

MIATECH SOLUTIONS, A PIECE OF THE PUZZLE



Bio Turbo 100



Bio Turbo 300



Bio Turbo 1000



Bio Turbo 6000

Four Stage Filtration

<u>Step 1:</u>	Air Filter.
<u>Step 2:</u>	Cell Destruct Filter.
<u>Step 3:</u>	Generation Chamber destroys Ethylene and Airborne Pathogens.
<u>Step 4:</u>	The catalytic Converter removes all the ozone.

BIO-TURBO Series

Ethylene Removal & Airborne Pathogen Killer Specification Sheet

Features

- Smart LED's for easier service
- Remote On and Off control (except Bio Turbo 100)
- Easy service
- Easy changing of ozone plates and filters
- Four models for proper coverage
- Aluminum and Stainless Steel reactor bed
- Easy to install and operate
- Low maintenance



Bio-Turbo Specifications

Model	BIO-TURBO 100	BIO-TURBO 300	BIO-TURBO 1000	BIO-TURBO 6000
Maximum volume	Up to 100 cubic meters (3500 cubic feet) per 24 hours	Up to 300 cubic meters (11500 cubic feet) per 24 hours	Up to 1000 cubic meters (43200 cubic feet) per 24 hours	Up to 6000 cubic meters (200000 cubic feet) per 24 hours
Airflow	3 CFM (0.1 CMM)	8 CFM (0.3 CMM)	30 CFM (1 CMM)	200 CFM (6 CMM)
Location Requirements				
Electrical Source	100/115/230 VAC 50-60 Hz	100/115/230 VAC 50-60 Hz	100/115/230 VAC 50-60 Hz	100/115/230 VAC 50-60 Hz
Electrical				
Power	120 or 220 VAC	120 or 220 VAC	120 or 220 VAC	120 or 220 VAC
Power Consumption in Watts	127 Watts	130 Watts	144 Watts	360 Watts
Amp Draw at 120 Volts at 230 Volts	1.2 Amps 0.550 Amps	1.2 Amps 0.550 Amps	1.2 Amps 0.550 Amps	3.0 Amps 1.25 Amps
Power cord	8 ft (2.5m)	8 ft (2.5m)	8 ft (2.5m)	9 ft (3m)
Operating Voltage	24V	24V	24V	24V
Maintenance				
Air Filter	Change every 12 months	Change every 12 months	Change every 12 months	Change every 12 months
Ozone Plate(s)	Change every 12 months	Change every 12 months	Change every 12 months	Change every 12 months
Number of Ozone Plates	1	1	2	4
Specifications				
Dimensions:				
Generation Chamber		10"x12"x10" (25x30x25cm)	10"x12"x10" (25x30x25cm)	15"x15"x15" (38x38x38cm)
Catalytic Converter/Controller	Unit dimensions: 15"x17"x7" (38x43x18cm)	14"x11"x11" (36x28x28cm)	14"x14"x11" (36x36x28cm)	19"x19"x19" (48x48x48cm)
Reaction Chamber		12"x14"x30" (30x36x76cm)	48"x30"x15" (122x76x38cm)	4'x8'x2' (122x244x61cm)
Total Weight	30 lbs (14 kg)	41 lbs (18 kg)	90 lbs (34 kg)	160 lbs (60 kg)
Construction				
Materials	Aluminum – unit cabinet, Stainless Steel – Perforated Generator Plate	Aluminum - Generation Chamber, Catalyst Converter/Controller Stainless Steel – Perforated Generator Plate Aluminum–Reaction Chamber	Aluminum - Generation Chamber, Catalyst Converter/Controller Stainless Steel – Perforated Generator Plate Aluminum–Reaction Chamber	Aluminum - Generation Chamber, Catalyst Converter/Controller Stainless Steel – Perforated Generator Plate Aluminum–Reaction Chamber
Controls				
	N/A On/Off switch	Remote control On/Off switch	Remote control On/Off switch	Remote control On/Off switch

BIO TURBO 1000

BIO TURBO 1000 INSTALLATION GUIDE v. 1.2

Description

The Bio Turbo 1000 is referred to as the BT-1000. The 1000 indicates that it will handle 1000 Cu Meters per day. The BT-1000 was designed to remove ethylene from cold rooms and storage areas where fruit and vegetables are stored, extending the life of the stored produce. It was designed to hang from the ceiling and operate continuously. The unit is controlled by a remote.

The air is first pulled into the Generation Chamber. The air goes through a particle filter to remove any dust and foreign matter. The air then goes through a second filter which is a microbial filter. This filter will destroy 99.9% of the bacteria, fungi, mold, mildew, algae and other one celled organisms that cause odors, spoilage and rot. The air with ethylene then enters the ozone generation area where it mixes with ozone.

The air, mixed with ethylene and ozone, then enters the Reaction Chamber where the ethylene has contact time with the ozone. Ozone will destroy ethylene upon contact.

The Reaction Chamber is made of aluminum which is one of the metals that is least reactive to ozone.

After the ozone destroys the ethylene in the Reaction Chamber, the ozone enters the Catalytic Converter. Here a special catalyst is used to deplete the remaining ozone. Clean air is then expelled through the Controller at the exit of the BT-1000.

System Placement

The Bio Turbo is designed to be mounted on the ceiling. Ethylene goes up so the higher the units are mounted the better. A receptacle will be necessary to connect to either 110 VAC or 230VAC power. The beam structure of the ceiling should be considered also when mounting this unit.

Note: Due to the weight of the Bio Turbo system, it will require two people to mount it.

STEP 1: The large metal Reaction Chamber should be mounted first. The Chamber is 4 feet long and 2.5 feet wide. You should find a channel with mounting holes punched from end to end, a threaded rod and a special nut with spring attached. The channel should be attached to the ceiling beam. Depending on the type ceiling rafters in your install area, we recommend

6mm lag bolts with large washers. The nut goes into the channel with the spring facing the holes and the two rows of teeth on the nut go onto the inside of the channel. To fix the rod that holds the Reaction Chamber you should screw it tightly into the spring inside the channel. See Picture 1.

STEP 2: Now you should hang up Reaction Chamber by bolting it up to the rod mount (see picture 1) You may also need to hang up the



Picture 1

opposite side of the chamber temporary with a rope until the mounting of Generation Chamber and catalytic Converter unit is finished.

STEP 3: First measure 50.5" from the center of the channel that holds the Reaction Chamber and this will be where to mount the channel bar for the Converter. Then mount channel for Generation Chamber (it must be 52" from center of Reaction Chamber channel to the center of Generation Chamber channel). These two channels will be mounted side by side. Use the supplied 2" lag bolts with washers to mount these channels. These channels must support 42 lbs. weight for the systems 3 units. Ensure the channel bars are mounted securely to a ceiling joist or beam. See picture 2.



Picture 2

BIO TURBO 1000

STEP 4: Screw the spring loaded nuts onto one end of each of the 4 threaded rods. Screwing the threaded rod flush with the nut is sufficient. See Picture 1. Rods with spring loaded nuts should be bolted up onto rod mountings on both sides of Generation Chamber and Converter units. See picture 3.



Picture 3



Picture 4

STEP 5: The catalyst is in a separate box weighing 9 pounds. Slowly pour the catalyst into the Catalytic Converter through the 2" X 8" opening in the top of the chamber. See Picture 4.

STEP 6: Generation Chamber and Catalytic Converter should be mounted by inserting in Reaction Chamber (hold smaller boxes with angle and then put them in Reaction Chamber). See picture 5. Then screw up Generation Chamber and Catalytic Converter threaded rods onto the channels placed on the ceiling. Secure threaded rods with bolts on both sides of each of small boxes. See picture 3 and 6.



Picture 5

STEP 7: Mount the Controller Box to the Catalytic Converter by tilting the Controller up and sliding the hinges together. Now tilt it down and fasten the two latches on the



Picture 6

bottom. See Picture 7.

STEP 8: Plug the remote into the controller and route the remote box to the desired location.

STEP 9: Connect the wiring connectors

between the Controller and the Generation Chamber. See Picture 8.



Picture 7



Picture 8

STEP 10: Plug the long power cord into the proper power receptacle. Either 110VAC or 230VAC.

STEP 11: There should be two LEDs "glowing green" on the Controller.

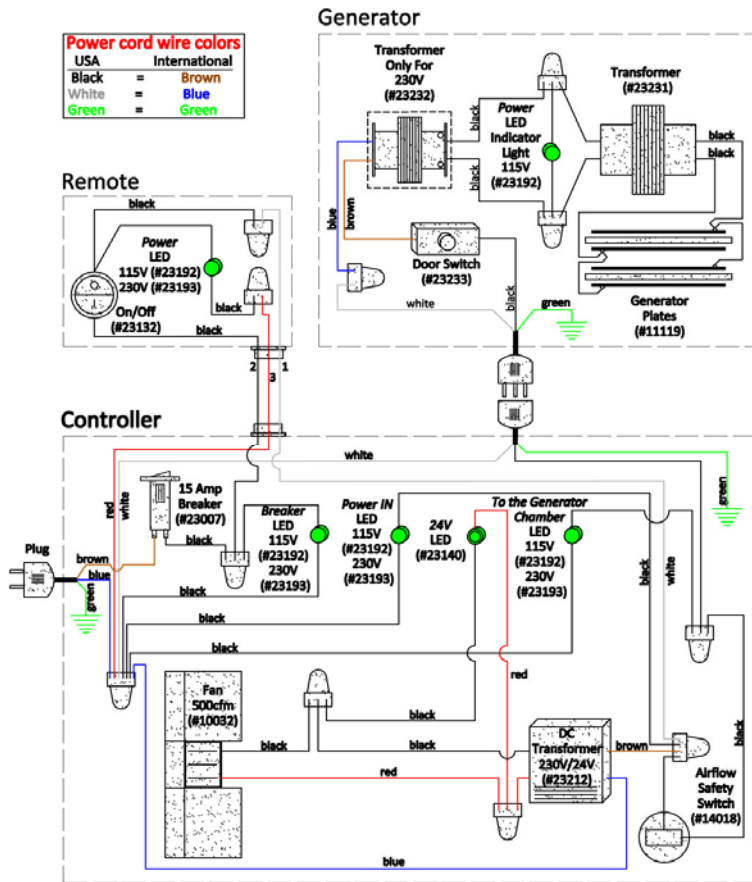
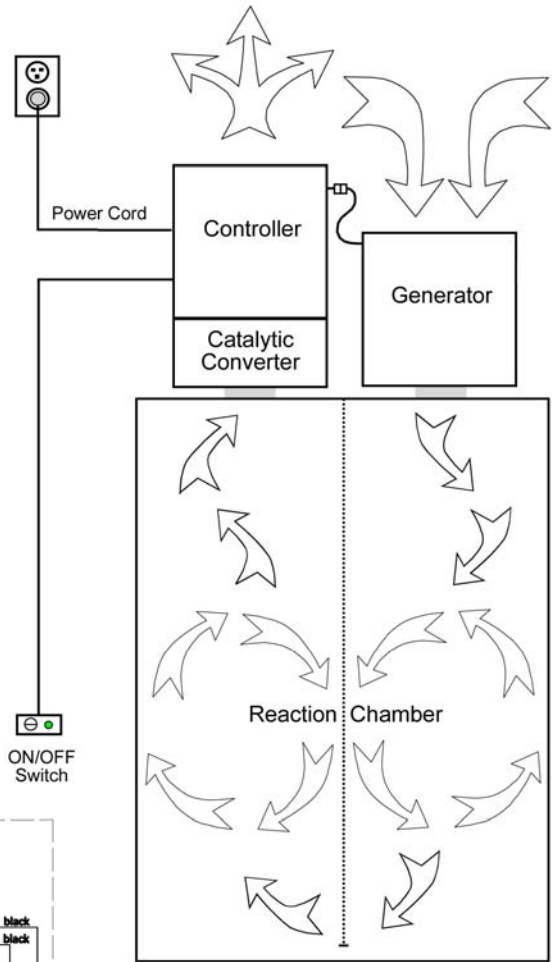
STEP 12: Turn "ON" the power switch. The other two LEDs should "glow green" and the fan should start. At this point everything is operational.

STEP 13: The LED on the side on the Generation Chamber should be "glowing green". The Generation Chamber should also emit a low hum indicating the Generator plates are operating.



BIO TURBO 1000

BIO TURBO 1000 LAYOUT DIAGRAM v. 1.2



BIO TURBO 1000 WIRING DIAGRAM v. 1.2

BIO TURBO 1000

Maintenance Requirements v. 1.2

Trouble Shooting

CAUTION - ALWAYS UNPLUG POWER BEFORE SERVICE!

The Air Filter will need to be replaced once a year or more often, depending on the operational environment. The Ozone Generator Plates should be replaced once a year.

To replace the Air filter:

1. Unlatch the bottom cover on the Generation Chamber and remove the filter.

The Air filter is the paper filter next to the intake vents.

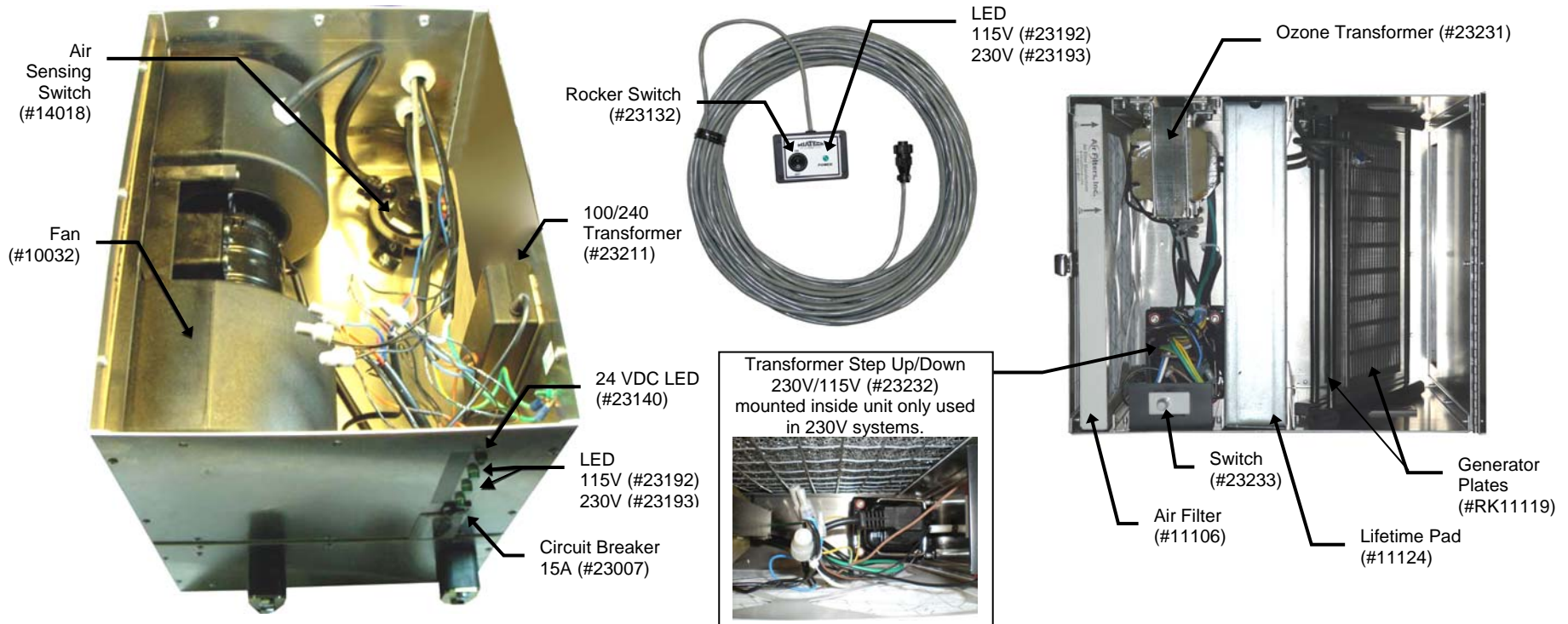
Caution – Slowly and carefully open the cover to ensure the filter does not fall down, the door helps secure it in place.

2. Check the Generator Plates and clean or replace as necessary.

Clean these plates with a soft cloth and a glass cleaner that leaves no film. Ultra fine steel wool (type 000) can be used but all particles must be removed before reassembly.

Bio Turbo system has 6 informative LED's:

- 1) LED "Power" (on the Remote Control) indicates "Power to the Main Switch".
- 2) LED "Breaker" (on the Controller Chamber) indicates "Power to the Unit".
- 3) LED "Power IN" (on the Controller Chamber) indicates "Power to the Power Supply".
- 4) LED "24V" (on the Controller Chamber) indicates "Power to the Fan".
- 5) LED "To the Generation Chamber" (on the Controller Chamber) indicates "Power to Generation Chamber".
- 6) LED "Power" (on the Generation Chamber) indicates "Power to the Ozone Transformer and Ozone Generator Plates".



**For further technical support in North America call 800 933 6478
 If outside North America call to the USA at 503 659 5680
www.miatech.org**