Operation & Maintenance Manual

Anti-pollution system

This manual is to keep your filtration unit and blower operating efficiently with low maintenance costs for repairs and prevent unnecessary replacements.

The contents of this manual cover our standard lines of units and blowers. For instructions and recommendations on engineered equipment with special requirements, please contact our technicians at:

(514) 643-0642

Warning

Install wiring and fusing in accordance with the National Electric Code and local requirements. Be sure that the power supply (Voltage, Frequency and Current carrying of wires) are in accordance with the motor nameplate. Install motor in accordance with motor wiring diagram (supplied by the manufacturer) and local ordinances. Provide motor overload protection to guard against system changes. Start unit and observe for correct rotation.

HCE ECO unit shall be installed as a grease exhaust duct as per N.F.P.A. 96 guidelines. (Leave 18" clearance to combustibles and 3" clearance to semi-combustibles). Authorities having jurisdiction should be consulted before installation. As per ULc testing this unit is designed to limit exhaust temperatures to 138^{0}C maximum to permit their conveyance through air ducts conforming to the requirements for low-capacity heating systems as contained in the "National Building Code of Canada."

The AH (air handler) section of the unit and the ECO filter section must be hung with ½" threated rods. Drill 9/16" holes in the supporting structure to line up with the welded-on angle mounting brackets on the AH and ECO. (The structural integrity of the structural support system is the responsibility of the contractor and the structural engineer.) The whole spacing should line up with the angle brackets on 4 corners of the AH and ECO section. Do not use vibration isolators. The motor inside the AH is already installed on vibration isolators. The ECO section is a fixed item and doesn't vibrate. Do not use isolators as the weight of the ECO will vary as the filters get filled with grease.

Installation of hoods and exhaust ducts connecting the hoods to the anti-pollution unit shall be in accordance with the N.F.P.A. 96 and local ordinances. (Leave 18" clearance to combustibles and 3" clearance to semi combustibles).

Start Up

Start-up of the anti-pollution system should be done by a qualified technician.
The starting of the unit before certification will eliminate all guarantee.

General Safety Information

- When units are delivered to the client, check for damage or missing parts. Check the wheel to see that it rotates freely and does not strike or rub on any stationary objects. Check all set screws for tightness. Report any damage to your sale representative.

- Periodic inspection should be done to ensure that the units are mounted securely, set screws are tight, belts do not slip, and bearings lubricated where required. Clean wheels where necessary to prevent unbalancing the units.

- Blower bearings should be lubricated at regular intervals. Periodic inspection will be necessary. If grease is found to be breaking down, replenish grease by pumping new grease into bearing until all the old grease has been evacuated.

- Check correct operating of the motor, make sure that the shaft does not rub on the frame of the motor and that there are no abnormal noises.

- Check the amperage of the motor and make sure that this does not exceed what is indicated on the motor nameplate.

- Verify all fusible links of the fire dampers installed inside the ecological unit and make sure that they are in good condition and that there is no obstruction which would prevent proper closure.

- If required, in accordance with N.F.P.A.96 and local ordinance, a fire suppression system shall be installed in front of the anti-pollution unit and verified every 6 months by a certified technician.

Filter Maintenance

Dirty filters or badly maintained filters will result in poor efficiency and/or the shutting down of the anti-pollution system. For correct operation of the system, filters shall be bought at the manufacturer and shall be replaced according to our recommendations.

Filter replacement recommendations for moderate cooking:

Class I, UL approved, pleated (Metal frame) : every 1 months
Class I, UL approved, bag filters (Metal frame) : every 2 months
Class I, UL approved, HEPA filters, 99.97% efficiency (Metal frame) : every 3 months

The anti-pollution system should be cleaned once a year to prevent any grease accumulation inside the unit and maintain a high efficiency.

Please note that this recommendation can vary according to the type of cooking.

* The touch panel on the control panel installed in the kitchen area will indicate when the filters need to be replaced. Each filter section is interlocked with the control panel to prove all filters are in place. If any of the interlocks is interrupted, the cooking equipment shall not be able to operate, and the anti-pollution system shall be disabled.

Regularly verify the status of the filters from the touch screen on the control panel. The control panel emits a visual signal/alarm when any of the three filter stage readings are either below 5%, which indicates that the filters are missing/absent, or above 80%, which indicates that the filters are clogged. The first filter alarm you get indicates that you have 4 days (96 hours) to replace the filters and hence, correct the filter readings.

During a filter alarm, the ecological device and the air supply fan stop. After pressing "FILTER OVERLOAD" on the touchscreen during the first anti-pollution system filter alarm, the "Filter Alarm" appears on the touchscreen and prompts you to press OK to restart the anti-pollution system and supply air fan. After pressing OK, the anti-pollution system and supply air fan will start for a period of 4 days (96 hours). The 4-day period allows the user to replace clogged filters or put back missing filters in the filter section of the anti-pollution system. **It is important to replace clogged filters or put back missing filters before the end of the 4-day (96-hour) period, otherwise the anti-pollution system and supply air fan will stop and will not be able to start again.**

Belt Tension

- Belt tension should be checked 48 hours following initial startup. Do not tension belts by changing the setting of the motor pulley, this will change the fan speed and may damage the motor.

- Figure 1, illustrated below, shows the recommended distance for belt tension. To re-tension belts, switch OFF the power to the motor. Loosen the fasteners that hold the motor to the motor mounting plate. Slide the motor to the left or right to adjust the belt tension. Belt tension should be adjusted to allow ½" to ¾" of deflection per 1 foot of belt span. Ensure that when adjusting V-belts as not to misalign pulleys. Any misalignment will result in a reduction in belt life and produce squeaky noises. Over tightening will cause excessive belt and bearing wear as well as noise. Too little tension will cause slippage at startup and uneven wear. Wherever belts are removed or installed, never force belts over pulley without loosening motor first to relieve belt tension.

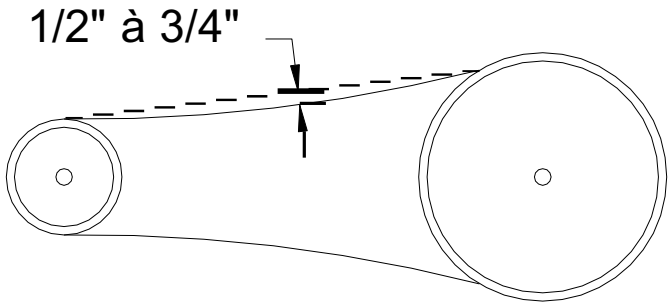


Fig.1

Pulley alignment

- Figure 2, illustrated below, shows proper pulley alignment. Pulley alignment is adjusted by loosening the motor pulley or driven pulley set screws and moving the pulley on the shaft. A straight edge should be used when aligning pulleys.

- The adjustable motor pulley is factory set for the RPM specified. Speed can be increased by closing or decreased by opening the adjustable motor sheave. Two groove variable pitch pulleys must be adjusted to an equal number of turns open or closed. Any increase in speed represents a substantial increase in horsepower required by the blower. Motor amperage should be always verified to avoid damage to the motor when the speed is varied.

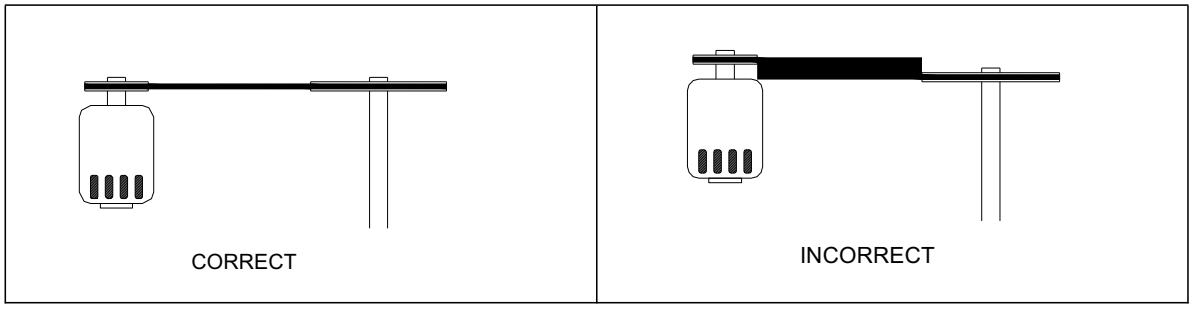


Fig.2

Installation

- The ECO filter section must be installed before the AH unit to remove the grease in the air before going through the blower. If the unit included either an optional odor filter section or odor control spray it is to be installed between the ECO and AH units as per figure 3. A minimum of 30" must be kept between the ECO and AH sections.

- Due to the high pressure present in the ductwork, **use a minimum of 16 AWG sheet metal with fully welded ductwork**. The ductwork should include as few elbows as possible with **a minimum of 6 to 8 feet of straight run ductwork at the entrance and at the exit of the AH blower unit**. Reduce turns leading to the louver at the exterior wall and use an acoustic louver to reduce noise.

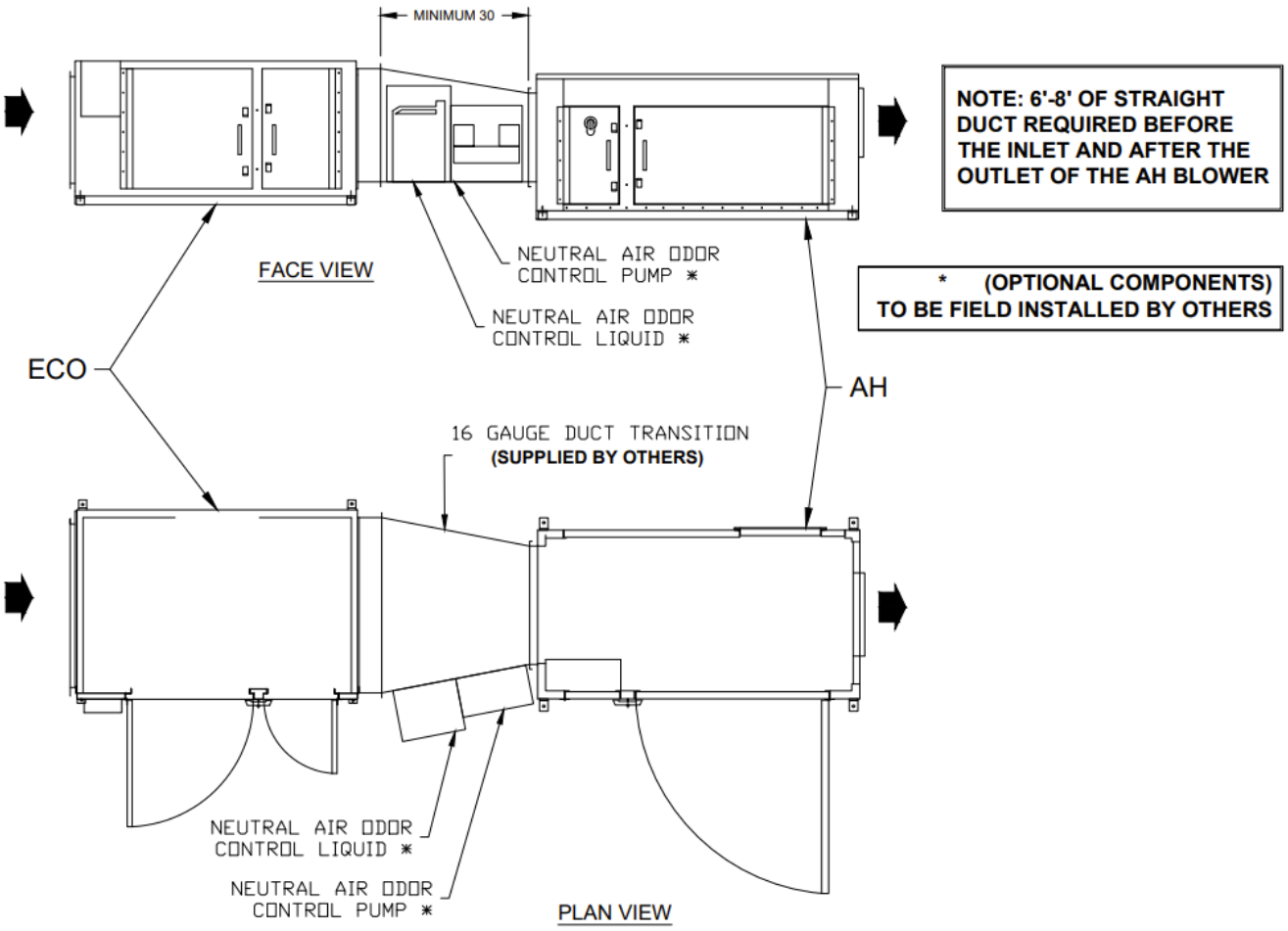


Fig.3

Filter Monitoring Calibration

- The ECO and AH units ship with a control panel used to monitor the filters with the ECO filter section. The HMI of the control panel gives a percentage status of each filter section; the prefilters, bag filters and absolute filters. Be certain that all filters are installed in the unit and run the system. Be sure to use new filters from the manufacturer for calibrating. With the system running take note of the percentage for each filter section, with new filters each section should read between 5-20 percent. For systems with modulating speeds record values at both high and low speed.

- If all sections are between 5-20 percent (at high and low speed for modulating systems) do not perform a calibration. If a section is too high or too low adjust the pressure transmitter located in the control cabinet of the ECO unit. Refer to figure 4 for the pressure transmitter location. Make sure that the system is stopped and open the pressure transmitter for the section that needs to be calibrated. Remove the two air tubes on the top of the transmitter and mark them as to not mix them up when putting them back. If the section was showing a percentage that was too low change the position of the jumpers, shown in figure 5, to the next lower pressure range. For example, if the jumpers were set to 500Pa change it to 250Pa. If the percentage was too high then change the jumpers to the next higher pressure range. For example, if the pressure range was 500Pa with the percentage too high change the jumpers to 1000Pa. Follow the diagram on the pressure transmitter for jumper locations. After changing the jumper position press the zero putting. Reconnect the tubes and turn on the unit to see the new status percentages.

Fig.4

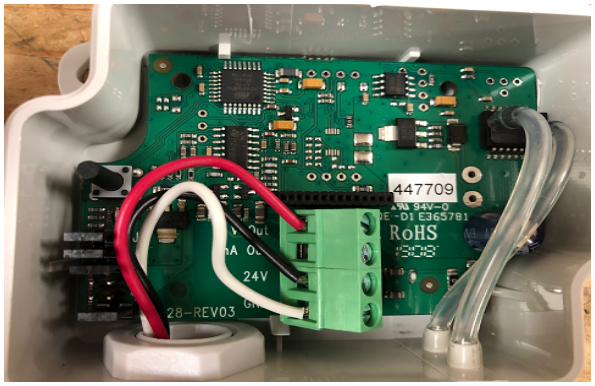


Fig. 5

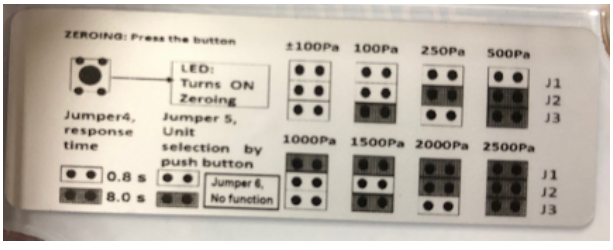


Fig. 6

Odor Control Spray

- The optional odor control spray includes a compressor, spray nozzle and liquid tank. Install the odor control spray components on the ductwork connecting the AH unit to the ECO filter section. Leave a minimum of 30" between the ECO and AH units. To install the spray nozzle cut a 3" tall by 1 ¾" wide hole in the ductwork. Be sure the tank has proper access to be refilled.

- The compressor has three air ports. Run an air hose from port 1 of the compressor to the air connection on the spray nozzle. The nozzle has "AIR" marked on the side that connects to the compression. Use a flexible hose to connect from the side of the spray nozzle labeled "LIQUID" and run the other end of the hose into the liquid tank. There is a nozzle located inside the liquid tank although it is not used.

- To compressor runs on 120V on the line (L) and neutral (N) for the pump. The control panel supplies the 120V to the compressor when needed. Connect the line of the compressor to the terminal OC in the control panel. Connect the neutral of the compressor to the neutral in the control panel on terminal N. Refer to figure 7 for an installation diagram.

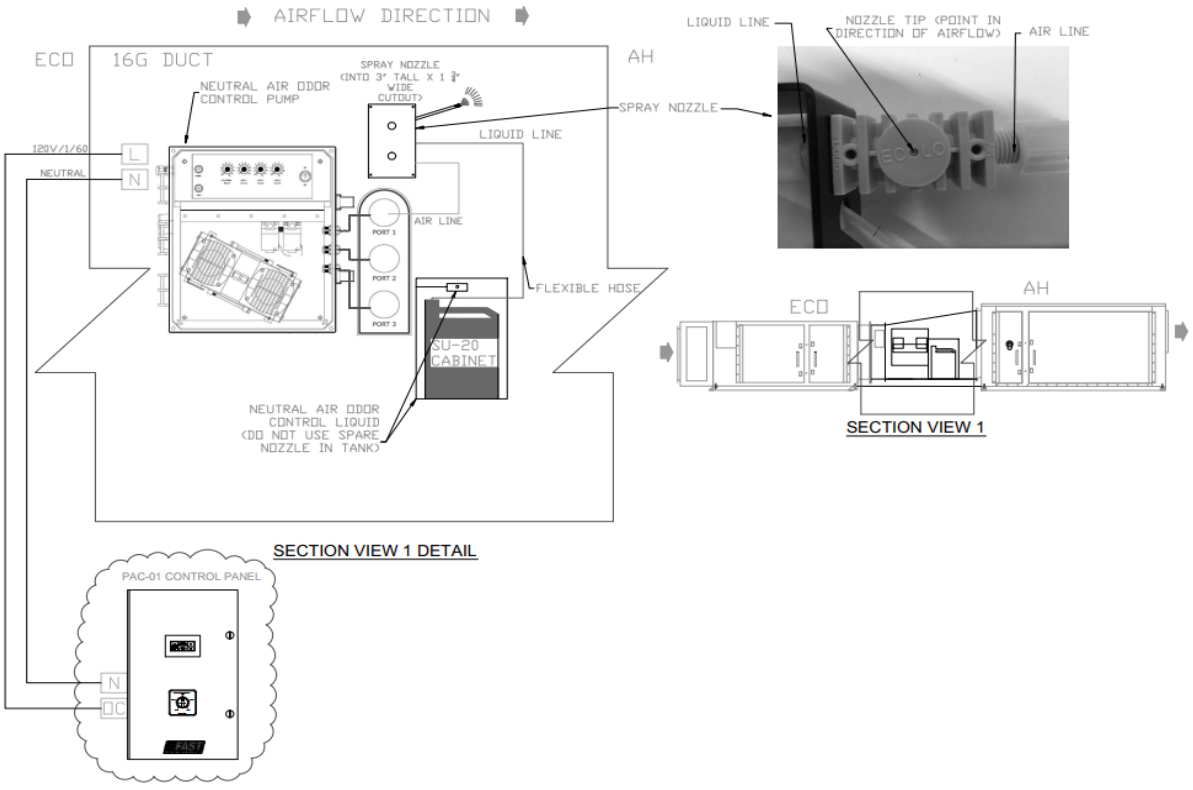


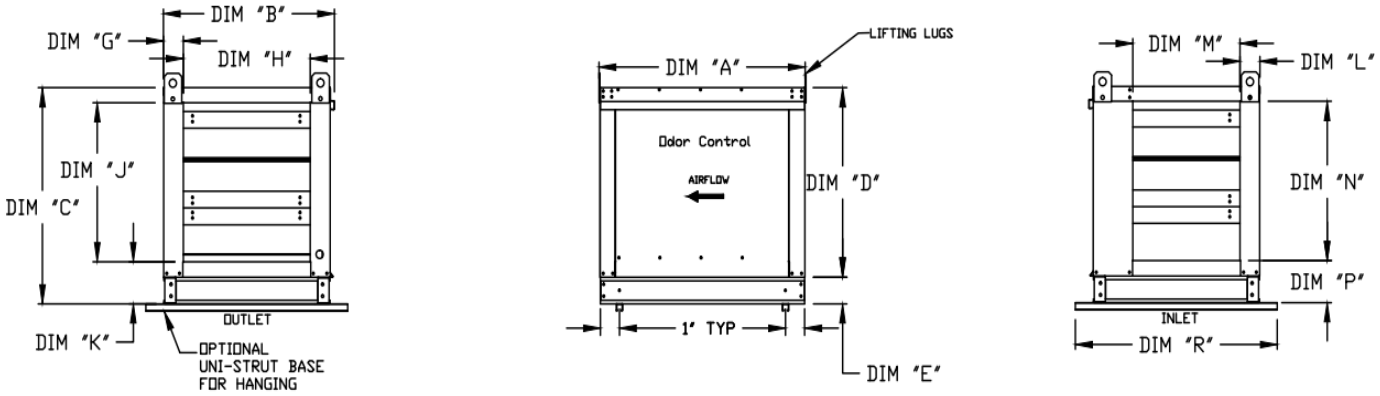
Fig 7

Odor Control Filter Section

- The optional odor control filter section includes an additional filter section to be installed between the ECO and AH units. The odor control filter section includes carbon potassium permanganate filters to remove odors. These filters ARE NOT monitored by the control panel and need to be inspected quarterly and replaced yearly or earlier when inspected as needed.

- Keep a minimum of 36" clearance in front of the access for filter access.

- Refer to figure 8 for filter sizing and quantities.



UNIT INFORMATION			UNIT DIMENSIONS					DISCHARGE OPENING				INTAKE OPENING				UNI-STRUT SUPPORT
MODEL	WEIGHT	FILTER SIZE & QTY*	A	B	C	D	E	G	H	J	K	L	M	N	P	R
SIZE 1	124 LBS	20"x25"x4" (3)	32-1/8	26-3/4	29-3/4	26	3-3/4	3-1/8	19-7/8	21-7/8	5-3/4	3-1/8	16-3/4	21-7/8	5-3/4	50
SIZE 2	202 LBS	20"x25"x4" (6)	32-1/8	51-5/8	36-3/4	33	3-3/4	5-1/8	42-1/8	28-7/8	5-3/4	5-1/8	39	28-7/8	5-3/4	78
SIZE 3	241 LBS	20"x25"x4" (8)	38-1/8	40-3/4	43-3/8	38-1/8	5-1/4	4-5/8	32-3/8	33-7/8	7-1/2	4-5/8	29-1/4	33-7/8	7-1/2	64
SIZE 4	333 LBS	20"x25"x4" (10)	35-1/8	51-5/8	51-3/8	46-1/8	5-1/4	4-5/8	42-5/8	41-7/8	7-1/2	4-5/8	39-1/2	41-7/8	7-1/2	72
SIZE 5	340 LBS	20"x25"x4" (12)	35-1/8	58-5/8	58-3/8	53-1/8	5-1/4	4-5/8	50-1/8	48-7/8	7-1/2	4-5/8	47	48-7/8	7-1/2	78
SIZE 6	477 LBS	20"x25"x4" (18)	35-1/8	75-3/4	58-3/8	53-1/8	5-1/4	4-5/8	66-3/8	48-7/8	7-1/2	4-5/8	62-7/8	48-7/8	7-1/2	96

*FILTER QUANTITY SHOWN IS PER MODULE.

Fig. 8

Warranty
Terms & Conditions

All components of products purchased from ProVent HCE and/or Fast Kitchen Hoods Inc. are covered by a one-year warranty period against any manufacturing faults or defects. The warranty is only valid subject to the following conditions:

- The warranty does not apply if any of the directives located within this document and/or on the design drawings designed by ProVent HCE have not been respected and is considered void
- The warranty does not apply if the installation process was not carried out by the appropriate licensed and qualified HVAC contractor, electrical contractor, or fire suppression contractor
- The warranty does not apply if the 6'-8' of straight ductwork requirement before the inlet and after the outlet of the AH blower is not respected and is considered void
- The warranty does not apply if the product has been misused
- The warranty does not apply in case of breakage or damage resulting from transportation or misuse, after initial delivery from ProVent HCE
- The warranty does not apply if the components have been receiving unstable electricity
- The warranty does not apply in the case of broken or damaged parts by the client
- The warranty does not apply if any liquid or unwanted substances enter the product
- The warranty does not apply to any labor fees required for a warrantied part