ground.

### **Cartridge spits small amounts of ink on paper**

Nozzle plate may be flooded. Try using a lower firing rate or replacing the cartridge.

### **Streak marks**

Clean the service station at least once a week, or more often, depending on the number of prints you are running. (See Appendix I.)

Inspect the bottom of the ink cartridges for dirt or dust. Clean if necessary.

### **Line drawings exhibit bleeding**

Be sure you are printing on the coated side of the media. Load cut sheet media so that the notch is on the side closest to the carriage. Roll feed media should be loaded so the coated side is on the outside.

If your application software permits, use gamma correction to lighten the color.

#### **(NovaJet Pro models only)**

Too much air may have been drawn into the cartridge during extended operation. Add 5 ml of ink and reinstall the cartridge.

### **Colors print as monochrome**

Be sure the Color/Mono button is set correctly. This button switches between monochrome and color. When the mono LED is lit, the print is printed in monochrome. When the color LED is lit, portions of the print defined in color are printed in color. This feature lets you print and check a color drawing in monochrome mode before printing the final drawing in color. Make sure the application drivers are set to color.

To change a specific drawing from monochrome to color or vice versa, you must switch the Color/Mono setting and re-transmit the file.

### **Mono mode prints appear in gray scale**

You can define whether you want monochrome to be printed as black and white (true monochrome) or as grayscale. Use NovaJet firmware 1.4B or later. Firmware can be downloaded via the ENCAD BBS or Internet WEB page.

The monochrome setting on the NovaJet defaults to grayscale. Select black in your software or set Control=Printer and set all pen colors to pen number 1.

### **Ink smears after removing the print**

Be sure the ink is dry before removing the print. If you are printing area fills, you may want to set the Dry Time option. (See "Setting a Dry Time" in Chapter 3.)

### **Smudged or dark characters**

Be sure you are using the correct type of paper for the application. (See Appendix G.)

Make sure the paper is straight and unwrinkled when loading it into the printer.

Clean the cartridges.

Try a different print mode.

### **Improperly formed or misaligned characters**

Calibrate cartridges.

### **Color problems or shadowing**

Calibrate cartridges.

### **Colors are not correct or sections of print missing**

Make sure all cartridges are firing. Clean the cartridges and run prime.

One of ink reservoirs may be empty or the cartridge is not firing correctly. Check this by running Prime and refilling the ink reservoir (NovaJet Pro models only) or replacing the cartridge if necessary. (See "Priming for Cartridge Print Check" in Chapter 2.)

---

Check ENCAD's WEB site or bulletin board and download the latest Windows drivers. These drivers have calibrated color tables which act as a filter to your file and make the colors come out closer to what is on your computer screen. If you are using a third party RIP, contact the RIP vendor to determine whether they have updated their color tables to work with ENCAD inks. Some RIP vendors that have already updated include Onyx, Yarc, Vivid Image, Pisa, and Harlequin. If the vendor's files are not yet updated, use the ENCAD Windows drivers.

The Mac print utility provided with the NovaJet Pro already includes calibrated tables which work with NovaJet Pro inks.

### **Magenta seems more pink than magenta**

Inks supplied for the NovaJet Pro printer series are different from those used in NovaJet III printers and earlier. The newer inks, when calibrated, allow a larger color gamut, with more vibrant reds, greens, blues, oranges, and more available colors in general. Without calibration, these inks will appear differently when printing on ENCAD media.

### **Print contains only partial image**

Check the settings of the Margins option in the Page Format menu. When Margins are set to Normal (the default), the print area is smaller than when Margins are set to Expanded. Try setting the Margins option to Expanded to make the print area larger. See the media standard tables (for either roll feed media or cut sheet media) in Chapter 4 for the normal and expanded print area for the different media standards.

Check the defined print area for the loaded media by selecting the Print Area option in the Page Format menu. The print area is defined by the width of the loaded media, by the setting for the Margins option, and by the selected Media Standard in the Page Format menu.

If the print area displayed by the Print Area option isn't large enough for the image you want to print, try loading larger media. (Refer to the table in Chapter 4 that shows the print area sizes for the different media standards.)

The printer may not have correctly sized your media. Use the Manual Load option to load your media. (See "Manual Media Loading" in Chapter 2.)

You may be sending a raster file (HP RTL). Raster files are binary files. Use the GO.EXE utility provided on the Utility disk sent with your printer (GO [*filename*]) or use the DOS binary switch when issuing the Copy command. The command line should be:

```
COPY /B [filename] LPT1.
```

### **Jagged vertical lines**

Check that the ink cartridges are properly installed, then run the calibration procedure. (See "Installing Ink Cartridges" and Appendix A.)

Prime the ink cartridge to be sure that all the inkjets are firing properly. (See "Priming for Cartridge Print Check in Chapter 2.)

Clean the ink cartridges. (See Appendix I.)

Try another cartridge.

If these suggestions fail, call ENCAD Technical Support for instructions on cleaning the Encoder Strip and performing Deadband Calibration.

### **Spotchy area fill**

Try using enhanced mode. If the problem persists, prime the ink cartridge to be sure that all the inkjets are firing properly. (See "Priming for Cartridge Print Check" in Chapter 2.)

### **Excessive banding in area fills**

Consistent banding is a hardware problem; inconsistent banding is generally a software problem.

Use specially coated inkjet media. ENCAD provides a full line of high quality inkjet media. (See Appendix G.)

Change the Print Mode option to one of the Enhanced modes. Try 3 or 4-pass enhanced. (See "Graphics Print Modes" in Chapter 5.)

Perform color calibration. (See Appendix A.)

Clean the ink cartridges. (See Appendix I.)

Set wiper function to "no wipe".

---

### **Portions of lines are missing**

Repeat prime several times.

Remove and reinstall cartridge; repeat prime.

Remove and clean cartridge; repeat prime.

Clean service station; clean cartridge again; repeat prime.

Clean carriage flex cable and cartridge electrical contacts; repeat prime.

Do not use alcohol, acetone, or other cleansers. Use a cotton swab moistened in distilled water. Use tap water if distilled water is not available.

### **Poor vertical or horizontal line quality**

Perform color calibration. (See Appendix A.)

## **Data Transfer**

### **Printer doesn't generate a print**

Be sure your printer is connected to the port to which you are sending the file.

If you are printing over a network, you will need to determine whether the problem is in the network. Try connecting the printer directly to your computer and send the file again.

### **Cannot print to LPT1**

To verify your printer connection, go to the DOS prompt and type DIR > LPT1 (or the applicable LPT or COM port). The Ready light on the printer should blink after the command is sent.

### **Parallel printing doesn't work**

Some UNIX workstations have difficulty communicating with the printer using a parallel connection. Try connecting the printer to the network using a network interface box.

Be sure that your parallel cable does not exceed the maximum of 10 ft.

Try using another parallel cable. Be sure that it is securely connected.

### **Serial printing does not work**

Verify that the serial cable is properly connected.

Be sure that your baud rate, parity, and emulation are set correctly. (See "Setting Serial Communication Parameters" in this User's Guide.)

If you are using a serial cable provided by a vendor other than ENCAD, be sure that the pinouts match those in Appendix H. If the non-ENCAD serial cable is not working, order ENCAD cable 203977.

Be sure that your serial cable does not exceed the maximum length of 25 ft.

### **Problems connecting to a Macintosh workstation**

There are two ways to connect the NovaJet models to a Macintosh workstation.

1. Use the Macintosh chooser level drivers provided by our third-party developers. These drivers generally provide their own cable or parallel cards. One of these drivers is PowerPrint by GDT Softworks (refer to the Software Support Matrix). This is a raster driver similar to MacPrint Raster, but it includes a cable that converts serial to parallel. This cable is connected to the Macintosh's printer port (serial) and to the printer's parallel port.
2. Some applications come with an HP-GL/2 driver, such as AutoCAD for the Mac, or MicroStation for the Mac. These applications need to communicate directly to the printer. Macintosh computers do not come with parallel ports, so communication must be through the serial port unless a third-party parallel card is purchased.

### **Serial RS-232/422 Connection**

NovaJet models use an ImageWriter 2 cable with a 8 pin DIN connector on the printer end.

### **Parallel Connection**

Use the Creative Solutions Centronics board which is available from a Macintosh computer store.

### **Problems printing over a network**

Be sure that the printer is configured to run on the network. Pick a driver in your software that is also listed under Emulation on the printer.

---

---

## No output when printing from Unix

If you encounter “no output” problems when printing from Unix, try the following:

1. Check the printer hardware.
  - Check that the printer is plugged in and turned on.
  - Check that the cable is connected to the port on the printer and the port on the workstation or server.
  - Check that the cable is the correct cable and is not defective.
  - If the printer is connected to a serial port, make sure the cable supports hardware flow control. A NULL modem adapter supports this.
  - Check that hardware switches for the port are correctly set.
  - Use the printer’s self-test feature or run the demo print to assure that the printer is functioning.
  - Check that the baud settings for the computer and printer are correct. If the settings do not match, the file may be printed incorrectly or not at all.
2. Verify network connections.
  - On a print client or server, type *ping system-name* and press Return. This command checks that the network link between the print server and print client is set up correctly.

If the message says the system is alive, the network is functioning. The message also tells you that either a naming service or the local `/etc/hosts` file has translated the host (system) name entered into an IP address. If it hasn’t, you must enter the IP address.

- If you get a “not available” message, check the following:
  - How is NIS or NIS+ set up at the site?
  - Do you need to take additional steps to allow the print servers and print clients to communicate with each other?
  - If your site is not running NIS or NIS+, have you entered the IP address for the print server in each client’s `/etc/hosts` file and entered all print client IP addresses in the `/etc/hosts` file of the print server?

- Check that the port monitor is configured correctly on the print server.
  - Check that the network listen services are registered with the port monitor on the print server.
3. Check the LP print service.
- On both the print server and print client, make sure the LP print service is running.
  - On both the print server and client, make sure the printer is accepting requests.
  - On both the print server and print client, make sure the printer is enabled to print requests.
  - On the print server, make sure the printer is connected to the correct serial port.
  - On both the print server and print client, make sure the printer is configured properly.
  - On the print server, make sure the printer is not waiting because of a fault.
  - Make sure the printer is not set up as a login terminal.

### **How do I send PostScript files?**

Using a RIP converts the PostScript file into a format (RTL) for which the printer provides automatic context switching. However, correctly setting the printer emulation on the printer front panel provides the best support possible when using mixed language files. The correct setting depends on the driver being used.

For most situations, set Emulation to the graphics language you most often use. When printing a file in another graphics language, manually change the setting on the front panel before sending the print file.

---

## Application Software

### Isolating a problem to your software

Sometimes printing problems are application software-specific.

Try printing the “Demo Plot” on the Utilities disk. If the demo prints, the printer’s health is probably good.

Try printing a demo file from your Utilities disk. (See the Troubleshooting Quick List on page J-1.)

Try printing a simple file from your application or from another application. If this prints correctly, the problem may be with your software.

If you are using a Windows application and the file does not print from Windows, try printing a file from DOS. If this prints correctly, your problem may be with your Windows driver or Windows setup.

### Difficulty generating prints ranging from A to E size

Many Windows applications limit the maximum print size to “C” or “D” size due to the way that they map their internal coordinate system to memory.

Some applications which limit maximum print size are listed below:

- Microsoft Word: 22 x 22”
- Lotus 123: 17 x 22”
- CorelDRAW: 30 x 30” (TIFF files are limited to 11 x 17”)
- Microsoft Project: 36 x 61”
- Micrographx Designer: 68” maximum
- Ashlar Vellum: 101” maximum

## HP-GL

### Printing doesn’t start immediately when a file is sent

When using HP-GL or HP-GL/2 (the default), the printer receives the entire file, then converts it to raster data as it prints. The panel displays the message PROCESSING during the conversion process.

### **Emulation error**

Emulation error 1 indicates the file sent is in a language different from the selected emulation. Check the driver selected in the application software and select the matching emulation on the printer.

### **Difficulty generating prints ranging from A to E size**

The HP-GL/2 Windows printer driver does not perform scaling, so it cannot override the application's maximum print size limitations.

- HP-GL Applications: 50" maximum

### **MEMORY FULL message**

The print file is too large for the printer's buffer. Install additional memory to print this file, or use ENCAD's Vector to Raster Conversion Utility. (Instructions for installing additional memory are in Appendix B. Appendix G has ordering information.)

If you are using AutoCAD, use the ENCAD ADI driver.

### **Image is truncated when rotating it 90° or 270° in roll feed**

The printer automatically prints in portrait orientation. (For CAD applications, the x axis = paper axis. For all other applications, the x axis = carriage axis.)

### **Finished print is smaller or larger than expected**

Check that the emulation option matches your software's driver emulation. This is particularly important when using HP-GL emulation. For example, if the software is using an HP7475 driver, you must make sure that the Emulation option is set to HP7475. Set Options to Advanced to see the additional HP-GL emulations.

### **Long print (>50") is truncating at or less than 48"**

Check that roll feed is turned on when you load a roll of paper. If the printer is set to Roll=OFF, it will print 48" maximum. Make sure Control=Software is selected under Printer Setup. Some parameters are ignored when control is set to Printer.

Some software applications do not support long prints.

---

If you are using ENCAD's ADI driver, be sure the long print capability has been configured.

### **Print is not to scale**

When you load new types of paper, you must perform the X-Y calibration. Make sure that Calibration = ON before starting the calibration. (See Appendix A.)

Only HP-GL and HP-GL/2 files are scaleable.

If you are using vellum, be sure that it is inkjet vellum. Some types of vellum do not have the emulsive surface of inkjet vellum and are not recommended because they may slip during printer stepping.

### **Print is elongated in the paper axis**

Set the P1/P2 option to Normal if you have margins set to Normal. Set P1/P2 to Maximum if you have margins set to Expanded. (See "Setting Margins".)

Make sure the printer's emulation option matches the device interface requirements of your software. (See "Emulation Options".)

Set Control=Software under Printer Setup.

### **Colors at entity intersections are running together**

Unexpected colors can result from printing two colors at the intersection of entities. Under the main menu on the front panel, select Vector Palette and set Intersect Control=Single. This allows only the last entity drawn (on top) to print at their intersection.

### **Gaps or overlaps appear in long prints**

When using an old HP-GL long print driver which performs frame-by-frame long axis printing, small gaps or overlaps may appear between frames. Check to see if your application has an HP-GL/2 driver. If not, ask your software vendor for an HP-GL/2 driver or refer to ENCAD's Software Reference Guide for a list of third party vendors of products that may help, such as vector to raster converters.

### **Colors are not correct or sections of print missing**

Check the setting for the Control option in the Printer Setup menu. When the option is set to Software, the printer uses the pen color settings from your software application. When the option is set to Printer, the printer uses its own pen color settings. (Selected under "Vector Palette".)

If the control option is set to Software, make sure your software pen color settings are set correctly and that the entities in your drawing file are the colors you want. (See "Setting Pen Colors" in Chapter 7.)

If the color option is set to Printer, make sure your pen settings correspond to the colors you want. Run the Demo available on the Utilities disk to verify the colors. This applies to HP-GL and HP-GL/2 only. (See "Setting Pen Colors" in Chapter 7.)

### **Print contains only partial image**

The printer automatically prints in portrait orientation (X axis = paper axis). If you rotated the image in your application to save paper, set the paper size to the next larger size (for example, if you are printing a C size image, choose D size paper). Be sure to set Save Media to ON. This stops the printer from scrolling the full paper width.

### **Can't print long print**

Be sure you choose the following settings:

Roll = ON

Control=Software

Use HP-GL/2 driver. (HP-GL drivers are 50" maximum)

Set long print size in the application software.

### **Dotted or grainy vector lines instead of solid**

Select a fully saturated color for thin vector lines, either in your application or on the printer. If you are using the ENCAD palette, choose highly saturated colors from the demo print. If you are using the application's palette, print an example of all the application's colors and select a highly saturated color.

---

### How do I send PostScript files?

When using the Microsoft Windows or AutoCAD drivers, set Printer Setup/Lang to HP-GL/2. With this setting, the printer can accept all RTL language files and all Windows and AutoCAD files. HP-GL or HP-GL/2 files from applications other than Windows or AutoCAD may require manually switching the language setting on the front panel.

If you are using the printer with a network spooler, consider modifying the spooler to automatically insert the PJI language-switching commands at the beginning and end of each file. This lets the printer switch automatically into the correct graphics language for your current print and returns the printer to the front panel graphics language setting for subsequent prints.

### Windows driver

ENCAD's Windows driver supports Windows versions 3.0 and 3.1. A separate driver is available for Windows 95, but does not support Windows NT. Use the HP-GL/2 driver provided with Windows NT.

Be sure you are using the latest driver. Check the ENCAD BBS or Internet WEB page and download a new driver if necessary.

DO NOT use the ENCAD printer driver which Microsoft ships with Windows 3.1, HPPRINT.DRV. It is an old HP-GL driver.

### ADI driver for AutoCAD 12 and 13 for DOS

ENCAD's ADI driver supports AutoCAD 12 and 13 for DOS only. If using AutoCAD 12 for Windows, configure AutoCAD for the HP-GL/2 driver and the 7600 color or HP650C model. If using AutoCAD 13 for Windows, check the ENCAD BBS or Internet WEB page and download the driver.

## Calling for Help

If you have tried the suggestions in this manual and still need assistance, call the ENCAD dealer where you purchased your printer. Other sources of help are listed inside the front cover and on the first three pages of this manual.

Before you call technical support for help, be sure that you have all of the following information available to help your Technical Support representative:

### Printer

- model
- firmware
- rev. letter
- amount of memory
- serial number

### Computer

- model
- operating system
- connection (serial or parallel)

---

## Customer Technical Support

To resolve plotter problems, use the suggestions provided in this guide. If you continue to have problems, you can get help from any of the following:

ENCAD Authorized Dealer \_\_\_\_\_  
(write phone number here)

**ENCAD Technical Support Help Desk 619-452-4350**  
**FAX 619-546-0659**

Help Desk hours are: 6 a.m. - 6 p.m. PST Monday through Friday.

When you call, use the log at the end of this manual to record the date, problem, case number, and the name of the support technician you spoke with. This will be helpful if you need to call again on the same or related problems.

When faxing, please use the problem report form at the end of this manual.

**ENCAD BBS 619-452-2653 and 619-452-3768**

This bulletin board provides 24-hour access so you can download the latest technical bulletins, driver files, and sample files.

**Internet WEB Page** <http://www.encad.com>

ENCAD's home page gives you 24-hour access to product news, company information, and technical support. You can view any or all of the technical bulletins and download test files and drivers.

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## Problem Report

**ATTENTION:  
TECHNICAL SUPPORT AND SERVICE DEPARTMENT**

6059 Cornerstone Court West  
San Diego, CA 92121-3734

Technical Support FAX: 619-546-0659

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**TO:** ENCAD Technical Support Department    # of pages: \_\_\_\_\_

**ATTN:** Help Desk

**From:** \_\_\_\_\_

**Company:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**FAX:** \_\_\_\_\_

**Re:** \_\_\_\_\_

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Printer model, firmware, rev. letter, amount of memory, and serial number:

Computer model, operating system, and connection (serial or parallel)

Software and version #:

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<b>Date</b>	<b>Problem</b>	<b>Case#</b>	<b>Support Rep.</b>

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