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Dallas, Texas USA

AIR CLEANERS/  
FILTERS

HEALTHY CLIMATE®

505,093M  
09/2007

**PureAir™ AIR PURIFICATION SYSTEM  
PHOTOCATALYTIC OXIDATION (PCO) TECHNOLOGY**

**INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR PureAir™ MODEL PCO-20P-2**

**General**

The PureAir™ air purification system helps to significantly reduce levels of airborne volatile organic compounds, cooking odors, common household odors, airborne dust particles, mold spores, and pollen in residential spaces. The PureAir™ air purification system includes a MERV 16 pleated filter, UVA lamps, and an insert that is coated with a titanium dioxide catalyst. As air enters the system, more than 95% of airborne particles and bioaerosols, such as mold and bacteria, ranging in size down to .3 microns, are captured by the pleated filter. Odors and chemicals continue through the system. The UVA lamps activate the catalyst on the insert. The catalyst combines with water vapor in the air to form hydroxyl radicals that destroy a percentage of the remaining odors and chemicals.

In laboratory & field tests, we found greater than 50% reduction in Total Volatile Organic Compounds (TVOC) in homes within 24 hours of initial installation and operation of the PureAir™ air purification system. When the system is first started, it may take up to 48 hours to reduce the airborne chemicals that have built up in your home over a long period of time. After that period, there will be a balance between chemicals emitted inside your home and chemicals removed by your PureAir™ air purification system. Please refer to the included Homeowners IAQ guide for other measures to improve indoor air quality.

The PureAir™ air purification system is NOT intended to be used for removal of active mold growth or continuous sources or high levels of chemicals in the air. For existing mold growth, the mold must be appropriately removed PRIOR to installation of your PureAir™ air purification system.

**Shipping and Packing List**

**Package 1 of 1 contains:**

- 1 - PureAir™ air purification system:
  - 1 - Metal rack, including cap and metal air strip seal
  - 1 - One piece slide-in assembly (Metal Frame and ballasts, with associated wiring.)
  - 1 - MERV 16, 4" pleated filter
  - 6 - Installed UVA lamps
  - 1 - Separately wrapped titanium dioxide insert
- 3 - Self-drilling serrated 5/16" hex head screws for mounting transformer/fuse assembly. (1 extra)
- 8 - 5/16" hex slotted head screws for mounting PCO rack to ResPak unit. (2 extra)
- 1 - Transformer/fuse assembly
- 1 - Installation and maintenance instructions
- 1 - Homeowners IAQ Guide
- 1 - Warranty certificate
- 1 - Registration card

**Unique Supplies** (Provided by installer.)

- Cotton gloves and cloth (to remove finger prints from lamps.)
- Sealant: Aluminum foil duct tape or water based mastic. (NOT silicone)

**⚠ NOTICE**

**Possible odor emissions.**

Odors may be present temporarily from chemical intermediates after initial start-up, painting, cleaning, remodeling, hobby activities, or similar activities, or after lamp replacement.


Some occupants may notice irritation or discomfort during this period.

If irritation or discomfort persists longer than 48 hours, contact your Lennox dealer.

**⚠ WARNING**

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

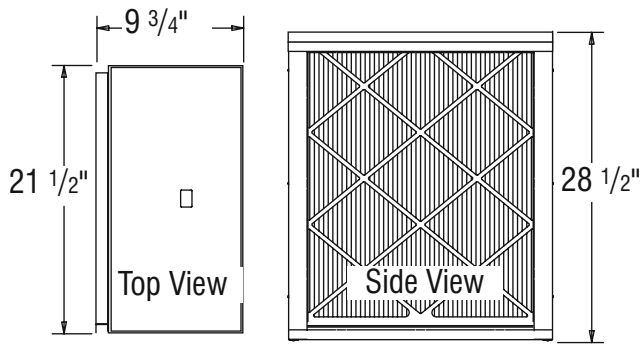
Installation, adjustments, alterations, service and maintenance must be performed by a qualified service technician.



**⚠ 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.

## Dimensions/Specifications



### DIMENSIONS:

Model PCO-20P: 21 1/2" L x 9 3/4" W x 28 1/2" H  
(546mm x 248mm x 724mm)

Shipping Box: 28 1/2" L x 20" W x 41" H  
(724mm x 508mm x 1041mm)

### WEIGHT:

Model PCO-20P: 79 3/4 lbs.(36 kg.) Installed  
83 lbs.(37 3/4 kg.) Shipping

### ELECTRICAL:

Transformer(Rated): Primary 208V/230V, 1.2 Amps,  
60 Hz. Secondary 115V.

Model PCO-20P: 120V, 1.2 Amps, 60Hz

### POWER CONSUMPTION:

Model PCO-20P: 144 Watts

### OPERATING ENVIRONMENT:

41°F - 140°F (5°C - 60°C) Outside of duct.  
10%-60% relative humidity. (PCO has optimal performance at 50% relative humidity.)

### PLEATED FILTER EFFICIENCY:

Minimum Efficiency Rating Value - MERV 16.  
Tested to ASHRAE Standard 52.2.



### LISTINGS:

ETL Safety Listing Report #3082884CHI-001,  
Conforms to UL STD 1598, Certified to CSA STD  
C22.2 NO.250.0

This device complies with FCC – CFR47 Part 18  
Consumer (Class B).

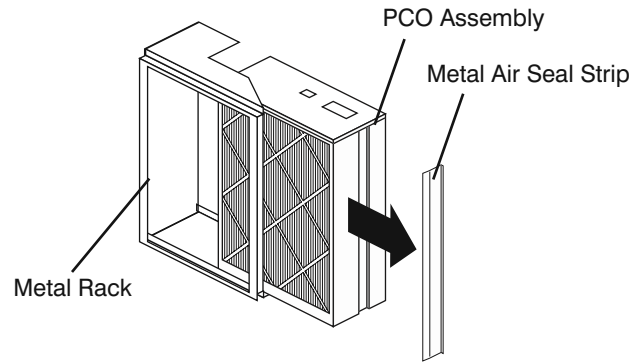
Specifications subject to change without notice.

## Unpacking

### UNPACKING THE PCO-20P (Fig. 1)

Before installation, the PCO-20P assembly must be removed from its mounting rack.

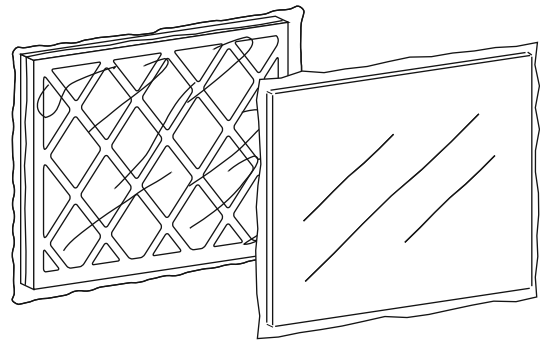
1. Remove the metal air seal strip.
2. Slide the PCO assembly out of the rack.



**Fig. 1** Remove the metal air seal strip and slide the PCO assembly out of the rack.

### UNPACKING THE FILTERS (Fig. 2)

The MERV 16 pleated filter has been packaged in a plastic bag with an instruction sheet. The insert has been vacuum packaged. **All protective wrapping MUST BE removed prior to installation and operation of system.**



**Fig. 2** Remove and discard all wrapping and packaging material prior to installation and operation of PCO-20P.

## ⚠ NOTICE

### Unpacking required.

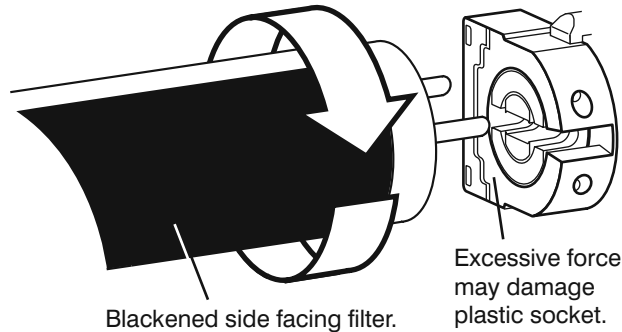
Remove all protective packing material from the pleated filter and the titanium dioxide insert.

All packing material should be discarded properly in refuse containers.

## Unpacking

### CHECKING THE LAMPS (Fig. 3)

Lamps are factory installed as shown below. Make sure that the lamps have not become disengaged during shipping. Use cotton gloves or cloth to avoid fingerprints on the lamp. **Make sure that the blackened side of the lamp faces the MERV 16 filter.**



**Fig. 3** Verify proper installation of lamps.

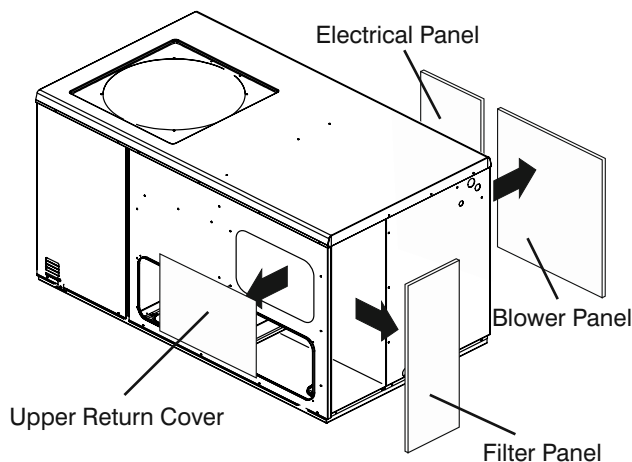
## Installation

The PCO-20P is designed for use in Dave Lennox Signature® Collection package units only. It can only be used with side return duct connection. Both upper and lower return duct connections must be used for proper air flow.

### PREPARING THE LOCATION (Fig. 4)

Before installing the PCO-20P:

1. Turn off electrical power to unit.
2. Remove the cover to upper return air opening.
3. Remove filter, blower and electrical access panels



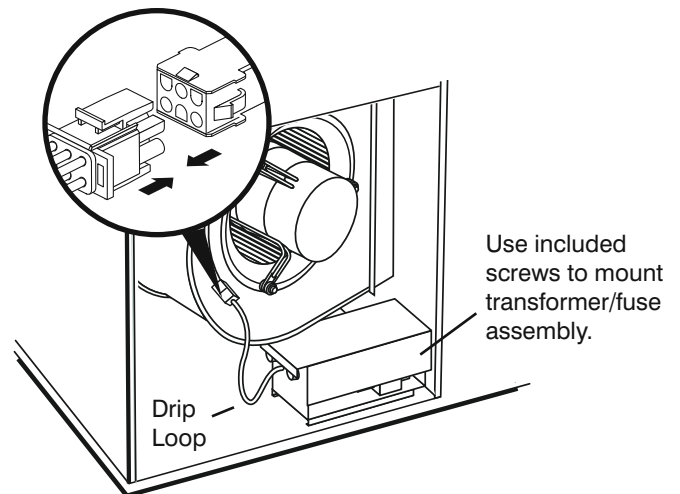
**Fig. 4** Remove return cover and filter, blower, and electrical panels.

## Installation

### INSTALLING THE TRANSFORMER/FUSE ASSEMBLY

1. Mount transformer/fuse assembly (using 2 included self drilling screws) in blower compartment in front of the blower next to the access door on the wall between the blower compartment and the heating compartment. (Fig. 5)

(Continued on next page.)



**Fig. 5** Mount transformer/fuse assembly to blower compartment wall.

### ⚠ CAUTION

#### Sharp edges hazard.

Equipment sharp edges can cause injuries.

Use protective gloves when grasping equipment edges.

### ⚠ NOTICE

#### Intended for return air installation only.

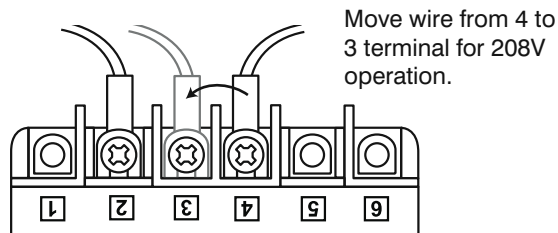
Improper installation can damage HVAC system, PureAir™ system or other equipment and may void warranty.

## INSTALLING THE TRANSFORMER/FUSE ASSEMBLY (Cont'd)

- Transformer is wired for 230V. If using 208V, rewire by removing the cover of the transformer assembly and moving the wire from the 230V terminal to the 208V terminal. Reinstall the cover on the transformer assembly. (Fig. 6)

**Note: Do not operate without cover in place.**

- Remove the plug from the 6-pin wire connector on the harness in the ResPak unit and connect the 6-pin connector from the transformer wiring harness. Be sure to keep the interface seal in the connector for proper sealing to avoid any corrosion from condensate entering the 6-pin connector. **Note: Make sure lock connection on 6-pin connector locks in place. Make sure there is a drip loop in the transformer wiring harness. (Fig. 5)**



**Fig. 6** Rewire transformer for 208V use.

	<b>⚠ WARNING</b>
	<p><b>Electric shock hazard.</b> Can cause injury or death. Disconnect all remote electrical power supplies before servicing. Do not operate without cover in place. Unit may have multiple power supplies.</p>

<b>⚠ NOTICE</b>
<p><b>Potential Equipment Damage.</b> Factory wired for 230V. Transformer must be rewired when connected to 208V power supply.</p>

## INSTALLING THE RACK (Fig. 7)

Oil on metal ducts can cause odors. Wash all new transitions and duct surfaces with mild soap and water to remove oils prior to installation. Install the PCO-20P rack in the return air side of the package unit with provided sheet metal screws. Be sure to orient rack to airflow direction

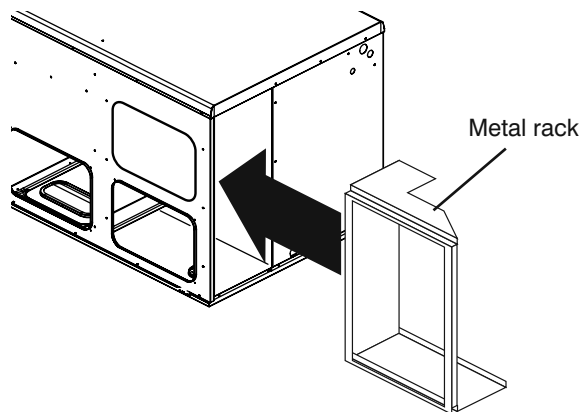
- Remove filter access door

**For installation from the outside (i.e. before ductwork is installed):**

- Slide rack into unit and align rack with Return Air (RA) holes in package unit. The rack should be centered over the RA holes and not cover the holes.
- Using dimples as a guide, drill six 7/32" (0.219") clearance holes in unit panel.
- Attach rack from the outside with blunt tip screws (provided). Use dimples in sheet metal as a guide.

**For installation from the Inside (i.e. if ductwork has already been installed):**

- Slide PCO rack into unit and align rack with Return Air (RA) holes in the package unit. **The Rack should be centered over the RA holes and not cover the holes.**
- Drill six 7/64" (0.109") engaging holes in package unit panel, using clearance holes on rack as a guide.
- Attach rack from the inside with blunt tip screws provided.



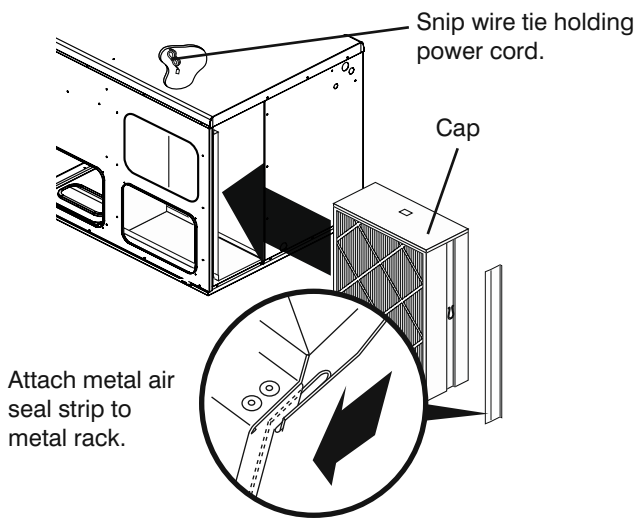
**Fig. 7** Slide PCO-20P rack into package unit.

<b>⚠ NOTICE</b>
<p><b>Do not use any form of silicone sealant.</b> Use of silicone-based products will reduce the effectiveness or damage the titanium dioxide coatings.</p>

# Installation

## INSTALLING THE ASSEMBLY (Fig. 8)

1. Check lamps for proper seating in sockets.
2. Install filter & insert (note direction of airflow)
3. Snip wire tie holding power cord at rear of return air compartment.
4. Add cap and position the PCO-20P assembly into the rack, and connect the power cord.
5. Turn on electrical power to unit.
6. Reinstall the metal air seal strip.
7. Verify that the lamps are illuminated (you will see a blue glow through the insert).
8. Reinstall filter panel.



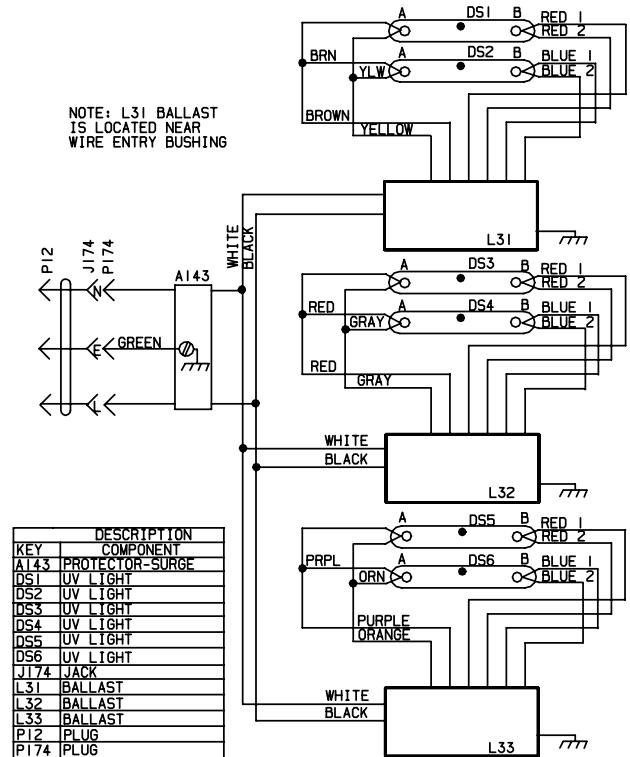
**Fig. 8** Slide PCO-20P assembly with provided pleated filter and insert into the PCO-20P rack.

## WIRING INSTRUCTIONS (See wiring diagrams)

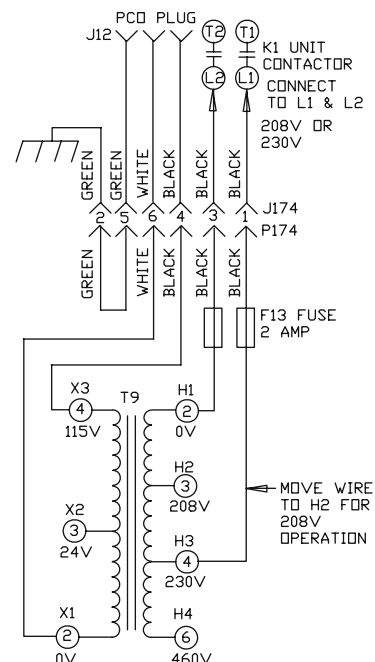
The PCO-20P must be wired in accordance with national and local codes.

**IMPORTANT:** To ensure UVA lamps life, power **MUST** remain on to PCO-20P at all times. **Do not interlock with unit blower.**

## MODEL PCO-20P WIRING DIAGRAM



## TRANSFORMER WIRING DIAGRAM



### ⚠ CAUTION

#### Electric Shock Hazard.

PCO plug in filter area is energized when unit power is on.

### ⚠ CAUTION

#### Ultraviolet (UV-A) radiation risk.

Prolonged exposure may cause skin or eye damage. Avoid prolonged (weeks) exposure to skin or eyes.

### ⚠ NOTICE

#### Oil on metal ducts can cause odors

Wash all new transitions and duct surfaces with mild soap and water to remove oils prior to installation.

## Operation


1. Door on unit must be secured in place prior to operation.
2. Lamps to remain illuminated continuously except during service and maintenance.
3. For optimal odor control, fan should remain on continuously (i.e. run with thermostat fan setting in the "ON" position, not the "Auto" position.) Running fan continuously during cooling operation may result in higher humidity. If this occurs, set thermostat in the "Auto" position during cooling operation. Running the fan continuously may also require more frequent filter changes.


## Maintenance

The PCO-20P has three components that will require maintenance: MERV 16 pleated filter, insert, and UVA lamps. (For replacement part numbers refer to Replacement Parts section in these instructions. PCO-20P performance will be dramatically reduced if the required maintenance is not performed on these three components.)

### MERV 16 PLEATED FILTER

The pleated filter should be replaced every 12 months when operated in the automatic fan mode. More frequent filter changes may be required in situations with high dust/dirt loads or when operating in continuous fan mode.

	<p><b>⚠ WARNING</b></p> <p><b>Electric shock hazard.</b> Can cause injury or death. Disconnect all remote electrical power supplies before servicing. Access panels must be in place during the appliance operation.</p>
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	<p><b>⚠ WARNING</b></p> <p><b>Risk of Carbon Monoxide poisoning.</b> Can cause injury or death. Do not operate without access panel in place. Operation of this equipment without the access panel in place may cause gas fumes from the heating system to be drawn into occupied spaces.</p>
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## Maintenance

### MERV 16 FILTER REPLACEMENT(Cont'd)

1. Turn off power to the unit.
2. Remove filter access door.
3. Remove metal air seal strip.
4. Slide out the PCO-20P assembly and disconnect the power cord.
5. Remove the PCO-20P cap.
6. Remove the pleated filter and replace with the same MERV 16 filter. (Performance of PCO-20P will be dramatically affected if improper filter is installed.)
7. Reinstall the PCO-20P cap.
8. Slide assembly back into rack and reconnect power cord.
9. Turn on power to the unit.
10. Verify that the lamps are illuminated.
11. Reinstall metal air seal strip and filter access door.

### INSERT AND LAMP REPLACEMENT

Replace insert and lamps\* every 24 months. Replace insert more frequently if you notice a significant drop in odor removal efficiency. If you find that you need to replace the insert more frequently than every 24 months, consider source reduction and/or ventilation to reduce the levels of contaminants in your home (see Homeowners IAQ Guide for additional recommendations).

\* Lamps will continue to glow at the end of the 24 months. However, their output efficiency will have degraded to the point that they must be replaced to assure effective performance of your PureAir™ system.

1. Turn off power to the unit.
2. Remove the filter access door.
3. Remove metal air seal strip.
4. Slide out the PCO-20P assembly and disconnect the power cord.
5. Remove the PCO-20P cap.
6. Remove insert.
7. Twist/rotate each lamp approximately 1/4 turn to remove from sockets.
8. Install new lamps making sure to snap them completely into the sockets and twist/rotate

### INSERT AND LAMP REPLACEMENT(Cont'd)

lamp approximately 1/4 turn. **Make sure that the blackened side of the lamp faces the MERV 16 filter. Use gloves or cloth to avoid fingerprints on lamps. (See page 3.)**

9. Install new insert.
10. Reinstall the PCO-20P cap.
11. Slide assembly back into rack and reconnect power cord.
12. Turn on power to the unit.
13. Verify that the lamps are illuminated.
14. Reinstall metal air seal strip and filter access door.

**Note:** DO NOT WASH insert. Washing will destroy the titanium dioxide catalyst that coats the insert surface.

**Note:** Do not change airflow direction over insert.

**Note:** If the system has been operated for a period of time without the lamp(s) being illuminated (such as at startup or with a failed lamp), an odor may occur when lamps are (re)started. This symptom is considered to be typical and should only be temporary. In the event that an odor does occur, it should subside and dissipate within 12 hours of full operation. If this odor persists longer than 48 hours, immediately contact your Lennox dealer.

#### NOTICE

**MERV 16 filters cannot tolerate direct exposure to UVA light.**

Blackened UVA lamps must be properly installed before filter replacement to protect MERV 16 filter.

Install replacement lamps so that blackened side of lamp faces MERV 16 filter.

#### CAUTION

**Ultraviolet (UV-A) radiation risk.**

Prolonged exposure may cause skin or eye damage. Avoid prolonged (weeks) exposure to skin or eyes.

#### CAUTION

**Lamps contain Mercury.**

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

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

### LAMP CHECKOUT (Does not illuminate.)

1. Check power cord for 120V power.
2. Unplug power cord and slide out the assembly.
3. Remove pleated filter or insert.
4. Check lamps for proper connection in sockets.
5. Exchange non-working lamp with one of the working lamps. If the new lamp operates normally, replace defective lamp.
6. If steps 1 through 5 pass inspection then the ballast or surge protector module may be at fault. Component must be replaced with an approved Lennox part by a qualified service technician.

### 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.

#### 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.

#### CAUTION

**Lamps contain Mercury.**

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

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

#### NOTICE

Clean lamps prior to installation using a cotton cloth to remove dirt and fingerprints.

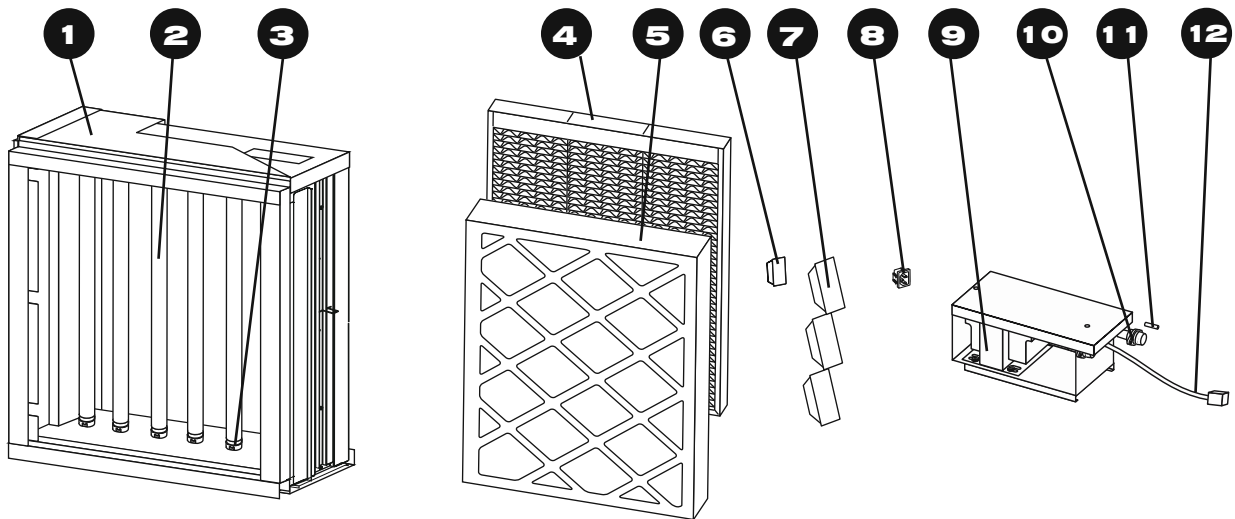
Failure to clean lamps could reduce the system's efficiency.

# Replacement Parts

No.	Description	PCO-20P
1	Complete PureAir™ System .....	X8148
2	UVA Lamp .....	X8149(6)
3	Lamp Socket .....	49M00(12)
4	Titanium dioxide coated insert .....	75X66
5	MERV 16 pleated filter .....	X6669
6	Surge Protector Module .....	79M75
7	Ballast .....	69M77(3)
8	Electrical Socket .....	75X77
9	Transformer 230V/208V to 115V .....	X5404
10	Fuse Holder .....	X5402(2)
11	Fuse, 2 Amp .....	X5401(2)
12	Transformer Wiring Harness .....	X5403

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>

## Model PCO-20P Exploded View





### Service Flow Chart

