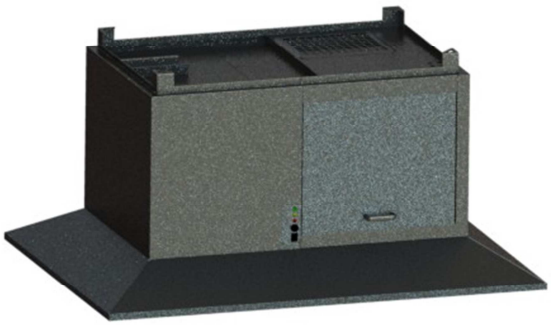
Recirculating Hood

Installation, Operation, and Maintenance Manual



RECEIVING AND INSPECTION

Upon receiving unit, check for any interior and exterior damage, and if found, report it immediately to the carrier. Also check that all accessory items are accounted for and are damage free.

WARNING!!

Installation of this unit should only be performed by a qualified professional who has read and understands these instructions and is familiar with proper safety precautions. Read this manual thoroughly before installing or servicing this equipment.

Save these instructions. This document is the property of the owner of this equipment and is required for future maintenance. Leave this document with the owner when installation or service is complete.

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TABLE OF CONTENTS

WARRANTY

This equipment is warranted to be free from defects in materials and workmanship, under normal use and service, for a period of 12 months from date of shipment. This warranty shall not apply if:

1. The equipment is not installed by a qualified installer per the MANUFACTURER'S installation instructions shipped with the product,
2. The equipment is not installed in accordance with federal, state and local codes and regulations,
3. The equipment is misused or neglected,
4. The equipment is not operated within its published capacity,
5. The invoice is not paid within the terms of the sales agreement.

The MANUFACTURER shall not be liable for incidental and consequential losses and damages potentially attributable to malfunctioning equipment. Should any part of the equipment prove to be defective in material or workmanship within the 12-month warranty period, upon examination by the MANUFACTURER, such part will be repaired or replaced by MANUFACTURER at no charge. The BUYER shall pay all labor costs incurred in connection with such repair or replacement. Equipment shall not be returned without MANUFACTURER'S prior authorization, and all returned equipment shall be shipped by the BUYER; freight prepaid to a destination determined by the MANUFACTURER.

INSTALLATION

It is imperative that this unit is installed and operated with the designed airflow, filters and construction in accordance with this manual. If there are any questions about any items, please call the service department at **1-866-784-6900** for warranty and technical support issues.

WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTAINANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

WARNING: THIS PRODUCT IS NOT PROVIDED WITH AN INTEGRAL FIRE EXTINGUISHING SYSTEM. AUTHORITIES HAVING JURISDICTION SHOULD BE CONSULTED AS TO THE REQUIREMENTSFOR THIS EQUIPMENT WITH RESPECT TO FIRE EXTINGUISHING SYSTEMS, SUCH AS THE NEED FOR FIELD INSTALLED SYSTEMS IN ACCORDANCE WITH NFPA 96.

Site Preparation

1. Provide clearance around installation site to safely rig and lift equipment into its final position. Consider general service and installation space when locating unit.
2. Thoroughly review the plans and specifications of the project.
3. Determine the exact location in which the cooking hood will be installed and verify that there are no interferences, which will prevent proper installation.
4. If ceiling mounted, verify that all overhead beams and angles are structurally strong enough to support the weight of the hood and hanging system. It is often necessary to strengthen existing structural beams, as they are not designed to carry the weight of a stainless steel hood. Refer to the project submittal drawing for hood weight(s). It may also be necessary to create a support structure suspended from the ceiling joists to better align with the desired hood location.
5. Determine if adequate room is available to install the hood with proper clearances from combustible material. IMC, NFPA96 and local authorities having jurisdiction call for a minimum clearance (typically 18 inches) between the cooking hood(s) and building materials, which are combustible. However, IMC and NFPA96 outline acceptable clearance reduction methods. It is important to check with the local authority having jurisdiction to determine that the installation method is satisfactory to meet their requirements prior to installing the equipment.

FOLLOW SMACNA GUIDES AND RECOMMENDATIONS FOR THE HANGING AND INSTALLATION OF HOODS.

Mechanical Installation

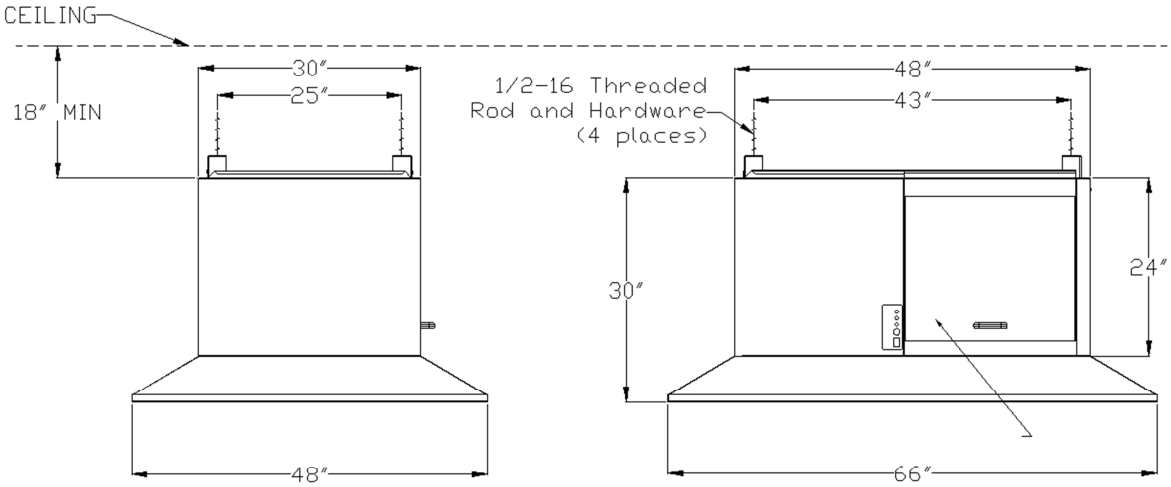
Step-by-step procedure for installation of the Recirculating Hood

1. Uncrate the hood, being very careful not to dent or scratch the outer surface. **NOTE: Report any damage to the delivering freight carrier and file a claim if appropriate**. Refer to the installation drawing for typical details of the ventilation system prior to hanging the hood. Check the nameplate on the equipment to make certain it meets the specifications provided by the architect and/or engineer. **If discrepancies exist, notify the manufacturer immediately**.
2. It's important that you have read and understand "Site Preparation" before continuing with the installation of the hood. **See Table 1 "Clearances."**
3. If being hung from above, determine the exact location of the hood. Ensure support beams are structurally strong enough to support the weight of the hood. **The structural integrity of the structural support system is the responsibility of the contractor and the structural engineer**
4. Use 1/2-16 threaded rod to hang the hood. Drill 9/16" holes in the structural support system or use Unistrut® to line up with the holes on the hood's corner hanging angles. See **Figure 1** for details.
5. Each corner of the hood has a pre-punched hanging angle. It is important that the 1/2-16 threaded rod that will be used to suspend the hood is secured at these locations.
6. Raise the hood into position using high lifts or equipment jacks at each end of the hood to ensure the hood is level. When the hood is elevated to the proper height, install 1/2-16 threaded rod between the hood hanging angles and the modified supports in the ceiling. Secure the threaded rod with nuts and appropriate sized fender washers above and below hanging angles.
7. Make final adjustments as needed to ensure that the hood is level. Maintain tension on all the rods to ensure hood weight is evenly distributed. Make fine adjustments to the height of the hood by simply moving the hardware up and down the threaded rod.
8. For further information detailing installation and dimensional data. **See Figure 1, 1A & 1B**.

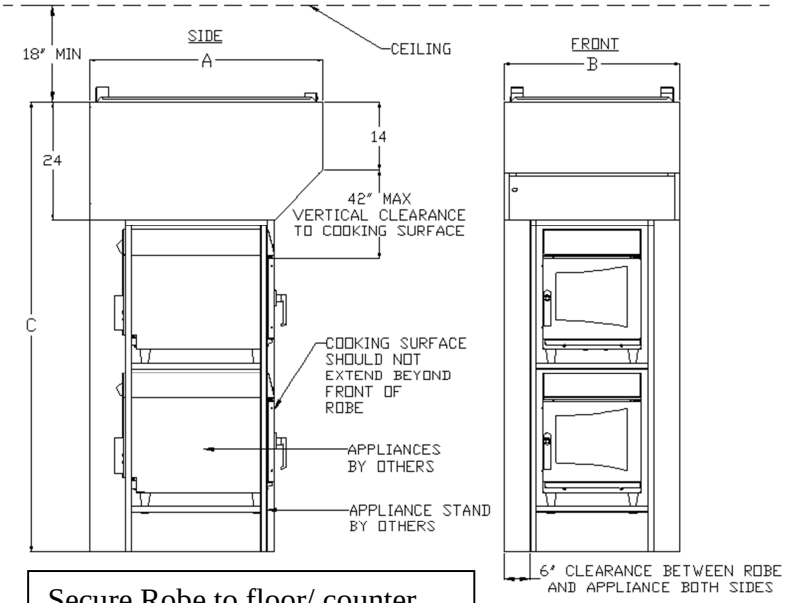
Table 1 – Clearances

Hood Model	Clearances
ISLAND	42" maximum from hood skirt bottom to cooking surface. 12" minimum from hood skirt side to cooking surface. 12" minimum hood skirt front/ back to cooking surface
30", 36", 48" LONG MODELS WITH ROBE	42" maximum from hood front bottom edge to cooking surface. 6" minimum from side of Robe to cooking surface. Cooking surface should not extend in front of Robe
25.5" LONG MODEL MOUNTED TO APPLIANCE STAND	17" minimum from front of hood to cooking surface Hood will be secured directly to appliance stand provided by others

Hanging Dimensions



Hanging Island Model

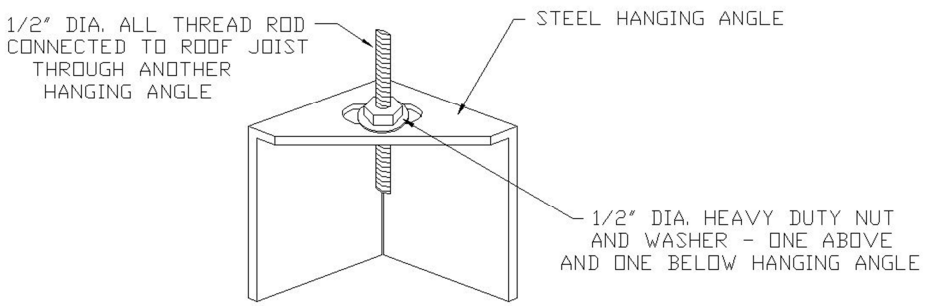


Right side of Hood houses Controls and Controls cabinet, 24” clearance is required for service and operation.

MODEL SIZING	A	B	C = HEIGHT w/ ROBE
4824-30	48"	30"	56" or 92"
4824-36		36"	
4824-48		48"	
5424-30	54"	30"	
5424-36		36"	
5424-48		48"	

Secure Robe to floor/ counter top using 3/8” hardware

Hanging Details



ROD, NUTS, AND WASHERS TO BE SUPPLIED BY INSTALLING CONTRACTOR
HANGING ANGLE IS PRE-PUNCHED AT FACTORY

Electrical

Before connecting power to the hood, read and understand the entire section of this document. As-built wiring diagrams are furnished with each hood by the factory and are attached to the inside of Controls access door of the hood. Electrical wiring and connections should be done in accordance with local ordinances and the National Electric Code, ANSI/NFPA70. Be sure the voltage and phase of the power supply and the wire amperage capacity is in accordance with the unit nameplate.

WARNING!!

Disconnect power before installing or servicing hood. High voltage electrical input is needed for this equipment. This work should only be performed by a qualified electrician.

Electrical Connections

Copper Wire Ampacity

Wire Size AWG	Maximum Amps
14	15
12	20
10	30
8	50
6	65
4	85

- Always **disconnect power** before working on or near this hood. Lock and tag the disconnect switch or breaker to prevent accidental power up.
- (4) 7/8" knockouts have been provided in the top of the hood so conduit and/or electrical drops can be connected to an appropriate power source.
- Make certain that the power source is compatible with the requirements of your hood. The hood wiring schematic identifies the **proper phase and voltage** of the hood and appliances.
- Interlocks between the electrical appliance and the hood are provided. Interlocks will be identified on the as built wiring diagram; failure to use interlocks will void hood warranty.
- Before connecting hood to power source, verify power line wiring is de-energized.
- Secure the power cables to prevent contact with sharp objects.
- Do not kink power cable and never allow the cable to come in contact with oil, grease, hot surfaces or chemicals.
- Before powering up the hood make sure that the interior of the hood is free of loose debris or shipping materials and that all wire connections have been inspected.
- **There are multiple electrical connections** required for this control. **120VAC** should be wired to terminals **H1** and **N1**. H1 and N1 should not be connected to a shunt trip breaker. Incoming Appliance power should be wired as shown in wiring schematic included with hood to L1, L2 & L3 for Contactors 1 & 2.
- Secure the power cable to prevent contact with sharp objects.
- If any of the original internal wire supplied with the system must be replaced, it must be replaced with type THHN wire or equivalent.

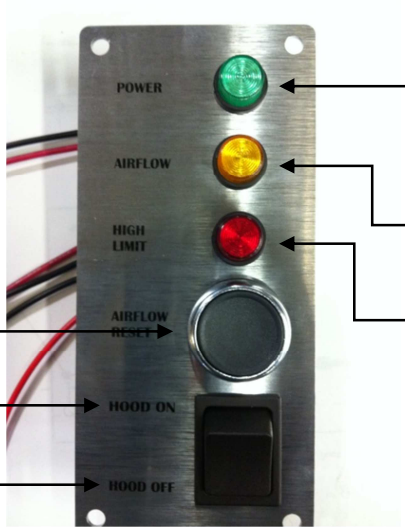
OPERATION

Start Up Procedure

1. Work area should be free from debris.
2. Hood top should never be used for storage.
3. Check all electrical connection for tightness and continuity.
4. Check connection between the hood and the appliance power cords.
5. Use filters specified in this guide only. ***Failure to do so will void the warranty***.
6. Make sure filters are in place and secure per instructions listed below.
7. Make sure blower wheel is secure and free from obstruction.
8. Inspect the airstream for obstruction; intake and discharge should be free and clear.
9. Inspect airflow tubes and high limit bulb as they should be secure.
10. Ensure timer is set correctly; “on delay” timer details are listed below.
11. Check high limit thermostat. Details are listed below.
12. Make sure access panels and access doors are secure.
13. Start the hood by turning the breaker or external disconnect switch to the **ON** position. The (GREEN) power light will light up indicating power. Turn the Hood switch to the “ON” position. Check motor amperage per the as built wiring diagram. The motor should not exceed FLA (full load amps). The other lights on the switch plate should remain off. The lights will only come on to indicate failure.
14. The (YELLOW) light indicates an issue with airflow or filter placement.
15. The (RED) light indicates an issue with temperature
16. If the (YELLOW) and (RED) lights remain off, then the hood is operating correctly.
17. There should be no excessive vibration or noise coming from the hood. Ensure heat and effluent is being captured by the hood. Due to the triple pass filtration, the exhaust should have reduced smoke and odor.

Components

Hood Switch Plate



Airflow Reset

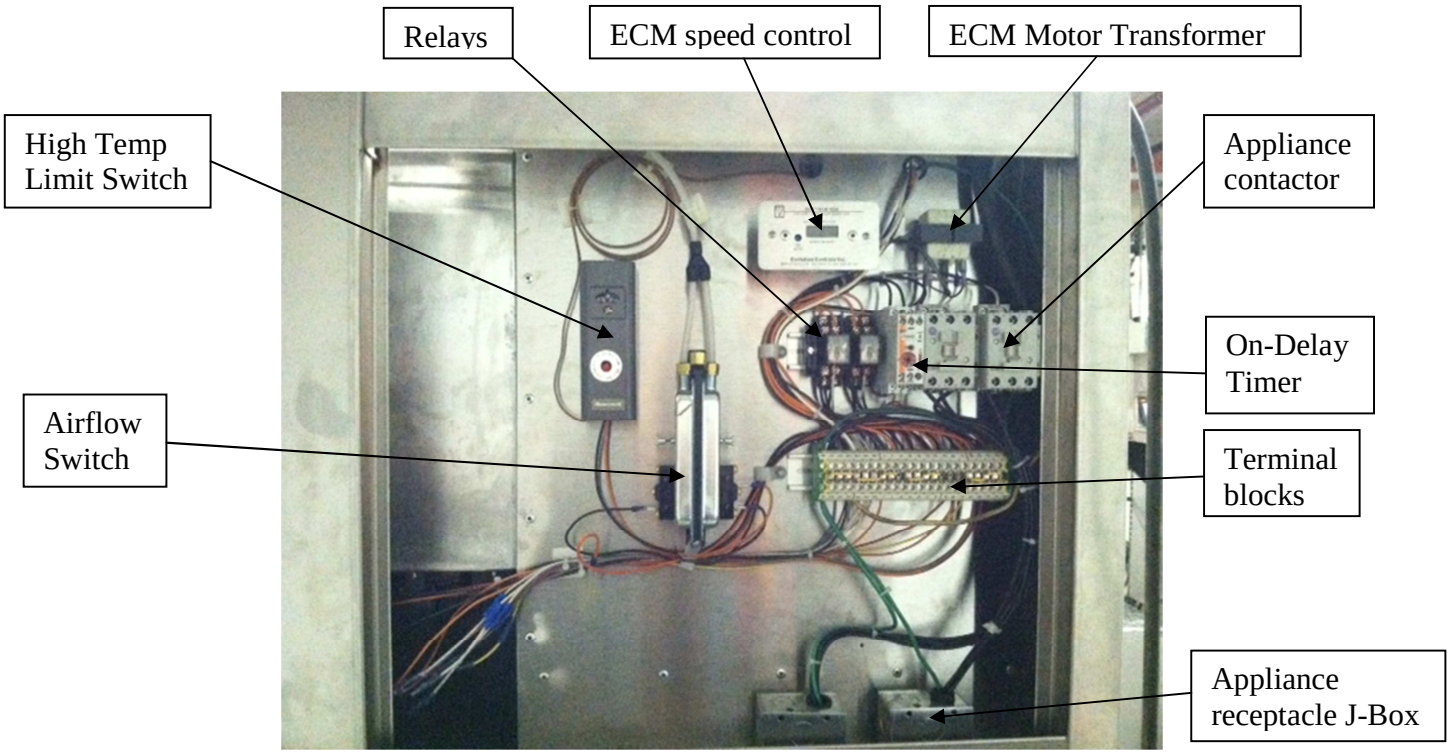
Hood On

Hood Off

Green – Power Light

Yellow – Airflow Light

Red – High Limit/ Fire Light



Hood On Switch

Turns the Hood **ON.** The hood will continue to run even if the appliance being covered is turned off.

Hood Off Switch

Turns the Hood and appliances **OFF**. The hood is interlocked with the appliance.

Airflow Reset Button

If there is a low or high airflow condition, the airflow light will come on indicating a fault. Incorrect airflows are a result of clogged or missing filters, loose access panels, intake or discharge blockage. Make sure the power is **OFF** before identifying the problem; correct the problem, then, turn the power **ON** and push the reset button. Once the reset button has been pushed, the internal airflow switch will prove the airflow and the yellow light will go out. For more details refer to "AIRFLOW SWITCH."

Power Light

This light indicates that there is power to the hood. When inspecting or maintaining the hood make sure the power is turned **OFF**; the light will go out indicating the hood is safe to work on.

Airflow Light

This light indicates that there is a low or high airflow condition. Incorrect airflows are a result of clogged or missing filters, lose access panels, intake or discharge blockage. For more details refer to "AIRFLOW RESET" or "AIRFLOW SWITCH."

High Temp Light

This light indicates that the internal temperature of the hood has exceeded the temperature set point on the thermostat. If this light turns on, the heat source must be turned off. Once the internal temperature is lower than the set point, the manual reset button on the thermostat can be reset and the light will go out. For details refer to "THERMOSTAT."

Lights & Interlocks

The yellow & red lights on the switch plate identify a change in the operating conditions of the hood. There are two basic conditions that are monitored "AIRFLOW" and "TEMPERATURE." The controls that monitor these conditions are interlocked with the cooking appliance. If there is a change in either condition, the heat source at the appliance is turned **OFF**. The heat will not come back on until issue has been resolved and the hood has been reset to its normal operating condition. Interlocks are identified on the as built wiring diagram. The diagram can be found on the inside of the control access door. Wiring diagrams should never be removed from the hood. Interlocks are discussed further under control details.

ECM (Electronically Controlled Motor) Speed Control

ECM motors and control allows accurate manual adjustment of fan speed. The benefit of ECM motors is exceptional efficiency, performance, and motor life.

The control used with ECM motors features a 4 digit LED numerical display. The blue knob on the control allows the user to set the flow index with a screwdriver. Twenty seconds later, the display shows the motor RPM. Then, the display periodically alternates between the flow index and motor RPM. The flow index has a range of 0 to 100% and is typically linear with motor RPM.

The ECM control requires a 24 VAC input and can locally turn the motor on and off. The motor can be adjusted between 300 RPM and maximum speed with this control.

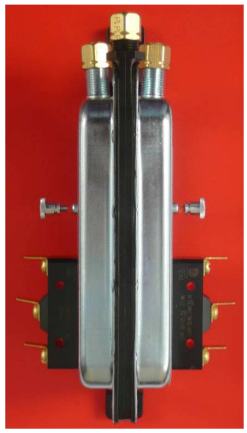
On-Delay Timer

The On-Delay Timer is used to allow the airflow switch to prove. When supply voltage is applied, output contacts change state after the set time. The set point for this timer is factory set at 48 seconds. The smaller of the two dials sets the amount of time seconds, minutes, hours (this should be set to 1 min). The larger of the two dials sets the percentage of time shown on the smaller dial (this should be set to .8). Using these set points the timer has been set to 48 seconds (1 min x .8 = 48 seconds). To the right of the dials is a slide, which should be in the down position. The timer is wired per the as built wiring diagram, which can be found on the inside of the control door.

On-Delay Timer

Airflow Switch

The airflow switch in the hood is used to restrict operation of the cooking appliance if there is an incorrect amount of airflow. The hood is interlocked with the cooking appliance to shut down the heat source of the cooking appliance if proper conditions are not met. If there is an incorrect amount of airflow, the “Yellow Light” on the switch cover will illuminate indicating the condition. Correct the airflow problem first by starting with the intake and discharge of the unit. All of the filters should be in place per the instructions in this guide and access panels should be secure. Once the problem has been corrected, push the “Airflow Reset Button” on the switch cover. There are both high and low airflow switches contained within one housing to measure the pressure drop across the filters. This is to ensure proper airflow through the hood at the same time monitoring clogged filters, open access panels and blocked intake or discharge.



Airflow Switch

High Temperature Limit

The high temperature limit switch is a mechanical thermostat that measures the temperature inside the hood. If the factory set temperature of 165℉ is exceeded, it will signal the heat source at the cooking appliance to shut down. A “Red Light” on the switch cover will indicate the high limit has tripped. The hood will continue to run to discharge the hot air and to help bring the temperature down so the thermostat can be reset. The manual reset button is on the thermostat. Once pushed, the cooking appliance will start to heat.

High Temperature Limit

Filters

The hood is provided with a three stage air purification system, which consists of Captrate Solo baffle filter, High Efficiency filter and odor control filter. Use only the filters listed. **Failure to use listed filters will void the warranty of the hood**. Filters must be installed per this guide, and filters must be in place and positioned as intended. Please see Figure IB.

Filter Stages

Stage 1 – Captrate Solo Baffle Filter

Captrate Solo baffle filter(s) are used to capture larger particulates. Stainless steel construction provides added durability and corrosion resistance. This filter protects blower equipment and prolongs motor life. This filter is UL listed and meets the requirements of NFPA96 when properly installed. The stage 1 baffle filter should be kept clean. Inspect this filter weekly and clean if necessary; cleaning will depend on the cooking load. Keeping this filter clean will prolong the life of the more expensive High Efficiency filter. ***Do not substitute this filter for another brand. Failure to use this listed filter will void the warranty of the hood.***

Captrate Solo Baffle Filter

Stage 2 – HE Filter

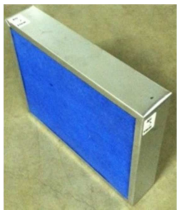
HE filters are used to capture fine particulates. The stage 2 HE filter cannot be washed. The life of this filter will depend on cooking loads and should be replaced as needed. ***Do not substitute this filter for another brand. Failure to use this listed filter will void the warranty of the hood.***

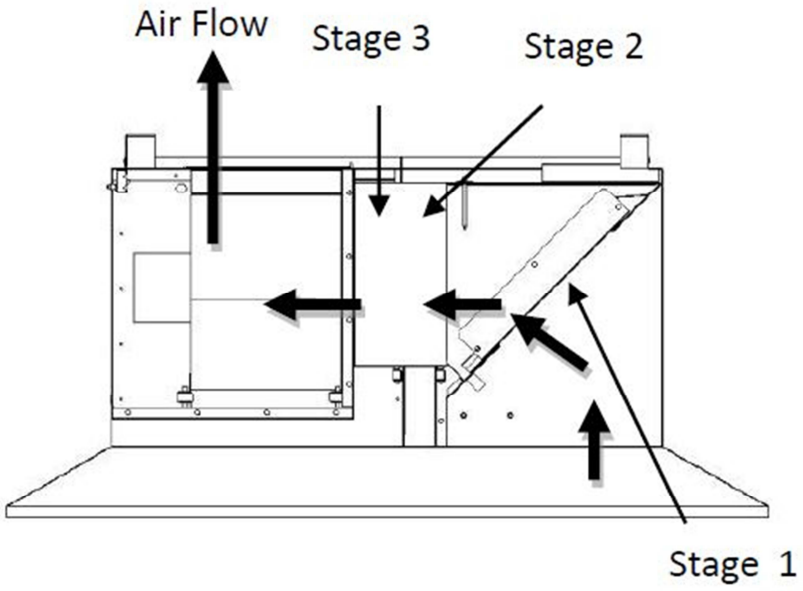
HE Filter

Stage 3 – Odor Filter

Activated Carbon and/or Potassium permanganate filters are used for odor control. The filter used in this hood contains high quality, virgin coconut shell with superior pore size distribution specifically selected for its wide absorptive capacity. The stage 3 odor filter cannot be washed. The life of this filter will depend on cooking loads and should be replaced as needed. ***Do not substitute this filter for another brand. Failure to use this listed filter will void the warranty of the hood.***

Odor Filter





Filter Part Numbers

Stage	Description	Part Number	Filter Size
1	CAPTRATE SOLO FILTER	CSF1616	16 X 16 X 2
1	CAPTRATE SOLO FILTER	CSF1620	16 X 20 X 2
2	HE FILTER	LG4-N-909-P	16 X 20 X 4
3	ODOR CONTROL FILTER	BPSL31224	16 X 20 X 4

(NOTE: Hood may have a mix of SOLO filter sizes depending on size of the hood)

Troubleshooting

The following table lists causes and corrective actions for possible problems with exhaust hoods. Review this list prior to consulting manufacturer.

Troubleshooting Chart

Problem	Potential Cause	Corrective Action
Smoke is not being Captured/Low Exhaust	Filters are clogged	Clean Filters
	Exhaust Fan Operating in Incorrect Direction	Check motor wiring to wiring diagram located on fan motor
	Hood overhang on appliance is not correct	Hood should overhang cooking appliances adequately
No Exhaust	Exhaust Fan Not Running	Turn Fan Switch On
		Check Circuit Breaker/Voltage
	Exhaust Fan Running Backwards	Wheel Should Turn Per Rotation Arrow On Blower
		Verify that the motor has been wired correctly (1-phase motors)
Exhaust Air Motor Cycles on and off	Exhaust Air Temperature Too High	Increase Exhaust Airflow Or Use Higher Temperature Rated Motor
Grease Dripping From Hood	Hood Not Being Cleaned Often Enough	Clean Surface Of Hood More Frequently
	Exhaust Rate Too Low	Clean Or Replace Filters
Hood is Vibrating	Vibrating Exhaust Blower	Find Source Of Vibration In The Blower And Correct. A Rag Or Other Debris May Be Stuck In Blower Wheel
High Limit Indicator	High Temperature Limit Switch has been tripped	Decrease The Temperature Of The Hood And Push The Reset Button On The Thermostat
	Thermostat Temperature Is Set Too Low	Temperature Set Point Should Be Factory Set For 165℉
Airflow Indicator	Access panels/doors out of place	Verify All Panels/Doors are in securely place
	Filters missing or clogged	Verify all filters are in place. Clean/replace filters if necessary
	Intake or discharge Is blocked	Carefully remove any items blocking airflow at intake or discharge
	Airflow reset button has not been pushed	Push airflow reset button
	On-delay timer not set correctly	Set on-delay timer to 48 seconds

MAINTENANCE

To guarantee trouble free operation of this system, the manufacturer suggests following these guidelines. Most problems associated with unit failures are directly related to poor service and maintenance. Record any maintenance or service performed on this equipment in the documentation section located at the end of this manual.

CAUTION

DO NOT use iron wool (Brillo or SOS pads), scrapers, or spatulas to clean hood!

DO NOT use the following substances on or around the hood:

1. Chlorine or chlorine based substances.
2. Acids (e.g. acetic, hydrochloric, sulfuric).
3. Chloride based substances (e.g. mercuric chloride, ferric chloride).

Vapors of the above substances can corrode stainless steel!

General Maintenance

1. Hood filters must be maintained on a daily basis to ensure proper airflow and grease extraction.
2. Carefully wipe away gritty substances clinging to stainless steel surfaces to avoid scratching.
3. Dilute ½ cup of laundry detergent (e.g. Tide) with one (1) gallon of warm water.
4. Soak a clean cloth in the water detergent solution and wring out the excess water.
5. Wipe the hood surfaces moving in the direction of the grain and periodically rinsing cloth in detergent solution.
6. Using a different clean cloth soaked in clean warm water, wipe the hood surfaces to remove all traces of the detergent solution.
7. Wipe hood surfaces dry with a clean, dry cloth.
8. Reapply stainless steel polish.

Every 3 months

1. Clean all temp sensors in hood (if equipped).
2. Check drain on hood to verify there is no blockage. Improper drainage could cause hood leaks and overflow onto appliances.
3. Inspect the hood for grease or air leaks and repair leaks where required.
4. Clean hood plenum to prevent a mass accumulation of grease.
5. Replace HE filter and Odor control filter. This may also depend on filter loading.
6. Inspect the motor and blower, remove any grease or debris.

Start-Up and Maintenance Documentation

START-UP AND MEASUREMENTS SHOULD BE PERFORMED AFTER THE SYSTEM HAS BEEN AIR BALANCED (Warranty will be void without completion of this form)

Job Information

Job Name	
Address	
City	
State	
Zip	
Phone Number	
Fax Number	
Contact	
Purchase Date	

Service Company	
Address	
City	
State	
Zip	
Phone Number	
Fax Number	
Contact	
Start-Up Date	

Hood Information

Refer to the start-up procedure in this manual to complete this section.

Name Plate and Unit Information		Speed Control Setting	
Model Number		High Limit Settings	
Job Number		Filters in Place	
Voltage to Hood		Blower off when missing access door	
Voltage to Appliance Contactor		Appliance off when missing any filter	

Maintenance Record

Date	Service Performed

Date	Service Performed

Factory Service Department

Phone: 1-866-784-6900
Fax: 1-919-554-9374