



## AIR CLEANERS/ FILTERS

505,031M  
2005

## HEALTHY CLIMATE® GERMICIDAL LIGHT

### HOMEOWNERS MANUAL & DEALER INSTALLATION INSTRUCTIONS FOR HEALTHY CLIMATE® MODELS UV-500, UV-1000, UV-2000

#### General

The Healthy Climate® germicidal light emits ultraviolet (UVC) energy, which has been proven effective in reducing microbes such as viruses, bacteria, yeasts, and molds.

UVC germicidal lights greatly reduce the growth and proliferation of mold and other bioaerosols (bacteria and viruses) on illuminated surfaces.

Germicidal lights are NOT intended to be used for removal of active mold growth. Existing mold growth must be appropriately removed PRIOR to installation of the germicidal light.

#### Shipping and Packing List

##### Package 1 of 1 contains:

- 1 - Healthy Climate® germicidal unit
- 1 - UVC lamp (UV-2000 contains 2 lamps.)
- 1 - Power cord
- 1 - Remote door interlock switch with 5 ft(1.5m) power cord (UV-2000 Only)
- 1 - Self-adhesive gasket/template
- 5 - Sheet metal screws with lockwashers
- 1 - Installation instructions
- 1 - Homeowners IAQ Guide
- 1 - ATTENTION! warning sheet
- 1 - Warranty sheet
- 2 - UVC Danger labels

#### Required Tools and Unique Supplies

- Electric drill
- Phillips screw bit or screwdriver
- 1" - 1.5" (25mm-38mm) holecutter
- 1/4" (6mm) drill bit
- Cotton cloth and gloves
- Galvanized flexible elbows will be needed for any take-offs closer than 6 ft(1.8m) when flex duct is used.

### **⚠ DANGER**

#### Ultraviolet (UVC) Radiation Hazard.

Any exposure will cause significant eye damage and may cause skin damage.

Do not look into UV light source. Wear UV eye and skin protection. Access panels must be in place during appliance operation.

### **⚠ WARNING**

#### Potential Mold Spore Release.

Application of UVC lights to existing mold growth can cause respiratory irritation and allergic symptoms.

Do not use UVC lights where active mold growth exists. Remove active mold growth from surfaces prior to operation of UV lights.

### **⚠ WARNING**

#### Risk of property damage, injury, or death.

Installation, adjustments, alterations, service and maintenance must be performed by a qualified service technician.

### **⚠ WARNING**



#### Electric shock hazard.

Can cause injury or death.

Disconnect all remote electrical power supplies before servicing.

Access panels must be in place during the appliance operation.

This UVC light appliance emits a light that may be attractive to children. If you have children in your household, make certain that they are not exposed to or allowed to look at the UVC light. Consider having a qualified service technician install a Remote Door Interlock Switch (64X53) as an accessory to your Air Handling System. UVC light should not be "seen" after the UV Light appliance is installed.

## Dimensions/Specifications

### DIMENSIONS:

Model UV-500 - 11" L x 7" W x 2.5" H

(279mm x 178mm x 63mm)

Model UV-1000 - 11" L x 7" W x 2.5" H

(279mm x 178mm x 63mm)

Model UV-2000 - 17" L x 7" W x 2.5" H

(432mm x 178mm x 63mm)

All models use 16"(406mm) lamp lengths.

### ELECTRICAL:

120 volt, 250V/3 Amp fuse, detachable 6' (1.8m), three-prong, power cord.

### POWER CONSUMPTION:

Model UV-500 - 55 Watts (Magnetic Ballast)

Model UV-1000 - 56 Watts (Electronic Ballast)

Model UV-2000 - 108 Watts (Electronic Ballast)

### DEVICE OPERATING TEMPERATURE:

45° F - 150° F (7° C - 65° C) Outside of duct.

### ACCESSORIES:

Remote Door Interlock Switch (Standard with UV-2000. Optional for UV-500 and UV-1000. Part No. 64X53.)

### LISTINGS:

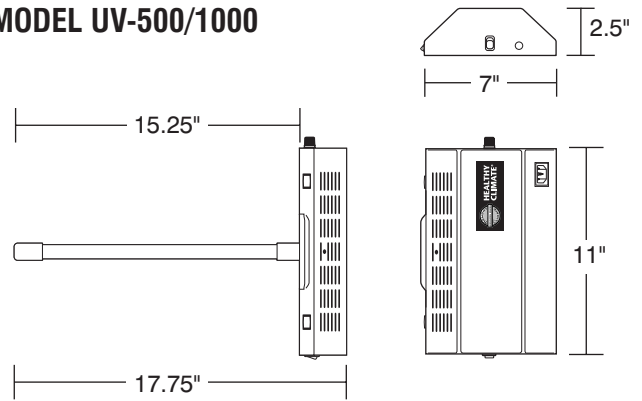
FIFRA (Federal Insecticide Fungicide Rodenticide Act)

- File No. 73316

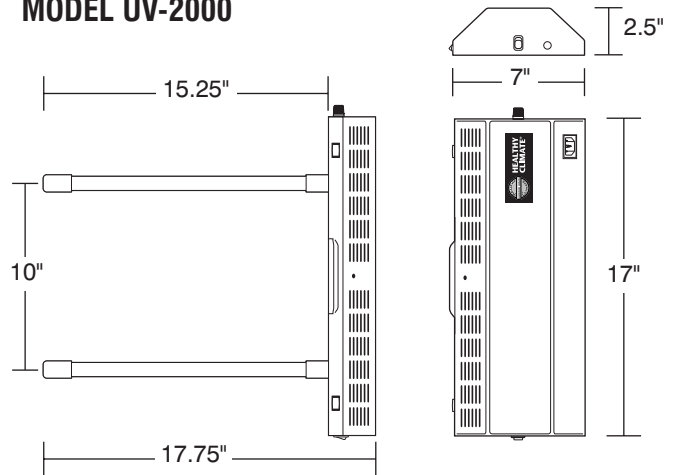
U.S. Patent Nos. 5,334,347, 5,817,276, 6,245,293, 6,267,924, 6,280,686, 6,313,470, 6,627,000, 6,539,727, 6,932,494, 6,550,257.

Specifications subject to change without notice.

### MODEL UV-500/1000



### MODEL UV-2000

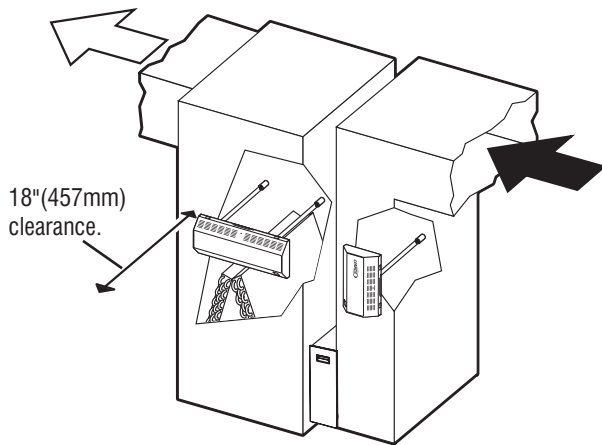


## Clearances and Requirements

### SELECTING AN INSTALLATION LOCATION

This device has been designed to fit into a wide variety of locations. Choose a location with enough clearance (see Fig. 1) to allow the UVC lamp to be removed and replaced easily. Be sure to choose a location that is easy to access for maintenance and that has a 120V power supply nearby.

Install the device in the return air duct, at the furnace, near the HVAC coil, or in the supply air duct. Duct depth must be at least 16" (406mm) to allow for the lamp length. Ensure no plastic parts or wire insulation are exposed to UVC light. **Do not install in a location that permits viewing of UVC light during service and maintenance.**



**Fig. 1** Install the device near a cooling coil to reduce mold and bacteria in the coil fins, drain pans, and surrounding surfaces.

### SPECIAL INSTALLATION NOTES:

- Do not install in closet return applications.
- Do not install in rooftop/outdoor applications.
- Do not expose wiring or plastic parts to UVC light.
- Do not install device with vents facing down.
- Do not install device beneath a humidifier or source of water.
- If the UVC device is installed near an air filter, check with filter manufacturer for UVC resistance properties.

The Healthy Climate® germicidal light must be installed a minimum of 6 ft(1.8m) away from plastic materials: filter material, cooling drain pans, flexible duct, etc., which are in direct line of sight .

Flexible duct installation with less than 6 ft(1.8m) clearance between the light and the flex duct must have a 90 degree metal elbow installed to protect the duct from direct UVC light exposure.

If the plastic is not in direct line of sight, a minimum of 3 ft(.9m) is required.

If space limitation prevents the installation from meeting the above requirements, all plastic material, cooling drain pans, etc., must be protected from direct UVC light using aluminum foil tape.

### ⚠ WARNING



#### Fixture Overheating Risk.

Improper installation may cause fixture to overheat and will violate ETL and UL1598 classification.

Do not install appliance with vent holes facing downward.

### ⚠ WARNING

#### Potential Risk of Fire.

Dust, lint and other debris may cause fire if allowed to come in contact with illuminated UVC lamp.

Remove any dust, lint or other debris from lamps and surrounding duct system.

### ⚠ CAUTION

#### Potential Risk of Degradation of Materials.

UVC light may damage plastics and rubber materials. May cause fabric discoloration.

Avoid UVC light exposure to plastic drain pans, wire insulation, flex duct or other plastic/rubber components.

## Installation

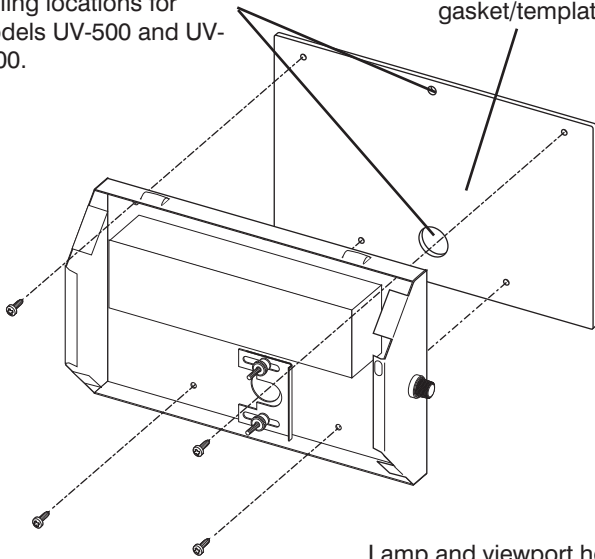
### INSTALLING THE DEVICE (Fig. 2)

Draw a level line positioned where the top of the device is to be located. Align the top of the self-adhesive gasket to the duct. Use the gasket as a template for drilling the viewport and lamp holes. Two lamp holes are required for Model UV-2000. Use a drill bit or holecutter to make the 1"(25mm) lamp hole(s) required. Use a 1/4"(6mm) drill bit for drilling the viewport hole.

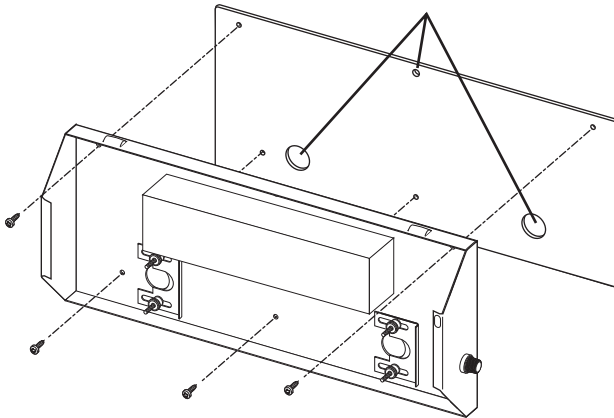
Remove the cover of the device and attach the base to the gasket and duct using included sheet metal screws. For installations on duct-board use appropriate mounting method.

Lamp and viewport hole drilling locations for Models UV-500 and UV-1000.

Self-adhesive gasket/template.



Lamp and viewport hole drilling locations for Model UV-2000.



**Fig. 2** Attach self-adhesive gasket to the duct, drill required lamp and viewport holes, and secure device to the duct using included sheet metal screws.

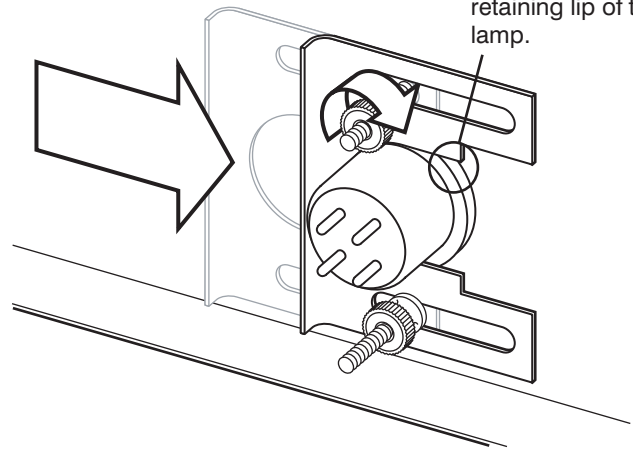
### INSTALLING THE LAMP(S) (Fig. 3)

Once the base has been installed, insert the lamp and slide the retaining bracket over the retaining lip of the lamp. The lamp seals against the base of the unit with an o-ring which prevents air leaks.

The slide bracket is tightened with two knurled nuts. Tighten each nut until the lamp is securely fastened.

**Note:** Do not damage wires on outside of lamp(s) during installation.

Be sure bracket slips over the retaining lip of the lamp.



**Fig. 3** Insert lamp and fasten with retaining bracket.

### ⚠ CAUTION

#### Sharp Edges Hazard.

Equipment sharp edges can cause injuries.  
Use protective gloves when grasping equipment edges.

### ⚠ CAUTION

#### Lamp(s) Contain Mercury.

Ingestion or contact with mercury or mercury vapor is hazardous to your health.  
Take care when handling lamps. If lamp is broken, avoid contact with mercury.

### ⚠ NOTICE

Clean lamps prior to installation using a cotton cloth to remove dirt and fingerprints.  
Failure to clean lamp(s) could shorten the lamp(s) lifespan.

## Installation

### HARNESS CONNECTION (Fig. 4)

After the lamp has been installed, attach the wiring harness. Firmly push the harness connector onto the contacts of the lamp. If the connector does not go on easily, check the alignment of the lamp pins and the hole pattern. **Note: The connector pattern is not symmetrical. If the connector does not attach easily, rotate it 90 degrees and try again.**

Attach and close the cover to complete the installation. The device is now ready to be connected to 120V power and switched on. Verify operation by looking through the viewport. The lamp should be radiating a bright blue light. **Do not view the lamp directly.**

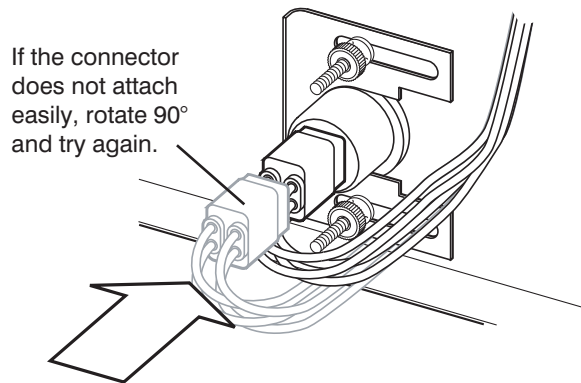


Fig. 4 Attach connector to lamp.

### INSTALL REMOTE DOOR INTERLOCK SWITCH

(Standard with UV-2000. Optional for UV-500, UV-1000.

Part No. 64X53.)

Mount the remote door interlock switch so that power to the device is automatically disconnected anytime the air handler access panel is opened.

1. Remove cap as shown in Fig. 5.

#### **⚠ DANGER**

**Ultraviolet (UVC) Radiation Hazard.**

**Any exposure will cause significant eye damage and may cause skin damage.**

**Do not look into UV light source. Wear UV eye and skin protection. Access panels must be in place during appliance operation.**

#### **⚠ WARNING**

**Electrical Safety Hazard.**

**Can cause injury or death.**

**Do not alter power cord. Any alteration is a violation of ETL and UL listing and will void the Lennox warranty.**

### REMOTE DOOR INTERLOCK SWITCH (cont'd)

2. Insert remote door interlock switch wire through hole. Secure wire with strain relief that is provided with the door interlock switch kit. Install male and female connector to remote door interlock switch wires and connect to UVC lamp.
3. Mount remote door interlock switch and actuator to access panel opening.
4. Check operation. Device should turn off when access panel is opened.

**Note:** Remote door interlock switch includes 5 ft(1.5m) 120V power cord with custom connectors. If device is installed more than 5 ft(1.5m) away from remote door interlock switch, field wiring will be required in accordance with national and local codes.

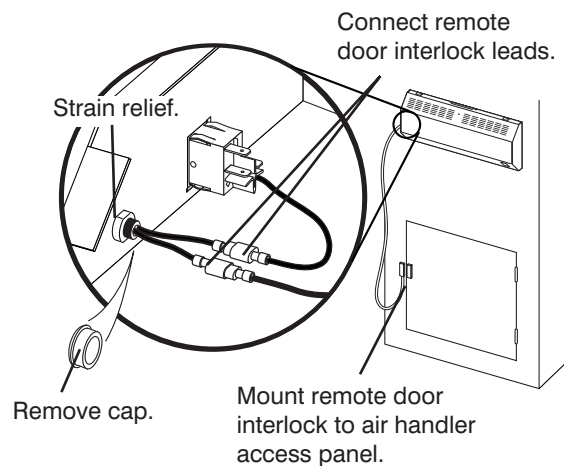


Fig. 5 Remote door interlock switch installation.

### DANGER LABEL APPLICATION

Install UVC Danger label to air handler access panel so it is clearly visible. Install the additional Danger label near location of potential exposure, if necessary.

**Note:** In areas where other Danger labels cannot be seen clearly and if exposure to the UVC light is possible in any other situation (e.g. when duct panel is removed), the additional enclosed Danger label must be installed in a visible location near the site where the exposure may occur.

#### **⚠ DANGER**

**Ultraviolet (UVC) Radiation Hazard.**

**Any exposure will cause significant eye damage and may cause skin damage.**

**Do not look into UV light source. Wear UV eye and skin protection. Access panels must be in place during appliance operation. Disconnect Power Cord from UV Light appliance before servicing the UV Light, the Air Handling Equipment or Duct System.**

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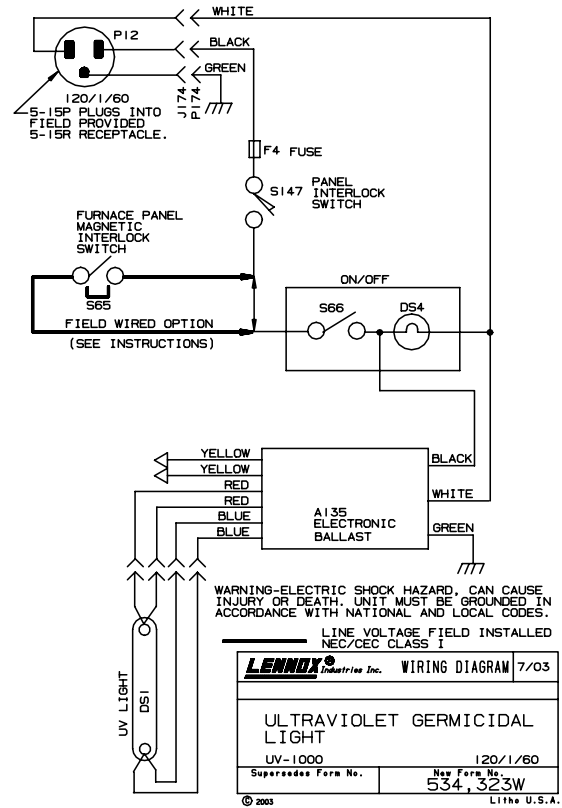
Fig. 6 Example of the Danger label.

# Installation

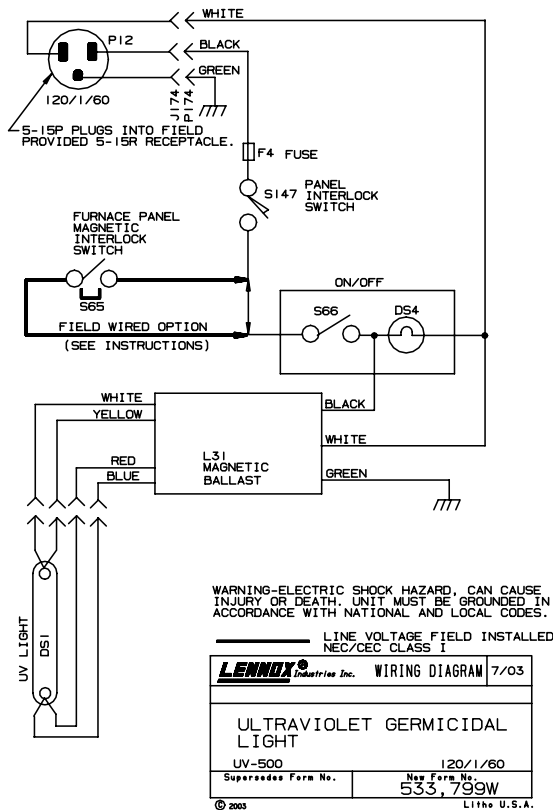
## Operation

For optimal performance, continuous operation of the UVC germicidal lamp and the air handler blower is recommended. IF continuous operation of the air handler is NOT selected, the UVC germicidal lamp CAN be operated continuously. Continuous operation of the air handler motor and UVC germicidal lamp allows maximum exposure of airborne bioaerosols to the UVC light. This also promotes maximum filtration of the air and prevention of thermal stratification (hot at the ceiling, cool on the floor).

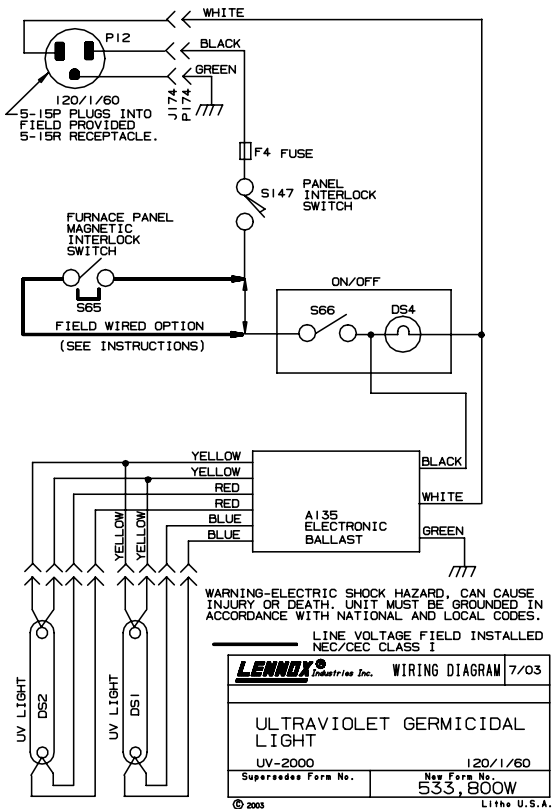
## Model UV-1000 Internal Wiring



## Model UV-500 Internal Wiring



## Model UV-2000 Internal Wiring





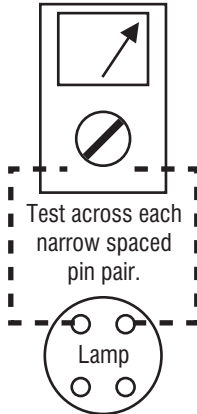
## Maintenance

For all maintenance, contact a qualified HVAC technician.

### IF THE LAMP DOES NOT ILLUMINATE

1. Check power cord for the presence of 120V.
2. Turn off power and remove access cover.
3. Check 3A fuse for conductivity. Replace fuse if necessary and determine the cause of the failure.
4. Check and ensure that the lamp connector is securely attached to the lamp.
5. Unplug the connector to the lamp. Check for resistance across each narrow spaced pair of lamp contact pins. Replace the lamp if an open circuit is found.
6. If steps 1 through 5 pass inspection then the ballast may be at fault. Replace the ballast.

Resistance Tester



### LAMP REPLACEMENT(Annually)

The lamp should be replaced annually even if it appears to be operating normally. UVC energy production diminishes over time.

1. Obtain the correct replacement lamp for your Healthy Climate® model.
2. Disconnect power to the device.
3. Open the cover of the device. *Allow lamp to cool 10 minutes before touching.*
4. Disconnect the lamp connector.
5. Unscrew the two knurled knobs of the lamp retaining bracket and slide the bracket away from the lamp retaining lip.
6. Carefully remove the lamp and replace it with the new lamp. Be sure to clean the lamp of dust and fingerprints prior to installation. See page 4.

## ⚠ DANGER

### Ultraviolet (UVC) Radiation Hazard.

Any exposure will cause significant eye damage and may cause skin damage.

Do not look into UV light source. Wear UV eye and skin protection. Access panels must be in place during appliance operation.

### LAMP REPLACEMENT(cont'd)

7. Slide the retaining bracket back in place and tighten knurled knobs.
8. Reconnect lamp connector.
9. Close the cover of the device and reconnect power.
10. Use the viewport to verify operation.

### FUSE REPLACEMENT

1. Unscrew the knob marked "Fuse" and remove fuse.
2. Install new fuse and screw knob back in place. Use a 250V/3 Amp fuse (1.25") only.

### LAMP DISPOSAL

Hg-LAMP CONTAINS MERCURY.

Manage in accord with disposal laws.

Refer to [www.lamprecycle.org](http://www.lamprecycle.org) or call 1-800-9-LENNOX.

## ⚠ WARNING

### Personal Burn Hazard.

Personal injury may result from hot lamps.

During replacement, allow lamp to cool for 10 minutes before removing lamp from fixture.

## ⚠ WARNING

### Potential Risk of Fire.

Dust, lint and other debris may cause fire if allowed to come in contact with illuminated UVC lamp.

Remove any dust, lint or other debris from lamps and surrounding duct system.

## ⚠ CAUTION

### Lamp(s) Contain Mercury.

Ingestion or contact with mercury or mercury vapor is hazardous to your health.

Take care when handling lamps. If lamp is broken, avoid contact with mercury.

### PROPER CLEAN-UP TECHNIQUE IN CASE OF LAMP BREAKAGE

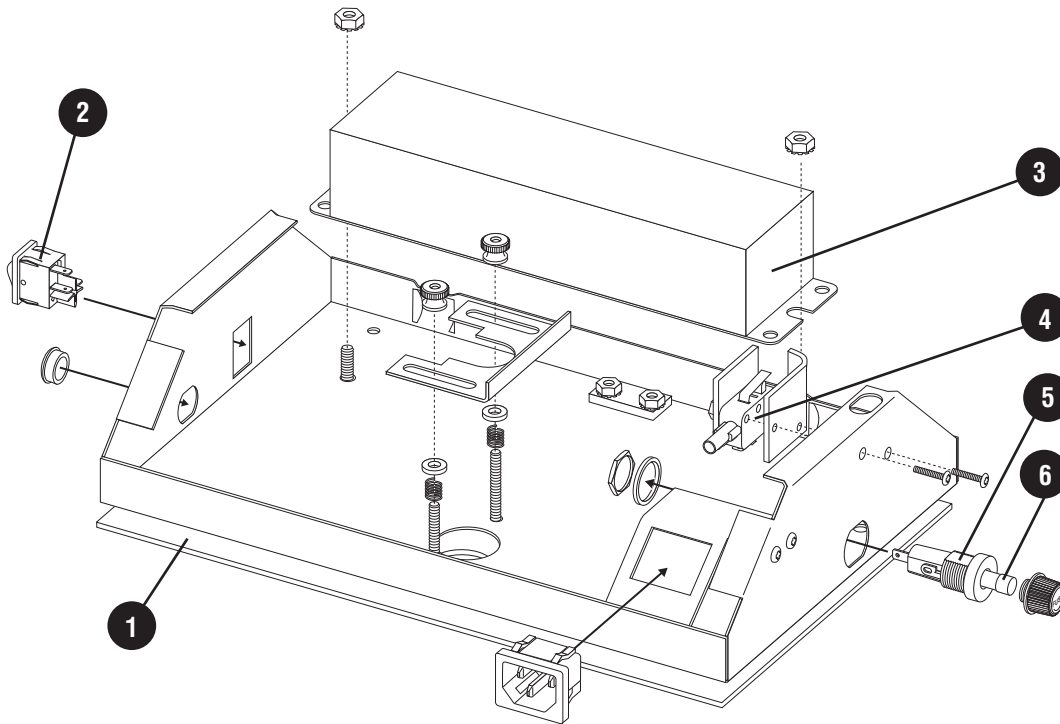
- Wear protective gloves, eyewear and mask.
- Sweep the broken glass and debris into a plastic bag, seal the bag, and dispose of properly. Contact your local waste management office for proper disposal.
- Do not use a vacuum cleaner. Do not incinerate.

## Replacement Parts

No.	Description	UV-500	UV-1000	UV-2000
1	Base Gasket/Template	64X42	64X42	64X64
2	Lighted On/Off Switch	64X50	64X50	64X50
3	Ballast	64X38	64X62	64X62
4	Cover Interlock Switch	64X45	64X45	64X45
5	Fuseholder	64X48	64X48	64X48
6	Fuse	64X49	64X49	64X49
<b>Replacement Parts Not Illustrated</b>				
	Complete Unit w/Lamp(s)	X4571	X4573	X4575
	UVC Replacement Lamp	64X36	64X56	64X56 <sup>1</sup>
	Lamp O-Ring	64X41	64X41	64X41
	Cover with Label	64X39	64X59	64X63
	Power Cord	64X47	64X47	64X47
	Remote Door Interlock Switch	64X53	64X53	64X53

<sup>1</sup> Model UV-2000 requires 2 replacement lamps.

Contact your local Lennox dealer to order replacement parts. For the Lennox dealer nearest you, dial 1-800-9-Lennox. Visit us at <http://www.Lennox.com>





## Installation

### CHECKLIST FOR COMPLETE INSTALLATION AND SAFETY ITEMS:

- All items were included in the shipping box and have been installed (see Shipping and Packing List).
- Danger label installed on door to air handling unit. (See Fig. 6)
- Additional Danger label installed, if necessary. (See Fig. 6)  
**Note:** If exposure to the UVC light is possible in any other situation (e.g. when duct panel is removed), the additional enclosed Danger label must be installed in a visible location near the site where the exposure may occur.
- Turn off room lights while the UVC germicidal light is operating and the access panels are in place. Make sure that blue light IS NOT visible through supply or return air grilles, holes in ducts, leaks around access panels, etc.) If blue light is visible, leaks around doors or panels must be sealed or UVC light must be repositioned so that no light is visible. **If it is not possible to completely avoid exposure to UVC light, device must be removed.**
- Explained to customer danger of viewing UVC germicidal light. "UVC light is like looking at the sun, you should not look at the sun and you MUST NOT look at the UVC light. Looking at the blue light can result in significant eye damage and exposure to it can result in skin damage. This UVC light appliance emits a light that may be attractive to children. If you have children in your household, make certain that they are not exposed to or allowed to look at the UVC light. Consider having a qualified service technician install a Remote Door Interlock Switch (64X53) as an accessory to your Air Handler System. UVC light should not be "seen" after the UV Light appliance is installed."
- Checklist has been filled out and left with homeowner.

All instructions and safety instructions have been followed and the checklist is completed.

Installation Technician Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Customer Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**This copy to be retained by customer.**



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**This copy to be retained by installing dealer.**