

# **MAKO-T 6-1200 HANDHELD**

## **OPERATION & SAFETY MANUAL**

1.0.0 6/01/10  
24312-3 w/RCM



HID Ultraviolet



# **WARNING**

**THIS MANUAL MUST NEVER BE  
REMOVED FROM THE MACHINE!**

# CONTENTS

## CONTENTS

FOREWORD

SAFETY

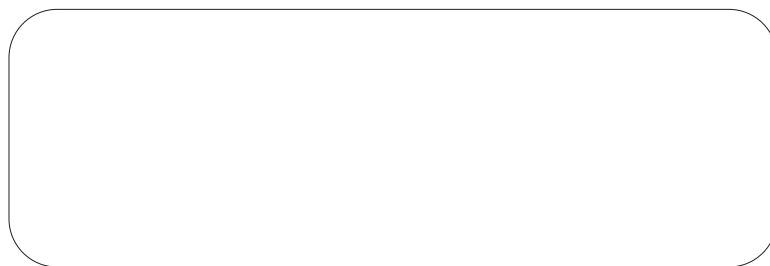
OPERATION

MAINTENANCE

SPECIFICATIONS

## REFERENCE

SERIAL PLATE



## FOREWORD

THIS OPERATION AND SAFETY MANUAL WAS WRITTEN TO GIVE THE OPERATOR/OWNER INSTRUCTIONS ON SAFE OPERATION AND MAINTENANCE OF THE CURING MACHINE.

READ AND UNDERSTAND THIS OPERATION AND SAFETY MANUAL BEFORE OPERATING YOUR CURING MACHINE. If you have any questions, contact your dealer/distributor or the manufacturer.

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CURING MACHINE PARTS IDENTIFICATION AND MACHINE SIGNS/DECALS/WARNING LABELS.

SERIAL NUMBER LOCATIONS

SAFETY

SAFETY INSTRUCTIONS

SAFE OPERATION IS THE OPERATOR'S RESPONSIBILITY

SAFE OPERATION NEEDS A QUALIFIED OPERATOR

USE SAFETY RULES

# SAFETY

Safe Operation Is The Operator's Responsibility.



## Safety Alert Symbol

This symbol with a warning statement means:  
"Warning, be alert! Your safety is involved!"  
Carefully read the message that follows.



## WARNING

Operator must have instructions before running the machine. Untrained operators can cause injury or death.

## IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.



## WARNING

Warnings on the machine and in the manuals are for your safety. Failure to obey warnings can cause injury or death.

The curing machine and attachments must be in good operating condition before use.

### **Safe Operation Needs A Qualified Operator**

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine as well as the influence or interaction of UV Radiation with drugs.

*A Qualified Operator Must Do The Following:*

#### **Understand the Written Instructions Rules and Regulations**

- The written instructions Operation and Safety Manual, Safety machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may identify a hazard such as a fire hazard.

#### **Have Training with Actual Operation**

- Operator training must consist of a demonstration and verbal instruction. This training is given by your dealer/distributor before the product is delivered.

- The machine must be used in areas without bystanders.

### **Know the Work Conditions**

The operator must know any prohibited uses or work areas, for example, he or she needs to know about any fire hazards. The machine must not be used in a damp or wet area.

Wear full cover clothing. Always wear approved safety glasses when operating machine.

### **Use Safety Rules**

Read and follow instructions in the Operation and Safety Manual before operating.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Check to be sure that all safety covers and devices are in place before operating machine.

Operate the machine only from the operator's position.

DO NOT permit personnel to be in the work area when operating the machine.

DO NOT modify equipment or add attachments that are not approved by the manufacturer.

DO NOT make any adjustments or repairs on the machine while it is running.

### **Fire Prevention**

The machines have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the irradiator and lamp. The electrical system, if damaged or incorrectly maintained can be a source of arcs or sparks.

DO NOT use the machine where the excess temperatures produced by the machine can contact flammable material, explosive dust or gasses.

The machine can still be very hot even after it has been turned off.

Always know the location of fire extinguishers and first aid kits and how to use them.





## SERIAL NUMBER LOCATIONS

MACHINE  
SERIAL NUMBER  
PLATE LOCATION



LAMP P/N NUMBER LOCATION  
CURING MACHINE PARTS  
IDENTIFICATION AND MACHINE  
SIGNS/DECALS/WARNING LABELS.



## SETTING UP (BEFORE FIRST OPERATION)

### *READ ALL MACHINE SIGNS (DECALS) AND INSTRUCTIONS CAREFULLY*

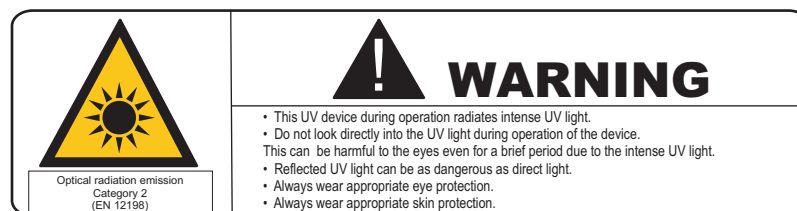
The UV Curing unit is delivered completely assembled. For safe operation check the following before operating the machine.

Make sure all nuts, bolts and set screws are tight.

Make sure nothing has been bent or broken during shipping. If damage does exist, do not use the machine until the damaged parts have been repaired or replaced.

Make sure all lamp fittings and connections are tight.

Make sure all warning signs (decals) and safety devices are on the machine and in their correct location. Replace any damaged signs (decals) or safety devices.



	<b>WARNING</b>
<p>AVOID INJURY Personnel must not be in the area when machine is operating. Never leave machine unattended when the machine is powered on.</p>	





Keep bystanders away when the machine is in operation.

	<b>WARNING</b>
<p>FULL FACE SAFETY SHIELD AND BODY PROTECTION REQUIRED To prevent eye and skin injury from UV Radiation</p>	

### Eye Safety

Not all eye ware is UV safe.  
Verify the safety of your eye protection.  
EN-166:2002



 <small>Optical radiation emission Category 2 (EN 12198)</small>	<table border="1"><tr><td></td><td><b>WARNING</b></td></tr><tr><td colspan="2"><ul style="list-style-type: none"><li>• This UV device during operation radiates intense UV light.</li><li>• Do not look directly into the UV light during operation of the device. This can be harmful to the eyes even for a brief period due to the intense UV light.</li><li>• Reflected UV light can be as dangerous as direct light.</li><li>• Always wear appropriate eye protection.</li><li>• Always wear appropriate skin protection.</li></ul></td></tr></table>		<b>WARNING</b>	<ul style="list-style-type: none"><li>• This UV device during operation radiates intense UV light.</li><li>• Do not look directly into the UV light during operation of the device. This can be harmful to the eyes even for a brief period due to the intense UV light.</li><li>• Reflected UV light can be as dangerous as direct light.</li><li>• Always wear appropriate eye protection.</li><li>• Always wear appropriate skin protection.</li></ul>	
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### Ultrasonic Range Finder

This device incorporates a proprietary distance sensing system that sends an ultrasonic signal out from a transmitter, the signal bounces off the surface to be cured and back to a receiver (see green arrow). Never block these devices as the system is not capable of distinguishing between surfaces, surface textures, or skin.



## WARNING

### AVOID INJURY

Never point the light source at anyone!  
Never leave machine unattended when the  
machine is powered on.

## Auto Range

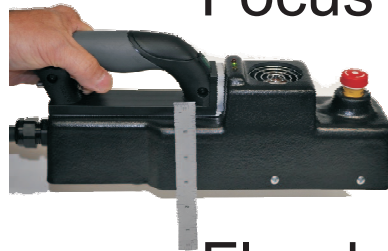
Close



Red



Focus



Green



Flood



Yellow



The auto range system senses the distance from the surface to be cured and the irradiator.

The LED indicators are:

Red = Close:

Indicates the source is close to the surface.

Green = Focus:

Indicates a narrow band of high energy.

Yellow = Flood:

Use for areas requiring lower energy.

None = Disabled:

Indicates unit is out of range and the light will not come on.

## Range Control Mode(RCM)

Press RCM button at any point while the UV lamp is on to allow the lamp to remain lit when outside the range of the range sensor. This mode will shut off when the UV lamp on trigger is released. You may also simultaneously press the RCM button and the UV lamp on trigger to activate the UV lamp away from a surface.



## WARNING

### AVOID INJURY

When the unit is in the Bypass mode the UV Lamp will come on whenever the Lamp-On Trigger is pressed. The range finder operates in either mode.

## OPERATION

Connect the unit to a dedicated power source (see warnings). Be certain that no bystanders are in the area (see warnings). Press the green start button located on the control panel, the green LED will illuminate. The units cover can be closed and access for the start and stop switches are through an opening in the top cover. The red button next to the start turns off the unit.

While holding the irradiator by the handle, position the irradiator over the surface to be cured. Press the green button on the trigger handle and the light will come on (see auto range). The light will reach full intensity within a few seconds.

The units case has three handles for ease of use, one top, one side and one extending for use when wheeling the unit.

There is a built in heat sink/holster where the irradiator can be cradled even if it is hot.



## Changing The Lamp



### **WARNING**

Disconnect power to the machine  
prior to changing lamp.  
Be sure the lamp and associated parts are cool.

After disconnecting power to the machine and  
verifying that the lamp and associated parts are cool  
enough to handle, proceed as follows.

### **IMPORTANT**

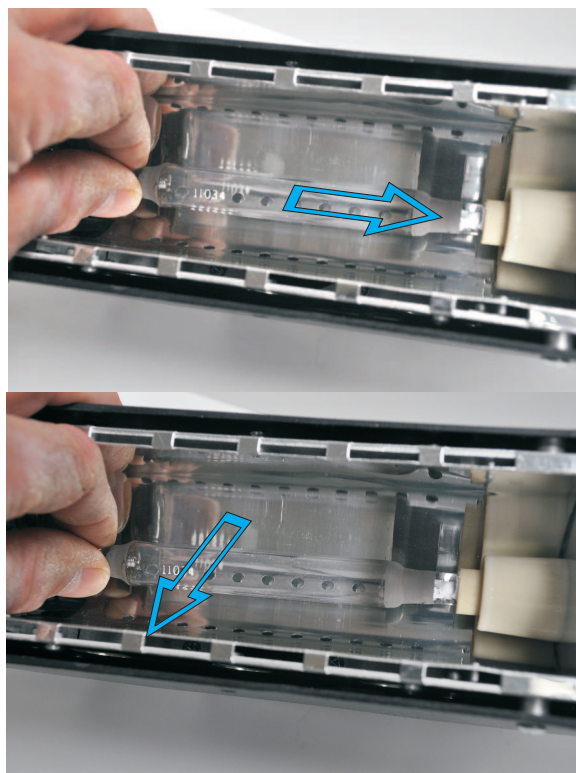
DO NOT TOUCH THE LAMP WITH  
BARE HANDS  
USE GLOVES PROVIDED



### **Remove The Lamp**

Press the lamp in the direction of the trigger and lift out of the front lamp socket as shown. Hold the lamp on the ceramic end. Use special gloves provided. The gloves are not shown for clarity.

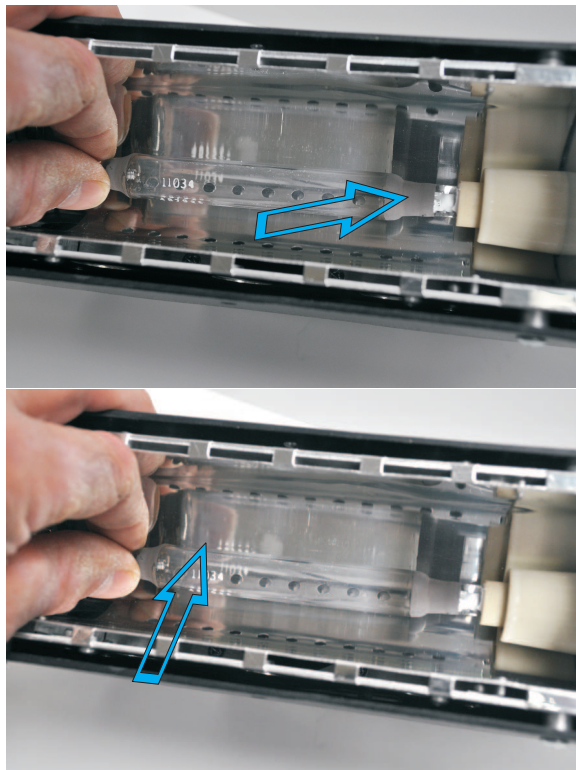
**DO NOT STRESS OR BEND THE LAMP  
IT WILL BREAK!**



### **Install The Lamp**

Insert one end of the lamp in the back socket (trigger end) making sure that the contact of the lamp aligns with the contact of the socket. Press the lamp in the direction of the trigger and gently pivot the lamp downward so that the lamp contact is aligned with the front socket contact as shown. Hold the lamp on the ceramic end. Use special gloves provided. The gloves are not shown for clarity.

**DO NOT STRESS OR BEND THE LAMP  
IT WILL BREAK!**



# IMPORTANT

DO NOT TOUCH THE LAMP WITH  
BARE HANDS  
USE GLOVES PROVIDED

## Lamp Installation

Using gloves packed with the new lamp, remove the lamp from its package.

If the lamp is inadvertently touched by bare hands, wipe the glass (quartz) surface of the lamp with the alcohol wipe provided with the lamp then dry the lamp with a lint free CLEAN tissue or rag. Salts from hands and skin can cause premature failure of the lamp (devitrification).

# IMPORTANT

The lamp is **EXTREMELY** fragile and  
**EXPENSIVE!**

Handle the lamp with extreme care.

*Broken or Damaged lamps are  
NOT COVERED UNDER THE WARRANTY!*

### **Always carry a spare lamp**

*Lamps break and burn out at the most inopportune time. Don't get caught at midnight with out a spare lamp!*

*There is a molded pocket with cover inside the compartment to store a spare lamp.*

### **When To Replace The Lamp**

Inspect the lamp:

It should be clear in color and not distorted or bent.

Any distortion can be a sign of a problem with the cooling system.

*Never touch the lamp with bare hands.*

If a lamp is discolored the UV light it produces is much lower than a new one. Less UV means slower cure speeds. Time is money! Cure fast!

## **IMPORTANT**

The lamp is **EXTREMELY** fragile and **EXPENSIVE!**

Handle the lamp with extreme care.

*Broken or Damaged lamps are  
NOT COVERED UNDER THE WARRANTY!*

**IMPORTANT**  
**THIS UNIT REQUIRES A DEDICATED**  
**120V POWER SOURCE!(US)**  
**230V EUROPE**

Permanent damage to this device can be caused as a result of under voltage!  
*No other devices may be connected to the same electrical circuit.*

If an extension cord is needed, it must be a minimum gage of:  
12 awg up to 25', 10 awg up to 50'  
An extension of greater than 50' is not recommended.



**WARNING**

Never defeat the electrical ground, doing so can cause injury or death.

**IMPORTANT**

An appropriately grounded and properly sized electrical cord is mandatory for safe and proper operation of the machine.

## **OPERATOR HANDLE REMOVAL**

The operator handle may be removed so that accessories can be attached.

Lift the latch pin on the heel of the handle as shown. Slide the handle off and store in a safe place.

Install an accessory by sliding it on the slide mount and engaging the latch.



# Accessories



## Specifications

Model #	Description	V	A	ø	HZ
65110	MAKO 1.2kw	120	15	1	60
65120	MAKO 1.2kw	230	10	1	50
65200	Accessory Handle				
11034	Spare Lamp				



