RENA THE ENVELOPE IMAGING COMPANY®

ENVELOPE IMAGER 2XP

(DA616)

Users Guide

Part # M-3305
Revision Date: 8/8/06

Plexiglas cover may not be included.

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Tip: Clicking on an item in blue will link you to the selected section.

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1 Safety

Before operating your printer, read the following safety hints carefully both for your own safety as well as to ensure the reliable operation of the printer. Be sure to heed all cautions and warnings in this manual, as well as other information marked or labeled on the printer. Keep this manual in a safe place so that the information it contains is available to you at all times.

1.1 Hazards Associated with the Printer

The address printer has been constructed in line with state-of-the-art technology and is safe to operate. However, hazards cannot be excluded if it is operated by persons unfamiliar with its use. The same applies if it is used in an inappropriate way or in a manner not in accordance with its intended purpose.

Ignoring the information in this manual exposes the user to the following hazards:

- Electric shock,
- Injury by rotating rollers,
- Damage to the printer.

1.2 General Notes on Safety

- The printer may only be connected to a voltage of 110-120VAC, 50/60 Hz. It is therefore vital to check the supply power before connecting the printer.

- The power plug may only be connected to a grounded socket! Make sure that the grounding has not been rendered ineffective by the use of an extension cable without a ground conductor. Any break in the ground conductor inside or outside the printer is dangerous and is not permissible.

- The printer is secured via only one terminal! Even if a fuse blows, electrical parts in the printer may continue to be live.

- Run the power lines so that no-one can trip over them. Make sure that no objects are placed onto the power cables.

- Unplug the printer from the power supply if it is not being used for a longer period of time. This avoids any damage in the event of voltage surges. The use of a surge protector is advised.

- Never touch any moving parts of the printer! Such action can lead to injury from being caught up in the rotating rollers. Also be sure to keep long hair and clothing away from the printer while it is running.

- Protect the printer from moisture. If moisture does penetrate it, this may lead to the danger of electric shock.

- Always unplug the printer before cleaning it.

- Do not use any cleaning agents. Use a damp cloth.

- You must unplug the printer and have it checked by an authorized service technician in the following circumstances:
    - If the power cable or power plug has worn or been damaged.
    - If water or other liquid has penetrated the printer.
    - If the printer does not operate properly even after the operating instructions have been followed.
    - If the printer has been dropped or its housing is damaged.
    - If the printer shows marked discrepancies from normal operation.

- Do not dismantle the printer beyond the level described in this manual. The housing must not be opened by unauthorized persons. Repairs may be carried out only by authorized service personnel.

- Prohibition of conversions: any conversions or modifications carried out by unauthorized persons are prohibited for reasons of safety.

- This is a class-A instrument. It may disturb radio equipment in the home or office. If this happens, the operator may be required to take appropriate action.

1.3 Handling the Ink Cartridges

- Keep all ink cartridges out of the reach of children.

- Under normal circumstances, ink cannot run out of a cartridge. Wash off any ink spray which gets onto the skin immediately under running water. If any ink gets into your eyes, rinse it out immediately with plenty of water.

- The ink cartridge should not be shaken, allowed to drop, or be struck against the palm of the hand or a hard surface.

- Install the ink cartridge immediately after removing the protective tab.

- Do not try to open or re-fill ink cartridges. This could damage the cartridge and printer.

- When not in use, the ink cartridges must be removed, cleaned and properly stored. Please see Section 10.1 for details.

1.4 Location of the Printer

- When setting up the printer, ensure that it is placed on a smooth and level surface which is wider than the printer.

- The surface on which the printer stands must be sufficiently stable. If the printer tips or is dropped, this may lead to personal injury or damage to the printer.

- Select an installation or storage location which protects all parts of the printer from direct sunlight, excessive heat and extreme temperature/humidity fluctuations.

- The printer must not be exposed to vibrations or shocks.

- Position the printer so that you can pull the power plug from its socket easily, at any time.

2 System Requirements

- Pentium III-class PC (500 MHz or higher recommended)
- Windows 98, Windows NT 4.0 (Service Pack 6 or higher), Windows 2000 or Windows XP. You must have administrative privileges on the system.
- Microsoft Internet Explorer 5.0 or higher.
- System memory depending on your operating system.
- At least 120 Mb free hard-disk space.
- CD-ROM drive
- Centronics Parallel and or USB port

3 Transport

The printer is shipped in appropriate packaging so that, under normal shipping conditions, it reaches its destination without damage. Please save the packaging for future use!

☞ The carrier is liable for any damage during transport. Transport and storage should take place under normal conditions, i.e. at temperatures between +5°C and +70°C and relative air humidity of up to 80%. Exposure to conditions that are not permissible may lead to damage which is not externally visible.

4   Unpacking the Printer

Shipping damage must be reported to the carrier, immediately!
If the crate is damaged, please have the carrier note this on the "bill of lading".

The printer is shipped in a custom wooden crate.
- Remove the screws from the lower perimeter of the crate.
- Carefully lift the cover from the pallet.
- Remove the shipping plates that secure the printer to the pallet.

Remove the shipping crate cover.   Remove both shipping plates.

- Lift the printer by grasping under the center, blue metal areas only, as shown below. To help avoid injury, two people should help lift/move the printer.
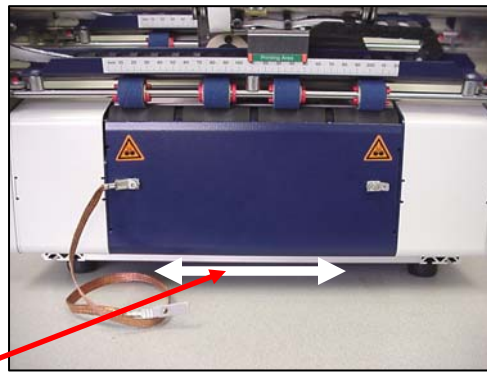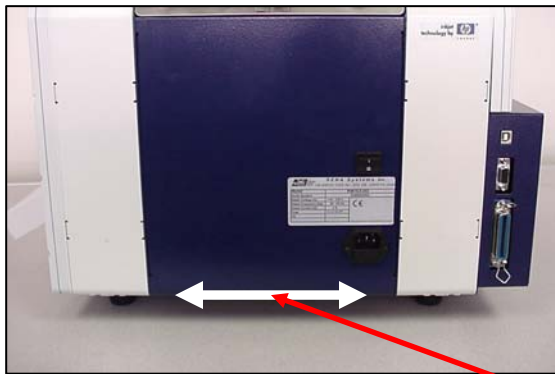
Lift the printer by grasping
under these areas only!

- Please save the packaging. It will be required if you ever need to ship the printer. If you decide not to save the packaging, please dispose of it in an environmentally friendly way.
- Check to be sure you received all the accessories with your printer and that the printer and accessories are not damaged.

4.1 Accessories Included

1 Users Guide (Located on the 2XP CD-ROM)

1 Elevation Guide Assembly

1 Material Hopper with Side Guides (including mounting hardware)

1 Power Cord

1 USB Cable (1.8 M, 5.9 ft)

1 FlexMail3 Trial CD (Includes: Printer drivers and a trial version of FlexMail3 SP7 or higher)

1 2XP CD-ROM (Includes: Users Guide (PDF); USB Device Drivers and Installation Instructions)

Note: Ink cartridges are not included with the printer.
Ink cartridges can be purchased through your local Rena dealer.

4.2 Please Register Your Printer

Use the following "Warranty Registration" link to register your product with Rena Systems.
http://www.renausa.com/support_warranty.htm

5 Printer Overview
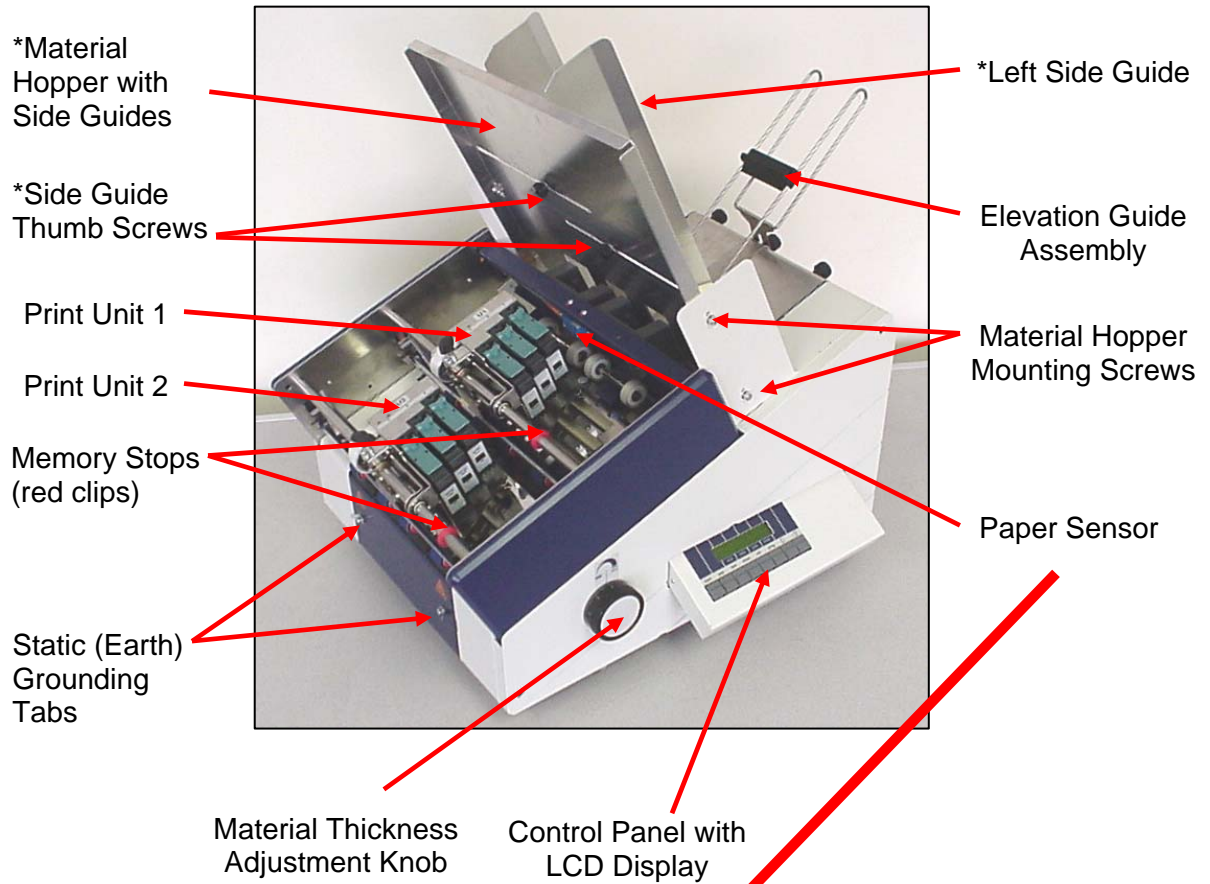
*Material Hopper with Side Guides

*Left Side Guide

*Side Guide Thumb Screws

Elevation Guide Assembly

Print Unit 1

Material Hopper Mounting Screws

Print Unit 2

Memory Stops (red clips)

Paper Sensor

Static (Earth) Grounding Tabs

Material Thickness Adjustment Knob

Control Panel with LCD Display

*Some items, received with the printer, may not look exactly the same as shown.

LED

Paper Sensor (wenglor)
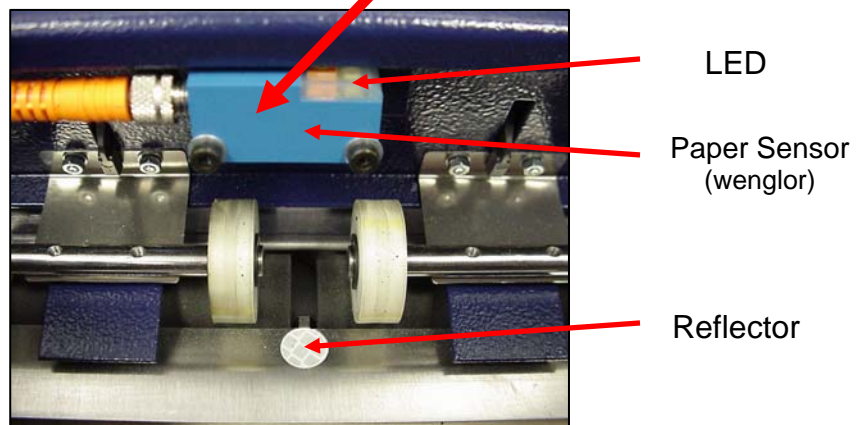
Reflector

Please be sure your material (mail piece) passes under this sensor, completely covering the reflector, as it passes.

Printer Overview (continued)

*Material Hopper

*Left Side Guide

*Right Side Guide

Separation
Assemblies

Elevation Guide
Assembly

USB Port

+Serial Port

Parallel Port

Power Switch

AC Power
Receptacle
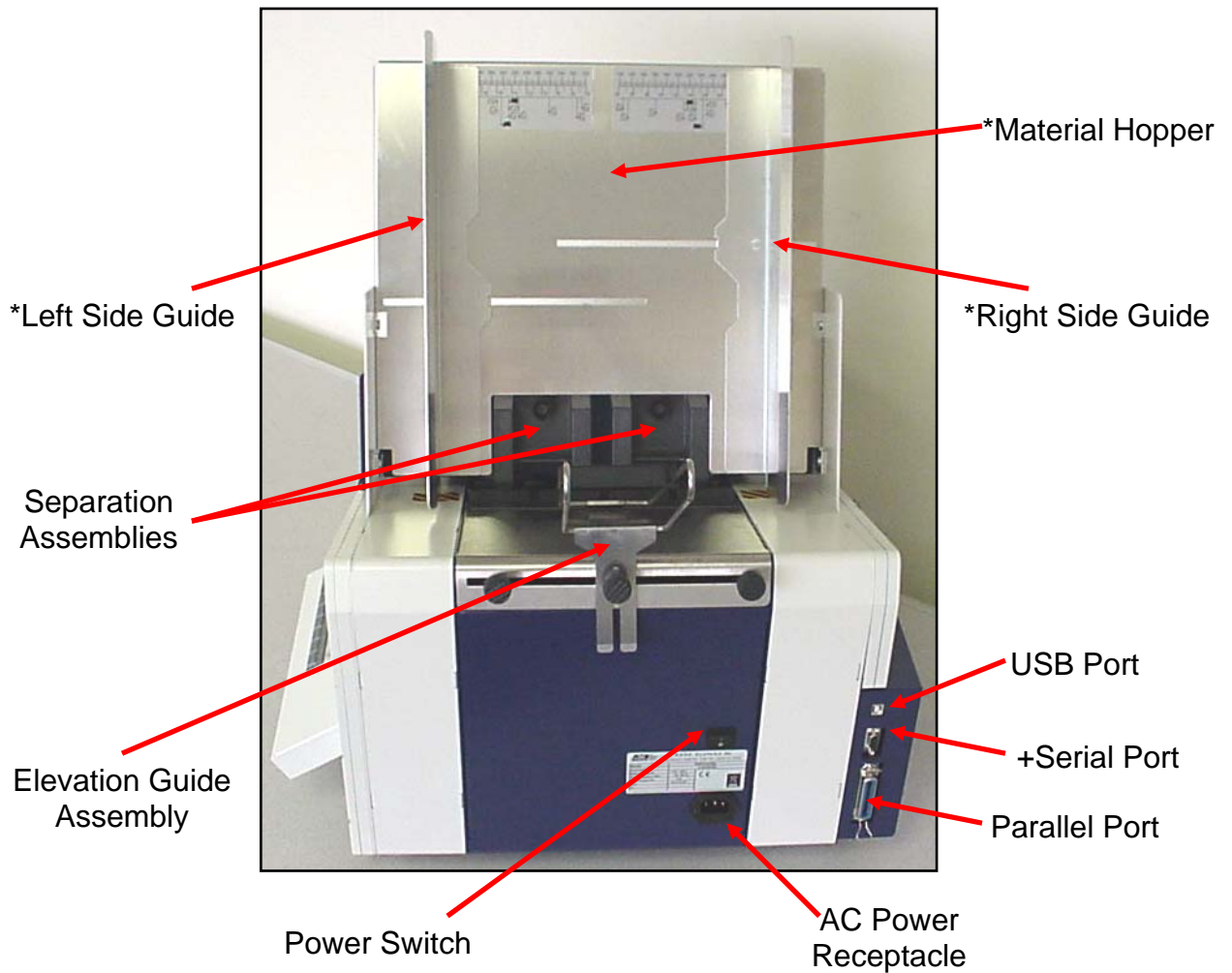
+ The Serial Port is <u>not</u> active.
*Some items, received with the printer, may not look exactly the same as shown.

6   Printer Setup

Note: Section 6 is laid-out in the order that you should proceed with printer setup.

- Place printer on a strong, stable work surface. The printer should not be exposed to direct sunlight, moisture or large changes in temperature.

IMPORTANT! If you plan to use the USB port of the printer, do not connect the USB cable to the printer, until you are instructed to do so. Please see section 6.15 (Installing Printer Drivers) for more details.

6.1   Installing the Material Hopper Plate (with Side Guides)

The material hopper plate attaches to the two uprights on the printer, using the screws and washers, supplied with the assembly.

Left Side Guide

Hopper Plate

Right Side Guide

Hardware
Screws & Washers
(shipped pre-installed)

Hardware
Screws & Washers
(shipped pre-installed)
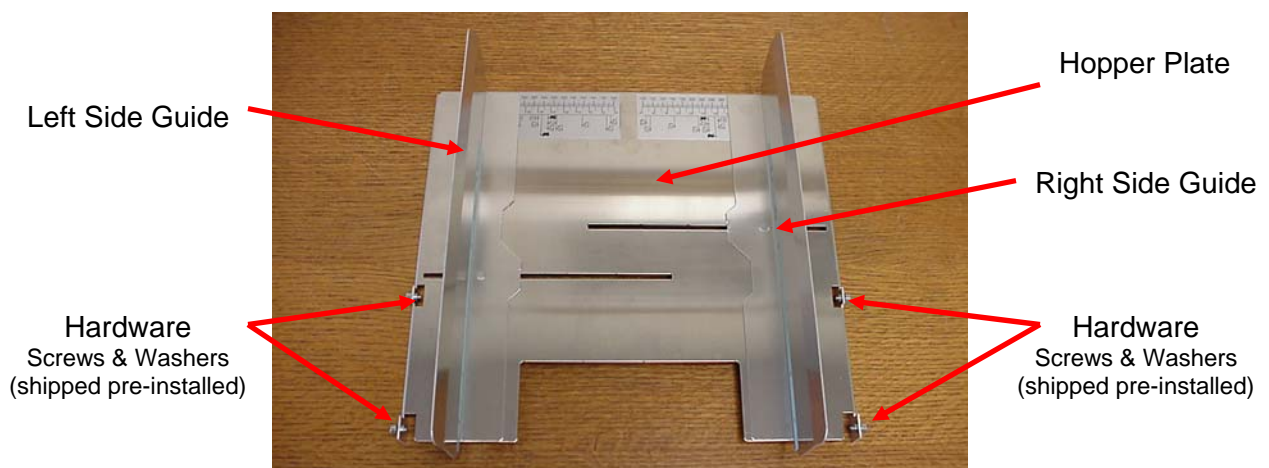
Components for the Material Hopper Assembly

Note: The hopper assembly, included with your printer, may be different than shown.

- Remove the pre-installed hardware (screws and washers) from the hopper assembly.
- Align the hopper plate attachment points with the lower holes in the printer's uprights.
- Install the supplied screws and washers into the two attachment points on each side.
- Secure the Hopper Plate, by tightening all four screws (two on each side).
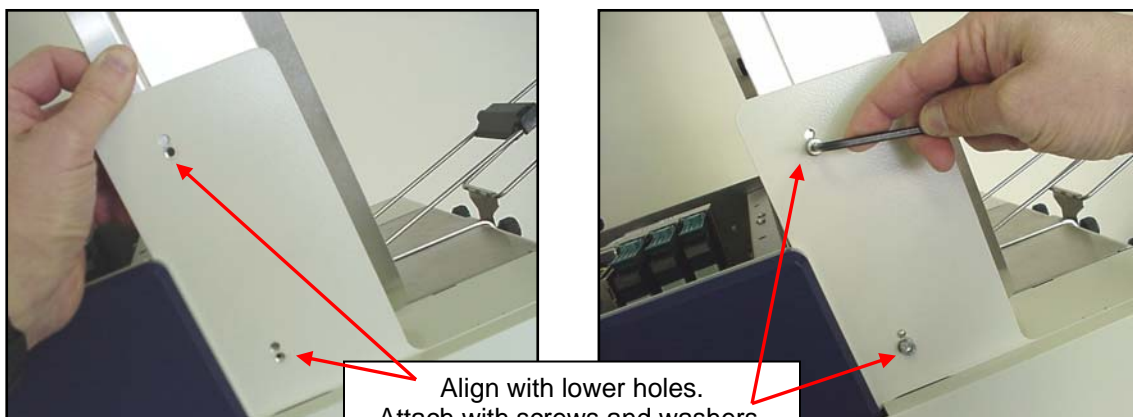
Align with lower holes.
Attach with screws and washers.

6.2 Installing the Elevation Guide Assembly

Install the elevation guide assembly as shown below. Be careful not to over-tighten the thumb screws or you may damage the securing block.

Note: The extra thumb screws have been provided, for the attachment of an additional elevation guide and or other optional side guides. For wide materials a second elevation guide will provide additional support. An additional elevation guide (part # 326.2.021) may be purchased from your authorized Rena dealer.
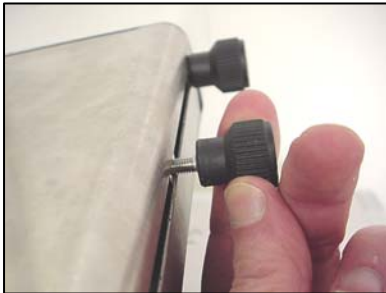
| Loosen Thumb Screw. Do Not Remove! | Insert front tab of Elevation Guide into the tabletop slot. | Insert rear sections of the Elevation Guide behind the thumb screw and secure. |
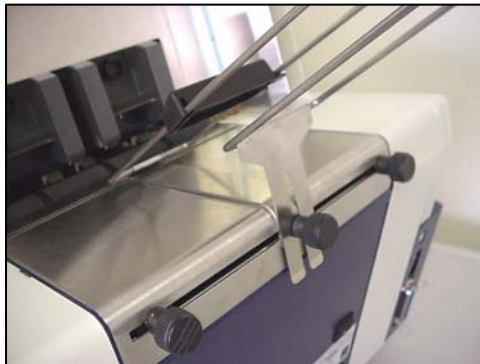
Elevation Guide Installed

Two Elevation Guides will provide additional support for wide materials.
((An additional Elevation Guide (326.2.021) can be purchased from your local Rena dealer))

6.3 Material Thickness Adjustment

6.3.1 Transport Pressure (Carriage Height) Adjustment

- Loosen both sheet separator blocks, lift them to their highest position and secure them at this position. This is done so the separators do not hinder the ability to lower the carriage assembly.
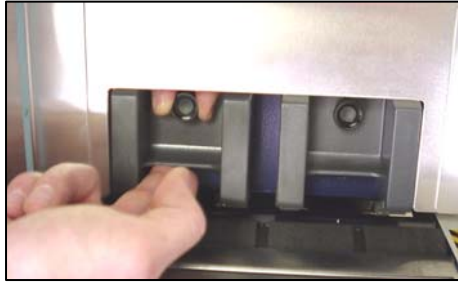
- Raise the carriage assembly by turning the Material Thickness Adjustment Knob clockwise.
  Note: The adjustment knob is scaled in 0.1 mm increments. It will stop at about 9 mm. This is the maximum height adjustment for the carriage assembly.

- Place a single mail piece between the upper and lower exit rollers of the printer.
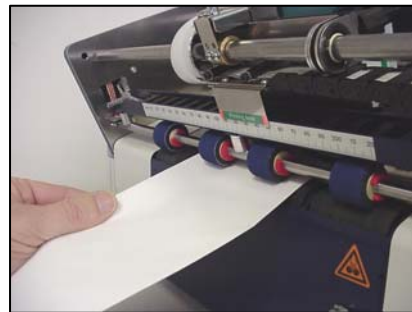
- While slowly sliding the material in and out, a distance of about 1 inch but keeping it between the exit rollers at all times, slowly lower the carriage, by turning the Material Thickness Adjustment Knob counter-clockwise, until you just start to feel resistance to the movement of the mail piece.
- Lower the carriage 1.0 mm further to provide adequate pressure and drive force.
- Verify Adequate Pressure: Try to remove the mail piece, observing the amount of force it takes to do so. It should take a medium amount of force to remove the mail piece from between the exit rollers, but it should not be difficult to do so. Raise or lower the carriage assembly until you have adequate pressure on the mail piece.
  NOTE: If the pressure is set too weak, the material will hesitate or skew as it feeds, which will cause "ghosted" images and or shifted image locations (misalignments).
  If the pressure is too strong, the material may hit the bottom of the Print Units, causing jamming of the material, stalling of the transport system, or smudging of the image.

Important! The sheet separator assembly moves up and down with the carriage assembly. Therefore; if the carriage height (material thickness adjustment knob position) is changed, the separation adjustment must be re-adjusted.

6.3.2 Sheet Separation Adjustment

- Loosen both thumb screws that secure the position of the separation bocks.
- Lift both separator blocks, at the same time.
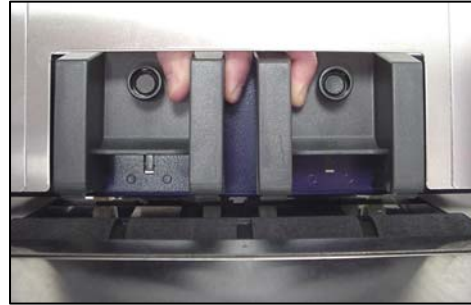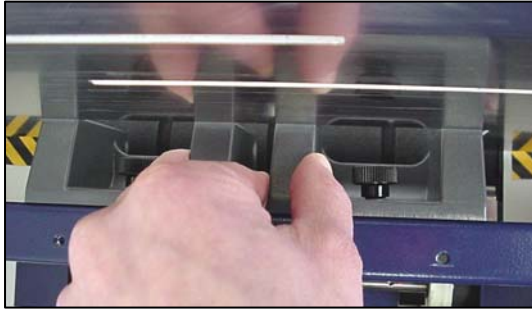
- Place your mail piece under the separator blocks.
  Important! When using a mail piece that is narrower than the width of both separator blocks, please be sure to lay additional mail pieces under the outer separator positions, as shown below. If this rule is not followed, the outer separators will rub on the feed rollers, causing premature wear and or feeding problems.

- Let the separator blocks drop ((allow them to fall freely, so they rest on the mail piece(s)), then tighten both thumb screws to secure the separator blocks positions.

- Remove the mail piece(s) from under the separators.
- The sheet separation assembly is now set for the thickness of your mail piece.

Important! The sheet separator assembly moves up and down with the carriage assembly. Therefore; if the carriage height (material thickness adjustment knob position) is changed, the separation adjustment must be re-adjusted.

Alternate separator adjustment for narrow materials:
In general, it is recommended that you feed material down the center of the printer; however, when using narrow mail pieces, it is also acceptable to offset the material so it passes under only one separator block.

Important! Please be sure to raise and secure the unused separator block, as shown below, so it does not rub on the feed rollers. In addition, please be sure the envelope is positioned so it will pass beneath the paper sensor area and completely cover the reflector, as shown below.
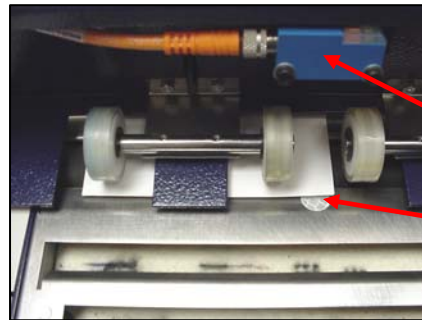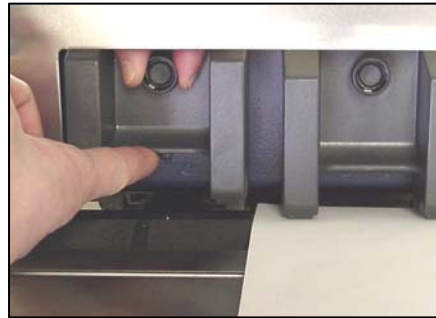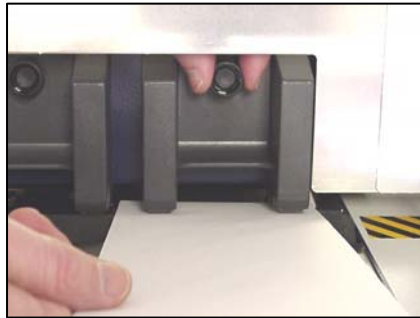
Paper Sensor

Reflector

Sheet Separation Adjustment Tips:
- o   In general, you want to adjust the separation assembly to the thickest part of the mail piece.
- o   In some cases, it may be necessary to use more than a single thickness to adjust the separation assembly. For example, if you are using open ended mail pieces or magazines, too much force on the top side of the material will cause the material to be pulled open as it feeds. To avoid this problem, you should adjust the separation assembly using 1.5 times the thickness of a single piece.
- o   Since every mail piece is different, some experimenting may be necessary in order to obtain proper separation.

Important! The sheet separator assembly moves up and down with the carriage assembly. Therefore; if the carriage height (material thickness adjustment knob position) is changed, the separation adjustment must be re-adjusted.

6.4 Side Guide Adjustment

- Place a single mail piece in the hopper of the printer.
- Loosen the thumb screws that secure the side guides and slide the guides up against each side of the mail piece.
- Tighten the Left side guide.
- Adjust the right guide so there is a small space (about the width of a dime) between the right side guide and the material. Then secure the position of the right side guide.

- The technique, shown below, can be used to verify that the guides are parallel to each other. If the guides are not parallel, loosen the guides and adjust them so that they are parallel with each other.
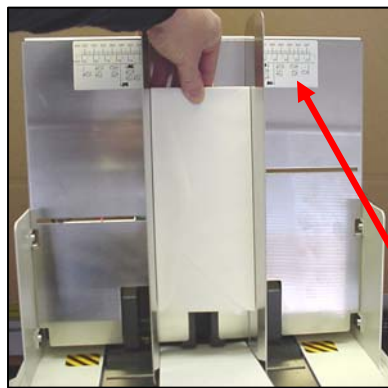
Guide Positioning Scale:
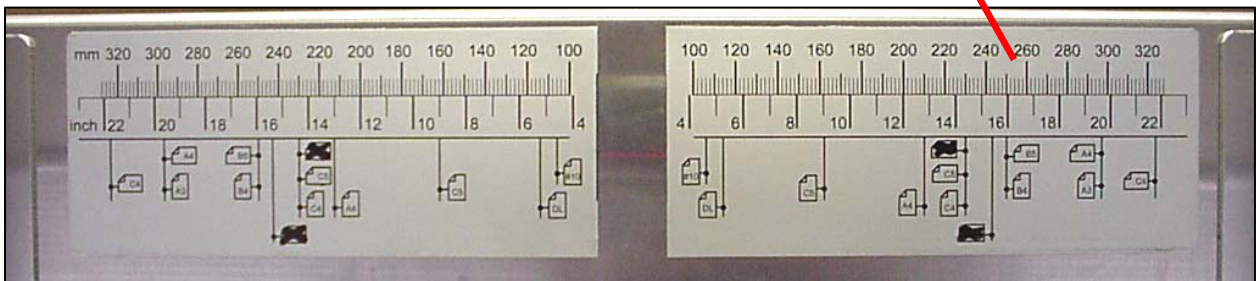
- The scale, shown above, can be used to approximate the position of the left and right side guides. If you use this scale, it will center the material in the printer.
  For example: Aligning the inside edges of both side guides with the "#10" icons on the scale, will position the guides for feeding #10 envelopes, centered in the printer.

  Note: At the time of publication, the scale's "inch" reference was not correct. Do not use the inch reference. Please use the metric (mm) reference instead.

  Side Guide Adjustment Tips:
  - o   If the side guides are set too tight against the material, the material will not be able to drop (fall under its own weight), causing a hesitation in feeding.
  - o   If the side guides are set too loose, the material may not feed straight.

6.5   Elevation Guide Adjustment

6.5.1   Angle

- The angle of the elevation guide must be adjusted for each different material size you are using.
  In general; the longer the mail piece, the higher the elevation angle; the shorter the mail piece, the lower the elevation angle.
  For example, when feeding #10 (9.5" long) envelopes, the elevation angle is normally adjusted about ½ the distance up from the lowest position.
  When feeding 10" x 13" (13" long) envelopes, the elevation guide is normally adjusted about ¾ of the distance up from the lowest position.
- To produce the best feed results, some experimentation with the elevation guide angle will be necessary.
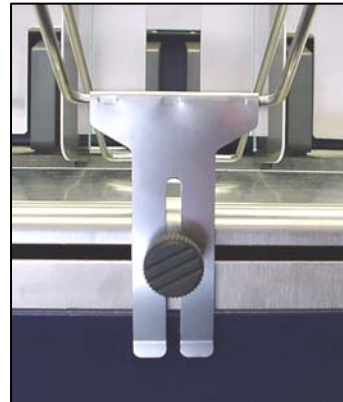
6.5.2   Guide Block Position

- Drop two pieces of the material, you plan to feed, into the hopper so it is resting against the separator tips and feed roller.
- Slide the position of the guide block up or down, so that the bottom edge of the wedge-shaped block is positioned under the trailing edge of the upper mail piece.

6.6   Loading Material

- When loading material into an empty hopper, please be sure to drop a single piece into the hopper first, so it rests against or is just feeding under the separator tips.
- Fan the material stack so the bottom pieces protrude closer to the separation point, as shown below, and then gently place the stack into the hopper.

- Additional material should be loaded in the same manner.
- Determine the working stack height for your material.

Note: The stack height is limited by the weight, size and type of material being used.
You will need to experiment to find the maximum stack height for your particular material. It should be noted that; if the material is allowed to slip on the feed rollers, premature wear of these rollers can be expected.

When using #10 envelopes the stack height can be very high.

When using 10" x 13" envelopes, you will need to limit the stack height.

Stack Height Scale:
The scale, located on the inside wall of the side guides, provides the recommended maximum stack height for some common ISO standard materials.
> **Note**: This scale may not be present on all units.

Item	*Height x Length mm*	*(approximate size in inches)*
#10=	104 mm x 241 mm	(4 1/8" x 9 ½")
C6=	114 mm x 162 mm	(4 ½" x 6 3/8")
DL=	110 mm x 220 mm	(4 ½" x 8 ¾")
C6/C5=	114 mm x 229 mm	(4 ½" x 9")
C5=	162 mm x 229 mm	(6 3/8" x 9")
C4=	229 mm x 324 mm	(9" x 12 ¾")
	- recommended max height for 10" x 13" envelopes	
A4=	210 mm x 297 mm	(8.27" x 11.69")

A = Sheet Paper
C = Envelopes

Stack Height Adjustment Tip:
If you notice a lot of rubber particles accumulating around the feed roller, this is an indication that the mail pieces are slipping on the feed roller. This will cause the feed rollers to wear quickly. This situation should be corrected as soon as possible.
If the material is hesitating (slipping on the feed rollers), try reducing the stack height (reducing the weight of the stack), changing the elevation guide angle and or guide block position.

6.7 Ink Cartridge Installation

Warning!
Cartridges that are incorrectly installed can be damaged and cause damage to the printer.
 - If the cartridge is pushed back manually, instead of allowing the retaining
   lever to do so, the lever can be damaged when you force it closed.
 - During installation, if an ink cartridge is forced against the electrical contacts (pogo pins),
   the gold colored foil, near the nose of the cartridge, can be torn. A tear in the foil breaks
   electrical connections, causing poor print quality and can also cause an electrical short
   which can damage the printer's electronics.

The printer requires the use of six inkjet cartridges (some choices are listed below).
Versatile Black (C8842A), Black (C6131A), Easy Ink (C8715A), Easy Ink Aqueous (C9007A)
Other cartridge styles may be available through your local Rena dealer.

Observe the notes in section 10.1, as well as the directions given by the cartridge manufacturer.

- Fully release all cartridge restraining levers.

- If you are installing a new cartridge; take the cartridge from its packaging and remove the protective tab and tape.
- If you are installing a cartridge that was previously installed; please observe the following:
    - Before inserting ink cartridges into the printer, please be sure they are free
      of moisture. Wipe any moisture from the body of the cartridge using a soft
      dry cloth.
    - Inspect the foil areas (gold colored areas) of the cartridge for any sign of
      damage. Do <u>not</u> install a damaged cartridge.
    - Remember to return the cartridges to their original positions. See section 8.3.5

- Insert the cartridge, with the nozzle plate facing down, into the first pen stall. Try to keep the cartridge as upright as possible. Push the cartridge straight down. Do <u>not</u> press it toward the restraining lever.
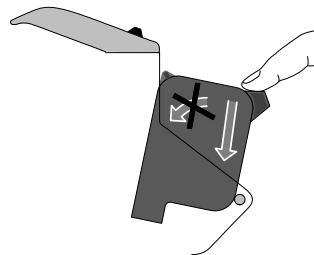
- Close the restraining lever so that the cartridge is swung into its final position and contact to the electronics is correctly made.

  IMPORTANT! The cartridge must <u>not</u> be inserted manually into its final position. Let the lever move it into its final position.
  When the cartridge is inserted, it should only be pressed downwards into the mount, in a straight movement without being rotated. Before the restraining lever is closed, the cartridge still has a slight forward tilt. The lever then swings the cartridge into its final position.
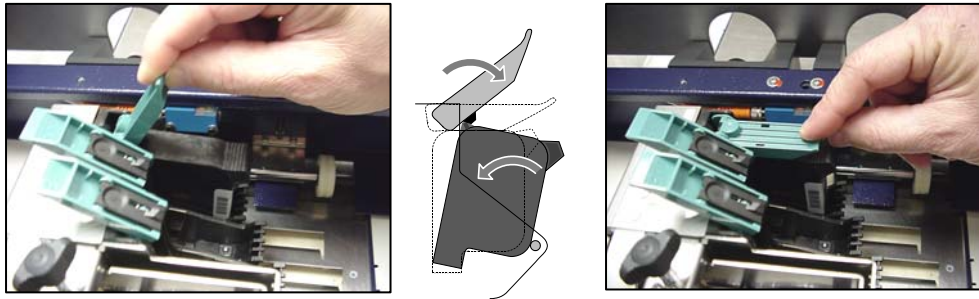
  To ensure that a secure contact exists between the print cartridge and the printer's electronics, at all times, the restraining lever has two functions:
  - o   To place the ink cartridge into its final position
  - o   To restrain it securely during operation

- Insert the other cartridges in the same way.

  Important! When the printer is not being used (not printing), all ink cartridges must be removed, properly cleaned and stored. Please see ink cartridge maintenance, located in section 10.1, for details.

6.8   Adjusting Print Position

Horizontal:

The horizontal print position, of a printed image received from a Windows based computer, is controlled via the mailing software that you are using.

Note: The horizontal position of the printer's internal Test Address (Test Address #1) can be controlled via the printer's menu option "Left Margin". However, Test Address #2 is not adjustable. You must be feeding a #10 (9.5" long) piece or larger, to successfully print Test Address #2.

Vertical:

The vertical print position, of a printed image, is adjusted by the physical placement of the print units.

Print Unit Positioning:
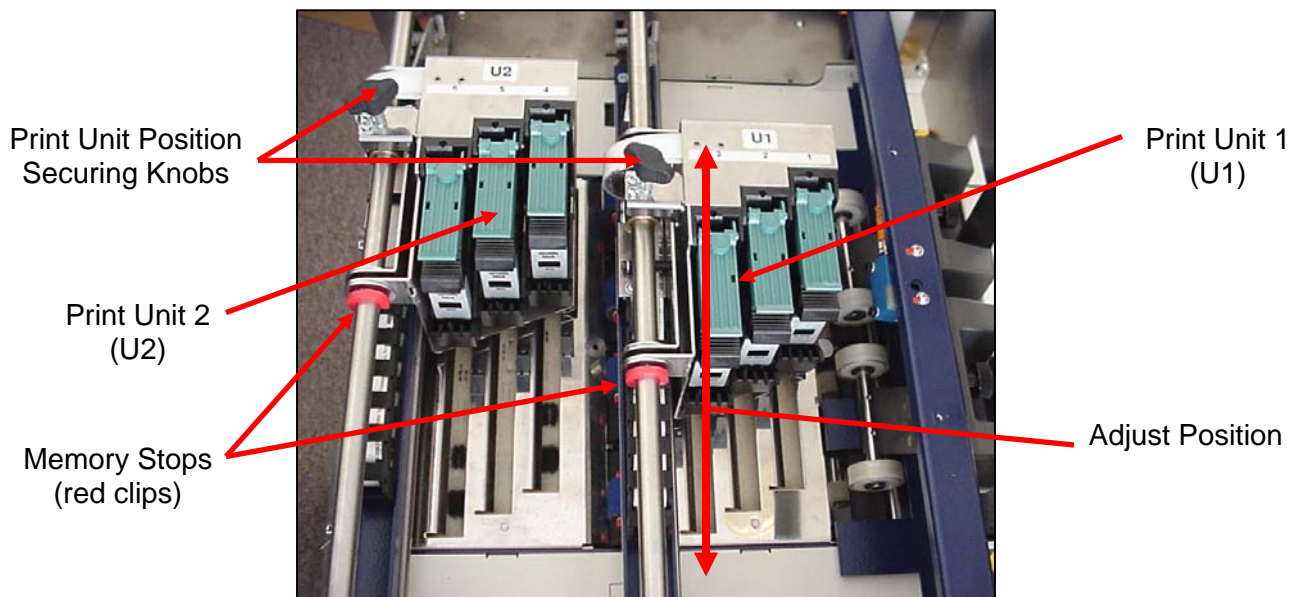
- Loosen the Print Unit Securing Knob and slide the Print Unit to the desired print position.
- The Memory Stops, shown above, can be slid against the print unit to mark the current print unit location. The scale (ruler) and "Print Area" positioning guide, shown below, can also be used to reference the current Print Unit position. These tools are helpful if you need to move the Print Units and then return them to a previously defined location.
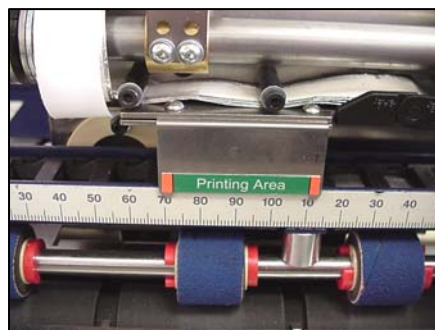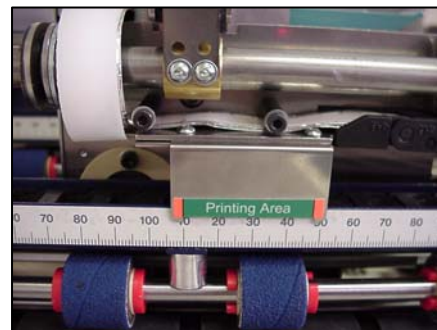
U1 Print Area   U2 Print Area

6.8.1   Linking Print Units:

In order to print an image that spans more than one Print Unit (an image that is larger than 1.5 inches in height), the physical position of both Print Units must be linked. You can set an approximate "Linked" position, by using the scales and print area guides provided. For example, when the right edge of the U1's Print Area guide is at the same scale position as the left edge of U2's Print Area guide, the heads are approximately "linked". Please see the pictures at the bottom of the previous page. You may need to print a test image and make a fine adjustment to the position of one of Print Units, for a near perfect alignment.

Note: In order to print an image that spans more than one print unit, you must link Print Units in FlexMail as well. This is done using the Print Units feature (found under File, while viewing the designer screen), click on the "General" tab and select "Link units 1-2".
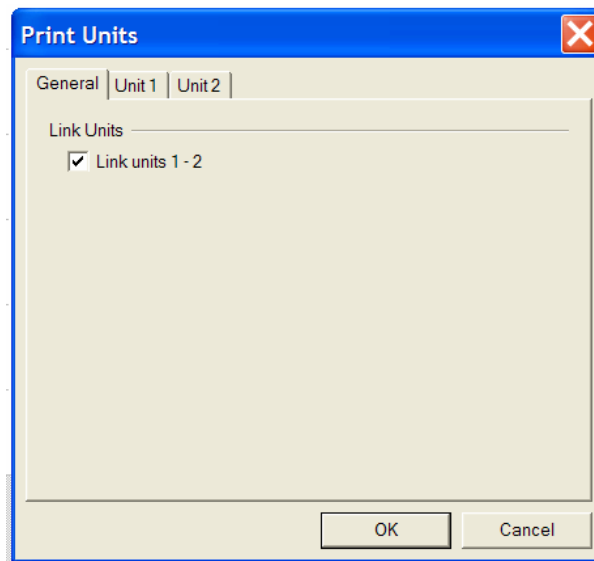
6.9 Providing Static Grounding to Adjacent Systems

Two grounding lugs (tabs) are present at the exit end of the printer. You must attach one of these lugs, using a grounding strap (wire), to the frame of adjacent systems that are being used with the printer. If a ground lug is not available on the adjacent system; the spare ground lug can be removed from the printer and attached to an exposed screw on the frame of the adjacent system. The grounding wire is then attached to this lug.

Note: The grounding strap may look slightly different than shown in the pictures below.

Grounding Lugs
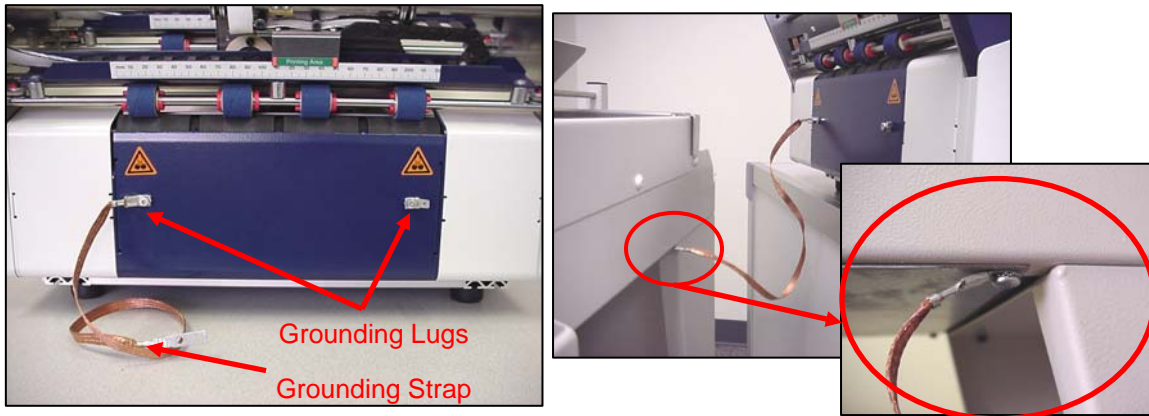
Grounding Strap

The above examples show the grounding strap (wire) attached between the printer and an exposed screw on a TB499 conveyor's frame.

The function of this connection is to equalize any electrostatic energy, which may accumulate within the printer, conveyor, or other in-line pieces of equipment. Connecting all in-line devices together, using the grounding strap provided, equalizes the electrostatic energy that may build within the individual components that are being used. If a large difference in electrostatic energy is allowed to build between devices, this energy will eventually be discharged from one device into the other. This electrostatic discharge has the potential of damaging electronics.

Electrostatic Discharge Warning!
To protect the printer from possible damage due to Electrostatic discharge it is essential that the unit be adequately grounded. Failure to provide proper earth and static grounding to the system may result in a static discharge that could potentially damage the electrical components of the printer.

Proper grounding of the printer and all other in-line equipment is the responsibility of the end user. Please ensure the initial installation of the system accounted for the grounding outlined in this document. Failure to adhere to these requirements may nullify the Warranty Coverage extended to you by RENA Systems.

Important!
If grounding straps are not present, it is important that they be added.

6.10 Connecting Power

Caution! The printer must be connected to a properly earth-grounded, 110-120 VAC, 50/60 Hz power source, as indicated by the type plate on the printer.
Please verify the power source before connecting the printer.

Connect the supplied power cord to the AC receptacle, located just below the power switch and type plate on the right side of the printer.

6.10.1 Fuses:

There are two 3.15 Amp/250V, slow-blow fuses located in the pull-out tray (fuse drawer), located just below the AC receptacle socket.
Fuse requirements are shown on the type plate as "2 x 3.15 AT" (two, 3.15 Amp, T= time delay).

Warning! Disconnect the power cord from the printer, before replacing the fuses.

If the printer does not power on:
* Disconnect the power cord from the printer.
* Using a small screwdriver, open (pull out) the fuse drawer.
* Check the rear (active) fuse. If it is blown, replace it with a fuse of the same type and size. **Note**: The front fuse is a spare fuse.
* Close the fuse drawer.
* If the replacement fuse blows, please call your local Rena dealer for service.
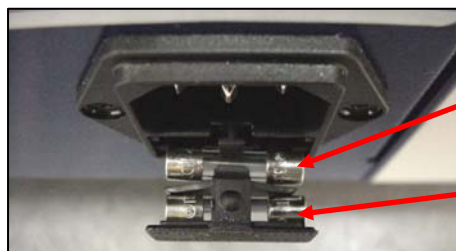
Fuse (active)

Spare Fuse

Warning! Replacing the fuse with one that is a higher value may cause damage to the printer and will increase the risk of fire. Please be sure to use the correct fuse value.

6.11 Switching the Printer On

The printer should be powered on, before the computer is powered on.

If you want to cycle the printer's power (off and on); please be sure to leave the printer powered off for about 20 seconds, before powering it on again.

- Switch the printer on with the power switch. 1 = on , 0 = off

The following successive displays will appear on the printer:

Displays installed Firmware version

> Loader -01
> Version# 1.1.50#

Displays installed Flashware version

> Starting Application
> Version 0.4.00 -PPC

Printer is initializing

> DA616   PPC   Inkjet
> Initialization

Note: Depending on the Firmware, Flashware and Printer settings on your printer, the information displayed on your printer may be different than shown above.

The printer is now ready for operation:

Normal display

> 100%   Cour12   00000
> On   600DPI Set1U   Nor

Display Layout:

- The first line shows the ink level, then the selected font and size, as well as the counter status.
- The second line shows **ON** for on-line mode (**OFF** for off-line), the print quality, the configuration and the print direction.
- Print direction **Nor** means that the address is printed in normal orientation, as seen from the operator side, and **Rev** means that the address is rotated by 180° when it is printed.
- Use the *start* key to switch the printer to off-line mode and return to on-line mode by pressing it again.
- In on-line mode, all other keys are disabled.
- A detailed description of the key functions may be found in Section 7 – Control Panel.

6.12 Setting and Local Locking the Paper Size (length)

In order for the printer to perform correctly, you must set and "local lock" the paper size (paper length) before printing.

To set the paper length:
- Make sure paper side guides, elevation guide, carriage height and sheet separators are adjusted properly.
- Load the printer with mail pieces.
- If the printer is not in off-line mode, press the *start* key and switch the printer to the **"off"** line mode.
- Press the ⬚ key and hold it down until "PAPER LENGTH: (L)" is displayed. Release the ⬚ key. The printer will then feed a few mail pieces and automatically measure, "local lock", and display, in millimeters and inches, the measured length.
- Verify that the printer measures the material accurately. Tolerance = + or - 5mm.
  The message "Wrong Measurement!" will be displayed, if the material does not feed or does not passing under the paper sensor. See section 10.2 for the location of the paper sensor.

What to do if the measured length is out of tolerance:
- **If the measured length is smaller than the physical length of the mail piece** (minus 6 mm or less), than the paper sensor may only be seeing part of the material's length. You may be feeding the material so it is not completely traveling over the paper sensor's reflector. There may be a cut-out or hole in the material that is passing under the sensor.
  Readjust the position of the material so it completely covers the reflector.
- **If the printer's measured length is larger than the physical length of the mail piece** (plus 6mm or more), than the mail piece is hesitating as it feeds. Check/adjust transport pressure adjustment; sheet separation adjustment; side guide adjustment; and try cleaning the paper transport rollers.

IMPORTANT! The printer will not perform properly, unless the mail piece's length is accurately measured and properly set.

6.13 Test Print

The test print allows the operator to check the internal function of the printer, without the need to connect a PC. In some cases, it is also used to demonstrate the printer.

Two different test print images can be selected via the menu feature "Special Funct: Test Address:". See section 8.3.2

It should be noted that a Windows based software program, will normally over-ride the printer's settings. The test print may not perform as expected, after printing data from the PC. If you power the printer off and on, the test print should perform as expected again.

Producing a Test Print.

- Switch to off-line mode**.**

- Press the *test* key.

- The test print starts and continues printing until the *test* key is pressed again.

Now check the print-out. If the result is exactly the way you want it, you may place the printer on-line and start your print job. If not, see section 6.13.1.

6.13.1 Unsatisfactory test print symptoms and possible causes:

- Entire image is fuzzy.
  - Carriage height may be set too high. See section 6.3
  - Cartridge nozzles may be partially clogged. Clean the print nozzles as described in section 10.1.
  - Media may be unsatisfactory for inkjet printing. Try inkjet suitable material.

- The test print reveals gaps – some print nozzles are clogged.
  - Nozzles may be sprayed clear using the "cartridge recovery" feature. See section 10.1.2.
  - Clean the print nozzles as described in section 10.1.

- The test print does not start as expected at the paper edge.
  - Was the media length set and "local locked"? See section 6.12
  - Was the media length measured accurately? See section 6.12

- The image being printed shows misalignments between cartridges.
  - Calibrate the print units and cartridges, as described in section 6.14.

6.14 Calibrating (aligning) the Print Units and Cartridges

Unlike printers with only one moving print unit, the DA616 operates with two print units, which remain stationary during printing. The cartridges must therefore be carefully set (calibrated) with respect to each other to ensure an acceptable print image is produced.

Depending on the deviations from the print image, various types of calibration may be required. Calibration is performed in the printer's programming mode.

It should be noted that you will never achieve perfect alignment. Minor deviations due to manufacturing tolerances, as well as the tolerances of the ink cartridge, and variations in paper movement can not be completely controlled. Therefore some small deviations in alignment can be expected. To achieve the best print results, it is recommended that you do not spit data between cartridges and print units.

6.14.1 Horizontal Calibration of the Cartridges (Cartridge Corr)

This adjustment can be use to correct for a consistent misalignment between cartridges.
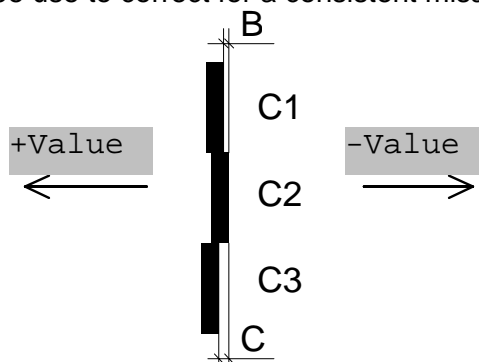
The need for calibration becomes evident when the bars, from a horizontal alignment test print, show a misalignment, as shown in the examples B and C above.

Press the **start** key to go to off-line mode (if you are on-line).

Press the **prog** key.

Press the **prev** key repeatedly until the main menu feature "CARTR12 CORRECT" appears.

> CART12 CORRECT: 0
> <pap> = Test Pattern

Press the **enter** key to select this menu feature.

> CART12 CORRECT: 0
> <pap> = Test Pattern

Set the correct value with the **prev** or **next** keys.
 Value range: +24 to –24, one increment = 0.08mm (= 1/300")
 Positive values shift the print image of a cartridge to the left, negative
 values to the right. Start with small corrections.

Press **pap** to perform the alignment test pattern, shown below.
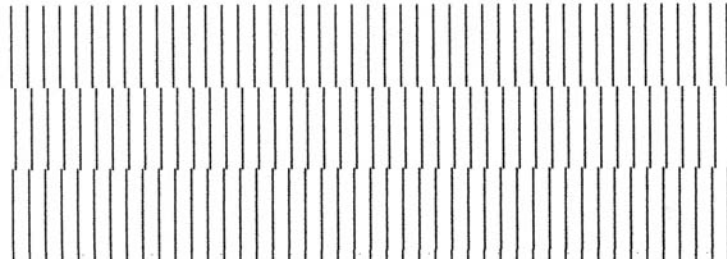
Cartridges Not Horizontally Aligned
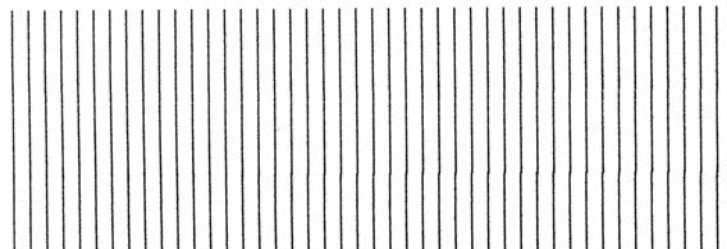
Cartridges Horizontally Aligned
(Some minor deviations can be expected.)

If the alignment is not correct, repeat the two previous steps until the misalignment has disappeared.

Press the **enter** key – the value is saved.

Note: This calibration must be performed for all cartridge pairs, which show a misalignment, until all the bars in the alignment test pattern are properly aligned.

End the procedure with **end key.**

6.14.2 Horizontal Calibration of the Print Units (DistU1-2 Corr)

Assuming that the previous calibration has been performed, a mutual horizontal alignment between the two print units can now be set.

Press the *start* key to go to off-line mode (if you are on-line).

Press the *prog* key.

Press the *next* key repeatedly in programming mode until the following main menu feature appears.

> DISTU1-2 CORR: 0

Press the *enter* key to select this menu feature.

> DISTU1-2 CORR: 0
> <pap> = Test Pattern

Set the correct value as required with the *prev* or *next* key.

Value range:

+48 to −48, one increment = 0.08mm (= 1/300")

Positive values shift the print image of a print unit 2 to the left, negative values to the right.

Note: While in this mode, the *pap* key can be pressed to perform an alignment test pattern.

D
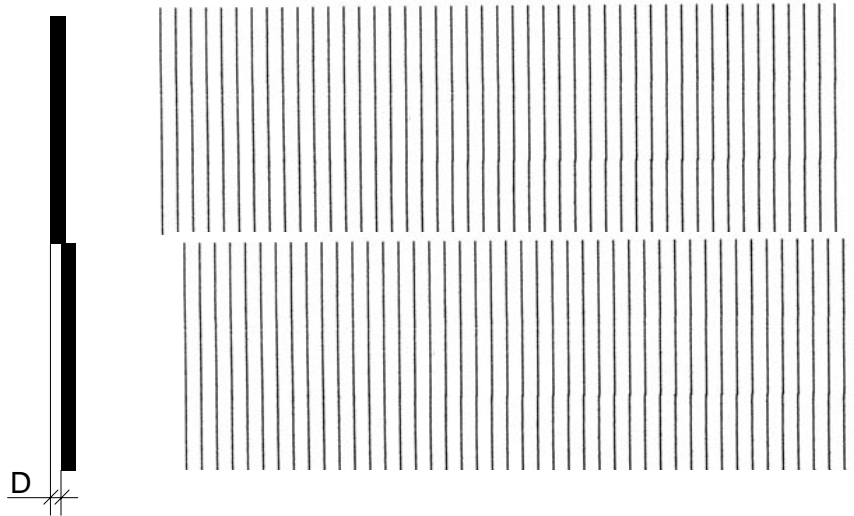
A calibration should be performed when the print image shows a misalignment (D).

If the alignment is not correct, repeat the previous step until the misalignment has disappeared.

Press the *enter* key – the value is saved, the main menu reappears.
End the procedure with *end key*.

6.15 Installing Printer Drivers

IMPORTANT! If you plan to use the USB port of the printer, do not connect the USB cable to the printer, until you are instructed to do so.

- Locate the FlexMail3 Trial CD (A trial version of FlexMail3 SP7 or higher, was included with the printer).
  Note: A newer version the printer driver may be available on the "2XP CD-ROM", which was included with your printer.
- When you place this CD in your drive, the FlexSystems installation wizard will open and guide you through the installation process.
- Click on "Add Printer" to install the printer driver.
- When prompted, enter your name, company name and product number.
  The product number can be obtained from the case of your CD ROM.
- After the driver installation is complete, you are now ready to communicate via the printer's parallel port. If you choose to use the USB port, you must follow the instructions in the next section (6.15.1). Do not connect the USB cable until instructed to do so.
- Be sure to set and "local lock" the paper size, within the printer, before printing.

Note: When using a Windows program, in conjunction with a Rena printer driver, you should be sure the Paper Size is properly set, and "Local Locked" within the printer's menu.

The Paper Size can be "local lock" using one of the following methods:

- With the printer off-line, press and hold the ⬚ (AutoPL) key until "(L)" is displayed. When the AutoPL key is released, the printer will feed, measure and "local lock" the paper size. Make sure the printer measures the media accurately (+-4mm).

- While in the Paper Size menu, press the AutoPL key briefly. The printer will prompt you with "Local Lock: yes no". Select "yes" and press enter to accept.

Note: A number of printer menu items have the ability to be "local locked". However, inconsistencies may result with windows software applications if you local lock some items. Generally, it is only acceptable to "local lock" the following menu items:
Print Quality, Orientation, and Paper Size.

6.15.1 USB Device Driver Installation

If you choose to connect to the printer via the USB port, you must load the USB Device Driver as well as the printer driver, as previously described in section 6.15.

The instruction for installing the device drivers, required for USB communication, are included on the "2XP CD-ROM" that was sent with your printer.
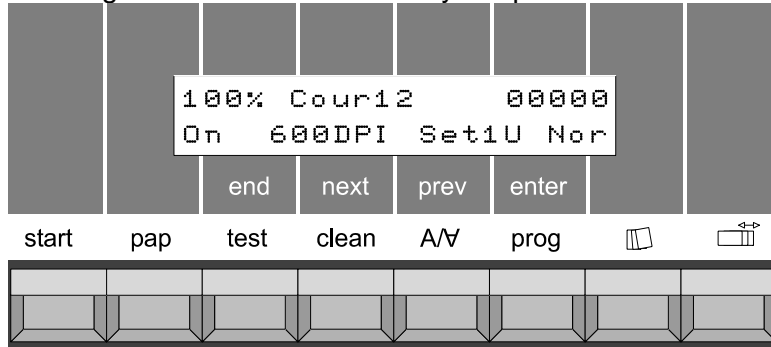
- Locate the CD titled "2XP CD-ROM", which was included with the printer.
- Place this CD in your drive. It should open automatically. If not, run "autorun.exe".
- When the Menu opens, click on the choice "USB Installation Instructions".
- Follow the instructions stated in this file.

7   The Control Panel

A two-line display is integrated into the control panel.
The first line displays how much ink is left, the selected font and the counter status.
The second line shows the operating mode (e.g. **On** for on-line mode), the print resolution (print quality), the configuration number and finally the print orientation.

```
100% Cour12      00000
On   600DPI  Set1U Nor
```

	end	next	prev	enter		
start	pap	test	clean	A/∀	prog	▯	⟷▮

The key's standard function is indicated directly above the key. The lettering in the gray fields applies to the function of key while in the programming mode.
The *start* key is always operational; all other keys are operational only in off-line mode.

7.1   Overview of Key Functions

The printer is always in one of three possible modes:
On-line mode:
   Printer is made ready to receive and print data.
   While on-line, all keys except for the **start** key are disabled.
Off-line mode:
   The lettering in the fields with a white background applies.
Programming mode:
   The lettering in the fields with a gray background, as well as the ⟷▮ key applies.

The individual keys have the following functions:
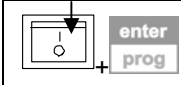
start	**start** - Switch the printer *ONLINE / OFFLINE*
pap	**pap** - Manual start / stop of paper transport
end / test	**end** - Quit menu / accept changes **test** - Start / Stop printing test addresses
next / clean	**next** - Select next menu point / increment value **clean** - Sprays ink into base to help clear print nozzles (To use this feature, it must be enabled in the program menu.)
prev / A/∀	**prev** - Select previous menu point / decrement value - Print orientation normal or rotated by 180°
enter / prog	**enter** - Call submenu / accept value **prog** - Switch to programming mode
▯	- Repeat last address(es)
⟷▮	- Measure paper length - Local locking of menu items

7.2 Key Combination Functions

start + pap = Reset Address Counter (Resets counter for on-line addresses printed.)

start + test = Reset Test Address Counter (Resets counter for internal test addresses printed.)

start + prog = Clear Address Buffer (Clears all data from the receiving buffer and print buffer.)

start + ▌▌ = Cartridge Recovery (Purges all print cartridges onto a mail piece.)

Note: To perform these functions, the printer must be off-line. Key combinations must be pressed simultaneously or you may find it easier to press and hold the START key, then press the other key in the combination, and then release both keys.

Key combinations – in conjunction with switch-on of the printer:

⏻ + enter prog	Non-Mechanical reset
⏻ + start + enter prog	Default reset All settings, inducing alignment values, are reset to their default values.

7.3 Conditional Displayed Messages

??? blinks

```
100%        Cour12          00000
???      600DPI    Set1U       Nor
```

Data/addresses are available but no print media is present.

NoD blinks

```
100%        Cour12          00000
NoD      600DPI    Set1U       Nor
```

The last data/addresses are incomplete (the Form Feed is missing)

Wait blinks

```
100%        Cour12          00000
Wait     600DPI    Set1U       Nor
```

Printing has stopped because the control character EOT was sent.
Printing can be re-started by pressing the *start key.*

Off blinks

```
100%        Cour12          00000
Off      600DPI    Set1U       Nor
```

Printing has stopped for a few seconds because a Pause was set via software sequences. Printing starts again after the set time has elapsed.

8 Programming Mode

The programming mode is used to set certain parameters manually via the control field. These parameters are values for setting up the printer, the fonts, the print quality, the print media as well as special and test functions.

The printer is shipped with default menu settings.

All necessary settings for the printer are made in programming mode. Some of these settings were already made when the printer was originally installed by your Rena dealer.

As a general rule, the printer is operated from an address processing program, from a Windows® system, using a Rena printer driver, which will control (over-ride) most of the menu items. Therefore, with exception to setting and "local locking" the paper size, the default settings of the menu parameters are optimized for this purpose and do not normally need to be manually changed. In addition, if you try to control or lock some menu items, this will cause erratic printing and un-recognizable images to be produced.

It may, however, be necessary to adjust some of these parameters in individual cases. Possible examples would be; when using DOS applications, or Windows® applications using a "text" driver. All the parameters will therefore be described in this section so that you can do this when required and can make optimum use of all the features offered by your address printer.

Section 8.2, entitled "Menu Overview", shows all the available menus in programming mode together with their links. It offers the user a fast and simple orientation to the menu.

This section is also designed as a reference source for experienced users.

Operation in programming mode
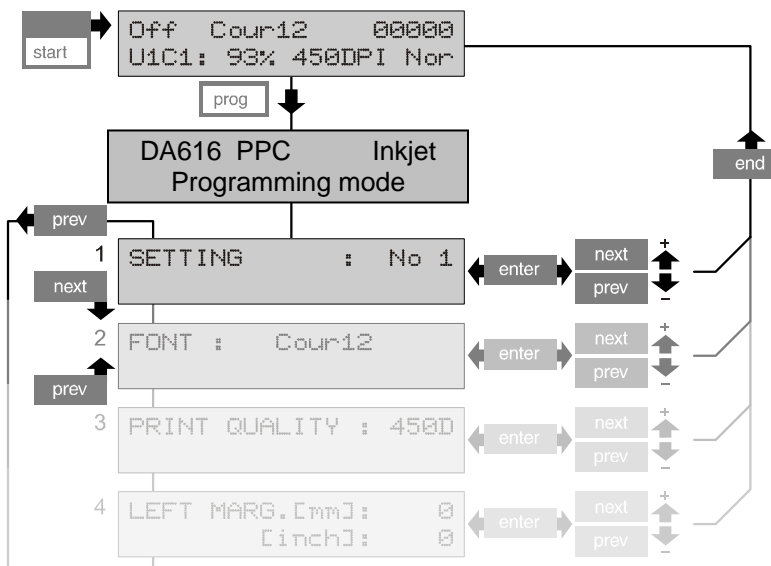
- Switch the Printer on.

- Go to off-line mode by pressing the *start* key.

```
Off  Cour12    00000
U1C1: 93% 450DPI Nor
```

- Press the *prog* key

> The following display appears for a few seconds

```
DA616 PPC        Inkjet
     Programming mode
```

> followed by the first main menu item.

```
SETTING      :  No 1
```

> The activated (changeable) part of the menu blinks. This is the menu designation which appears when the user enters the menu.

- Now use the *enter* key to select the options field of the displayed menu item.
  The options field is now activated (blinks).

  The values or settings of the menu options field may now be changed by using the *next* or *prev* key.

- Use the *enter* key to confirm your setting.

> Depending on the menu item type, either:

>> The menu option field becomes inactive again.

>> The menu item designation blinks again.

>> A sub-menu appears.

```
SETTING      :  No 1
```

- You may go to the next menu item with the *next* key even without making any changes to the current menu item, for instance:

```
FONT :   Cour12
```

- Every repeated keystroke takes you to the subsequent menu item.

- You may return to the previous menu item with the *prev* key. Every repeated keystroke takes you back another menu item.

- Pressing *end* from a **sub-menu** will return you to the main menu.

- Press the *end* key to terminate **programming mode** from the main menu.

8.1   Key Assignment in Programming Mode

When in the programming mode, the upper line of key lettering applies.
The four middle keys as well as the ⬚ key are used.

Item field   Option field

SETTING   :No 1

| | | end | next | prev | enter | | |
| start | pap | test | clean | A/∀ | prog | ▯ | ⬚ |
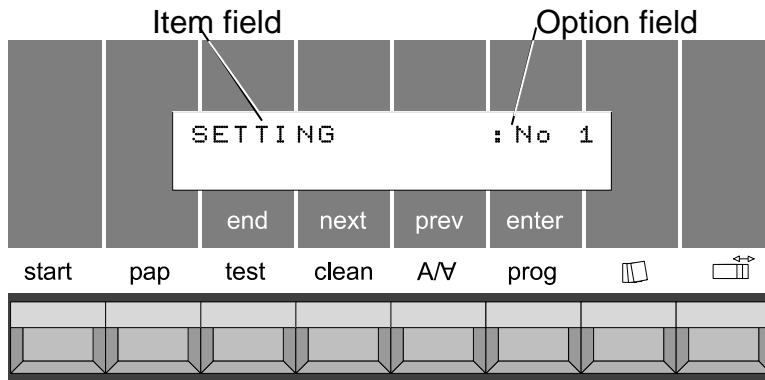
ENTER: ACTIVATE MENU / OPTION FIELD. (ACCEPT/STORE CHANGE)

NEXT: SELECT NEXT MENU POINT / INCREASE VALUE.

PREV: SELECT PREVIOUS MENU POINT / DECREASE VALUE.

END: LEAVE PROGRAMMING MODE. CHANGES ARE STORED.

⬚**:**   ACTIVATES "LOCAL LOCKING" OF CURRENT MENU OPTION.

8.2   Menu Overview

MENU ITEM	OPTION				
SETTING	No 0 <u>No 1</u> ... No 9				
FONT	<u>Cour12</u> Cour12bo Cour12it Helv07 Helv10 Helv12 Helv12bo Helv12it Helv13 LetGot12 TmsRm12 Bru12 OCR-A				
PRINT QUALITY	600D 550D 500D 450D 400D 300D 200D 150D				
LEFT MARGIN	<u>0</u> ... 304 [mm] <u>0</u> ... 11.9 [inch]				
TOP MARGIN	<u>0</u> ... 35 [mm] <u>0</u> ... 1.37 [inch]				
TYPE OF BARC.	off	<u>zip</u>	bpo4 kix cana	2/5i coda co39	co93 c128	Ean [1] (upc)
AUTO CHECK DIG.		<u>on</u> off				
SMALL WIDTH (dots)				1 .. <u>6</u> .. 99		
LARGE WIDTH (dots)				1..<u>15</u>..99		
BARCODE HEIGHT (dots)				1 ... <u>50</u> ... 999		
CHAR. SPACING	<u>0</u> 1 2 ... 89 90				
CHAR. HEIGHT	<u>1x</u> 2x 3x 4x 5x 6x				
CHAR. WIDTH	<u>1x</u> 2x 3x 4x 5x 6x				
LINE SPACING	1 2 ... <u>6</u> ... 10				
ORIENTATION	<u>NOR</u> REV				
PAPER SIZE	USER	off EXEC LETT LEGA A4 A5 MONA <u>C10</u> INTD C5 INSD C6 A6 CRD1 CRD2 HAGA B5			
Min / Max [mm] [inch]	135 / 762 5.31 / 30				
CHARACTER SET	<u>PC8</u> Rom8 P850 ECMA P8DN ICEL P852 P860 P857 Lat5 USA7 UK7 Fra7 Ger7 Ita7 Spa7 Den7 Nor7 Swe7 SwN7 Por7				

The underlined values are the default values (set after a default reset is carried out).

MENU ITEM	OPTION
CART12 CORRECT.	-24 -23 -22 -21 ...-2 -1 <u>0</u> 1 2... 21 22 23 24
CART23 CORRECT.	-24 -23 -22 -21 ...-2 -1 <u>0</u> 1 2... 21 22 23 24
CART45 CORRECT.	-24 -23 -22 -21 ...-2 -1 <u>0</u> 1 2... 21 22 23 24
CART56 CORRECT.	-24 -23 -22 -21 ...-2 -1 <u>0</u> 1 2... 21 22 23 24
DISTU1-2 CORR.	-48 -47 -46 … -2 -1 <u>0</u> … 1 2 … 46 47 48
PAPER SPEED	1 2 3 <u>4</u> 5 6 7 8 9 max
LANGUAGE	<u>Engl</u> Deut Fran
SPECIAL FUNCT.	
AUTO LF	<u>off</u> on_1 on_2 on_3
HEX TO ASCII	<u>off</u> on
LINE MODE	<u>off</u> 0 1 ... 99
STX-ETX	<u>off</u> on
OFFS. EDGE [mm]	<u>0</u> ... 304 [mm]
WARMING	<u>off</u> on pre
PAPER TIME-OUT	<u>off</u> on
TEST ADDRESS	<u>1</u> 2
AUTO PAP SPEED	off <u>on</u> 80% 60%
AUTO RECOVERY	<u>off</u> 1st
CLEANING	<u>off</u> on
SERVICE	<u>Rev</u>. Font RAM Adrc Hard Cart Char HexD InpD SetD
HARDWARE TEST	-- For Service Persons Only!--
CARTR. OPTIMIZ	<u>all</u> Crt1 Crt2 Crt3 Crt4 Crt5 Crt6 no
CART RESET	<u>all</u> Crt1 Crt2 Crt3 Crt4 Crt5 Crt6 no

The underlined values are the default values (set after a default reset is carried out).

8.3   Menu Item Descriptions

Note: The underlined settings are default values.

8.3.1   Main Menu Items

Setting

```
SETTING      :   No 1
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
This menu item is used to set and save a configuration (job setting).

A separate configuration may be set for different applications (print jobs) as required.
Configuration No 0 is reserved for default settings. No changes may be made in this configuration.
Configurations No 1 to No 9 may be individually set.
When programming mode is terminated, the changes made are automatically stored under the selected setting numbers.

Local Locking:
Some menu settings may be "local locked", so the software can not over-ride the setting. This is done by pressing the ⬄ key, while viewing the menu option of your choice. The message "Local Locked" appears. Use the same key to choose between **yes** and **no**. Press the ENTER key to accept.
A locked parameter may be recognized by the letter "L", when viewing the menu item field.

Important! When parameters are locked, inconsistencies may result with software applications. For example; when the left margin is locked and the software application performs absolute horizontal positioning, the data may be scrambled. Other conflicts may also occur. Generally, it is only acceptable to "local lock" the following menu items: Print Quality, Orientation, and Paper Size.

The set configurations are retained when the printer is switched off.
If a "non-mechanical reset" (the **prog** key is held down while switching the printer on) is done, all configurations, except for your alignment settings, are set back to their default values.

Fonts

```
FONT :   Cour12
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Thirteen internal fonts may be used.
The following internal fonts are available:
Cour12, Cour12bo, Cour12it, Helv07, Helv10, Helv12, Helv12bo, Helv12it, Helv13, LetGot12, TmsRm12, Bru12, OCR-A.

Print Quality

```
PRINT QUALITY : 600D
```

The print quality is specified in Dots per Inch (DPI).
150D, 200D, 300D, 400D, 450D, 500D, 550D, 600D.

Designation	Resolution (Horizontal x Vertical)
150D	150 x 300
200D	150 x 600
300D	300 x 300
400D	300 x 500
450D	300 x 600
500D	500 x 500
550D	500 x 600
600D	600 x 600

Left margin

```
LEFT MARG.[mm]:     0
          [inch]:     0
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Settable left margin: 0 to 304 mm (0 to11.9 inch).

Top margin

```
TOP MARGIN[mm]:     0
          [inch]:     0
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Settable left margin: 0 to 35 mm (0 to1.37 inch).
     Note: Setting a top margin will decrease your maximum print area.

Type of barcode

```
TYPE OF BARC. :   zip
```

To use these internal printer barcode choices your software application must send a DLE command (HEX value of 10) before and after the data that you want converted into barcode form.

The following barcodes are available:

Option	Barcode	Option	Barcode
Zip	USA barcode	co39	co39 barcode
Bpo4	United Kingdom barcode	co93	co93 barcode
Kix	Netherlands barcode	c128	c128 barcode
Cana	Canada barcode	ean*	EAN barcode
2/5i	2/5 interleaved barcode	off	No barcode
Coda	Coda barcode		

*ean for European printers or upc for US printers.

The following scheme shows the various submenus available for the barcodes described above.

Settings for the submenus
Auto check dig: on, off
Small width: 1 ... 6 ... 99 dots
Large width: 1 ... 15 ... 99 dots
Barcode height: 1 ... 50 ...999 dots
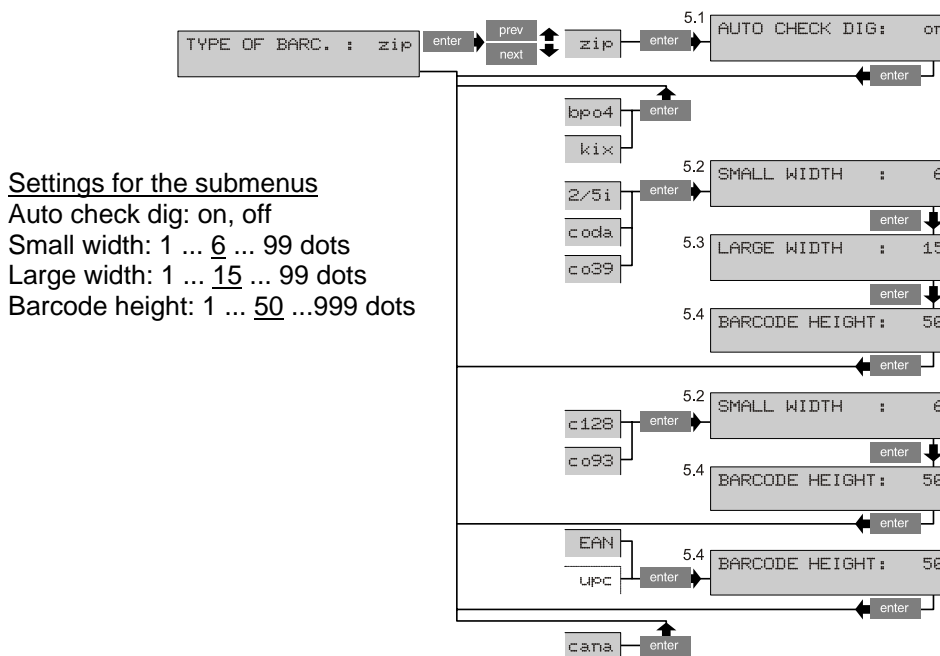
Auto check dig. (Auto check digit)

Only functions when the zip barcode (internal postnet barcode) is being used.
Printer must receive commands from software to enable/disable barcode
Example: [DLE] 12345-123412 [DLE]
DLE = (10 Hex) Barcode on/off control command.
Printer will convert numbers, located between DLE commands, into barcode.
on = printer will auto calculate and add check digit.
off = printer does not add check digit. Check digit must be contained in data.

Character spacing

```
CHAR. SPACING :    0
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Spacing between the characters 0 - 90 dots.

Character height

```
CHAR. HEIGHT  :   1x
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Height of the characters 1x, 2x to 6x. (Up to a max of 48 points.)

Character width

```
CHAR. WIDTH   :   1x
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Width of the characters 1x, 2x to 6x

Line spacing

```
LINE SPACING  :    6
```

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Line spacing 1 ... 6 ... 10 dots per inch (lpi).

Orientation

```
ORIENTATION   : Nor
(L)
```

Setting the print orientation.
Nor   normal: the print-out is legible from the user side.
Rev   reverse: the print-out is rotated by 180°.
This menu item can be set and simultaneously "local locked" by pressing and holding the Nor/Rev Key, while off-line.
(L) indicates that the setting is "local locked".

Paper size

```
PAPER SIZE   : INSD
(L) 229mm/9.00inch
```

Paper size choices:
EXEC, LETT, LEGA, LEDG, A3, A4, A5, A6, MONA, C10, INTD, C4, C5, C6, B4, B5, B5JI, INSD, CRD1, CRD2, HAGA, or USER.
The USER option can be used to manually set the paper length.
Minimum value 135 mm (5.31 inches).
Maximum value 762 mm (30 inches).
(L) indicates that the setting is "local locked".

Character set

```
CHARACTER SET :  PC8
```

Setting the country-specific character set:
PC8, Rom8, P850, ECMA, P8DN, ICEL, P852, P860, Lat5, USA7, UK7, Fra7, Ger7, Ita7, Spa7, Den7, Nor7, Swe7, SwN7, Por7.

Cartridge correction

> DISTU1-2 CORR: 0

Horizontal calibration of the print cartridges within each print unit.
CART12 CORRECT, CART23 CORRECT, CART45 CORRECT, CART56 CORRECT
This procedure is described in the section 6.14.

Distance correction U1-2

> DISTU1-2 CORR: 0

Horizontal calibration of print units U1 to U2.
DISTU1-2 CORR. (Value range from -48 to +48)
This procedure is described in the section 6.14.

Paper speed (Transport Speed)

> PAP SPEED mm/s: 4

Possible paper speed (printer transport speed) settings:

1	120 mm/s	(4.72 inch/s)
2	270 mm/s	(10.6 inch/s)
3	420 mm/s	(16.5 inch/s)
4	540 mm/s	(21.2 inch/s)
5	720 mm/s	(28.3 inch/s)
6	920 mm/s	(36.2 inch/s)
7	1080 mm/s	(42.5 inch/s)
8	1320 mm/s	(51.9 inch/s)
9	1520 mm/s	(59.8 inch/s)
max	1820 mm/s	(71.6 inch/s)

The print-density setting has precedence over this setting. If a print density permits only a lower speed than the one set, the lower speed is automatically selected.

Language

> LANGUAGE: Engl

Selects the language that the printer will display in its LCD screen.
> Engl = English
> Deut = German
> Fran = French

8.3.2 Special Functions

AUTO LF

This defines how the printer should interpret the control characters
CR (Carriage Return), LF (Line Feed), and FF (Form Feed)

off: CR = CR   LF = LF   FF = FF
on_1: CR = CR + LF LF = LF   FF = FF
on_2: CR = CR   LF = CR + LF   FF = CR + FF
on_3: CR = CR + LF LF = CR + LF   FF = CR + FF

HEX TO ASCII

This menu item is relevant only to DOS applications or when using a "text" driver from Windows.
Conversion from HEX to ASCII. If the conversion is switched on, the printer interprets the percentage sign "%" as a non-printable control character. The two characters following the % sign are interpreted as HEX values, e.g. %0C = Form Feed. *Note:* This feature is only useful if using text drivers or a DOS program.

LINE MODE

This permits the address to be separated by a specific number of lines.

STX-ETX

If this function is active, only the text positioned between the ASCII (02) and the ASCII (03) control characters is printed.
STX = Start text   ETX = End text

OFFSET EDGE

Offset of the measured paper edge by between 0 and 304 mm. To the user it looks as if the left margin has been extended.
This offset may be required, in the following situations:
- Windows programs in which the left margin cannot be changed.
- Printing of large envelopes with Windows programs, where the desired print position cannot be set large enough on the PC.

WARMING

Function for heating the print nozzles, in an attempt to achieve better ink flow.
off = No heating
on = Heating on during the print process
pre = Heating and pre-heating before starting the print process

PAPER TIME-OUT

on = the paper transport is stopped if it runs out of material to print on.
off = the paper transport continues to run, even if no material is present.

TEST ADDRESS

Select test address 1 or 2. **Note**: Currently both selections produce the same image.

AUTO PAP SPEED

*on = Printer automatically calculates the maximum speed for a print job.
*80% = Printer calculates speed and reduces 20% more.
*60% = Printer calculates speed and reduces 40% more.
 off = The printer does not calculate the maximum speed. (No ramp up)

* You will notice that the printer slowly ramps up the paper speed at the beginning of the print job. The speed may also fluctuate up or down, during the print job.

AUTO RECOVERY

Use this feature to help clear nozzles before the start of every print job.

<u>off</u> = No automatic head purge is printed

1st = A head purge is printed on the first piece, at the start of every print job and after a pause in the print job.

CLEANING

Since the Print Units can be positioned outside the cleaning area (openings in the table top that align with each print cartridge position), this feature is defaulted to "off".

<u>off</u> = Printer will not purge into base

on = Printer will purge into base whenever it is placed online and whenever the **clean** key is pressed.

If you choose to set this feature to on, please make sure you are not positioning the Print Units outside the cleaning area, or ink will accumulate on the surface.

8.3.3   Service Menu Items

The service menu items are provided for troubleshooting purposes and were created for use by qualified service personnel.

```
SERVICE         : Rev.
```

Rev   Displays currently loaded Flashware (internal software) version.
          Example: "V0.6.00 PPC

Font   Displays the currently loaded font package (i.e. RENA3).

Ram   Displays the amount of memory installed (i.e. 64MB)

Adrc   Address Counter. Number of addresses printed since the printer was installed.

Hard   Displays the hardware settings (FPGA: V01 / MOTOR: 5A).

Cart   Used to troubleshoot cartridge printing problems.
          The following print-outs are performed for all cartridges:
           Note: H# = cartridge number and may be printed as C#.
     a) The contacts to the nozzles are visualized in a grid pattern,
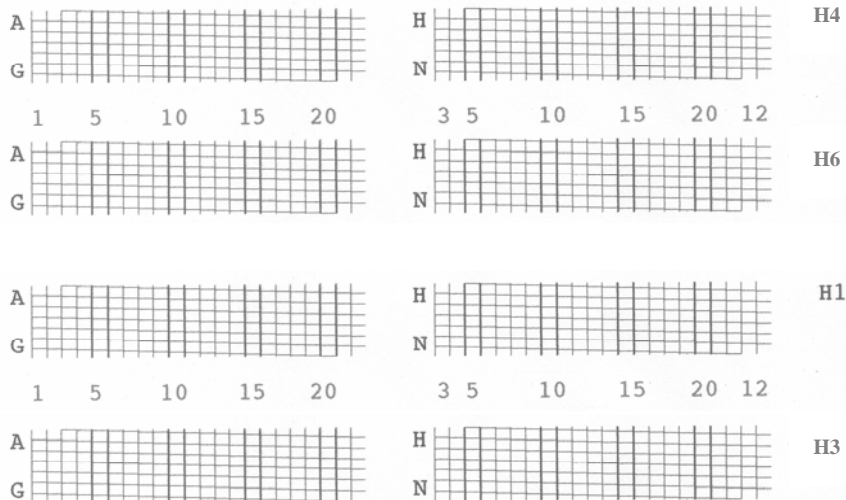
b) The horizontal alignment between cartridges are visualized in a grid pattern

c) The vertical alignment between cartridges are visualized in a grid pattern

Examples of defects on cartridges
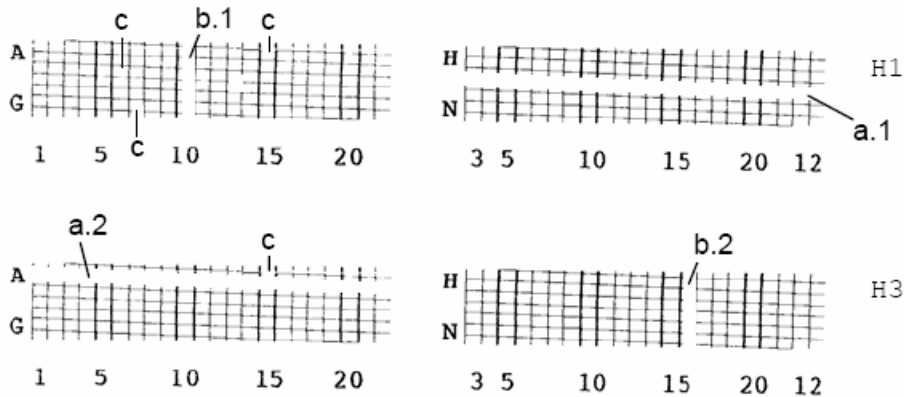
Indications of bad electrical connection(s) or electronic problem.

 a.1 = No connection at contact "K" (for print-head H1=C1)

 a.2 = No connection at contact "B" (for print-head H3=C3)

 b.1 = No connection at contact "10" (for print-head H1=C1)

 b.2 = No connection at contact "16" (for print-head H3=C3)

 Swap or replace cartridge(s), if problem persists, contact your local Rena dealer for service.

Indication of clogged nozzle(s)

 c = These nozzles are clogged

 Clean ink cartridge nozzles (see Section 10.1). If problem persists, replace cartridge.

Possible corrections:
- Open and close the lever that secures the cartridge into the pen stall. This may help to properly align contacts.
- Clean the cartridge nozzles, as described in section 10.1, to remove any ink deposits from the nozzles.
- Swap cartridge positions to see if problem follows cartridge.
- If problem follows cartridge, insert a new ink cartridge.
- If problem persists, contact your local Rena dealer for service.

Char   Prints out all the characters, in the selected font choice, that are available in the selected character set.

HexD   This feature is used to check the data being sent to the printer, from the PC. In Hex-Dump, all characters received by the receive buffer are printed in LetGot12. Prints out data that is currently being received.
Do not stop Hex-Dump by switching off the printer, as some settings may be changed! Use the *prog*, *end* or *start* keys to end Hex-Dump.

InpD   Input-Dump. The contents of the receive buffer is printed out using PC8 symbols. Prints out data that has been stored in the receive buffer.
Before an input dump print, switch the printer off and then on again to clear the buffer. Send the print job and then start the dump print-out. Stop the process with the *end* key.

SetD   Setup-dump. Prints-out your current printer settings (All 10 setting configurations). Up to nine sheets of paper will be required.

8.3.4   Hardware Test Menu Items

The Hardware Test menu items are provided for troubleshooting purposes and were created for use by qualified Rena service personnel only. Therefore, the Hardware Test features are not explained in this document.

```
HARDWARE TEST :
```

8.3.5   Cartridge Optimization (Cartr. Optimiz)

When this feature is used, an algorithm is run to optimize the amount of thermal energy (TTOE = Thermal Turn On Energy) needed to fire the nozzles in each individual ink cartridge. Running this optimization can provide higher ink cartridge reliability, by reducing thermal stress on the cartridge.
This feature should be run whenever a new cartridge is installed.

<u>all</u>, Crt1, Crt2, Crt3, Crt4, Crt5 or Crt6, no.   Select **no** to abort the procedure.
   all = all cartridges, in the both print unit (U1 & U2) will be optimized.

Note: Cartridges must always be returned to their original locations, or CART. OPTIMIZ must be run again. Approximately 0.18 ml (~0.43% of a cartridge's ink supply) is used to perform this optimization. It is suggested that you tag each cartridge with its position (example U1 C1) so that you can be sure to return each cartridge to its original position.

8.3.6   Cartridge Reset (Cart Reset)

Used to reset the ink percentage display (% of ink left in cartridge) back to 100%, after

```
CARTR. RESET  :  all
```

inserting new print cartridge(s).
<u>all</u>, Crt1, Crt2, Crt3, Crt4, Crt5 or Crt6, no.   Select **no** to abort the procedure.
   all = all cartridge ink counters, in the both print unit (U1 & U2) will be reset to %100.

Note: For this feature to be useful and accurate, cartridges must <u>alway</u>s be returned to their original locations. It is suggested that you label each cartridge with its original location (Example: U1C1) so that you can be sure to return each cartridge to its original location. When a new cartridge is placed into the printer, its corresponding ink counter should also be reset.

```
NO INK!!  U1C1
CHANGE CARTRIDGE
```

When the message

appears, the printer has calculated that cartridge C1 of unit U1 is empty. This calculation is based on dot counting and is only accurate if the following rules are strictly adhered to:

1. When a new cartridge is inserted, the ink counter that corresponds to the cartridge being replaced must be reset to 100%. Use the menu item "Cart. Reset:" to reset the ink counter to %100.

2. If cartridges are removed, for cleaning, storing, etc.., they must be placed back into the exact location (same pen stall) they were originally removed from. To accomplish this, label the ink cartridge positions before removing them.

Note: Even if the above rules are strictly adhered to, the counter may not be 100% accurate. It is recommended that when the ink counter, for any cartridge, is less than %10, the operator should closely monitor the images being printed.

Please observe section 10.1, as well as the directions given by the cartridge manufacturer.

8.3.6.1   Resetting the Ink Counters (cartridge reset)

After you have replaced one or more ink cartridge, you must reset the ink counters on the control unit.

Note: The ink counters are <u>not</u> reset automatically by inserting new (full) ink cartridges. You must manually reset the ink counter using the printer's menu item "Cart. Reset:".

> The ink consumption display always shows the cartridge with the lowest ink level. To determine which cartridge this is, print a Set-D (setup dump). The ink level for each cartridge is printed in the Set-D print-out. See section 8.3.3, "Service Menu Items", for instructions on printing a Set-D.

The menu feature "Cart. Reset" will allow you to select whether you want to reset the ink levels of individual cartridges or all the cartridges within both print units.

Use the *start* key to go to off-line mode (if you are on-line).

Press the *prog* key.

| Inkjet |
| Programming mode |

Press the *prev* key once to return to the last main menu "CARTR. RESET".

Press the *enter* key to select this menu item.

| CARTR. RESET :   all |

Use the *prev* or *next* key to select the relevant print unit.

> Selection options:
> **all** = all cartridges are reset at the same time.
> **Crt1**, **Crt2, Crt3, Crt4, Crt5 or Crt6**.
> **no** = Abort the procedure.

| CARTR. RESET :   Crt2 |

Press the *enter* key – the consumption value of the selected cartridge(s) is reset to 100%.

End the process with *end*.

9   Error Messages and Warnings

9.1   Error Messages

Error Message	Description	Solution
NO PAPER !!	No paper	- Insert paper - Make sure paper is passing under the paper sensor
PAPER JAM OR WRONG PAPER WIDTH!	Paper jam or paper size was not set correctly. Pieces may be overlapping or slipping.	- Clear jam - Reset transport and separation - Check/Reset paper size.
NO INK !! U#C# CHANGE CARTRIDGE	According to drop count calculation; Cartridge C# of print unit U# may be empty.	- Insert new cartridge and or reset the ink counter
CHECKSUM ERROR ! MAKE DEFAULT RESET	Nonvolatile RAM corrupted	- Default settings (*prog* key) - *Replace Main PC board
CHECKSUM ERROR ! MAKE COUNTER RESET	Nonvolatile RAM corrupted	- *Full reset. - *Replace Main PC board
CHECKSUM ERROR ! TEST MACRO RESET	Nonvolatile RAM corrupted	- Default settings (*prog* key) - *Replace Main PC board
CHECKSUM ERROR ! SETTING RESET	Nonvolatile RAM corrupted	- Default settings (*prog* key) - *Replace Main PC board
CHECKSUM ERROR ! RESET PEN VALUES	Nonvolatile RAM corrupted	- Default settings (*prog* key) - *Replace Main PC board
TEST MACRO TOO LONG	Custom TEST address is too large	- Reduce size of TEST address
BUFFER OVERFLOW !!	Overflow of receive buffer	- Check connection to PC - Replace interface cable
RAM ERROR !! CALL SERVICE	RAM error on CPU board	- Power printer off/on - *Replace CPU board
RAM ERROR !! VERIFY RAM	RAM error on CPU board	- Power printer off/on - *Replace CPU board
UNPRINTED ADDRESSES! FINISH THE JOB	All address data has not been printed	- Do not make any changes in programming mode during the print job
PROGRAM ERROR MAKE DEFAULT RESET	Error in program routine	- Default setting (*prog* key) - *Reload firmware/flashware
UART TIMEOUT RESET THE PRINTER!	Error in UART module or FET transistor	- Power printer off/on - *Replace CPU board
DISPLAY TIMEOUT RESET THE PRINTER!	Error in controlling the display	- *Check cable connections - *Replace LCD display unit
ERROR FPGA Ready CALL SERVICE	Error in FPGA IC.	- Power printer off/on. - *Replace CPU board
CHECK CARTR. #U# START TO CONTINUE	Cartridge no. # of print unit # is not present or not inserted correctly	- Insert missing cartridge(s)
PRINTING ERROR REPEAT LAST ADDRESS	Serious error during printing	- Power printer off/on. Restart job.
Reduce Pap. Speed! U# START to continue!	Paper delivery speed/frequency is exceeding printer's processing abilities	- Check for proper paper separation and transport adjustments - Check for proper paper sensor function - Reduce paper speed setting - Reduce data size
Feed Motor Jammed! START to Continue	The paper transport motor was stalled.	- Clear paper jam - Re-adjust separation/transport - *Check encoder
Feed Motor Controller Fault! Call Service	Error initializing motor control IC.	- Power printer off/on - *Replace CPU board
ERROR PEN BOARD# U# CALL SERVICE	Error with HP-PEN-Board C# U# C#=1,2,3 U#=1,2,3	- *Check connections - *Replace Pen Board #

* To be performed by a qualified Rena service person.

Error Messages Continued

Error Message	Description	Solution
PRINTER ERROR **WRONG BOARD/FIRMWARE**	Flashware (Firmware) is incompatible with Main PCB	- *Verify the use of correct Flashware for Main PCB version
Main CPU-HW-ERROR # **RESET THE PRINTER!**	Error on CPU board.	- Reset Printer - *Reload Flashware - *Replace CPU board
ERROR CARTRIDGE#U# **CHECK CONNECTION**	Problem with cartridge or connection	- Check cartridge installation - Replace Cartridge # U#
FONT ERROR!! **LOAD FLASH FONTS!**	Error in Flash ROM	- *Reload RENA font file (FontFlsh.hex)
PAP. LEN TOO SMALL **MIN. VALUE:#**	Paper length is below minimum specifications	- Insert longer paper
ERROR PAPER SENSOR **CHECK THE SENSOR**	Paper sensor output is not good	- Clean reflector - *Adjust/replace sensor
Increase the Gap! **Start to Continue!**	The paper length is reading shorter than the previously set length.	- Readjust the separation setting, decrease stack weight, then reset paper length using Auto PL.
Font Loading **ERROR: TIMEOUT**	Error in download font	- Check download font
Font Loading **ERROR: HEADER (SB)**	Error in download font	- Check download font
Font Loading **ERROR: HEADER (F)**	Error in download font	- Check download font
Font Loading **ERROR: FONT ORIENT**	Error in download font	- Check download font
Font Loading **ERROR: CHAR. HEADER**	Error in download font	- Check download font
Font Loading **ERROR: MEMORY (RAM)**	Error in loading the font: insufficient RAM	- Font too large for the RAM
Font Loading **ERROR: CHAR. No.**	Error in download font	- Check download font
Font Loading **ERROR: SUPPL. CHAR.**	Error in download font	- Check download font
Font Loading **ERROR: CHAR. LasFt**	Error in download font	- Check download font
Font Loading **ERROR: DATA LasFt**	Error in download font	- Check download font
Font Loading **ERROR: CHAR. HEIGHT**	Error in download font	- Check download font
Font Loading **ERROR: DL DISABLED**	Error in download font. Download font not stored.	- Check download font
MACRO LOADING ERROR **RAM MEMORY IS FULL!**	Error in loading the macro: insufficient RAM	– Reduce the size of the macro
Macro Too High **Reduce To 1.5 Inches**	Macro height is too big.	- Reduce macro height to 38.1mm

* To be performed by a qualified Rena service person.

9.2 Warnings

Warning	Description	Solution
Warning: Non-Existent Font Selected!	The selected font is not present in the printer	- Printer was switched off or reset while the PC was still sending residual data. Clear all data from PC spooler and printer then resend print job.
Warning:Non-Existent Macro Selected!	Selected macro does not exist in the printer	- After completed job the addresses can no longer be repeated - Error in software program
Error Macro ID Report Err. 2 Vendor	Error in software program	- Contact software vendor
Position Warning! Reduce Left Margin!	Paper length too small or address position/size exceeds piece length.	- Check paper length. - Reduce left margin in PC program. - Reduce address/image width.
Warning: Wrong Data/ Barcode Selected!	Error in software program	- Contact software vendor
Error Barcode Data Report Err. 2 Vendor	Error in software program	- Contact software vendor
Macro Too Large Or Wrong Hor. Position!	Macro too wide	- Reduce Macro width - Note: For self-created macros: graphic should always be at top left, then convert to macro
Macro Height Does Not match!	Error in Macro	- Delete and redefine macro
Macro ID# In Use Macro Load Ignored!	Macro ID (number) already exists, overwriting not possible	- Delete and redefine macro
Image Height Exceeds The Maximum Value	Image larger than 3" max height	- Remove top margin in software - Reduce image size (height)

10 Operator Maintenance

10.1 Cleaning & Storing ink cartridges

Clogged nozzles will produce missing dot positions (or blank areas through an address line). Partially clogged nozzles will produce fuzzy images by deflecting the ink droplets at angles instead allowing them to fire straight down toward the media.

Important! When the ink cartridges are not being used they must be removed from the printer, properly cleaned, and stored (sealed / capped). Otherwise, their nozzles will get clogged by dried ink.

10.1.1 Cleaning Ink Cartridges

Ink cartridges should be cleaned using a non-abrasive, lint-free material (Cartridge Wipe, Rena part # 2023) and distilled water. Please note that the use of "abrasive materials" and tap water, which has mineral content in it, may cause damage to the ink cartridge nozzles and or clog ink cartridge nozzles.

Tip: The print units can be tilted up, for cartridge cleaning, which reduces the amount of time it takes to perform this process. Any ink that has accumulated on the bottom of the print unit's metal nose guides can also be cleaned off, using a damp cloth, at this time.

When should ink cartridges be cleaned?
- Before the start of a print job.
- During a print job, when ever the print quality becomes unsatisfactory.

Note: To improve the print quality of the first addresses printed, it is recommended that the Cartridge Purge Feature be used after cleaning ink cartridges and anytime after the printer is paused, just before putting the printer on-line. This feature can also be enabled in FlexMail.

10.1.1.1 Cleaning cartridges while they are still installed in the Print Unit:
- Make sure the printer is stopped (off-line) before cleaning the ink cartridges.
- Note the current location of the Print Units, using scale or Memory Stop.
- Loosen the Print Unit Securing Knobs and slide the Print Units, in opposite directions, towards the outside walls of the printer.
- Tilt the Print Unit up for cleaning, as shown below.

- Place a drop of distilled water on the edge of the *Cartridge Wipe* cloth.
- Start by placing the damp area of the cloth onto the cartridge.
- Using a small amount of downward force, slowly pull the cloth from the damp area, across to the dry area of the *Cartridge Wipe*, while slowly decreasing the amount of downward force. Make sure you only clean the cartridge in one direction, as indicated by the red arrow in this picture.
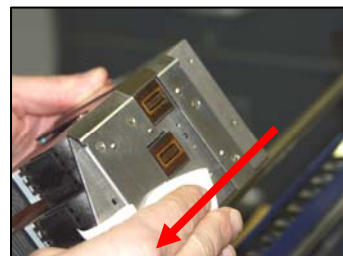
- Repeat this procedure a few times.
- Carefully rotate the Print Unit back to its operational position.
- Repeat these steps for the other Print Unit.
- Move the Print Units back to the desired location.
- It is recommended that you do a head purge, before starting to print again.

10.1.1.2   Removing cartridges from the Print Unit to clean them:

- Make sure the printer is stopped (off-line) before cleaning the ink cartridges.
- Carefully remove the first ink cartridge from the Print Unit.
- Place a drop of distilled water on the edge of the *Cartridge Wipe* cloth.
- Start by placing the damp area of the cloth onto the cartridge.
- Using a small amount of downward force, slowly pull the cloth from the damp area, across to the dry area of the *Cartridge Wipe*, while slowly decreasing the amount of downward force.
- Repeat this procedure a few times. Make sure you only clean the cartridge in one direction. Either from the front of the head to the back of the head, or from back to front.
- Carefully return the ink cartridge to its original location.
- Repeat this procedure for all remaining ink cartridges.
- It is recommended that you do a head purge, before starting to print again.
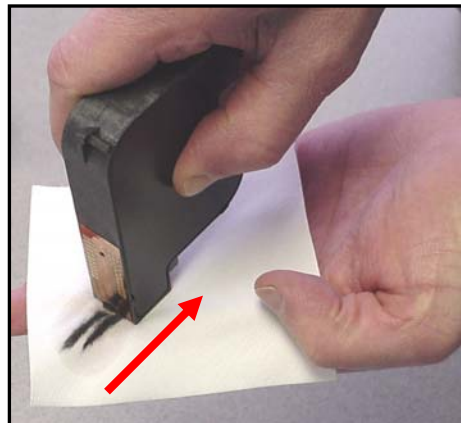
Cleaning the Ink Cartridge

10.1.2 Cartridge Purge Feature (cartridge recovery)

The printer's "Cartridge Recovery" feature can be used to help un-clog print nozzles. Pressing the START and Repeat Address(es) keys together will cause the printer to do a "Cartridge Recovery". All nozzles are then fired onto a mail piece. It is recommended that this feature be used after cleaning ink cartridges and anytime after the printer is paused, just before putting the printer on-line.

10.1.3 Storing Ink Cartridges

Cartridge storage stands (part# 141117): are available through your local Rena dealer, but the preferred storage method is using a re-sealable container, as described below. Remember to clean the cartridge, as described previously, and also to clean the rubber pad in the storage stand, before returning a cartridge to the stand.

Re-sealable containers:
A re-sealable container can be used to store cartridge.
Place a damp piece of cloth into the bottom of the container. Clean the cartridges, as described previously, and place the cartridges into the container, making sure the contact pads and nozzle plates do not touch the damp cloth. Then seal the container. This will create a humid atmosphere which will help keep the ink from drying and clogging the cartridge nozzles.

> **Caution!** Makes sure the cartridge is dry before placing it back into the printer or damage to the printer's electronics may result**.**
> Using a soft dry cloth, wipe any moisture from the cartridge casing, especially the gold contact area, before placing the cartridges back into the printer.

10.2 Cleaning/Testing the Paper Sensor

Foreign material or dust that accumulates over the reflector will block the paper sensor, making it read is if it is always interrupted. If this occurs, the printer will display constant "paper jam" or "wrong paper length" messages.

The paper sensor and reflector should be cleaned using compressed air and a soft dry cloth. Do not use any liquids to clean the sensor and reflector or damage may result.

Two different styles of paper sensors are used in the printer.

Wenglor Sensor:	VISOLUX Sensor:

LED
Paper Sensor
Reflector

TEACH-IN button
LEDs
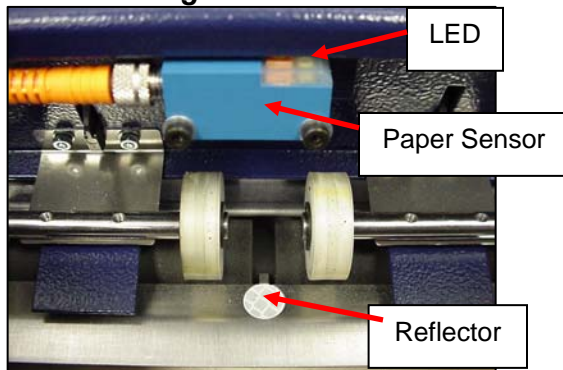
Wenglor Sensor LED Status:	**VISOLUX Sensor LED Status:**
LED On = Material Present (interrupted)	Green LED On = Power
LED Off = No Material Present (not interrupted).	Yellow LED On = No Material Present (not interrupted)
LED Flashing = Poor Sensor Signal	Yellow LED Off = Material Present (interrupted).
	Yellow LED Flashing = Poor Sensor Signal

Please be sure your material (mail piece) passes under this sensor, completely covering the reflector, as it passes.

Wenglor Sensor Adjustment:

The wenglor paper sensor is not designed to be adjusted by the operator. If you feel the wenglor sensor needs to be adjusted, you should contact your local Rena dealer for service.

- Remove any material from below the sensor (nothing covering reflector) and make sure the reflector is clean.
- If problem persists, you should contact your local Rena Dealer for technical support.

VISOLUX Sensor Calibration:

- Remove any material from below the sensor (nothing covering reflector) and make sure the reflector is clean.
- Momentarily press the TEACH-IN button. As an acknowledgement, the Greed LED will switch off and on, once.
- Press and hold the TEACH-IN button until the green and yellow LEDs begin to blink in unison, slowly (2Hz). The calibration process has been activated.
- Release the TEACH-IN button. Both LEDs will alternately blink, slowly (2HZ), indicating that the sensor calibration is in process.
  If the calibration is successful; both LEDs should go on and be steady (not flashing).
  If the calibration is not successful; both LED's will begin alternately flashing, faster (5Hz), for 5 seconds. If this occurs, please retry the calibration process. If problem persists, you should contact your local Rena Dealer for technical support.

10.3 Cleaning the Bottom of the Print Units

Ink that accumulates, on the bottom of the Print Units, will causing smudge marks on the mail pieces.

- Make sure the printer is stopped.
- Note the location of the Print Units.
- Slide the Print Units, in opposite directions, towards the outside walls of the printer.
- Tilt the Print Unit up for cleaning. See section 10.1.1.1 for pictures.
- Use a cloth, dampened with water, to clean the metal guides, located on the bottom of each print unit.

10.4 Cleaning the Transport Rollers

CAUTION! **The power plug must be disconnected before cleaning the transport rollers.**

Rena Care roller cleaner (part # 2024) can be used to clean all of the lower rubber rollers in this printer.
Caution! Do not allow the Rena Care roller cleaner to make contact with the paper sensor, reflector, or any of the plastic parts of the printer or damage will result.

- Disconnect the power cord from the printer.
- Use the roller applicator, to clean the rubber rollers.
- Use a dry cloth to wipe any excess cleaner from the rollers.

10.5 Cleaning the Body of the Printer

CAUTION! The power plug must be disconnected before cleaning the transport rollers.

- Disconnect the power cord from the printer.
- A cloth dampened with water can be used to clean the body of the printer.

10.6 Removing Paper Jams

- Make sure the printer is stopped (transport not turning).
- Remove all remaining mail pieces from the hopper.
- Note the setting of the Material Thickness Adjustment Knob.
- Raise the Material Thickness Adjustment Knob to its highest point.
- Carefully remove the jam.
- Reset the Material Thickness Adjustment Knob.
- Check the sheet separation adjustment.
- Reload the hopper with material.

Important! The sheet separator assembly moves up and down with the carriage assembly. Therefore; if the carriage height (material thickness adjustment knob position) is changed, the separation adjustment must be re-adjusted.

11 Obtaining Supplies, Service and Support

Please contact your local Rena dealer to obtain supplies, service and support for your printer.

To locate a Rena dealer in your area, please click on the following link and fill out the form. http://www.renausa.com/dealerlocator.asp

Service should only be performed by a qualified Rena service person.

In addition, you may wish to log onto Rena Systems web site (www.renausa.com), and click on the "support" link. This area contains many useful resources.

Please click on the following "Warranty Registration" link to register your product with Rena Systems. http://www.renausa.com/support_warranty.htm

12 Technical Specifications

Address Speed: 37,500 pcs/hour at 200 dpi
24,500 pcs/hour at 450 dpi
12,500 pcs/hour at 600 dpi
4" x 6" Postcard, 18 Lines of Data

26,000 env/hour at 200 dpi
15,000 env/hour at 450 dpi
8,000 env/hour at 600 dpi
No. 10 Envelope, 18 Lines of Data

Print Technology: Six C8842A (HP 45A-style) Inkjet Cartridges.

Print Quality:

600 dpi	400 dpi
550 dpi	300 dpi
500 dpi	200 dpi
450 dpi	150 dpi

Cartridge Capacity: 69,000 addresses @ 200 dpi
46,000 addresses @ 300 dpi
23,000 addresses @ 450 dpi
11,500 addresses @ 600 dpi
Note: Based on 100 character addresses and Courier 12-point font

Print Area: 3" height, 20" width

Address Positioning: Manual head positioning – 11.5" vertical range

Feeder System: Integrated Feeder

Print Orientation: Normal, 180° (reverse) and 90° (software dependent)

Character Size: 1X to 6X – height and width (up to 72 points)

Character Sets: USA7, UK7, Fra7, GER7, Ita7, Den7, NOR7, SWE7,
SwN7, Por7, PC8, Rom8, P850, ECMA, P8DN, ICEL, P852

Ink Monitor: Via display.

Fonts: 13 Internal fonts plus downloadable and TrueType fonts.

Graphics: Downloadable up to 3" H x 9½" W

Test Print: Default test, or downloadable via PC.

Material Size: Min: 3½" H x 5½ " W; Max: 15" H x 20" W.

Material Thickness: 25/64" (10mm)

Material Capacity: 600 #10 envelopes

Microprocessor: Motorola, 133 MHz

Memory: 64 Megabytes

Repeat Address Buffer: Up to 20 addresses or 2,000 characters.

Job Settings:	9 programmable job settings
Set-up Program:	FlexMail design program or via printer control panel.
Firmware Update:	Via PC interface in flash memory.
Barcodes:	USPS 11-digit Delivery Point, USPS 2-D (pending), British Postal (bpo4), Dutch Postal (kix), 2/5 Interleave, Codabar, Code 39, Code 128, EAN8 & 13 (UPC)
PC Interface:	Parallel and USB. A Serial port is provided, but it is not for PC interface.
Counters:	One resettable job counter, one permanent lifetime counter.
Noise:	<65 decibels at 1m distance (ISO 9296).
Duty Cycle:	60 million addresses total of 1 million per month over a 5-year life cycle (excludes Wear items).
Dimensions:	24" width x 21" depth x 26" height Weight: 90 lbs.
Software:	FlexMail professional mail design software recommended. Works with most mail list management packages.
Options:	RENA C9007A, RENA C8842A, RENA C8715A, and RENA C9007A Inkjet Cartridges, HP Spot Color Ink, Quick Start Kit, FlexMail software.