

Operators Manual

Installation, Operation, Maintenance and Service Instructions



Kiosk Ventilation Systems (KVS)

Model:

KVS-5, KVS-6, KVS-8

Halton
CARE FOR INDOOR AIR

INSTALLATION INSTRUCTIONS

SETTING EQUIPMENT IN PLACE

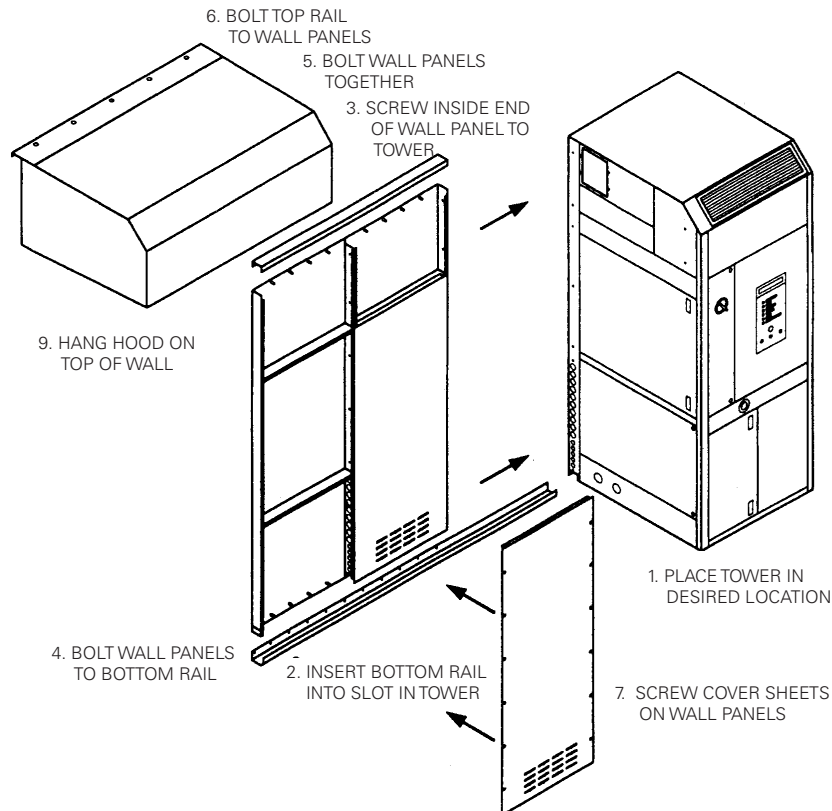
The unit should be set in place in the following order:

1. Place tower in desired location
2. Insert bottom rail into slot in tower
3. Screw inside end of wall panel to tower
4. Bolt wall panels to bottom rail
5. Bolt wall panels together
6. Bolt top rail to wall panels
7. Screw cover sheets on wall panels.
8. Remove grill to bolt hood to tower at front
9. Hang hood on top wall. Push the hood towards the tower
10. Bolt hood to tower

ATTENTION: Prior to connecting the hood, inspect the factory installed high temperature gasket on air duct opening; gasket will require replacement if any damage is noticed.

NOTE: Halton recommends power tools be used for installation.

Connect the factory installed fire protection system. The filtration unit and the hood are provided with ANSUL fire protection system. An authorized ANSUL dealer must connect the tank, the piping and the hood drops and check the system before start-up.



INSTALLATION HARDWARE

Operation	Item	Quantity Supplied		
		KVS-5	KVS-6	KVS-8
3	#8 x 1/2" S/S S.D. Sheet Metal Screw	8	8	8
4	#10-24NC S/S/ Nut	10	10	15
	#10 S/S Flat Washer	10	10	15
	#10 S/S Lock Washer	10	10	15
	#10-24NC x 3/4" S/S Bolt	8	8	16
5	#10 S/S Flat Washer	16	16	32
	#10 S/S Lock Washer	8	8	16
	#10 - 24 S/S Nut	8	8	16
6	#10 - 24 S/S Nut	10	10	15
	#10 S/S Flat Washer	10	10	15
	#10 S/S Lock Washer	10	10	15
7	#8 x 1/2" S/S S.D. Sheet Metal Screw	24	24	36
10	1/4 - 20 NC x 3/4" S/S Bolt	10	10	10
	1/4" S/S Flat Washer	20	20	20
	1/4" S/S Lock Washer	10	10	10
	1/4 - 20NC Nut	10	10	10

Electrical Connections

- Run the main power supply to the top of the filter section and using the empty conduit provided in the unit, connect the line to the disconnect switch terminals.
- Wire type and size to be determined by the electrical ratings on the panel and must conform to electrical standards.
- Before connecting the cooking appliance, the installer must check the voltage and amp ratings to conform with the unit rating plate and internal wiring diagram.

Duct Connections

When the exhaust duct connection is required between the hood and filtration unit, the duct must be continuously welded and installed to conform NFPA-96 requirements.

Systematic Wiring Diagrams

For KVS wiring diagrams and field connections, refer to Halton shop drawing shipped with unit. Additional copies of shop drawings are available on request.

ECOLOAIR ODOR CONTROL

To replace the bottle of odor liquid solution

1. Open the bottom front doors.
2. Unscrew the cap off the empty bottle.
3. Pull the dip tube assembly out of the empty bottle
4. Remove the empty bottle from the cabinet
5. Replace with new container of premixed "Scentry" Odor Solution.
6. Place the bottle in the cabinet
7. Put the dip tube assembly into the new bottle. Make sure the dip tube reaches the bottom of the bottle.
8. Place cap on bottle neck and make one turn. (DO NOT TIGHTEN)
9. Close the cabinet door and lock with locking bolts.

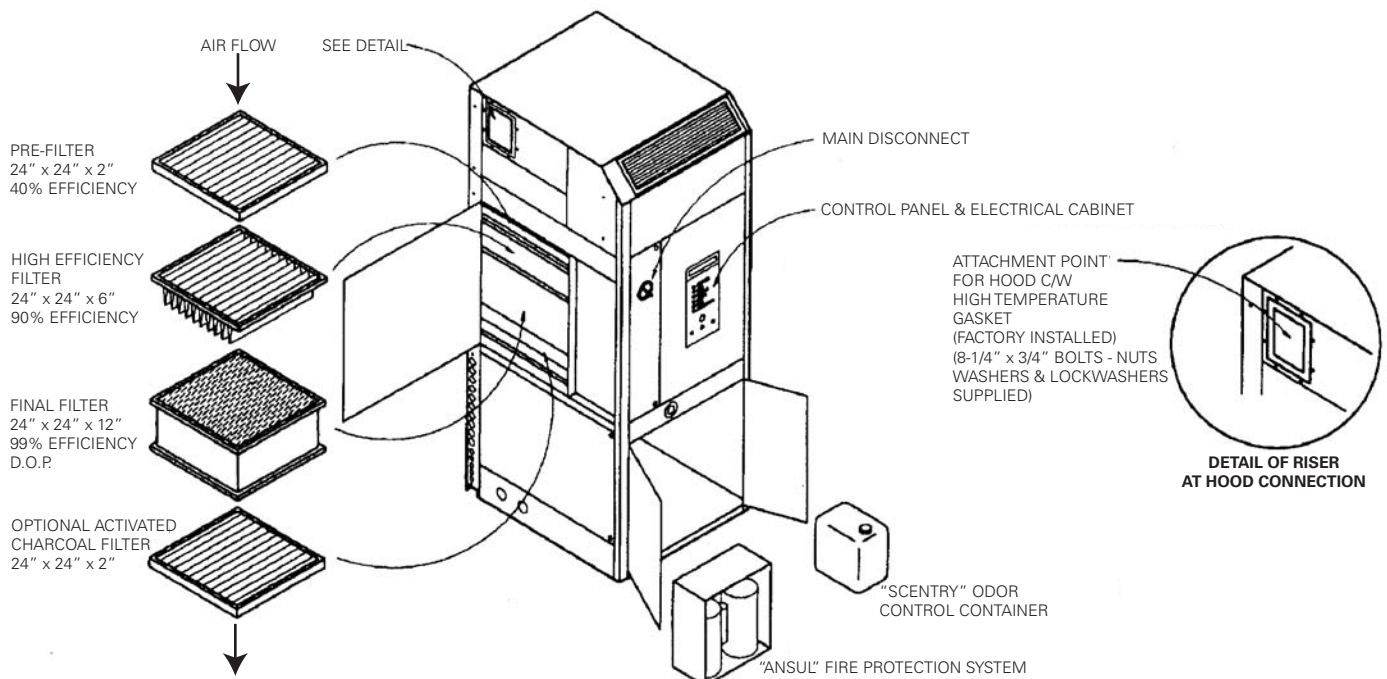
NOTE: The KVS System is equipped with the Ecolo Odor Control pre-mounted and installed.

Fan Section

Before starting the fan the fan and motor mountings and the belts tension should be checked. Before starting, the fan rotation should be verified.

FILTER INSTALLATION

- Care should be taken to install the filters in the proper sequence. They should be installed in the following order. Beginning at the exhaust inlet, the first filter is the 2" 40% filter, then the filter labeled 90%. The last opening is for the odor control filter (carbon type).
- All filters should be installed taking note of the arrow indication on air flow.
- It is important that all the filters be properly seated against the mullions.



PART NUMBERS

PART NUMBERS	DESCRIPTION	WHERE IT IS USED
10261	Aeropleat III 24" x 24" x 2"	Pre-filter Full Size
10266	Riga-Flo 200 PH 24" x 24" x 6"	Medium Filter Full Size
10267	01XH-23F23F12	Hepa Filter Full Size
10311	KVS #505	KVS Solution

START UP

IMPORTANT: INITIAL SYSTEM START-UP AND CERTIFICATION BY FACTORY AUTHORIZED PERSONNEL ONLY. OPERATING SYSTEM PRIOR TO CERTIFICATION WILL VOID WARRANTY.

WARNING:

This unit has rotating parts and may be hot. Keep body, hands and foreign objects away from inlet and outlet. Do not touch fan or motor during operation.

Operate, install and maintain only in strict accordance with safety practices and instructions in manufacturer's Operation manual. Do not exceed the maximum operating temperature, speed, or vibration level identified in the manufacturer's catalogues and Operation manual. Untrained Personnel should never operate, install, adjust or maintain fan or motor.

ADDITIONAL SAFETY ACCESSORIES FOR THE FAN EQUIPMENT ARE AVAILABLE FROM THE MANUFACTURE. THE RESPONSIBILITY FOR PROVIDING SUCH ADDITIONAL SAFETY ACCESSORIES IS THAT OF THE USER OF THE FAN EQUIPMENT. CONSULT THE MANUFACTURER'S OPERATION MANUAL FOR GUIDANCE.

Before starting maintenance work, lock disconnect switch in the off position, de-energize and disconnect all power sources to the motor and to accessory devices and secure fan impeller. Clean out doors must be secure during operation. Unsecured clean out doors may shoot open during operation because of pressure build up inside the fan.

Do not start-up when fan impeller is rotating backwards.

FAILURE TO FOLLOW MANUFACTURER'S INSTRUCTIONS AS TO OPERATION, INSTALLATION, ADJUSTMENT, MAINTENANCE, SAFETY EQUIPMENT OR APPROPRIATE OPERATING CONDITIONS COULD RESULT IN DAMAGE TO THIS EQUIPMENT, DAMAGE TO OTHER EQUIPMENT, PERSONAL INJURY OR DEATH.

OPERATION INSTRUCTIONS

- Turn on main power disconnect switch in front door.
- The amber light in front door of the electrical panel will come on.
- To turn on the fan, push “on” button. The fan will start the “system on” light will illuminate and the power will be supplied to the cooking appliances via panel mounted contractors.
- Idle/cook switch: During morning warm-up periods, or cleaning, or non-cooking (stand-by with cooking appliances on), the switch can be in the “idle” position to save odor control solution.
- The odor control system (factory programmed), will cycle.
- During cooking mode, the switch should be turned to the “cook” position. The odor control will operate continuously.
- The unit is now in operation.
- To turn the unit off push “off” button.
- The KVS filter unit is designed to operate with the following pressure drops across the filters:
 1. Pre Filter 0.2” to 0.5” WC
 2. High Efficiency Filter 0.4” to 1.2” WC
 3. Final Filter 0.65” to 2.0” WC

When the pressure drop for each filter bank exceeds the upper limits, an audible alarm will sound and activate a pilot light. The alarm is initiated by air pressure switches with factory present points. This alarm is a warning only, and does not shut the system down. The alarm can be silenced by pushing the alarm reset button in the centre of the panel.

The air flow proving switches, mounted in the electric cabinet, are factory pre-set and should not require field adjustment. Consult factory for service assistance.

However, the filters have to be changed before the next operation cycle. Note, to prevent injuries allow equipment to cool first.

- There are two other alarm conditions:
 1. Operation without filters in place.
 2. When the fire stat senses excessive temperatures in the system.

Should either alarm be triggered, the audible alarm will sound, a pilot light labeled “filters overall” will be illuminated, and the system will shut down. After the cause of the alarm has been corrected, the system can be restarted by pushing the reset button and turning the main disconnect switch to the “ON” position.

- There is an electrical interlock which does not allow power to the cooking appliances unless the fan is in operation.

NOTE: It is not necessary to shut off the main disconnect switch at the end of each cooking period.

MAINTENANCE

NOTE: "HEAVY BROILING AND FRYING TYPE OPERATIONS REQUIRE EXTRA MAINTENANCE AND FREQUENT FILTER CHANGES. WE RECOMMEND A MAINTENANCE CONTRACT AND SCHEDULE BE SET UP FOR THIS TYPE OF OPERATION."

Monthly

Check odor control liquid level.

Quarterly

(To be preformed by a qualified Serviceman)

Check belt tension. (Tighten as required)

Check belt and Pulley alignment.

Lubricate motor bearings.

Lubricate fan bearings.

Check contacts on motor starter in control panel.

Verify that the grease/air filter interlocks operate properly by removing stainless steel grease filter and/ or the hepa filter to cause power interruption to the appliance. Also, open the air filter access door to verify the above.

Check amperage draw of fan motors.

Check to see if the overall filter warning system operates correctly. This can be done by removing the high efficiency filters and starting the system.

Check fusible link on the fire dampers.

When replacing belts and/or multiple belts are used, they must all be replaced, as they are a matched set.

Biannually

Clean front entrance area of filter section from top to bottom.

The odor removal media when used should be tested for remaining life every six to nine days.

USE AS A GUIDELINE ONLY GENERAL FILTER CHANGE REQUIREMENTS

Filter # and Type	(*) Light Cooking	(**) Regular Cooking
#1 Pre Filter	1 - 3 weeks	1 - 2 weeks
#2 Medium Filter	Every 3 - 6 weeks	2 - 4 weeks
#3 High Efficiency Filter	4 - 10 weeks	3 - 8 weeks
#4 Optional Charcoal Odor Reducer	1 week	1 week

NOTE: Set up a log book to monitor filter change requirements for the first weeks of operation. (Inspect filters weekly for this). Use this log to then set up a final change schedule for your staff.

(*) Light Cooking	- Deli or back shop appliaction - Minimal frying and heat
(**) Regular Cooking	- Cafeteria menu applications - Some broiling and frying

ECOLOAIR ODOR CONTROL

To replace bottle of odor control solution

1. Open enclosure cabinet door.
2. Unscrew the cap off the empty bottle.
3. Pull the dip tube assembly out of the empty bottle.
4. Remove the empty bottle from the cabinet.
5. Replace with new container of premixed "scentry" odor control solution.
6. Put the dip tube assembly into the new bottle. Make sure the dip tube reaches the bottom of the bottle.
7. Place cap on bottle neck and make one turn. Do not tighten.
8. Close the cabinet door and lock.

The operation can be done with the unit in running mode but special attention should be given to the moving parts.

NOTE: Halton recommends an odor media replacement contract be set up on a scheduled usage basis. ECOLO have qualified trained personnel to determine frequency of odor media changes.

The Ecolo Unit can operate on a continual basis or a timed program while the KVS Unit is in the operating mode.

The Ecolo timer is factory set (40 second spray per 1 minute of operation), but can be field adjusted by setting the time on/off from the selecting knobs of the timer (panel mounted).

Schedule

A simple interpolation can be used to estimate the usage for other timer settings.

The odor control liquid has a shelf life span of six months, and should not be stored any longer than the time indicated on the bottle.

ECOLOAIR ODOR CONTROL SPRAY

Nozzle Maintenance

To obtain the best performance from the nozzle, it is necessary to clean it every time the unit is serviced.

Often the nozzle might get clogged and cease spraying due to factors such as dust, foreign particles accumulated in the orifice, air leaking in the air and liquid section of the nozzle.

The following procedures should be done to maintain the nozzle's high standards of performance.

1. Check the air hose, which is connected from the control unit to the fitting and threaded to the air section of the nozzle, for any air leakage.
2. Check the dip-tube, which is connected to the liquid section of the nozzle, to ensure that it is immersed into the odor control solution.
3. If it appears that the nozzle is only blowing air and does lift up the liquid, do the following:
 - a. Disassemble the vacuum section of the nozzle by unscrewing the orifice from the body
 - b. Check the gasket to make sure that it is not worn out or broken. Replace as necessary.
 - c. Check the orifice. If it is blocked with sediment, it will not allow the liquid to pass. Use a very thin string or wire to clean thoroughly.

MAINTENANCE OF FAN EQUIPMENT

BEFORE STARTING MAINTENANCE WORK ON FAN EQUIPMENT, LOCK DIS-CONNECT SWITCH IN THE OFF POSITION, DE-ENERGIZE AND DISCONNECT ALL POWER SOURCES TO THE MOTOR AND TO ACCESSORY DEVICES, AND SECURE FAN IMPELLER.

Bearing and Lubrication

Selection of the correct fan bearing and lubrication intervals depends on several factors. Extreme high or low temperatures and dirty or damp surroundings are all conditions that will create a requirement for more frequent lubrication of special lubricants.

READ THE BEARING MANUFACTURER'S INSTRUCTIONS TO DETERMINE THE TYPE AND FREQUENCY OF BEARING LUBRICATION REQUIRED.

THE MOTOR BEARINGS SHOULD BE LUBRICATED IN ACCORDANCE WITH MOTOR MANUFACTURER'S LUBRICATION INSTRUCTIONS AND RECOMMENDATIONS SHOULD BE FOLLOWED CLOSELY.

Bearing failure may be caused by failure to lubricate as often as required, use of an excessive quantity of lubricant or the use of incompatible lubricants. Excessive vibration, especially if the bearing is not rotating, will also cause bearing to fail. Bearings must also be protected from water and moisture to avoid internal corrosion.

Bearings are susceptible to damage from exposure to excess shaft heat transfer which may occur when a fan operating at a temperature greater than 200°F (93°C) is shut down without a sufficient period of gradual temperature reduction. See section titled "Operating of Fan Equipment" in this manual.

Bearing Replacement

Replacement of fan bearings should not be required for many years if cared for strictly in accordance with bearing manufacturer's instructions. The procedure used to replace fan bearings will vary depending on the type of fan and the type of bearings. It is important that the replacement of bearings be supervised or inspected by personnel experienced in such work and equipment.

V-Belt Drive Installation

V-Belt drive systems are the most common type of belt systems used to drive fan equipment. Other types of belt systems are used ("cog" belts, etc.) but are not discussed in this manual.

Proper alignment is essential to long fan bearing, driver bearing, v-belt and sheave life. Ensure that driver and fan shafts are parallel. The most common causes of misalignment are nonparallel shafts and improperly located sheaves. Where shafts are not parallel, v-belts on one side are drawn tighter and pull more than their share of the load. As a result, these v-belts wear out faster, requiring the entire set to be replaced before it has given maximum service. If the sheaves are misaligned, v-belts will enter and leave the grooves at an angle, causing excessive v-belt wear.

Shaft alignment can be checked by measuring the distance between the shafts at two or more locations as shown in Figure 2. If the distances are equal, the shafts are parallel.

Check the location of the sheaves on the shaft with a straight edge or a length of string. If the sheaves are properly aligned the string will touch them at the points indicated by the arrows in Figure 3. Rotating each sheave one-half (1/2) revolution will indicate if the sheave is misaligned or the shaft is bent. Correct any causes of misalignment.

Figure 2
Determination of parallel shafts.

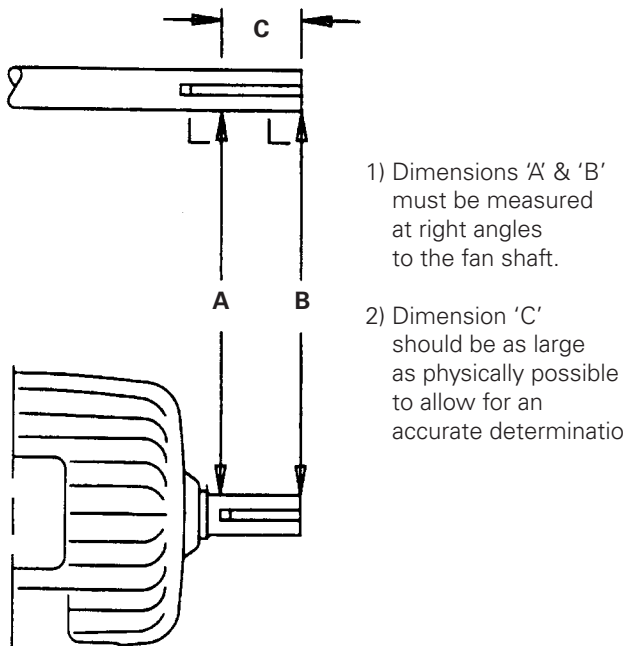
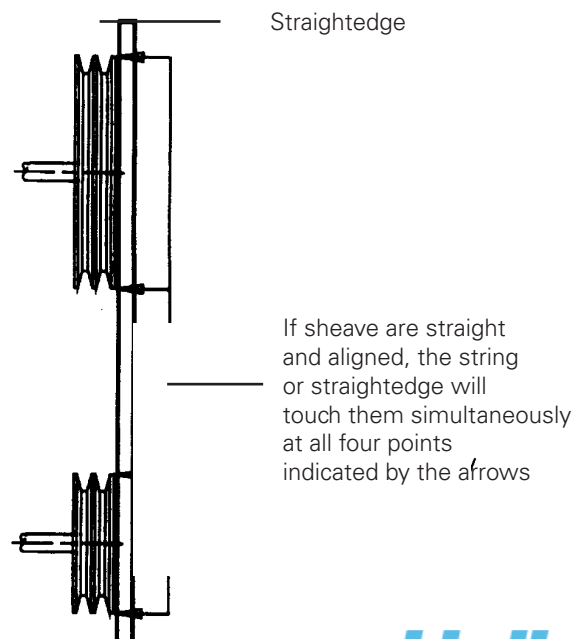


Figure 3
Sheave alignment



Always use matched v-belt and never mix new and used v-belts on a drive. Install v-belt correctly:

(i) Shorten the center distance between the driven and driver sheave so the v-belts can be supplied into the sheave groove without damage. While the v-belts are still loose on the drive, rotate the drive until all the slack is on one side, then increase the center distance until the v-belts are snug (Figure4).

NOTE: Never “role” or “pry” the v-belts into the sheave grooves. This can damage the v-belt cords and lead to v-belt turnover, short life, or actual breakage. Moreover, it is both difficult and unsafe to install v-belts this way. Keep take-up rails, motor base, or other means of center distance adjustment free of dirt, rust, and grit. Lubricate adjusting screws and slide rails as required.

(ii) Operate the drive and fan a few minutes to seat the v-belts in the sheave grooves (operate the fan equipment only after following the procedure listed in the “Operation of Equipment” section of this manual). Observe the operation of the drive under its highest load condition (usually starting). A slight bowing of the slack side of the drive indicates proper tension. If the slack side remains taught during peak load, the drive is too tight. Excessive bowing or slippage indicates insufficient tension. If the v-belts squeal severely as the motor comes on or at some subsequent peak load, they are not tight enough to deliver the torque demanded by the fan. The fan should be stopped and the v-belts tightened.

(iii) Check the tension on a new drive frequently during the first day of operation by observing the slack side span. After a few days of operation the belts will seat themselves in the sheave groove and it may become necessary to readjust so that the drive again shows a slight bow in the slack side.

Operation of Fan Equipment

1. Lock out all power sources.
2. Ensure the bearings are properly aligned and lubricated with special attention to the locking mechanisms, cleanliness, and possible corrosion. Bearings showing signs of corrosion must be replaced prior to operation of fan equipment.
3. Check set screws and keys (or taper lock hub if present) in fan impeller, and bolts on cooling wheel.
4. Check foundation bolts and other hardware for tightness.
5. Ensure that the fan housing, ducts, etc., are free of foreign objects.
6. Ensure that all access doors are secure.
7. Check the impeller to inlet cone and impeller to fan housing clearance to ensure that there is no interference. Turn the impeller by hand, ensuring that it rotates freely.
8. On belt drive fans, check sheave alignment and v-belt tension.

ANSUL

The restaurant fire suppression chemical, cartridge-operated, regulated pressure type with a fixed nozzle agent distribution network. It is listed with Underwrites Laboratories, Inc. (UL).

The system is capable of automatic detection and actuation and/or remote manual actuation. Additional equipment is available for mechanical or electrical gas line shut-off applications.

The detection portion of the fire suppression system allows for automatic detection by means of specific rated fusible links, which, when the temperature reaches the rating of the link, the link separates, allowing the regulated release to actuate.

Maintenance

Maintenance is a vital step in the performance of a performance of a fire suppression system. As such it must be performed in accordance with NFPA 96 and NFPA 17A by an Ansul authorized distributor. To provide maximum assurance that the fire suppression system will operate effectively and safely, maintenance must be conducted at six-month intervals, or earlier if the situation requires.

FAN TROUBLE-SHOOTING CHART

Problems	Probable Causes
Insufficient Air Flow	<ul style="list-style-type: none">• duct elbow near fan inlet or outlet• restricted fan inlet or outlet• impeller rotating in wrong direction• fan speed lower than design• system resistance higher than design• dampers shut• faulty duct work• dirty or clogged filters and/or coils• inlet or outlet screen clogged
Excessive Air Flow	<ul style="list-style-type: none">• fan speed higher than design• fan speed too high• filters not in place• registers or grills not installed• improper damper adjustment
Excessive Horsepower Draw	<ul style="list-style-type: none">• fan speed higher than design• gas density higher than design• impeller rotating in wrong direction• static pressure less than anticipated• fan size or type not appropriate for application

Continued...

FAN TROUBLE-SHOOTING CHART

Problems

Probable Causes

Inoperative Fan

- blown fuse
- broken belts
- loose sheave
- motor too small
- wrong voltage

Excessive Vibration

- accumulated material on impeller
- work or corroded impeller
- bent shaft
- impeller or sheaves loose on shaft
- sheaves eccentric or out of balance
- bearing or drive misalignment
- mismatched belts
- belts too loose or too tight
- loose or worn bearings
- loose bearing bolts
- loose fan mounting bolts
- weak or resonant foundation
- foundation unlevel
- structures not cross braced
- fan operating in unstable system condition

GENERAL CLEANING - ALL MODELS

Cleaning Exterior

STAINLESS STEEL - Normal soil may be removed with a detergent and soap solution applied with a cloth.

To remove grease that has baked on, apply cleanser to a damp cloth or sponge and rub cleaner on the metal in the direction of the polishing lines of the metal. NEVER RUB WITH A CIRCULAR MOTION. Soil and burnt deposits which do not respond can usually be removed by rubbing the surface with SCOTCH-BRITE scouring pads or STAINLESS scouring pads. DO NOT USE ORDINARY STEEL WOOL.

Heat tint can be removed by a vigorous scouring in the direction of the polish lines using SCOTCH-BRITE scouring pads or a STAINLESS scouring pad in combination with a powdered cleanser.

GENERAL CLEANING - ALL MODELS

Hood Cleaning

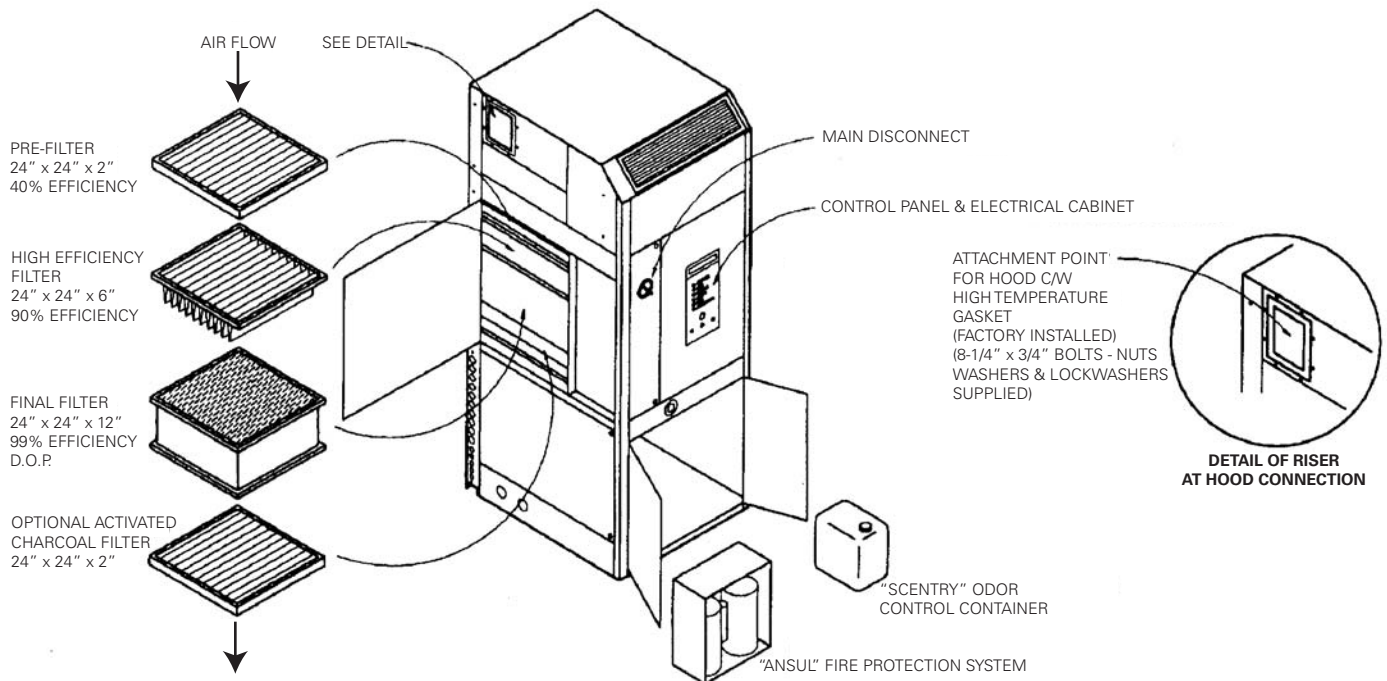
- Daily:
- Clean ventilator exterior (See "Cleaning Exterior")
 - Empty grease cup.
- WEEKLY
- Remove GFIII filters and clean by soaking in sink with detergent. When filters are removed check fusible line on the fire suppression system.

NOTE: A clean interior of the unit reduces odor build-up. For heavy grease operations, clean area above and behind filters as required.

Filter Replacement

Caution: Filter replacement must be performed only when the cooking appliances are at room temperature.

- Move equipment to clean the filter door
- Open the top door.
- Replace the filters and make sure that provided gaskets are in place.



HALTON LIMITED WARRANTY

Halton ("Manufacturer"). Warrants only to its direct purchasers and to no others, that all products manufactured by the Manufacturer shall be free from defect in materials and workmanship for a period of twelve (12) months from the date of the original installation and start-up or eighteen (18) months from date of shipment, whichever occurs first. All products sold but not manufactured by Manufacturer will be warranted for a period of twelve (12) months from date of shipment.

For products manufactured by the Manufacturer we agree to pay any reasonable labor costs necessary to repair or replace, at Manufacturers option, defective parts or materials for a period of twelve (12) months from date of original installation and start-up or eighteen (18) months from date of shipment, whichever occurs first. All labor costs subject hereto shall be performed during standard work hours at straight-time rates.

For products sold but not manufactured by the Manufacturer we agree to pay any reasonable labor costs necessary to repair or replace, at Manufacturers option, defective parts or materials for a period of (90) days from date of original installation and start-up or (12) months from date of shipment, whichever occurs first. All labor costs subject hereto shall be performed during standard work hours at straight-time rates.

Purchaser shall pay incurred premium labor charge, including overtime, weekends and holidays. Travel time, service charges, miscellaneous tools, material charges, and labor charges resulting from inaccessibility of equipment will not be paid by Manufacturer.

This **LIMITED WARRANTY SHALL APPLY ONLY** to products that have been installed and maintained in accordance with the installation and Care Instruction Manuals. Purchaser shall be solely responsible for adhering to the instructions and procedures set forth in the said instruction manuals.

This **LIMITED WARRANTY SHALL NOT BE APPLICABLE** to any damage or defect resulting from fire, flood, freezing or any Act of God, abuse, misuse, accident, neglect or failure to adhere to all instructions set forth in the installation and Care Instruction Manuals. Furthermore, this limited warranty shall not apply to any product that has been altered, unless such alteration has been approved in writing by a duly authorized representative of the manufacturer. In no event shall the manufacturer be liable for any loss, expense, personal injury or consequential damage, of any kind or character, as may result from a defect in material, and/or workmanship, however caused.

EXCEPT AS IS EXPRESSLY SET FORTH IN THIS LIMITED WARRANTY, MANUFACTURER MAKES NO WARRANTY OF MARKETABILITY FOR FITNESS OR ANY PARTICULAR PURPOSE. NEITHER DOES MANUFACTURER MAKE ANY WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO PRODUCTS SOLD BY MANUFACTURER OR AS TO THE USE THEREOF.

Halton Company

101 Industrial Drive, Scottsville, 42164 USA
Tel: 270-237-5600 Fax: 270-237-5700
Website address www.haltoncompany.com

Halton Indoor Climate Systems, Ltd.

1021 Brevik Place • Mississauga, ON L4W 3R7 CANADA
Tel: 905-624-0301 Fax: 905-624-0301
Website address www.haltoncanada.com

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CARE FOR INDOOR AIR