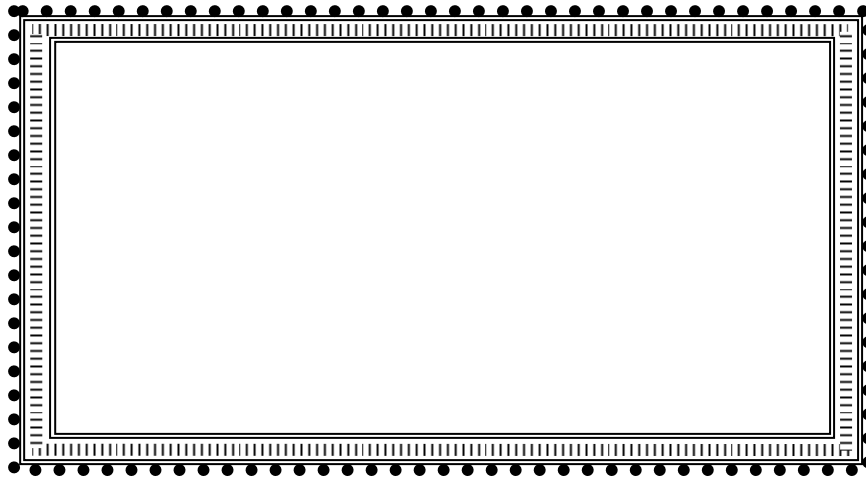




Installation, Operation & Service Instructions



Manufactured by

BIOLOGICAL
Controls

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Table of Contents

Section:

	Page #
1. AirMATION® SYSTEM DESIGN AND TECHNICAL DESCRIPTIONS	1
1.1. AirMATION® Filters	1
1.1.1. Pre-filter	1
1.1.2. Final Particulate Filter.....	1
1.1.3. Gas Phase Filter.....	1
1.1.4. Auto-Roll Option - Filter Material	1
1.2. Baffle Box.....	2
1.3. AirMATION® Pressure Switch.....	2
1.4. AirMATION® Power Switch Operation	2
1.5. AirMATION® Circuit Breaker	2
1.6. Auto-Roll Power Switch Operation	2
1.7. Auto-Roll Circuit Breaker	2
1.8. Timer Control Box Circuit Breaker	2
1.9. Timer Control Box (TCB)	3
1.9.1. Manual Initiate Pushbutton	3
1.9.2. By-Pass Mode Toggle Switch	3
2. PROCEDURES FOR FILTER RENEWAL	4
2.1. Filter Replacement	4
2.1.1. AirMATION® Pre-filter, Final and Gas Phase Filter Replacement	4
2.1.2. Auto Roll Filter Replacement.....	4
2.1.3. Quick Reference Guide for Removing the Auto-Roll Filter	5
2.1.4. Quick Reference Guide for Installing the Auto-Roll Filter	5
2.2. Disposal of Filters.....	5
3. GENERAL MAINTENANCE INFORMATION.....	5
4. INSTALLATION	6
4.1. Electrical Installation.....	6
4.1.1. For all schematics- See APPENDIX B.....	6
4.1.2. For power requirement - See SECTION 7	6
4.2. Timer Control Box (TCB) Installation	6
4.3. AirMATION® Unit Placement	7
4.4. Installing the Baffle Box	9
4.4.1. 4-way Louver Adjustments	9

Table of Contents

Section:

	Page #
4.5. Installing the Auto-Roll Option	10
4.5.1. Reemay® Filter Flange	10
4.5.2. Reemay® Filter Cover	11
4.5.3. Reemay® Screen.....	11
4.5.4. Reemay® Filter Media.....	11
4.5.5. Collection Tray	11
4.6. Final Inspection Checklist- See APPENDIX C.....	12
5. AIR SWITCH ADJUSTMENTS	12
5.1. AirMATION® Pressure Switch Adjustment.....	12
5.2. Auto-Roll Pressure Switch Adjustments.....	13
5.2.1. Set Point Adjustments.....	13
6. WARRANTY PROCESS	14
6.1. Making a Warranty Claim	14
7. SPECIFICATIONS	15
7.1. Filter Packages	15
8. APPENDIX A Dimensions	16
9. APPENDIX B SCHEMATICS.....	18
9.1. AirMATION® Main Housing Schematic	18
9.2. Auto-Roll Schematic	18
9.3. TIMER CONTROL BOX (TCB) SCHEMATICS.....	19
9.3.1. One to six unit with a 230v bypass toggle switch.....	19
9.3.2. One to three unit with a 230v bypass toggle switch.....	20
9.3.3. One to three units with a 24v bypass toggle switch.....	21
10. APPENDIX C - FINAL AirMATION® INSPECTION CHECKLIST.....	22
11. APPENDIX D Auto-Roll Filter Renewal* Quick Reference *	23
11.1. Removing the Auto-Roll Media	23
11.2. Installing New Media * Quick Reference.....	24
12. APPENDIX E Post Near the AirMATION® Timer Control Box	26

1. AirMATION® SYSTEM DESIGN AND TECHNICAL DESCRIPTIONS

1.1. AirMATION® Filters

The AirMATION® housing area (behind the Auto-Roll) houses **three varieties of filters**. The **first** being the **pre-filter**, second, the “**final**” or “high efficiency particulate filter,” and the **third**, the **carbon cell (gas phase)** filter.

1.1.1. Pre-filter

The AirMATION® unit is equipped with a pleated synthetic pre-filter to capture the larger size particles in the 1-5 micron range. It is sometimes referred to as a "roughing filter". Therefore, the pre-filter will be the first filter to require renewal. A visual inspection during the first 60-90 days of operation may provide some visual evidence of particulate loading, but it is very difficult to judge by appearance alone when the filter needs renewal. In general, it is best to rely on the filter pressure sensing circuits and warning light to determine when the filter should be changed.

The timely renewal of the pre-filter will extend the life of the next two filters many times over. It is, therefore, inexpensive insurance to protect the more expensive down-stream filters by determining an accurate pre-filter renewal schedule.

1.1.2. Final Particulate Filter

The final particulate filter is designed to capture the smaller size particulate in the 1-micron range. Neither the Auto-Roll media nor the pre-filter can stop these contaminants. Besides entrapping the smallest particles, this final filter also provides protection for the gas phase filter. A wide variety of biologic final filter efficiencies are available for use in the AirMATION® unit. The final selection will be based on the environment in which the unit is operating.

1.1.3. Gas Phase Filter

The gas phase filter is designed to adsorb gas phase pollutants generated during normal activities that are found in a variety of work related environments. Keeping the biologic carbon cell free of particulate is important for optimal performance. The efficiency of the carbon granules to adsorb odors is reduced if the surface becomes clogged with particulate matter. This reduces the life expectancy of the carbon, thereby reducing the ability of the filter to capture and remove odors and fumes. Therefore, timely renewal of the filters upstream of the carbon is essential to the overall functioning of the system.

1.1.4. Auto-Roll Option - Filter Material

The option is beneficial in environments where high concentrations of airborne particulate would normally clog the pleated pre-filter in a short time. The large filter surface-area along with the automatic indexing feature greatly reduces maintenance and labor costs while providing consistently clean air. The Auto-Roll option usually requires a minimum ceiling height of fourteen (14') feet.

The Auto-Roll filter material, REEMAY®, is a spun bonded synthetic polyester filter media that is delivered on a 600-foot flat sheet-roll. It is also called a “roughing filter” because it is most effective for removing particles larger than 8-10 microns. It covers the air intake flange and operates independent of the AirMATION® main filter housing. A separate 115V circuit is provided to power the sub-fractional indexing motor and the Photohelic® pressure switch. When the pressure measured across the filter is above .180” inches of water the unit automatically advances the filter material to continually provide an efficient filter surface. The filter media advances until the pressure drops to .150” of water.

1.2. Baffle Box

The Baffle Box is equipped with a four-way aluminum register that is designed, to reduce the air rushing sound coming from the fan blades, and direct the filtered air through louvers in any appropriate direction. It reduces the overall noise level to a great extent with a minimal reduction in the unit's airflow capacity. The box also protects personnel from the blower blades. The AirMATION® unit can be operated without the baffle box as long as the four-way register is removed from the baffle box and installed directly over the blower exhaust opening.

Warning!

Never operate an AirMATION® unit without a four-way aluminum register. It is required for safe and efficient operation.

The register provides:

- **The required safety cover for the blower**
- **The required backpressure for the fan to operate properly**
- **Provides a choice in exhaust air direction.**

If the baffle box is removed for any reason the four-way aluminum register **must** be taken off the baffle box and attached directly to the rear of the AirMATION® unit using the four pre-drilled mounting holes.

1.3. AirMATION® Pressure Switch

A pressure sensitive airflow switch is located inside the AirMATION® cabinet near the blower or exhaust end of the cabinet. It is independent of the Auto-Roll pressure and airflow circuits. It monitors the pressure differential across the pre-filter, final filter and gas phase cell combination and the outside housing pressure. The device is gravity sensitive and must remain in a vertical position. It is calibrated at the factory to sense the recommended filter change-out pressure. When the filter change-out pressure is reached the pressure switch contacts close activating a red LED located at the exhaust end of the unit. The LED signals a need to renew one or more of the filters. When this occurs, first replace the pre-filter and see if the reduction in pressure prevents the red LED from activating. If the light is still on it suggests that the **final particle filter** and the **carbon cell** need renewal. The carbon cell is implicated because there will be virtually no pressure change noticed, even on a used carbon cell, since it collects gases (which weigh virtually nothing) as opposed to particulate. It is therefore advisable to replace the final particle filter and the carbon filter at the same time. It is normal to expect that the **pre-filter** will be replaced on a much more frequent basis.

1.4. AirMATION® Power Switch Operation

A dual position toggle switch/circuit breaker is located on the rear exterior (exhaust end) of the cabinet. The down position is OFF=0, and up is ON=1 as noted on the chassis label and the switch.

1.5. AirMATION® Circuit Breaker

The Circuit Breaker is built into the toggle switch (10 amps @230V or 20 amps @115V). If the breaker opens, recycling the switch after a 10 or 15 minute wait will reactivate the unit.

1.6. Auto-Roll Power Switch Operation

The switch is illuminated green when in the "Auto-On" position. It is located on the lower left side of the collection tray next to the Photohelic® meter.

1.7. Auto-Roll Circuit Breaker

The Circuit Breaker (1/2 amps @115VAC) is located above the power switch on the left side of the collection tray. The breaker can be reset after a 10 to 15 minute wait

1.8. Timer Control Box Circuit Breaker

The Circuit Breaker (1/2 amps @120VAC) is located on the outside top left side of the control box as viewed from the front. The breaker can be reset after a 10 to 15 minute wait.

1.9. Timer Control Box (TCB)

The Timer Control Box provides an automatic timer option for the AirMATION® system. It also provides a 24VAC 40VA source to power both the TCB timer circuit/relays and optional remote activation systems such as gas monitors and electric eye circuits. Euro-style connector strips are provided for easy wiring to typical power and control circuits.

TCB ELECTRICAL CONNECTIONS
120VAC INPUT
230VAC SWITCHED POWER TO AIRMATION UNITS
TIMER REMOTE ACTIVATE INPUT
24VAC OUTPUT FOR OPTIONAL CIRCUITS

The TCB comes in several configurations depending on the number of AirMATION® units that are tied to the box. *Appendix B contains electrical schematics for the latest designs. All versions have a schematic attached to the inside of the panel door that represents that unit's wiring.*

Basically, the TCB contains one power relay and one by-pass toggle switch for each AirMATION® unit attached to it. The relay switches power to an AirMATION® unit for a period determined by the TCB electronic timer. There is one timer per TCB. The timer is manually programmed by a user to activate AirMATION® units for cycle times between 1 and 100 minutes.

The timer circuit triggers the power relays as soon as it senses a “dry-contact” closure/open event across the “activate” input connector. Note that the timer circuit will turn on all AirMATION® units connected to the TCB as soon as the first closure is detected, but it will not begin “timing” until the initiate input returns to an “open” circuit. At any time an additional closure is sensed the timer will reset the run-time to the beginning.

The timer can be activated (initiated) by multiple sources. In addition to the **Manual Initiate push button** mounted on the outside of the TCB, the table below lists some of the typical activation sources.

Typical Timer Activation Sources
*THE ASTERISK INDICATES OPTIONS WHICH ARE SUPPLIED BY BIOLOGICAL CONTROLS.
MANUAL INITIATE-RED PUSH BUTTON MOUNTED ON THE TCB
*ELECTRIC EYE DOOR CONTROLS
*MAGNETIC SWITCHES USE FOR DOOR ALARM SYSTEMS
*CARBON MONOXIDE OR OTHER GAS MONITORING CIRCUIT
*ADDITIONAL REMOTE ACTIVATION PUSH BUTTONS
FIRE HOUSE TONE ALARM CIRCUITS
VARIOUS BUILDING ALARM AND CONTROL SYSTEMS

1.9.1. Manual Initiate Pushbutton

The Initiate push button mounted on the outside of the TCB near the by-pass toggle switches is used to manually trigger the timer circuit to cycle all of the AirMATION® units attached to the TCB for the period set on the timer control dial.

1.9.2. By-Pass Mode Toggle Switch

The switch allows the User to select one or more of the installed AirMATION® units to run independent of the timer.

One by-pass toggle switch per AirMATION® unit is mounted on the outside of the TCB.

In the “Off” position, the timer and an activation source will control switched power to the AirMATION® units.

In the “On” position, the switch by-passes the timer and forces the associated AirMATION® unit to run continuously.

Note that the “Off” position will **not** remove power from an AirMATION® unit. *Any remote activation signal or the pressing of the Manual Initiate push button will start all of the units connected to the TCB regardless of the toggle switch position.* **Always remove power at the building fuse/breaker panel before installation or service.**

2. PROCEDURES FOR FILTER RENEWAL

2.1. Filter Replacement

The filters housed in this equipment are high capacity cells that are selected specifically for their performance features and compatibility in relationship to the blower motor, air switches, and Auto-Roll (when equipped). All factory settings are based on the performance characteristics of these components in combination. *Altering the combination affects the pressure set points and may result in premature maintenance procedures. Filters, other than supplied by the manufacturer, will void both the unit and individual component manufacturer's warranty.*

A Factory Distributor should be contacted for approved filter and part replacements.

2.1.1. AirMATION® Pre-filter, Final and Gas Phase Filter Replacement

All filters in the enclosure are accessible through the side, swing-down door.

The pre-filter slides into the first four inch front track, while the remaining two filters utilize 3/4" header tracks. Replace filters in the same orientation as they were provided.

If the filter exchange sensing light activates (RED), it indicates that one or more of the filters is clogged. The performance of the AirMATION® unit is severely diminished when the red light is on.

If the pre-filter is new, then the final and gas phase filters will need renewal. If the pre-filter is dirty, replace it with a new one and the reduction in pressure should deactivate the red light.

IMPORTANT

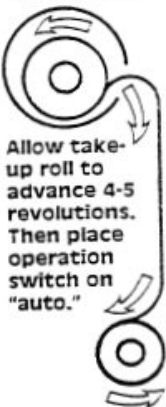
2.1.2. Auto Roll Filter Replacement

It is important to maintain accurate filter maintenance records to determine how frequently the pre-filters as well as the final and gas phase filters are replaced. Proper maintenance assures that the air cleaner will perform at maximum efficiency. Use the label provided on the inside of the access door to record the filter change activity.

An additional take-up spool is provided with all replacement filter media. Move the white spool bushing found on the used filter spool and place it in the new cardboard spool core provided with the new filter media. Note: The new tube has a pop-rievet in one end that must align with the white plastic spool bushing that is attached to the indexing motor.

The Auto-Roll media must be housed inside the Auto-Roll tube enclosure at the top of the Auto-Roll flanged housing attached to the top of the air cleaner. This encapsulation helps to prevent airborne pollutants from contaminating the new unused filter media. Start the roll by pulling a small section of the media off the roll and feed it through the vertical slots on each side of the screen. You need not remove the attached front screen to replace the media roll. The roll can be slid into the tube from either side after removing the steel guide pins. Once the roll is positioned, replace either guide pin and align the roll media with the media guide slots on each side of the screen. Make sure the roll is properly aligned so no ripples appear on the surface of the screen.

Auto-Roll Tracking



Tape the filter material to the take-up spool in the bottom of the collection tray across the entire face of the spool. (Use a thin tape such as masking tape rather than duct tape.) The motor turns the cardboard spool in a counterclockwise direction. There is a great deal of torque generated to advance the spool initially, so it is important that the media is secured very well to the cardboard spool. Advance the take-up spool to start winding the media by using the manual push-button feature located on the left side of the collection tray near the pressure meter. If you need additional access to the take-up spool, remove the two expansion springs attached to the rear of the collection tray and allow the tray to swing down in the back while still being attached in the front by threaded studs. You may need to remove the black air tube that extends from the same enclosure if you swing the collection tray down. If so, it is very important to reattach it after the collection tray is repositioned. This tubing is the pressure probe for the air switch. Never disconnect the black tube from the collection tray meter chassis. Always remove it from the hole in the large flange.

Advance the filter media by using the manual advance push-button until it is wound around the spool at least four to five revolutions. Check that the media is properly aligned and is tracking correctly with no unequal tension across the face. The collection tray power should be in the "AUTO" position (green light is on in the switch). The filter media will automatically advance based upon the settings of the Photohelic® pressure switch

2.1.3. Quick Reference Guide for Removing the Auto-Roll Filter
See APPENDIX D

2.1.4. Quick Reference Guide for Installing the Auto-Roll Filter
See APPENDIX D

2.2. Disposal of Filters

Based upon different state and local codes, it is impossible to draw a blanket statement as to the approved means for filter disposal. The best approach is to dispose of the used filters consistent with your current disposal procedures or contact your local EPA, or county authorities for guidance.

3. GENERAL MAINTENANCE INFORMATION

Other than the normal filter changes outlined in the filter renewal section in this document, the unit requires very little maintenance.

The AirMATION® blower is a double inlet direct drive unit and is permanently lubricated. The blower is not in the “dirty” air stream eliminating the need to clean the squirrel cage blades.

The Auto-Roll collection tray, when equipped, will need to be emptied and cleaned on occasion, as particulate will be collected when they migrate from the filter media surface during automatic advancement.

If the AirMATION® unit or Auto-Roll needs to be cleaned use a damp cloth that has been soaked in a mild detergent.

Warning! Always remove power during any maintenance routine. Keep water away from all electrical connections.

4. INSTALLATION

4.1. Electrical Installation

Danger! Turn off the building circuit at the fuse or circuit breaker before proceeding. All electrical installation and maintenance should be performed only by qualified individuals. All wiring must comply with applicable codes and ordinances.

4.1.1. For all schematics- See APPENDIX B

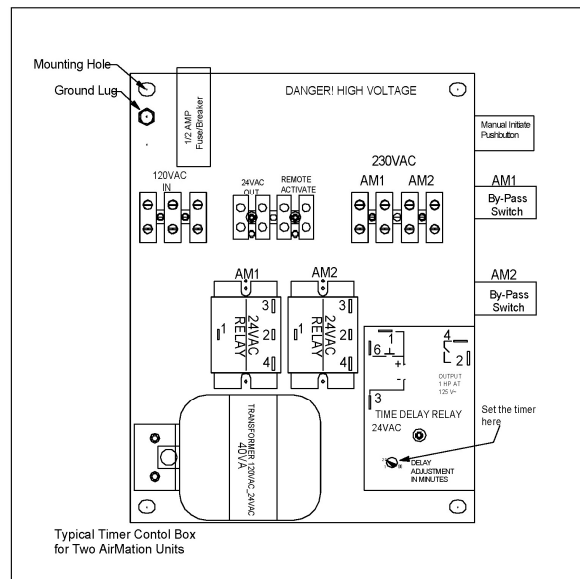
4.1.2. For power requirement - See SECTION 7

4.2. Timer Control Box (TCB) Installation

The TCB is generally mounted on a wall by using the four mounting holes provided in the rear wall of the box. Since the types of conduit, hardware and wiring practices vary widely, the wire access cutouts in the top surface of the box are **not** predrilled. The installing electrician will provide the proper cutouts to mount the associated electrical hardware and wiring used for a particular installation. The TCB contains terminal strips that are used to easily connect wiring to all of the interfacing circuits. The Timer Control Box technical description is found in Section 1 and a typical layout for a box connecting to two AirMATION® units is shown below.

TCB ELECTRICAL CONNECTIONS	TERMINAL STRIP ALLOCATIONS
120VAC INPUT	2 Connector positions plus an Earth Ground Lug
230VAC SWITCHED POWER TO AIRMATION UNITS	2 Connector Positions per AirMATION®
TIMER REMOTE ACTIVATE INPUT	2 Connector Positions (multiple sources may be put in parallel)
24VAC OUTPUT FOR OPTIONAL CIRCUITS	2 Connector Positions

TYPICAL TIMER CONTROL BOX DIMENSIONS	
1-3 AirMATION® Units	8.5"X10.5" Utility Box 4" deep
4-7 AirMATION® Units	12.5"X12.5" Utility Box 4" deep
Custom Configurations	Custom size



4.3. AirMATION® Unit Placement

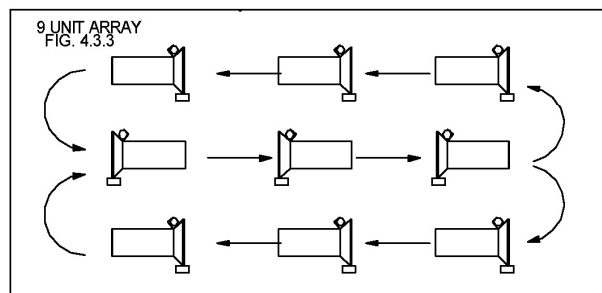
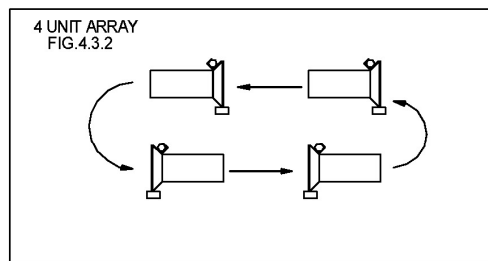
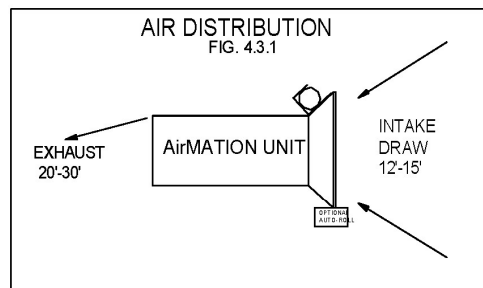
Warning! Always obtain an approved fixture attachment design from the building engineer before proceeding with the installation. The ceiling support system of the building must be checked to assure that it is sufficient to carry the weight of the hardware.

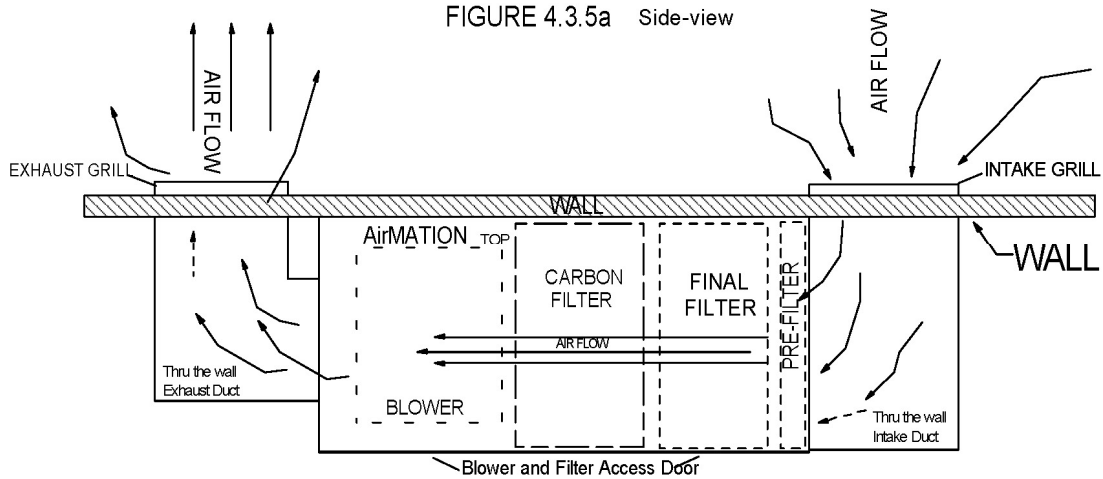
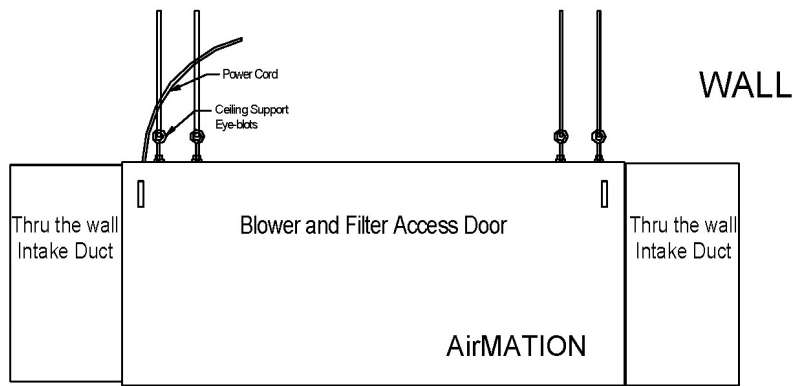
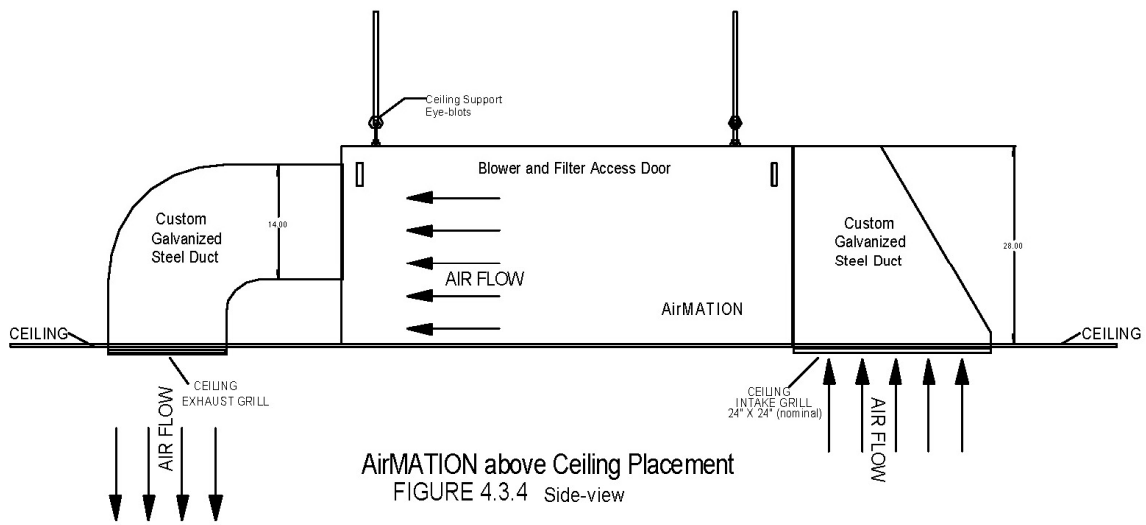
Placement is critical to the operation and effectiveness of the AirMATION® units installed within a facility. Although AirMATION® units are typically suspended from a ceiling by utilizing the four (4) eye-bolts mounted on the top of the chassis (see bolt pattern in Appendix A), many custom installation variations exist. Figure 4.3.4 and 4.3.5a,b show examples of some custom variations.

Ideally five feet (5') of vertical clearance should be maintained between the bottom of the AirMATION® and the highest point on the polluting vehicles or equipment in the area. *Note that the Auto-Roll option requires more ceiling height due to the added height of the Reemay® flange and collection tray.* In general, the Auto-Roll option requires ceiling heights of fifteen feet or more.

In the horizontal plane, place units approximately five feet (5') back beyond the exhaust side of a vehicle or polluting equipment. Allow at least four feet (4') on the filter access door side from any wall or obstruction to allow opening room for the swing down door. This will assure easy access to the internal filters. Also, allow fifteen feet (15') of clearance from a wall to the exhaust end of the unit. The 4-way louvers on the exhaust baffle box should be directed to hit the wall at a 45 degree angle to create a circulation air flow pattern.

The AirMATION® units should be placed in an array to cover large areas. Figures 4.3.2 and 4.3.3 below show some sample array patterns.

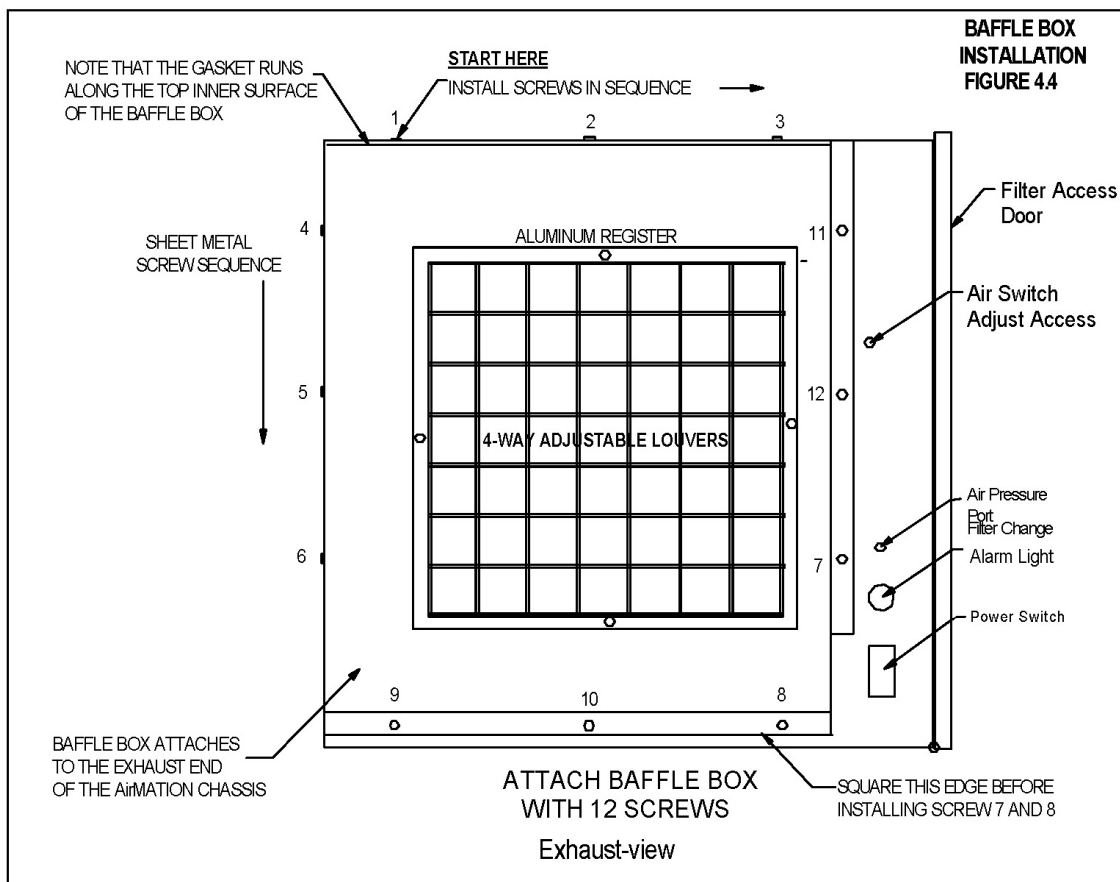




4.4. Installing the Baffle Box

The AirMATION® unit is usually not shipped with the baffle box attached. It is a field installed component. The baffle box attaches to the rear of the AirMATION® unit (the blower exhaust end). See figure 4.4 below. Position the baffle box so the flat flange with the gray gasket rests on top of the unit and butts up snugly against the top surface with a notched corner to accommodate the double seam running across the top of the AirMATION® body.

Start in the upper left hand top corner and begin attaching the baffle box with the twelve (12) supplied self-tapping screws (use a 5/16th inch driver). Holes for the baffle box are **not** pre-drilled in the AirMATION® body in the event the baffle box is not required. Use a drill with a 5/16 hex attachment and work across the top and down the left side as shown in figure 4.4. Square up the baffle box and finish the installation by attaching the remaining two sides.



4.4.1. 4-way Louver Adjustments

The unit is provided with a four-way directional louver located on the baffle box. The vertical and horizontal louvers need to be adjusted to allow for good air dispersion and circulation. It is a good practice to angle the exhaust air to a wall at a 45 degree angle so air is returned to the space to create a circulating airflow pattern. Avoid exhausting in the direction of hanging space heaters.

CAUTION!

Do not adjust louvers with the unit in operation. Never place anything inside the louvers.

4.5. Installing the Auto-Roll Option

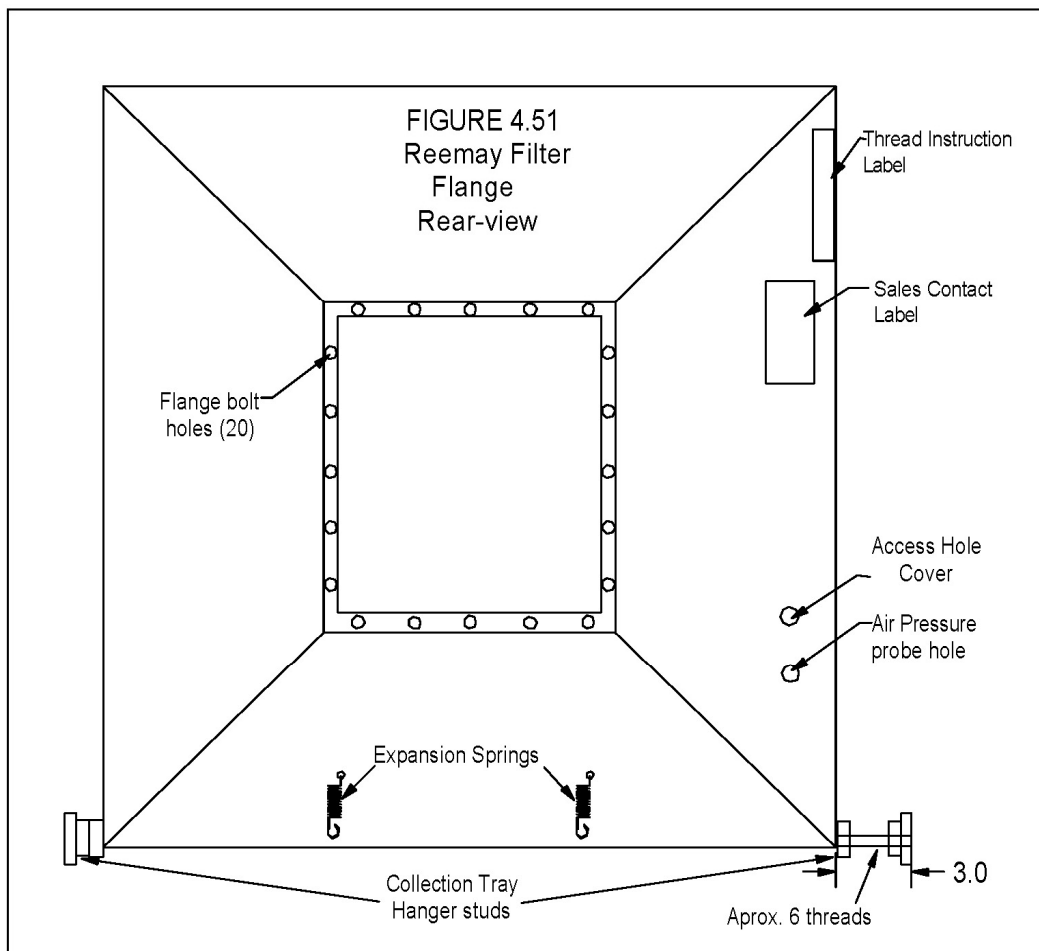
The Auto-Roll option consists of:

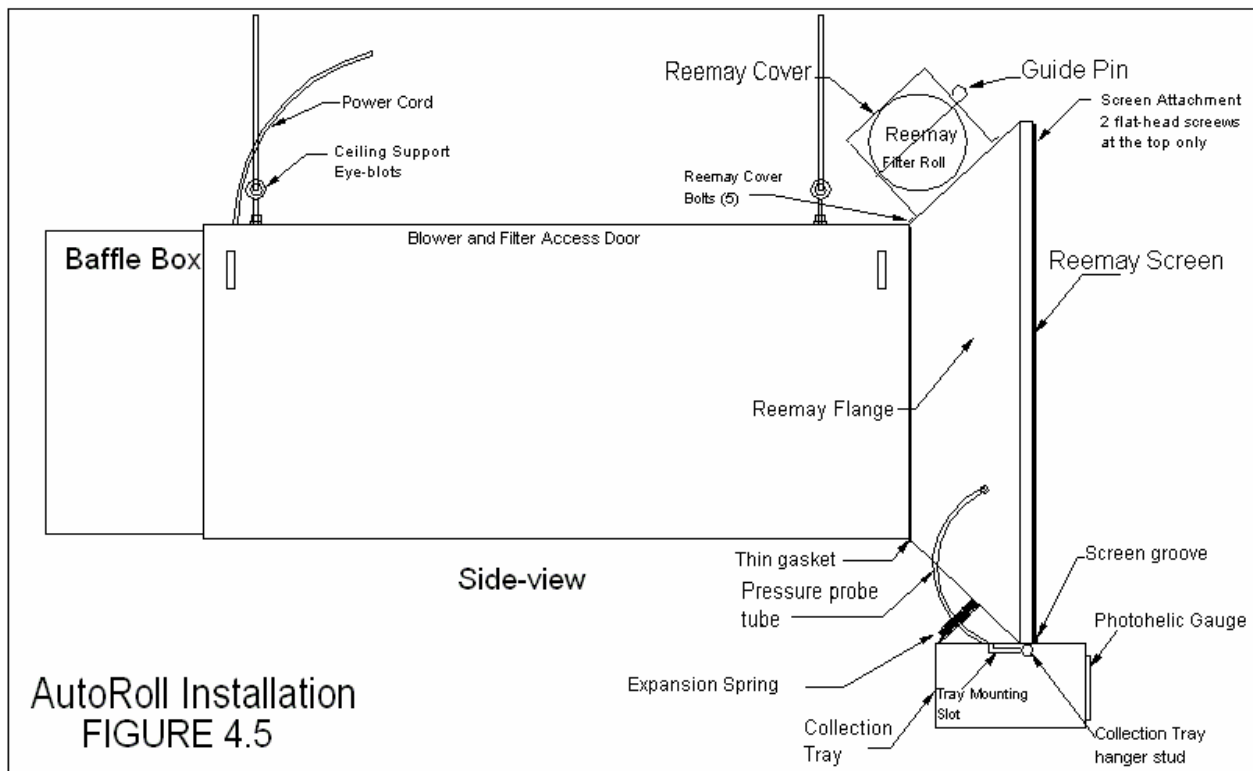
- 1- Reemay® Flange
- 1- Reemay® Screen
- 1- Reemay® Cover
- 1- Collection Tray equipped with a Photohelic® gauge
- 1- Spool of Reemay® filter media
- 1- Installation Hardware Kit:

The hardware kit is secured to the inside bottom of the collection tray for shipment. The hardware consists of two (2) Reemay® guide pins and a plastic bag containing twenty (20) large ¼ X 20 bolts, five(5) #12 sheet metal screws and two(2) #10 Flat head sheet metal screws.

4.5.1. Reemay® Filter Flange

Attach the large filter Flange to the intake end of the AirMATION® chassis using twenty (20) ¼ X 20 bolts (five to a side) found in the installation kit. Align the holes in the Flange with the pre-drilled holes in the AirMATION® intake-end of the chassis. A thin gasket has been factory installed on the chassis to help seal the two parts together.





4.5.2. Reemay® Filter Cover

The Reemay® Filter cover is installed at the top of the Auto-Roll Flange/Screen assembly. Center the cover on the Flange and align the five (5) bolt-holes in the cover with the five (5) holes in the flange. Bolt them together using the #12 X1/2" self tap sheet metal screws found in the installation hardware kit

4.5.3. Reemay® Screen

Slide the Screen into the groove at the bottom of the Flange and attach it to the top of the Flange using two (2) #10 flat-head sheet metal screws in the hardware kit. Make sure that the flat-head screw heads are recessed into the tapered holes provided in the top of the Screen. If the screws protrude past the face of the Screen they will rip the filter material as it automatically advances.

4.5.4. Reemay® Filter Media

The Auto-Roll media must be housed inside the Filter Cover. This encapsulation helps to prevent airborne pollutants from contaminating the unused portion of the filter media. You need not remove the Screen that is attached to the Flange to install or replace a media roll. The roll can be slid into the Filter Cover from either side. Once the roll is positioned, insert one steel guide pin into the holes provided in the Filter Cover at each end of the spool. Start the roll by pulling a small section of the media off the roll and guide it through the vertical slots on each side of the screen. Make sure the roll is properly aligned so no ripples appear on the surface of the screen. The media is then attached to the take-up spool in the Collection Tray. Follow the instructions in Appendix D to complete the installation.

4.5.5. Collection Tray

The collection tray hangs on two threaded studs attached to the bottom of the Flange.

Align the studs on the Flange with the mounting slots in the Collection Tray. Connect the two expansion spring attached to the Flange to the holes provided in the back wall of the Collection Tray.

Note that both the studs and the springs are factory installed.

Route the black tubing (air pressure probe) coming from the top of the Photohelic gauge box to the ¼ inch hole grommet in the Flange. Push the tubing into the grommet until it hits the red tape mark on the tubing.

Plug the 120VAC power cord into the power outlet.

4.6. Final Inspection Checklist- See APPENDIX C

After an installation or service always go to the **Final Inspection Checklist** to make sure that all of the items have been addressed.

5. AIR SWITCH ADJUSTMENTS

5.1. AirMATION® Pressure Switch Adjustment

The pressure switch can be adjusted in the field if it is necessary when a calibrated pressure differential meter is available (such as a Magnehelic gauge setup to read up to 2.0"water column).

The airflow switch is used to monitor static pressure within the cabinet housing the three AirMATION® filters. Be advised that the switch was carefully calibrated at the time of manufacture.

The switch is located inside the main cabinet mounted on the rear panel to left of blower. The adjustment screw is accessed from **outside** the cabinet through a small ½" hole located 12" above the power switch. The hole is covered with a black nylon clip-on cover. Pry the cover off and retain. Spin the adjustment screw with a medium sized flat-blade screwdriver.

Turning the adjustment screw in a **clockwise** direction **increases** the pressure setting. While a **counter clockwise** adjustment **decreases** the pressure setting. Replace the access hole cover when finished.

Be aware that a very large change will be made in just a quarter turn of the adjustment screw. Always note the initial setting of the adjustment screw so the switch can be returned to the factory setting if needed. The factory calibration numbers are recorded on the pressure switch conduit cover for reference.

NOTE: Substituting filters that are different from those originally installed will alter the alarm point setting of the airflow switch.

5.2. Auto-Roll Pressure Switch Adjustments

The Auto-Roll unit has been adjusted at the factory to automatically advance the filter-roll media when a prescribed range is measured within the Auto-Roll pressure sensing circuits. The proper settings will balance the most effective use of the filter-roll media with the best overall efficiency of the AirMATION® unit.

A setting that is higher than recommended will tend to let the filter clog with too much contamination before it will advance. This should always be avoided since it restricts the proper airflow through the system and reduces the overall efficiency of the AirMATION® unit. An adjustment that is too low may lead to using more filter-roll media than is necessary. The proper adjustment follows:

5.2.1. Set Point Adjustments

Disconnect power to the AirMATION® unit and collection tray. The pressure adjustments will be made on the Photohelic® Meter dials located on the left side of the collection tray.

5.2.1.1. Low-side pressure adjustment

There are two plastic knobs on the meter face. The left-most knob should be used to set the associated **red dial needle to .15"** inches of water.

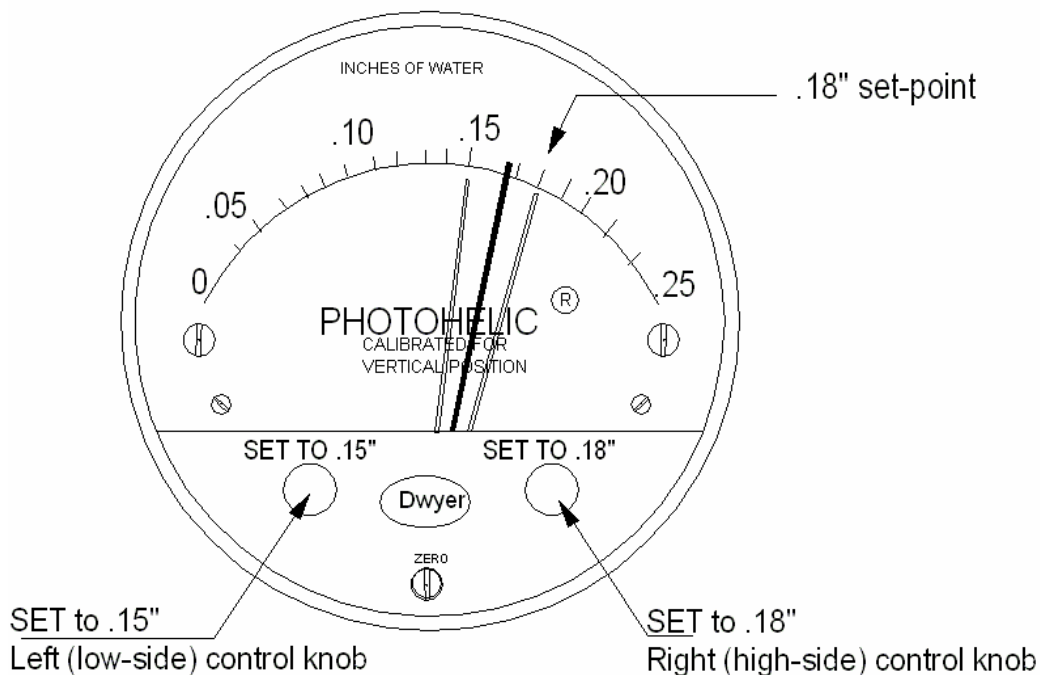
5.2.1.2. High-side pressure adjustment

The right-most knob should be used to set the associated **red dial needle to .18"** inches of water.

Place collection tray power switch into the "auto" position and restore power.

Note: In normal operation the **black needle** on the face (middle needle) of the Photohelic® meter indicates the **actual pressure** drop across the Auto-Roll filter. The black needle will "wander" between the two red needles and cycle the paper advance motor as follows:

When the black needle is between .15" and anywhere to the left of the high-side red needle, the Auto-Roll filter motor will **not** advance until the black needle touches the red high-side adjustment point or beyond. The filter paper spool will then advance at 1 revolution per minute (1 rpm) and continue until the black needle falls back to the low-side set point of .15". When it falls to the .15" set-point the paper advance motor shuts off and will not advance again until the black needle reaches the .18" set-point; and the cycle begins again.



Note: When power to the AirMATION® Blower is off the black needle will read "near" to zero.

6. WARRANTY PROCESS

Limited Twelve (12) Month Warranty

Biological Controls warrants this product to be free of defects in workmanship and materials during normal use and service for a period twelve (12) months from the date of purchase by the original end user. If at anytime during the warranty period the product is defective or malfunctions, Biological Controls or its dealer or distributor, from whom the product was purchased, shall at the option of Biological Controls replace or repair the defective part or component.

This warranty does not cover removal or installation costs. This warranty shall not apply if it is shown that the defect or malfunction was caused by damage due to shipment, improper electrical connections, or improper use or abuse of the product.

The sole responsibility of Biological Controls shall be to repair or replace the product within the terms stated above.

Biological Controls shall not be liable for any loss or damage of any kind, including any incidental or consequential damages resulting, directly or indirectly, from any breach of warranty, expressed or implied, or any other failure of this product. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.) **The warranties set forth are exclusive and Biological Controls expressly disclaims all other warranties, whether written or oral, implied or statutory, including but not limited to any warranties of merchantability, workmanship, or fitness for a particular use.**

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

6.1. Making a Warranty Claim

To make a warranty claim or if you have questions about the warranty policy, contact your local AirMATION® distributor from whom you purchased the product.

***NOTE:** Do not return any products or components directly to the factory without a factory issued "Return Merchandise Authorization (RMA) number" issued by the Biological Controls' Customer Service Department. Any products returned without the issuance of the RMA number will be refused and returned to shipper.*

For questions related to this warranty or technical inquiries, call or write Biological Controls direct at:

Manufacturer:	Sales Distributor:
BIOLOGICAL CONTROLS	AIR TECHNOLOGY
749 Hope Road Suite A	57 Clearwater Drive
Eatontown, NJ 07724	Willingboro, NJ 08046
TEL: 800-224-9768	TEL: 800-743-3323
FAX: 732-389-8821	FAX: 609-871-7442

7. SPECIFICATIONS

Weight	AirMATION® Chassis - 175 lbs with Auto-Roll option - 250 lbs
Air Capacity	3000 CMF
Power	AirMATION®: Input Voltage- 115/210VAC @ 60Hz 14/7.5 Amperes Blower Motor rated @ 1 HP Auto-Roll option: Input Voltage- 115VAC @ 60Hz 330 mA Timer Control Box (TCB) option: Input Voltage- 115VAC @ 60Hz 330 mA Output Voltage- 24VAC @ 60Hz 30VA output
Clearances	See placement section 4.51
Dimensions	See APPENDIX A.

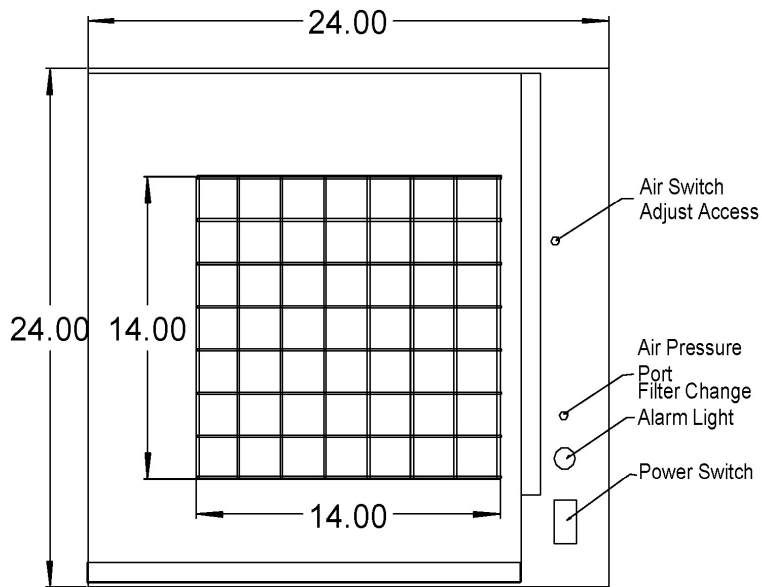
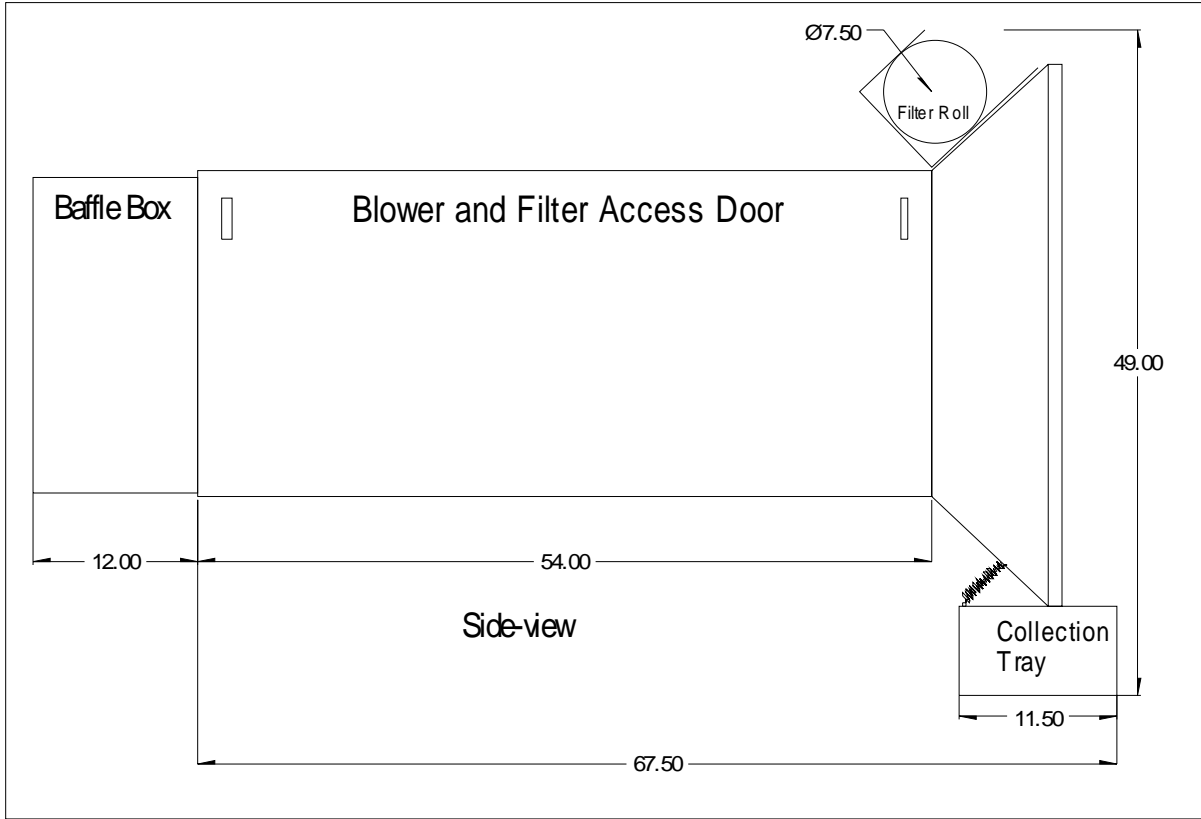
7.1. Filter Packages

STANDARD BIOLOGIC FILTER PACKAGE	
Auto-Roll Media (Reemay®)	200 - yards, synthetic polyester
First Stage Filter (pre-filter)	One (1). 4inch pleat 30%
Second Stage Filter (final particulate)	One (1) 95% pleated V-bank
Third Stage (gas phase)	One (1) 12inch (26lb.) carbon cell

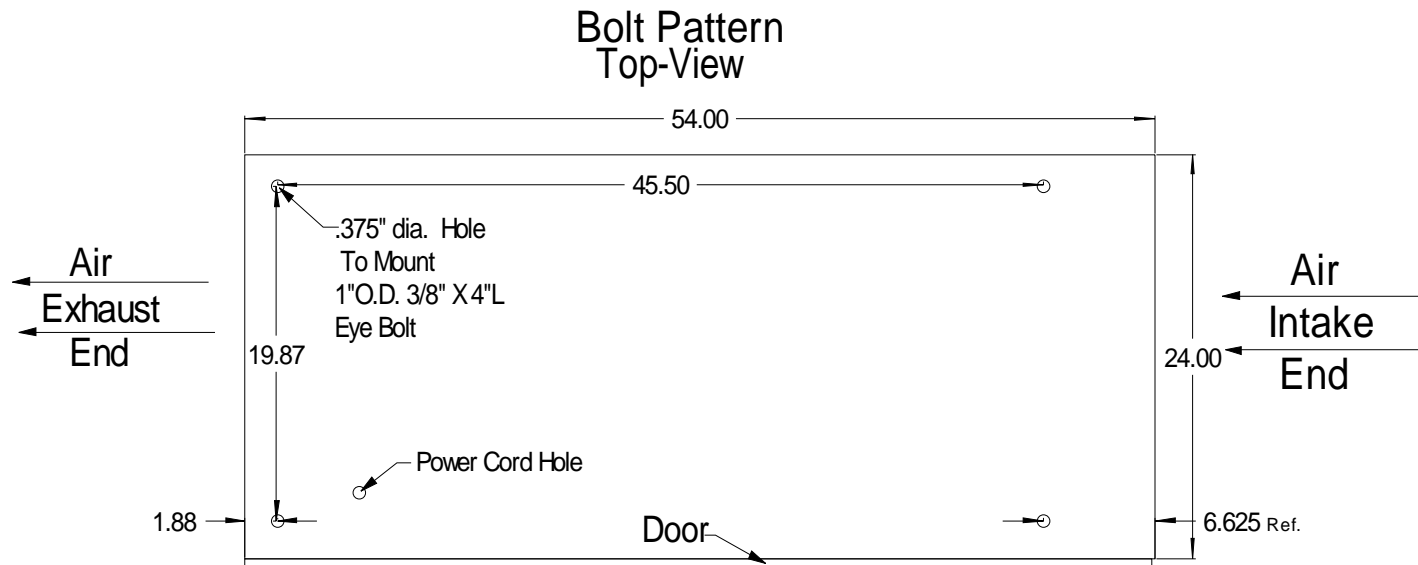
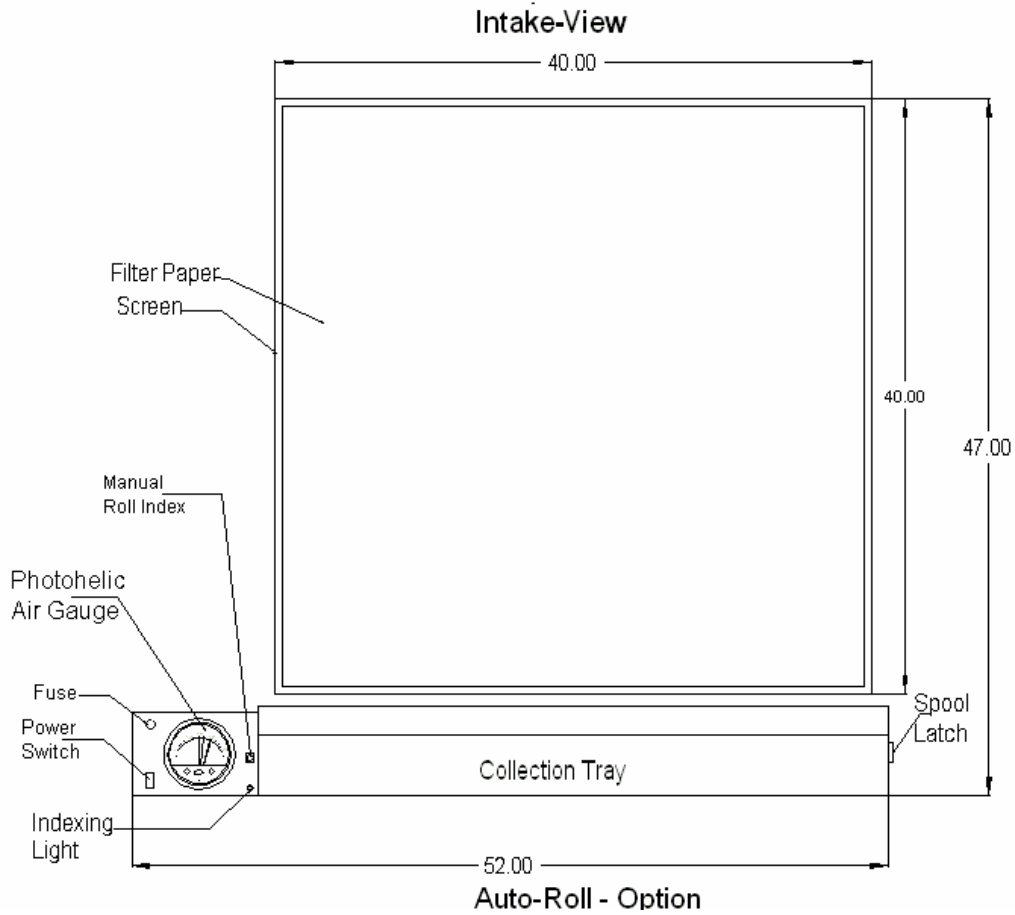
OPTIONAL BIOLOGIC FILTER PACKAGE	
Second Stage Filter (final particulate)	One (1) 95% rigid cell
	or
	One (1) 95% DOP V-bank
	or
	One (1) 99% HEPA

8. **APPENDIX A Dimensions**

Units are in inches.



Exhaust-view
with Baffle Box Attached



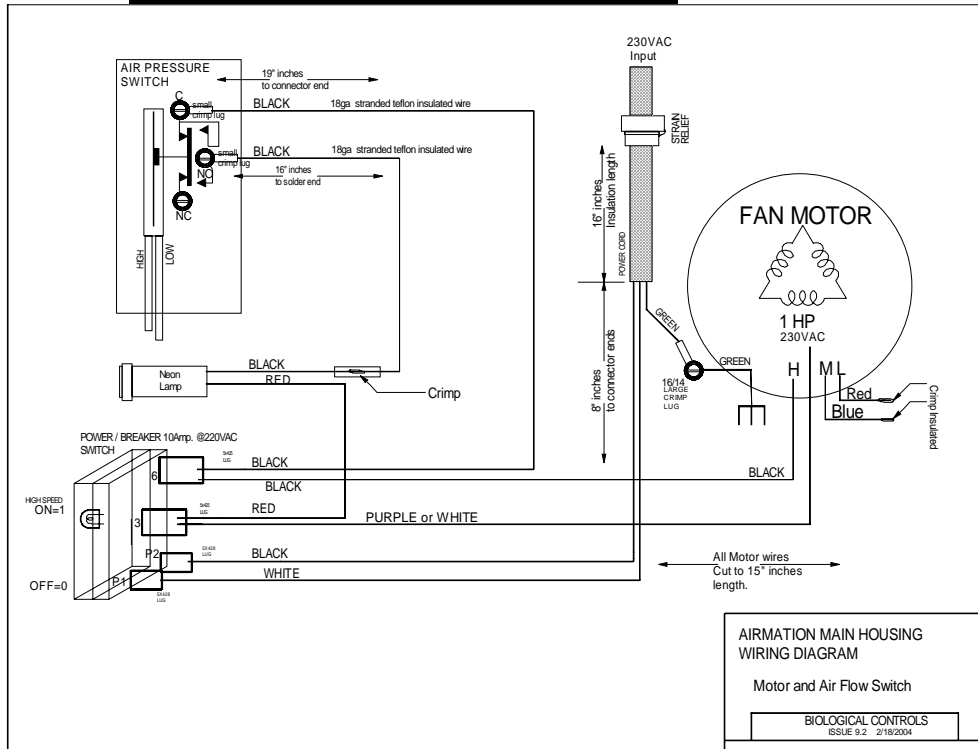
Dimensions for Ceiling Mount Eyebolts

Typical Timer Control Box Dimensions

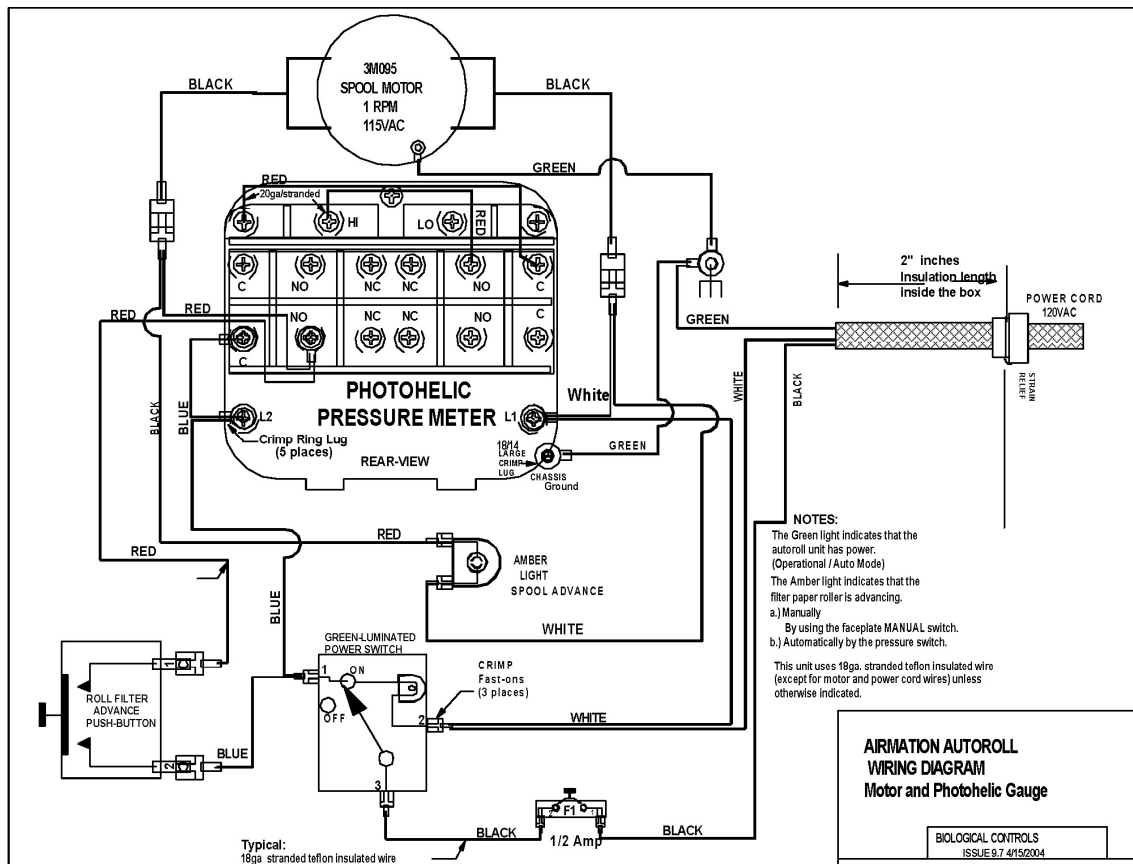
1-3 AirMATION® Units	8.5"X10.5" Utility Box 4"deep (.250" mounting holes)
4-6 AirMATION® Units	12"X12" Utility Box 4"deep (.250" mounting holes)
Custom Configurations	Custom size

9. APPENDIX B SCHEMATICS

9.1. AirMATION® Main Housing Schematic



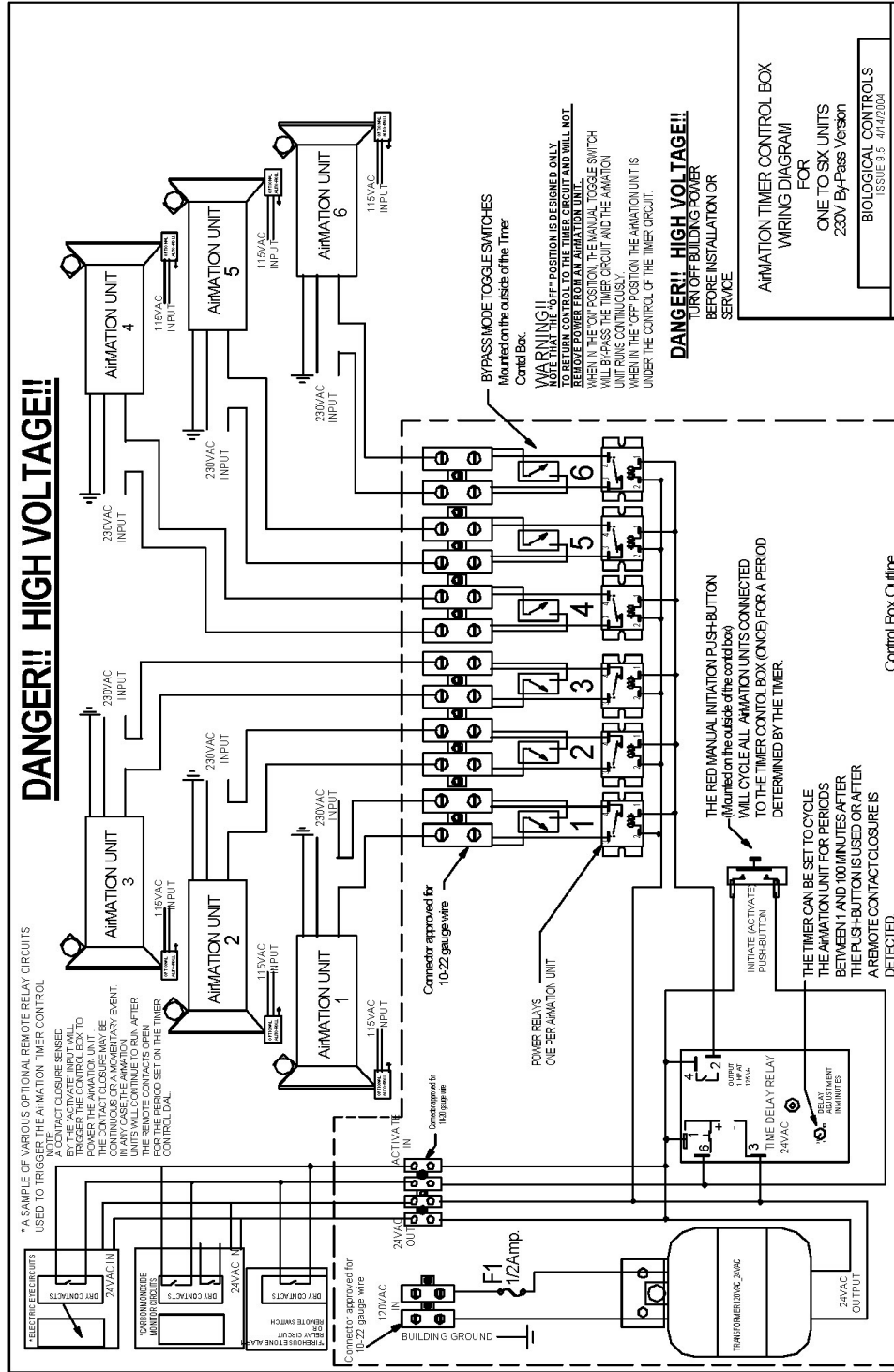
9.2. Auto-Roll Schematic



9.3. TIMER CONTROL BOX (TCB) SCHEMATICS

Several wiring versions are in use along with some custom options. Below are samples of typical Timer Control Box schematics. Note that the schematic pasted inside of every TCB will represent the wiring for that specific unit.

9.3.1. One to six unit with a 230v bypass toggle switch



10. **APPENDIX C - FINAL AirMATION® INSPECTION CHECKLIST**

PRIOR TO PLACING UNITS INTO SERVICE

Is the unit securely fastened to the unit eyebolts and ceiling?

Is unit level, side to side, back to front?

Are all filters properly installed and placed in correct position?

Has installation date been recorded on filter change label?

Is main power connected to unit?

Is power connected to collection tray if equipped?

Is the access door securely shut and fastened?

Are louvers on exhaust register properly adjusted (directionally)?

Is power switch “on” for blower operation?

WHEN THE AUTO-ROLL OPTION IS EQUIPPED:

Is the power switch on collection tray in “auto” position?

Is Auto-Roll media properly and securely attached to take-up spool?

Has media been advanced 4 - 5 revolutions around take-up spool?

Is media aligned and properly tracking across screen surface?

WHEN THE TIMER CONTROL BOX (TCB) IS EQUIPPED:

Are all of the optional activation sources installed and operational?

Has the timer been set?

Are all by-pass toggle switches in the off position?

Has a copy of Appendix E been posted next to the box?

Warning! NEVER ATTEMPT TO OPEN THE ACCESS DOOR WHEN BLOWER IS OPERATING.

Check the following:

Blower power switch is illuminated-glows amber

Blower is running - red “filter change” light is off

Auto-Roll power switch is on – green

Auto-Roll filter advance lamp (amber) is off

Auto-Roll meter “Low” and “High” set-points are correct

Timer Control Box door closed and locked

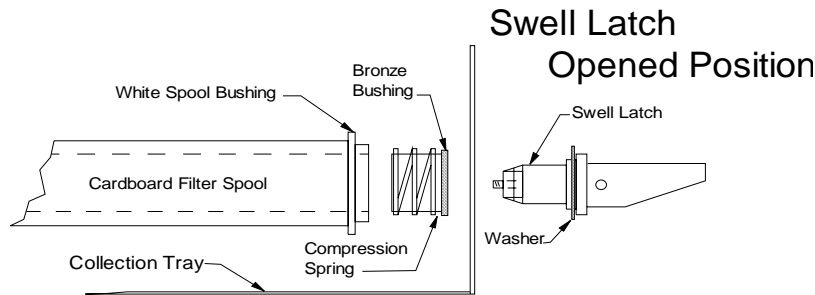
WHEN ALL ABOVE STEPS HAVE BEEN COMPLETED, the AirMATION® UNIT is ready for power. Turn on the building power for the blower and 120VAC for the AUTO-ROLL if equipped.

11. APPENDIX D Auto-Roll Filter Renewal* Quick Reference *

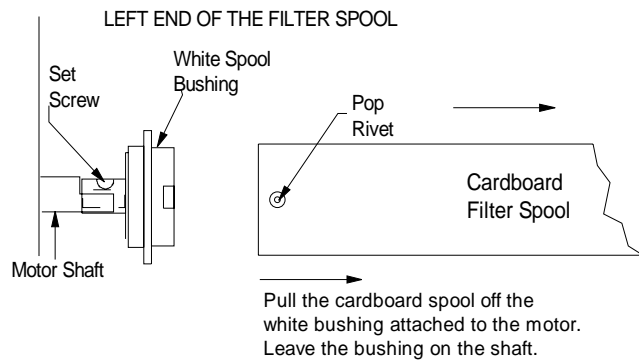
11.1. Removing the Auto-Roll Media

The new or replacement roll of media comes with a new cardboard take-up spool.

Remember to retain the (1) **black swell latch**, (2) **bronze bushing**, (3) **compression spring**, and (4) the **white right-side spool bushing**.



Do not remove the left-side spool bushing, which is attached to the motor drive shaft.



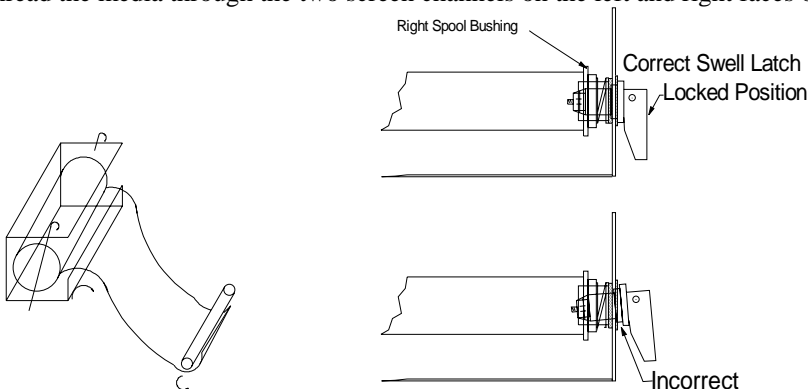
Removing Used Media Roll:

1. Unlock the black swell latch on the right outside location of the collection tray by lifting the swell latch lever up. Then pull the latch away from the tray and **retain**.
2. Slide the right side of the "used" media roll up the inside wall of the collection tray chassis being careful to hold onto the bronze bushing and spring combination. The spring is under compression and will want to flyaway if not contained. **Retain the bushing and spring.**
3. Slide the filter spool to the right. The "used" filter roll media should now slip off the white spool bushing that is attached to the motor shaft on the left side of the collection tray. Leave this spool bushing in place.
4. Remove the white spool bushing found on the right side of the old fiber spool and retain. This bushing will be installed on the new take-up spool that is provided with every new roll of filter media.
5. Dispose of the used filter media and cardboard spool. **Remember to remove the white spool bushing before disposal!**

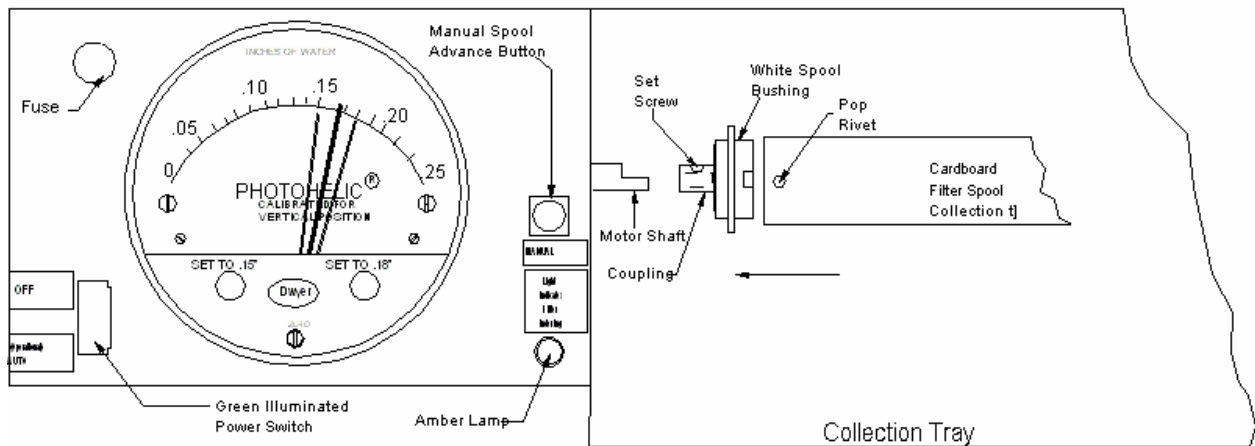
11.2. Installing New Media * Quick Reference

Install the New Filter and take-up Spool

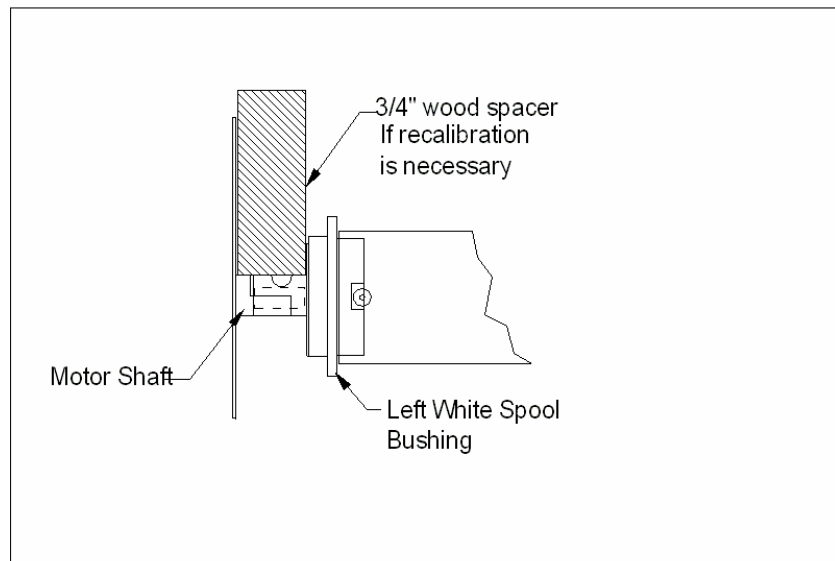
1. Insert the white spool bushing into the new cardboard fiber spool on the end that has no pop-riquet.
2. Align the pop-riquet end of the fiber spool with the slot cut into the white spool bushing that is mounted on the motor shaft. Then push the cardboard spool on to the motor shaft spool bushing.
3. Insert the retained brass bushing and spring combination into the white spool bushing on the right side of the tube. Compress the spring and slide the cardboard spool down the inside wall of the collection tray. Align the bushing hole with the hole in the side-wall of the collection tray.
4. Insert the swell latch through the collection tray wall and capture the bushing and spring combination by locking the swell latch. The swell latch should not pull out of the hole easily. If the swell latch is too loose remove it and tighten up on the plastic adjustment nut at the end of the threaded screw. Make sure the washer is flush with the wall of the collection tray! See the correct swell latch position in the figure below.
5. Apply power to the collection tray. Turn the power switch to the "Auto" position (green light is on). Manually advance the spool by using the pushbutton on the left side of the tray. (The amber lamp indicates that the motor is indexing.) The cardboard spool should turn freely without the swell latch moving or rotating. If the swell latch rotates or moves with the take-up spool it indicates that the spool tension against the compression spring is too tight. If this occurs go to the "Filter Spool Tension Adjustment" section below before proceeding.
6. The tube is now ready to accept the attachment of the new spool of filter media. Remove one of the steel filter guide pins and slide the new roll of media inside the Auto-Roll Reemay[®] cover at the top of the Auto-Roll flange and screen. Replace the guide pin. Align the filter roll in such a way that the media will come off the bottom of the roll and spin in a counter-wise rotation as it feeds across the steel screen and into the collection tray.
7. Thread the media through the two screen channels on the left and right faces of the screen



8. Wrap the filter media around the take-up spool in a counter-clockwise position, securing with tape across the face.
9. Allow the media to advance around the core by using "manual" advance push-button for at least four or five revolutions. The amber lamp indicates that the spool is advancing at 1 revolution per minute.
10. When the filter spool is secured properly, and the fiber media is tracking nicely across the screen face, check that the green light in the collection tray power switch is on indicating that the system is in automatic mode and that the amber lamp is off.



Filter Spool Tension Adjustment



The white spool bushing on the left side of the cardboard spool rarely needs to be adjusted or replaced. However, if adjustment is required a simple procedure follows:

Rotate the motor shaft using the manual push-button near the meter until the set-screw is accessible or the flat portion of the motor shaft is facing up. Place a $\frac{3}{4}$ " spacer between the collection wall and the outside face of the white spool bushing. Tighten the set-screw to the flat face of the motor shaft. When the spool tension against the compression spring is correct, the spool should turn without the swell latch rotating or moving.

12. APPENDIX E Post Near the AirMATION® Timer Control Box

AirMATION® - THE DIESEL EXHAUST CAPTURE SYSTEM

The AirMATION® is virtually maintenance free. With its progressive multi-stage filtration system it captures diesel exhaust and soot as well as other airborne contaminants such as dust and gases. Particulate contaminants and gas phase pollutants are prevented from spreading throughout the building protecting the health and safety of personnel in the area. AirMATION® units activate automatically for a preset time when vehicles enter and exit the building. The units can also be activated manually. AirMATION® units are equipped with a 3000 cfm blower that immediately draws the diesel soot, gas, and fumes from the vehicle exhaust into the AirMATION® unit. The air is scrubbed and purified air is returned to the area. This method of diesel pollutant removal has been tested thoroughly and meets all regulatory standards. Rapid capture and total containment of diesel and other airborne pollutants are the hallmark of the AirMATION® system.

TIMER CONTROL ACTIVATION: AirMATION® units start and stop as follows:

1. AUTOMATIC MODE

a. Breaking the electric eye beam(s) across the bay doors with a vehicle.

The eye beams are located on the doors approximately 6-1/2' to 7' up from the floor.

b. Opening or closing of bay doors will activate the units controlled by the Timer.

2. MANUAL MODE

Press the red manual initiation switch located on the outside of the Timer Control Box (TCB).

This initiation switch activates all AirMATION® units for a period based on the preset timer.

3. BYPASS MODE

Each AirMATION® unit has its own timer bypass toggle switch located on the side of the TCB. The switch bypasses the timer circuits and turns on the AirMATION® unit. A unit will run indefinitely in this position. The system returns to the AUTOMATIC ACTIVATION MODE when the (manual) bypass toggle switch is turned to the off position.

TIMER

The timer may be set to operate the units for up to 100 minutes. The normal interval is 20 minutes. The activation period can be changed manually by adjusting the timer dial inside the TCB. ***Remember: The toggle switches bypass the timer only; they do not remove power!**

FILTERS:

1. Biologic Pre-filter #1: The first filter inside the AirMATION® unit to capture diesel soot and particulates. Biologic Cell Filter #2: The high efficiency filter captures all of the finest diesel particulates and fumes.

If the red filter light does not go off after replacing the pre-filter then filter #2 must be replaced.

2. Biologic Gas Phase Cell Filter #3: 26 pounds of real activated coconut shell carbon designed to capture all gaseous pollutants. Requires replacement when the second filter has been replaced.

The filters are located in the main housing and are accessed through a left side panel door. Three internal filters are individually housed and slide in and out on dedicated tracks. A red LED light located above the power switch will indicate that filter replacement is necessary. The filters are replaced starting with the pre-filter, #1. If the light continues to stay on after the pre-filter (#1) is changed, filters # 2 and # 3 should always be changed as a set. Approximate filter life for Biologic filters is from 10-30 months depending on activity, Auto-Roll filter life is good for approximately 6-12 years. ***If the AirMATION® units are not maintained in a timely fashion the AirMATION® will shut down as a safety precaution.***

AUTO-ROLL:

The Auto-Roll feature is designed for ceiling heights of 18' or higher. Large diesel soot particulate is captured on the face of the Auto-Roll media. A Photohelic® air gauge automatically advances the filter roll. Once the pre-set differential pressure setting is reached the Auto-Roll will index until the pressure is reduced. The amber LED located next to the meter indicates that the roll is advancing. Install a new roll of media when the filter spool is depleted. Instructions for replacing the Auto-Roll filter media are in the service and operation manual and will also be included with each replacement roll.

***You may elect to run the AirMATION® units 24/7 or for extended periods of time.**