

Ventless Hood System

MODEL FH-28CT COUNTERTOP
Service Manual



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 data 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.
- ☐ CO1 Models: Two (2) Year limited parts and labor. Five (5) Year limited door warranty.
- ☐ BevLes Products: Two (2) Year limited parts and labor.
- ☐ 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. The extended door warranty on convection ovens years 3 through 5 is a parts only warranty and does not include labor, travel, mileage or any other charges.

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.

Table of Contents

Table of Contents	1
Introduction	2
Safety Precautions	2
Safety Signs and Messages	2
Specific Precautions	2
Safe Work Practices	3
Safety Labels	4
Hood Specifications	4
Cooktop Specifications.....	4
Installation	5
Unpacking and Handling	5
Inspection for Shipping Damage.....	5
Location and Clearance.....	5
Assembly and Mounting.....	5
Hood Mounting.....	5
Particle/Odor Filter	6
Fire Damper	6
Air Deflector	7
Fire Extinguishing System	7
Wiring	15
Maintenance	18
Scheduled Maintenance.....	18
Cleaning the Grease Baffle.....	19
Replacing the Particle/Odor Filter.....	19
Replacement Parts	20
Wiring Diagrams	26
Notes	27

Introduction

Congratulations! You have chosen **BKI's** Ventless Hood system, a state-of-the-art unit that filters grease laden air and returns it to the room.

The **BKI** name and trademark on this unit assures you of the finest in design and engineering -- that it has been built with care and dedication -- using the best materials available. Attention to the operating instructions regarding proper operation, installation and maintenance will result in long lasting dependability to insure the highest profitable return on your investment.

NOTICE

PLEASE READ THIS ENTIRE MANUAL BEFORE OPERATING THE UNIT. If you have any questions, please contact your **BKI** Distributor. If they do not answer your 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.

NOTICE

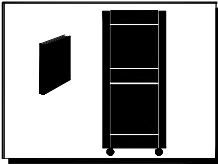
Hood failure could result if the hood is operated without the grease baffle and particle/odor filter installed. This is a special filter designed for this application only; other filters will not work properly. Use only a **BKI** particle/odor filter.

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

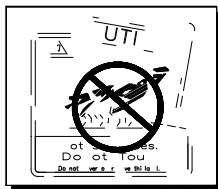
Technical Services Department
2812 Grandview Drive
Simpsonville, S.C. 29680
Or call toll free: 1-800-927-6887
Outside the U.S., call 864-963-3471



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.

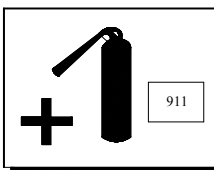


Keep Safety Labels Clean and in Good Condition

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. Refer to the Safety Labels section for illustration and location of safety labels on this unit. If you need a new safety label, obtain the number of the specific label illustrated on page 4, then 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

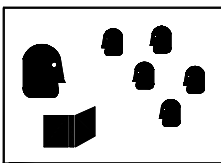


Prepare for Emergencies

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.

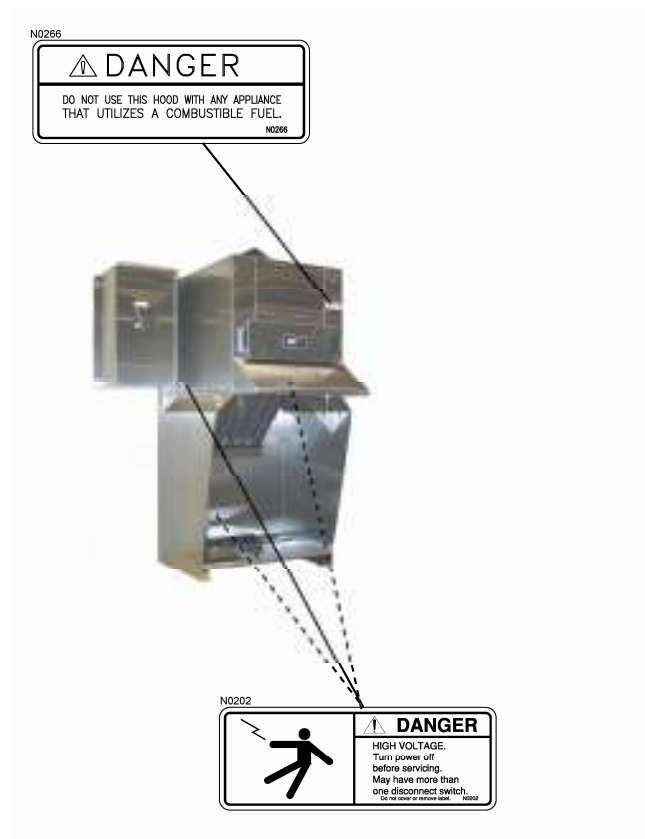
Keep emergency numbers for doctors, ambulance services, hospitals, and the fire departments near your telephone.



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.

Safety Labels



Hood Specifications

Power	208/120V or 240/120V (Neutral wire required)
Phase	1 or 3 (see wiring instructions)
Hood Blower Motor	1/2 HP
Fuse or Breaker size	40A
Wire Size	Minimum recommended wire size for all leads and neutral is 8 ga.

Note: Above specifications include the load of 4 cooktop appliances (1.5KW) powered by the hood.

Cooktop Specifications

Volts	120V
Phase	1
Maximum Amps	12.5A
Maximum Input	1500W
Frequency	60 Hz
Maximum combined cooking surface area	450 sq. in. (2903 sq. cm.)
Maximum cooking surface temperature	450° F. (232° C.)
USE UL LISTED APPLIANCES ONLY	

Installation

Unpacking and Handling

Inspection for Shipping Damage

YOU are responsible for filing 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 pallets is found, or if a shortage is found, note this on the bill of lading (all copies) prior to signing and receiving.

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 shipping line.

Location and Clearance

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

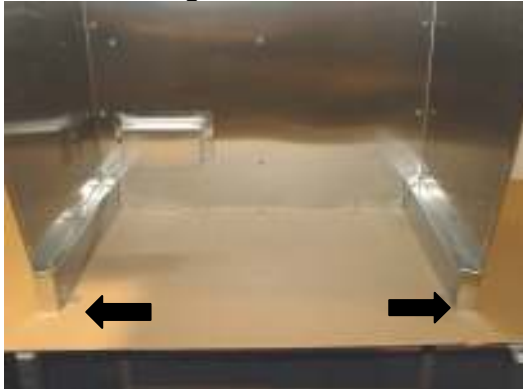
MINIMUM CLEARANCE HOOD TO COMBUSTIBLE 18 in. (FH-28) SIDES, 0 in. BACK, 0 in. TOP, 0 in. BOTTOM	APPLIANCE CLEARANCE Cooking surface must be at least 3.5 inches behind the front edge of the hood.
--	---

Assembly and Mounting

Hood Mounting

1. Assemble the hood to the table using four 1/4" x 20 bolts (3/4" long) and lock washers. Mounting brackets are fixed to the support legs as shown below.

Front Mounting Brackets



Rear Mounting Brackets



2. Seal the hood base to unit using NSF approved silicone rubber sealant.

3. Place the appliance shelf under the hood as shown below.



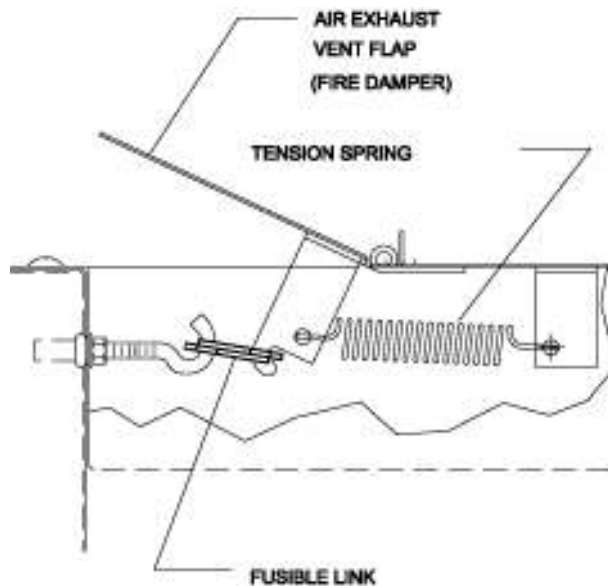
Particle/Odor Filter

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.

Fire Damper

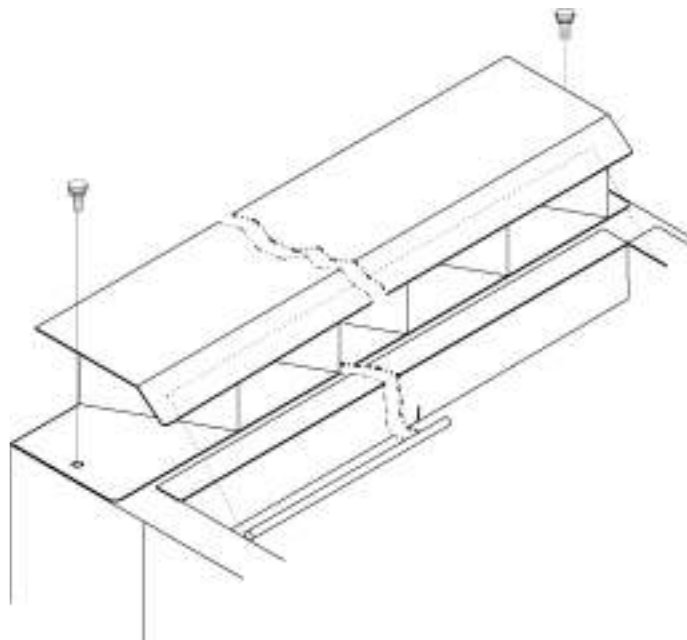
A UL Listed 165° F fusible link must be installed in the damper assembly located at the top of the unit. Install as follows:

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 below, using two knurled screws (provided).



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. Mount the fire extinguisher control as follows:
 - a. When viewed from the front of the hood, mount the fire extinguisher control/cylinder plate to right hand side of hood (see Figure 1) when hood is mounted on left end of table or to left side of hood (see Figure 2) when hood is mounted on right end of table. Use (2) ¼-20x3/4" bolts and lockwashers to secure plate to rear of hood frame.
 - b. Attach cylinder actuator and discharge fitting assembly cylinder.
 - c. Mount cylinder on bracket.
 - d. Attach 8" nipple, 17.5" nipple, 90° ells, and union/vent assembly as shown in Figure 1 or Figure 2. It may be necessary to rotate the union and elbow 180° to attach to cylinder union.
 - e. Attach conduit lengths and corner pulleys to A+ control box as shown in Figure 1 or Figure 2 simultaneously routing cable per standard Range Guard® procedures.
 - f. Route flexible conduit as shown to top of A+ control box.
 - g. Connect microswitch interlock to hood electrical wires per wiring diagram provided in this manual. Refer to the electrical diagram included in this manual (see page 26).
2. Mount the Pull Station as follows:
 - a. Remove protective plastic from all parts.
 - b. Mount remote pull box to remote pull enclosure bottom using (2) ¼-20x ¾ bolts, lockwashers, and nuts.
 - c. Mount remote pull mounting plate to side of table using hardware provided with table.
 - d. Refer to in Figure 3 or Figure 4. Attach remote pull enclosure bottom to inside of mounting plate using (6) #10 sheetmetal screws.
 - e. Attach conduit lengths and corner pulleys to remote pull box as shown in Figure 3 or Figure 4 simultaneously routing cable per standard Range Guard® procedures.
 - f. Attach remote pull enclosure top to mount plate and enclosure bottom using (8) #10 sheetmetal screws.
 - h. Mount remote pull cover plate. Refer to Figure 5 for complete pull station mounting.

Figure 1

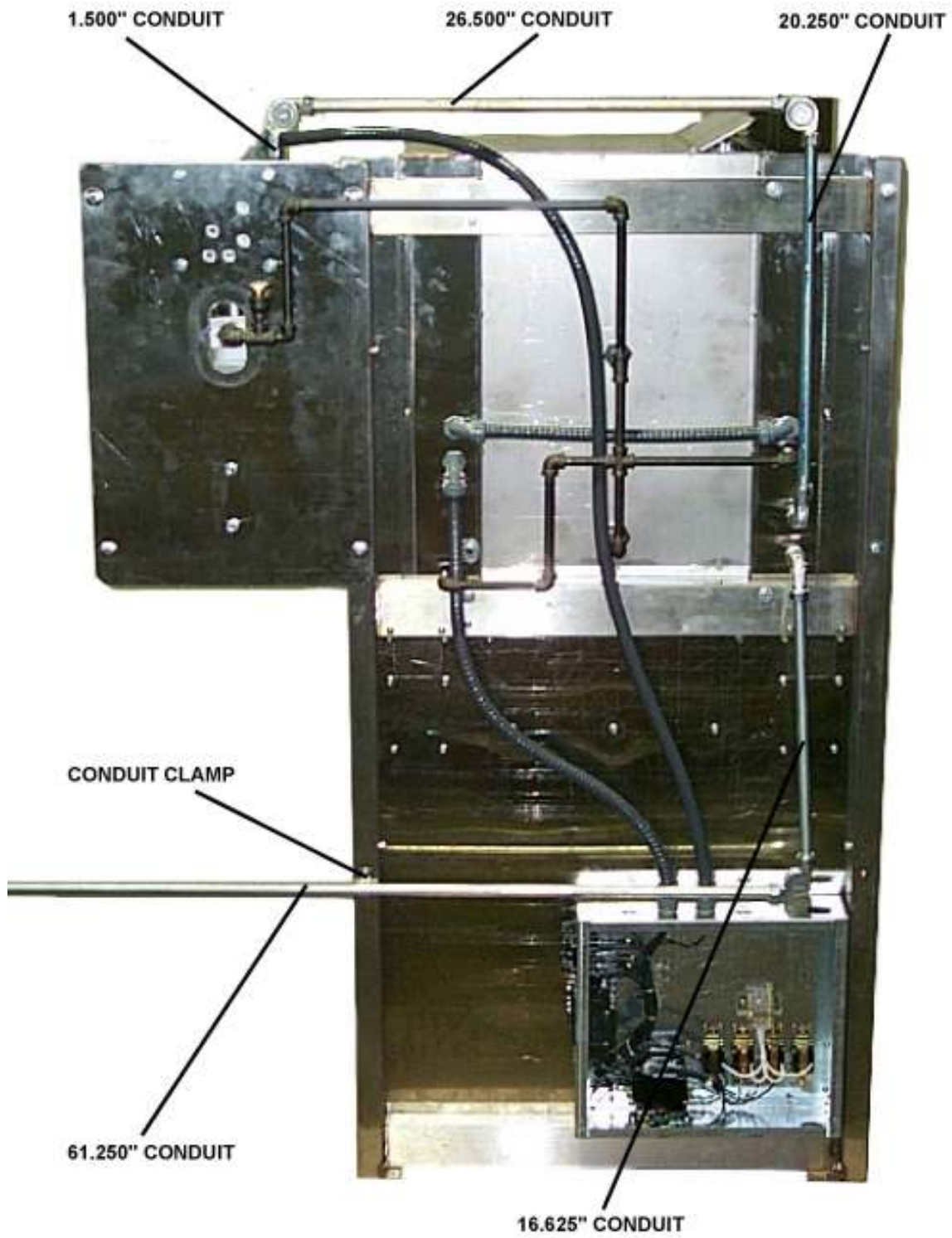


Figure 2

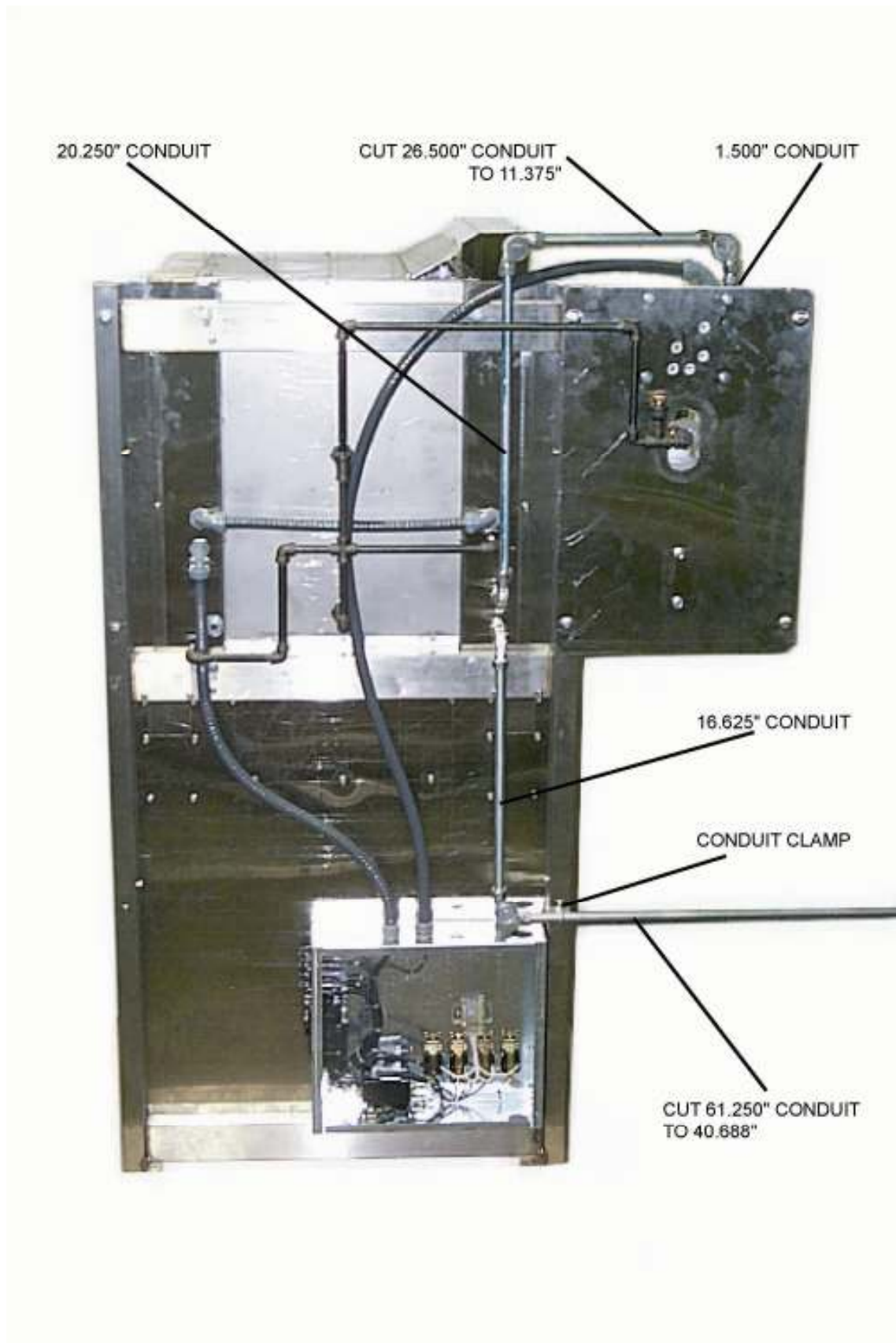


Figure 3. Right Side Pull Station Mounting

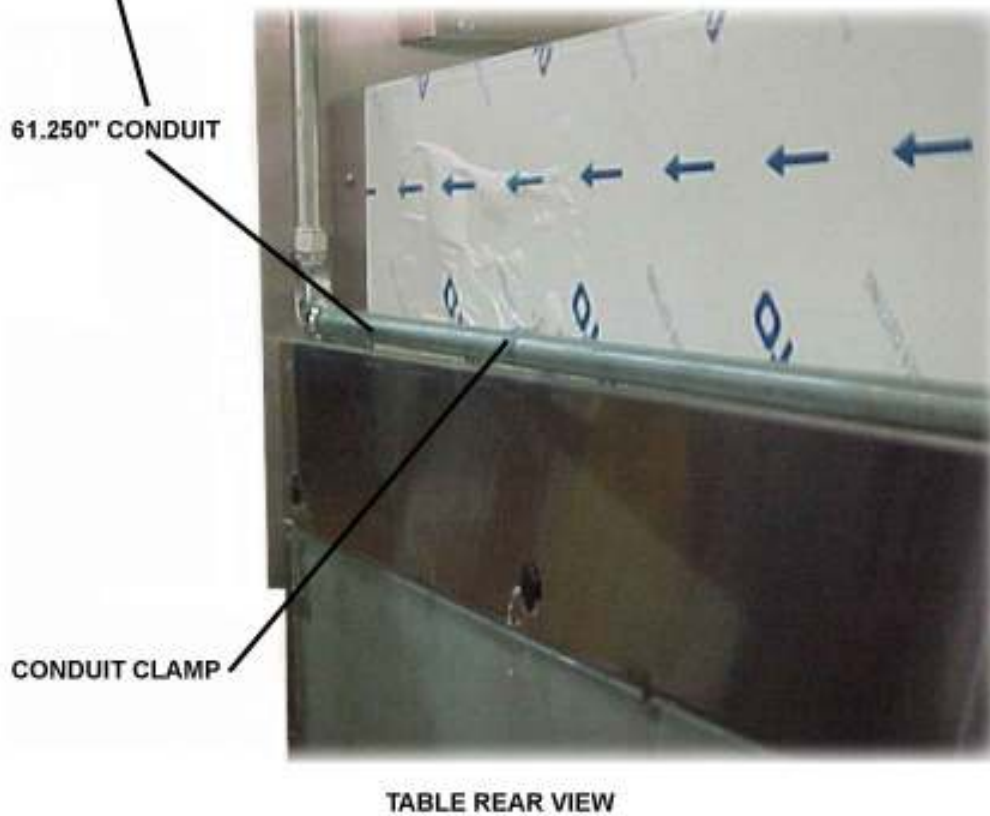
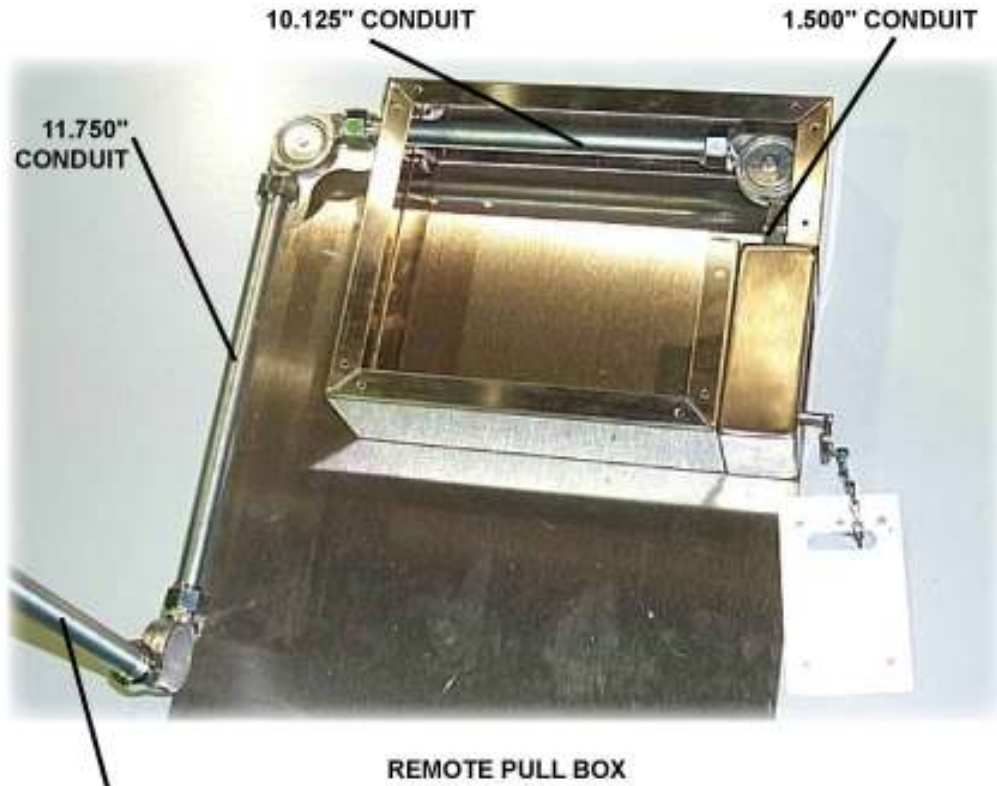
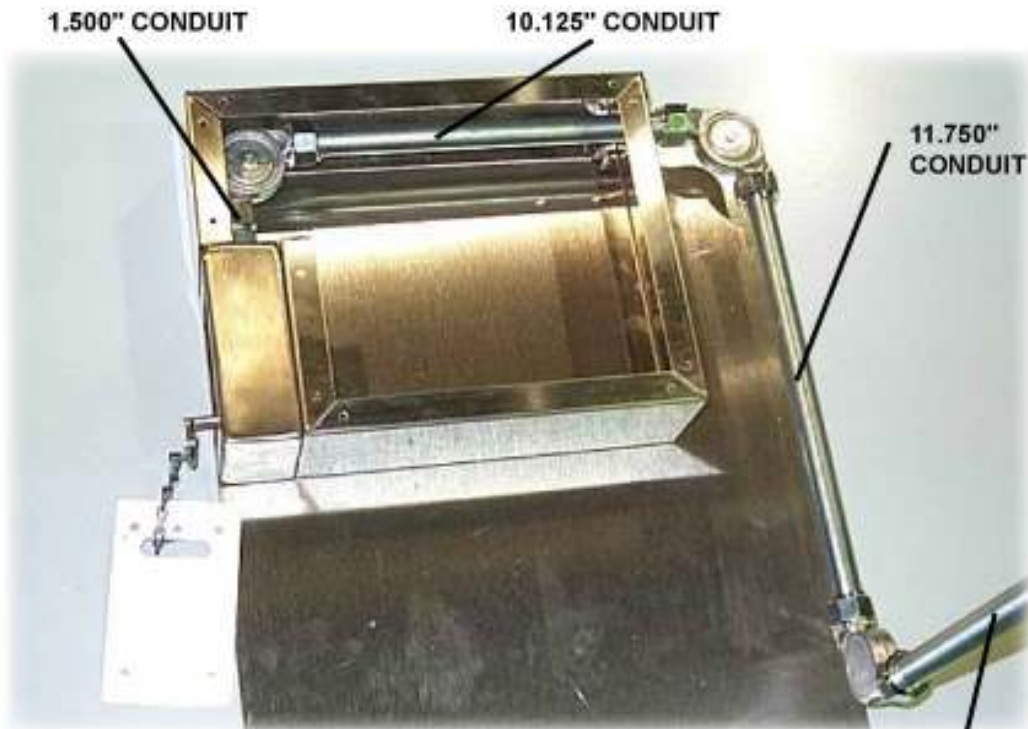


Figure 4. Left Side Pull Station Mounting



REMOTE PULL BOX

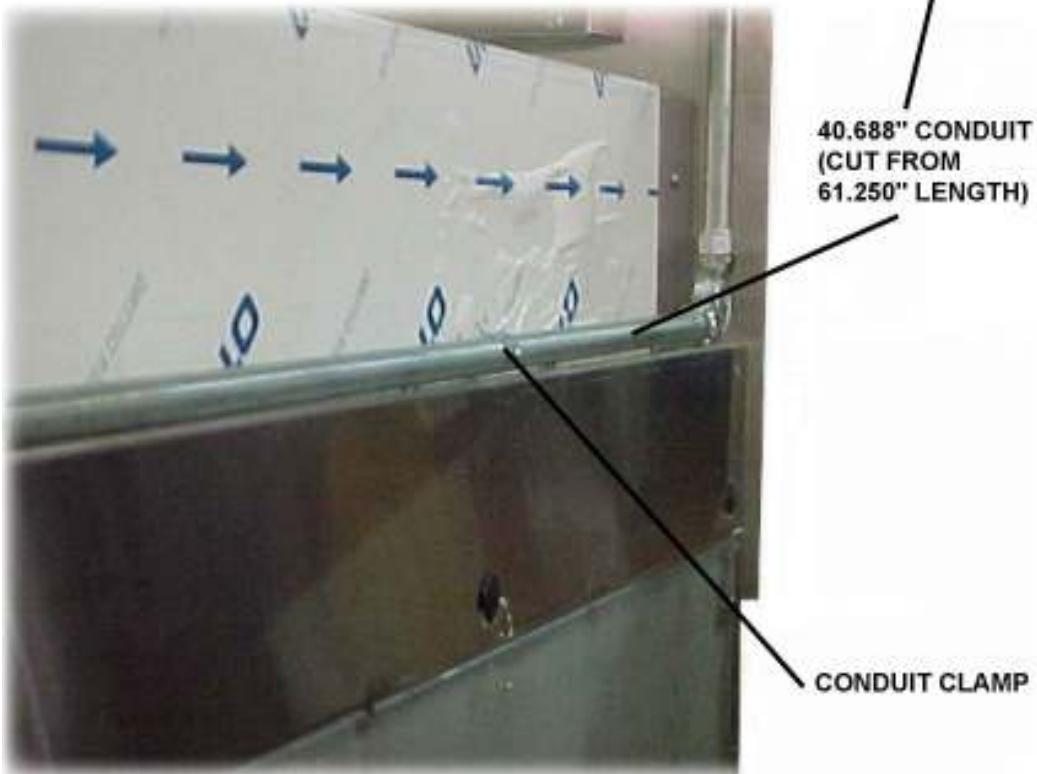
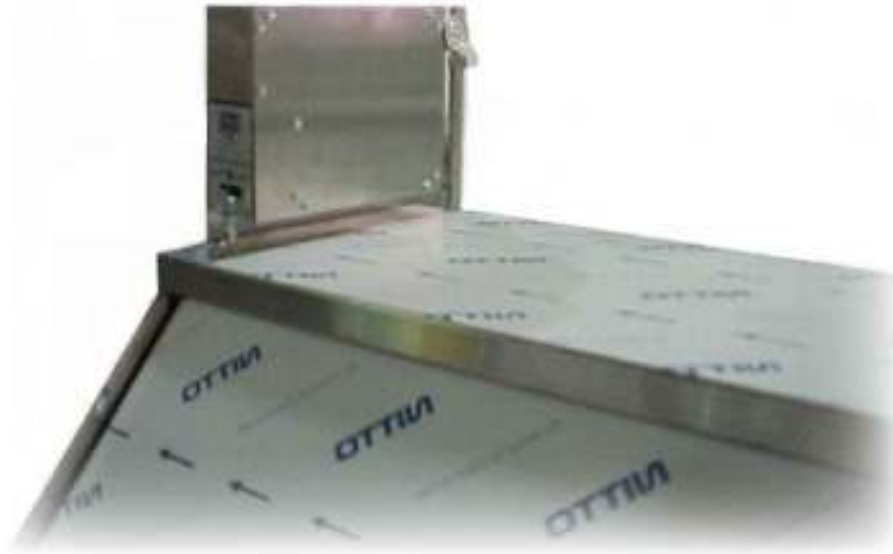
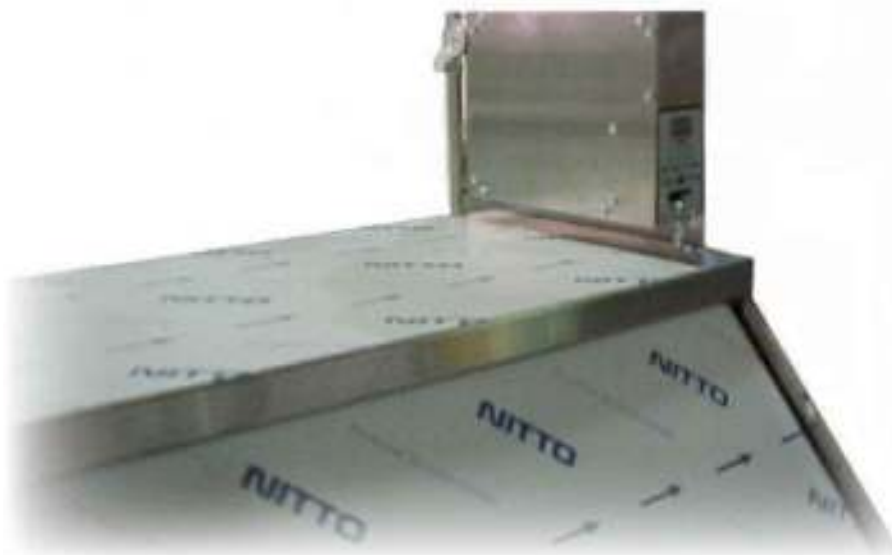


TABLE REAR VIEW

Figure 5. Complete Pull Station Mounting

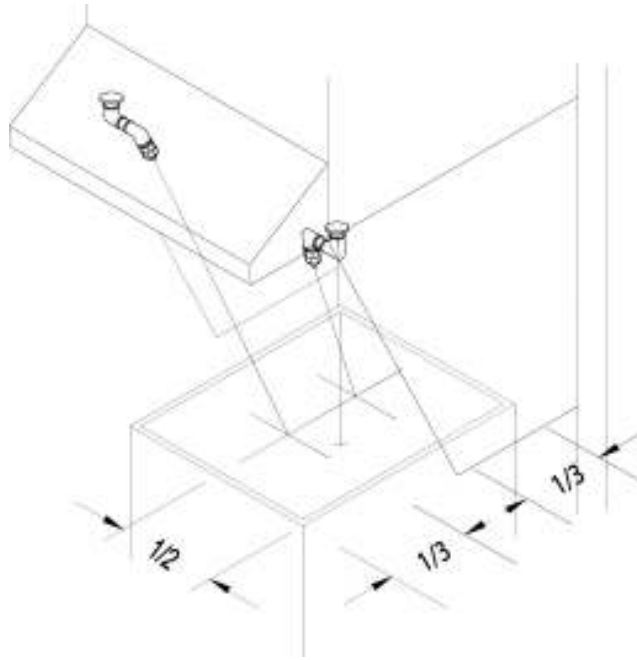


PULL STATION MOUNTED AT LEFT END OF TABLE



PULL STATION MOUNTED AT RIGHT END OF TABLE

3. If required, connect the provided fire extinguishing system contacts for remote signaling. Refer to the electrical diagram included in this manual (see page 26).
4. Adjust the position of the two ADP appliance nozzles as depicted below.



5. 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).



6. Reset control head. With control head NOT installed on cylinder, dry test system by activating the remote pull.
7. Reset control head and activate system per Range Guard® procedures.
8. Recheck installation procedure to insure that nothing has been overlooked.

Wiring

⚠ WARNING

Electrocution, equipment failure or property damage could result if an unlicensed electrician performs the electrical installation. **Ensure that a licensed electrician performs the electrical installation using appropriate materials and construction practices which conform to the National Electric Code and all local codes.**

⚠ WARNING

In the event of an appliance fire, serious injury, property damage or death could occur 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. In the event of a fire, the hood fire extinguishing system will automatically remove power from the connected appliance.

NOTICE

The fire extinguishing system must be operative before the electrical system will function.

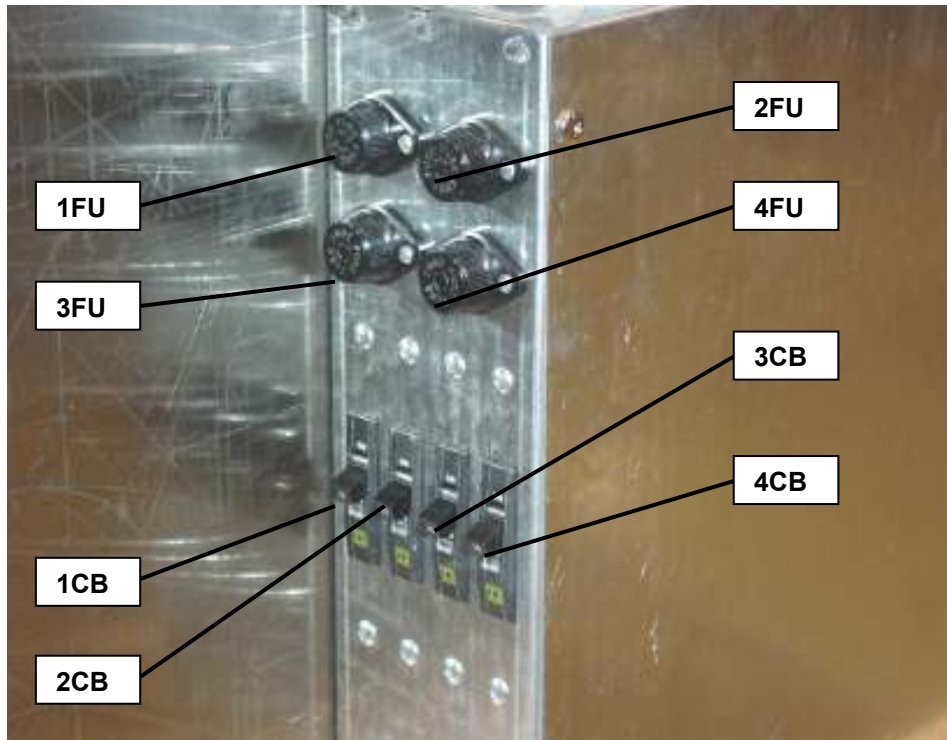
Refer to the electrical diagram included in this manual (see page 26).

The hood may be connected to either a 208/120V or a 240/120V supply. The supply may be either 3 phase or 1 phase. The hood as supplied, is connected for single phase operation. When a three phase supply is available, it can be internally reconnected for three phase operation to balance load. Refer to the directions on the hood wiring diagram. (see page 26).

Connection to the hood electrical box can be made using either flexible conduit, or a cord/plug combination. One-inch knockouts are provided in the top and the bottom of the electrical box. A ground wire and a separate neutral wire **MUST** be provided for all connections. The minimum recommended wire size is 8ga. The circuit protection device should be sized at 40 amperes. The hood/table system should be restrained to avoid any stress on the conduit or cord connecting the appliance when the system is moved for cleaning. Insure that cords or conduit are properly secured as to avoid any physical damage from covers, edges, etc. when the unit is moved.

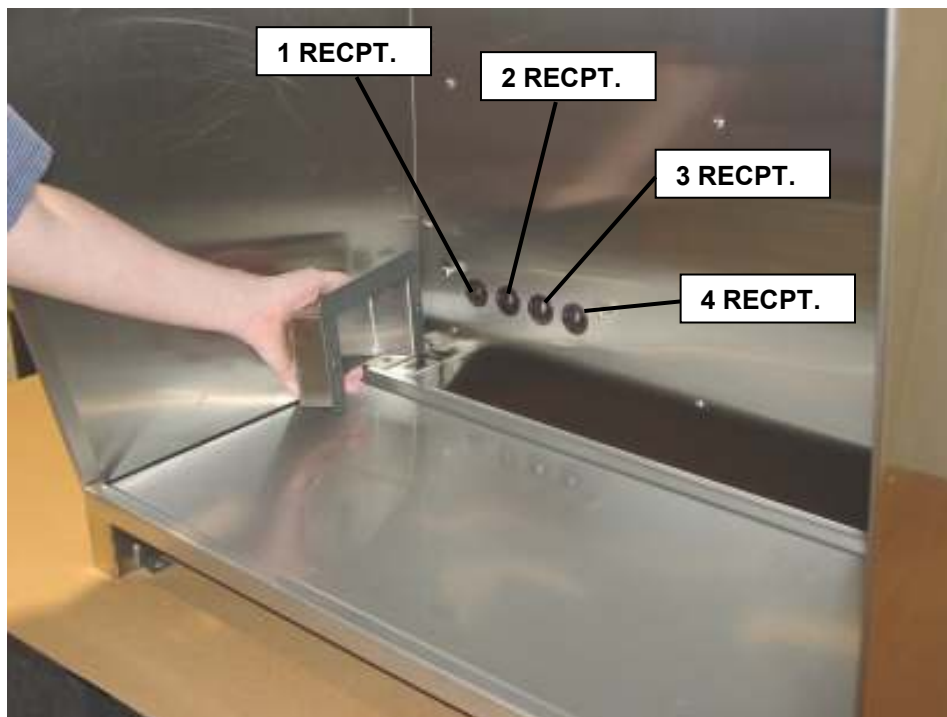
1. Connect incoming power as follows:
 - For single-phase operation, connect incoming power to terminals L1 and L2 of the contactor. Connect neutral and ground as shown in Figure 6.
 - For three-phase operation, connect incoming power to terminals L1, L2 and L3 of the contactor. Reconnect second receptacle inside hood electrical box to T2 and T3 on 1CR. Connect neutral and ground as shown in Figure 6.
2. Insure that the fire extinguishing control box microswitch has been properly connected. Refer to 1g on page 8.

- Place circuit breakers 1CB thru 4CB in the ON position.

**WARNING**

Wiring may become damaged from wear if straight plugs are used. Appliances must have right angle plugs to properly fit under receptacle cover.

- Insert plug into receptacles located in the hood.



5. Install the cover over the appliance receptacles as shown.



6. Install rear cover on the back of the hood as shown. The cover installs on 4 posts located inside the frame

Note: To remove the rear cover, lift and pull toward you.



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.

Description	Figure #
Electrical Box Assembly	6
Blower Motor Assembly	7
Right Side Cabinet Assembly	8

Figure 6. Electrical Box Assembly (Sheet 1 of 2)

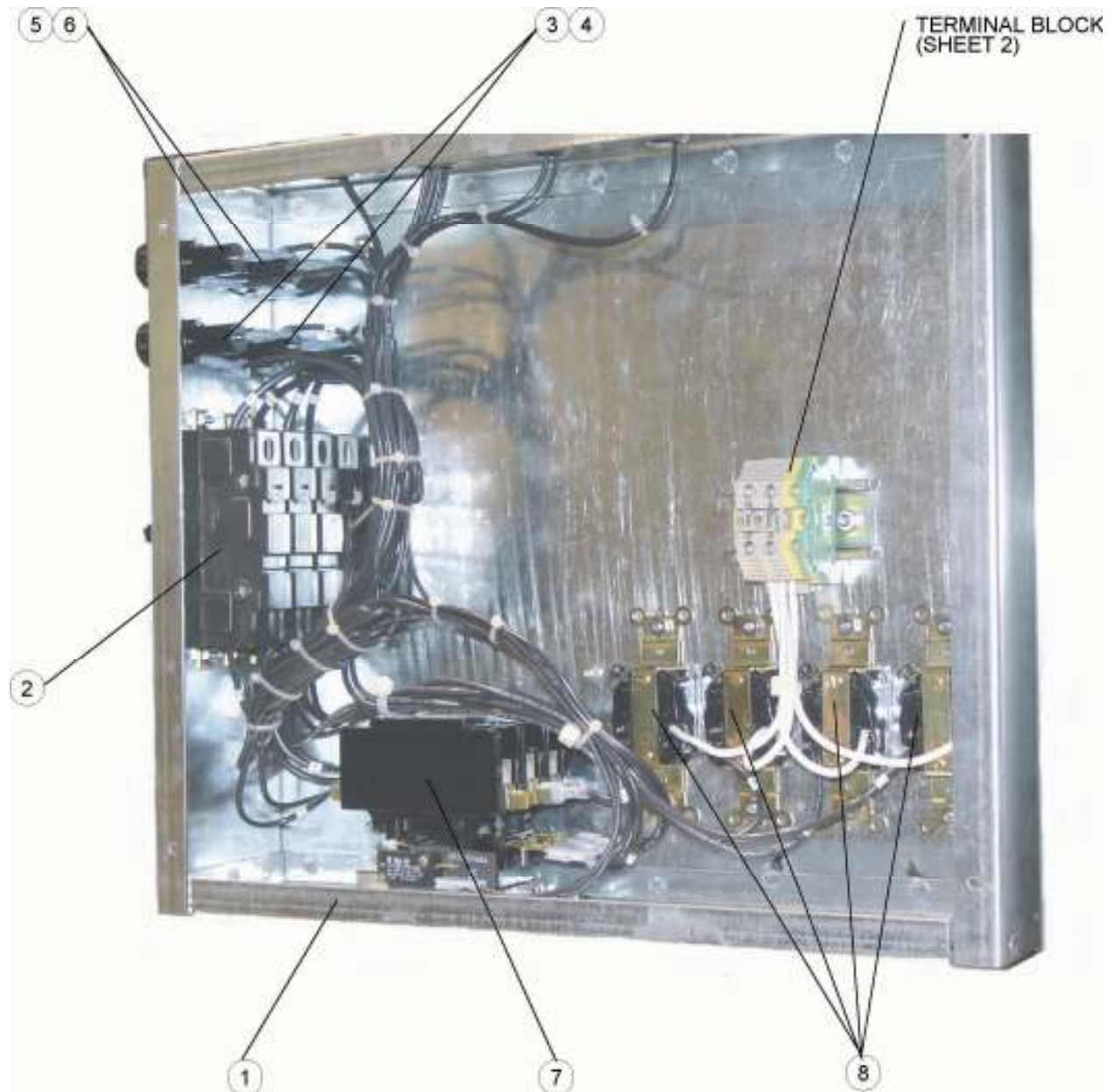
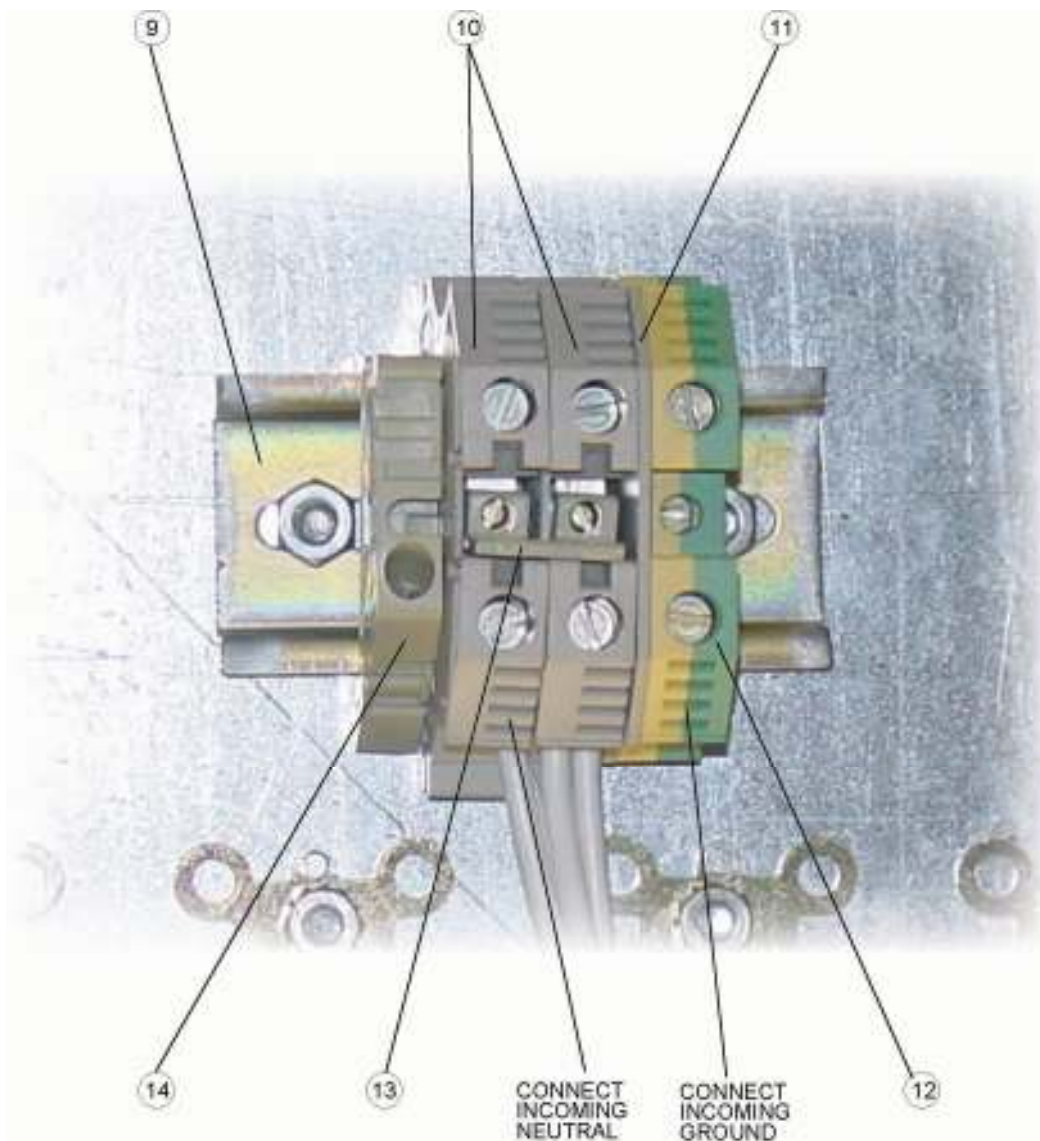
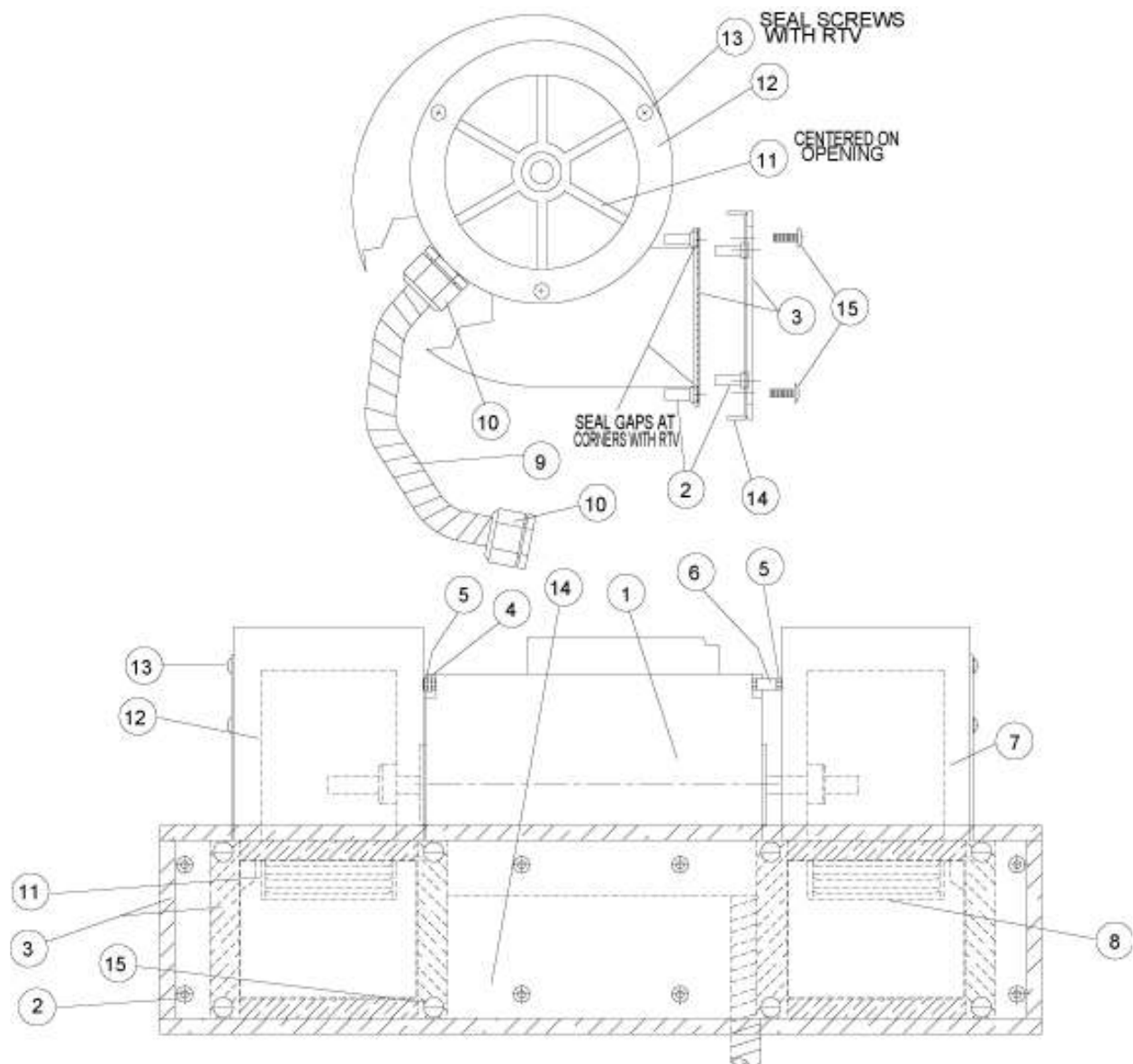


Figure 6. Electrical Box Assembly (Sheet 2 of 2)

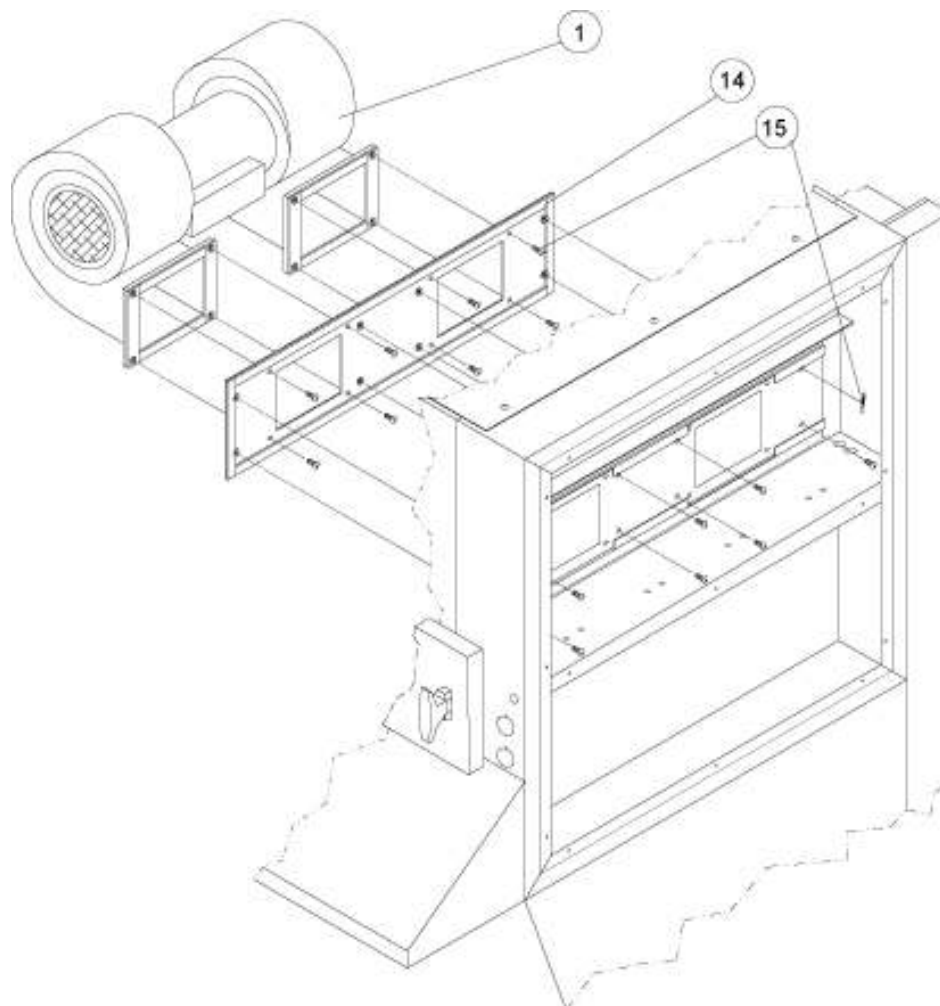


ITEM #	PART #	QTY	DESCRIPTION
1	WB37140100	1	ELECT.BOX WELDMENT FH-28CT
2	CB0066	4	BREAKER,CIR.W/LUGS 15A 120V 50/60HZ
3	F0100	2	FUSE, 1A 300V SC-1 TIME DELAY
4	FH0001	2	FUSE HOLDER, 15A 300V HPF-EE
5	F0336	2	FUSE, 5A 250V FNM5 TIME DELAY
6	FH0006	2	FUSE HOLDER, 30A 600V HPF
7	R0129	1	RELAY, 3POLE 60A 208/240 50/60
8	RC0017	4	RECEPTACLE, NEMA 5-15 FH-28CT
9	MB44023700	1	TB0045 RAIL CUT 2.813"
10	TB0046	2	TERM BLOCK, WDU10 #102030
11	TB0047	1	TERM BLOCK END PLATE WAP
12	TB0048	1	TERM BLOCK GROUND BLOCK
13	TB0049	1	TERM BLOCK 2 POLE JUMPER
14	TB0051	1	TERM BLOCK END BRKT EW35

Figure 7. Blower Motor Assembly



. Blower Motor Assembly – Continued



ITEM #	PART #	QTY	DESCRIPTION
1	M0052	1	MOTOR, BLOWER 1/2 HP LEESON
2	F0024	16	RIVNUT, #10-24
3	TP0021	36"	TAPE, ARMAFLEX 1/8 X 3/4 X 50'
4	WSH037	4	WASHER, 3/16 SAE FLAT
5	NUT049	8	NUT, 8-32 HEX
6	SP0013	4	SPACER, FOR #8 X 1/2" LG.
7	FN0005	1	HOUSING, BLOWER CLOCKWISE
8	FN0004 OR FN0019	1 OR 1	WHEEL, BLOWER 5 3/4 CLKWS RT. OR BLOWER WHEEL, 50HZ FH HOODS
9	FB37115200	1	CONDUIT, 1/2" FT0323 10"
10	FT0320	2	COMPRESSION FTG, 1/2" STRAIGHT
11	FN0006 OR FN0020	1 OR 1	WHEEL, BLOWER 5-3/4 CTCKWS LT OR BLOWER WHEEL, 50 HZ FH HOODS
12	FN0007	1	HOUSING, BLOWER C'TR CLK WISE
13	SCR004	6	SCREW, 8 X 3/8 PHIL TRUSS HD
14	FB37113602	1	PLATE, LEESON FAN MOUNTING
15	SCR137	8	SCREW, 10-24 X 5/8 SLTD TRUSS

Figure 8. Right Side Cabinet Assembly

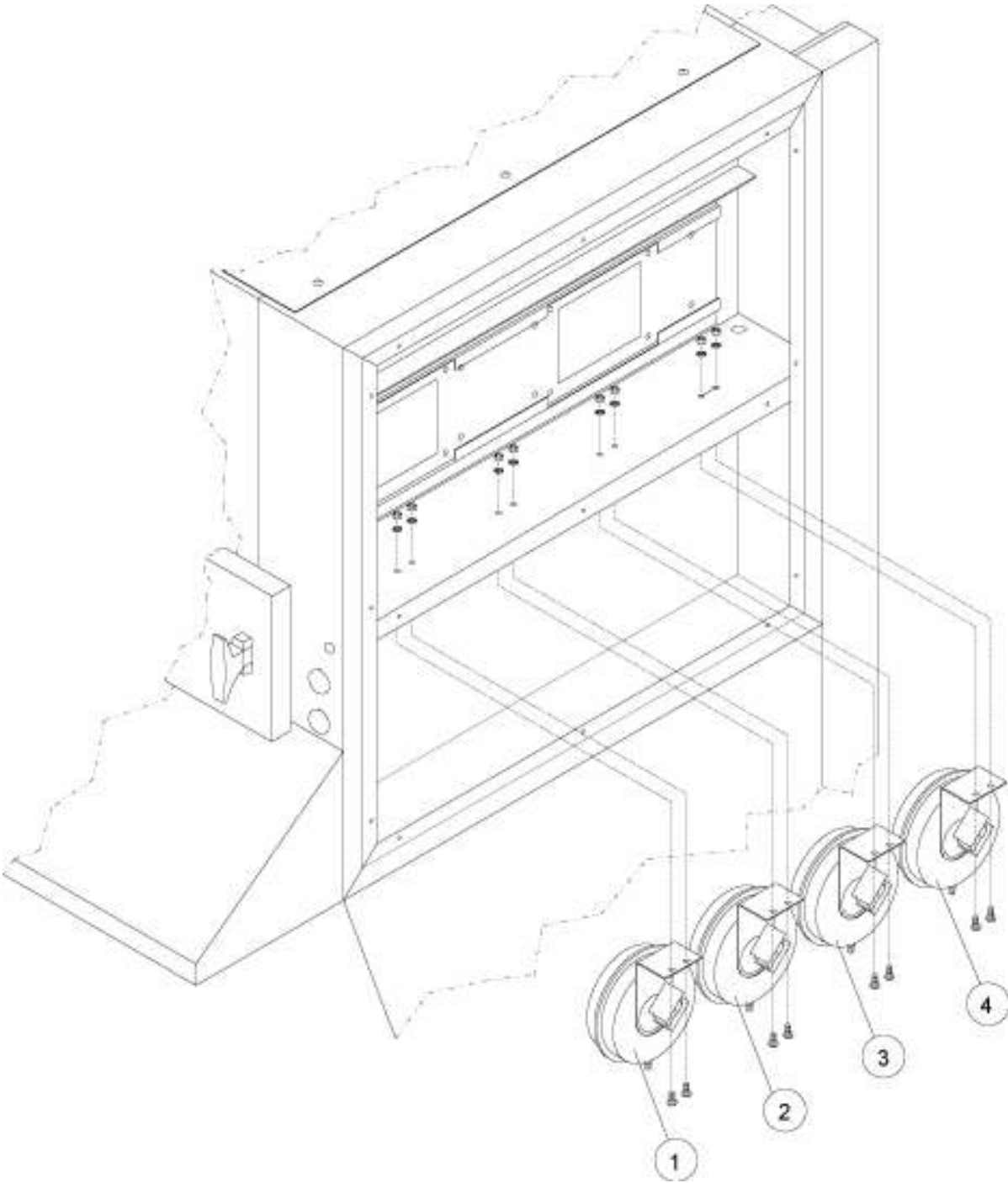
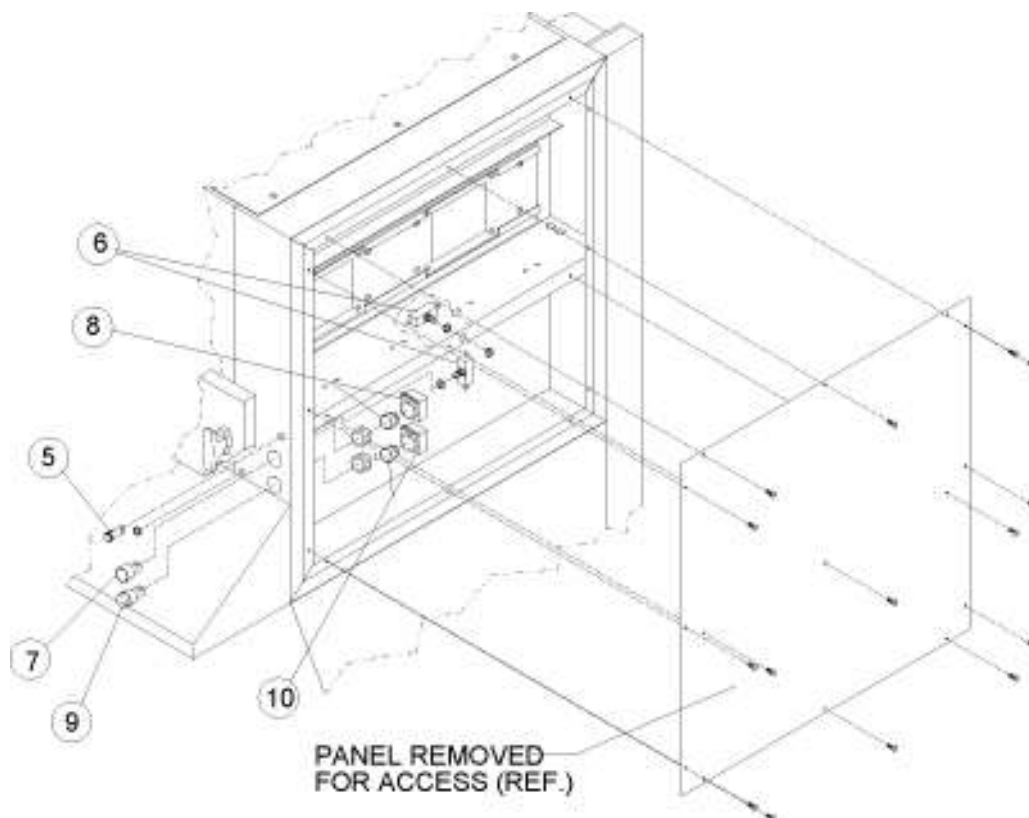
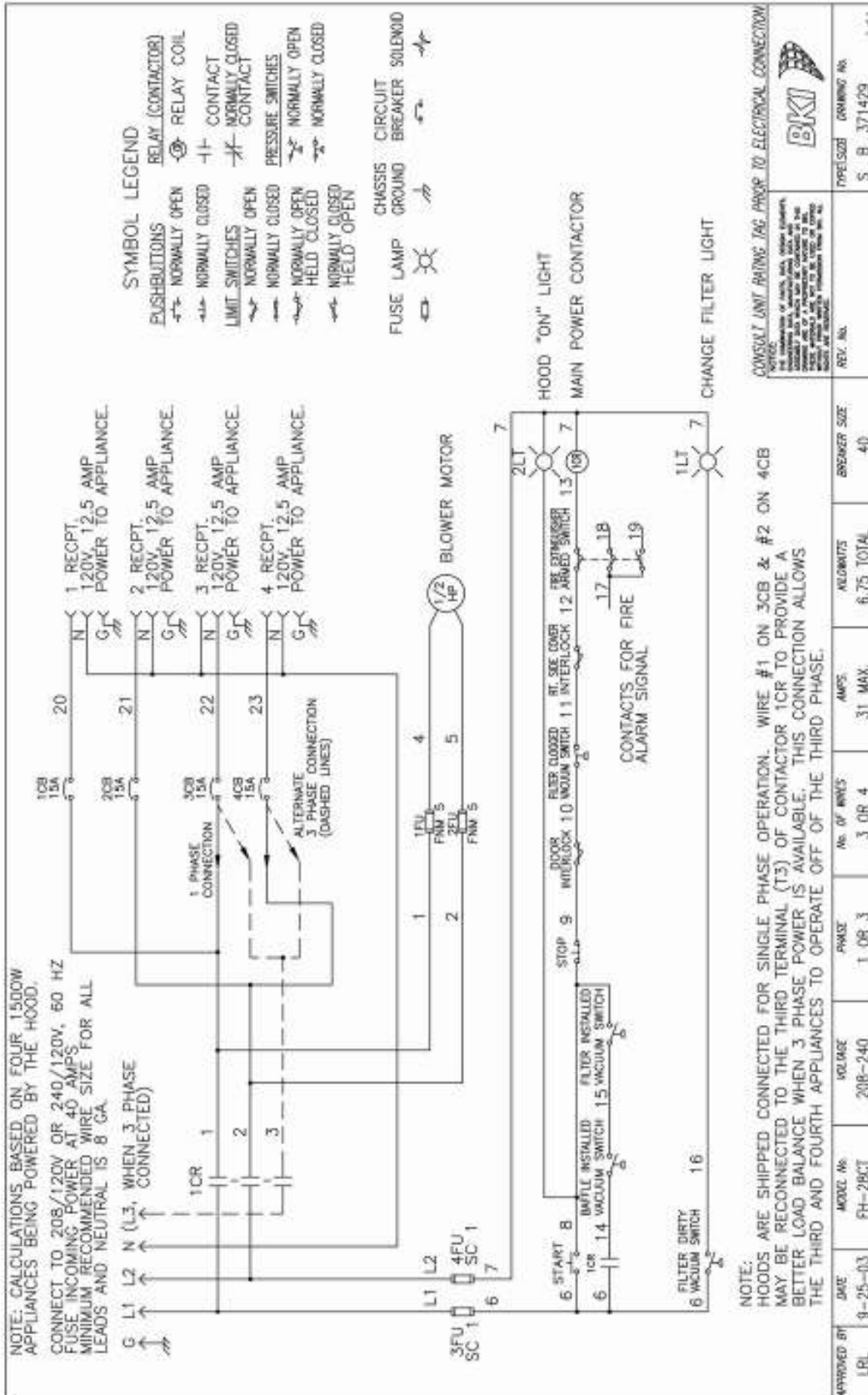


Figure 8. Right Side Cabinet Assembly – Continued



ITEM #	PART #	QTY	DESCRIPTION
1	S0097	1	SWITCH, VACUUM 371
2	S0098	1	SWITCH, VACUUM 371
3	S0099	1	SWITCH, VACUUM 371
4	S0101	1	SWITCH, VACUUM 371
5	PL0004	1	PILOT LIGHT, ROUND 250V
6	S0073	2	SWITCH, PUSHBUTTON MICRO
7	S0359	1	SWITCH, FLUSH GREEN PUSH ILLUM.
	S0360	1	SWITCH, LAMP, LED, GREEN, 230V
8	S0307	1	SWITCH, NO BLOCK GE P9B10VN
9	S0311	1	SWITCH, EXTENDED RED PUSH
10	S0306	1	SWITCH, NC BLOCK GE P9B01VN

Wiring Diagrams



APPROVED BY	DATE	MODEL NO	VOLUME	PHASE	NO. OF WIRES	AMPS	WELDMITS	BREAKER SIZE	REF. NO.	TYPE/SIZE	DRAWING NO.
LRL	9-25-03	FR-28CT	208-240	1 OR 3	3 OR 4	31 MAX.	6.75 TOTAL	40	S. B.	371429	1 of 3



Notes



2812 Grandview Dr., Simpsonville, S.C. 29680, USA
<http://www.bkideas.com>

Made and printed in the U.S.A
LI0205/0903

REVISION HISTORY

<u>REVISION</u>	<u>DATE</u>	<u>REVISED BY</u>	<u>DESCRIPTION</u>
01	04/17/13	KW	Initial Release-Supersedes all previous releases