



Airborne Infection Control Solutions

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## MICROCON<sup>®</sup> CD HEPA & HEPA UV Instructions & Service Manual

### DIMENSIONS

(H) 23.625" (W) 47.625" (D) 18.5" Weight: 120 lbs.

### POWER REQUIREMENTS

115V, 60 Hz, 2.6 Amps, 240 Watts

### CABINET

20 Ga. zinc coated steel  
18 Ga. baked white enamel intake grille  
18 Ga. baked white enamel multi-directional exhaust louver  
4 heavy duty suspension eye bolts

### BLOWER

Backward curved motorized impeller  
1690RPM  
Dynamically balanced, vibration free Maintenance free sealed ball bearings

### SOUND ABSORBENCY

1/2" acoustical absorbing foam sheet

### CONTROLS

Multi-volume electronic speed control

### FILTERS

Prefilter:  
One 20" x 23.5" x 1" 35% Synthetic Polyester Pad

Final Filter:

One 19.5" x 23.5" x 4" 95% DOP rated high efficiency cell, of waterproof micro-glass media in a separatorless configuration 106 square feet of media area.

Gas Phase:

Two individual 12" x 24" x 12" cells. Dry process carbon composite cell of activated carbon cells, 92 square feet.

## FILTRATION RATE

30,000 to 54,000 cubic feet per hour. Variable speed 550 cfm to 1000 cfm

## INSTALLATION

**EXPLOSION HAZARD CAN CAUSE PROPERTY DAMAGE SEVERE INJURY OR DEATH**

### WARNING

**Do not install equipment in environments where the danger of gas, vapor or dust explosion exists.**

**Do not install if explosion-proof electrical appliances or fixtures are used or specified.**

## APPLICATIONS

The MICROCON CD is a high efficiency air cleaner that is designed for installation in a standard 2 x 4 drop ceiling T-bar channel. Typical applications include offices, bingo halls, bowling alleys, bars, computer rooms, copier rooms, dental labs, kennels, lobbies, locker rooms, nursing homes, smoking rooms, photo labs, printing areas, restaurant/cafeteria, sick buildings, veterinary and pathology labs.

The MICROCON CD is a completely self-contained unit. which draws airborne pollutants in, filters particulate, odors and fumes and exhausts clean air back into the room.

## SIZING

In order to determine the number of air cleaners required in any application, the suggested method is based upon ACH (air changes per hour). This is a factor which compares the unit's capacity to deliver air within the volume (size) of the space to be cleaned. In addition, other elements also influence the overall cleaning ability; such as, the type of contamination present, the concentration level of the contaminant, the number of room occupants, the speed at which the unit is operated, quality of the make-up air, room configuration or layout.

These all play a roll in factoring the number, filtration type, placement and operating conditions of the units.

Step-by-step instructions to establish the number of units required:

#1. Measure height, width and length of room. Multiply  $H \times W \times L = \text{Room Volume}$

#2. Determine the number of ACH (air changes per hour) required.  
Multiply this number by room volume.

#3. Determine cfm capacity in which unit will operate.  
Multiply cfm by 60 (minutes) to achieve total delivered cfm in one hour's time.

#4. 
$$\frac{H \times W \times L \times \text{RV} \times \text{ACH required}}{\text{cfm} \times 60} = \# \text{ of Air Cleaners}$$

## DETERMINING PLACEMENT

The MICRO CON CD will function best when positioned in the ceiling near the center of the room. The way in which the air is drawn up and exhausted in six separate directions allows for the proper mixing and cleaning of air within any application. When source capture of pollutants is necessary, the unit can be placed directly above the contamination source.

## INSTALLATION

*IMPORTANT!* Read and retain these instructions and maintenance manual.

### **CAUTION!**

Connect power source after unit is mounted. Always disconnect power source when unit is being serviced.

Note: Blower is equipped with thermal overload protection. In the event the motor overheats, it will automatically shut down. However, once the heat dissipates, the motor will automatically restart. It is, therefore, necessary to shut off system before performing any service.

## UNPACKING

Unit is shipped completely assembled. Immediately upon delivery visually inspect packaging for any signs of visual damage and inspect again when unit is unpacked. Failure to identify damage to unit can disqualify you from filing any freight claim with the carrier.

### **WARNING!**

**THE FOLLOWING INSTRUCTIONS ARE  
INTENDED FOR QUALIFIED SERVICE  
PERSONNEL ONLY!**

## PREPARATION FOR INSTALLATION

Prior to installation, scope out area of installation and determine there are no obstructions above the space where the unit is to be placed. Obstructions might include ducting, electrical or water pipes, sprinkler systems, etc. The MICROCON CD is designed to lay in a standard 2 x 4 T-bar ceiling panel. Remove a single 2 x 4 ceiling panel or two 2 x 2 ceiling tiles. The measurement to the top of the unit is 19.5". Therefore, you must have at least 20" clear above the ceiling. Keep in mind that you require access to the unit (during installation) from the side panels surrounding the panel where unit is to be placed.

## MOUNTING

Normally, the T-bar itself cannot support the weight of the unit. You must attached galvanized steel wire (12 Ga.) or chain to support its weight and allow the T-bar to act for positioning and create a proper seal between the room and the area above it. Attach four fasteners to the ceiling rafters or girders capable of supporting a minimum of 100 lbs. each.

The MICROCON CD has four eyebolts attached to the top of the unit, one in each corner. You can use chain, wire or threaded rod as support from the ceiling fastener. If using chain, "S" hooks can be attached to both ends with the required length in between. If using wire, extend the wire at least 6" below the T-bar prior to installing the unit itself. Wrap wire at least four times around eye bolts to prevent unraveling.

Lift MICROCON through 2 x 4 opening diagonally and position flat in T-bar. Maintain and support weight of unit prior to attaching the support wire or chain. Once support wire or chain is attached, unit should sit securely in T-bar with all the unit's weight being borne by the chain or wire.

To reduce the initial weight of the unit, the carbon filters can be removed and replaced after the housing has been installed. To remove the carbon panels prior to installation, twist the two captive screws securing the louvered grilles on each side. Slide the grille forward dislodging it from the two retention tabs. The "L" bars holding the filter in place can be unfastened by twisting the thumb screws a half turn. The carbon panels can now be removed. The final filter is relatively light and need not be removed, especially as you increase the chances of damage to it.

Replace all filters and grilles prior to operation.

Once the unit is properly secured, proceed with the electrical connection.

## ELECTRICAL INSTALLATION

### **WARNING!**

**THE ELECTRICAL HOOK UP SHOULD BE PERFORMED ONLY BY A QUALIFIED ELECTRICIAN.**

All wiring must comply with the applicable electrical codes and ordinances. The electrical connection can be made from the same side of the unit as the speed control or the side in which the center grille opens. Remove the junction box cover plate by removing the retention screw.

1. The unit is designed to operate on 115 VAC, 60 Hz, 2.6 AMPS supply. Determine that power source is consistent, with unit's capacity.
2. Verify supply, common and ground circuits with test device. *Stop* installation procedure if verified circuits are not present.
3. Remove junction box cover plate. Locate and identify all hook-up wires (see wiring diagram). Use proper wire size in accordance with NEC and local codes per system specifications.
4. Connect green GROUND wire from device to green (or bare) verified ground wire from supply circuit.
5. Connect black and white wire from the pigtails in device junction box to the corresponding wires in supply circuit.

## FINAL INSPECTION

Determine that the unit is securely fastened and the weight is borne by the connection wire or chain and not the "T-bar" channel.

Inspect all electrical connections and determine that unit operates at all speed settings and the junction box cover has been reattached. Set speed control to desired setting.

Inspect louvered grilles on each side that they are/were installed in the proper orientation.

## MAINTENANCE

The unit requires little maintenance. The blower requires none as it is permanently sealed and needs no further adjustment. Only the filters require periodic maintenance.

Shut off the unit prior procedures to any maintenance.

## GENERAL REPLACEMENT PERIODS FOR FILTERS

### Pre-filters:

A. Every three (3) months:

General use environments, cafeterias, bingo halls, smoking areas, bars.

B. Every 4 - 5 months:

Average types of environments, offices, commercial.

C. Every 6 months:

Cleaner environments, hospital, professional offices.

Final Filter:

A. Every 6 months:

General use environments, cafeterias, bingo halls, smoking areas, bars.

B. Every 12 - 18 months:

Average and general types of environments, offices, commercial leaner environments, hospitals, professional offices.

Carbon Cells:

A. Every 12 - 18 months:

Carbon cells will need to be replaced

NOTE: Change out times are estimated based upon amount of use and concentration of pollutants. Your individual experience may differ based upon your environmental conditions.

**CAUTION!**

*PRIOR TO ANY MAINTENANCE BEING PERFORMED, SHUT OFF ELECTRIC TO UNIT!*

**PREFILTER**

The prefilter is a synthetic pad that is completely disposable. Due to the nature of the collection process, it cannot be cleaned or washed. Changing the prefilter on a regular basis will greatly extend the life of the final filter.

Replacing:

Unlatch two black swell latches on the face of the grille. If second latch reseats itself, when one is released, place a small piece of paper between the bottom of latch and opening.

NOTE:

When opening swing down grille - release either swell latch. Slip a piece of paper between open swell latch and post- then release opposite swell latch.

*The paper prevents the swell latch from re-seating itself in post while second swell latch is released.*

This will prevent latch from reseating itself. Swing grille down and have plastic bag ready to receive it. Prefilter may swing down with the door or remain lodged in place. Slide prefilter into bag, seal bag and dispose of properly.

**FINAL FILTER**

The final filter is secured in place by a pivotal latch. Swing latch to right while preventing filter from becoming dislodged. Slide filter forward and remove at an angle. Place used filter in plastic bag and dispose of properly. New filter must be slid under lip on rear section of unit. Be careful not to damage media filter face when installing filter. Once properly seated, secure pivotal latch and filter will remain securely in place. Replace prefilter and close grille.

## CARBON CELLS

Remove white exhaust register that covers carbon cells by turning *counterclockwise* two knurled captive screws. Carbon cells are secured in place by two steel single flanged angles. Twist wing head stud *counterclockwise* one-half turn to dislodge. Secure carbon cells in place preventing them from falling out while dislodging the two wing head studs. Carbon cells should slide directly out of their housings. Bag and dispose of properly. Slide new carbon cells in position, and secure either end with the steel angles. Align wing head studs with receptacle and make one-half turn *clockwise* to lock in place. Once both sides are properly fastened, reattach exhaust register by aligning slots on register rear edge with two prongs. Now align and screw in the two knurled head captive screws. Repeat on other side.

## TROUBLESHOOTING

**Odor Emanating From the Unit:** Initially, there may be a slight odor emitted from the unit which is the offgasing of several materials within the components when they are first used. This should dissipate quickly and no additional odors should be detected. Allow unit to run long enough to purge any odors (several hours) or overnight.

**Unit Will Not Operate:** If the speed control setting is in the "ON" position and the unit does not operate, check the fuse located next to the junction box panel. If the fuse has not blown, and you are getting power to the unit but it will not operate, the thermal overload on the fan may have triggered. This should usually take no more than an hour to cool down and restart. If this is not the case, check the speed control itself as it may be malfunctioning.

## LIMITED WARRANTY

Biological Controls Inc. (BCI) warrants to its purchasers that all products sold by it will be free of manufacturing and material defects. Any defective product will be replaced, free of any charge if a claim is brought to BCI's attention in writing, within ONE year following the date of shipment by BCI. BCI will not be responsible for any installation costs involved in such replacement. Replacement will include shipment cost within the continental United States. This warranty is IN LIEU OF any other warranty, express or implied, including, but not limited to, any implied **WARRANTY OF MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE**. BCI's liability under this warranty is limited to replacement and does not include any responsibility for incidental or consequential damages of any nature.

## **FOR UNITS WITH HEPA FILTERS AND/OR UV LAMPS:**

**Note: Used HEPA filter – Treat as Contaminated Substance.**

### **HEPA FILTER**

The HEPA filter is secured in place by a pivotal latch. Swing latch to right while preventing filter from becoming dislodged. Slide filter forward and remove at an angle. Place used filter in plastic bag and dispose of properly. New filter must be slid under lip on rear section of unit. Be careful not to damage media filter face when installing filter. Once properly seated, secure pivotal latch and filter will remain securely in place. Replace prefilter and close grille.

### **ULTRA VIOLET GERMICIDAL LAMPS**

The germicidal ultraviolet (UV) lamps will operate for approximately 7000 hours or about 10 months of continuous use. They must be replaced at that time even if they are still lighted. Their irradiation potential continuously diminishes and after 10 months they are providing very little, if any, germicidal irradiation. If the unit is continually started and stopped, the life expectancy of the bulbs will diminish at a faster pace.

**WARNING!!** Whenever the bulbs need to be changed or inspected, special UV eye protection must be worn that should encapsulate the eye. Handle bulbs on the very edges and do not touch clear glass. Oil from your fingers will deteriorate the glass and diminish bulb service life. If the bulbs are touched, wipe off fingerprints with a clean soft cloth. When bulb replacement is required, shut off power, remove old bulbs, and replace with new bulbs. Wearing special UV eye protection, switch on power. Both bulbs should fire. **DO NOT LOOK AT BULBS DIRECTLY AND DO NOT EXPOSE BARE SKIN TO BULBS.** Once you have confirmed bulbs are operational, filter can be reinstalled, secured in place and close front grille. Record change-out date on "filter change label".

### **LIMITED WARRANTY**

Biological Controls Inc. (BCI) warrants to its purchasers that all products sold by it will be free of manufacturing and material defects. Any defective product will be replaced, free of any charge if a claim is brought to BCI's attention in writing, within ONE year following the date of shipment by BCI. BCI will not be responsible for any installation costs involved in such replacement. Replacement will include shipment cost within the continental United States. This warranty is IN LIEU OF any other warranty, express or implied, including, but not limited to, any implied **WARRANTY OF MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.** BCI's liability under this warranty is limited to replacement and does not include any responsibility for incidental or consequential damages of any nature.

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