Loctite® 100W UV Curing Wand System
Part Number 1377200
# TABLE OF CONTENTS

1. PLEASE OBSERVE THE FOLLOWING.................................................................................................................................3
   1.1 EMPHASIZED SECTIONS ........................................................................................................................................3
   1.2 ITEMS SUPPLIED ................................................................................................................................................3
   1.3 FOR YOUR SAFETY ...........................................................................................................................................3
   1.4 FIELD OF APPLICATION, (INTENDED USAGE) .................................................................................................4

2. DESCRIPTION .................................................................................................................................................................4
   2.1 THEORY OF OPERATION .......................................................................................................................................4
   2.2 OPERATING ELEMENTS AND CONNECTIONS, REFERS TO FIGURE 1 ..............................................................5

3. TECHNICAL DATA............................................................................................................................................................7
   3.1 ENERGY REQUIREMENTS ..................................................................................................................7
   3.2 DIMENSIONS ..............................................................................................................................................7
   3.3 UV OUTPUT CHARACTERISTICS ........................................................................................................7

4. INSTALLATION ..............................................................................................................................................................8
   4.1 SPACE REQUIREMENTS ........................................................................................................................................8

5. OPERATING THE UNIT ....................................................................................................................................................8
   5.1 INSERTING AND REMOVING THE LIGHT GUIDES .................................................................................................8
   5.2 POWERING UP ..................................................................................................................................................9
   5.3 ADJUSTING DUAL WAND FOR MAXIMUM OUTPUT ..........................................................................................10
   5.4 USING FOOT SWITCH / REMOTE DEVICE ..................................................................................................11

6. CARE AND MAINTENANCE .........................................................................................................................................12
   6.1 REPLACING THE LAMP MODULE ........................................................................................................13

7. TROUBLESHOOTING ...................................................................................................................................................14

8. DOCUMENTATION .........................................................................................................................................................15
   8.1 WIRING DIAGRAM ........................................................................................................................................15
   8.2 PIN CONNECTIONS ........................................................................................................................................16
   8.3 REPLACEMENT PARTS AND ACCESSORIES ..................................................................................................16

9. WARRANTY .................................................................................................................................................................17
1. Please Observe the Following

1.1 Emphasized Sections

WARNING!
Refers to safety regulations and required measures that protect the operator or other persons from injury or danger to life.

Caution!
Emphasizes what must be done or avoided so that the unit or other property is not damaged.

Notice:
Gives recommendations for better handling of the unit during operation or adjustment, as well as for service activities.

1.2 Items Supplied
1 100W UV Curing Wand System
1 Pair of UV protective glasses
1 Foot switch
1 Users manual
1 Power cord

1.3 For Your Safety
For safe and successful operation of the unit, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility. Be sure to retain this manual for future reference.

WARNING!
Always wear the included UV safety glasses or glasses that conform to ANSI Z87.1/CSA Z94.3 when operating the unit.

WARNING!
Always cover hands, face and other parts of the body that may be exposed to UV light.

WARNING!
Never look into the end of the light guide.

WARNING!
Never open the shutter mechanism without the light guide installed.

WARNING!
Never remove the cover of the unit without first switching the power off and unplugging the power cord.

WARNING!
Damage to the power cord or the housing can result in contact with live electrical parts. Check the power cord and housing before each use. If the power cord or unit is damaged, do not operate.

The unit may be repaired only by a Loctite® authorized service technician.
1. Please Observe the Following (continued)

Caution!
Never turn the unit on without the lamp connected to the power supply.

Caution!
The energy emitted from the end of the light guide can heat any surface that it is directed at. Care must be taken to determine the proper offset distance and exposure time.

Caution!
Turning the lamp on and off frequently will cause the UV output of the lamp to decline at a faster rate. It is recommended that the unit be left on during breaks and short down times.

Caution!
Avoid making sharp bends in the light guide, as this will cause a loss of UV energy or possibly cause permanent damage. To prevent permanent damage, the minimum bend radii are 2.4 inches for a single light guide and 1.6 inches for a dual light guide.

1.4 Field of Application, (Intended Usage)
This Loctite® 100W UV Curing Wand System is designed for use with Loctite® products that cure when exposed to ultraviolet light produced by the unit. The UV energy is directed towards the product through a liquid filled light guide that is ordered separately. Several configurations of light guides are available from Loctite®, including single and dual ended types. The unit is also capable of interfacing with an external relay or PLC circuit.

2. Description

2.1 Theory of Operation
When the unit is switched on, electrical power is immediately supplied to the lamp and ignition should occur within several seconds. It will take several minutes for the lamp to reach full power. Curing takes place when the shutter is opened, allowing UV light to be directed from the end of the liquid filled light guide to the adhesive. The curing parameters, (UV irradiance and exposure time) must be determined before use. The UV irradiance at the adhesive surface can be varied by adjusting the distance of the light guide from the bond. If the light guide is moved to within ½ inch of the adhesive surface, vapors from the curing process may build up on the end of the light guide, reducing the UV intensity. The exposure time required to complete the curing process depends primarily on the UV irradiance and the properties of the adhesive product. The timed exposure cycle starts by momentarily engaging the footswitch or when an externally operated device such as a PLC makes a relay closure across pins 1 and 9 of the nine pin footswitch connection on the rear panel. In the manual operating mode, the shutter remains open for as long as the footswitch or alternate external device maintains contact between pins 1 and 9. The hour meter, located on the front panel, records the total hours of operation accumulated by the lamp. UV lamps undergo a gradual reduction in UV output over time and it is recommended that the lamp output be monitored on a regular basis. The Loctite® 98720 UV Spot Radiometer (P/N: 1079258) is designed for use with the 100W UV Curing Wand system.
2. Description (continued)

Turning the lamp on and off frequently will speed up the degradation process, therefore, it is recommended that the unit be left on during short work breaks such as lunch and other idle periods.

Notice: The hour meter should only be reset when a new lamp is installed.

2.2 Operating Elements and Connections, refers to Figure 1

1. Power Inlet Module
   Connect line cord to power inlet module.

2. Power Switch

3. Foot Switch Connection
   Standard 9 pin “D” connector for foot switch or other external switch.

4. Light Guide Receptacle
   Is used to retain the light guide.

5. Intensity Adjuster Knob Light Guide Receptacle
   Is used to adjust the UV intensity output.

6. LCM Display
   Is used to display the system information.

7. Lamp On + Shutter Open Indicator
   The green indicator will ignite when the lamp is ON and the shutter is OPENED. The indicator is to confirm that the system is in operating (with UV output).

8. Right Arrow Button
   Used to move the cursor on the LCM display one step to right in “Setting” mode.

9. Up Arrow Button
   Used to increase the number on the highlighted digit on the LCM display in “Setting” mode.

10. Mode Button
   Used to switch the operating mode of the system. The mode sequence is “Setting Mode” > “Auto Mode” > “Manual Mode” > “Accumulate Time” > “Bulb Life Time” > “Turn On Times for system”
2. Description (continued)

Figure 1.
3. Technical Data

3.1 Energy Requirements
Power Supply: 115/240 VAC, 50/60 Hz.
Power Input: 140 Watt
Fuses: 2A/115V (T2A250V), 1A/240V (T1AL250V)

3.2 Dimensions
Width: 330 mm
Depth: 280 mm
Height: 160 mm
Weight: 9.5 kg
Light Guides (supplied separately)
  Single end light guide, part 983677 – 1000mm long x 5mm diameter
  Single end light guide, part 983800 – 1500mm long x 5mm diameter
  Dual end light guide, part 983684 – 1000mm long x 3mm diameter

3.3 UV Output Characteristics
UV Bulb: Mercury Short Arc Lamp 103Watt, 20 – 25VDC
Typical output: 8 - 11 W/cm² (using 5mm x 1000mm lightguide)*
UV Spectral Range: 300 – 500 nm
Primary Peak: 365 nm
Secondary Peaks: 315, 335 nm
Intensity Adjustment Range: 30% - 100%

*Exact output measurement is dependent on the brand and calibration method of the meter used, as well as the condition and straightness of the light guide.
4. Installation

4.1 Space Requirements

A space of 340mm wide x 400mm deep x 170mm height is required. It is important to have at least 200mm of space behind the unit to insure proper airflow. The Loctite® 100W UV Curing Wand System only needs to be connected to either 120V/60Hz or 230V/50Hz outlet to operate.

**Caution!**
Do not block the intake and exhaust fans located on the back of the housing.

**Caution!**
The unit should always be operated with the rubber support feet resting on a flat surface.

**Caution!**
Do not operate with the unit resting on its side or at an angle greater than 15 degrees, front to back.

5. Operating the Unit

5.1 Inserting and Removing the Light Guides

**Caution!**
Be sure to remove the plastic end caps before attempting to use the light guide.

**Caution!**
If the free end of the light guide is secured at a fixed location, sharp bends should be avoided as it will cause a decrease in UV power.

**Caution!**
Never pull on the jacketing portion of the light guide. During installation or removal, grasp the light guide on the strain relief nearest the input end of the light guide.

- Installing single light guide - Insert the large end of single light guide into the light guide receptacle located on the right side of the front panel. Push light guide firmly until it is fully engaged. Then tighten the screws on the receptacle to lock the light guide.
- Installing dual light guide – Insert the dual wand light guide into the light receptacle. Use the set screws to secure the light guide (do not over tighten). See section 5.3 “Adjusting Wand for Maximum Output.”

**Notice:**
It is important that the rotational position of a dual light guide be set to maximize the UV output for each wand. This setting is specific to each curing unit and light guide (See section 5.3 - Adjusting Dual Wand).
5. Operating the Unit (continued)

5.2 Powering Up

1. Switch the main power ON. The power switch is on the lower right of the rear panel.
2. The LCM display on the front panel will come on and flashing “Warming Up” text on it.
3. Allow approximately three minutes for the system warm up. When the system is ready, the system will show “Setting  s” on the LCM display. *
4. Set the operating mode by using the “Mode Switch”.
   Setting Mode – Set the exposure time in “Auto Mode”. Use the “>” key to set the time digits and the “^” key to set the desired exposure time.
   Auto Mode – Engage the footswitch to start the cycle. The UV exposure will begin immediately and continue until the system times out or engage the footswitch again.
   Manual Mode – Engage the footswitch to start UV exposure and hold until the curing cycle is complete. When footswitch released, the exposure will end immediately.
   Accumulate Timer – To indicate the total operated time of the system. The LCM display will show : (hour : minute). The timer CANNOT be reset.
   Bulb Life Timer – To indicate the operated time of the UV bulb. The LCM display will show : (hour : minute). The timer can be reset, see section 6.1 “Reset the Bulb Life Timer”.
   Turn On Times for System – To indicate the number of times of power on/off.
5. UV exposure cycles may be initiated by using an externally operated device, such as a PLC controlled relay in place of the footswitch.

* If possible, allow the system to warm up for extra 5 minutes for the lamp to reach full power.

Notice:
Avoid shutting the main power off for brief periods of time. Frequent start-ups will cause the lamp to decay at an accelerated rate. If the system is shut down, wait a minimum of ten minutes before restarting. Once the lamp is ignited, allow it to operate for a minimum of fifteen minutes before turning it off.
5. Operating the Unit (continued)

5.3 Adjusting Dual Wand for Maximum Output

**Objective**
Balance the UV output from the two light guides of Loctite® P/N 984589.

**Tools Needed**
3/32 inch hex key
UV Radiometer – Loctite® 98720 UV Spot Radiometer, P/N: 1079258
5. Operating the Unit (continued)

Setup

1. Insert the input end of the light guide into the light guide receptacle/collar assembly gently pushing it as far forward as it will go. Tighten the set screw on to the light guide.
2. Turn on electric power to the unit.
3. Set shutter timer to 2 seconds.
4. Insert one of the light guide ends into a Loctite® 98720 UV Spot Radiometer (P/N: 1079258).
5. Press the radiometer start switch.
6. Actuate the foot switch to open the shutter.
7. Release the radiometer start switch while the shutter is still opened.
8. Read and record the radiometer reading.
9. Position the second light guide in the radiometer.
10. Press the radiometer start switch.
11. Actuate foot switch to open shutter.
12. Release the radiometer start switch while the shutter is still opened.
13. Read and record the radiometer reading.
14. Compare the two radiometer readings.

15. If the lower reading is equal to or greater than 90% of the higher reading, the dual wand is balanced.

16. If the lower reading is less than 90% of the higher reading, loosen the set screw and rotate the light guide a small increment around the light guide receptacle. Use the set screw to secure the light guide in that position.
17. Take and compare another set of radiometer readings.
18. Continue until the lower reading is equal to or greater than 90% of the higher reading.
19. Tighten set screw to lock the input end of the dual wand in position.

Notice:
If a radiometer is not available, it is recommended that Loctite® Service be contacted at 1-800-LOCTITE (1-800-562-8483) to insure optimum performance when installing a new dual ended light guide.

5.4 Using Foot Switch / Remote Device

The Loctite® 100W UV Curing Wand System can also be actuated using a foot switch or by external devices. The foot switch connection is made up of a 9 pin D connector. Making a dry-contact relay closure across pins 1 and 9 can actuate the unit.
6. Care and Maintenance

Notice:
It is recommended that the UV output from the lamp be monitored regularly using a Loctite® 98720 UV Spot Radiometer (P/N: 1079258). If a radiometer is not used to monitor the lamp, it is recommended that the lamp be replaced when the hour meter (can be checked in “Bulb Life Time” mode), indicates 1,000 hours of operating time has elapsed. It is normal for the lamp output to slowly decline over operating time, However, the effective life of the lamp will decrease significantly faster if it is turned on and off frequently.

Caution!
It is recommended that the end of the light guide be positioned no closer than ½ inch from the Loctite® product being cured. The heat transmitted by the lamp can adversely affect the properties of the cured product or possibly cause damaged to the part surface.

Notice:
Vapors from some products may gradually accumulate on the end of the light guide, reducing the UV output. It should be inspected regularly and cleaned as necessary using isopropyl alcohol and a soft, clean cloth.

Caution!
Avoid placing sharp bends in the light guide. This reduces the UV output and may permanently damage the light guide. If the light guide is mounted on a fixture, secure it by the metal exit fitting and not the flexible plastic section.

Notice: The intake and exhaust fan filter elements should be replaced as needed to insure proper cooling of the power supply and UV lamp assembly. They should be inspected routinely.

6.1 Reset the Bulb Life Timer:

1. This is typically done after a new bulb has been installed. The unit should be with the power switch in the OFF position.
2. Press the buttons “>” and “Mode” on the front panel at the same time.
3. While holding the buttons in step 1, turn the (main) power switch on the rear of the unit to ON.
4. Key in the password “1211”. Then “PASSWORD OK” will be showed to indicate the system works normally.
5. Press the button “Mode”.
6. Wait for several seconds and check if the Bulb Life Timer has been reset or not.

Notice: If retrying the above procedure but does not work, Please contact Loctite® Service at 1-800-LOCTITE (1-800-562-8483).
6.2  Replacing the Lamp Module

! **Caution!**
Do not touch the lamp module reflector or the lamp. Contaminants from hands will create “hot spots” and cause the module to fail prematurely. If either are accidentally touched, carefully wipe them with a clean, soft cloth and isopropyl alcohol.

1. Switch the power off and unplug the unit.
2. Allow several minutes for the lamp to cool.
3. Remove the two screws from the right side of the housing and lift off the lamp housing cover.
4. Disconnect the lamp lead by separating the Male/Female connector on the lamp.
5. Remove the lamp/reflectors assembly from the mounting block.
6. Install the new lamp module.
7. Be sure the lamp is flush in the mounting hole.
8. Reconnect the power leads.
9. Replace the housing cover.
10. Reset the “Bulb Hours Timer” to zero, see section 6.1 “Reset the Bulb Life Timer”.

antanamo: Step 10 should only be done when a new lamp is installed.

**WARNING!**
The UV lamp used in this unit contains a very small amount of mercury. Disposal of lamps should be done in accordance with state and local regulations.
## 7. Troubleshooting

<table>
<thead>
<tr>
<th>Type of Malfunction</th>
<th>Possible Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power does not come on</td>
<td>– No voltage present.</td>
<td>• Check wall circuit.</td>
</tr>
<tr>
<td></td>
<td>– Defective Fuse.</td>
<td>• Replace fuse.</td>
</tr>
<tr>
<td></td>
<td>– Defective Power Supply.</td>
<td>• Call 800-562-8483.</td>
</tr>
<tr>
<td></td>
<td>– Defective Switch.</td>
<td>• Call 800-562-8483.</td>
</tr>
<tr>
<td>The shutter mechanism can be heard opening and closing, but no light is emitted from the light guide.</td>
<td>– Lamp failure.</td>
<td>• Replace lamp module.</td>
</tr>
<tr>
<td></td>
<td>– Defective power supply.</td>
<td>• Call 800-562-8483.</td>
</tr>
<tr>
<td></td>
<td>– Defective shutter.</td>
<td>• Call 800-562-8483.</td>
</tr>
<tr>
<td>Power comes on but light is not emitted from the light guide. The shutter mechanism makes no noise when foot switch is engaged.</td>
<td>– Foot switch is not plugged in properly.</td>
<td>• Check foot switch connection.</td>
</tr>
<tr>
<td></td>
<td>– Defective foot switch.</td>
<td>• Call 800-562-8483.</td>
</tr>
<tr>
<td></td>
<td>– Defective shutter mechanism.</td>
<td></td>
</tr>
<tr>
<td>Lamp is on, but the fan does not operate</td>
<td>– Defective Power Supply.</td>
<td>• Call 800-562-8483.</td>
</tr>
<tr>
<td>Lamp does not light, but the fan is working</td>
<td>– Not enough cooling time.</td>
<td>• Allow the lamp to cool down for about 5 minutes</td>
</tr>
<tr>
<td></td>
<td>– The lamp is not connected</td>
<td>• Connect the lamp cord</td>
</tr>
<tr>
<td></td>
<td>– Lamp life has exceeded is useful life.</td>
<td>• Replace lamp module</td>
</tr>
<tr>
<td>All system functions appear to be operating, but the product does not cure completely, or if a radiometer is used to monitor the UV output, the power is low.</td>
<td>– UV output has declined due to normal lamp aging.</td>
<td>• Replace lamp module.</td>
</tr>
<tr>
<td></td>
<td>– End of light guide has an accumulation of product or other contaminants</td>
<td>• Clean light guide with soft cloth and isopropyl alcohol.</td>
</tr>
<tr>
<td></td>
<td>– Light guide is not fully inserted in receptacle.</td>
<td>• Check light guide connection.</td>
</tr>
<tr>
<td></td>
<td>– Light guide has exceeded is useful life.</td>
<td>• Replace light guide.</td>
</tr>
</tbody>
</table>
8. Documentation

8.1 Wiring Diagram
8.2 Pin Connections

8.3 Replacement Parts and Accessories

<table>
<thead>
<tr>
<th>Loctite Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>984818</td>
<td>Replacement Mercury Arc Lamp</td>
</tr>
<tr>
<td>983677</td>
<td>Single Light Guide, 5mm diameter x 1 meter long</td>
</tr>
<tr>
<td>983684</td>
<td>Dual Light Guide, 3mm diameter x 1 meter long</td>
</tr>
<tr>
<td>951681</td>
<td>Single Light Guide, 5mm diameter x 1.5 meters long</td>
</tr>
<tr>
<td>97210</td>
<td>UV Safety Glasses – Gray</td>
</tr>
<tr>
<td>98452</td>
<td>UV &amp; Visible Light Safety Glasses – Orange</td>
</tr>
<tr>
<td>97201</td>
<td>Foot Switch Assembly</td>
</tr>
<tr>
<td>1079258</td>
<td>Loctite® 98720 UV Spot Radiometer</td>
</tr>
<tr>
<td>951639</td>
<td>Multiple Wand Adapter / Balancing Kit</td>
</tr>
</tbody>
</table>
9. Warranty

For Loctite® 100W UV Curing Wand System

Henkel expressly warrants that all products referred to in this Instruction Manual for Loctite® 100W UV Curing Wand System (hereafter called “Products”) shall be free from defects in materials and workmanship. Liability for Henkel shall be limited, at its option, to replacing those Products which are shown to be defective either in materials or workmanship or to credit to the purchaser the amount of the purchase price thereof (plus freight and insurance charges paid therefore by the user). The purchaser’s sole and exclusive remedy for breach of warranty shall be such replacement or credit.

A claim of defect in materials or workmanship in any Products shall be allowed only when it is submitted to Henkel in writing within one month after discovery of the defect or after the time the defect should reasonably have been discovered and in any event, within twelve months after the delivery of the Products to the purchaser. No such claim shall be allowed in respect of Products which have been neglected or improperly stored, transported, handled, installed, connected, operated, used or maintained or in the event of unauthorized modification of the Products including, where products, parts or attachments for use in connection with the Products are available from Henkel, the use of products, parts or attachments which are not manufactured by Henkel.

No Products shall be returned to Henkel for any reason without prior written approval from Henkel. Products shall be returned freight prepaid, in accordance with instructions from Henkel.

NO WARRANTY IS EXTENDED TO ANY EQUIPMENT WHICH HAS BEEN ALTERED, MISUSED, NEGLECTED, OR DAMAGED BY ACCIDENT, OR IF THE SYSTEM USED TO DISPENSE ANY LIQUID MATERIAL OTHER THAN LOCTITE® PRODUCTS.

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