TIGER
12-1700
14-2000

OPERATION
&
SAFETY
MANUAL

1.0.4 10/01/14
P/N 24459

HID Ultraviolet
WARNING

THIS MANUAL MUST NEVER BE REMOVED FROM THE MACHINE!
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.

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.

Check all of the items on the Service Schedule Decal under the 8 hour column or as shown in the Operation and Safety Manual.

**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.

When learning to operate the machine, do it at a slow rate and in an area clear of bystanders.

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, allow the machine to run idle so the cooling system cools the unit.

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

![WARNING]

FIRE HAZARD
Keep all combustibles away.
SERIAL NUMBER LOCATIONS

MACHINE SERIAL NUMBER PLATE LOCATION

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

- **Status LED's**
- **Power On/Off**
- **Power Input**
- **Circuit Breaker**
- **UV Warning**

**WARNING**

- This UV device during operation radiates intense UV light.
- 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.
- Reflected UV light can be as dangerous as direct light.
- Always wear appropriate eye protection.
- Always wear appropriate skin protection.
SETTING UP (BEFORE FIRST OPERATION)

READ ALL MACHINE SIGNS (DECALS) AND INSTRUCTIONS CAREFULLY

The UV Curing machine 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.

WARNING

All covers must be in place to safely operate machine.

Attach the line cord to the machine and plug the line cord to an appropriate power receptacle.
OPERATOR HANDLE ADJUSTMENT

There are two operator handle adjustments.

- The telescoping adjustment for the height of the handle, smaller knob under the control panel.
- The angular adjustment of the control handle, larger knob at the rear of the machine. This knob is also used to lock the handle in the carry position.

Adjust the height of the handle for operator comfort as needed. Collapse the handle for shipping and storage.
WARNING

AVOID INJURY
Personnel must not be in the area when machine is operating.
Never leave machine unattended when the machine is powered on.

Keep bystanders away when the machine is in operation.

WARNING

WEAR SAFETY GLASSES
To prevent eye injury from UV Radiation

Eye Safety

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

WARNING

• This UV device during operation radiates intense UV light.
• 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.
• Reflected UV light can be as dangerous as direct light.
• Always wear appropriate eye protection.
• Always wear appropriate skin protection.
OPERATION

While standing behind the machine in the operators position, press the white start button located on the lower left portion of the machine. The black button below the start turns off the unit.

Squeeze the trigger located on the operators control and immediately move the machine at the recommended speed. See curing speed specifications provided by the coating supplier.

Important Voltage Information

IMPORTANT, Read the following, it applies to all machines.

Ensure that the building you are operating this machine in is adequately wired, and that a power cord of sufficient gauge is used. See the section for recommended extension gauges in this manual.

If a generator is used, it MUST BE DIESEL and must be sized to be 150% of machines rating. Example:
If the machine is an 8kw unit, the generator must be 12kw MINIMUM!

Many generators have inadequate AVR’s (Automatic Voltage Regulators) so when a high powered system such as a UV Curing System is run on a generator with poor regulation there can be excessive spikes due to the generators initial sag and then a massive voltage overshoot. We have seen 400v which will destroy electronic circuitry. Equipment failures due to generators are not covered under warranty!
Home Screen

The home screen shows the machine’s current set speed, the speed it is being driven at, any current error conditions, and various pieces of information.

If the lamp is cold, for the first few seconds of operation, there may not be full light output, and the display will read “Lamp Warmup”.

If the machine is not able to draw adequate power from the outlet (mains) to run the lamp at the specified power level, it will display “Low Power” on the bottom left of the screen.

If the operator is moving the machine faster than the set speed, it will beep intermittently, and display “Slow down!”

In the event of a cover being removed while the machine is running, the machine will beep continuously and display:

Replace the cover and press the knob to clear this error.

WARNING

WHILE THE MACHINE IS PLUGGED IN LAMP TERMINALS ARE LIVE!
In the event of the machine being tilted beyond safe limits, the lamp will be disabled, the machine will beep, and the display will appear as follows:

![Tilt Error Screen]

Level the machine to clear this error.

**Settings**

To enter and exit the main menu, depress the knob on the top handle assembly for 1 second and release.

Select an option by rotating the knob, and then quickly pressing and releasing the knob. The option will be highlighted. After making a change, quickly press and release the knob to save the new setting. Afterwards, depress the button for 1 second and release to return to the home screen.

In the main menu, there are various options that can be set:

![Set Target Speed Screen]

The target speed is displayed on the home screen. When the lamp is active, and the machine is being moved faster than the set target speed, the machine will beep and the display will instruct the operator to slow down.
The tiger has 11 lamp power levels, from 2 through 12. These power levels are standardized outputs of energy for all HID Ultraviolet equipment with adjustable power.

For most cases, leave the Lamp Power level at 12, as this is full output. If lower levels are required for different cure properties, your coating manufacturer will specify in their instructions. NOTE: See Lamp Power on next page.

The update rate of the speed indicator can be adjusted with Set Speed Buffer. Slow indicates that the machine averages operator speed over a long period of time, whereas Fast will provide quick updates to the operator.

The machine is capable of displaying speed in either Feet Per Minute or Meters Per Minute.

The machine’s screen can be displayed in a number of languages.
You may adjust the current time on the machine from this screen.

The Tiger maintains an internal log of machine faults and usage data for diagnostics and warranty purposes.

**Lamp Power**

The TIGER will not draw more than 15 amps from the outlet (mains). A 14” machine can operate at up to 2000W, meaning that it will not be able to operate at full power at 120V, as 120 Volts x 15 Amps = 1800W maximum.

As a result, should the TIGER 14 be set to power level 12, on 120V, you may see a “Low Power” warning. In this condition, the machine will be operating the lamp at maximum available power, however it will not be able to provide the power level requested due to lack of available amps at the outlet (mains). Power levels 10 and 11 should not display “Low Power”, but there is no harm in leaving the machine operating at power level 12.
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, remove the front cover by turning the two ¼ turn fasteners counter-clockwise.

**IMPORTANT**

DO NOT TOUCH THE LAMP WITH BARE HANDS
USE GLOVES PROVIDED
Remove the two lamp lead electrical connection nuts. They are 10-32, use a 3/8” nut driver or wrench.

Bend the lamp leads straight and squeeze the spring clip tabs then GENTLY push the lamp through the insulator only enough to clear the groove from the spring clip.

Repeat this for the other side of the lamp.
DO NOT STRESS OR BEND THE LAMP IT WILL BREAK
Carefully grab the lamp at both ends and remove it through the insulators.

**IMPORTANT**

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

Handle the lamp with extreme care.  
*Broken or Damaged lamps are NOT COVERED UNDER THE WARRANTY!*

Attach the line cord to the left control handle with the velcro strap attached to the line cord. This prevents the line cord from being disconnected from the machine.
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. Carefully straighten the wires on each end of the lamp.

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).
Install the lamp by threading lamp wires through the feed through insulators. The spring slips must be centered in the grooves in the lamp ends!

Attach the wires to the electrical terminals as shown. Tighten the two nuts to secure the lamp wires to the terminals. The nuts should be tight but not over-tight!

After the lamp electrical connection nuts have been tightened, dress the 2 lamp wires as shown.

Replace the front cover by inserting the three top tabs into the mating slots and turning the two ¼ turn fasteners clockwise until latched.

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!_

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 dirty air intake filter or 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!
Reflector Liner Inspection & Replacement

The reflector liners are subject to dirt and chemical residue from the coatings and must be inspected daily. A dirty reflector liner can reduce machine performance and decrease cure speeds by up to 75%.

A dirty reflector liner can be cleaned by using a high quality glass cleaner. Use a glass cleaner that does not contain silicone. To clean the reflector liners, spray the glass cleaner on a clean, lint free cloth and wipe the liners.

_Do Not Spray The Reflector Liners! Spray The Cloth!

Spraying the reflector liners will get over-spray on the lamp. Less UV means slower cure speeds. Time is money! Cure fast!

WARNING

Disconnect power to the machine prior to inspecting or changing reflector liners. Be sure the lamp and associated parts are cool.
The reflector liners require regular replacement. Remove the two screws (6-32x¼”) holding the short heat shields on each end of the irradiator. Remove the four screws (#8Bx½&3/4”) holding the end grills on each end of the irradiator. Remove the light shield by first removing the rear halves, then sliding the shield out one side as shown. Discard the old light shield if it is damaged. Slide one reflector liner out a a time by pushing on one end and pulling on the other. Repeat for the other reflector liner. Remove the masking film protecting the reflector surface of both liners. Using gloves provided with the reflector liners, slide in one of the reflector liners at a time, being sure that the relief notches are facing the lamp.

Replace all heat shields screws and covers.
IR Shields

Each system has two IR Shields, one in the front and one in the rear of the irradiator. If they become damaged, remove one of the end grills and slide the old IR Shields out, then replace with new ones.

Reinstall end grill.
Light Shield Inspection

The light shield requires daily inspection to be sure it has no tears, rips, heat damage, etc.

Replacing the Light Shield

The silicone light shield is subject to wear and deterioration from heat, UV light and physical damage and requires regular inspection and replacement.

Adjust the angular adjustment of the control handle to about 45° then lay the machine back on the handle.

Remove the two screws (6-32x¼”) holding the short heat shields on each end of the irradiator.
Remove the four screws (#8B) holding the end grills on each end of the irradiator.
Remove the old light shield by first removing the rear halves, then sliding the shield out one side as shown. Discard the old light shield!

**Light Shield Replacement**

Carefully slide the new light shield through the front groove in the irradiator so it is centered from left to right. Carefully slide each end of the light shield in the rear slot of the irradiator so that the two ends meet. The seam is in the rear.

Helpful hint; Apply a small amount of “talc” to the top bead of the silicone strip, see blue arrow. This helps the silicone slide in the groove.

Replace all heat shields, screws, and covers.
Transporting To Job Site

Collapse the handle and tighten. The Tiger may be lifted by this handle as shown:

**IMPORTANT**

Extreme care must be taken not to damage lamp inside irradiator.

Do not lift in this area, keep hands and fingers out!
Circuit Breaker Location

MACHINE CIRCUIT BREAKER LOCATION

Diagnostic Port Location

There is a USB diagnostic port located on the rear of the machine. This port is for authorized service personnel equipped with appropriate diagnostic equipment.

MACHINE USB DIAGNOSTIC PORT LOCATION
The Use Of Extension Cables

The machine is supplied with an appropriate 6’ line cord. If a longer cord is required, use the following chart to determine the appropriate extension cable wire size.

Wire gauge chart

<table>
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<th>LENGTH (FEET)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
<th>120</th>
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<tbody>
<tr>
<td>WIRE (AWG)</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>12</td>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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</table>

**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.
Rear Caster Lubrication

The machine has two rear swivel casters that require occasional lubrication. Use a light machine oil (one drop only on each side of the axle). Do not over oil, if it gets on the wheel it can affect coating performance.
## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>V</th>
<th>A</th>
<th>Ø</th>
<th>HZ</th>
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<tbody>
<tr>
<td>65075</td>
<td>TIGER 12-1700S</td>
<td>100-250</td>
<td>15</td>
<td>1</td>
<td>50/60</td>
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<td>11045</td>
<td>Spare Lamp TIGER 12</td>
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<td>65078</td>
<td>TIGER 14-2000S</td>
<td>100-250</td>
<td>15</td>
<td>1</td>
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