Bird•B•Gone Avian Plus

Stop Pest Birds with Fragrance!

Installation Guide

Avian Plus 1100

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I. Introduction

The Avian Plus 1100 is the delivery system for Avian Plus bird-control fragrances. The delivery system and the fragrances are together called Avian Plus and represent the next generation of bird-control technology. Avian Plus was developed by the Aerobiology and Infection Control Unit of Prolitec Inc., a leader in the development and deployment of innovative solutions for indoor air quality. Avian Plus is designed for use in difficult bird-control applications such as warehouses, warehouse format retail stores, airplane hangers, factories, distribution centers and any interior space where birds are considered pests and continuous control is required.

Avian Plus is a continuous-action system meaning that, unlike the traditional fogger/sprayers, Avian Plus is "always-on" maintaining a constant but very low level of bird control fragrance in the area to be treated. The Avian Plus 1100 operates wall mounted for direct diffusion into a space or attached to an air handler for diffusion into the areas it serves.

The Avian Plus 1100 works by converting any one of the Avian Plus® bird control fragrances into ultra-fine drop¬lets less than 1 µ in diameter. The droplets are light enough to easily blend with air in the air handlers or be moved to the rafters by ambient air circulation. If needed for very high rafters or to put scent between the ceiling fans the optional Diffusion Director can accelerate dispersion of scent to higher levels.

Avian Plus 1100 operation is managed by an on-board computer that allows the user to adjust scent output to match space sizes up 250,000 cubic feet per appliance and to program daily work cycles. Multiple Avian Plus 1100s can work together to serve larger spaces either positioned at different locations in the area to be treated or ganged on one or multiple HVAC air handlers. There is, therefore, no practical limitation on the size of the space that can be served by Avian Plus 1100 .

Avian Plus 1100vian requires little to no maintenance except periodic cleaning for appearance.

The Avian Plus 1100 generates ultra fine, ultra-light droplets approximately 500 nanometers in diameter. By comparison, a droplet from a pressurized aerosol is 50 microns (50000 nanometers) in diameter or 166 times larger than an Avian Plus 1100vian droplet. In terms of weight and volume of liquid, the comparison is even more dramatic. A 50-micron aerosol droplet is 4.6 million times heavier than a 300-nanometer Air-Q droplet1. This tiny Air/Q droplet offers many performance benefits over a conventional aerosol including: completely uniform distribution of the treatment Avian Plus fragrance; 100 times more exposed surface area, allowing use of much less air treatment Avian Plus fragrance per cubic foot; and the absence of any residue or deposits on surfaces.

II. Safety Precautions

A. Avian Plus 1100 Appliance Precautions:

- The appliance must be operated in an upright or vertical position and firmly attached to a vertical sur¬face such as a wall or a duct.
- The appliance should NOT be used with the door in the open position. The door is opened only to per¬form a cartridge or program change.
- NEVER put your nose to the output of Air/Q 1100. Within 12 inches of the output, the fragrance is highly concentrated. The improper inhalation of high concentrations of fragrance may cause irritation including watery eyes, headache, cough and upper respiratory discomfort.
- The appliance is built to be plugged into an 110VAC or 220VAC power outlet. The UL and CE compliant power supply converts power to 12V DC to power the appliance.
- Unplug before cleaning.

B. Avian Plus Fragrance Cartridge Precautions

- Read the Consumer Product Safety Information Sheet and the Material Safety Data Sheet enclosed pro¬vided with each shipment of Cartridges. Insure that these information sheets are available for review by employees.
- Use latex gloves to handle a Cartridge to avoid the liquid getting on hands. The fragrances are formu¬lated so as to not be harmful in contact with the skin, but the concentrated nature of the Avian Plus fragrances may make the scent difficult to remove from hands and skin.
- Wash your hands after all contact with Cartridges or fragrance and air treatment Avian Plus fragrances.
- Cartridges must be provided by and contain formulations which have been certified by Prolitec.
- While Air/Q formulations do not contain ingredients deemed harmful to the skin, if there is skin con¬tact, wash with soap and water. If there is contact with the eyes, irrigate the eye with fresh water for 5 minutes. If there is any eye irritation, consult a physician immediately.

III. Appliance and Controls

IV. General Maintenance

A. Changing the Cartridge

1. Unlatch and open the door to access the cartridge: The door should be opened only to perform a car¬tridge or programming change. When in use, the door must be closed.
2. Remove air nozzle (located on the side of the cartridge head) by rotating 90 degrees and pulling to¬wards you. (See Picture One below)
3. Detach Injector hose and hose connector from the cartridge output port (located on the top of the car¬tridge head). This is done by unscrewing the hose connector from the cartridge output port and pulling out.
4. Remove cartridge from appliance enclosure.
5. Install new cartridge, place and tighten hose connector firmly on cartridge output port.
6. Insert air nozzle and rotate the handle 90 degrees until secured (by stem retaining tab on cartridge head). (See Picture Two below)
7. Turn appliance on. Verify that the plume is not escaping inside the appliance and that all connections are tight. Close the door when complete.

Picture One

Picture Two

B. O-Ring Replacement – every 6 months or as needed

1. Replace the air nozzle's 3 o-rings (Part number 10208) if worn down or swollen. A partially full cartridge may indicate an air leak between the air nozzle and the cartridge, reducing plume output. Replace as needed and/or every six months for preventative maintenance.
2. If there is any Avian Plus fragrance that leaks during the cartridge installation, clean it carefully with a paper towel and some ethanol or another alcohol.

C. Air Filter – every 6 months or as needed

Replace air filter (part number 10417) if dirty. If any dust has gathered inside the unit, remove it with a damp paper towel.

D. Battery Replacement – approx. every 2 years:

(requires 3 Volt CR2032 Lithium Battery, part number 8111)

1. Unlatch and open the door to access the enclosure.
2. Using a pair of tweezers or needle-nose pliers, remove battery from the center opening of the oval grommet. The grommet is located on the front of the blue bracket below the operating buttons.
3. Insert the new CR2032 battery. The positive side of the battery should face your right while looking at the front of the appliance. The battery will have a + or – marking

V. Commissioning the Air/Q 1100 Avian

A. Getting Started

- Open the door and unlock if needed.
- Turn on the power by pressing the ON/OFF button in the upper left corner of the control panel. (Make sure the appliance is plugged in to the AC power outlet.) The power button will light blue.

B. Setting the Clock

- Turn the dial to Set Clock. The time will blink.
- Adjust the time forward or backward using the +/– buttons on the right side of the control panel. AM or PM is indicated on the lower right side of the time digits. Hold + to fast forward.

C. Using the 24/7 Mode (recommended)

If you want the Air/Q™ 1100 to run continuously — 7 days a week, 24 hours a day — turn the dial to 24/7. If not, see Using the Program Mode.

D. Using the Program Mode

1. Setting specific Start/Stop Times.
   - Turn the dial to Start.
   - Adjust the clock to the time you want the appliance to start each day using the +/– keys.
   - Turn the dial to Stop.
   - Adjust the clock to the time you want the appliance to stop each day using the +/– keys.
2. Turn the dial to Program to operate with the specified start/stop times.

E. Using the Program Override

The Program Override is typically used at start up, when outside the programmed time window.

- Press the button in the bottom left corner to operate the appliance outside the specified start/stop times.
- Each time the button is pressed, another hour is added up to 12 hours.

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VI. Bird Control General Considerations

A. It's the scent

Bird control with the Avian Plus system is simple. The magic is in the Avian Plus fragrances which have been designed to be pleasant for humans and unpleasant for birds without harming them in any way. Even the tiniest whiff of an Avian Plus fragrance will cause most birds to retreat.

B. Installation Objective

The objective of any Avian Plus bird control installation is also simple – deliver the scent to those places where birds are likely to congregate.

C. How many machines?

The number of machines and the amount of scent (concentration) needed to clear the birds will depend on two main variables.

- Size of the space in cubic feet. That's the entire enclosed space not just the area frequented by birds. Step it off length x width gives you square feet x ceiling height for cubic feet.
- Quantity of fresh air flow in the space because fresh air dilutes the scent concentration in the air. This is an important variable but often very difficult to estimate accurately.

The rule of thumb is that one (1) Avian Plus 1100 will service UP TO 250,000 cubic feet. So you will need at least one appliance for every 250,000 cubic feet. If the air flows are unusually strong with a lot of fresh air, you may need more machines.

D. Positioning of the Avian Plus 1100 appliances for wall mounting must consider the following:

- Direction of air currents in the space. It is important to not fight the natural air currents in a space. The rule: always position the appliance(s) upwind so the natural flow of air helps to move the scent to where the birds are.
- Determining air flow takes a little time. Usually spaces, even quite large ones, have a natural flow of air either into or out of the portals or openings. A space with "positive pressure" pushes the air to the outside. A space with "negative pressure" pulls the air in. Make a rough map of the space on a piece of paper. Stand near the door, light a candle and then snuff it out and watch the direction of the smoke. Do this all over again in different locations drawing arrows to indicate the direction of air flow until you can confirm a general directions. Keeping in mind where the birds are, this map will tell you where to position the wall mounted appliances for optimal flow of scent to the birds.
- Ceiling fans can help or hurt. If the birds are above ceiling fans pushing the air down, then there are only 2 choices:

- Reverse the fan direction so they are pulling the air up; or b) Use the optional Scent Gun so the output end is above the fans.

E. Programming the Avian Plus 1100

Programming is simple from instructions on the machine itself. Basically, you can program start and stop times and the intensity level.

1. Scent intensity can be adjusted from 0 to 50. Turn the power on and use the +- keys to change intensity. For spaces smaller than 250,000 cubic feet consult the Settings Table below. It is only a guide and subject entirely to conditions in the space.

Settings Table

Output Level Range Settings	Space to be treated (in Cubic Feet)	Space to be treated (in Cubic Meters)
1 thru 5	3,000 - 15,000	85 - 425
6 thru 10	15,000 - 29,000	425 - 820
11 thru 15	29,000 - 48,000	820 - 1,360
16 thru 20	48.000 - 68,000	1,360 - 1,900
21 thru 25	68,000 - 91,000	2,600 - 3,300
31 thru 35	117,000 - 146,000	3,300 - 4,100
36 thru 40	146,000 - 177,000	4,100 - 5,000
41 thru 45	177,000 - 214,000	5,000 - 6,000
46 thru 50	214,000 - 250,000	6,000 - 7,100

2. Start times can be set by turning the dial to start and then using the +- keys to set the start time. The Stop time is set the same way.

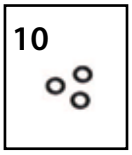
Hint: There are many variables involved in finding the right settings for Avian Plus. The installer should experiment to determine the lowest setting level that is effective in controlling birds. Start low and move it up to as needed until the birds scram.

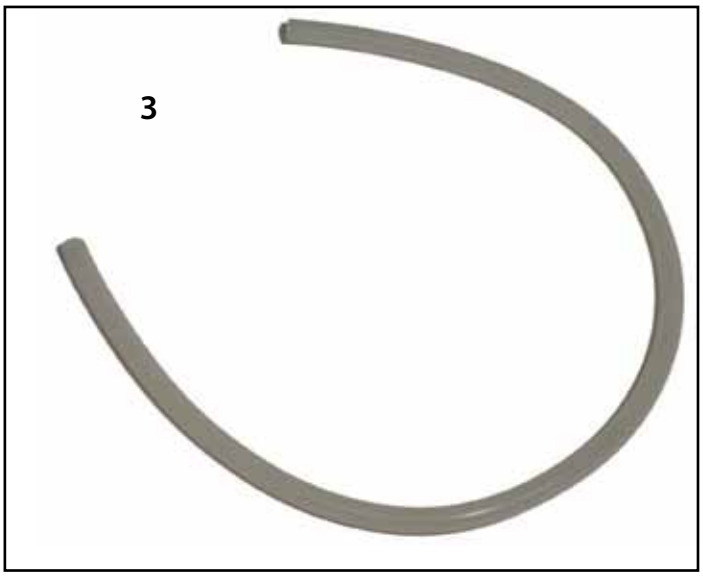
F. The Last Step

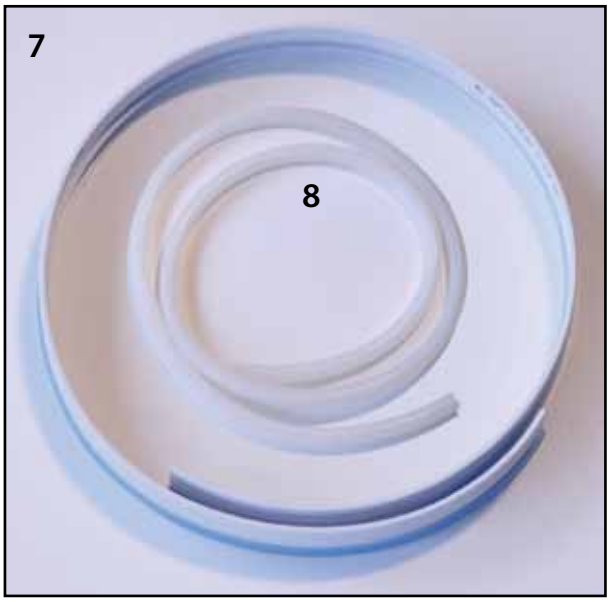
- Set the dial to either 24/7 or Program if you have programmed a start/stop time.
- Make sure the power is on. The blue light will show through the button.
- Close and lock the door, storing the key in a known place.

VII. Installation Kit

1. One (1) Avian Plus 1100 appliance (not pictured) with:
2. One (1) Prolitec Diffusion Director fan for direct indoor diffusion
3. One (1) Prolitec Injector and injector tubing for diffusion via HVAC system
4. Seven (7) dry wall anchors and screws, and four (4) washers for securing appliance and Diffusion Director Fan onto dry wall (not pictured)
5. Seven (7) #10 self-tapping sheet metal screws for securing the appliance and injector tube onto sheet metal.
6. One (1) Diffusion Director fan cable
7. Five (5) feet of cable raceway
8. Five (5) feet of 3/8th ID, 1/2 OD Injector hose
9. Hose connector and hose clamp (for cartridge attachment)
10. One (1) spare set of 3 O-rings for the air nozzle







VIII. Installation: Direct Indoor Diffusion

A. Pre-installation Checklist

This checklist should be completed before the install date.

1. Confirm the area to be targeted for air treatment.
2. Confirm the general direction of the ambient air flow in the roosting area during the times of day when bird control is desired. This is important because it is helpful for the appliances to be placed upwind of the areas to be treated.
3. Determine number of machines required which is the total cubic feet to be served divided by 250,000 (this is a very rough guide and actual performance will depend on conditions including the distance between the Appliance and the roosting area).
4. Based on 2 above, determine the wall positions for installation keeping in mind that the Appliance re¬quires 110/220 V AC and that the appliance should be installed as close as possible to the roosting area while maintaining accessibility for service. (See "Appliance Positioning" below)

B. Appliance Positioning

Waterproof Collar

It is important to find a location that can be serviced and yet as close as possible to the roosting area. The closer you get to the roosting area, the less Avian Plus will be required per cubic foot.

Fig. 1

C. Appliance Installation

1. The appliance is wall-mounted. Place the appliance onto the desired location on the wall and ensure that it is level.
2. Fasten the appliance to the wall using the necessary anchors, screws and washers provided.
3. Connect the power cord to a junction box or connect AC plug to a nearby outlet.
4. Open the enclosure door and unscrew the aluminum cap of the waterproof collar located on top of the appliance enclosure. Remove and set aside the grommet. (see Fig. 1)
5. Assemble hose and hose connector together (see Fig. 2) Be sure to leave approximately 1/8 of an inch clearance between the top of the cartridge hose connector and the end of the hose. Then secure with clamp, ensuring that the hose connector is still free to rotate.

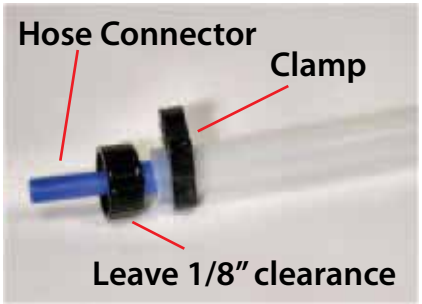


Fig. 2

6. From the inside of the enclosure, slide hose assembly upward through to the waterproof collar. (see Fig. 1)
7. Lube the inside of the grommet if needed to allow the Injector hose to easily slide through. Leave approximately 2 inches of hose length inside the appliance to provide enough play when replacing the cartridge. Tighten aluminum cap of waterproof collar to ensure a watertight seal.

D. Diffusion Director Fan Installation

1. The Diffusion Director fan is positioned directly above the appliance hose output port located on the top left of the appliance but no more than 5-1/2 feet above it.
2. Use the Diffusion Director fan assembly as a template to mark the location of the mounting holes. (see Fig. 3)
3. For installation on drywall, drill the 3 anchors into drywall and install the 3 screws to secure the Diffusion Director fan to the wall. Use the metal screws provided for installation on sheet metal or appropriate fastening hardware for other wall surfaces.
4. Attach cable to Diffusion Director fan assembly by connect¬ing wire marked with a white dotted line to the red wire of the Diffusion Director fan. Connect plain wire to black wire of the Diffusion Director fan.
5. Measure the length of cable raceway needed and cut to length using a pair of scissors or a cutting blade. Fold into an "L" shape and peel off liner. Fasten adhesive side to the wall between appliance and Diffusion Director fan assembly as shown below. (see Fig. 5)
6. Run Diffusion Director Fan cable inside the raceway and snap the raceway cover closed. fold into a square and snap it shut. If needed, use a flat head screw driver to push in the side wall of the cable raceway. (see Fig. 6)
7. Insert cable connector into jack located on the right side of the appliance.
8. Extend the hose from appliance toward the Diffusion Director fan hose barb, cut to proper length and secure to the hose barb of the Diffusion Director Fan assembly. (see Fig. 4)
9. Turn the APPLIANCE on and verify that a plume is produced.

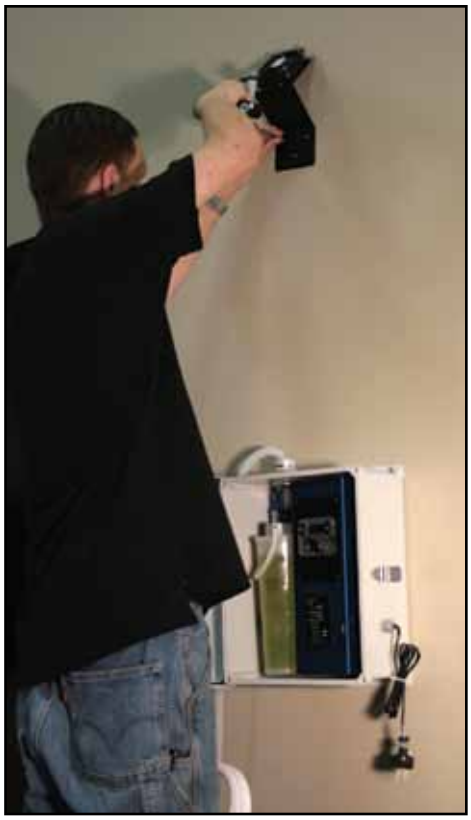


Fig. 3

Installation: Direct Indoor Diffusion

Fig. 4

Fig. 5

Fig. 6

VIII. Installation: Diffusion via HVAC System

A. HVAC Pre-installation Checklist

This checklist should be completed before the install date.

1. Confirm the area to be targeted for air treatment.
2. Determine the Air Handling Unit or duct that serves the target area.
3. Make sure the AHU does not use an open gas flame.
4. Find and mark the optimal insertion point for the Injector Tube. (See "Appliance Positioning" below) If using a Diffusion Director, the optimal insertion point is 12" above the fan.
5. Find and mark the exact location for placement of the appliance. (See "Appliance Positioning" below)
6. Note the distance between the insertion point and the proposed appliance location. (NEVER MORE THAN 6 FEET and there should NEVER be a LOW POINT in the hose run.)
7. Determine and mark the location for the 110 or 220V AC power outlet (NEVER DIRECTLY BELOW THE appliance).

B. Appliance Positioning

It is important to find an insertion point where the plume output will be smoothly drawn into and mixed with the airflow. This usually means those parts of the AHU where the static pressure is negative. Ideal locations include:

- Before the supply fan with injection through the wall of the AHU. Positioning immediately before the fan and after the coils if possible or in the mixed air chamber.
- Behind the blower with the whole appliance mounted inside the AHU in the mixed air chamber.
- Outside the AHU in the Supply air duct.

Best practice when installing in an AHU is to place the injector tube after the heating and cooling coils. If this is not possible, the Plume output can pass over hot water, steam, chilled water, and DX coils.

Open gas flames should absolutely be avoided. If installation must be over gas heated coils or open gas flames, contact Prolitec Technical Support.

The best location for the Appliance is below the injector tube (See Figure 7). The injector hose should be run upward as short a distance as possible and NEVER MORE THAN 6 FEET. If an upward injector hose run is not possible, care should be taken support the hose to prevent sagging or any low spot in the run to avoid any possibility of condensation and liquid collection which will block the plume output. The injector hose is prone to stretching, so support points should be placed every 5 to 6 inches on horizontal runs. Give the hose a slight upward slant along its run (See Fig. 8). The hose must not be run horizontally. A strong tape (such as Venture tape) may be used to support short runs. The hose may be run through PVC pipe for longer distances.

Fig. 7

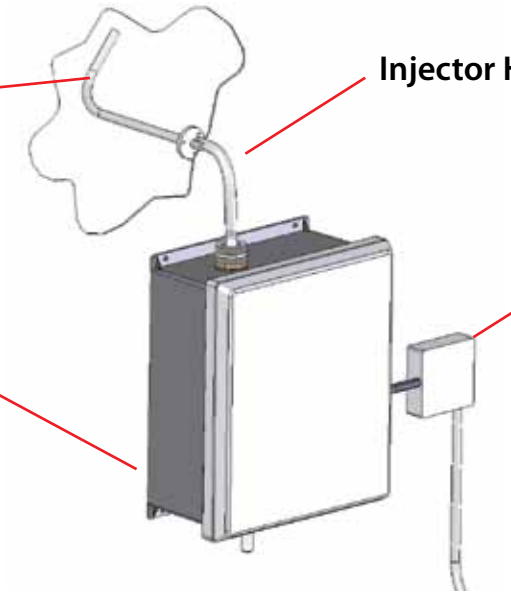
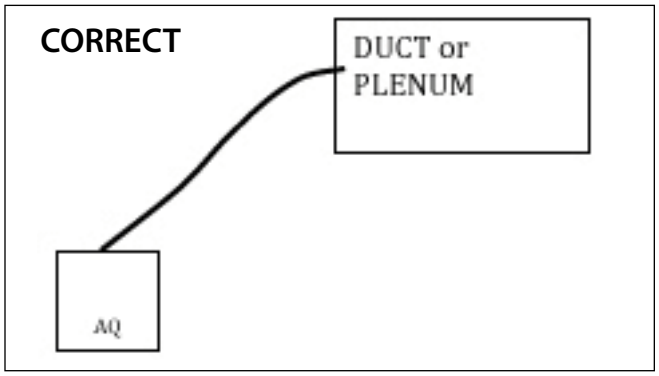
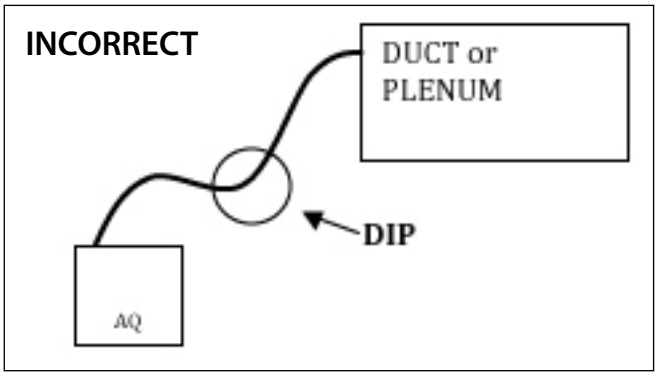


Fig. 8





C. Appliance Installation

Waterproof Collar

1. The appliance is wall-mounted. Place the appliance onto the desired location on the wall or AHU and ensure that it is level.
2. Fasten the appliance to the wall or AHU using necessary screws.
3. Connect the power cord to a junction box or attach an AC plug to the cord and connect to a nearby outlet.
4. Open the enclosure door and unscrew the aluminum cap of the waterproof collar located on top of the appliance enclosure. Remove and set aside the grommet (see Fig. 2).

Fig. 2

5. Assemble hose and hose connector together (Fig. 3). Be sure to leave approximately 1/8 of an inch clearance between the top of the cartridge hose connector and the end of the hose. Then secure with clamp, ensuring that the hose connector is still free to rotate.
6. From the inside of the enclosure, slide hose assembly upward through to the waterproof collar.
7. Lube the inside of the grommet if needed to allow the Injector hose to easily slide through. Leave approximately 2 inches of hose length inside the appliance to provide enough play when replacing the cartridge. Tighten aluminum cap of waterproof collar to ensure a watertight seal.

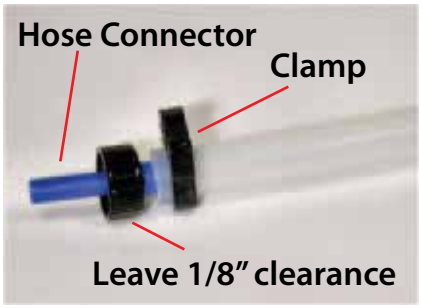


Fig. 3

E. Injector Tube Installation

The injector tube is installed directly into the AHU or ductwork. Its orientation can be adjusted relative to airflow.

- For installations into the negative/suction side of the AHU fan, orient the tube with the elbow pointed upwards (See Figure 7), so that any plume condensation will sip back in the tube.
- For installations after the supply fan, such as in a supply duct, it is necessary to configure and orient the Injector Tube to obtain a good aspiration of the output into the air stream. The injector tube should be pointed in the direction of the airflow and inclined approximately 45o upward. Turbulence in the airflow can prevent even aspiration of the plume. It is best to place the tube in a straight section of duct, and far away from any turns, branches, or cross-section changes as practical, and not immediately after the supply fan.

1. At the insertion point, drill a hole using a 1/2" drill bit.
2. Insert the Injector Tube through the hole.
3. Find an orientation of the injector Tube that appears to produce a good draw of air into the end of the barb.
4. Fasten the flange using the three #10 sheet metal screws.
5. Turn the appliance on and verify that a plume is produced.
6. Before attaching the Injector hose to the injector, verify that the plume can flow easily through the injector. This can be done by placing the end of the hose 1/2 inch away from the injector and verifying that the plume is being drawn in (a flashlight will make the plume easier to see). If the plume does not rise into the hose, adjust the orientation of the Injector Tube until aspiration is achieved.
7. Attach the Injector hose onto the hose barb of the Injector Tube.

For Cartridge Installation - See "Changing the Cartridge" in the General Maintenance section

VII. Troubleshooting

Condition	Causes	Solutions
Power light off.	The appliance is not plugged in or the plug has no power	Make sure the power connection is operational Verify that the power button light is blue when pressed.
Unit does not start automatically after a power interruption	Back-up battery not operational	Verify the protective yellow battery tab has been removed. Verify the battery is positioned with the positive side facing the right. Replace the back-up battery.
The fragrance cannot be detected when coming into the treated area from an untreated area.	The output rate is too low or there is an insufficient number of appliances serving the space. The O-Rings on the stem that fits into the head may be worn out and causing an air leak.	Increase the output rate by one or two settings and evaluate detection in 30 minutes. Repeat as needed. If consumption requires Cartridge change more frequently than each month, install an additional appliance. Replace the O-Rings by removing the worn one with a pointy tool and rolling on the new ones.
Fragrance intensity is stronger than just detectable.	The output rate is too high.	Lower the output rate in increments of one or two settings or own to the starting rates suggested in the room size chart.
The power light is on but there is no output or you cannot hear the compressor in the appliance.	You are in the "OFF" period in the Timer cycle.	Simply wait a few minutes for he appliance to cycle on. If the real problem is that the scent cannot be detected, increase the output rate as instructed above.

The power light is on and the compressor can be heard but no fragrance detected.	The output tube may be blocked.	Remove the hose from the output tube leaving the Cartridge in place in the appliance. Turn the appliance on so you can hear the compressor. Use a flashlight to observe the top ot the output head for a plume of droplets. If you can see the plume then the blockage may be in the hose or the injector tube into the HVAC. Check these. If there is no plume something is blocking the output tube. Check and remove it.
	The air intake may be locked.	Another method for clearing obstructions is, while the appliance compressor is running, block the output tube with a finger for 2 or 3 seconds and then open it by removing your finger.
	The O-Rings on the stem that fit into the had may be worn out and causing an air leak.	Replace the O-Rings by removing the worn one with a pointy tool and rolling on the new ones.
You detect the fragrance when entering the room but after a while you no longer notice it.	This is called olfactory adaptation and is normal.	Leave the area for 5 to 10 minutes. Come back inside, you will smell the fragrance once again. Do not hesitate to repeat this process every time that you doubt the presence of the fragrance in the area.

VIII. General Care and Customer Support Contacts

- Do not install or store Air/Q 1100 Avian in places where the ambient temperature may fall below 0 degrees Celsius (32 degrees Fahrenheit) or rise above 54 degrees Celsius (130 degrees Fahrenheit). (If operating conditions must be outside these ranges, contact Prolitec Safety and Support Hotline at 888.615.9282).
- Do not drop Air/Q 1100 Avian on the floor. Do not drop it in or position it near an open basin of water.
- Do not paint or otherwise try to alter the color of the outer cover.
- Always keep the lids on Cartridges when stored outside of the Air/Q 1100 Avian .
- Do not operate Air/Q 1100 Avian in very dusty areas that may cause the air intake to clog.
- Please call Prolitec Customer Service at 866.387.4333 for instructions on return shipping instructions or questions.

IX. Specifications

Technical Characteristics

Reference	Air/Q1100 Avian : Model AQ1100
Type	1 head nebulizer integrated with cartridge
Diameter of particles	300 nm to 1u micron

Power Input

Input	100 - 240 VAC at 0.6 A
Frequency	50/60 Hz
Protection	Switching power supply
Internal Power	12 VDC at 1.5 A
Back-up battery	Lithium 3V, #CR2032

Performance Up to 250,000 cu. feet (7,080 cu meters) subject to air flow conditions

Control Programmable start & stop times
Programmable output 0 to 50

Dimensions

Height X Width X Depth	15-1/2" x 13-3/8" x 6-6/8" (39.4 cm x 34.0 cm x 17.2 cm)
Weight with full container	13.7 lbs (6.2 kg)

Cartridge Reservoir - 1250ml
Disposable / Recyclable

Patented Prolitec inc. **Multiple patents pending**