

# Ventless Hood

MODEL FH-22 & FH-28

Service Manual

Revision D and higher



## BKI LIMITED WARRANTY

2812 Grandview Dr. • Simpsonville, SC 29680 • USA  
(864) 963-3471 • Toll Free: (800) 927-6887 • Fax: (864) 963-5316

### WHAT IS COVERED

This warranty covers defects in material and workmanship under normal use, and applies only to the original purchaser providing that:

- The equipment has not been accidentally or intentionally damaged, altered or misused;
- The equipment is properly installed, adjusted, operated and maintained in accordance with national and local codes, and in accordance with the installation and operating instructions provided with this product.
- The serial number rating plate affixed to the equipment has not been defaced or removed.

### WHO IS COVERED

This warranty is extended to the original purchaser and applies only to equipment purchased for use in the U.S.A.

### COVERAGE PERIOD

- Warranty claims must be received in writing by BKI within one (1) year from date of installation or within one (1) year and three (3) months from date of shipment from the factory, whichever comes first.
- COB Models: One (1) Year limited parts and labor.
- COM Models: Two (2) Year limited parts and labor. COM convection ovens also have a two (2) year door warranty.
- Warranty period begins the date of dealer invoice to customer or ninety (90) days after shipment date from BKI, whichever comes first.

### WARRANTY COVERAGE

This warranty covers on-site labor, parts and reasonable travel time and travel expenses of the authorized service representative up to (100) miles round trip and (2) hours travel time and performed during regular, weekday business hours.

### EXCEPTIONS

Any exceptions must be pre-approved in advance and in writing by BKI.

### EXCLUSIONS

- Negligence or acts of God,
- Thermostat calibrations after (30) days from equipment installation date,
- Air and gas adjustments,
- Light bulbs,
- Glass doors and door adjustments,
- Fuses,
- Adjustments to burner flames and cleaning of pilot burners,
- Tightening of screws or fasteners,
- Failures caused by erratic voltages or gas suppliers,
- Unauthorized repair by anyone other than a BKI Factory Authorized Service Center,
- Damage in shipment,
- Alteration, misuse or improper installation,
- Thermostats and safety valves with broken capillary tubes,
- Freight - other than normal UPS charges,
- Ordinary wear and tear,
- Failure to follow installation and/or operating instructions,
- Events beyond control of the company.

### INSTALLATION

Leveling, as well as proper installation and check out of all new equipment - per appropriate installation and use materials - is the responsibility of the dealer or installer, not the manufacturer.

### REPLACEMENT PARTS

BKI genuine Factory OEM parts receive a (90) day materials warranty effective from the date of installation by a BKI Factory Authorized Service Center.

Warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on the manufacturer's part. BKI shall in no event be liable for any special, indirect or consequential damages, or in any event for damages in excess of the purchase price of the unit. The repair or replacement of proven defective parts shall constitute a fulfillment of all obligations under the terms of this warranty.

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## Introduction

**NOTICE**

PLEASE READ THIS ENTIRE MANUAL BEFORE OPERATING THE UNIT. If you have any questions, contact the BKI Technical Service Department, toll free: 1-800-927-6887. Outside the U.S., call 1-864-963-3471.

### Safety Precautions

Always follow recommended safety precautions listed in this manual. Below is the safety alert symbol. When you see this symbol on your equipment, be alert to the potential for personal injury or property damage.



### Safety Signs and Messages

The following Safety signs and messages are placed in this manual to provide instructions and identify specific areas where potential hazards exist and special precautions should be taken. Know and understand the meaning of these instructions, signs, and messages. Damage to the equipment, death or serious injury to you or other persons may result if these messages are not followed.

**⚠ DANGER**

This message indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

**⚠ WARNING**

This message indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

**⚠ CAUTION**

This message indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**NOTICE**

This message is used when special information, instructions or identification are required relating to procedures, equipment, tools, capacities and other special data.

### Specific Precautions

**⚠ DANGER**

Carbon monoxide poisoning will result from using this hood with any appliance that utilizes combustible fuel. Use only electrical appliances with this hood.

**⚠ WARNING**

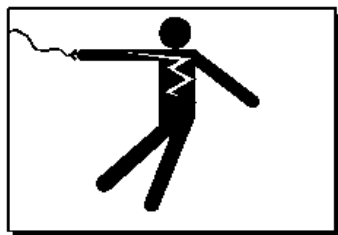
In the event of an appliance fire, serious injury, property damage or death could occur if the appliance is not properly secured to the hood. A restraining device has been provided to assure that the appliance remains in the proper position under the hood during normal operation. **DO NOT REMOVE THE RESTRAINING DEVICE!**

**NOTICE**

Hood failure could result if the hood is operated without the grease baffle and particle/odor filter installed. This is a special filter designed for this application only; other filters will not work properly. Use only a **BKI** particle/odor filter.

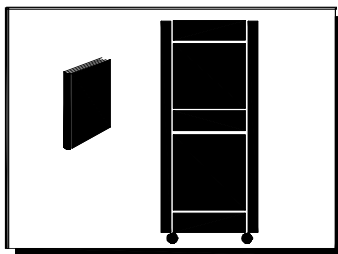
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## Safe Work Practices



### Beware of High Voltage

This equipment uses high voltage. Serious injury can occur if you or any untrained or unauthorized person installs, services, or repairs this equipment. Always Use an Authorized Service agent to Service Your Equipment



### Keep this manual with the Equipment

This manual is an important part of your equipment. Always keep it near for easy access. If you need to replace this manual, contact:

#### BKI

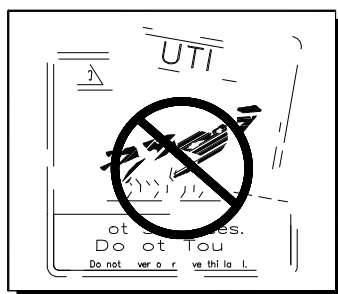
Technical Services Department  
2812 Grandview Drive  
Simpsonville, S.C. 29680  
Or call toll free: 1-800-927-6887  
Outside the U.S., call 864-963-3471



### Protect Children

Keep children away from this equipment. Children may not understand that this equipment is dangerous for them and others.

NEVER allow children to play near or operate your equipment.



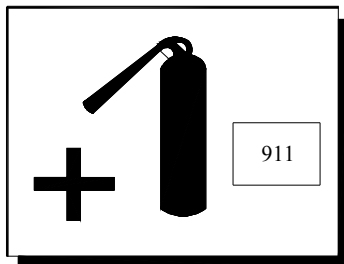
### Keep Safety Labels Clean and in Good Condition

Do not remove or cover any safety labels on your equipment. Keep all safety labels clean and in good condition. Replace any damaged or missing safety labels.

If you need new safety labels, contact:

#### BKI

Technical Services Department  
2812 Grandview Drive  
Simpsonville, S.C. 29680  
Or call toll free: 1-800-927-6887  
Outside the U.S., call 864-963-3471

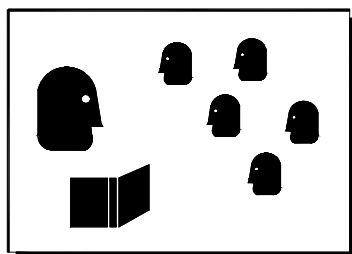


## Prepare for Emergencies

Be prepared for fires, injuries, or other emergencies.

Keep a first aid kit and a fire extinguisher near the equipment. You must use a 40-pound Type BC fire extinguisher and keep it within 25 feet of your equipment.

Keep emergency numbers for doctors, ambulance services, hospitals, and the fire departments near your telephone.



## Know your responsibility as an Employer

- Make certain your employees know how to operate the equipment.
- Make certain your employees are aware of the safety precautions on the equipment and in this manual.
- Make certain that you have thoroughly trained your employees about operating the equipment safely.
- Make certain the equipment is in proper working condition. If you make unauthorized modifications to the equipment, you will reduce the safety and function of the equipment.

## UL Information

**⚠ WARNING**

Failure to adhere to building, fire and electrical codes during installation of this unit could result in death, serious injury or property damage. The authority having jurisdiction, such as the local building inspector or fire marshal, should be consulted prior to installation to insure compliance with applicable codes.

**⚠ WARNING**

Serious injury, property damage or death could occur in the event of an appliance fire if the appliance is powered from a source other than the hood. The cooking appliance used under this hood **MUST** receive its input power from the hood. Electricity is automatically removed from the hood and the appliance when the Fire Extinguishing System is activated.

**⚠ WARNING**

Serious injury, property damage or death could occur in the event of an appliance fire if the remote pull station is not properly installed. The remote pull is to be clearly marked, located in a path of exit or egress and must comply with applicable codes.

**NOTICE**

It is the responsibility of the owner to verify that the cooking appliance is eligible for use with this hood.

**NOTICE**

This filter hood is a classified ductless hood for use with ANSI / UL listed type commercial cooking appliances only (griddle or fryer).

## Fusible Links

- Fusible links to be UL Listed, 165° F., load rating 3-45 lbs.

## Pressure/Open Fryers

- Pressure fryers acceptable for use with this hood shall be constructed such that when the lid is released or unlatched it shall spring to the fully open position within four seconds. Fully open is defined as vertical, upright position (80° or more) from the closed position. The lid must open without operator or electrical assistance, toward the back of the hood.
- The lid of the pressure fryer, when it is open, shall not block fire-extinguishing nozzle from the vat.
- The lid of a pressure fryer should be checked for proper operation at least once a month. If the lid fails to fully open when unlatched or released, it should be repaired immediately by factory authorized service personnel. Do not operate a fryer with a defective lid opening mechanism.
- Fryers with lids (other than pressure fryers) shall be operated only with the lid removed. Lids may be used for covering the vat when power to the cooking appliance and hood has been turned off.

## Sandwich Grills

- Sandwich grills acceptable for use with this hood shall be used such that when the lid is either fully open, released, or unlatched it shall spring to the fully open position. Fully open is defined as vertical, upright position (80° or more) from the closed position. The lid must open toward the back of the hood. The lid of a sandwich grill, when open shall not block fire extinguishing nozzles from the cooking surface.

### **Fryer Specifications**

Volts	208/240
Phase	1 or 3
Maximum Amps	60
Maximum Input	22 KW (3ph) 14.4 KW (1ph)
Frequency	60 Hz
Maximum normal frying temperature	375° F. (191° C.)
Maximum shortening capacity	110 lbs. (50kg.)
Maximum cooking surface area	396 sq. in. (2555 sq. cm.)
USE ELECTRIC FRYERS AND SINGLE VAT FRYERS ONLY	

### **Griddles Specifications**

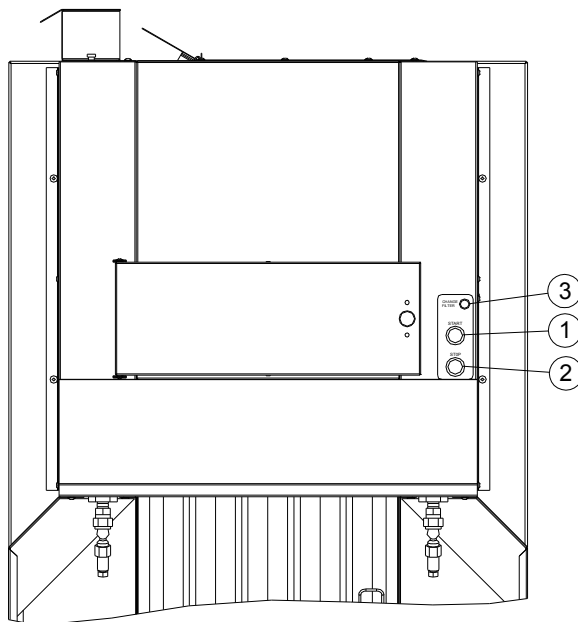
Volts	208/240
Phase	1 or 3
Maximum Amps	38.5
Maximum Input	8 KW
Frequency	60 Hz
Maximum griddle surface area	450 sq. in. (2903 sq. cm.)
Maximum cooking surface temperature	450° F. (232° C.)
USE ELECTRIC GRIDDLES ONLY	



## Operation

### Controls and Indicators

The hood controls are shown in the figure below. The push button switches are used to turn the hood on and off. The indicator lamp illuminates when the particle / odor filter needs to be replaced.



### Hardware Controls

Item #	Description	Function
1	START Switch	Depressing the switch for 3 seconds turns power ON to the hood and appliance receptacle.
2	STOP Switch	Depressing the switch turns power OFF to the hood and appliance receptacle.
3	CHANGE FILTER Indicator Light	This light illuminates when the particle / odor filter needs to be replaced.

### Start-Up

To start the Filter Hood, press and hold the “START” button for three seconds. This is to insure that the unit has achieved sufficient vacuum for the sensor to determine that the hood is in operation.

### Shut-Down

#### **NOTICE**

Power to the appliance is turned off, when the hood is turned off.

#### **NOTICE**

For proper operation, always turn off appliance and allow time for it to cool before turning off the filter hood. This will insure proper capture of grease vapors.

To stop the Filter Hood, press the “STOP” button.

### When to Replace the Filter

The particle/odor filter should be replaced when the CHANGE FILTER light illuminates. In low to medium volume applications, the filter may need replacement prior to the CHANGE FILTER light illuminating. If you smell a strong odor coming from the face of the filter and the CHANGE FILTER light is not illuminated, the filter needs to be replaced.

## Installation

### **WARNING**

Serious injury, equipment damage or death could result if attempting to install this unit yourself. Ensure that an authorized BKI service agent installs the unit.

### **Unpacking and Handling**

The company taking delivery of this equipment is responsible for filling all freight claims with the delivering truck line. Inspect all cartons and crates for damage as soon as they arrive. If damage to cartons or crates is found, or if a shortage is found, note this on the bill of lading (all copies) prior to signing.

If damage is found when the equipment is opened, immediately call the delivering truck line and follow up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damage item. Packaging material **MUST** be retained to show the inspector from the truck line.

Move the merchandiser as close as possible to its permanent location before moving the merchandiser off of the shipping pallet.

Make certain there are no separately packed accessories before discarding packaging.

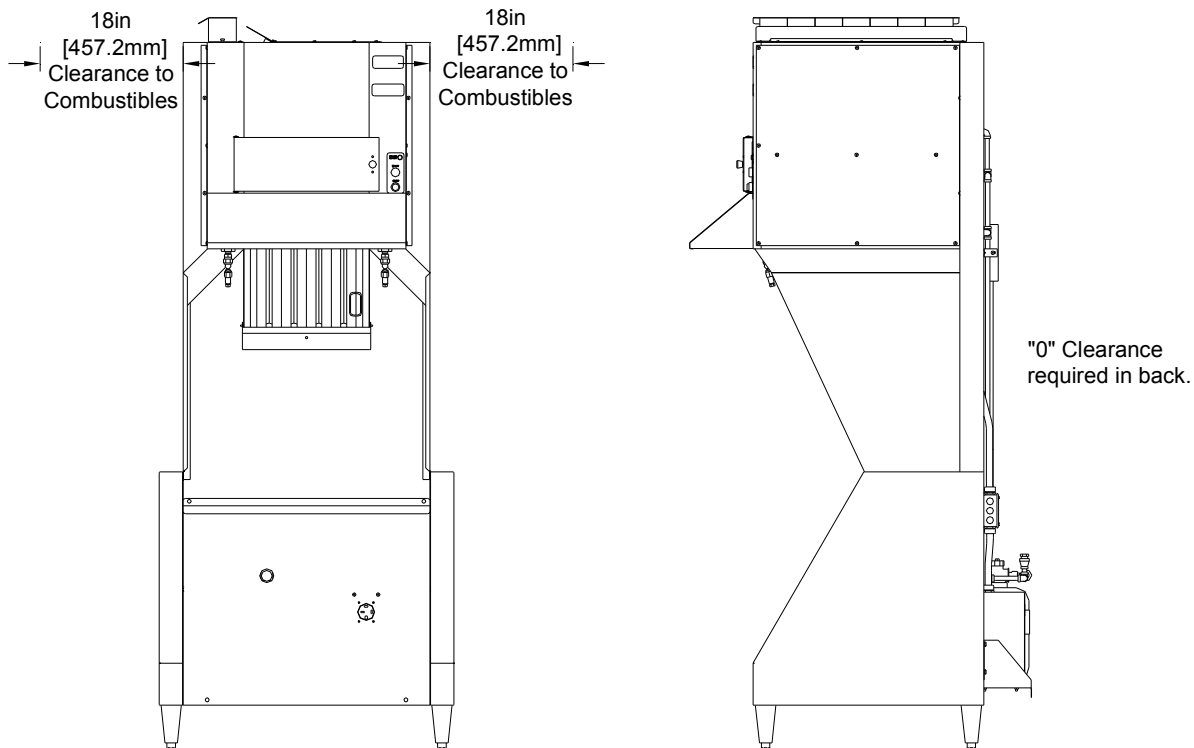
### **Location and Clearance**

Place the Filter Hood in a location with clearance as shown in the figure and data below. These distances provide for proper clearance to combustible surfaces, access for maintenance, and proper air flow from hood exit vent.

**MINIMUM CLEARANCE TO COMBUSTIBLES**  
 SIDES- 18 in [457 mm]  
 BACK & TOP - 0

#### **APPLIANCE CLEARANCE**

- Vat to sides of hood: 6 1/4 in [160 mm]
- Griddle to sides of hood: 0 in.
- Sandwich grills to sides of hood: 6 in.
- Cooking surface must be at least 3 1/2 in [90 mm] behind the front edge of the hood.
- Appliance cabinet top or cooking surface to be level with bottom of hood sides  $\pm$  3 in [76 mm].



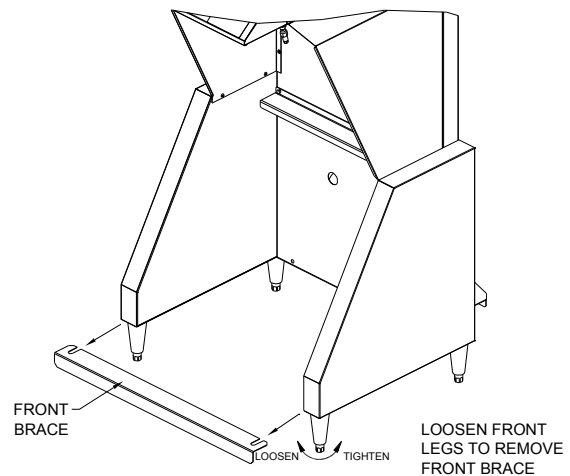
## Remove Front Brace

After moving the hood to its permanent location, remove the Front Brace by loosening the front two legs and pulling the brace out. Refer to the figure on the right. After the brace is removed, tighten the two front legs.

## Leveling

The hood must be plumb and level for proper operation and ease of installation and removal of the cooking appliance. After the hood is in its permanent location, use a 4 ft. [1.2 m] level to check both the side and back of the hood are plumb. Adjust the levelers on the bottom of the legs as required to plumb the hood.

Also level the cooking appliance after it is installed in the hood.

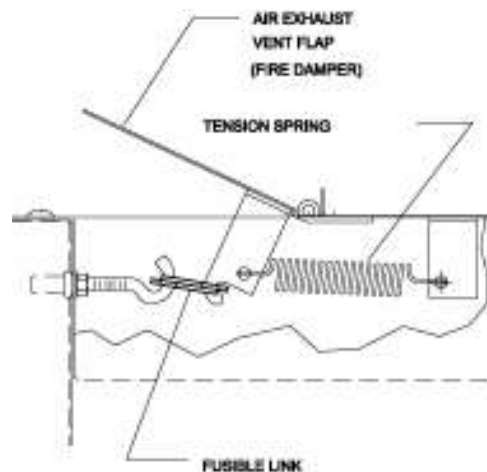


## Assembly

### Fire Damper

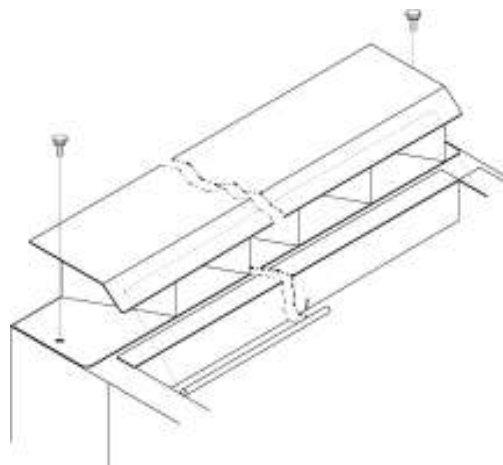
A UL Listed 165° F fusible link must be installed in the damper assembly located at the top of the unit. Install as follows:

1. Lift the damper.
2. Place the link on the damper hook.
3. Lower the damper while placing the link onto the stationary hook.



### Air Deflector

Mount air deflector, as shown in the figure on the right, using the two knurled screws (provided).



## Particle/Odor Filter

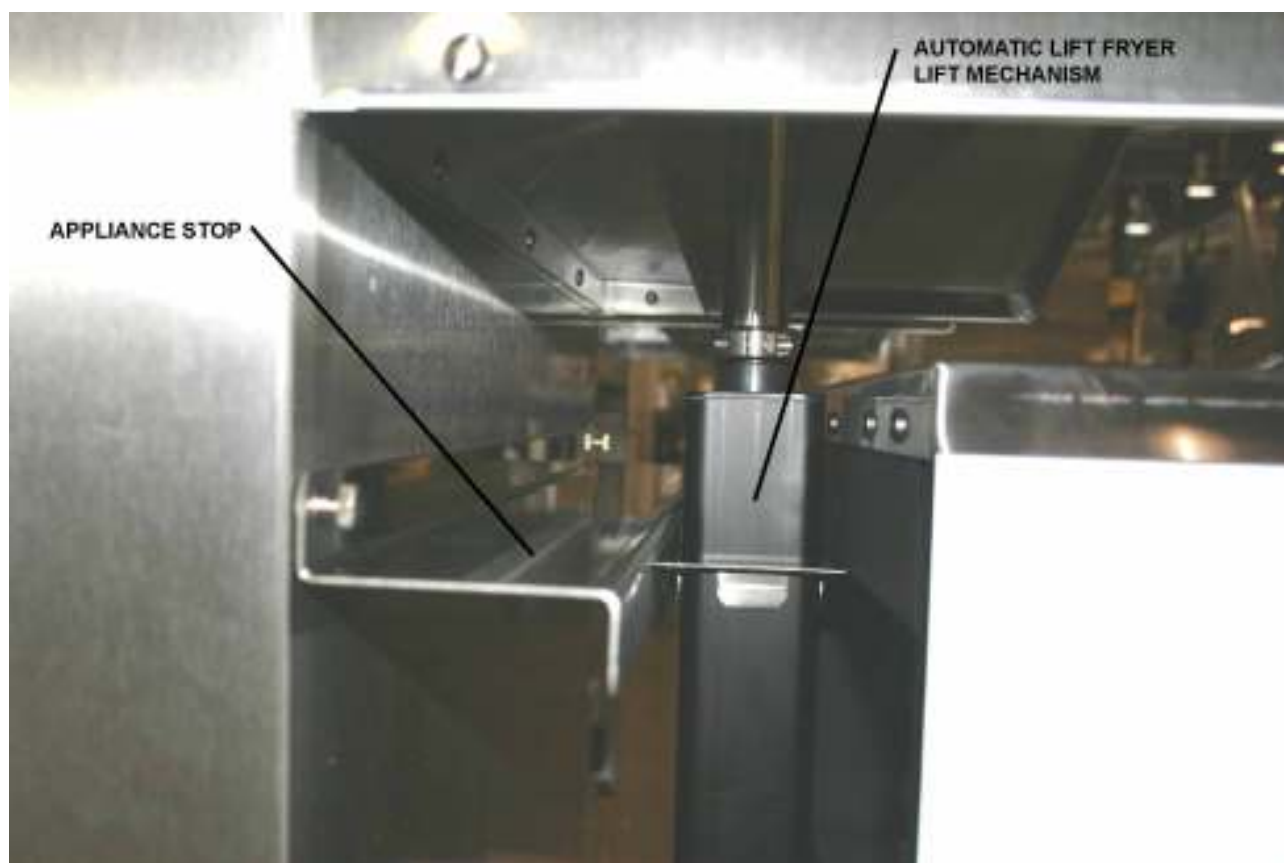
1. Remove the filter from the plastic bag.
2. Open the filter door on the front of the unit by rotating the handle counter-clockwise.
3. Observing the "UP" arrows on the filter, with a hand at each front corner, carefully slide the filter into the unit.
4. Close and latch the door.

## Appliance Stop (Used with BKI Automatic Lift Fryers)

### **CAUTION**

The Appliance Stop must be installed if a BKI Automatic Lift Fryer with [M0084](#) lift mechanism is to be connected to the hood. Failure to install this part could cause damage to the hood and/or fryer.

Install the Appliance Stop on the hood as shown if a BKI Automatic Lift Fryer is to be used to the hood.



## Appliance Restraining Device

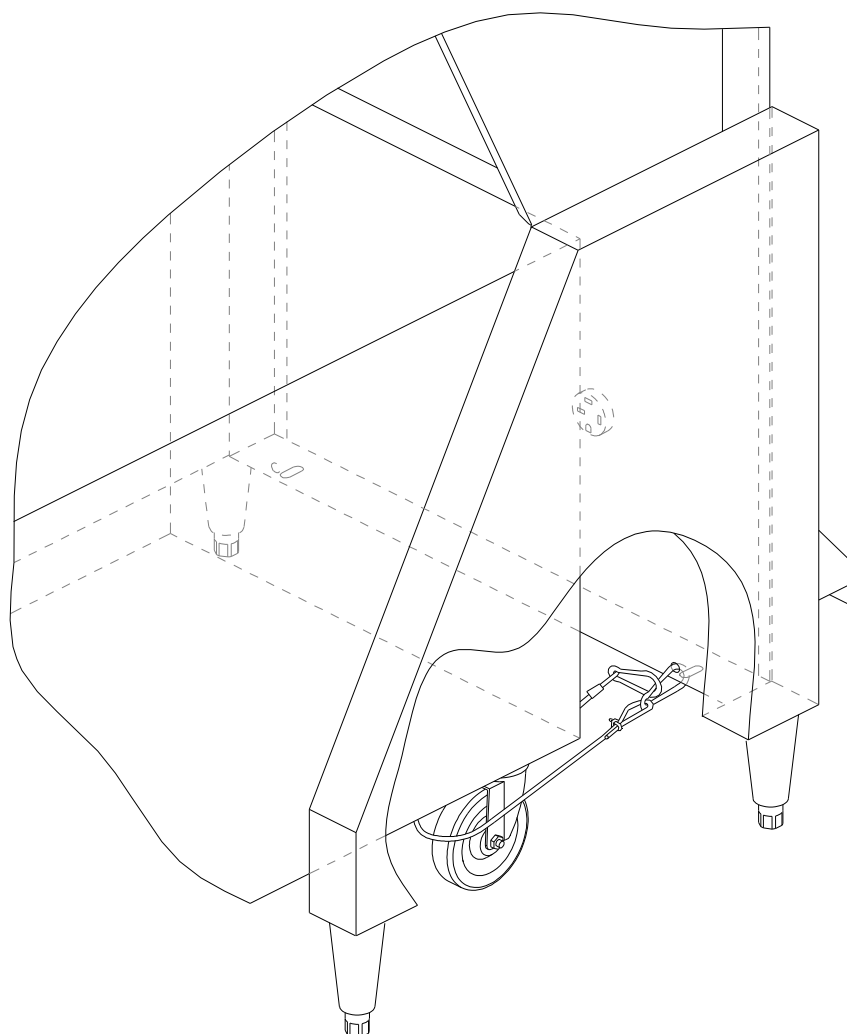
Install appliance-restraining device as shown in the figure below.

### **WARNING**

In the event of an appliance fire, serious injury, property damage or death could occur if the appliance is not secured to the hood. A restraining device has been provided to assure that the cooking appliance remains in the proper position under the hood during normal operation. **DO NOT REMOVE THE RESTRAINING DEVICE!**

### **NOTICE**

Adjust restraining cable to allow no more than two inches (2") of appliance movement. This adjustment must not allow the appliance to go beyond front edge of hood.



## Fire Extinguishing System

**⚠ WARNING**

In the event of an appliance fire, serious injury, property damage or death could occur if any part of the appliance obstructs the spray nozzles. Ensure that lids and/or other parts of the appliance do not obstruct the spray pattern of either nozzle.

**NOTICE**

The fire extinguishing system components used in this hood have been evaluated by U.L. in the course of their classification for use on this hood.

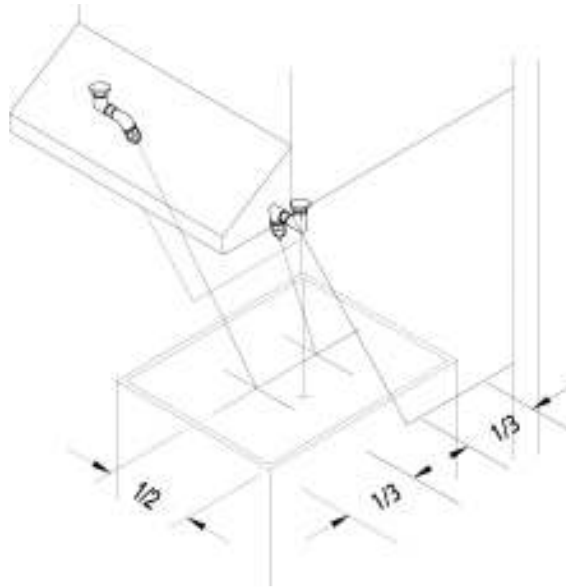
An authorized Range Guard® distributor must install and activate the filter hood fire extinguishing system. To locate an authorized Range Guard® Distributor use the following contact information:

Ronald Woodward  
Technical Service Specialist  
Badger Fire Protection  
4251 Seminole Trail  
Charlottesville Va. 22911  
Office: 800-446-3857 ext. 111  
Fax: 434-974-4113  
Mobile: 434-981-0505

1. After the hood has been properly secured to prevent movement, locate the end-of-line remote pull station (at a point of egress or exit) in a manner approved by the local authority and in accordance with applicable codes. To install the end-of-line remote, use ½" EMT and Range Guard® corner pulleys #97915.
2. Install two UL Listed; type "A", 165° F. fusible links (load rating 3-45 lbs.) in the two appliance detector positions (one in front of the grease baffle, one behind the grease baffle).



3. If required, connect the provided fire extinguishing system contacts for remote signaling (refer to the electrical diagram in this manual).
4. Adjust the position of the two ADP appliance nozzles as depicted below.



5. Reset control head. With control head NOT connected to cylinder, dry test system by activating the remote pull.
6. Install cylinder by placing bottom of cylinder over socket head screws at the bottom of cylinder bracket. Tighten pipe union located in the discharge line. Secure cylinder with adjustable clamping strap.
7. Reset control head and connect control to cylinder.
8. Recheck installation procedure to insure that nothing has been overlooked.

## Wiring Connection And Grounding



**WARNING** Electrocutation, equipment failure or property damage could result if an unlicensed electrician performs the electrical installation. Ensure that a licensed electrician perform the electrical installation in accordance with local codes, or in the absence of local codes, with the National Electrical Code, ANSI NFPA 70-20XX.

### General Guidelines

In the absence of local codes refer to the latest edition of the National Electrical Code, ANSI/NFPA 70-20XX (USA).

Verify that the power supply conforms to the electrical rating listed on the appliance data plate.

Ensure that the appliance is grounded (earthed).

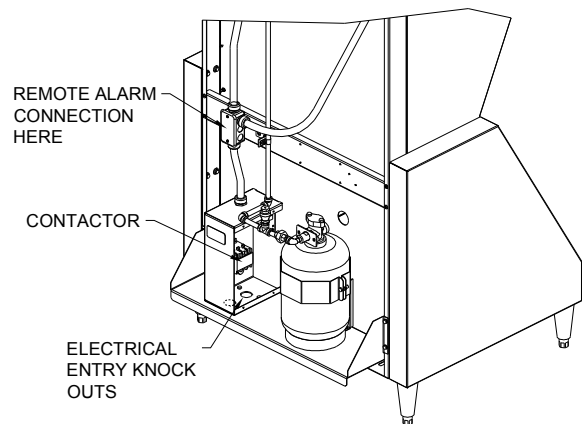
Electrical entry knockouts are provided on the bottom of the hood in the back. Refer to the figure below. Connect the hood / appliance power supply to the bottom terminals on the contactor and the ground lug.

An appliance receptacle is provided in the hood. Attach a properly sized cord and NEMA 15-60 right angle plug to the appliance.

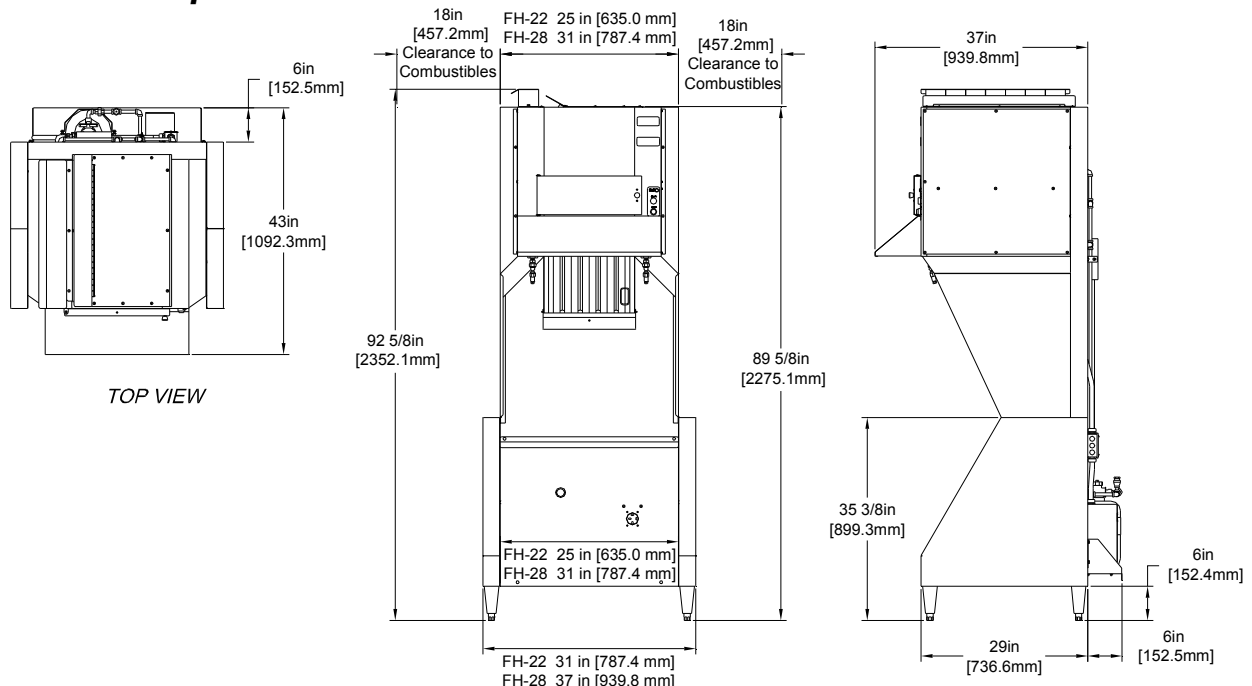
The appliance can also be hard wired to the hood using the other electrical entry knockout. To hard wire the appliance, remove the wires connecting the contactor top terminals to the receptacle and connect the appliance wiring to the contactor top terminals and the ground lug.

The fire system control box contains a switch for connecting a remote alarm signal. The wiring connections for this switch are located in the electrical junction box directly above main electrical enclosure.

Refer to the Wiring Diagrams in this manual for the proper 3 phase connections for the specific model being installed.



### Mechanical Specifications





## Maintenance

### **⚠ WARNING**

Electrocution could occur if this unit is hosed down with water. This unit is NOT designed for hose wash-down cleaning! Refer to scheduled maintenance below for proper hood cleaning.

### **⚠ WARNING**

Electrocution could occur if power is not removed from this unit before servicing. Remove power at disconnect or circuit breaker **BEFORE** servicing hood.

### Scheduled Maintenance

Use the following table to help manage scheduled maintenance activities.

FREQUENCY	PERFORMED BY	PART	ACTIVITY
Daily	User	Entire Hood	Wipe unit down with a soft rag and mild cleaning agent.
	User	Condensation trough	Check condensation trough. Empty if necessary.
	User	Grease Baffle	Clean grease baffle. If necessary, refer to the procedure in this manual for cleaning the baffle.
Weekly	User	Particle/Odor Filter	Inspect particle/odor filter. In low to medium volume applications, the filter may need replacement prior to the indicating light turning on. This condition will be evident by a strong odor coming from the face of the filter. If necessary, refer to the procedure in this manual for replacing the filter.
Monthly	User	Door and Filter Interlock	Check door and filter interlock operation. The unit should not operate with the front door open or either the grease baffle or particle/odor filter removed. Clean area between grease baffle and particle/odor filter.

### **⚠ WARNING**

Injury from rotating fan blades could occur if power is not removed from this unit before cleaning the blower section. Remove power at disconnect or circuit breaker **BEFORE** cleaning the blower section.

3 Months	User	Blower Section	Clean the blower section.
6 Months	Authorized Service agent	Fire Extinguishing System	Have the fire extinguishing system inspected.

## Cleaning the Grease Baffle

1. Shut down the unit.
2. Locate the thumbscrews and retaining frame at the top of the grease baffle.
3. With one hand, hold the baffle to prevent it from dropping. With the other hand, loosen the thumbscrews and slide the retaining frame forward.
4. Slowly lower the top end of the baffle until it clears the retaining frame.
5. Spray the grease baffle with degreasing type soap.
6. Rinse with hot water; dry, and replace in hood.

## Replacing the Particle/Odor Filter

1. Shut down the unit.
2. Open the filter door on the front of the unit by rotating the handle counter-clockwise.
3. Slide the used filter out of the unit.
4. Remove the replacement filter from the plastic bag.
5. Observing the "UP" arrows on the filter, with a hand at each front corner, carefully slide the filter into the unit.

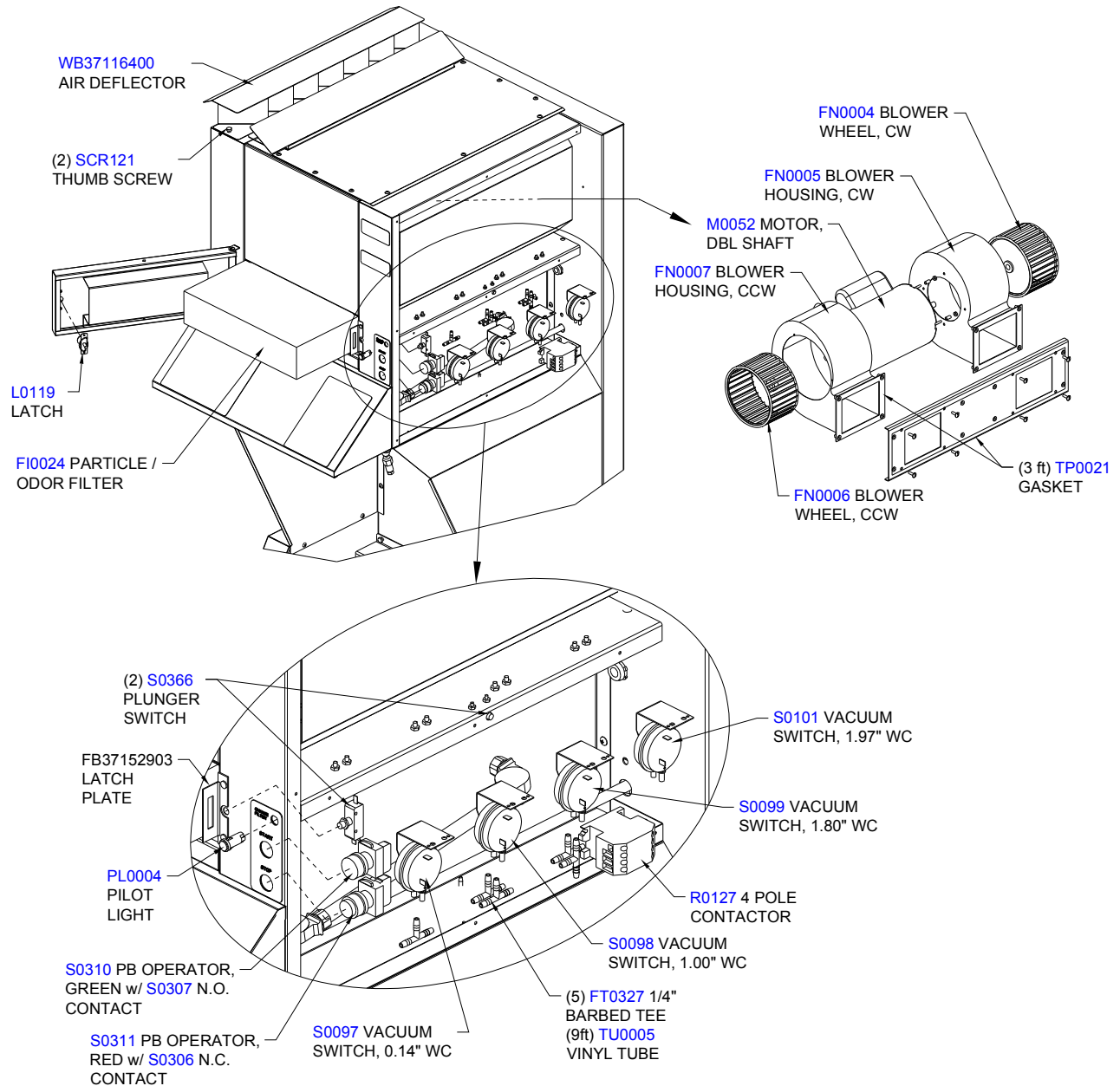
**NOTICE**

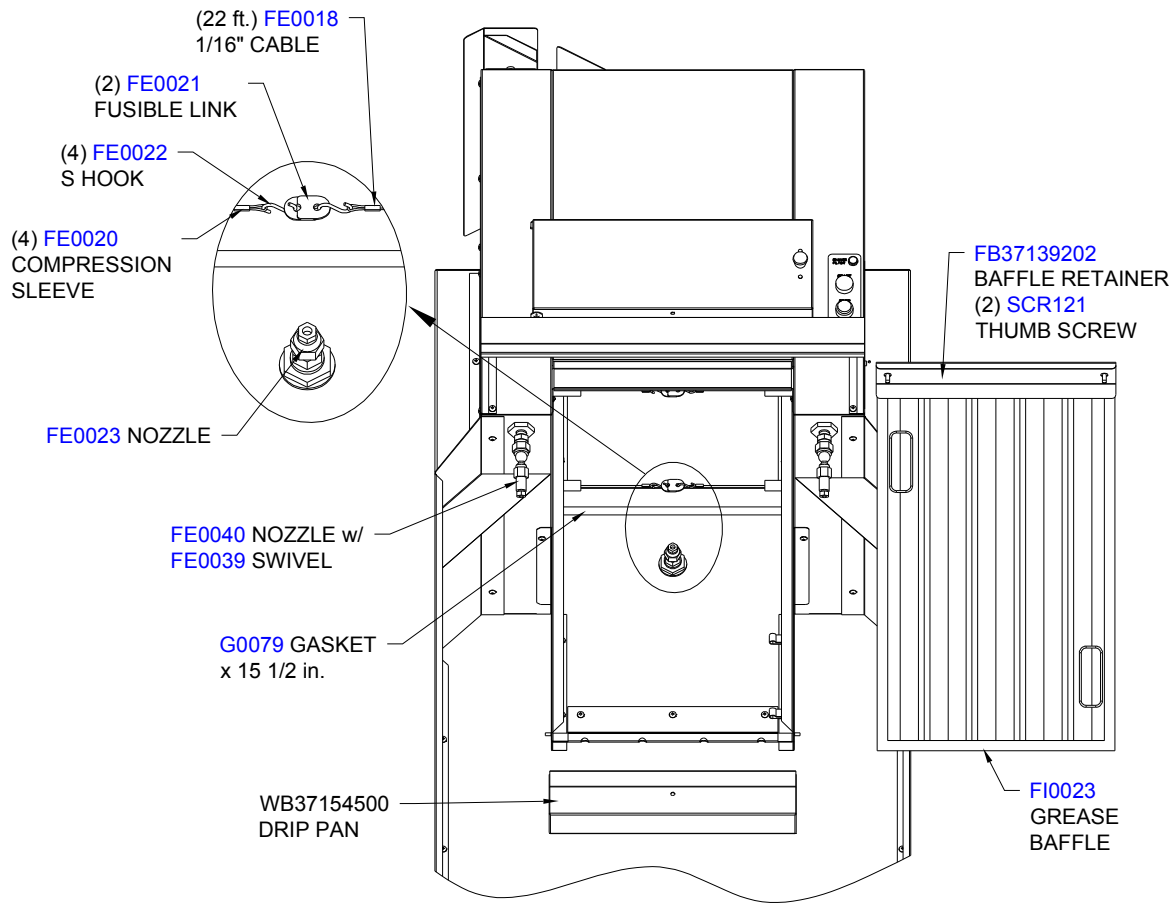
When installing a new filter, slight resistance should be observed as the filter is being slid into place. This resistance is generated by four (4) filter springs located on the bottoms of the filter slides. These springs insure a proper seal at the top of the filter. After a period of time it may become necessary to adjust the pressure that these springs provide by lifting them slightly with your fingers.

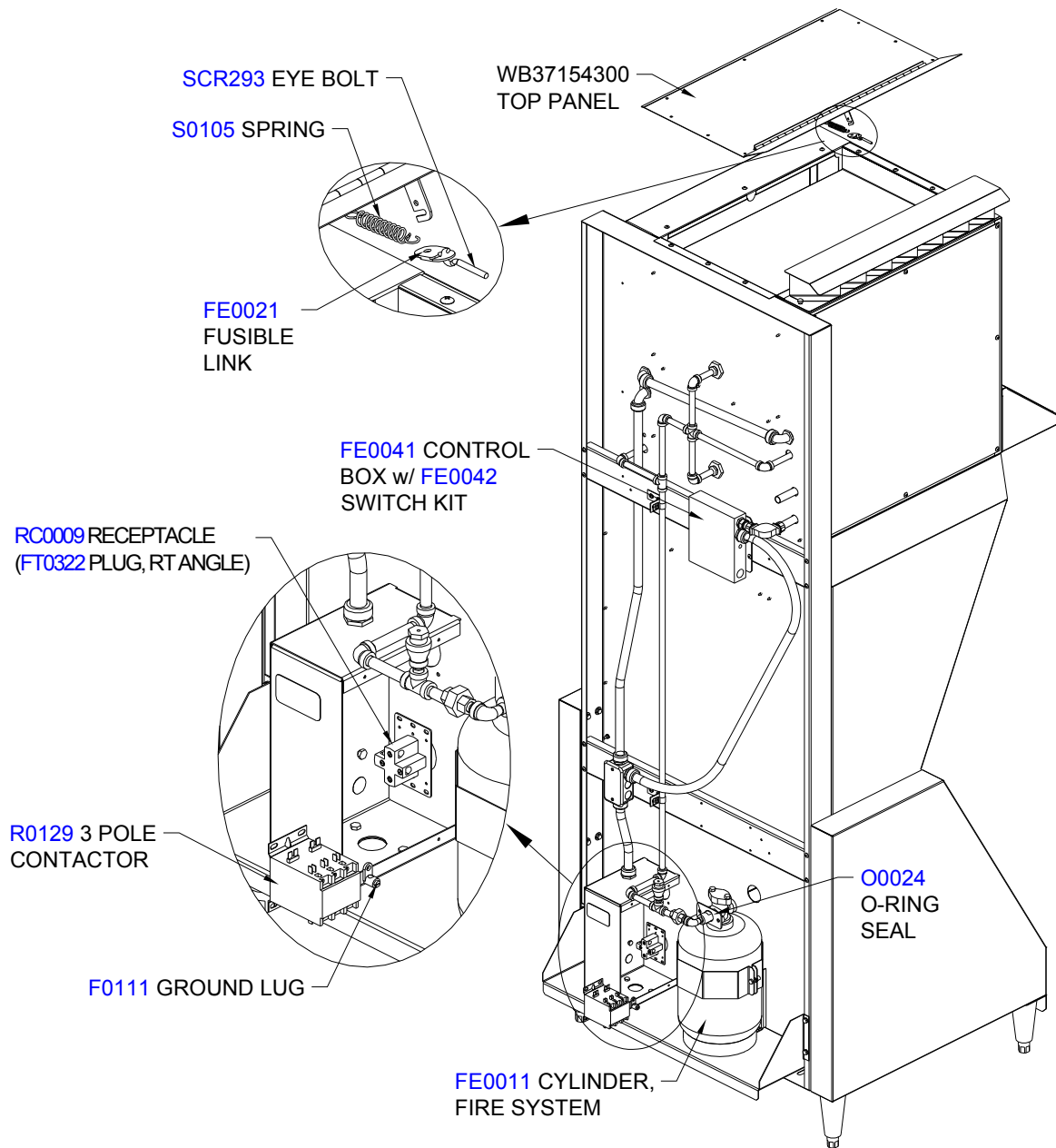
6. Close and latch the door.

## Replacement Parts

Use the information in this section to identify replacement parts. To order replacement parts, call your local BKI sales and service representative. Before calling, please note the serial number on the rating tag affixed to the unit.








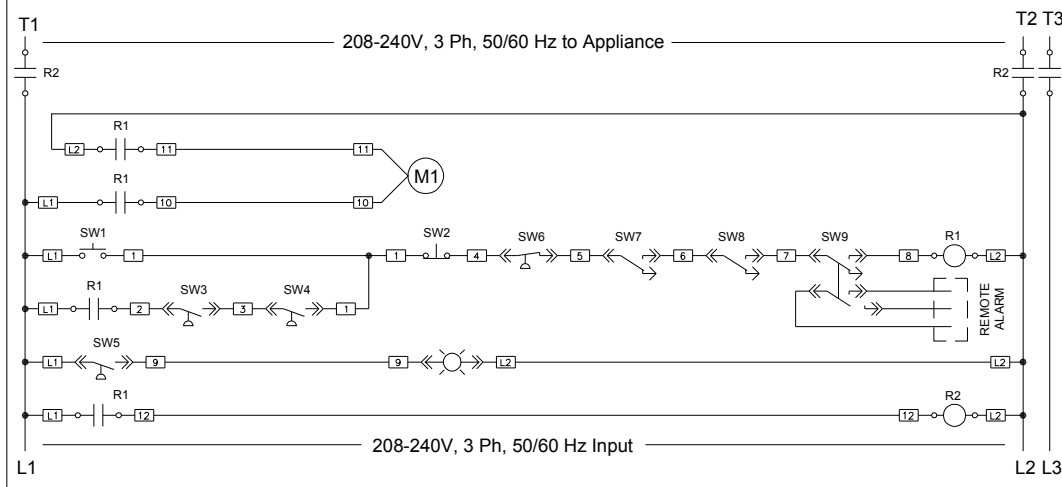
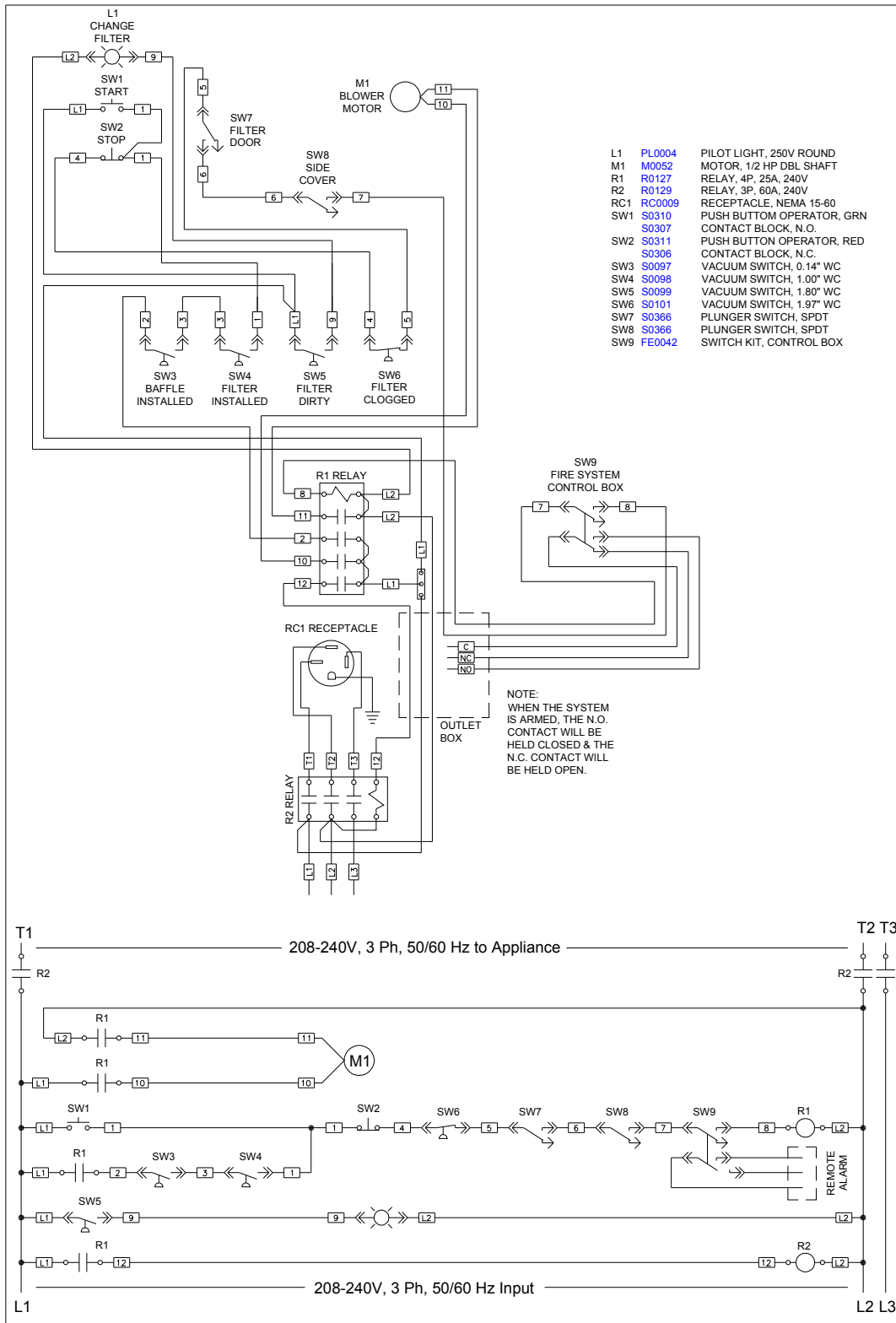



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**Accessories**

PART #	QTY	DESCRIPTION	PICTURE
FI0024 Or FI0025	1	FILTER, FIBERGLASS FH Or FILTER, HIGH CARBON FH	
FB37144203 (FH-28) FB37146603 (FH-22)	1	APPLIANCE STOP	
FT0322	1	PLUG, NEMA 15-60 RIGHT ANGLE	

# Wiring Diagram



MODEL No.	VOLTAGE	AMPS.	KILOWATTS	BREAKER SIZE		
FHII	208	Hood 3.4	Hood 0.7	As Required		
PHASE 1 or 3	No. OF WIRES 3 or 4	220	Hood 3.2	Hood 0.7		As Required
DRAWN BY TAH	DATE 10/10/12	240	Hood 3.0	Hood 0.7	As Required	REV. No.      TYPE/SIZE      DRAWING No. S , B , 37190000

## Notes



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