



749 Hope Road, Suite A Eatontown, New Jersey 07724 Phone: (732) 389-8922 Fax: (732) 389-8821

www.biologicalcontrols.com

MICROCON® ExC-BB and BUV Instructions & Service Manual

OVERVIEW

The MICROCON® ExC-BB and BUV are ceiling mounted HEPA filter air purification devices that can provide in-room air purification as well as create negative pressure by exhausting air from the room. The cfm capacity ranges between 435 to 495 cfm from the two speed fan control. The difference between the BB (blower box) and the BUV (blower box/ultraviolet (ultra violet) lamps) is the addition of the UV lights and components in the filter-housing module. Otherwise, the units are identical.

PLACEMENT

The MICROCON ExC-BB and BUV units are designed to be placed into standard (nominal 24" x 24") T'bar ceiling grid. A roll of ¼ inch gasket material with a pressure sensitive adhesive (PSA) backing is included. This should be attached to the T'bar grid surface to provide a seal for the filter module to be seated within the T'bar channel. Four wire support tabs are fastened to the top, for attachment of cables, or wires to support the unit when placed in the ceiling. These tabs may be shipped flat, but can be bent 90° by using the flat blade on a flat head screwdriver to pry them up. Place the unit in the ceiling grid.

CREATING NEGATIVE PRESSURE

To create negative pressure (when the room differential pressure is less inside the room than in the surrounding area) within a room, the unit can basically be placed in any ceiling location that makes it convenient for attachment to the nearest exhaust duct or outside wall. The most important aspect of creating negative pressure is that the room must be sealed and leak-free. This will allow the air only to enter the room from the opening under the door, from the corridor or positive pressure area. The length of the duct run should not exceed 12 feet or the duct rise should not exceed 10 feet. The exhaust duct can also be connected to a direct outside exhaust vent. Since the exhaust air has been filtered, it is also possible to exhaust directly into a plenum area above the ceiling. Negative pressure will be achieved when more air is exhausted from the room than that which is being supplied (*CDC Guidelines state exhaust flow of either 10% or 50 cfm greater than the supply, whichever is greater*). If ducted directly outside, it is advisable to place unit as close to an outside exhaust duct as possible. The longer the ducts run from the unit, and the more bends and turns in the duct, the higher the resistance and conversely the lower the exhaust volume.

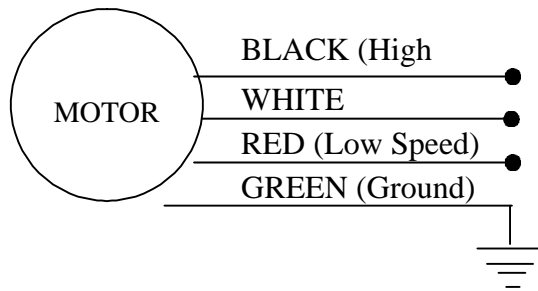
CREATING IN-ROOM FILTRATION

Either unit can be used to filter and supply clean air within a room. If used for this application, the clean air from the exhaust will be returned within the room through an exhaust register. *(Several registers are available, depending upon the application).* The best placement for the air intake would be above the area generating the source of contamination. To prevent "short circuiting" of air where clean air (exhaust) and dirty air (intake) are in too close proximity to each other, the exhaust register should be placed 6-8 feet away. This will provide adequate reintroduction of the air to the room allowing for better filtration and dilution to take place, increasing in-room air changes and dilution.

BLOWER BOX

If the blower box you received arrived packaged, you need to remove one of the duct inlet collar panels, which was shipped "reversed" for packaging purposes. Four (4) screws hold the panel in place. This is the inlet side (air entry) of the blower box. The remaining screws to attach the panel are enclosed in a plastic bag (There is no reason to remove the opposite panel). The "reversed" panel needs to be removed anyway, since it provides access to the nearest electrical handy box.

Connect the two leads to the appropriate power sources:



The blower box can be mounted on a platform or suspended. Four (4) eyehooks are provided and allow wire or cable to be attached to hold the box steady. Follow the wiring instructions for connecting the power to the unit. Once wired, fasten the blank plate to the handy box and reattach the inlet collar panel using the remaining screws.

Note: A separate electrical connection to wire the unit into a wall mounted on/off switch is possible. This would allow operation to take place when the unit is used intermittently. The UV switch and fan speed switch would need to be preset in the "ON" position so control from the wall switch is possible.

Connect 10" diameter ducting to both ends of the box. Secure the ducting to the inlet collars using an adjustable strap clamp or duct tape. Assure that ducting runs in straight lines. Elbows, bends in the ducts, and long duct runs, restrict airflow and decrease airflow capacity.

CONNECTING WIRING HARNESS

The red electrical wiring harness is 5 feet long. Therefore, the distance between the blower box and filter-housing module (FHM) cannot exceed 5 feet. This supplies the power to the FHM for fan power selection or turning on the UV lamps (if equipped). For best performance, place units 2 to 3 feet apart.

POSITIONING OF MODULES

On exhaust side of blower box, attach 10" diameter duct and connect to ceiling air diffuser module. Ideal distance is 6-8 feet from the filter-housing module. This position and distance (from the intake) allow for more even in-room air distribution by cutting down on "short-circuiting" of air, which takes place when the inlet and exhaust are in close proximity to each other.

START-UP

Once the units have been positioned, all the 10 inch diameter duct connections made, and electrical hook-ups performed, the system is ready for operation. Select either high or low setting on the fan control switch. Turn on UV lamps by pressing lighted amber switch. *Note:* UV lamps will not light unless fan is operating. When electrical power is activated, hour meter will start recording operation time. The minihelic pressure differential gauge will register filter resistance. If the fan control switch is placed in the "high" position, the pressure will *increase* on the gauge, or *decrease* on the "low" speed. The hole for the probe tube for the minihelic gauge is located on the front of the face panel. This hole should never be blocked or closed.

FAN SPEED SELECTION

The unit offers two fan speeds - *HIGH* and *LOW*. When the rocker switch is in the center position, the unit is off. High speed delivers about 495 cfm, while low is about 435 cfm.

BLOWER BOX FAN REMOVAL

In the unlikely event the fan must be removed from the blower box housing, always disconnect power supply before servicing the blower or working with the unit for any reason. Remove the air intake duct panel from the blower box by removing the screws around the periphery. Disconnect the wiring in the electrical box and use a ½ inch socket, with extension, to unfasten the 5 bolts securing the fan to the face-mounting panel. The fan can now be withdrawn from the housing for repair and replacement.

CHANGING THE FILTERS

As a recommended safety precaution, latex gloves and mask can be worn when renewing the filters.

REPLACING AND INSTALLING A PRE-FILTER: (Average replacement is when minihelic pressure gauge registers an increase of .1 inches from original pressure reading.) This, on average, is every 3 months (continuous use).

(Replacement Part No. PF-EXC002 - 12/BX)

Whenever renewing a pre-filter or when performing any maintenance procedure where you may come into contact with the filters, as a safety precaution, use mask and latex gloves. Filters are replaceable from within the room. From the downstream side of the unit, open the swing down stainless steel gate by depressing the two ball button closures. The gate is now free to swing down. Place a plastic bag, large enough to cover the swing down gate containing the pre-filter, and drop the used filter into the bag. Seal the bag and dispose of properly. Place a new filter in the swing down door recess, close and secure the door closed with the two button latches.

REPLACING THE HEPA FILTER: (Average replacement is when minihelic gauge increases 50-60% of original pressure reading or on a time average of 12-18 months.)

(Replacement Part No. HAL-EXC002)

Note: Used HEPA Filter – Treat as Contaminated Substance.

Filters are replaceable from within the room. From the downstream side of the unit, open the swing down stainless steel gate by depressing the two ball button closures. The gate is now free to swing down. The pre-filter can be replaced at this time as well, so follow the above "Pre-filter replacement" procedure. Once the HEPA filter is exposed, four jack clamps hold it securely in place. Use a 7/16-inch ratchet to remove the four nuts from the threaded rods. Drop filter straight down, out of filter module. Depending upon the length of time filter has been in place, it may be necessary to pry filter loose, if compression of gasket or the drying of the gasket is evident. Caution must be exhibited to ensure damage is not done to the filter module, in extracting the filter. HEPA filter at this point is of no value for reuse, so damage to the filter while handling is inconsequential, although caution should be exhibited to prevent contaminant exposure.

INSTALLING A NEW HEPA

Install new HEPA filter between threaded rods, being careful not to puncture filter face. Do not touch face of HEPA. Filter media is very fragile and can be damaged easily. If media is ruptured or punctured, it is important to repair it immediately, by a qualified individual using proper repair techniques. Compromised filter media will allow infiltration of contamination. Secure filter in place by reinstalling filter jacks. Tighten bolts down by compressing gasket 50-60%. DO NOT over tighten. Either HEPA filter frame will distort from excess pressure, or threaded rods can be dislodged, allowing for warping of the filter-seating base. Either occurrence can lead to leaks occurring in the gasket seal allowing for contaminated air bypass. When handling new HEPA filter, hold by its external frame for best support and safest positioning or place cardboard over entire face of filter, hold in position, remove cardboard when clamps are installed.

NOTE: HEPAs and pre-filters are designed to be disposed of after use. They are not washable or cleanable and cannot be reused.

CLEANING

It may be necessary to wipe the face of the stainless steel grille periodically. This is attributable to contaminants being attracted by static charge to the grille face before being captured by the pre-filter. A good stainless steel cleaner, mild detergent or disinfectant will do the job. Pre-filters are not reusable and must be disposed of when used. Do not get either filter wet when cleaning unit.

REPLACING UV LAMPS (MICROCON BUV MODEL ONLY)

(Replacement Part No. UB-002)

WARNING! DO NOT LOOK AT UV LAMPS WITHOUT USING PROPER EYE PROTECTION.

Prior to replacing any UV lamps, shut off or disconnect unit. Never attempt to replace lighted UV lamps. When changing UV lamps, use proper eye and skin protection.

Two indicators would reveal the UV lamps require renewal. When 5000 hours are registered on the hour meter, or when the UV internal sensor bar reveals a malfunction (by a blinking red light), remove pre-filter and HEPA as described above to reveal UV lamps. Lamps are bi-pin type and twist out of holders. Replace all lamps at the same time, dispose of properly. When renewing, do not touch bare bulbs with bare hands. The oil from your skin will affect the bulbs' performance. Wipe down bulbs after installation with glass cleaner, if necessary.

Bulbs can now be observed that they are all installed properly and operating. Depress amber-lighted switch on unit face panel. Wear proper eye protection whenever viewing lighted UV lamps (Eye covering that shields UV rays is appropriate). If all lamps are lighted, shut off and replace HEPA and pre-filter, following instructions as outlined above. Secure swing down gate, and reactivate system.

RESETTING HOUR METER

It is possible to reset the hour meter back to zero. The hour meter is activated whenever the unit is operating. It compiles continuous hours of operation. The hour meter can be reset back to zero by placing a "jumper" (a wire or paper clip) over both posts. You will need to remove the aluminum panel on the top of the module, however, to have access to the rear of the hour meter. The meter is equipped with a built-in battery, so as long as the amber UV lamp switch is pushed "in," it will record operation time even though the fan isn't operating. This would need to be a consideration if the unit was wired into an on/off wall mounted switch (SEE: Note under Blower Box) since the meter would register operation even though the bulbs were not actually lighted.

RETURNS TO THE FACTORY

Before shipping any component to the factory, a Return Material Authorization (RMA) Number must be issued for units under warranty. For units out of warranty, a written purchase order must be issued to Biological Controls prior to return. The factory will NOT accept and will refuse any merchandise returned without proper authorization. Factory is not responsible for any damage to or loss of merchandise during return shipping. **DO NOT RETURN ANY CONTAMINATED FILTERS TO THE FACTORY.**

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.

REV: 05/01/03