

ComAir 20T

Commercial Indoor Air Purification System



Installation & Owners Manual



ClearWater Tech, LLC.

Integrated Ozone Systems

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Congratulations! You now own the finest commercial air treatment system available.

To make operating and maintaining your unit as simple as possible, please read the contents of this Owner's Manual.

This unit is designed to help remove odors ranging from food, tobacco smoke, pets and other objectionable smells that may be present in your business or residence.

To receive optimal benefit and performance from the unit, your furnace or air conditioner fan should be in the "ON" position at all times.

IMPORTANT SAFETY INSTRUCTIONS

Always make sure the system is unplugged during installation or service procedures.

WARNING:

The ultraviolet light produced by the UV lamps is harmful to the eyes. Do not look directly at the lamps. Should it become necessary to look at the lamps, use UV-protected sunglasses.

Unpacking the ComAir 20T unit.

1. Carefully remove the parts from the package. The lamps are fragile and proper care must be taken when removing packaging that is placed around them.
2. Do not touch the lamps with your bare hands, as oils from your hands can create "hot spots" which reduce the lamp life. In case of contact with the lamp, wipe the lamp clean with a soft cloth dampened with rubbing alcohol.
3. Check the parts list below to make sure you have all of them:
 - One ComAir 20T Main unit
 - Ozone Lamp
 - Germicidal Lamp
 - Lamp Shield
 - Air Flow PCB
 - Four self-tapping screws
 - Installation/owners manual
 - Warranty card

COMAIR 20T INSTALLATION

Assembly:

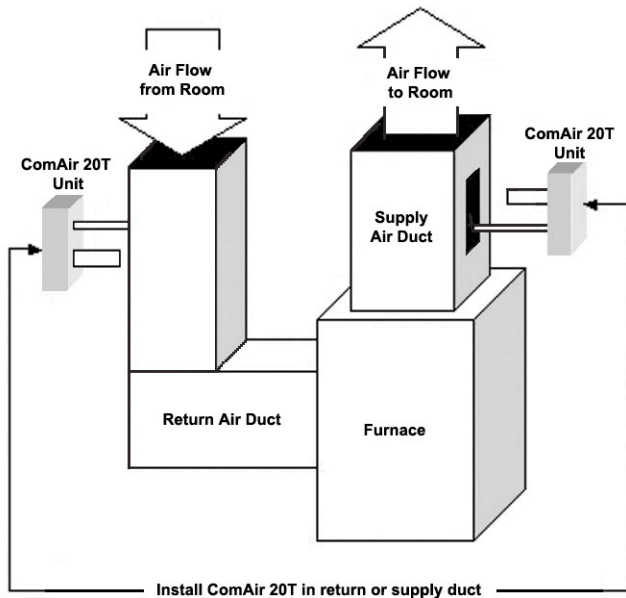
1. Remove the four screws from the cover of the unit and remove the cover.
2. See figures on page 11 and 13 for locations of components. Install lamp shield by using the hardware that is attached to the main unit. Attach shield to main unit and tighten the two nuts.
3. Install Ozone Lamp: Loosen the lamp lock nut from the lamp holder by turning it counterclockwise and remove.
4. Remove the metal washer and the rubber bushing from the lamp holder and install the rubber bushing on the lamp.
5. Slide the lamp into the lamp opening. Handle lamp by the end cap.
6. Re-install the metal washer and lamp lock nut. Carefully tighten the lamp lock nut.
7. Connect the lamp connector to the end of the lamp.
8. Install Germicidal Lamp: Remove nuts and washers from the mounting studs.
9. Check to be sure that the O-ring is installed around the base of the lamp. Insert lamp into the main unit. The two mounting ears on the lamp base should go through the mounting studs.
10. Install the plastic washers and nuts. Tighten nuts snugly, but do not over tighten.
11. Connect the lamp connector.
12. Insert the Air Flow PC Board into the hole on the bottom of the unit. The sensor connector is keyed so it can only go in one way.

Installation

While performing installation procedures all power to the unit must be 'Off' and there should be no airflow through the heating/cooling system.

1. A template may be used for installation of the ComAir 20T. The template is included in the shipping box. See diagram on next page for mounting locations.
2. Center the installation template on the ductwork using tape.
3. Mark holes for the four mounting screws.
4. Cut out openings in ductwork for the unit. See template for steps and recommended tools.
5. If the cover is installed, remove it by removing the four screws that secure it to the chassis and disconnecting the ribbon cable that is attached to the display board that is mounted in the cover. Position the ComAir 20T 'Main Chassis Assembly' into ductwork and secure with the self-tapping screws provided, using a 5/16" nut driver.
6. Plug the ribbon cable into the display board and secure cover to main chassis. Assemble using the four screws provided.
7. Plug the power cord into a non-switched (90VAC -277 VAC) outlet. Note: On initial startup, the 'Power, Air, Germicidal, Ozone and Low' lights will remain on for 30 to 120 seconds. After this time the 'Air, Germicidal and Ozone' lights will turn off.
8. Turn 'On' heating/cooling system and allow it to operate for five minutes, at this time the 'Air, Germicidal and Ozone" lights should illuminate.
9. Turn 'Off' heating/cooling system, the ComAir 20T will shut down within 5 to 30 seconds. After this time the 'Air, Germicidal and Ozone' lights will turn off. The 'Power' and 'Low' lights will remain on when unit is not in operation.
10. The ComAir 20T is now ready for use.

Note: Ozone air treatment occurs only when air is circulating through the heating/cooling system. For maximum effectiveness and continuous air purification, turn the thermostatic controller switch from the AUTO position to the ON position. The switch is located on the thermostat. Open windows or doors and dirty ductwork may diminish the unit's effectiveness.



The ComAir 20T may be installed either in the main return duct or main supply duct as shown in the diagram. When installing on the supply side, locate it as far away from the heating source as practical while remaining in the main air stream.

ADJUSTING THE OZONE OUTPUT LEVEL

The output level adjustment push button is accessed through the hole in the cover. See figure on the following page. The settings are low, medium, high and boost. Press the button on the cover of the unit to cycle the settings from low to boost and then back to low. The unit will default to the low setting on initial power up.

LOW – Use with HVAC units with capacities between 5 and 8.75 Tons or in spaces with 1500 to 2600 square feet of area.

MEDIUM – Use with HVAC units with capacities between 8.75 and 12.5 Tons or in spaces with 2600 to 3750 square feet of area.

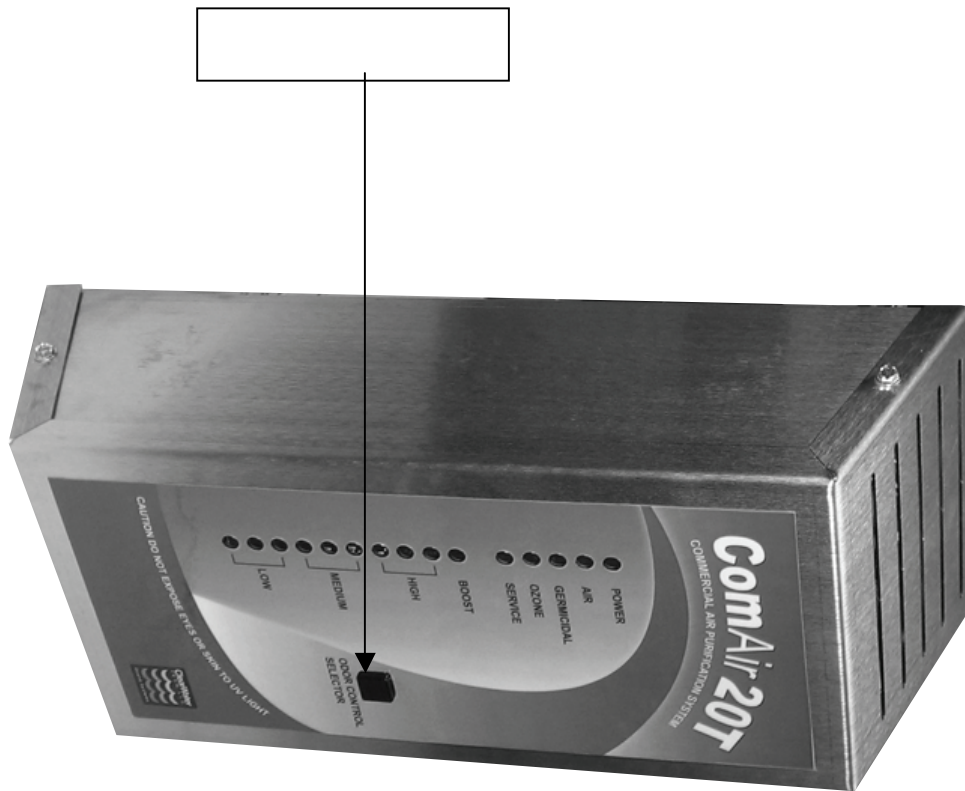
HIGH – Use with HVAC units with capacities between 12.5 and 16.25 Tons or in spaces with 3750 to 4900 square feet of area.

BOOST – Use with HVAC units with capacities between 16.25 and 20 Tons or in spaces with 4900 to 6000 square feet of area.

Note: Buildings with heavy tobacco smoke or other strong odors can use higher settings than recommended above.

Output Level Button

Remote connection



ACCESSORIES

Remote Display

An optional remote display is available. The remote display provides all of the indicator lights and an output level selection button at a convenient location. It is connected to the ComAir 20T by a cable with RJ45 connectors (not included-same as a computer network cable). Plug one end of the cable into the end of the remote display (see figure on next page) and the other end into the connector labeled "Remote" located on the PC Board mounted in the cover. The cover must be removed to access the PC Board. See the figure on page 9 for the location of the "Remote" connector on the PC Board. The cable can be routed through the unused strain relief mounted on the ComAir 20T chassis.



Ozone Level Sensor

An optional remote Ozone sensor is available that detects the ozone concentration in the duct of the heating/cooling duct.

The ComAir 20T will read the sensor and adjust the Ozone output to maintain a constant Ozone level. The connections for it are on the PC Board mounted in the cover. The cover must be removed to access the PC Board. A three conductor cable with wire sizes of 22 gauge or thicker is recommended for the connection (not supplied). The cable can be routed through the unused strain relief mounted on the chassis of the ComAir 20T.

The remote Ozone sensor supplied by ClearWater Tech should be mounted in a HVAC duct as close to a supply register as possible. The sensor box requires a hole to be punched in the duct for the sensor to fit into and two holes to be drilled for the attachment to the duct with sheet metal screws. A template that can be used to locate the holes is provided with the sensor

The connections are as follows: (See figure on next page as reference)

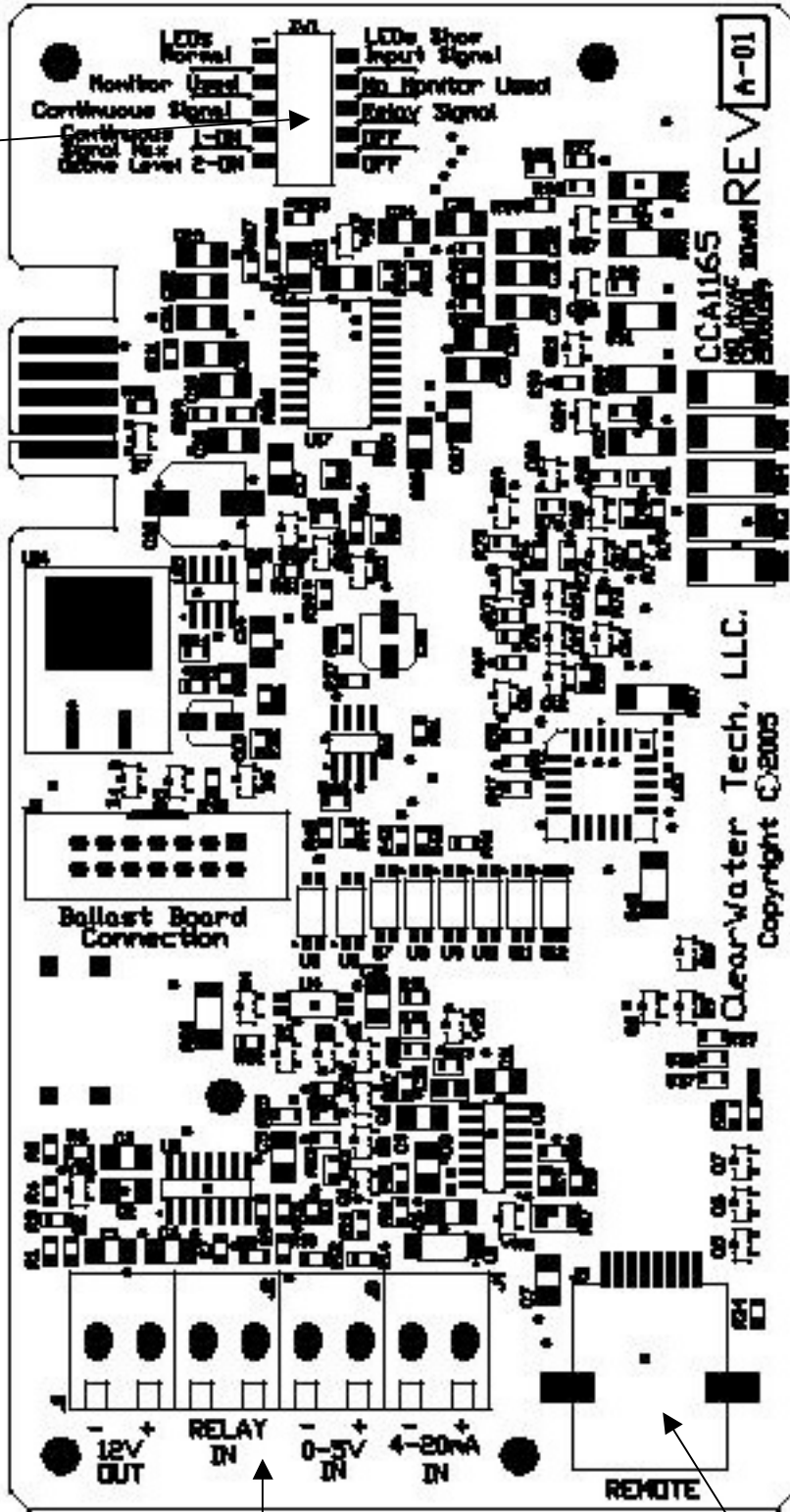
ComAir connection	Remote sensor connection:
-12V out (-)	GND
+12V out (+)	V+
+0-5V in (+)	0-5V

To use the Remote sensor, the switches on the PC Board must be set correctly:

Switch #	Position	Setting
1	Right	LEDs show sensor input signal
2	Left	Sensor connected
3	Left	Continuous signal
4	Left	1-on
5	Right	Off

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Remote Cable
Connection



Once the system is powered up, the desired Ozone output can be selected using the button on the cover or optional remote display of the unit.

Low	0.03 PPM
Medium	0.05 PPM
High	0.08 PPM
Boost	Sensor is ignored, maximum output for 30 minutes.

If during operation, the sensor detects levels over the setting, the Ozone lamp will turn off until the Ozone level drops below the desired setting. While in this mode the lamp indicator will flash.

Holding down the button on the cover or optional remote display of the unit for 3-4 seconds activates boost mode.

MAINTENANCE REQUIREMENTS

The lamp cleaning schedule is determined by air quality. The recommended cleaning interval is every 12 months. The "Service" lamp will illuminate when the unit has operated for two years and this indicates that the lamps should be replaced. Note: Do not touch the lamps with bare hands. Oils from the hands can create "hot spots" which reduce the lamp life. Handle by either the end caps or use a soft cloth. In case of contact with the lamp, wipe the lamp clean with a soft cloth dampened with rubbing alcohol.

CLEANING THE LAMPS: Recommended every 12 months

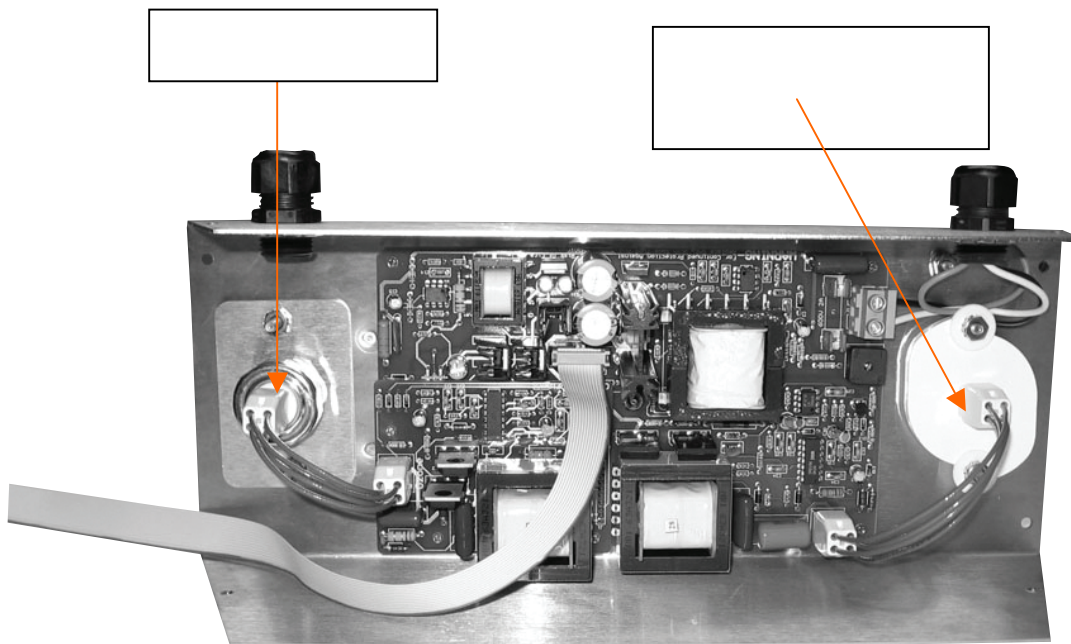
1. Unplug the power cord from the wall outlet.
2. Remove the four screws from the cover of the unit, disconnect the ribbon cable that is attached to the display board and remove the cover.
3. Remove the four sheet metal mounting screws from air duct.
4. Carefully remove the unit from the air duct.
5. Using a soft cloth dampened with rubbing alcohol, wipe down the unit and the lamps. If there is a large buildup of dust particles, you may wish to use a can of compressed air first to remove the majority of the dirt.
6. Carefully replace unit into air duct.
7. Replace sheet metal screws, the ribbon cable, the cover, the four screws and plug the power cord into the wall outlet.

REPLACING THE LAMPS: Recommended every 24 months

NOTE: Use only ClearWater Tech-approved lamps for replacement. Standard off-the-shelf lamps are not compatible with your ClearWater Tech ComAir 20T unit.

1. Unplug the power cord from the wall outlet.
2. Remove the four screws from the cover of the unit, disconnect the ribbon cable and remove the cover.

3. Ozone Lamp: Disconnect the lamp connector from the end of a lamp.
4. Loosen the lamp lock nut from around the end of the lamp by turning it counterclockwise and remove (pliers may be required).
5. Remove the metal washer.
6. Remove lamp by grasping the rubber bushing around the end of the lamp. With a gentle rocking motion, loosen the bushing from its seat and carefully slide it straight out.
7. Remove the rubber bushing from the old lamp and install it on the new lamp.
8. Slide the new lamp back into the lamp opening. Handle lamp by the end cap.
9. Re-install the metal washer and lamp lock nut. Carefully tighten the lamp lock nut.
10. Reconnect the lamp connector to the end of the lamp.
11. Germicidal Lamp: Remove the lamp connector.
12. Remove screws and washers that hold the lamp to the main unit.
13. Slide the lamp out. Remove the rubber O-ring that is placed around the lamp base.
14. Place O-ring on the new lamp base. Insert the lamp into the main unit.
15. Install the plastic washers and nuts on the mounting studs. Tighten the nuts snugly.
16. Reconnect the lamp connector.
15. Install the ribbon cable, replace the cover and secure the cover with the four screws.
13. Plug the power cord into the wall outlet.
14. Reset service timer by pressing ozone output level button one time. Service LED will turn off.



SPECIFICATIONS

Ozone Lamp

Ozone lamp is 185 nm, hot filament. Average life is 20,000 hours.

Germicidal Lamp

Germicidal lamp is 254 nm, hot filament. Average life is 20,000 hours.

Input: 90-277VAC, 50/60Hz.

TROUBLESHOOTING GUIDE

No power:

Verify that the unit is properly plugged into electrical outlet. If the cord is properly connected, test the outlet with an AC tester to make certain it is functioning properly. If not working, consult an electrician.

If unit still does not function, remove cover from the ComAir 20T unit and check the fuse on the circuit board. If fuse is blown, replace.

For the following tests make sure there is no air flow across unit.

Unplug the power cord for 1 to 2 minutes. Plug the power cord back in. The 'Air' light will illuminate for 30 to 120 seconds. After the light turns off, start the heating/cooling system. The 'Air' light should illuminate within 30 seconds. If not, replace the air flow sensor. If that does not work, replace the ballast.

Testing the lamps:

Testing the lamps requires the heating/cooling system to be running.

If ozone lamp is not lit, replace it.

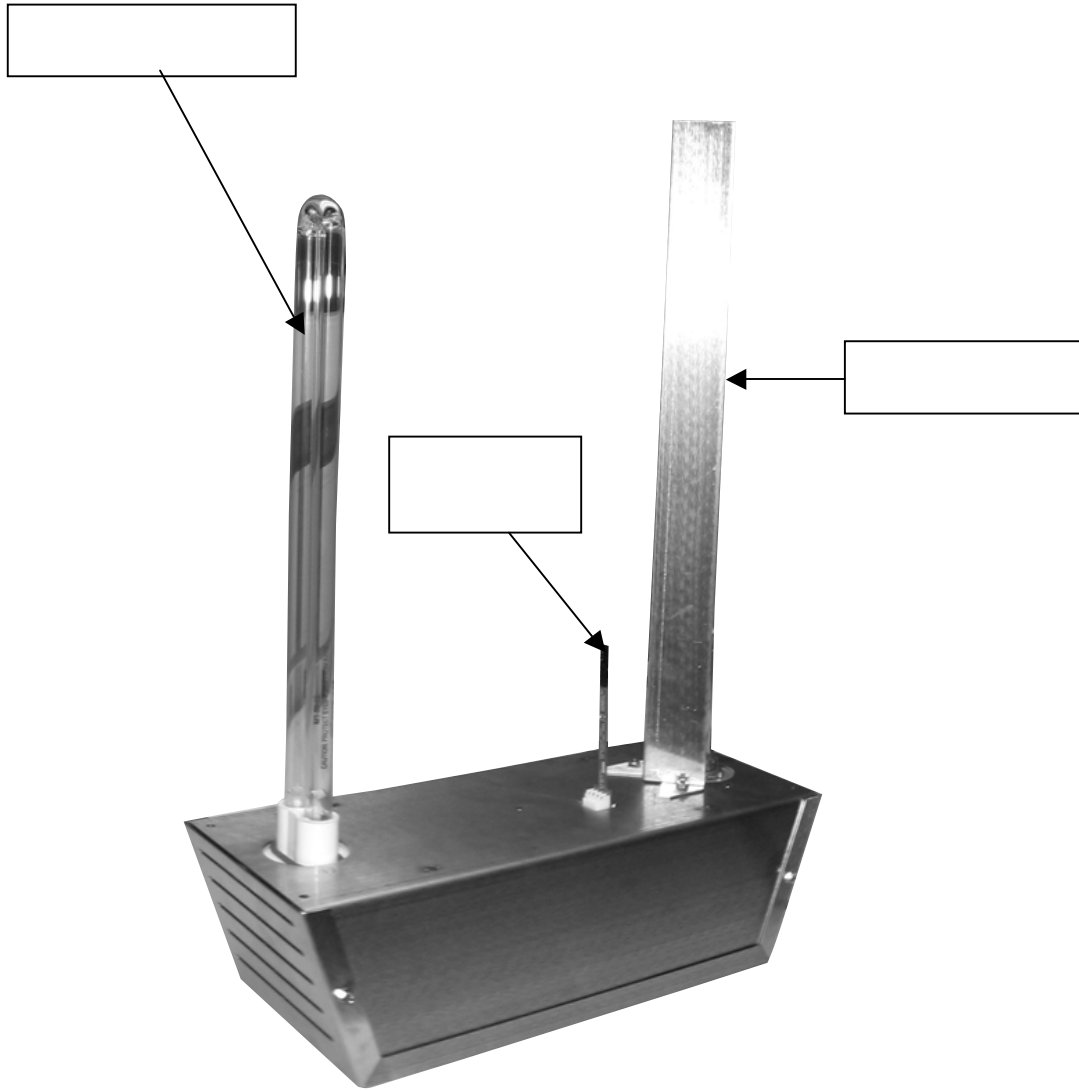
If the germicidal lamp is not lit, replace it.

If this does not work, replace the ballast.

If above testing does not work, contact your local ClearWater Tech Dealer.

Air Flow
Sensor

Ozone Lamp



ClearWater Tech, LLC. ComAir 20T Limited Two-Year Warranty

Summary of the Warranty

ClearWater Tech, LLC ("CWT") makes every effort to assure that its products meet high quality and durability standards and warrants all electrical printed circuit board components and chassis of this product against defects in materials and workmanship for a period of two (2) years. The UV germicidal lamp, UV ozone lamp and if so equipped ambient ozone controller and sensor are warranted against defects in materials and workmanship for a period of one (1) year. The warranty period will commence on the date of original shipment from CWT, with the following exceptions: 1) The warranty period shall begin on the installation date if the installation is performed within 90 days of the original shipment from CWT; 2) The warranty period shall begin on the date of the bill of sale to the end user if the installation date is more 90 days after the original shipment date. To validate the warranty, a warranty card, accompanied by a copy of the bill of sale, must be returned to CWT and must include the following information:

- End user name
- Complete address, including telephone number
- Date installed
- Complete model and serial number information
- Name of company from which the unit was purchased

Repairs and replacement parts provided under this warranty shall carry only the unexpired portion of this warranty or 90 days, whichever is longer.

Items Excluded from the Warranty

This warranty does not extend to any product and/or part from which the factory assigned serial number has been removed or which has been damaged or rendered defective as a result of:

- An accident, misuse, alteration or abuse
- An act of God such as flood, earthquake, hurricane, lightning or other disaster resulting only from the forces of nature
- Normal wear and tear
- Operation outside the usage parameters stated in the product user's manual
- Use of parts not sold by CWT
- Service or unit modification not authorized by CWT
- Damage, which may occur during shipping
- Failure to meet service requirements as outlined in the I & O manual

Obtaining Service Under the Warranty

Any product and/or part not performing satisfactorily may be returned to CWT for evaluation. A Return Goods Authorization (RGA) number must first be obtained by either calling or writing your local authorized dealer, distributor or CWT direct, prior to shipping the product. The problem experienced with the product and/or part must be clearly described. The RGA number must appear prominently on the exterior of the shipped box(es). The product and/or part must be packaged either in its original packing material or in comparable and suitable packing material, if the original is not available. You are responsible for paying shipping charges to CWT and for any damages to the product and/or part that may occur during shipment. It is recommended that you insure the shipment for the amount you originally paid for the product and/or part.

If, after the product and/or part is returned prepaid and evaluated by CWT, it proves to be defective while under warranty, CWT will, at its election, either repair or replace the defective product and/or part and will return ship at lowest cost transportation prepaid to you **except for shipments going outside the 50 states of the United States of America**. If upon inspection, it is determined that there is no defect or that the damage to the product and/or part resulted from causes not within the scope of this limited warranty, then you must bear the cost of repair or replacement of damaged product and/or part and all return freight charges. Any unauthorized attempt by the end user to repair CWT manufactured products without prior permission shall void any and all warranties. For service, contact your authorized dealer or distributor or CWT direct at (805) 549-9724.

Exclusive Warranty

There is no other expressed warranty on CWT products and/or parts. Neither this warranty, nor any other warranty, expressed or implied, including any implied warranties or merchantability of fitness, shall extend beyond the warranty period. Some states do not allow limitation on how long an implied warranty lasts, so that the above limitation or exclusion may not apply to you.

Disclaimer of Incidental and Consequential Damages

No responsibility is assumed for any incidental or consequential damages; this includes any damage to another product or products resulting from such a defect. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that above limitation or exclusion may not apply to you.

Legal Remedies of Purchaser

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

THIS STATEMENT OF WARRANTY SUPERSEDES ALL OTHERS PROVIDED TO YOU AT ANY PRIOR TIME.