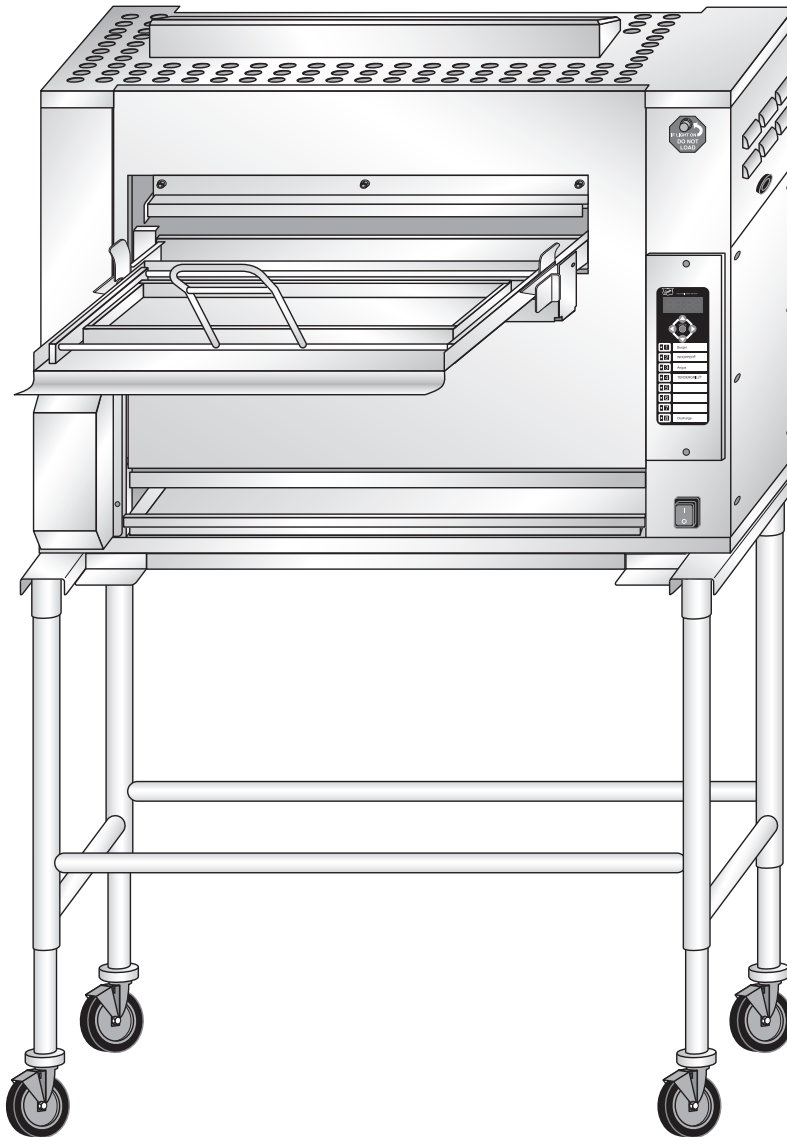




Your Solutions Partner

# Installation and Operation Manual

## FLEXIBLE BATCH BROILER – ELECTRIC INTERNATIONAL



**CAUTION:** Please read this manual completely before attempting to install, operate or service this equipment

 **WARNING** for CA residents: go to [www.dukemfg.com/prop65](http://www.dukemfg.com/prop65) for prop 65 warning

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## IMPORTANT SAFETY INSTRUCTIONS

Throughout this manual, you will find the following safety words and symbols that signify important safety risks with regards to operating or maintaining the equipment.



**Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**



**Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**



**Indicates Important Information**



**Indicates electrical shock hazard which, if not avoided, could result in death or serious injury and/or equipment damage.**



**Indicates hot surface which, if not avoided, could result in minor or moderate injury.**



**Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.**



**Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.**

**THIS MANUAL MUST BE RETAINED FOR FUTURE REFERENCE.**

***In addition to the warnings and cautions in this manual, use the following guidelines for safe operation of the unit.***

- Read all instructions before using equipment.
- For your safety, the equipment is furnished with a properly grounded cord connector. Do not attempt to remove or disconnect the grounded connector.
- Install or locate the equipment only for its intended use as described in this manual.
- Do not use corrosive chemicals on this equipment.
- Do not operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
- This equipment should be serviced by qualified personnel only. Contact the nearest Duke authorized service facility for adjustment or repair.
- Do not block or cover any openings on the unit.
- Do not immerse cord or plug in water.
- Keep cord away from heated surfaces.
- Do not allow cord to hang over edge of table or counter.

***The following warnings and cautions appear throughout this manual and should be carefully observed.***

- Turn the unit off, disconnect the power source and allow unit to cool down before performing any service or maintenance on the unit.
- The procedures in this manual may include the use of chemical products. You must read the Material Safety Data Sheets before using any of these products.
- The unit should be grounded according to local electrical codes to prevent the possibility of electrical shock. It requires a grounded receptacle with dedicated electrical lines, protected by fuses or circuit breaker of the proper rating, in accordance with all applicable regulations.
- Disposal of the unit must be in accordance with local environmental codes and/or any other applicable codes.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

# I. GENERAL INFORMATION

## A. Batch Broiler Specifications

**SHIPPING WEIGHT:** 530 lbs (240 Kg)

**SHIPPING DIMENSIONS:** 47" x 34" x 68" (119,4 x 86,4 x 172,7 cm)

MODEL NUMBER	ELECTRIC	POWER
FBB-EC-220CE	220/400 VAC, 43A, 50Hz, 3N Ph	23,500W
FBB-EO-220CE	220/400 VAC, 43A, 50Hz, 3N Ph	23,500W
FBB-EC-230CE	230/400 VAC, 41A, 50Hz, 3N Ph	23,500W
FBB-EO-230CE	230/400 VAC, 41A, 50Hz, 3N Ph	23,500W
FBB-EC-240CE	240/400 VAC, 39A, 50Hz, 3N Ph	23,500W
FBB-EO-240CE	240/400 VAC, 39A, 50Hz, 3N Ph	23,500W

### A-1.0 Model Number Key

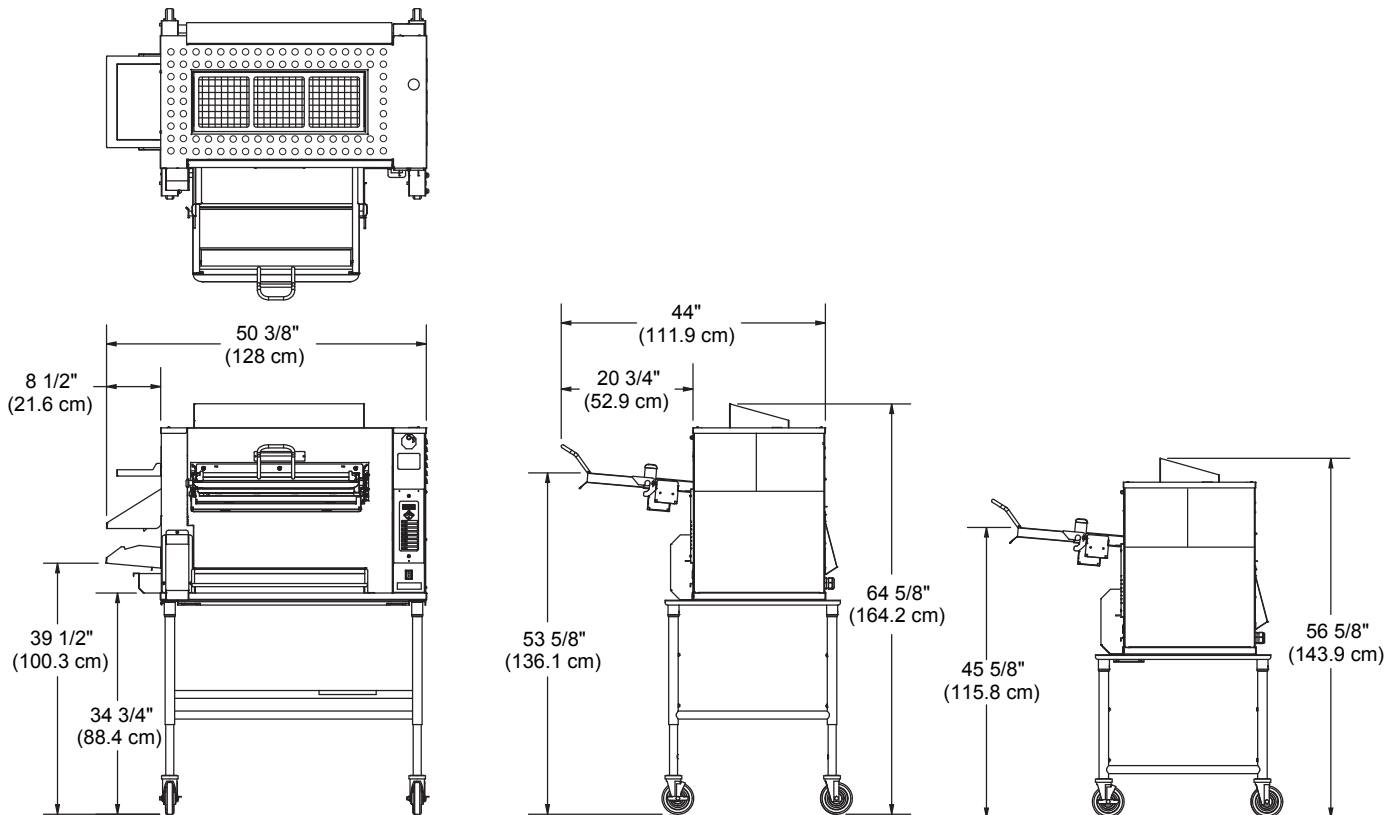
FBB-EX-YCE-ZZ

X = Q (NO CATALYST) OR C (CATALYST)

Y = 220 VOLTS OR 230 VOLTS OR 240 VOLTS

ZZ = 2 DIGIT COUNTRY IDENTIFIER

### A-2.0 Broiler Dimensions



## II. INSTALLATION INSTRUCTIONS

### A. QUALIFIED PERSONNEL

These installation instructions are for the use of **qualified installation and service personnel only**. Installation or service by other than qualified personnel may result in damage to the broiler and/or injury to the operator.

Qualified installation personnel are those individuals, firms, companies or corporations which either in person or through an agent is engaged in and responsible for:

- The installation of electrical wiring from the electric meter, main control box or service outlet to the electrical appliance. Qualified installation personnel must be familiar with all precautions required and have complied with all requirements of state and local authorities having jurisdiction.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

### B. DELIVERY AND INSPECTION

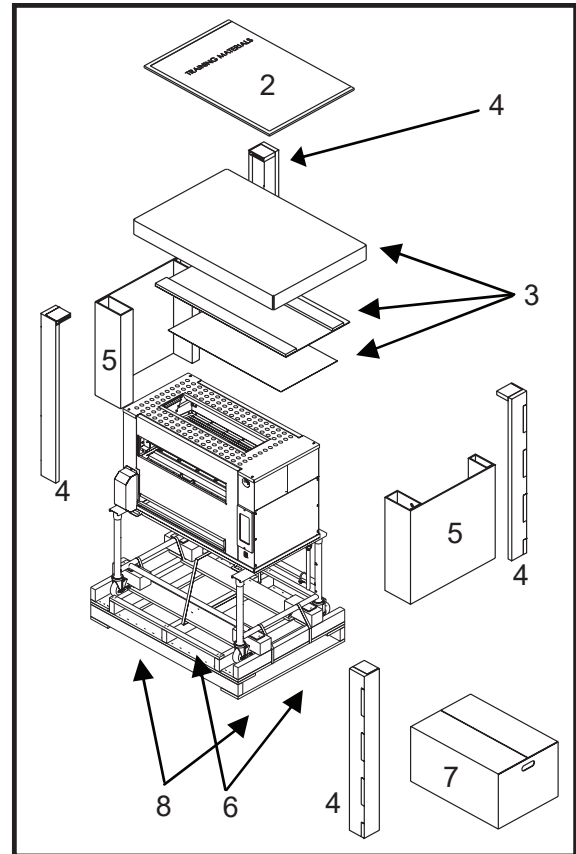
Duke Manufacturing Co. does everything within its power to insure you received your broiler in good condition. They are strapped down on heavy wooden skids and packed to prevent shipping damage. They have all been carefully inspected before they were packaged and consigned to the carrier.

Upon delivery of your Duke broiler:

- Look over the shipping container, carefully noting any exterior damage on the delivery receipt, which must also be signed by the driver/ delivery person.
- Unpack and check for any damage, which was not evident on the outside of the shipping container.
- Check for concealed damage. The carrier must be notified within fifteen (15) days of the delivery of the broiler and the carton, skid and all packaging materials must be retained for inspection.

Duke Manufacturing Co. cannot assume liability for loss or damage suffered in transit. The carrier assumes full responsibility for delivery in good order when the shipment was accepted. However, we are prepared to assist you in filing your claim.

**CAUTION** The broiler is very heavy!  
Use adequate help when lifting.



- 1) Using a utility knife, cut away plastic wrap (Not shown).
- 2) Remove the top cardboard and inner cap.
- 3) Remove Training Material Box
- 4) Remove cardboard from the corners (4 places).
- 5) Remove cardboard on the ends (2 places).
- 6) Remove banding straps (Cut with utility knife or scissors: (5 places).
- 7) Remove box of attachable parts & accessories from the front.
- 8) Safely lift one end of broiler and tap block towards center and then sideways to remove. Repeat for remaining blocks. This allows casters to touch the pallet.
- 9) Remove the broiler from the shipping pallet using 3 people to guide and distribute it's weight (approx 335 lbs [152 Kg]) accordingly. While carefully supporting the broiler. Roll it forward until the front casters are clear of the pallet. Lift the broiler 6-8 inches above and away from the pallet, and gently place on floor to avoid damage to casters.
- 10) Remove protective blue tape from broiler panels, double checking that no tape remains.

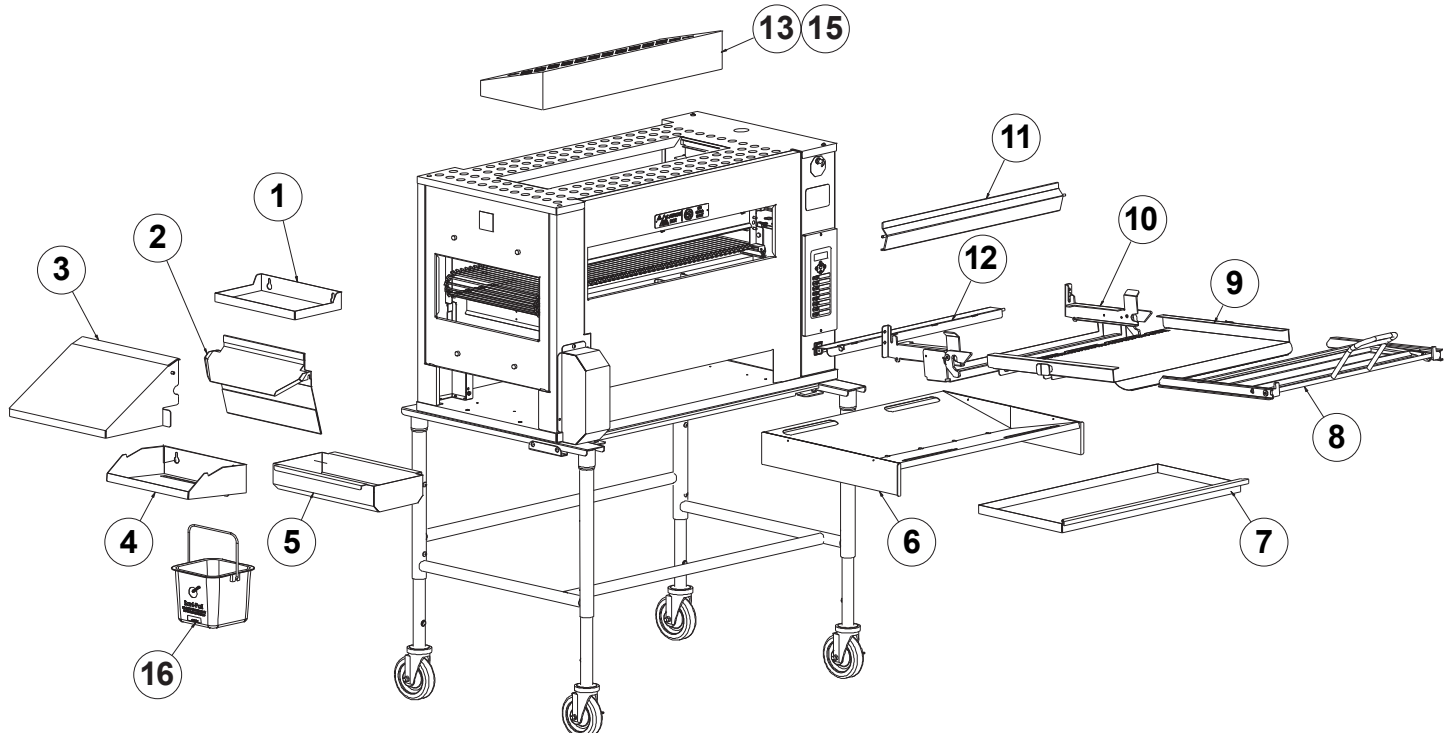
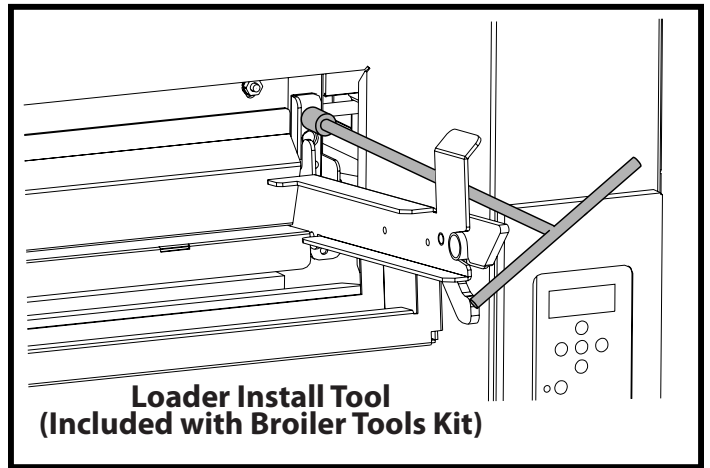
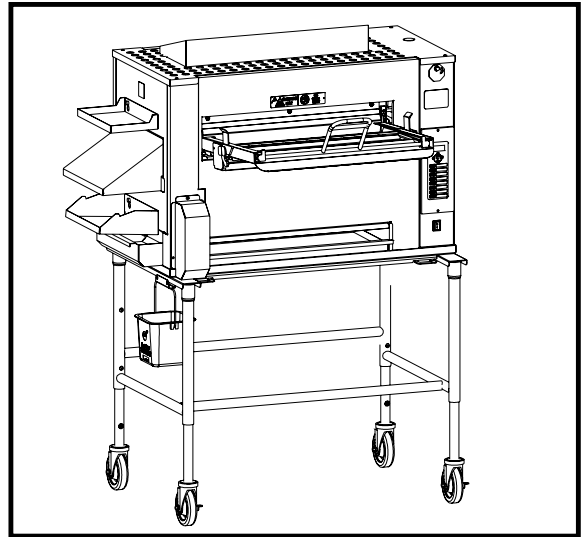
**C. BROILER ASSEMBLY**

Before assembling and installing the broiler, please check to make sure that all necessary parts are present.

ITEM	PART NAME	PT. NO.
1	PRODUCT PAN SHELF	175353
2	DISCHARGE CHUTE	175340
3	DISCHARGE HOOD	175778
4	DISCHARGE PAN HOLDER	175358
5	DISCHARGE GREASE PAN	175357
6	"V" GREASE PAN	177011
7	MAIN GREASE PAN	175329
8	LOADER	175444
9	LOADER TRAY	175430
10	LOADER BRACKET	175438
11	DOOR	175429
12	LOADER RAMP	175741
13	IMPEDANCE PAN	175226
14	CATALYST (OPTIONAL)	175480
15	CATALYST GUARD (OPTIONAL)	175482
16	SANITATION PAIL	175842
17	KIT, CLEANING TOOLS/ INSTALLATION TOOL CLEANING – LOADER INSTALL WRENCH, ALLEN, 3/16"	600225

**Setup**

**Install all items as shown below.**



## D. ADJUSTMENTS AT INSTALLATION

Each broiler section and all its component parts have been tested thoroughly and inspected before your broiler was shipped from the factory. However, it is sometimes necessary to further test or adjust the broiler once it has been installed. Such adjustments are the responsibility of the Dealer or Installer. These types of adjustments are not considered defects, rather a normal and routine part of the proper installation of the equipment.

These adjustments include but are not limited to:

- Broiler height adjustment (if required)
- Heating element changeout (if required)

No installation should be considered complete without proper inspection and, if necessary, any adjustments by qualified service or installation personnel.

It is also important not to obstruct the natural flow of ventilation air if the broiler is to operate properly. This broiler should not be installed on a curb base or sealed to the wall. Either condition can prevent proper ventilation of the unit.

Before making any connections to the broiler, check the ratings plate to be sure the broiler specifications concur with the voltage to be supplied to the broiler. The rating plate is located on the back of the lower control compartment cover panel on the right end of the unit.

The plate bearing the broiler's model number and serial number is attached to the back side of the unit. All international broilers have a standard configuration that is assembled with 230 volt heating elements. Duke Manufacturing realizes that some countries may not be able to supply this appliance with a consistent 230 volts due to overall facility demand. For optimum broiler performance Duke recommends that the supply voltage for the broiler be measured at the time of installation. To get a correct measurement:

- The broiler should be powered on with both upper and lower elements must be on.
- All other appliances in facility that consume a large amount of voltage during regular operation, deep fryers for example, must also be powered on.

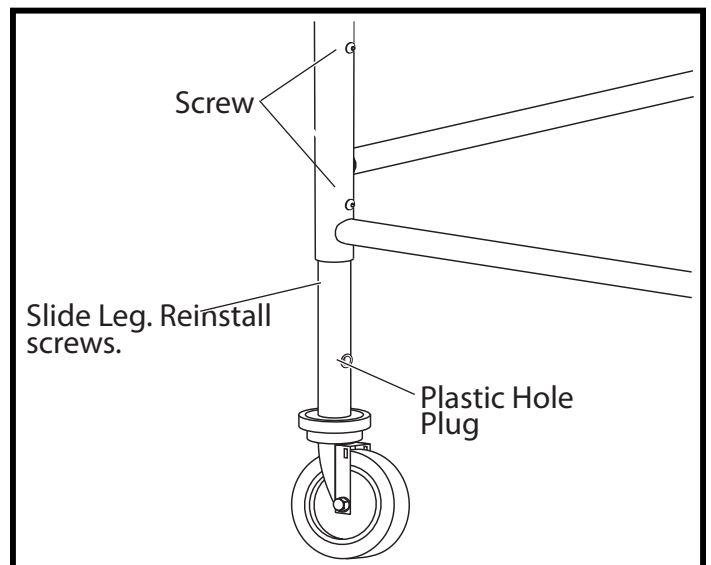
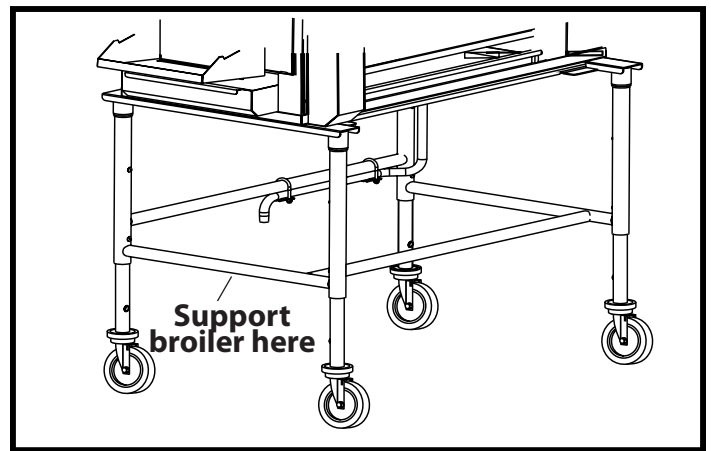
This gives the installer a more precise operating voltage. The optimal supply voltage is below 218 volts, Duke recommends changing out the heating elements to the 220 volt models. If the voltage is above 253 volts, Duke recommends changing out the heating elements to the 240 volt models.

## Raise or Lower Broiler

The broiler height can be adjusted via two screws on each leg.

**Caution: The Broiler is very heavy! Use adequate help for lifting.**

1. Lift one end of the broiler onto a wide, sturdy stand (not supplied).
2. Remove (2) screws per leg and raise/lower to threaded holes. Reinstall screws.
3. Remove stand and safely raise/lower broiler.
4. Place plastic hole plugs (supplied attach to stand) in any unused holes.





## E. LOCATION OF THE BROILER

Proper planning and placement of the broiler will give you the best results in terms of long-term user convenience and satisfactory performance. We urge you to give adequate thought in the placement of your broiler prior to its arrival.

- The broiler should be placed in an area that is free from drafts and accessible for proper operation and servicing.
- The area around the broiler must be kept clear of combustible materials. A minimum clearance of:

	COMBUSTIBLE	NON-COMBUSTIBLE
Discharge End	12" (305)	12" (305)
Access Panel End	3" (76)	3" (76)
Rear	4" (102)	4" (102)

**NOTICE**: Using the Loader Tray to support heavy items or an individual's body weight can damage components of the broiler.

**NOTICE**: A fixed restraint of the proper length must be incorporated to secure the broiler to a non-movable surface to eliminate strain on the plug connection. If the broiler is removed from its normal position, the restraint must then be reattached when returned.

## F. ELECTRICAL CONNECTIONS

Your broiler is supplied for connection to a 230/400 volt grounded circuit. The electric motor, indicator lights and control circuit are connected internally and require no secondary power supply.

Before making any connections to these units, check the rating plate to assure that the voltage and phase of the broiler is compatible with the electrical supply. When installing, all broilers must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70 (in Canada - CSA Std. C22.2). Wiring diagrams are located in the control compartment area of the broiler. Standard wiring schematics are also provided with this manual.

**⚠ WARNING** unit will require that a neutral conductor connection be supplied at installation.

## G. VENTILATION

This appliance shall be installed with sufficient ventilation to prevent the occurrence of unacceptable concentrations of substances harmful to health in the room in which the appliance is installed.

### Venting to a Canopy Exhaust Hood

A mechanically driven exhaust hood must have a minimum capacity of 1700 m<sup>3</sup>/hr (1000 cfm) with a minimum 100cm by 130cm (39.4 in by 51.2 in) opening to adequately vent this appliance. The specified capacity and opening is required in a dedicated hood for this appliance or in addition to other appliance vented through a common canopy exhaust hood.

### Maintenance of Ventilation System

The ventilation system must be maintained and annually inspected by Qualified Personnel concurrent as part of or in addition to governmental requirements.

This inspection/maintenance should consist of, but not be limited to:

- Inspection for blockages or build up which might interfere with the venting of the broiler.
- Repair of such blockages.
- Inspection of the venting canopy, its drive motors and bells, etc.

**NOTICE**: Do not place any objects such as sheet pans, food containers or aluminum foil on the top of the broiler. This will obstruct the venting of cooking vapors and airflow through the unit resulting in poor cooking performance.

### III. OPERATION INSTRUCTIONS

The information in this section is intended for the use of qualified operating personnel. Qualified Operating Personnel are those individuals who have carefully read the information contained in this manual, are familiar with the function of the broiler and/or have had experience with operating the equipment described. We recommend following these instructions to insure optimum performance, long life and trouble-free service from your broiler.

The controller is pre-programmed at the factory for known recipes at the time of manufacture. The product keys must be programmed with an approved recipe and the broiler properly calibrated prior to use.

#### A. BROILER CONTROLS

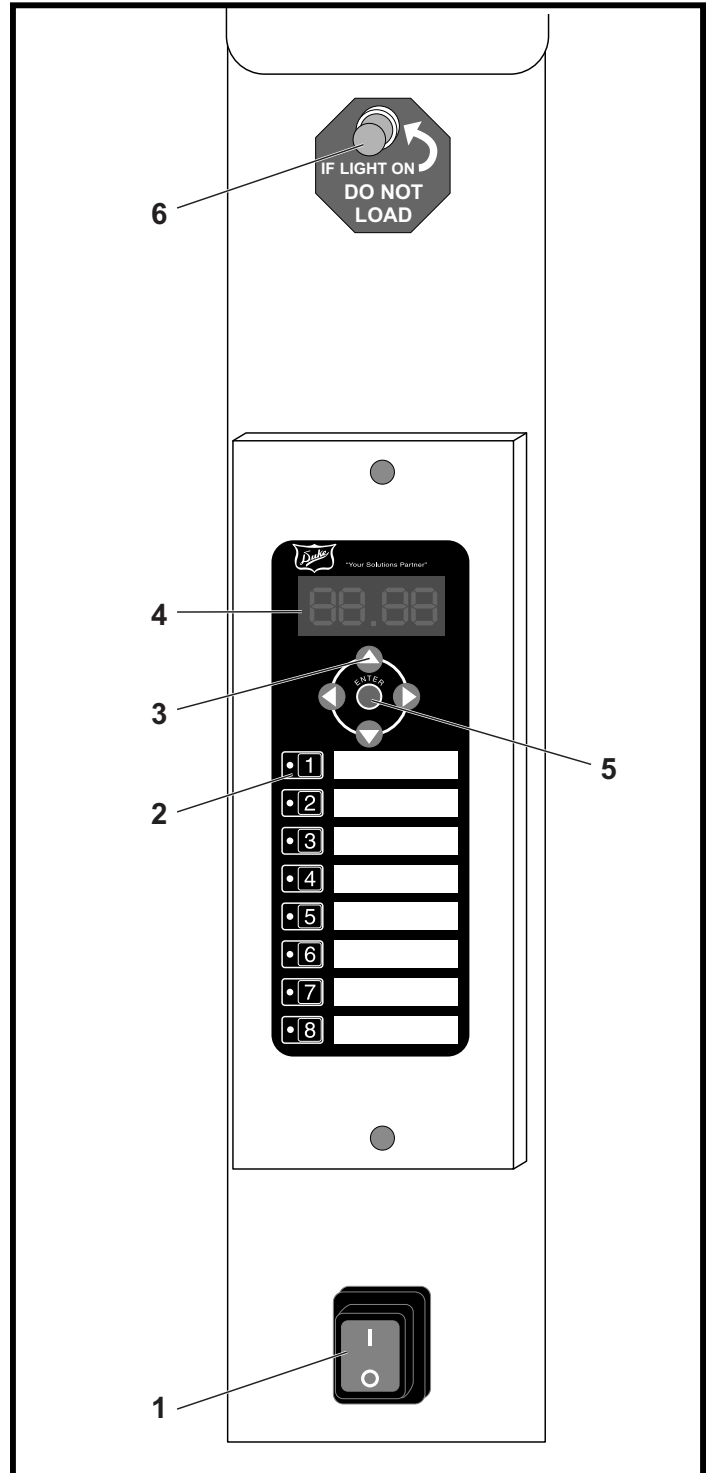
1. **Power Switch** – Turns the broiler ON or OFF.
2. **Product Selection Keys** – Selects the product recipe to run. Also functions as number keys 1-8 in programming mode.
3. **Arrow Keys**

Up-Arrow: Displays the current broiler temperature when pressed in run mode. Scrolls backward through parameters when pressed in program mode.

Down-Arrow: Displays the broiler set-point temperature when pressed in run mode. Scrolls backward through parameters when pressed in program mode.

Left-Right Arrows: Moves between characters or parameters in program mode. Also used as numerals 0 and 9 keys.

4. **Display**
5. **Enter Key** – Press and hold for 5 seconds to enter program mode. Also used to move through and enter parameters in programming mode.
6. **Cook Light** – This light is lit during preheat and the entire cook. The operator should not load the broiler while the light is lit.

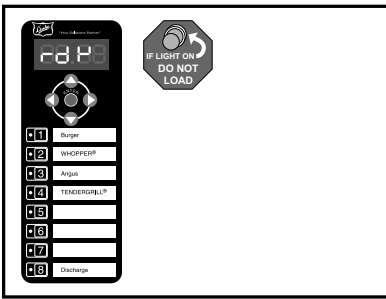


## B. COOKING PRODUCT

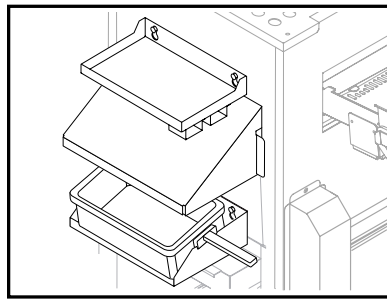
### B-1.0 Turning On the Broiler

- Start Ventilation System.
- Turn ON/OFF switch to the ON (1) position.
- The control will display **PrE** during the pre-heat cycle.
- The LED's next to all product keys with non-zero cook times will be red.
- The control will display **rdY** at the completion of the pre-heat cycle and the LED's next to all product keys with non-zero cook times will be green.
- (To shutdown the broiler, see section B-8.0)

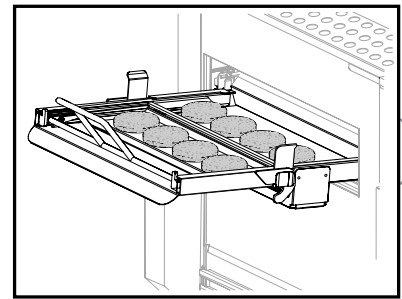
### B-2.0 Cook Product



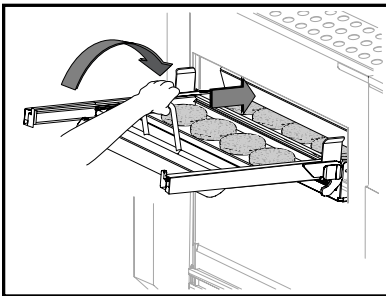
Broiler displays rdY and Cook light is not on.



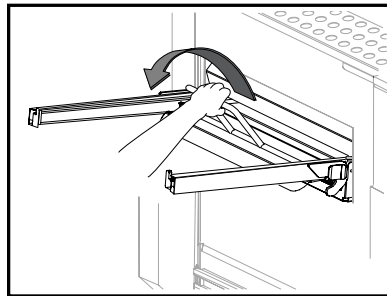
Place holding pan at discharge.



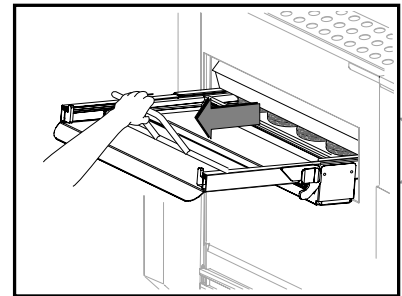
Place product in front and back rows.



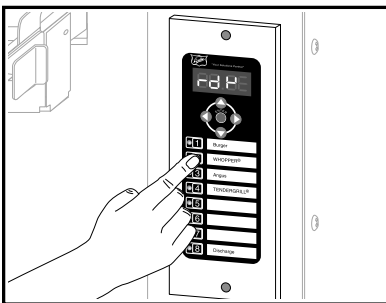
Load product. Push forward as shown.



Rotate handle down to lift inside bar over product.



Pull out loader with handle rotated.

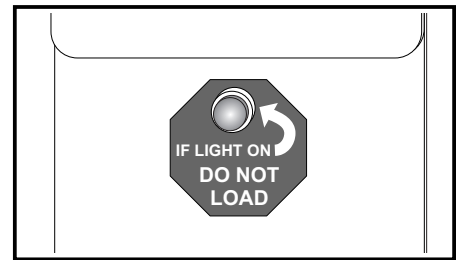


Press appropriate product key.

You will have 15 seconds to press another product key if a wrong selection is made.

The display will alternately display the time remaining and the four-character product identifier.

The LED next to the selected product key will flash red.



The cook light will be lit.

### B-3.0 Cook Cycle Complete

The chain will rotate and discharge the product.

**Do not load product into broiler until the cook light has gone off and rdY is displayed on the control!**

To prevent thawing of product, it is recommended not to place product onto the loader more than five minutes prior to loading.

### B-4.0 Fine Cooking Adjustment

Use this function to add or subtract up to 30 seconds from a product cook cycle recipe. This should be used in the event product cooking needs to be optimized outside of the programming environment. This function works as follows:

**Press and hold** the ▲ and ▼ keys for 3 seconds.

The control will display **AdJ**.

All product LED's for products with a programmed time will light red.

**Select a product key to adjust.**

The selected product LED will remain red and all other product LED's will go blank.

The control will flash **AdJ** followed by the product identifier.

**The ▲ and ▼ keys are used to set the fine cooking adjustment.** The first press of the ▲ or ▼ key brings up the adjustment screen. The control will display the total product cook time including the previous fine cooking adjustment.

Subsequent presses of the ▲ or ▼ key adds or subtracts 1 second from the cook time.

The cook time can be increased or decreased by up to 30 seconds with this function.

**To exit this function and save the setting, press the ENTER key.**

### B-5.0 Cancel a Cook Cycle

Pressing and holding a product key for 3 seconds will cancel a cook cycle and discharge the product.

### B-6.0 Checking the Broiler Temperature

Pressing the ▲ key at any time (other than in programming mode) will display the actual cavity temperature.

### B-7.0 Checking the Set Point Temperature

Pressing the ▼ key at any time (other than in programming mode) will display the set-point cavity temperature.

### B-8.0 Shutdown the Broiler

Turn ON/OFF switch to the OFF (O) position.

## C. CLEANING

The exterior stainless steel on your broiler can be kept clean with a good non-abrasive stainless steel cleaner, many of which are on the market. Moisten a cloth and wipe down the broiler while it is COLD. Wiping down a broiler while it is hot will cause streaking and otherwise unsatisfactory results. Once the broiler is clean it can be wiped down with light oil.

To help make your use of this broiler trouble-free and to maintain the warranty, the following recommendations must be followed:

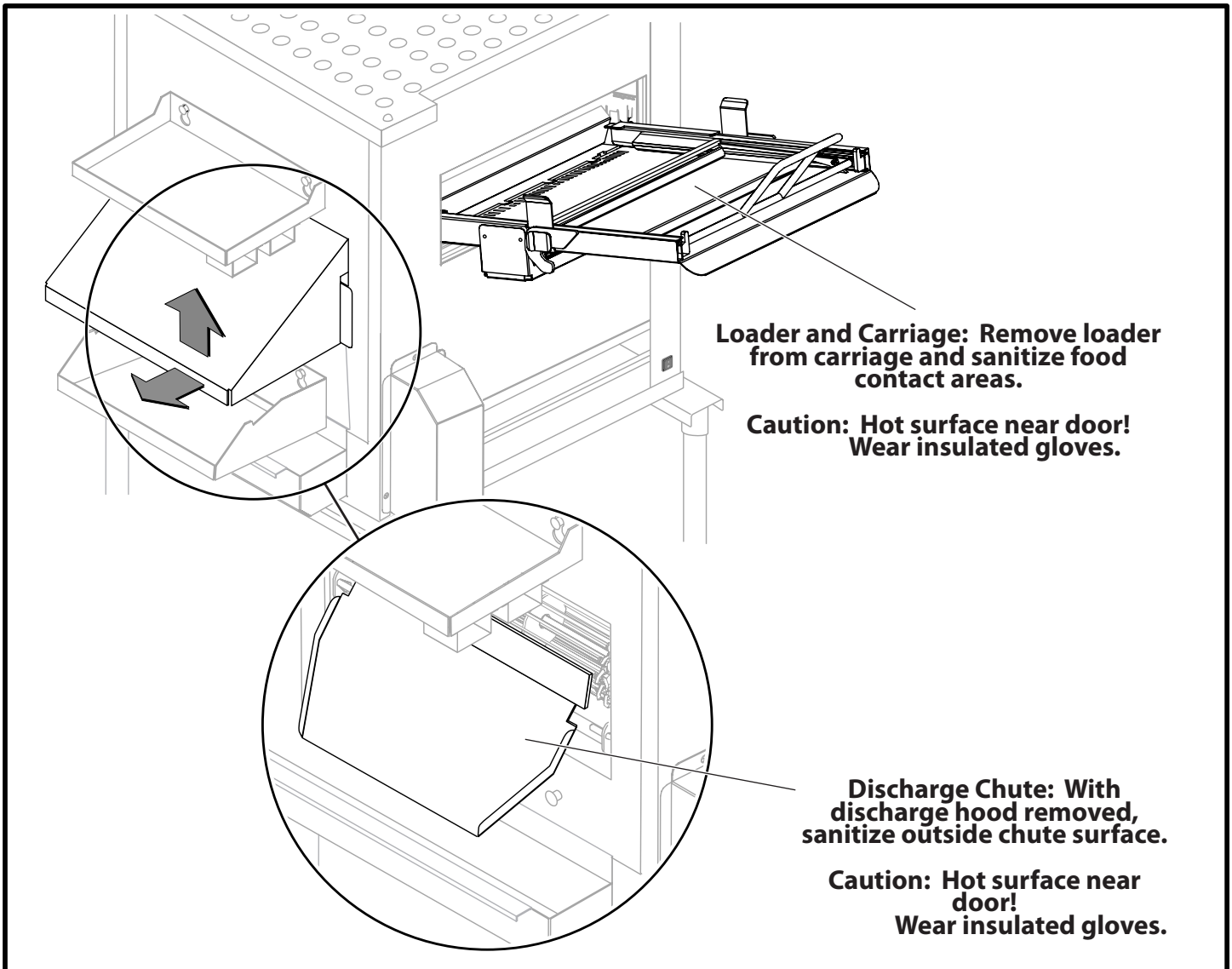
- A. Do not expose the broiler to prolonged contact with detergents, cleansers, bleaches, etc.
- B. Never leave the chemical compounds, particularly those containing chlorine, on broiler parts overnight. Chlorine will cause pitting and corrosion.
- C. Never use chemicals in a stronger concentration than recommended by the manufacturer.
- D. Use clean water and a soft cloth to wipe cleaning residue from surfaces.
- E. Never use ordinary steel wool or scouring pads on the surfaces: use non-abrasive broiler de-greasers and soft cloths

Carefully following these recommendations will help this broiler to give satisfactory services to extend its life.

<b>CLEANING SCHEDULE</b>		
<b>WHAT IS TO BE CLEANED</b>	<b>BROILER COOL</b>	<b>DICONNECT POWER</b>
4 Hour Cleaning (Sanatize in place)		
SANITIZE LOADER & TRAY (CAUTION: HOT SURFACES, WEAR INSULATED GLOVES WHILE CLEANING)		
SANITIZE DISCHARGE CHUTE		
<b>DAILY CLEANING</b> (Remove and Wash/Rinse/Sanitize)		
DISCHARGE PAN (CAUTION: HOT SURFACES, WEAR INSULATED GLOVES WHILE CLEANING)		
DISCHARGE HOOD	<b>X</b>	
DISCHARGE GREASE PANS	<b>X</b>	
MAIN GREASE PANS	<b>X</b>	
DISCHARGE END PANEL	<b>X</b>	
DISCHARGE SCRAPER	<b>X</b>	
LOADER & TRAY (CAUTION: HOT SURFACES, WEAR INSULATED GLOVES WHILE CLEANING)		
DISCHARGE CHUTE	<b>X</b>	
LOADER RAMP	<b>X</b>	
LOWER HEATING ELEMENT REFLECTOR	<b>X</b>	
HEATING ELEMENTS	<b>X</b>	<b>X</b>
BROILER FLIPPER DOOR	<b>X</b>	<b>X</b>
FLAME ARRESTOR	<b>X</b>	<b>X</b>
<b>WEEKLY CLEANING</b>		
CATALYST	<b>X</b>	<b>X</b>

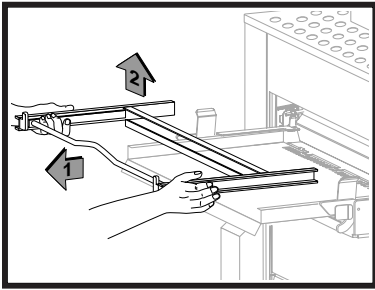
### C-1. Four (4) Hour Cleaning

All components that are in contact with food product must be cleaned and sanitized every 4 hours.

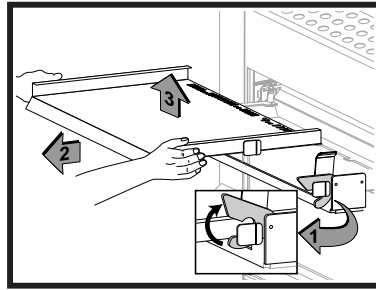


## C-2. Daily Cleaning

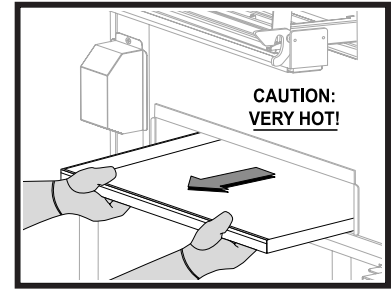
Daily cleaning should also include all items listed in the 4 hour cleaning schedule.



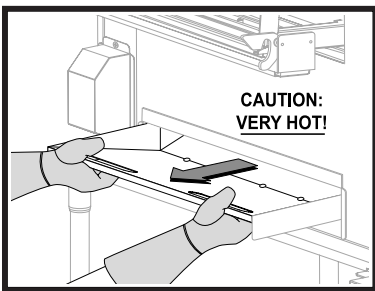
**LOADER –**  
Slide out



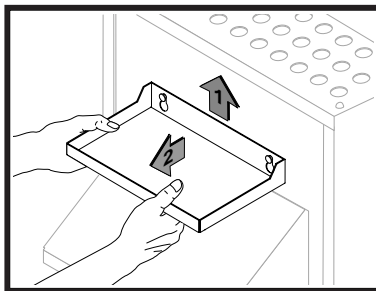
**LOADER TRAY –**  
Dislodge and pull out



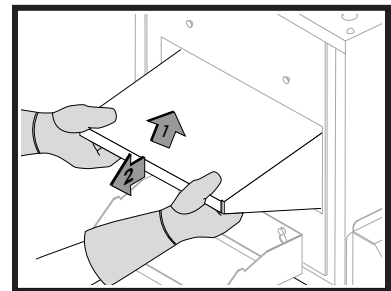
**MAIN GREASE PAN –**  
Slide out



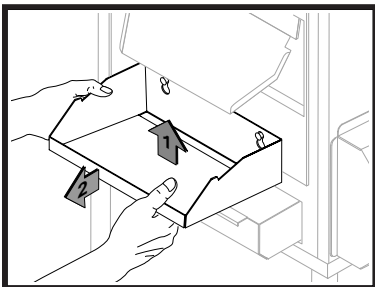
**"V" GREASE PAN –**  
Slide out



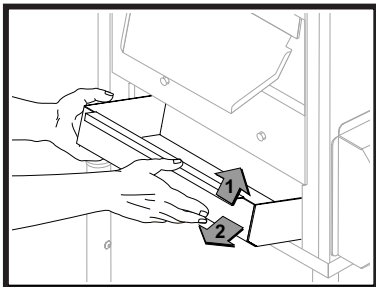
**PHU PAN SHELF –**  
Slide up and out



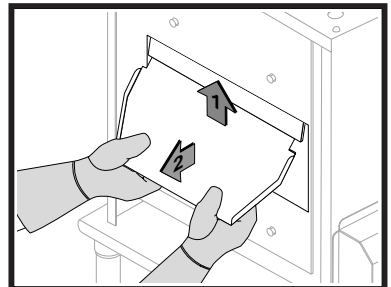
**DISCHARGE HOOD –**  
Slide up and out



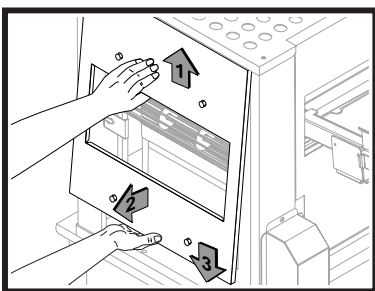
**DISCHARGE PAN HOLDER –**  
Slide up and out



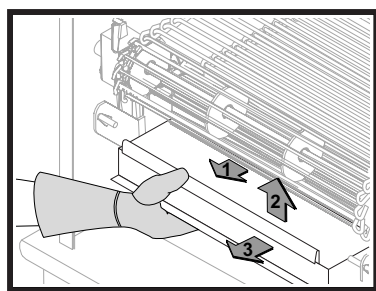
**DISCHARGE GREASE PAN**  
Tilt up, un-hook and pull forward. Discharge grease into an approved oil collection system.



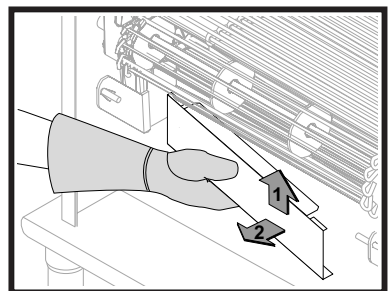
**DISCHARGE CHUTE –**  
Lift up and out



**SIDE PANEL –**  
Lift up, slightly pull out panel bottom, pull panel down to remove.

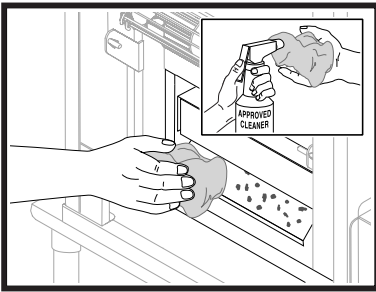


**ASH SCRAPER –**  
Pull forward, up and out

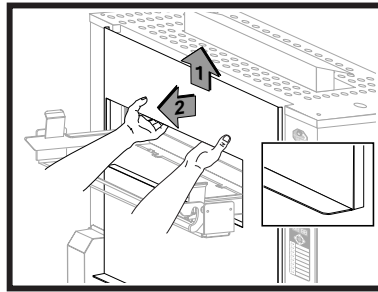


**GREASE DEFLECTOR –**  
Lift up and pull out

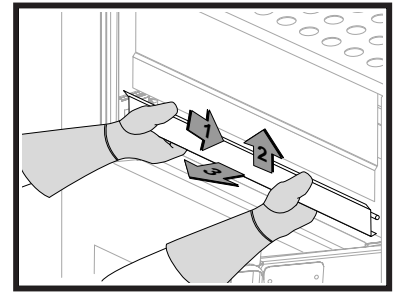
**C-2. Daily Cleaning (cont'd.)**



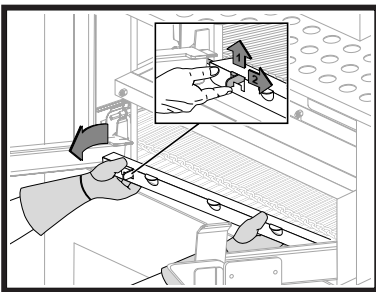
**INTERIOR SIDE COMPARTMENT** – Spray wipe cloth with degreaser or approved oven cleaner



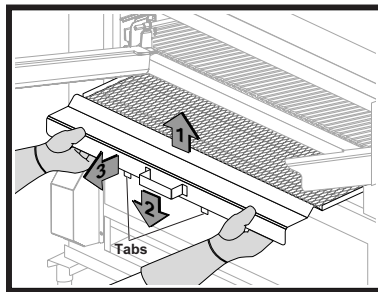
**BODY FRONT & BACK PANELS** – Lift up and away



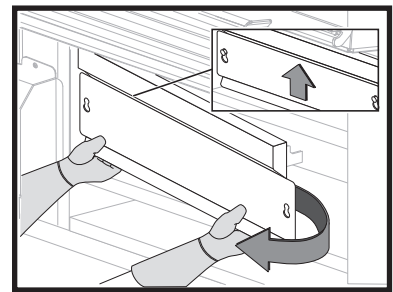
**LOADER DOOR** – Tilt in, unhook and pull out



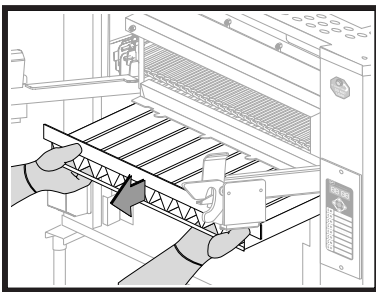
**LOADER RAMP** – Unlock pin, angle forward and pull out



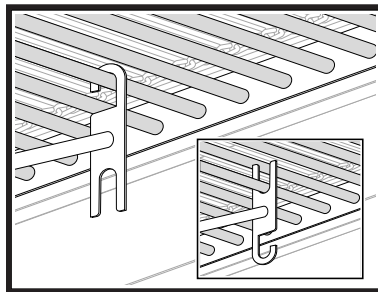
**FLAME ARRESTOR** – Dislodge, shift down and pull out



**LOWER HEATING ELEMENT COMPARTMENT** – pull up, forward and out



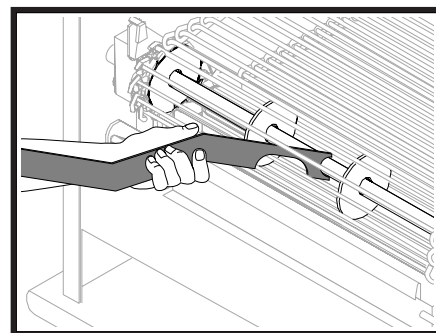
**LOWER ELEMENT REFLECTOR** – Pull forward and out



**HEATING ELEMENTS** – Use scraper end of cleaning tool to clean top and bottom of all heating elements



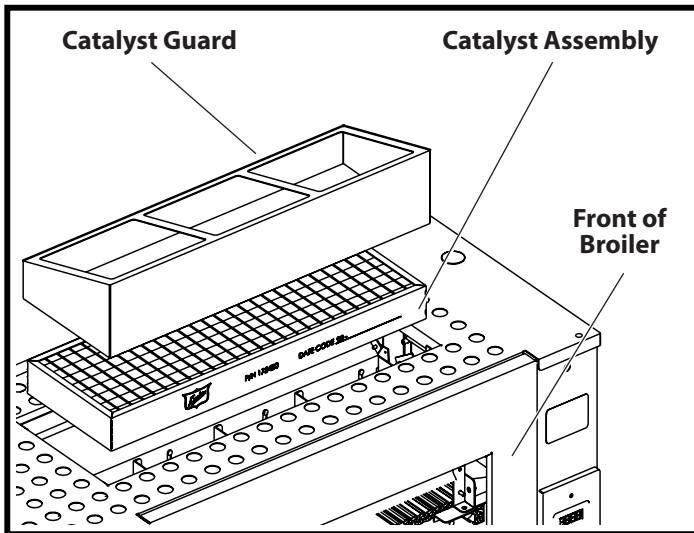
**INTERIOR COMPARTMENT** – Spray cloth with degreaser or approved oven cleaner, then wipe walls



**DISCHARGE SHAFT** – Use scraper end of cleaning tool to clean discharge shaft



### C-3. Weekly Cleaning



#### CLEANING CONSIDERATIONS

##### **WARNING**

Do not use soap, detergents, degreasers, silicone, sodium salts, bleaches, anti-oxidants or any other commercial cleaning agents to clean the catalyst. Use of these chemicals will damage the catalyst and render it inoperable.

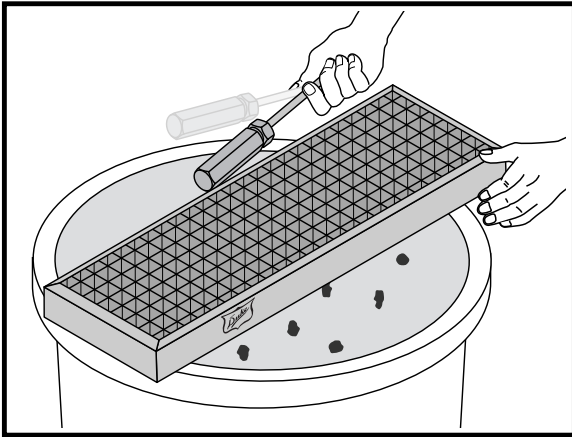
NOTE: Do not clean catalyst in a dishwasher or ultrasonic cleaner. In no case should any abrasive material or abrasive scrubber be used for cleaning.

#### SAFETY CONSIDERATIONS

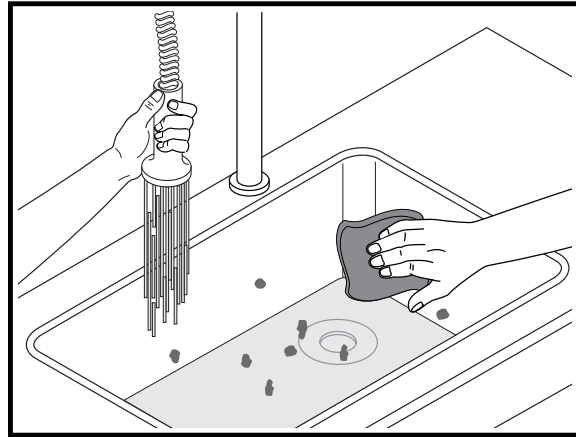
The catalytic converter (catalyst) is normally part of a combustion system, and the general safety practices observed with such systems should be practiced. The following considerations are specific to the catalyst portion.

- A: Remove power: Before removing the catalyst, disconnect power to the broiler and allow to cool to room temperature. Remove the catalyst guard and set aside for re-installation after the catalyst has been cleaned.
- B: Handling catalyst: Care should be taken so that the catalyst is not dropped or damaged in handling. If the unit is going to be handled soon after a cooking cycle, care should be taken to protect one's hands from any hot surfaces by wearing gloves designated for this purpose. There are no moving parts or electrical hookups associated with the catalyst, therefore there should be no danger of a shock hazard when washing the unit. Allow the catalyst to cool to room temperature before starting the cleaning process.
- C: Operation: Understand and follow the system instructions provided with the broiler included in the installation and operations manual. It is very important that you make sure that the ducts above the cooking appliance are clean of any grease, prior to the initial operation of the appliance with the catalytic converter in place.

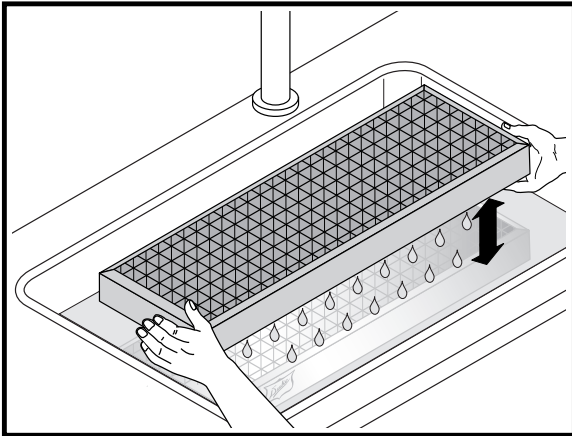
### C-3. Weekly Cleaning (cont'd)



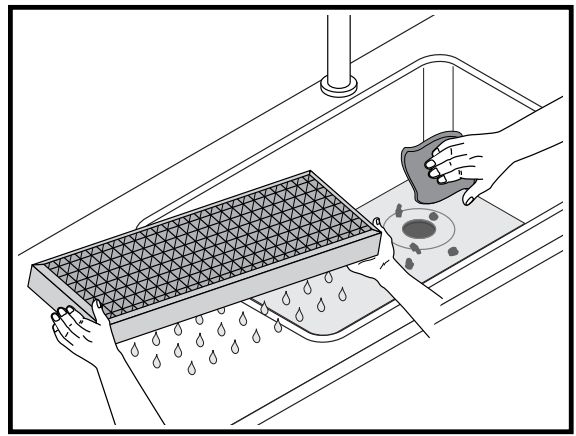
Gently tap frame of the catalyst while holding over a waste bin to dislodge any loose ash/carbon particles.



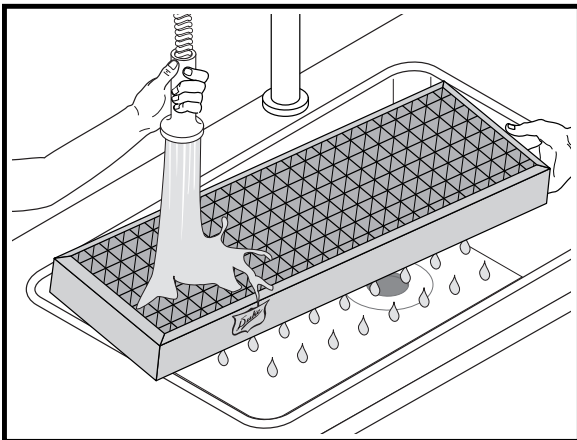
Begin with a clean sink and remove all foreign matter from any wash basin used, before starting the catalyst washing process.



Partially fill wash basin, that is large enough to accommodate the catalyst, with enough clean hot water (100-130°F) to completely cover the catalyst when placed into the basin. Agitate the catalyst up and down in the water a few times and then let it soak for 20 minutes.

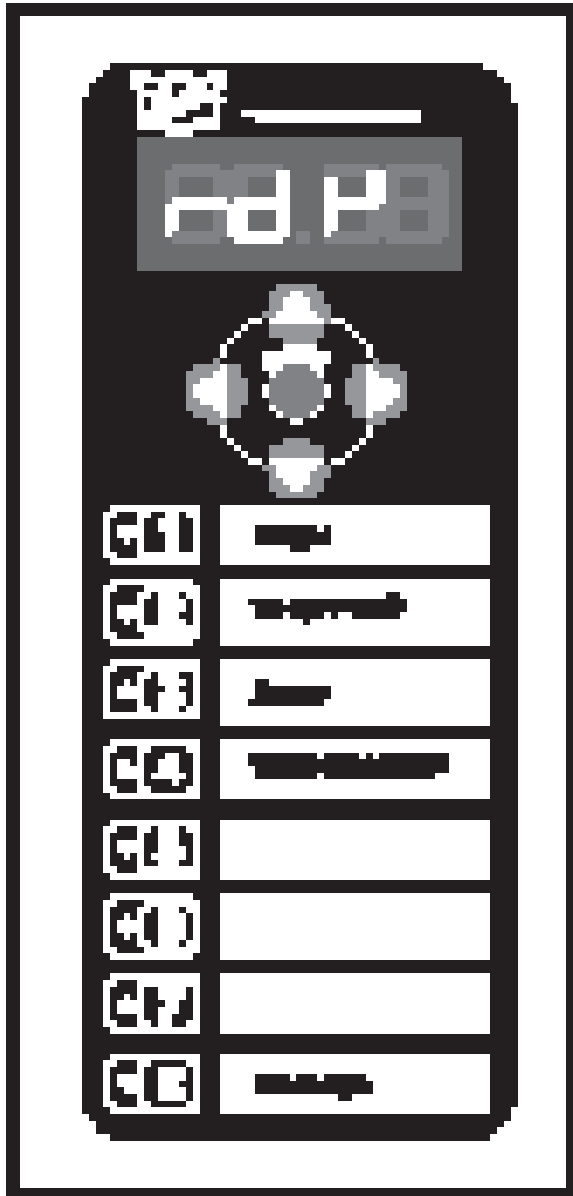


Remove the catalyst and shake out the excess water. Drain and clean the basin thoroughly and then repeat step 3.



Remove the catalyst and rinse thoroughly with a large volume of hot water. The typical restaurant dishwashing spray nozzle (low pressure, high volume) is perfect for this operation. Work the spray slowly over the entire surface both front and back to assure the removal of any particles caught in the catalyst face or behind the frame. Shake the remaining water from the catalyst and then let it air dry overnight. The catalyst can then be reinstalled in the broiler. Ensure that the catalyst guard is re-installed over the catalyst prior to turning on the broiler.

## D. PROGRAMMING THE CONTROL



### D-1.0 Entering Program Mode

There are two levels of control Programming.

Level 1: Recipe related programming.

Level 2: Broiler functionality programming.

Press and hold the ENTER button for 5 seconds.

The control will then display **Code**. Enter a password that is specific to the level of programming.

### D-2.0 Navigating the Programming Screens

The ENTER key is used to move forward through the list of parameters. The first press of the ENTER key brings up the parameter name and the next press bring up the editable parameter setting.

The ▲ and ▼ keys will move backward through the parameters.

The ◀ and ▶ keys will scroll through parameter settings and also function as numbers 0 and 9.

Product keys 1-8 also function as number keys 1-8.

### D-3.0 Level 1 Programming

Enter the password 1-8-2-7 and press the ENTER key.

At this point the control will display **PROD** and all Product LED's will turn green.

Select a product key for a product that you wish to change. The LED next to the selected product will turn green. All other product LED will be blank.

#### D-3.1 Product Identifier AbCd

This parameter allows the user to define a four digit alphanumeric product name to associate with each product button.

The ▲ and ▼ keys are used to move through the character set.

The ◀ and ▶ keys are used to move to the next or previous character. The character that is active will flash.

Hitting ▶ after the last character will take you to the next parameter.

#### D-3.2 Cooking Temperature Cooking Profile ti1 , SEt1 , PL 1 , bH1 , ti2 , SEt2 , PL 2 , bH2 ...

Defines the cycling parameters for the upper infrared elements, discharge heating element and the overall cook time.

These parameters can have up to 6 segments. Each segment consists of (1) timer cycle, (1) temperature setting and (1) power level setting, and (1) bottom heat setting.

The bottom heat setting bH1-6 controls the lower discharge heating elements. Changing this setting to off turns the lower discharge element off for this segment of the cook

The timer cycle setting will come first.

The product keys 1-8 are used for entering numbers 1-8. The ◀ and ▶ keys are used to enter numbers 0 and 9.

The control will display the total cook time (the sum of all timer cycles) as a final non-changeable parameter.

As an example:

**ti1-:30, SEt1-775F, PL1-5, bH1-on**

**ti2-1:00, SEt2-775F, PL2-0, bH2-off**

**totL-1:30**

After entering this last parameter; Hitting the ▶ or enter key will take you back to the Product selection, so that you can select another product to program.

### D-3.3 Exit Program Mode

To exit programming and save new entries press the ENTER key until the control displays **RdY**, **PrE** or **Lo**.

To exit programming without saving entries, cycle the main On/Off switch off and on.

### D-4.0 Level 2 Programming

Enter the password 3-6-4-5 and press the ENTER key.

#### D-4.1 °F or °C Parameter dEg

Changes temperature displayed between Fahrenheit (F) and Celsius (C).

The ◀ and ▶ keys are used to scroll through the settings.

#### D-4.2 Change the Idle Temperature iSEt

This is the set-point temperature for the broiler during the preheat and idle cycles.

The default for this parameter is 740 °F.

The product keys 1-8 are used for entering numbers 1-8. The ◀ and ▶ keys are used to enter numbers 0 and 9.

#### D-4.3 Change the Idle Power Level iPL

This is the top heating element power level during the preheat cycle.

#### D-4.4 Change the Heating Element Voltage Setting CSEn

This setting must be changed to match the voltage rating of the heating elements that are installed in the unit..

#### D-4.5 Additional Factory Parameters

The remaining parameters in this section are factory settings and should not be changed. These settings are as follows:

- **Lo t**
- **Hi t**
- **Cdti**
- **bEEP**
- **PCr**
- **Pt i**
- **PSEt**
- **CSti**

#### D-4.6 Exit Program Mode

To exit programming and save new entries press the ENTER key until the control displays **RdY**, **PrE** or **Lo**.

To exit programming without saving entries, cycle the main On/Off switch off and on.

## E. TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Control display does not light up	No power	Ensure broiler is plugged into a proper voltage/Hz receptacle (per name plate rating) and receptacle as power. Check dedicated circuit breaker.
Raw or undercooked product with no controller error messages displayed.	Product not loaded properly. Product button was depressed prior to loading product. Wrong product button was depressed. Lower elements not heating properly. (Observe bottom elements through opening after removing lower grease tray) Top infrared elements not heating properly. (Observe elements through discharge end of broiler. Note: Elements should glow orange in idle mode)	Review loading technique. Ensure product button is depressed immediately after product is loaded into broiler. Ensure proper product button is being depressed. Replace heating element & fuse, if necessary. Replace heating element & fuse, if necessary.
Conveyor belt will not move to discharge product.	Conveyor belt is being obstructed	Observe for obstructions by manually rotating conveyor belt from discharge end of broiler using broiler cleaning tool. Ensure discharge scraper is properly in place. Ensure docking plate is properly in place. Ensure flame arrestor is properly in place.
Loader is not able to be pushed completely into cooking chamber.	Docking plate is not properly in place.	Ensure docking plate and locking tab are correctly in place.
Product is getting stuck or mangled upon loading	Docking plate is not properly in place Flame arrestor is not properly in place	Ensure docking plate and locking tab are correctly in place. Ensure flame arrestor is correctly in place and tabs are slotted correctly.
Control display is reading "Hi"		Contact Duke Manufacturing Co. or a Duke Authorized Service agent.
Control display is reading "Lo"	Lower elements not heating properly. (Observe bottom elements through opening in lower grease tray) Top infrared elements not heating properly. (Observe elements through discharge end of broiler. Note: Elements should glow orange in idle mode) Grease pan is not installed Impedance pan or catalyst is not installed.	Replace heating element & fuse, if necessary. Replace heating element & fuse, if necessary. Install grease pan. Install impedance pan or catalyst.
Control display is reading "Prob"		Contact Duke Manufacturing Co. or a Duke Authorized Service agent.

## E. TROUBLESHOOTING (CONT'D)

SYMPTOM	CAUSE	REMEDY
Control Display is reading "tESt Prod"	Lower element not heating properly. (Observe bottom elements through slits in lower grease tray) Top infrared elements not heating properly. (Observe elements through discharge end of broiler. Note: Elements should glow orange in idle mode)	Replace heating element & fuse, if necessary.  Replace heating element & fuse, if necessary.
Control Display is reading "Sr:Er" or "Ht:1" or "Ht:2" or "Ht:3"	Not all elements turning off  Specific top infrared elements not heating properly. (Observe elements through discharge end of broiler. Note: Elements should glow orange in idle mode) Back Panel is not installed properly.  Specific lower element not heating properly. (Observe bottom elements through slits in lower grease tray)Back Panel is not installed properly.	Contact Duke Manufacturing Co. or a Duke Authorized Service agent.  Replace heating element & fuse, if necessary.
Control Display is reading "triP"	Thermal overload has tripped due to high temperature in the control panel.	Ensure that all vents are clear of obstructions.  Ensure that the cooling fan is running during broiler operation.
Control Display is reading "Ht:er"	The broiler "preheat" has timed out.	Cycle broiler off and back on. If this error persists, proceed with the next step.
Control Display is reading "db:er"	The control has an internal problem	Contact Duke Manufacturing Co. or a Duke Authorized Service agent.

## IV. SERVICE AND REPAIR

### A. WARNINGS

**⚠ WARNING** Disconnect the power supply to the appliance before servicing.

Units provided with casters have a restraint to limit the movement of the broiler.

**⚠ WARNING** If this restraint is disconnected during servicing it must be reconnected after the appliance has been returned to its original installed position.

**NOTE: Proper clearances must be maintained during servicing.**

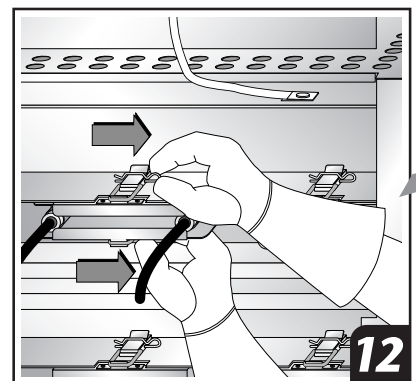
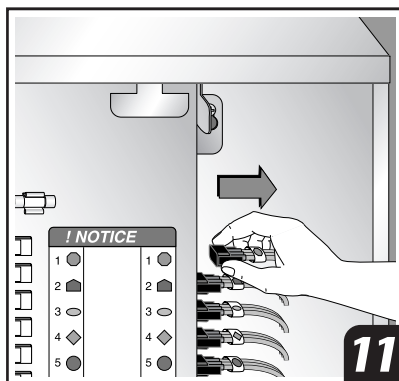
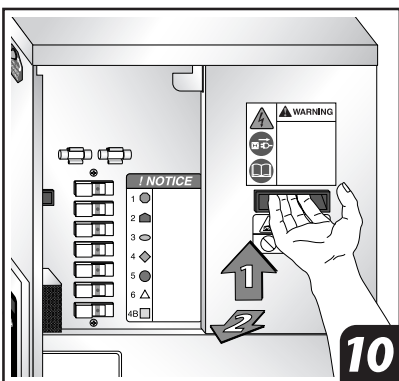
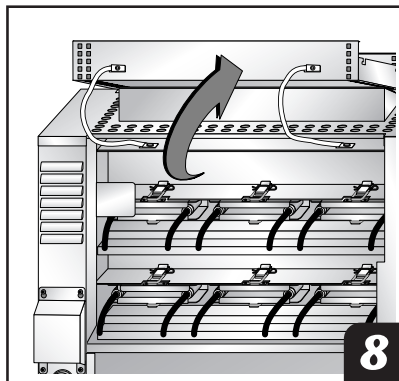
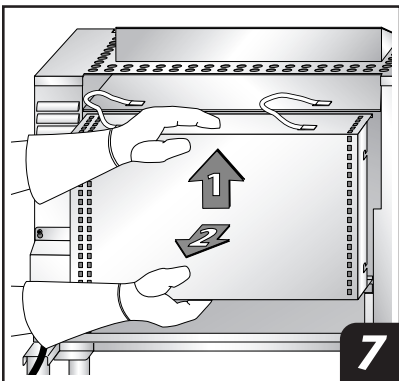
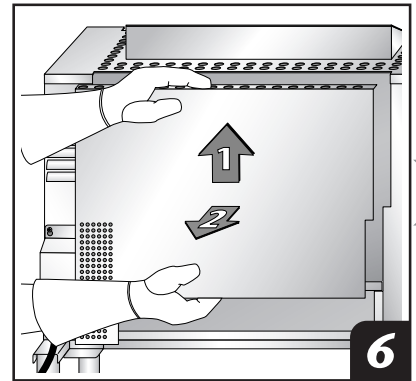
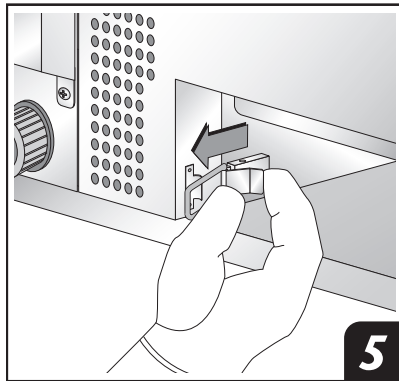
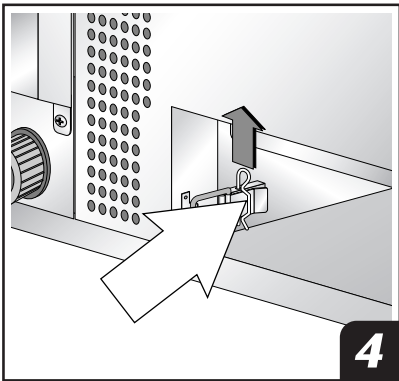
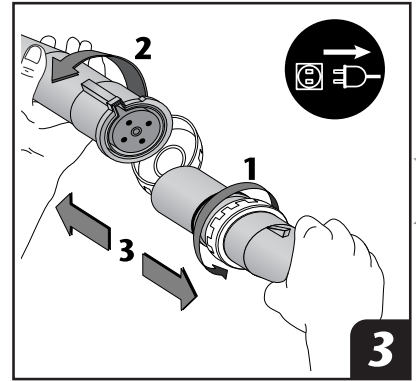
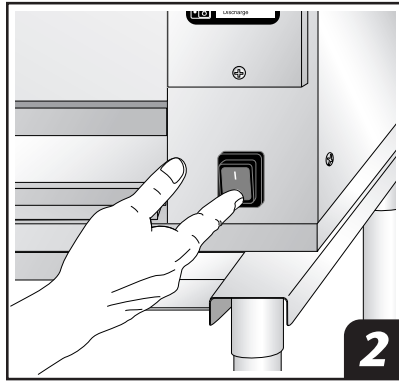
Maintenance is to be performed by qualified service personnel only. Service by other than qualified personnel may result in damage to the broiler and/or injury to the operator.

Qualified service personnel are those individuals, firms, companies or corporations which either in person or through an agent are engaged in and responsible for repair or servicing of commercial food preparation equipment, who are experienced in such work, familiar with all precautions required, and have complied with all requirements of state and local authorities having jurisdiction.

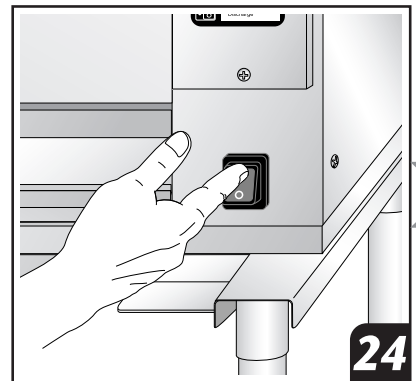
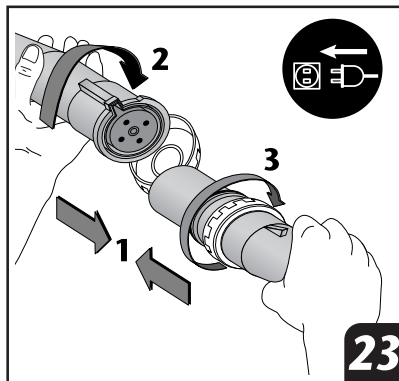
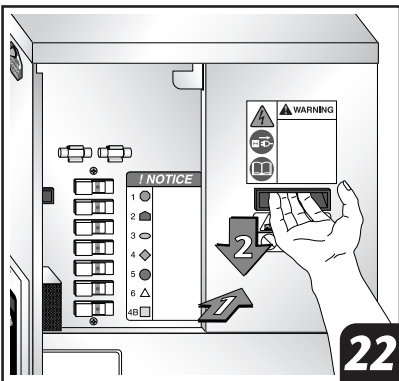
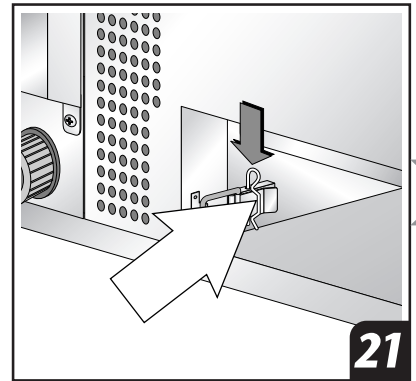
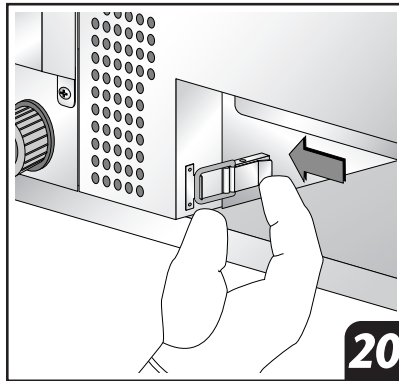
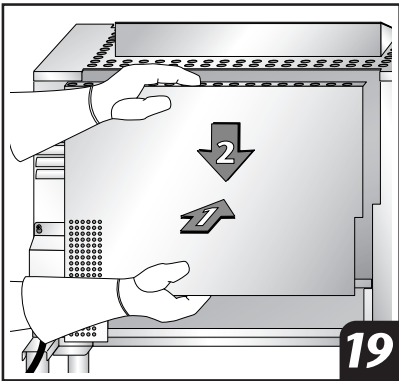
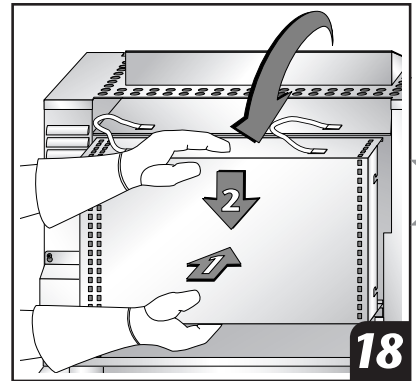
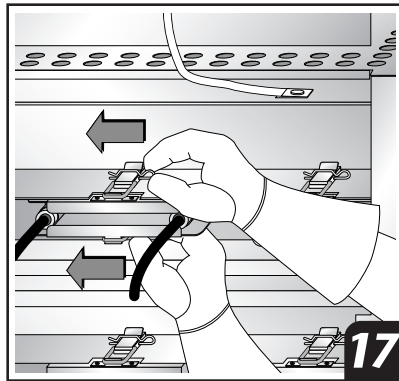
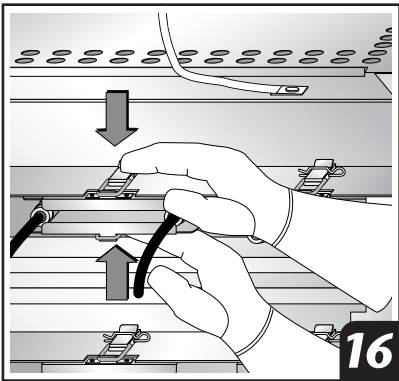
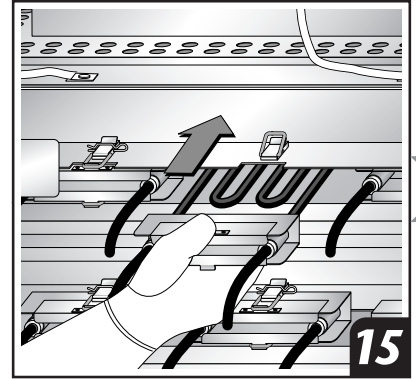
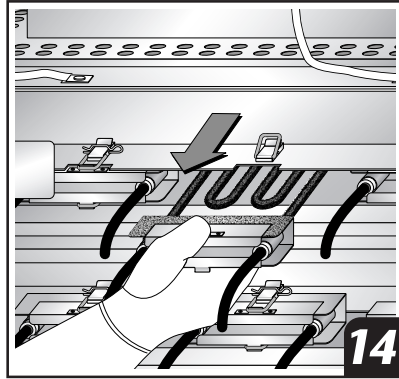
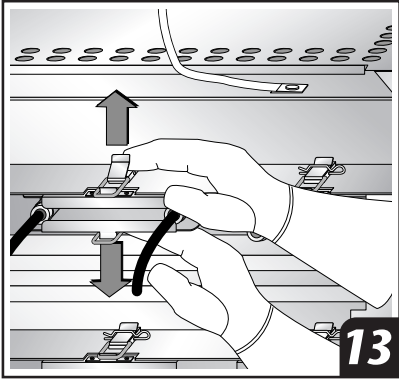
If you should require assistance in the selection of a qualified service agency, please contact:

**Duke Manufacturing Co.'s Service Department at 800-735-3853.**

**B. USER REPLACEABLE HEATING ELEMENTS**

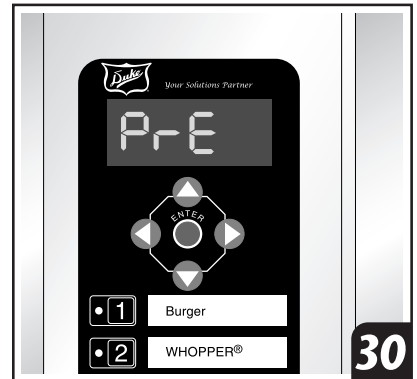
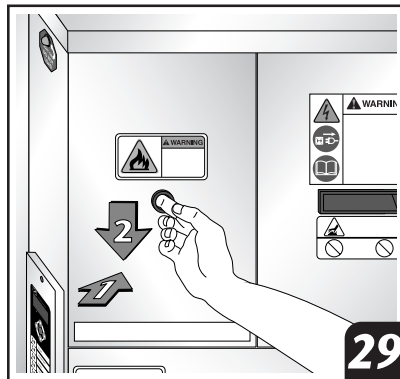
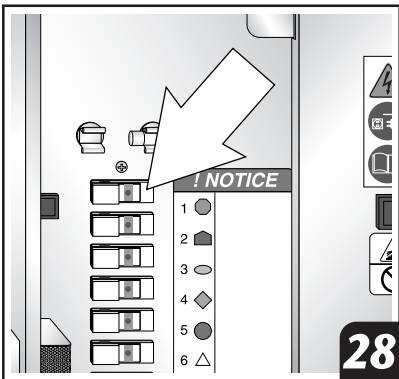
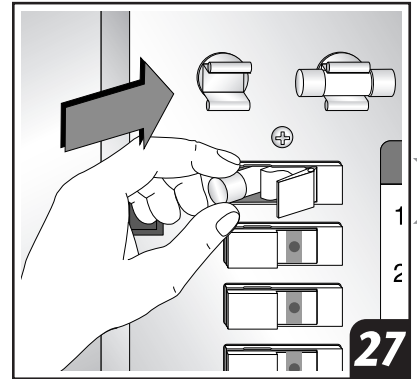
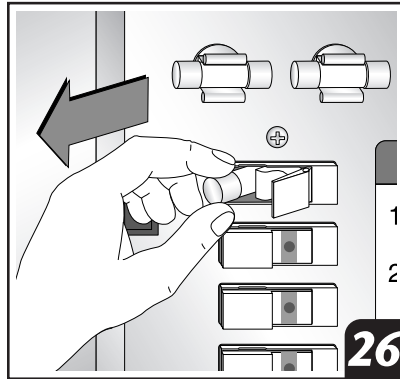
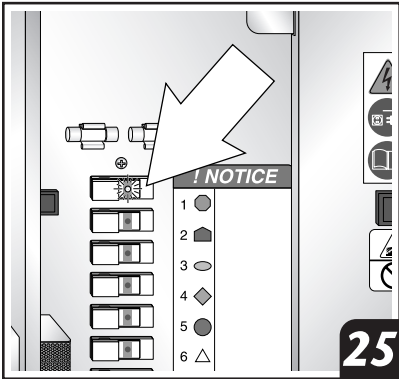


**B. USER REPLACEABLE HEATING ELEMENTS (CONT'D)**





**B. USER REPLACEABLE HEATING ELEMENTS (CONT'D)**



## V. REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	P/N
1	BRACKET, LOADER MOUNTING	175438
2	BUSHING BLOCK, CONVEYOR	175525
3	CAPACITOR, MOTOR-CONVEYOR	175802
4	CATALYST	175480
5	CHAIN, COOK	175674
6	CHAIN, DRIVE	175551
7	CHUTE, DISCHARGE	175340
8	CIRCUIT BREAKER, 10 AMP	177562
9	CONTACTOR	177330
10	CONTROLLER, DIAGNOSTIC BOARD	177331
11	CONTROLLER ASSEMBLY, MAIN	177092
12	CORD, CE UNIT	177564
13	DOOR, LOADING	175429
14	FAN, COOLING	177329
15	FILTER, EMC (CE UNIT ONLY)	177566
16	FLAME ARRESTOR	175293
17	FUSE	177512
18	FUSE HOLDER	177513
19	GASKET, CONTROL BEZEL	175510
20	GREASE PAN, "V"	177011
21	GREASE PAN, MAIN	175329
22	GREASE PAN, SIDE	175357
23	GUARD, CATALYST	175482
24	HEATING ELEMENT KIT, 3300 W, #1, TOP, LEFT, 208 VAC	600204
25	HEATING ELEMENT KIT, 3300 W, #1, TOP, LEFT 230 VAC	600205
26	HEATING ELEMENT KIT, 3300 W, #1, TOP, LEFT 240 VAC	600206
27	HEATING ELEMENT KIT, 3300 W, #2, TOP, CENTER, 208 VAC	600207
28	HEATING ELEMENT KIT, 3300 W, #2, TOP, CENTER, 230 VAC	600208
29	HEATING ELEMENT KIT, 3300 W, #2, TOP, CENTER, 240 VAC	600209
30	HEATING ELEMENT KIT, 3300 W, #3, TOP, RIGHT 208 VAC	600210
31	HEATING ELEMENT KIT, 3300 W, #3, TOP, RIGHT 230 VAC	600211
32	HEATING ELEMENT KIT, 3300 W, #3, TOP, RIGHT 240 VAC	600212
33	HEATING ELEMENT KIT, 3800/2200 W, #4, BOTTOM, LEFT, 208 VAC	600213
34	HEATING ELEMENT KIT, 3800/2200 W, #4, BOTTOM, LEFT 230 VAC	600214
35	HEATING ELEMENT KIT, 3800/2200 W, #4, BOTTOM, LEFT 240 VAC	600215
36	HEATING ELEMENT KIT, 3800 W, #5, BOTTOM, CENTER, 208 VAC	600216
37	HEATING ELEMENT KIT, 3800 W, #5, BOTTOM, CENTER, 230 VAC	600217
38	HEATING ELEMENT KIT, 3800 W, #5, BOTTOM, CENTER, 240 VAC	600218
39	HEATING ELEMENT KIT, 3800 W, #6, BOTTOM, RIGHT 208 VAC	600219
40	HEATING ELEMENT KIT, 3800 W, #6, BOTTOM, RIGHT 230 VAC	600220
41	HEATING ELEMENT KIT, 3800 W, #6, BOTTOM, RIGHT 240 VAC	600221

## V. REPLACEMENT PARTS LIST - continued

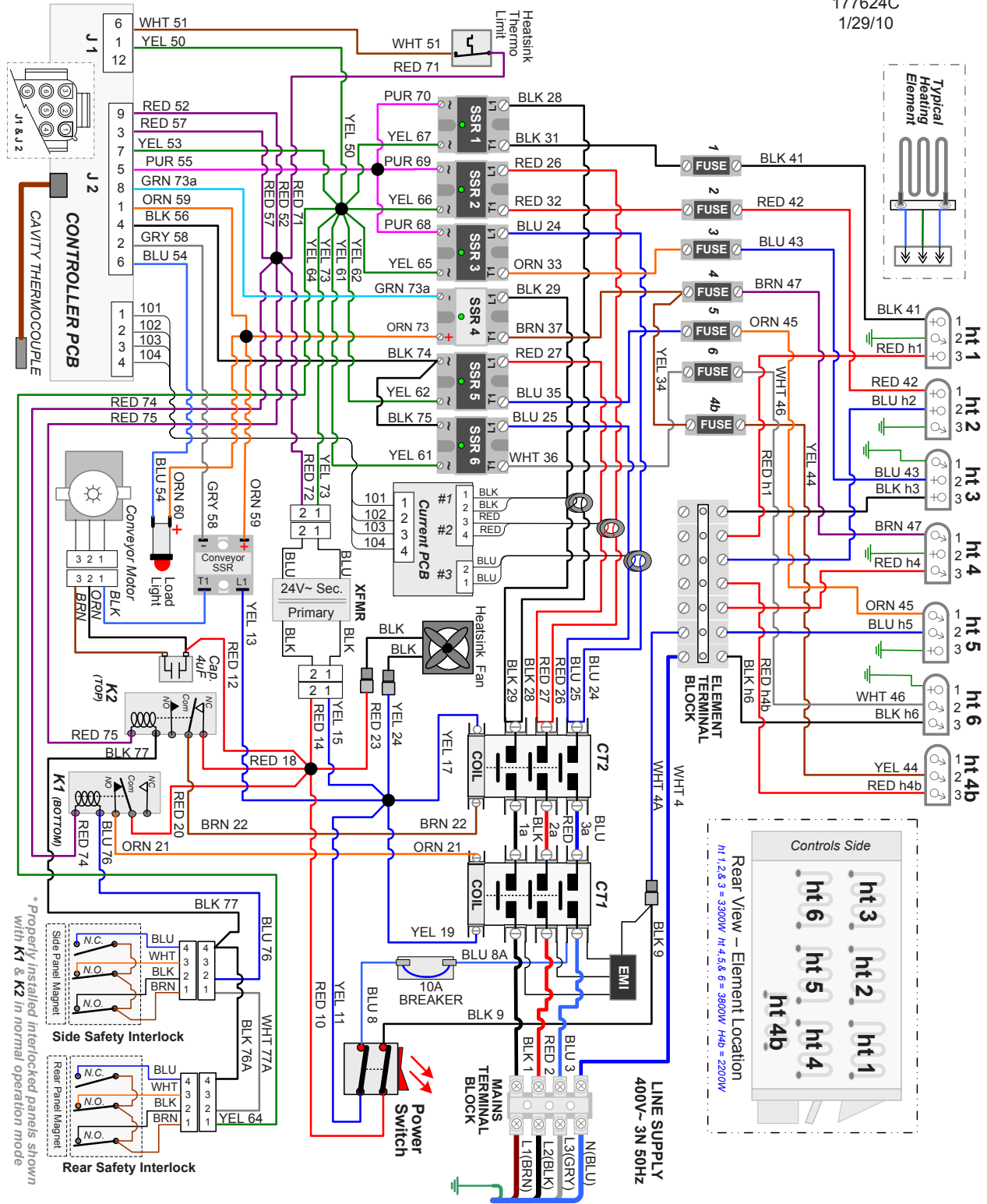
ITEM	DESCRIPTION	P/N
42	HOOD, DISCHARGE	175778
43	INTERLOCK, SAFETY, BACK PANEL MOUNTED	177567
44	INTERLOCK, SAFETY, CONTROL COMPARTMENT MOUNTED	177568
45	LATCH, PIN	177527
46	LATCH, TOGGLE	177525
47	LIGHT, COOK	175550
48	LOADER	175444
49	MOTOR, CONVEYOR	175875
50	PAN, DISCHARGE	175358
51	PANEL, ACCESS DISCHARGE	175250
52	PANEL, ACCESS ELECTRICAL LWB	177101
53	PANEL, FRONT	175300
54	PANEL, REAR	177052
55	PANEL, ASSY, FUSE ACCESS	177053
56	PANEL, ASSY, ELEMENT CONNECTION ACCESS	177054
57	PLUG, PIN & SLEEVE, 63 AMP, CE UNIT	177570
58	PROBE, TEMP., C-CHAMBER	175977
59	RAMP, LOADER	175741
60	RELAY, SOLID STATE, 10 AMP, CONVEYOR	175870
61	RELAY, SOLID STATE, 50 AMP, AC INPUT, HEATING ELEMENT	177095
62	RELAY, SOLID STATE, 50 AMP, DC INPUT, HEATING ELEMENT	177096
63	SANITATION PAIL	175842
64	SCRAPER, PIVOT ASH	175150
65	SENSOR, CURRENT	167614
66	SHAFT, DISCHARGE SIDE	175037
67	SHAFT, RIGHT SIDE	175038
68	SHELF, PRODUCT PAN	175363
69	SHIELD, HEAT	177012
70	SPROCKET, B21X3/8 BORE (MOTOR)	175517
71	STRAIN RELIEF, CE UNIT	177574
72	SWITCH, LIGHTED, DPST	175503
73	TERMINAL BLOCK, HEATING ELEMENT, CE	177503
74	TERMINAL BLOCK, SUPPLY, CE	177505
75	THERMOSTAT, HEAT SINK	168324
76	TOOL, BURNER CLEANING	175485
77	TRANSFORMER, 40VA, 230VAC-24VAC	175765
78	TRAY, LOADER	175430
79	BRUSH, CLEANING	177301

# VI. WIRING SCHEMATICS

## Wire Diagram - Electric FBB, 400 3N 50Hz

\* Shown with power ON & in normal operation mode

177624C  
1/29/10



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