

# **ECRM<sup>®</sup>** Imaging Systems

## **Mako 2 CTP Operator Guide**

# Mako 2 CTP Operator Guide

This guide reflects the Mako 2 CTP operation as of October 2004.  
© copyright ECRM Incorporated 2004

Information on ordering additional copies of this guide  
may be obtained by writing or calling:  
**ECRM Order Processing**  
554 Clark Road  
Tewksbury, MA 01876

Phone No. (US) - (+1) 978-851-0207 — Fax (US) - (+1) 978-851-7016  
Phone No. (UK) - (+44) 1923-218255 — Fax (UK) (+44) 1923-218256  
Phone No. (Hong Kong) - (+852) 81-709000 — Fax (Hong Kong) (+852) 2-564-  
8821

Visit our Web site: [www.ecrm.com](http://www.ecrm.com)

## Proprietary Notice:

The information contained in this publication is the sole property of ECRM Incorporated and cannot be reproduced, in whole or in part, without the express written consent of ECRM. The information is believed to be accurate as of the publication date but is subject to change without notice due to continuing product development.

ECRM® and Mako® are trademarks of ECRM Imaging Systems. Other brand and product names are trademarks or registered trademarks of their respective owners.

# Table of Contents

## Safety Information 1

Introduction to the System	1
Laser Safety	1
Regulatory Information	2

## System Operation 5

Introduction	5
Starting Up the System	10
Shutting Down the System	10
Menu Operation	11
Using Menus	13
Menu Selection	13
User Preferences Menu	14
User Maintenance Menu	17
Test Patterns Menu	19
Running a Step Wedge Test Pattern	23
Operational Messages	25
Error Messages	26
System Configuration Display	27

## Media Handling 29

Introduction	29
Media Sizes	29
Media Handling	29
Installing and Removing the Pin Bar	30
Loading Media	32
Unloading Media	36

# Maintenance & Troubleshooting 37

<b>Introduction</b>	<b>37</b>
<b>General Maintenance</b>	<b>37</b>
<b>Clearing Media Mis-Feeds</b>	<b>42</b>
<b>Using the User Maintenance Menu</b>	<b>43</b>
<b>Moving the System</b>	<b>43</b>

# Preface

## Readers of this Guide

This guide provides instructions for the operation of the Mako 2 CTP platesetter. This guide describes all aspects of the operation of the system, from the loading of media, to the delivery of exposed media to an on-line processor.

The system contains a Class 3B laser. This guide contains important safety information and regulatory information about the laser. You should read this information thoroughly before operating the system or performing the procedures described in this guide. A traditional table of contents and index provide guidance to specific chapters and paragraphs.

This Operator Guide assumes that the system is already properly installed and plugged into the AC mains. Further, this manual assumes that the system has been calibrated and tested for proper operation and acceptable output. Only procedures necessary for safe and efficient operation are provided in this manual.

## Organization of this Guide

### Chapter 1: Safety Information

Chapter 1 includes information about laser safety.

### Chapter 2: System Operation

Chapter 2 discusses all operational features and provides complete listings of system operational messages. All of the system menus are described in detail. All of the menu items are mapped in flow diagrams.

## **Chapter 3: Media Handling**

Chapter 3 provides instructional information on how to load media. Guidelines for handling media are also provided.

## **Chapter 4: General Maintenance and Troubleshooting**

Chapter 4 covers general maintenance items that can be performed by the operator. There are also troubleshooting tips and a procedure for re-locating or moving the system.

## **Not Covered in this Guide**

Engineering Specifications

Detailed Field Service Information

## **Related Documents and References**

Mako 2 CTP Reference Manual, Part Number AG110140

CtServer User's Guide, Part Number AG45089

# Safety Information



## Introduction to the System

The Mako 2 is a platesetter that produces plates for use in the printing industry. In the standard configuration, plates are manually loaded by positioning the plate in the pin registration system and closing the pinch rollers. Plate exposure is started with the push of a button. When the exposing is complete, the plate drops into the output tray. The operator then inserts it into the processor. All steps in the process (loading, imaging, and inserting into the processor) must be performed in a safe-light environment. Refer to the plate manufacturer's specifications for safe-light requirements.

## Laser Safety

### Laser Product Classification

Laser products are classified by the amount of laser light accessible to the operator. Products are classified into Classes one (I) through four (IV). Class one (I) emits the least laser light. Class four (IV) emits the most laser light.

The system is classified as a Class one (I) laser product which contains a Class 3B (IIIb) laser System. This classification means that the operator is exposed to no hazardous laser light during operation and maintenance. The laser itself, however, is a Class 3B (IIIb) laser device, and emits visible laser light which is considered hazardous by FDA published limits.

## **IMPORTANT WARNING!**

**Use of controls or adjustments or performance of procedures other than those specified in this guide may result in hazardous laser light exposure.**

### **System Laser Wavelength Identification Label**

The system contains a laser that emits visible laser light. The identification label is located on the output side of the machine, above the output rollers. The label is shown in Figure 1-1.



**Figure 1-1 Media Sensitivity Label**

## **Regulatory Information**

### **Electromagnetic Emissions**

DOC - Canada

The Canadian Department of Communications requires compliance with the Radio Interference Regulations, ICES -003.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

EMC Directive - Europe

Step 1. Complies with EN 55011: 1998

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

#### FCC - USA

The standards for electromagnetic emissions are Part 15, Subpart J of the FCC rules. The system was tested to Class A limits. The following statements are required by the FCC:

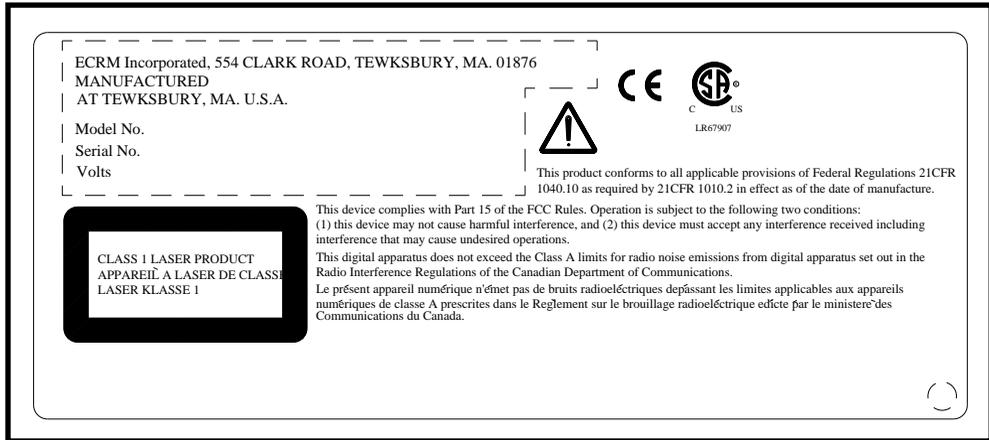
Changes or modifications to this unit not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

Compliance with applicable regulations depends on the use of shielded cables. It is the user who is responsible for procuring the appropriate cables.

# Identification and Certification Label (ratings plate)

The identification and certification label is attached to the back, exterior of the unit, above the pinch rollers.



**Figure 1-2 Identification and Certification Label**

# System Operation

## 2

### Introduction

A complete Mako 2 system includes a control workstation and CtServer software, a power conditioner, and a Mako 2 platesetter.

#### Workstation

The control workstation connects directly to the platesetter and runs the CtServer software. Operating instructions for the workstation are provided with the workstation.

#### CtServer Software

CtServer is used to send jobs to the platesetter. It is also used to define the plate and pin bar requirements for jobs and communicate that information to the platesetter, which displays the information on the control panel LCD.

The use and operation of CtServer is documented in the *CtServer User's Guide*, which is delivered as a PDF document on the CtServer CD.

#### Power Conditioner

The power conditioner shields the system from ac power spikes, voltage drops, and other electrical power disturbances.

# Platesetter

The platesetter is the output device that images the plates. The main parts of the platesetter are as follows.

## The Power Switch

The power switch (see Figure 2-2) controls the power to the system. To start up the system, turn on the power switch located on the rear right side of the machine. Depress zero (0) to turn **OFF**, depress one (1) to turn **ON**. See Figure 2-2.

**Note:** It is recommended that the Mako CTP be powered on for a 1-hour warm-up period prior to imaging.

## The Power Cord

The platesetter power cord plugs into a receptacle located just below the power switch.

**Note:** In order for the system to work properly the platesetter, the CtServer computer, and the computer monitor must *all* be plugged into the system power conditioner as shown below. Be advised that if the devices are not plugged into the power conditioner, damage resulting from voltage spikes, brownouts, etc., will **NOT** be covered by the warranty.

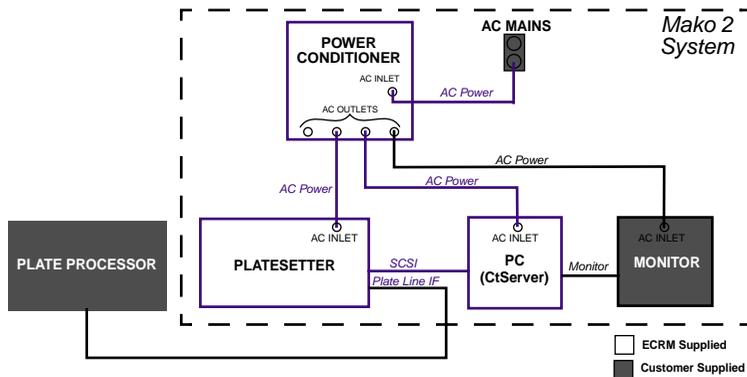
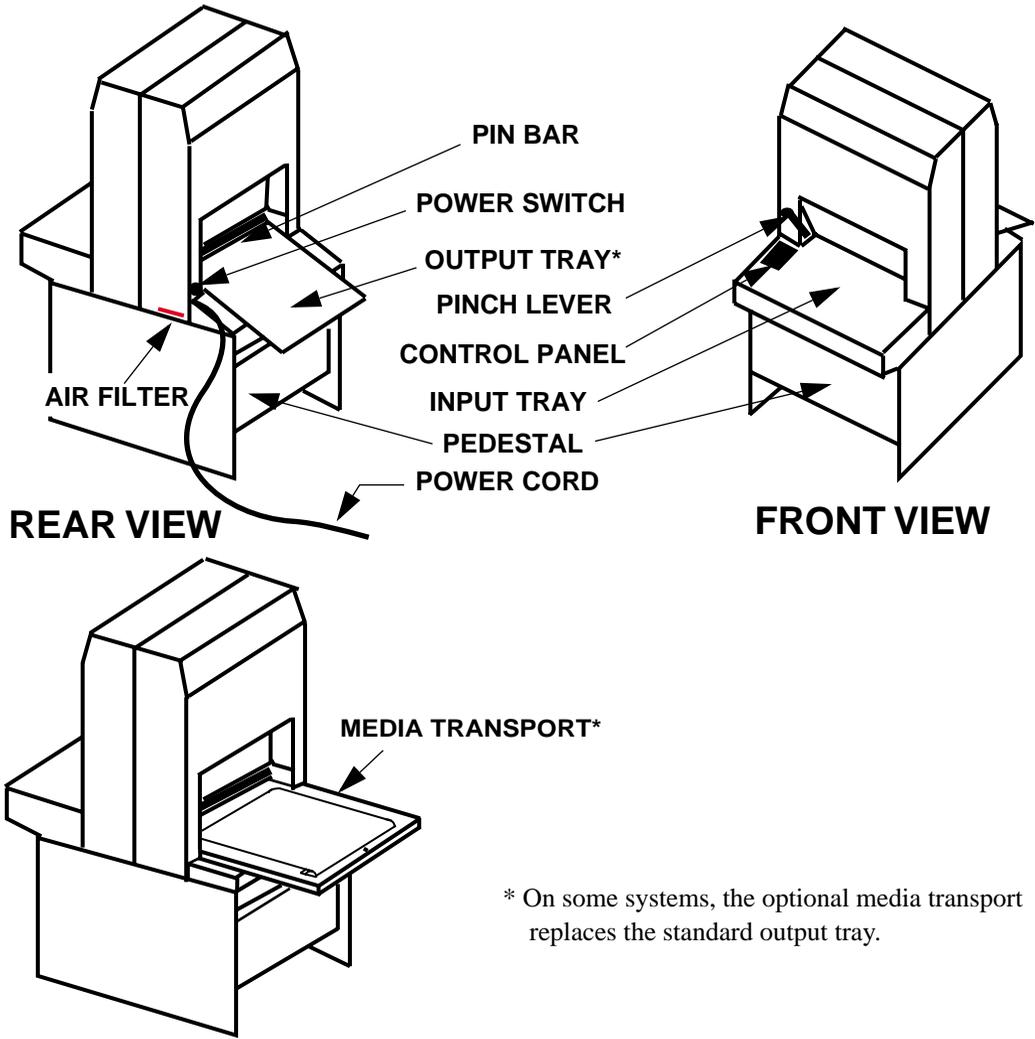


Figure 2-1 AC Power Connections



\* On some systems, the optional media transport replaces the standard output tray.

**Figure 2-2 Main Parts of the Platesetter**

## The Pin Bar

The pin bar is used for plate registration. There are two types of pin bars: press notch register and edge register. Two pin bars come standard with each platesetter. Additional pin bars can be ordered as an option. Exposing sets of plates with different registration notch requirements is easily accomplished by changing the pin bar.

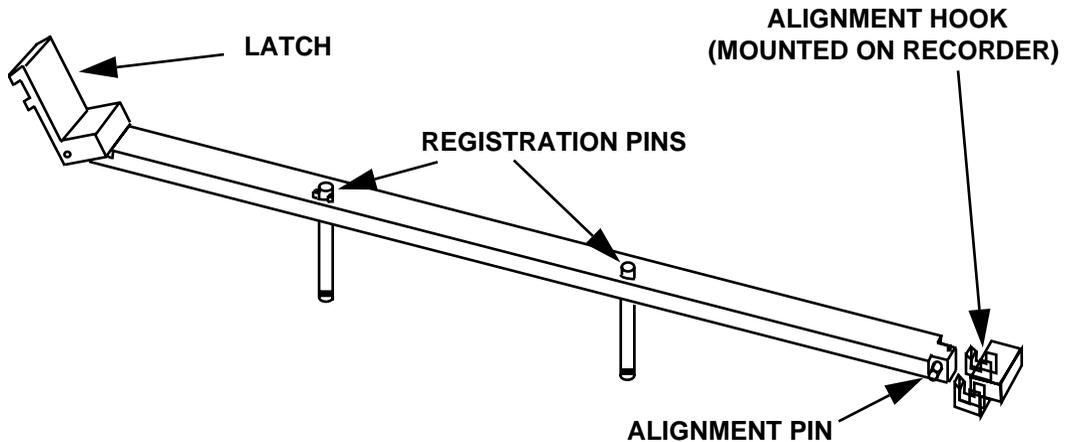


Figure 2-3 Pin Bar

## The Control Panel

The control panel is located on the left side of the input shelf.

The control panel is where the user interacts with the recorder. Commands and options are controlled through this device.

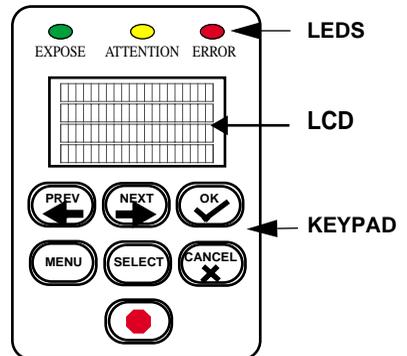


Figure 2-4 Control Panel

## The Input Tray

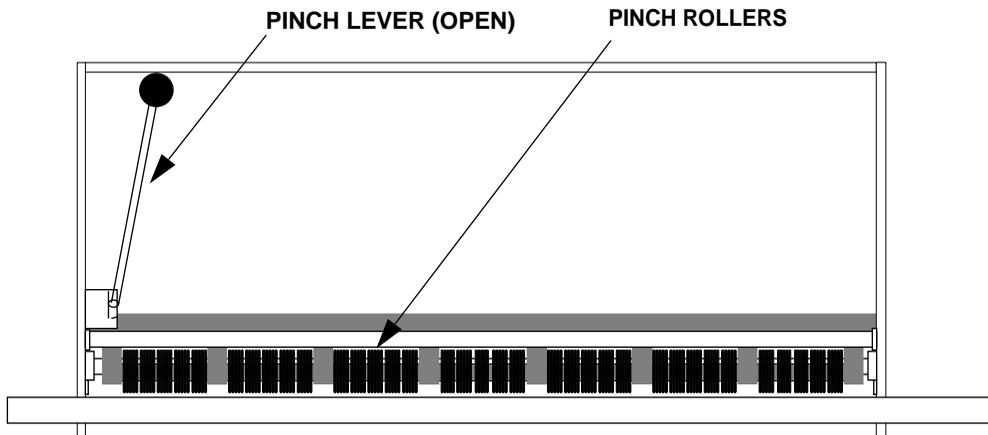
The input tray is used to position the plate for exposing. The plate is placed on the input tray and gently slid forward until the registration pins are engaged. A groove is provided in the surface of the input tray to provide a convenient place to push the plate forward. A plate cannot be loaded until the previous plate has been completed.

## The Output Tray (Standard Equipment)

The output tray collects the plate after it has been exposed. The plate must be removed from the output tray before the next plate can be exposed.

## The Pinch Lever

The pinch lever is used to open and close the pinch rollers. These high precision rollers control the plate during exposing. The pinch lever must be up (pinch rollers open) to load a plate and down (pinch rollers closed) to expose a plate. Also, the pinch lever must be up during the initialization process after a power on.



**Figure 2-5 Pinch Rollers and Lever**

## The Media Transport (Optional)

The media transport provides for automated delivery of media to a customer-supplied online processor.

## The Pedestal

The pedestal is a specially designed base for the recorder.

# Starting Up the System

Turn on the power switch located on the rear right side of the machine. Depress one (1) to turn the power **ON**. When the system completes its initialization, a message appears on the display indicating **ONLINE**. When **ONLINE** appears, the host computer can be powered on. Once the host computer is powered on and is running CtServer or the RIP, the Mako CTP is ready to expose images.

# Shutting Down the System

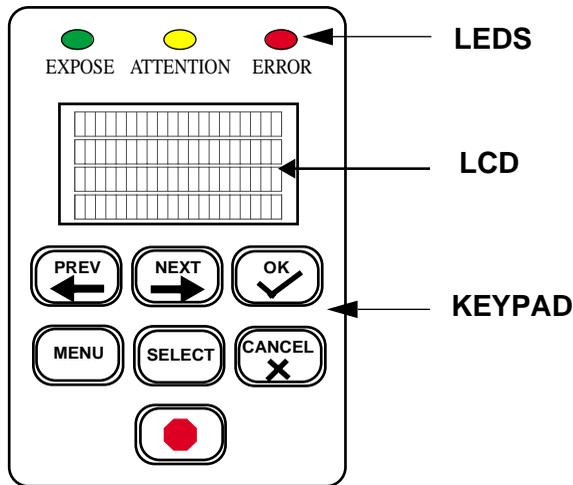
To shut down the system, turn off the power switch located on the lower right side of the machine. Depress zero (0) to turn the power **OFF**. Shut down the system **only** when the display reads **ONLINE**, and the second line is blank. (No operational message visible). Once the machine is turned off, the host computer will have to be rebooted after the machine is turned back on in order to establish communication.

# Menu Operation

When you first install the system, you must review and set all the menu parameters. Advance through the menu items and verify or change them as needed. When the menu parameters are completed, the system is ready for use.

## Using the Control Panel to Access Menus

Access menus from the system control panel. Enter the menu sub-system by pressing **MENU** from the **ONLINE** state.



**Figure 2-6 Control Panel Buttons**

-  Moves you backward within the menu or moves the cursor backward within the current menu item.
-  Enter or exit the menu sub-system by pressing **MENU** from the **ONLINE** state.
-  Moves you forward within the menu or moves the cursor forward within the current menu item.



Increments the numeric digit under which the cursor is positioned or scrolls through the options available for the current menu item.



Start exposing the loaded plate. Also, from anywhere in a numeric field, causes the next menu item to be displayed. In the last item of a menu, causes a return to the first item of the menu.



Cancels the exposing of the image which is requesting a plate to be loaded.



The Emergency stop button. This button will stop all moving parts of the recorder.



Green LED that indicates the plate is being exposed when it is flashing. Additionally, indicates registration pin contact when loading a plate.



Yellow LED that indicates there is a condition that requires operator attention. The LCD display indicates what needs to be done.



Red LED that indicates a recorder error condition. The LCD display indicates what the error is.

# Using Menus

There are three system menu options:

- User Preference Menu (See page 14).
- User Maintenance Menu (See page 16.)
- Test Pattern Menu (See page 19.)

## Menu Selection

Follow these steps to set the parameters in any menu.

Step 1. Press MENU to enter the user menu system.

Step 2. Press SELECT until the sub-menu you want displays on the LCD.

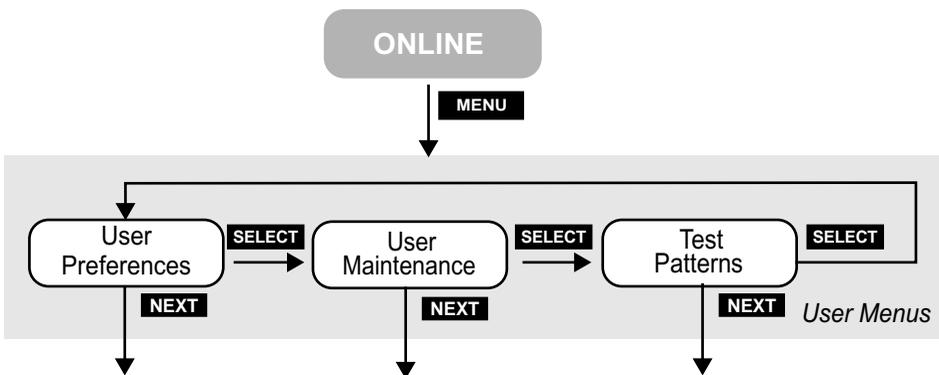
Step 3. Press NEXT to enter the selected sub-menu.

Step 4. Set the parameter to what you want. Press SELECT to change the value.

Step 5. Press Next to go to the next parameter until you have completed your selections.

Step 6. Repeat steps 4 and 5 until all changes are made.

Step 7. Press MENU to exit the user menu system.



**Figure 2-7 User Menu Structure**

# User Preferences Menu

## UNITS OF MEASURE

OPTIONS            **ENGLISH** (inches) or **METRIC** (millimeters)

The selected units of measure apply to all numeric measurement values in various menus.

## AUDIO ALERTS

OPTIONS            **ENABLED** or **DISABLED**

This menu item allows you to disable or to enable the audible alarms for the following conditions:

Error conditions, Power-up, Image complete

## SPINNER TIMEOUT

LIMITS            **0** to **999** minutes

If you enter 000 here, the spinner motor does not slow to standby speed after any amount of idle time. If you enter any number but 000 here, the spinner motor slows down to a standby speed at the end of the time-out period. The spinner motor will return to full speed when a job is ready to start exposing.

## HORIZONTAL MAGNIFICATION

LIMITS            **85.00%** to **110.00%**

Sets the size of the image in the horizontal direction from 85% to 110% of nominal.

## VERTICAL MAGNIFICATION

LIMITS            **85.00%** to **110.00%**

Sets the size of the image in the vertical direction from 85% to 110% of nominal.

# User Preferences

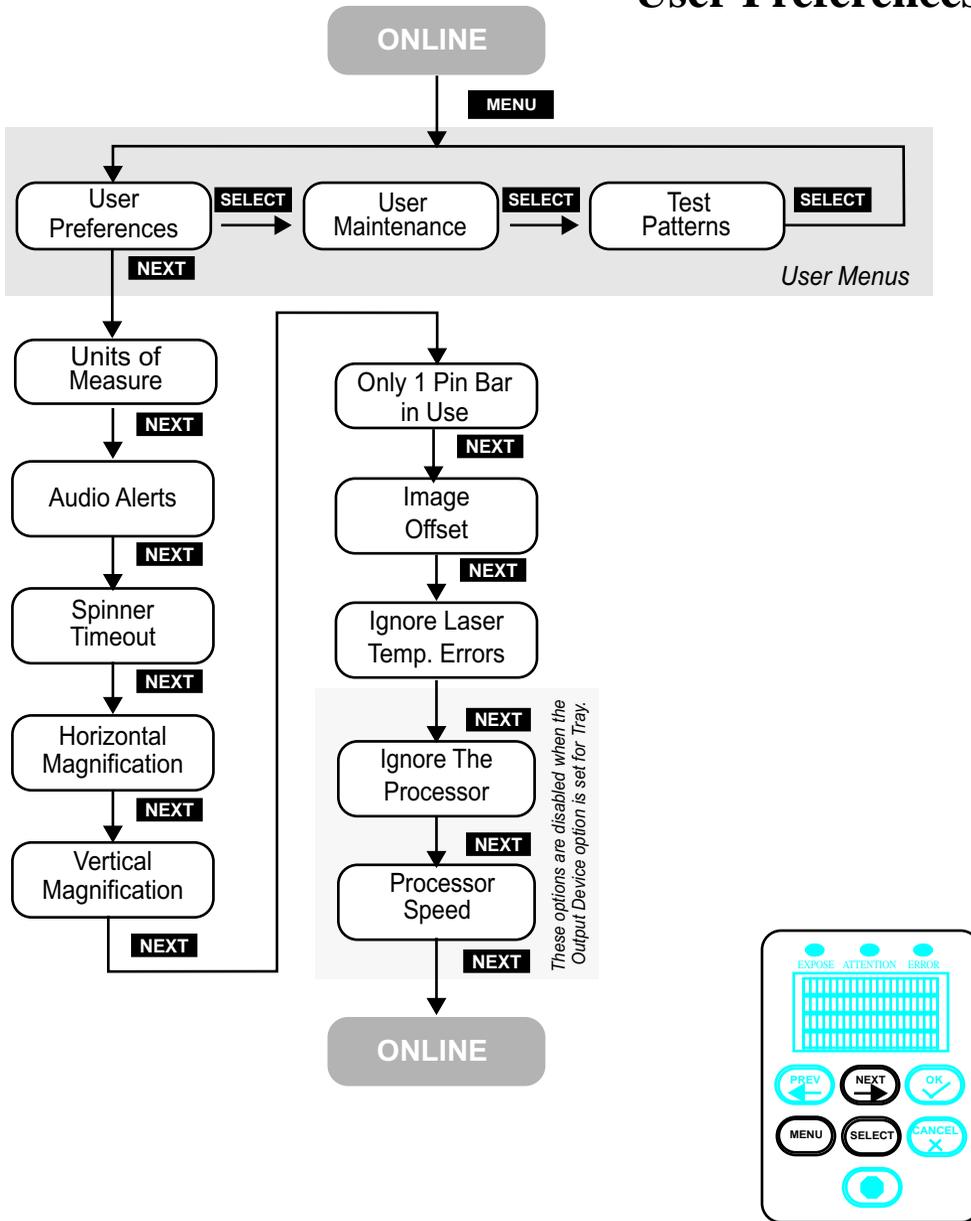


Figure 2-8 User Preferences Menu Map

## IMAGE OFFSET

LIMITS            **-0.300” to +0.300” (-7.62mm to +7.62mm)**

The image may be shifted to the left with a negative (-) value, or to the right with a positive (+) value by up to 0.300 inches. Press **PREV** to access the (+) and (-) sign.

## ONLY 1 PIN BAR IN USE

OPTIONS            **YES** or **NO**

”YES” prevents the system from displaying a prompt to verify that the correct pin bar is installed. “NO” permits the system to display the prompt.

## IGNORE LASER TEMPERATURE ERRORS

OPTIONS            **YES** or **NO**

If the laser exceeds its target operating temperature an error will be reported. It is recommended that this problem be fixed. However, if a critical job needs to be completed, it is possible to operate the laser at a higher temperature. This operation is enabled by ignoring the laser temperature errors.

**Note: Operating the laser at a higher temperature will shorten the life of the laser.**

## IGNORE THE PROCESSOR

OPTIONS            **YES** or **NO**

“YES” disables the media transport conveyor and effectively makes the transport function as an output tray.

**Note: This feature is useful when the online processor is down for maintenance or repairs.**

## PROCESSOR SPEED

LIMITS            **15” per minute to 200” (381 mm/min. to 5080 mm)**

Should be set to match the speed of the online processor.

# User Maintenance Menu

## PROGRAM VERSIONS

This user maintenance option displays version numbers of the installed software and firmware. The versions will be displayed as:

```
VERSIONS
JP0020 n.n JA1120 n
JA1121 n   JA1122 n
"NEXT" TO CONTINUE
```

Where JP0020 n.n is the part number and revision level of the controller software, and JA1120 n, JA1121 n, and JA1122 n are part numbers and revision levels of the controller firmware.

## RUN TRANSPORT

This user maintenance option will run the media transport until the STOP button is pressed. This function is used to clean the transport.

## RUN MEDIA ROLLERS

This user maintenance option will run the media rollers until the STOP button is pressed. This function is used to clean the rollers.

## DISPLAY ERROR LOG

This user maintenance option presents system faults (up to a maximum of 20 faults) in chronological order. **TIME** is the elapsed time since the latest power on. **SESSION #** is the total number of times the system has been turned on. **DEVICE NAME** identifies the system component that failed. **ERROR** is an indication of the nature of the fault.

## DISPLAY LASER LOG

This user maintenance option presents status information about the system laser. The information is useful to service personnel,

who sometime request the information over the phone during service calls.

## User Maintenance

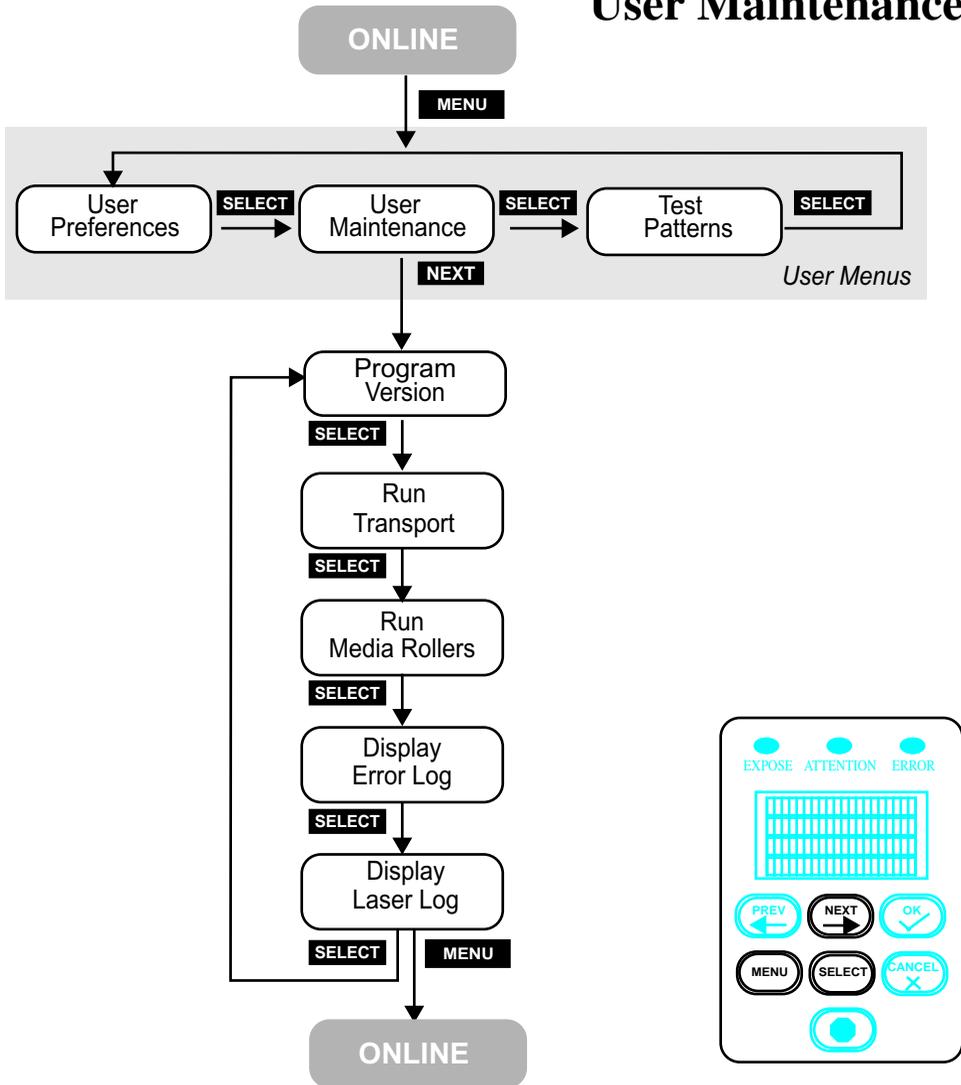


Figure 2-9 User Maintenance Menu Map

# Test Patterns Menu

This section describes the settings that affect test patterns. Depending on which test pattern is selected, some of the following options will be enabled/displayed, while others will be disabled/not displayed.

## TEST PATTERN TYPE

OPTIONS            List of Test Patterns

Test Patterns are for the use of qualified technicians only.

## REVERSE IMAGE POLARITY

OPTIONS            **YES** or **NO**

This option will reverse the test pattern images. YES will expose the background of the plate. NO will expose the image area.

## CENTER OFFSET

OPTIONS            **-11.000” to +11.000” or -279.4 mm to 279.4 mm**

By picking a value, you set the plate center offset for test patterns. This is only used for press notch registered plates. If your registration notches are not centered on the plate use this offset to center the image on the plate.

## EXPOSURE LEVEL

LIMITS            **000 to 255**

This menu entry sets the exposure level at the media. The higher the number, the higher the exposure.

## PLATE WIDTH

OPTIONS            **10.000” to 22.099” or 254.1 mm to 561.3 mm**

By picking a value, you set the plate width for test patterns.

## **PLATE LENGTH**

**OPTIONS**            **10.000” to 26.499” or 254.1 mm to 671.3 mm**

By picking a value, you set the plate length for test patterns. **PLATE IS NOTCH REGISTERED**

**OPTIONS**            **YES or NO**

By picking a selection, you set the alignment to be used for test patterns. Punched plates are generally centered aligned as opposed to edge aligned.

## **NOTCH DEPTH**

**OPTIONS**            **0.000” to 1.000” or 00.0 mm to 25.4 mm**

By picking a value, you set the notch depth for test patterns.

## **HORIZONTAL MAGNIFICATION**

**LIMITS**            **85.00% to 110.00%**

Sets the size of the image in the horizontal direction from 85% to 110% of nominal.

## **VERTICAL MAGNIFICATION**

**LIMITS**            **85.00% to 110.00%**

Sets the size of the image in the vertical direction from 85% to 110% of nominal.

## **HORIZONTAL RESOLUTION**

**OPTIONS**            **(dpi) 1200, 1270, 1800, 2400, 2540, 3048 and 3556.**

**(dpmm) 47.2, 50.0, 70.8, 94.5, 100.0, 120.0, 140.0**

By picking any of the optional values, you set the horizontal resolution to that value. Horizontal Resolution is not displayed if a GRID test pattern is selected.

# Test Patterns

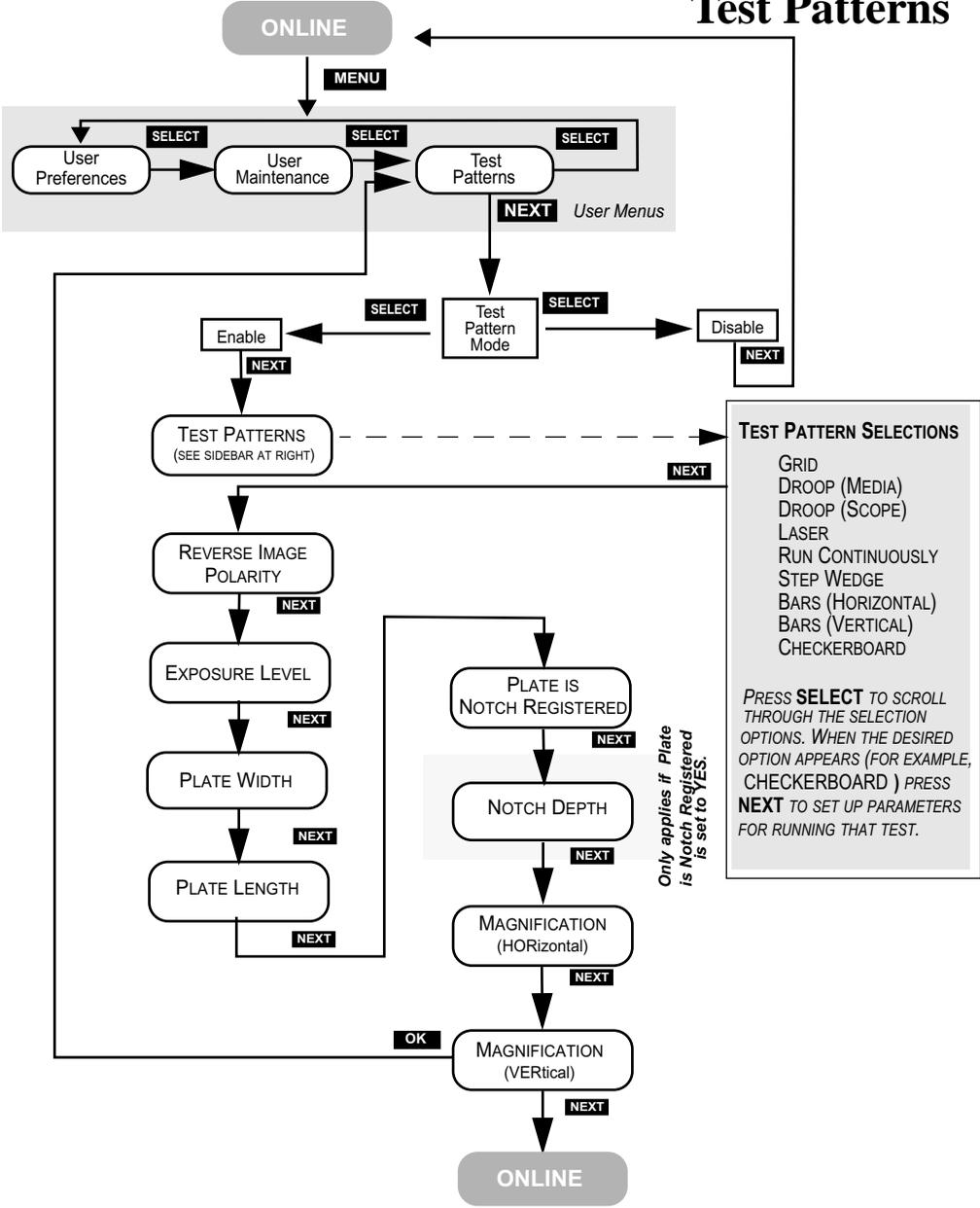


Figure 2-10 Test Patterns Menu Map

## **VERTICAL RESOLUTION**

**OPTIONS (dpi) 1200, 1270, 1800, 2400, 2540, 3048 and 3556.**  
**(dpm) 47.2, 50.0, 70.8, 94.5, 100.0, 120.0, 140.0**

By picking any of the optional values, you set the vertical resolution to that value. Vertical Resolution is not displayed if a GRID test pattern is selected.

## **PLATE WIDTH**

**OPTIONS 10.000" to 22.099" or 254.1 mm to 561.3 mm**

By picking a value, you set the plate width for test patterns.

## **PLATE LENGTH**

**OPTIONS 10.000" to 26.499" or 254.1 mm to 671.3 mm**

By picking a value, you set the plate length for test patterns.

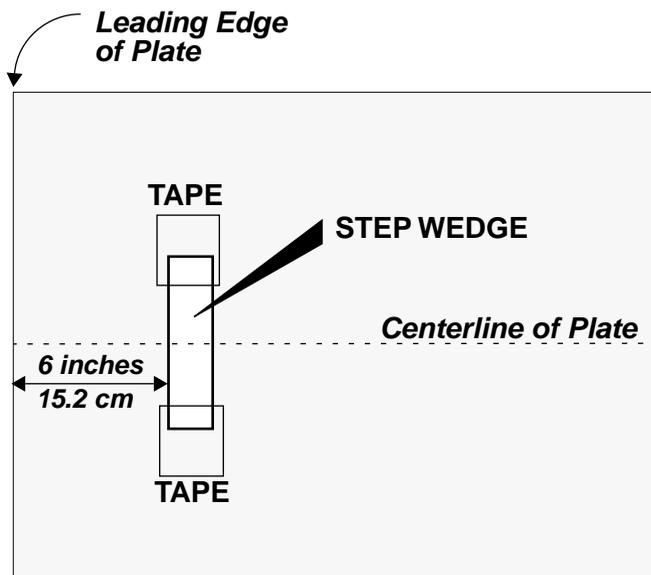
# Running a Step Wedge Test Pattern

The step wedge test pattern is used to set the proper exposure for a polymer plate. Here s how to run step wedge test plate.

## Prepare a plate for the test

- Step 1. Under safelight conditions, place a test plate on the input shelf.
- Step 2. Using the plate manufacturer s recommended step wedge, center the step wedge on the plate 6 inches (15.2 cm) back from the leading edge, as shown below.

Be sure to use two pieces of tape. Make sure the emulsion side of the step wedge faces the emulsion side of the plate, and that there are no air gaps between the wedge and the plate.



**Figure 2-11 Placement of Step Wedge on Test Plate**

## Run the Step Wedge Test Pattern

- Step 1. At the control panel, press MENU and then repeatedly press SELECT until the Test Patterns Menu displays.
- Step 2. Press NEXT, and then press SELECT to Enable.
- Step 3. Press NEXT, and then repeatedly press SELECT until the Step Wedge pattern displays. Then, press NEXT again.
- Step 4. Set Horizontal resolution to the required resolution.
- Step 5. Set Vertical resolution to the required resolution.
- Step 6. Set Exposure to the value you wish to expose the wedge (range is 0-255.)
- Step 7. Set Plate Width to the plate width being used.
- Step 8. Set Plate Length to the plate length being used.
- Step 9. Set Magnification Horizontal to the magnification being used (normally 100%).
- Step 10. Set Magnification Vertical to the magnification being used (normally 100%).
- Step 11. Select MENU.
- Step 12. Press the SELECT key to begin exposure.

The system exposes the first 8 inches of the plate with 100% laser light at the exposure setting selected.

After exposure, the plate moves into the output tray (or, alternatively, onto the transport belt where it advances until the leading edge of the plate is detected by the transport exit sensor. The transport then stops, the warning light flashes, and a prompt to remove the step wedge displays on the control panel.)

- Step 13. Making sure to maintain safelight conditions, remove the taped-on step wedge.

Step 14. At the control panel, press OK.

Step 15. If the system has the optional media transport, the transport will start again and feed the plate into the processor.

If the system has the standard output tray, remove the plate from the tray and process the plate

## Operational Messages

During operation, the system displays information that indicates the current condition of the system and of any jobs in process.

**PREPARING TO EXPOSE** - The system is starting the spinner and moving the plate to the recording start position.

**EXPOSING IMAGE** - The system is now recording an image.

**EJECTING EXPOSURE** - Exposing is complete and the plate is being ejected into the output tray.

**ONLINE** - The normal operating mode for the system.

**STARTING SPINNER** - This message is accompanied by a progress bar when preparing to start an image and the spinner motor is stopped.

**TEST PATTERNS** - Test Patterns mode has been selected in the Test Patterns Menu and the system is ready to produce a test pattern. This mode of operation should be used by qualified service technicians only.

**INITIALIZING** - The system is performing initialization functions prior to going online.

**Note:** If the Pinch Lever is down, the operator will be instructed to raise it during initialization.

**WAITING FOR LASER** - The system is waiting for the laser to reach operational temperature.

# Error Messages

During operation, error conditions may occur that require operator intervention. These messages will appear on the system display panel and the error indicator LED will light. If enabled, an alarm will also sound.

The error messages which an operator can repair are listed below.

**COVERS ARE NOT SECURE** - This error is displayed when one of the system covers are not secure.

**OPERATOR ABORT** - This error is displayed when the operator aborts a job by using the 'stop' button on the control panel.

**LASER IS OVER TEMPERATURE** - Alerts you that the laser is over temperature. If you override this error in the User Preferences Menu, the laser life will be shortened.

**IMAGE OFFSET ERROR, INCOMPATABLE PARAMETERS**  
This error is displayed when the combination margin, resolution, magnification, media width, and image offset result in a condition where the image starts before the laser can activate. If you should encounter this error, minor adjustments to the above parameters, to push the image to the center of the plate should resolve the problem.

# System Configuration Display

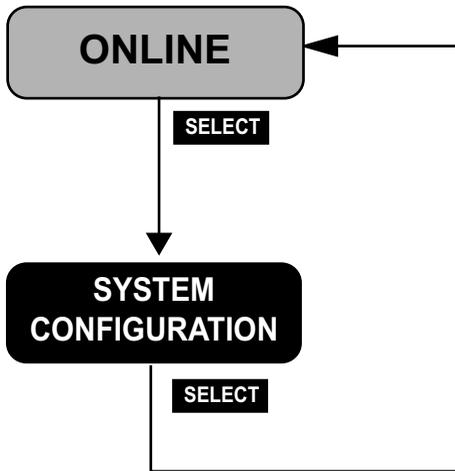
Should you ever call for service, your service provider may ask you to relate the information that appears on the System Configuration Display. To view the display:

Step 1. Place the system in ONLINE mode.

Step 2. Press the Select key. The System Configuration Screen displays.

Step 3. Convey the information on the screen to your service provider.

Step 4. Press the select key to clear the display and return to ONLINE mode.



*THIS SCREEN DISPLAYS THE FOLLOWING INFORMATION ABOUT YOUR SYSTEM:*

-----  
MACHINE TYPE  
-----  
FIRMWARE / MACHINE ID  
-----  
LASER POWER/SENSITIVITY/  
OPTICAL EFFICIENCY  
-----  
OUTPUT TYPE / SPINNER  
MOTOR  
-----

*SERVICE PERSONNEL OFTEN REQUEST THIS INFORMATION PRIOR TO MAKING A SERVICE CALL.*

**Figure 2-12 System Configuration Display**



# Media Handling

## 3

### Introduction

This chapter provides instructions on how to load and remove the media and how to install and remove the pin bar from the machine.

### Media Sizes

<b>Media Thickness -</b>	5.5 mil (0.14 mm), 6 mil (0.15 mm), 8 mil (0.20mm), 10 mil (0.25mm), 12 mil (0.30mm)
<b>Media Width</b>	Minimum: 10 inches (252 mm) Maximum 22 inches (560 mm)
<b>Media Length</b>	Minimum: 9 inches (228 mm) Maximum 26.3 inches (670 mm)
<b>Configuration -</b>	Prepunched Press Grooves or Edge Register

### Media Handling

The system is designed to be operated in a safe-light room.

- See plate manufacturers specification for safe-light recommendations
- Safe working time varies with manufacturer

The procedure for installing the pin bar and loading the media is covered in this chapter, as well as removing the pin bar and media.

# Installing and Removing the Pin Bar

The pin bar provides the alignment points that insure plate registration.

There are two types of pin bars; notch registered and edge registered. Notch registration requires the plates are punched with a specific notch pattern. This pattern matches up with the pins in both the Mako CTP and the press clamp. Notch registration provides for a more consistent registration than edge registration.

Edge registration will align the edges of the plates to the pins.

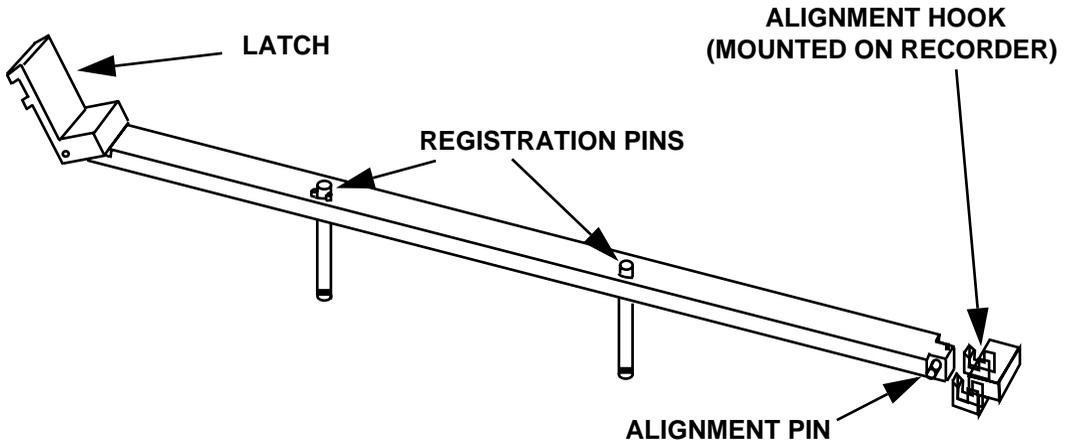


Figure 3-13 Pin Bar

## Installing a Pin Bar

- Step 1. Facing the rear of the recorder, hold the pin bar with the Latch side in your left hand and the alignment pin side in your right hand.
- Step 2. Angle the pin bar by holding your left hand about 3 inches higher than your right hand. Keeping the pin bar parallel to the back of the recorder, place the alignment pin into the alignment hook.

Step 3. Press firmly on the right side of the pin bar to seat it in the alignment hook.

Step 4. While holding the alignment pin in the alignment hook, lower the latch side on the pin bar until it snaps into place.

Step 5. Firmly press the center of the pin bar down to insure it is seated properly.

## **Removing a Pin Bar**

Step 1. Facing the rear of the recorder, gently push and hold the top of the latch toward the center of the recorder.

Step 2. Lift the pin bar by the latch and lift the latch side of the pin bar about 3 inches.

Step 3. Disengage the alignment pin from the alignment hook.

Step 4. Carefully remove the pin bar and store it in a safe place.

# Loading Media

The host computer will request a pin bar and plate be loaded. Based on this request, the Mako CTP will prompt the user to load the plate. The Control Panel then presents one of the following prompts:

```
LOAD A PLATE  
<plate name>  
<bar name>
```

This message indicates that the next plate to be imaged is the same as the preceding plate. **It is a prompt for the operator to load the same kind of plate that was just imaged.**

```
LOAD A NEW PLATE  
<plate name>  
<bar name>
```

This message indicates that the next plate to be imaged is different than previous plate, but that it uses the same Pin Bar. **It is a prompt for the operator to load the new (different) type plate.**

```
VERIFY BAR AND LOAD  
<plate name>  
<bar name>
```

The meaning of this message depends on when it appears during the CtServer (host computer) session.

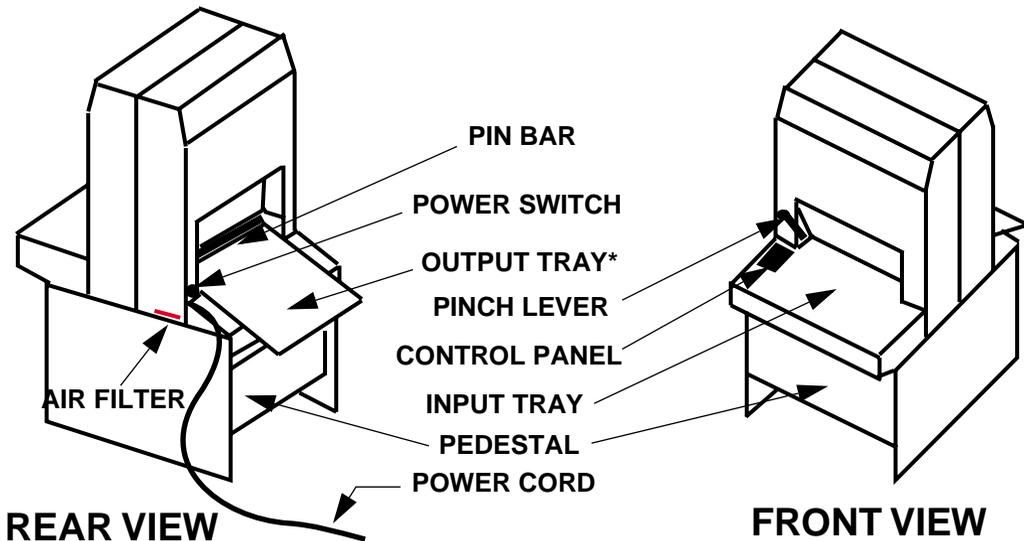
When the session is first opened, **it is a prompt for the operator to ensure that the correct Pin Bar is installed before loading the first plate, and then to load the plate.**

Subsequently in the session, the message indicates that the next plate to be imaged is different than the

preceding plate AND requires a different Pin Bar.  
**Thus, it is a prompt for the operator to change the Pin Bar and load the new (different) plate.**

The Control Panel will ask for the plate to be loaded, display the plate and pin bar and flash the yellow attention light.

The technique used for loading plates is a key in achieving good plate registration. Always handle and position the plate gently and carefully. Thin plates are especially susceptible to dings and dents.

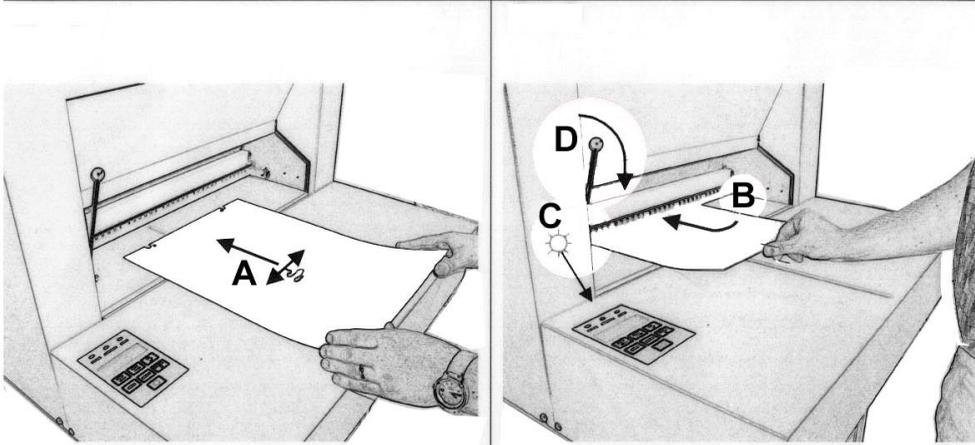


**Figure 3-14 External View of the System**

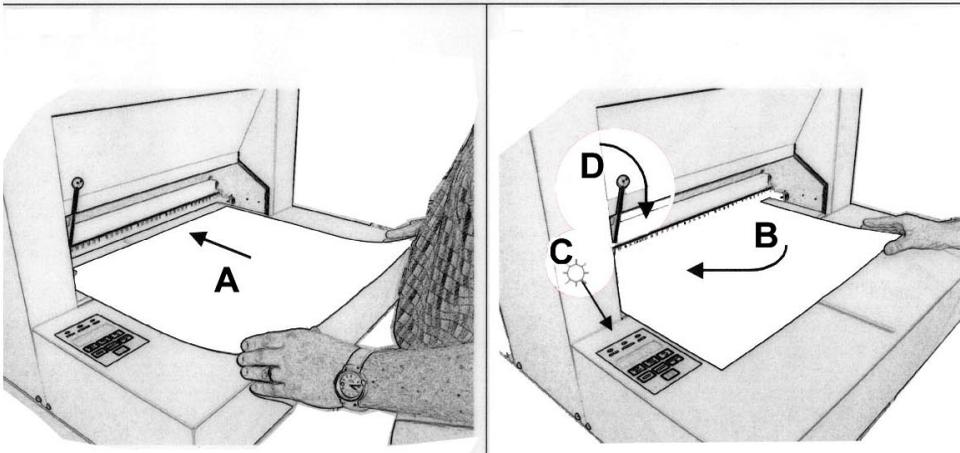
## Plate Load Procedure

- Step 1. Facing the front of the recorder. Raise the pinch lever to open the pinch rollers. Be sure the pinch roller has been fully raised. If it is not, the Green Expose LED will not light.
- Step 2. Verify the requested pin bar is loaded. If it is not, change the pin bar.
- Step 3. Place the requested plate on the input tray. If the plate has been punched with notches and you are using a notched pin bar, place the plate such that the notches are facing toward the pinch rollers.
- Step 4. If notched registration is being used, use the alignment graphics on the input tray to center the plate on the tray. For edge registered plates, place the plate about 1 to the right of the edge registration line on the input tray. Carefully lift the edge of the plate closest to you about 1/2 and gently slide the plate into the pinch rollers (**Figure 3-3, View A**).
- Step 5. Continue sliding the plate into the recorder until it touches the pin bar registration pins. For notched registration, gently slide the plate side to side to insure the pins are engaged in the notches. For edge registration, gently slide the plate to the left until it comes into contact with the side registration pin. After positioning the plate against the pins, use the alignment graphics on the input tray to make sure the plate is not skewed.
- Step 6. Watch for the Green Expose LED to come on and stay on (**Figure 3-3, View C**). This shows the plate is maintaining contact with the pins. If the LED goes out, you have lost pin contact. Be careful to not apply so much pressure to the plate that the registration pins dent the plate. Use one finger/thumb to apply minimal pressure to the center of the plate while lifting the plate slightly (**Figure 3-3, View B**). For notched plates, move the plate straight out a small amount and back in until the green LED stays on. For edge registered plates, move the plate out and to the right slightly and then back in and to the left until the green LED stays on.

## Notch Register



## Edge Register



**Figure 3-15 Plate Loading**

**Note:** If the Green LED is not staying illuminated, the pin bar may not be fully seated. Remove and reinstall the pin bar, following the instructions above.

Step 7. Holding the plate in position, lower the pinch lever (**Figure 3-3, View D**). The Green light will remain on if pin contact has been maintained and the recorder will prompt for the OK button to be pressed to start imaging.

**Note: If the Green LED does not stay illuminated, open the pinch lever and go back to Step 5.**

Step 8. Press the OK button. The plate will be backed up to position the lead edge for exposing. If there is not a plate in the output tray, exposing will begin. If there is a plate in the output tray, the yellow Attention LED will be flashing and the Control Panel will prompt for it to be removed. Once the plate is removed from the output tray, exposing will begin.

## Unloading Media

If a plate is in the output tray, the Control Panel will flash the yellow attention LED and prompt for the media to be removed.

### Plate Unload Procedure

Step 1. Carefully lift the plate out of the output tray.

Step 2. Place the plate in the processor. During handling, take care to not expose the plate to any non-safe-light condition, such as the CRT monitor.

# Maintenance & Troubleshooting

## 4

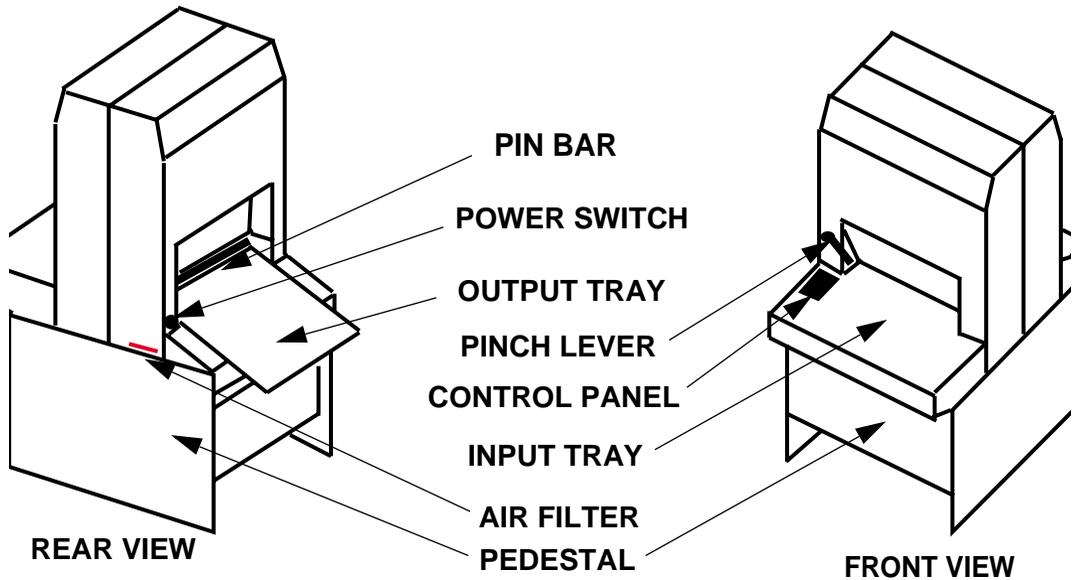
### Introduction

**This chapter discusses three main topics:**

- General Maintenance
- Using the User Maintenance Menu
- Moving the System

### General Maintenance

Keeping the system and its components in clean, working order is an operation that can be performed by following the procedures in this chapter. Remember to shut the power off to the machine prior to performing any internal maintenance procedures. Only use the cleaners recommended. Make sure that cleaning supplies are lint and dirt free.



**Figure 4-1 System Details**

## **Cleaning the System**

Clean the outside of the system and the pin bar with any mild detergent in clean water using a soft, cotton cloth. Don't use abrasive cleansers or chemical cleansers.

## **Cleaning the Air Filter**

A filtered fan runs at all times to maintain an air flow inside the machine. The filter that covers this fan can become clogged with dust and other debris if it is not cleaned regularly. A clogged fan causes a loss of internal pressure and the increased probability of a system malfunction. See Figure 4-1. Clean this filter whenever it shows external signs of contamination with dust or other debris.

## **Air Filter Cleaning Procedure**

- Step 1. Turn the power switch off.
- Step 2. From inside the pedestal, reach up and under the machine where the on/off switch is located. See Figure 4-1.
- Step 3. Place your fingers on the filter. It has a corrugated feel.
- Step 4. Gently push the filter toward the outside of the machine until the filter is protruding.
- Step 5. Pull the filter out of the side of the system.
- Step 6. Wash the filter in mild, soapy water, rinse in clean water and dry.
- Step 7. Replace the filter in the side of the system.
- Step 8. Push the filter, from the outside, until it is completely in the machine.
- Step 9. From inside the pedestal, gently push the filter to the middle of the machine until it is fully seated in the holder.
- Step 10. Replace with a new filter as needed.

## **Cleaning the Media Drive Rollers**

Cleaning the rollers will cut down on the contaminants running through the media system. Dirty rollers can cause contamination of the media.

## **Roller Cleaning Procedure**

- Step 1. Open the pinch lever, to open the rollers.
- Step 2. Use the User Maintenance Menu to run the media rollers. See Figure 4-4.
- Step 3. Sparingly apply Fantastik (ECRM part number HB2456) to a clean, lint-free wipe.

Step 4. As the rollers turn, gently wipe both the front and back rollers with the cloth, being careful to not catch the cloth in the rollers. Do not touch the rollers with bare hands. The oils and dirt will contaminate the rollers.

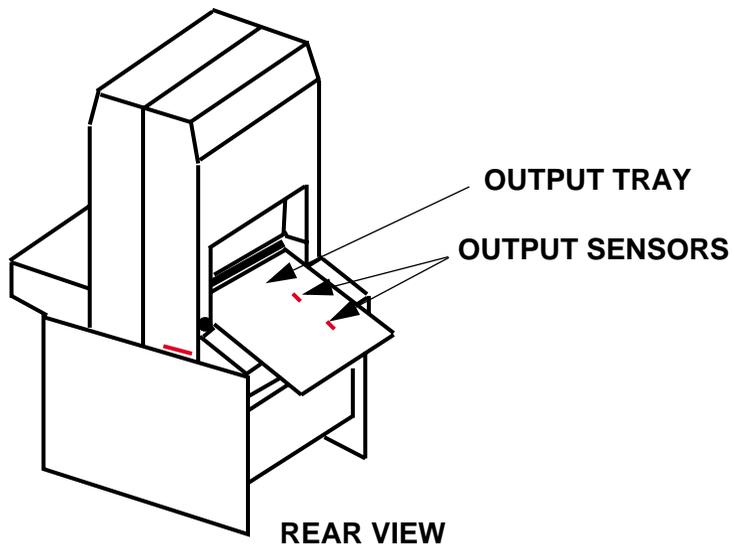
Step 5. After wiping with Fantastik , sparingly apply isopropyl alcohol to a clean, lint-free wipe.

Step 6. As the rollers turn, gently wipe both the front and back rollers with the cloth, being careful to not catch the cloth in the rollers. Do not touch the rollers with bare hands. The oils and dirt will contaminate the rollers.

## Cleaning the Output Tray Sensors

The output tray sensors may become dirty and require cleaning.

Step 1. Using a cotton tip swab moistened with isopropyl alcohol, gently rub the output tray sensors to remove any debris buildup.

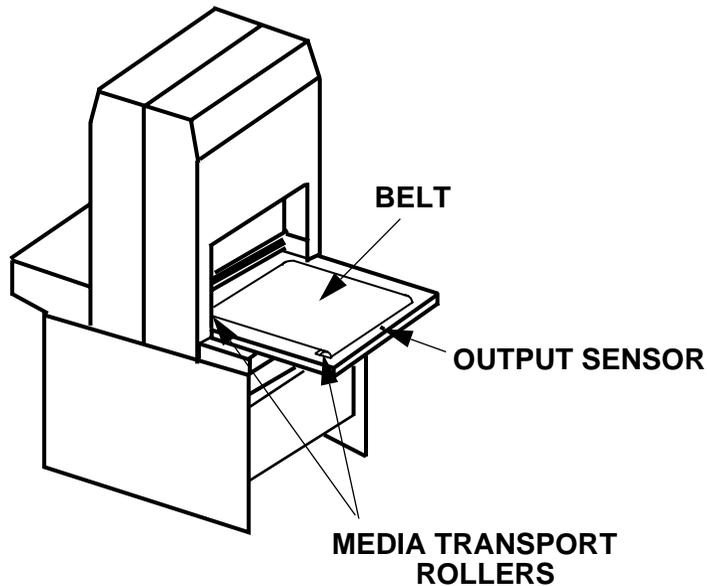


**Figure 4-2 Location of the Output Tray Sensors**

## Cleaning the Media Transport Output Sensor

The output sensor may become dirty and require cleaning.

Step 1. Using a cotton tip swab moistened with isopropyl alcohol, gently rub the output sensor to remove any debris buildup.



**Figure 4-3 Media Transport**

## Cleaning the Media Transport Belt

Step 1. Use the User Maintenance Menu to run the transport.

Step 2. Using a lint-free cloth moistened with Fantastik (ECRM part number HB2456), remove debris from the belt.

Step 3. Using a second lint-free cloth moistened with alcohol, rub down the belt.

# Clearing Media Mis-Feeds

If a media mis-feed should occur, follow this procedure to clear the media and return the system to normal operation.

## Media Mis-feed Recovery

Step 1. Power off the machine.

Step 2. Lift pinch lever to open the rollers.

Step 3. Carefully pull the jammed media out of the rollers.

# Using the User Maintenance Menu

You will need to use the User Maintenance menu to perform some of the maintenance procedures. See IMAGE OFFSET on page 16.

## Moving the System

### Moving Procedure

When installing the system and whenever moving it, ***you must correctly place the system and level it at its new location***, by following this procedure. See Figure 4-4 for the location of the leveling feet in the pedestal.

Step 1. Unplug the power cable from the (wall) outlet. Leaving one end of the cable plugged into the Mako CTP, gently coil the power cable and store it on the shelf in the pedestal.

Step 2. Disconnect the SCSI cable from the PC attached to the Mako CTP. Leaving the SCSI cable connected to the Mako CTP, gently coil the power cable and store it on the shelf in the pedestal..

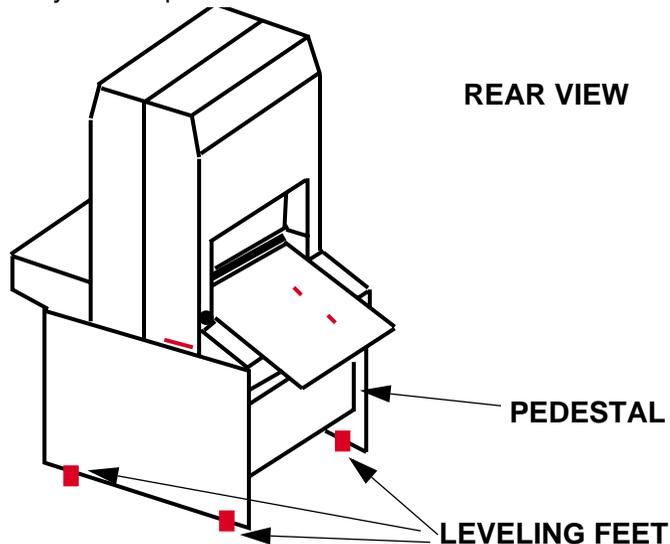


Figure 4-4 Levelling Feet Location

- Step 3. Retract all four levelling feet so the system rides on its wheels and place the system in its new location.
- Step 4. Turn all four levelling feet of the recorder down until they just touch the floor.
- Step 5. Continue to turn leveling feet until the system is level, front to back and side to side.