



**MARSHALL**

**OWNER'S MANUAL**

**AUTOBROIL™ MODELS**

**2424 121224**

**WITH TOUCHSCREEN CONTROL**

**FOR SERIAL NUMBER 04979 AND AFTER**

**(CP3 CP4INTLCE)**

**Important: Keep in safe, easy-to-find location.**

**MARSHALL AIR SYSTEMS, INC.**

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Sales and Service

1-800-722-3474

(24 Hour Hotline, Telephone Assistance for Diagnostic and Troubleshooting)



# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL



This document contains the installation and operating instructions for:

**MODEL: 2424 121224 AUTOBROIL™ (CP3, CP4INTLCE)  
With Touchscreen Control**

## INSTRUCTIONS TO PURCHASER:

1. **ANSI Z83.11 STANDARDS REQUIRE THAT YOU POST IN A PROMINENT LOCATION THE PROCEDURES TO FOLLOW IN THE EVENT THE USER SMELLS GAS. THIS INFORMATION SHALL BE OBTAINED FROM THE LOCAL GAS SUPPLIER.**
2. **KEEP THIS MANUAL IN A SAFE PLACE AND RETAIN FOR FUTURE REFERENCE.**

### FOR YOUR SAFETY



DO NOT STORE OR USE GASOLINE OR OTHER  
FLAMMABLE VAPORS OR LIQUIDS IN THE  
VICINITY OF THIS OR ANY OTHER APPLIANCE



### AVERTISSEMENT

**Ne pas entreposer ni utiliser de l'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil, ni de tout autre appareil.**

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

**AVERTISSEMENT: Une installation, un ajustement, une altération, un service ou un entretien non conforme aux normes peut causer des dommages à la propriété, des blessures ou la mort. Lisez attentivement les directives d'installation et d'opération et d'entretien avant de faire l'installation ou l'entretien de cet équipement**

**Broiler area must be kept free of combustible materials and the flow of combustion and ventilation air must not be obstructed. Operating personnel must not perform any maintenance or repair functions. Contact your Qualified Service Company.**



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## I. BROILER SETTINGS

### AUTOBROIL™

**MODEL: 2424 121224 WITH TOUCHSCREEN CONTROL**

MODEL NUMBER: \_\_\_\_\_

SERIAL NUMBER: \_\_\_\_\_

ELECTRICAL SUPPLY: \_\_\_\_\_

SCHEMATIC NUMBER \_\_\_\_\_ REV. \_\_\_\_\_

#### SETTINGS:

- TOASTER TEMPERATURE: \_\_\_\_\_

- BROILER BELT(S):

BROILER (2424 MODEL) / BROILER LEFT (121224 MODEL):  
RECIPE NAME COOK TIME TOP TEMP. BOTTOM TEMP.

1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____

BROILER RIGHT BELT (121224 MODEL ONLY)  
RECIPE NAME COOK TIME TOP TEMP. BOTTOM TEMP.

1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____

START-UP TECHNICIAN: \_\_\_\_\_

START-UP DATE: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

A 24-hr hotline telephone assistance is available for diagnostics and troubleshooting 1-800-722-3474.

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## II. EQUIPMENT INSTALLATION

### PERFORMANCE CRITERIA

Make certain that voltage is within 10% of the unit's rated voltage and neutral is, in fact, neutral. Serious damage will be caused by having voltage on neutral.

BROILER CODE	ELECTRICAL SUPPLY	AMPERAGE
CP3	208V 3Ph	L1: 58 L2: 58 L3: 48 N: N/A G: 0
CP4INTLCE	380/220V 3Ph	L1:41 L2: 30 L3: 30 N: 41 G: 0

### PRE-INSTALLATION

1. After uncrating the Autobroil™ unit, inspect for shipping damage. Check that the controller, switches, and components are intact on the electrical cabinet front. Set the Autobroil™ in place and use the plastic bag to protect it from the debris and trash of building construction. Check that side skins have not been dented or damaged by the carrier. If damaged, notify your freight carrier immediately to file a concealed damage claim, following the instructions attached to the outside of the shipping crate. Your warranty will not cover freight damage.
2. Because this unit is required to be power fan exhausted, it is necessary to provide adequate make up air equal to the amount of air removed. In addition to this, any other exhausts, flues, or air removal systems must be taken into consideration. Examples of this are heat removal fans or hot water heater flues.

**CAUTION: DO NOT OBSTRUCT THE FLOW OF VENTILATION AIR.**

### EQUIPMENT LOCATION

1. Position Autobroil™ to properly align with exhaust hood. Check name plate for clearance requirements.
2. The hood/ventilator for the catering equipment should be located in accordance with the National Fire Protection Association Standard #96, "Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment" and any local applicable requirements.
3. For proper installation, the minimum clearance from combustible construction is 6" (152mm) from sides and 6" (152mm) from back.
4. Adequate clearance should be maintained to allow easy access to loading and unloading areas of the machine.
5. For servicing, unit must be moved 2' (610mm) clear from all construction.

### ELECTRICAL INFORMATION

1. The Electrical Schematic is inside the electrical cabinet and a copy is also included at the back of this manual. Make certain the supply voltage and number of supply conductors agrees with the Electrical Schematic. The load-carrying conductors should be sized according to the loads shown on the Electrical Schematic per local codes and the National Electrical Code, ANSI/NFPA 70 -Latest Edition. If the broiler is supplied with a cord, it will be type 4/4, 6/3 or 6/5 SO 90 DEG C or higher (See electrical schematic for proper cord size). The cord will be approximately 7 feet long.
2. On a new electrical service - **MAKE CERTAIN THAT VOLTAGE IS WITHIN 10% OF THE UNIT'S RATED VOLTAGE.** Appliance should be protected by a properly-sized circuit breaker furnished from the main building circuit panel per local codes and the National Electrical Code, ANSI/NFPA 70.

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## PRE-OPERATION CHECK (START-UP)

Before operating your Autobroil™, make a quick check of critical items as follows:

1. **Remove both side panels and check to see that all parts are in place and that none are damaged.**
2. Start conveyor chain and check for binding. The conveyor chain should run free and not be catching on any parts.
3. The speed of the conveyor chain should be changed from slow to fast, and back again without the chain stopping.
4. Check that no "binding" and resultant conveyor overloading is present. With the electrical connections complete and with the electrical cabinet door secured shut, turn the conveyors **"ON"** (See Conveyor Only section in operating instructions page 18). The conveyor should move forward in smooth unaltered motion. Shut down immediately if there is any evidence of "binding" or other mechanical blockage.
5. Proper conveyor operation is when the amperage draw in the white or black motor lead from the circuit board (Figure 7) to the motor cord measures .15 DC amps or less. To check amperage the cabinet door will need to be open. **THIS PROCEDURE SHOULD ONLY BE PERFORMED BY A QUALIFIED ELECTRICIAN.**
6. The Autobroil™ was tested at the factory before shipping so excessive amperage will indicate conveyor binding caused by shipping damage. Remove the roller chain (Figure 4) driving the conveyor in question and move the conveyor by hand. Loosen the sprockets (Figure 6) that drive the various axles and reposition them by 1/32" (1mm) until the conveyor tightness is eliminated. Twenty-five inch pounds of torque is required to drive a properly set up conveyor.
7. After the conveyor checkout is complete, turn the broiler on by pressing and holding the "ON" button for 2 seconds. All heater elements should glow red. After the unit is up to temperature, the elements will cycle. For trouble shooting problems, see Section VI.
8. Before first use, and after any special cleaning, it is necessary to "season" the **BROILER** chain. This is done by bringing the broiler chain to operating temperature and applying liquid shortening from a saturated cloth over the full width of the broiler chain while the chain makes five or six complete revolutions.
9. Check to see that the three heat reflectors are in place. (See Figure 2 and 3).


## BROILER ADJUSTMENT

The Autobroil™ requires 30 minutes to reach stable temperature. After this time lapse, the conveyor speed can be set to properly cook the product. The control will display "READY" when the broiler reaches cooking temperature.

## TOASTER CONVEYOR SPEED

1. The toaster conveyor is the lower conveyor on the broiler. This conveyor is linked to the main cooking chamber broiler and does not have a separate speed control for the toasting section.

## SHUT-OFF INSTRUCTIONS

1. Press and hold the power button  for 2 seconds. The heat will turn off and the conveyors will continue to run until the broiler cools. The conveyors will turn off automatically after cooling.

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## III. OPERATING INSTRUCTIONS

### OPERATION OF THE TOUCHSCREEN USER INTERFACE

#### OFF MODE

Once the broiler is connected, the touch screen user interface OFF mode home screen will show up.



**OFF MODE – HOME SCREEN**

#### **Power Button:**

In this mode, the power button is red indicating that all heaters and conveyors are off. To turn the broiler on and go to PREHEATING mode, press the power button for 2 seconds.

#### **Tools Button:**

A press of the tools button will bring the user to the first page of the available tools. There is a total of 8 tools (4 per page) available to the user. See the **TOOLS** section pages 10-18 for more details.

#### **Food Probe button:**

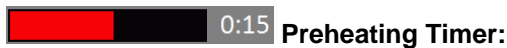
The food probe button allows the user to take live temperature readings of food products as well as recording temperature readings of the different food products (recipes) that can be retrieved later using a USB flash drive. In off mode, the food probe button is grayed out indicating that the food probe functionalities are inactive. See **FOOD PROBE** section page 9 for more details.

### PREHEATING MODE

Once turned on, the broiler will go to the PREHEATING mode and start heating. The conveyor belts will also start running at the slowest recipe speed. The PREHEATING mode is to allow the broiler to reach temperature set point before cooking. The PREHEATING mode home screen is shown below.



### PREHEATING MODE – HOME SCREEN



The preheating timer shows the remaining preheating time in minutes while the timer bar gives the user a quick reference of the remaining time versus total time. Once the preheating timer has elapsed, the broiler will go to the READY mode.



In this mode, the power button is green indicating that all heaters and conveyors are on. To turn the broiler off, press the power button for 2 seconds and the broiler will go to the cool down mode for ten minutes before going to the OFF mode.



A press of the tools button will bring the user to the first page of the available tools. Note that while the broiler is in PREHEATING mode, only the first page of the tools is available. See the **TOOLS** section pages 10-18 for more details.

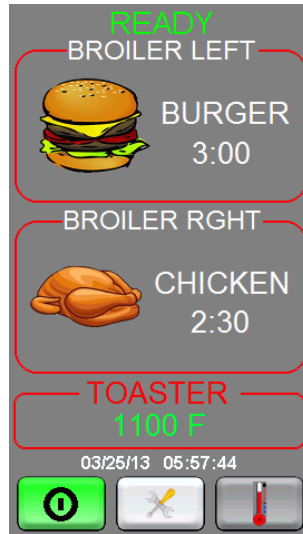
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## READY MODE

After the preheat timer elapsed, the broiler goes to the READY mode. The READY mode home screen for a dual belt broiler (Model 121224) is shown below. Note that for the single belt broiler (Model 2424) the two broiler belt windows will be replaced by one big single belt window.



**READY MODE – HOME SCREEN  
(Dual Belt Broiler Shown)**

The word “READY” in green is displayed at the top of the screen to let the user know that the broiler has reached temperature set point and is now ready for cooking.

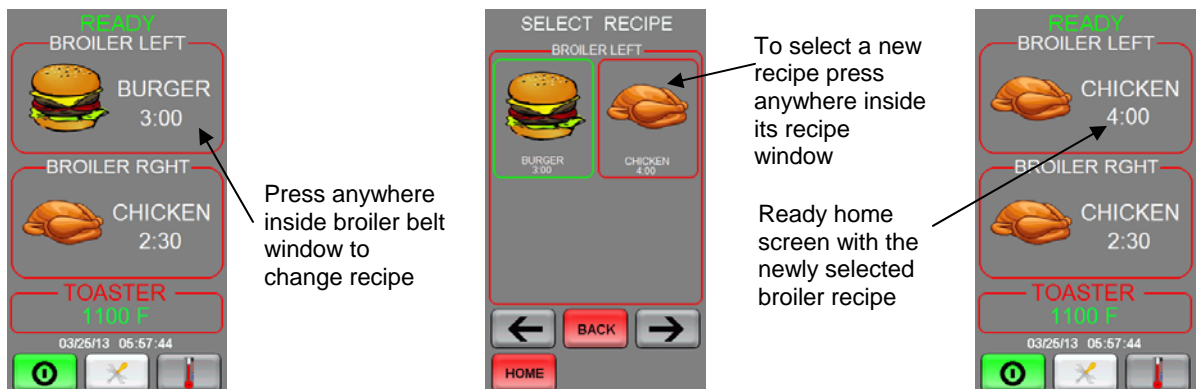
The screen also shows the BROILER belt window(s) associated with the top conveyor(s) and the TOASTER window associated with the bottom conveyor.



### Broiler Belt Window(s):

Each of the BROILER belt has its associated belt window showing the active recipe, a representative food icon, the recipe name and the recipe cook time. Each belt can also have up to twelve different recipes to choose from. See **MENU MANAGEMENT** page 16-18 for more information about adding, modifying or deleting recipes.

### To change a broiler belt recipe while in ready mode:



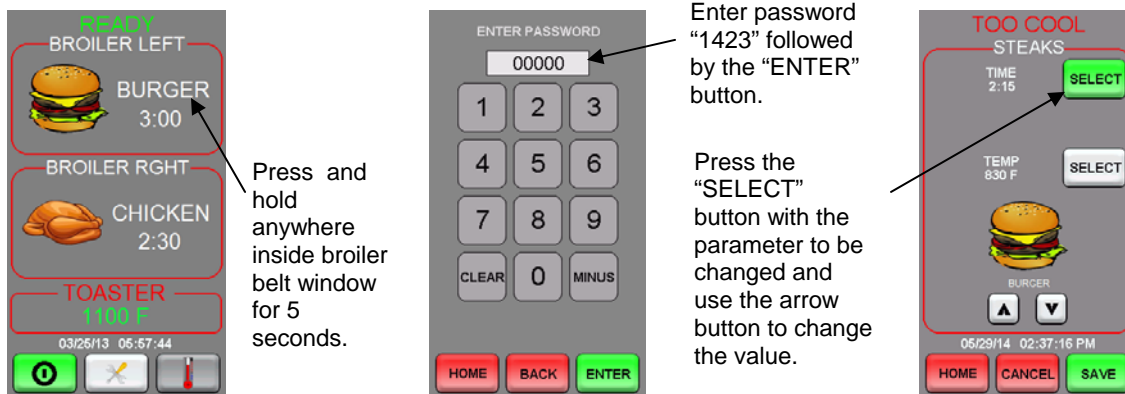
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1. Press anywhere inside the desired broiler belt window. The select recipe window will show up. Up to four different recipes can be shown on the first page. If more than four recipes are available for the selected belt, use the arrow buttons to navigate between the different recipe pages. Note that the arrow buttons will be grayed out if no other pages are available.
2. Once the desired recipe is found, press anywhere inside its window. The READY mode home screen will then show up with the newly selected recipe for that belt.
3. To cancel, press the back or the home button to return to the READY mode home page.

### To modify a broiler belt recipe cook time or temperature set point while in ready mode:



1. Press and hold anywhere inside the desired broiler belt window for five seconds. The enter password screen will show up.
2. Enter password “1423” followed by the “ENTER” button and the modify screen will show up.
3. Press the “SELECT” button associated with the parameter to be change and use the arrow buttons to change the value.
4. To save new recipe settings and return to previous mode, press the “SAVE” button
5. To cancel, press the back or the home button to return to the READY mode home page.



### Toaster Window:

The TOASTER window displays the temperature set point of the toaster chamber. A press anywhere inside the TOASTER window will display the actual toaster chamber temperature for 8 seconds.

To change the toaster temperature set point, press and hold anywhere inside the TOASTER window for 5 seconds. The numeric pad screen will show up asking for a password. Enter password “1423” followed by the enter button and the “enter toaster set point” screen will show up. Enter new set point and press enter to save. To cancel, press the back button. The READY home cook screen will come back up showing the new toaster temperature set point.

The color of the temperature numbers indicates if the actual temperature of the toaster chamber is inside the allowed differential from set point. Green numbers indicate that the actual temperature is inside the allowed differential while red numbers indicate that the actual temperature has fallen outside the allowed differential. Note that red numbers do not automatically indicate an error for the toaster temperature control but just a bigger


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temperature swing during cycling.

## To turn the broiler off:


Press the power button  for 2 seconds. The broiler will then go to cool down mode for ten minutes before going to the off mode.



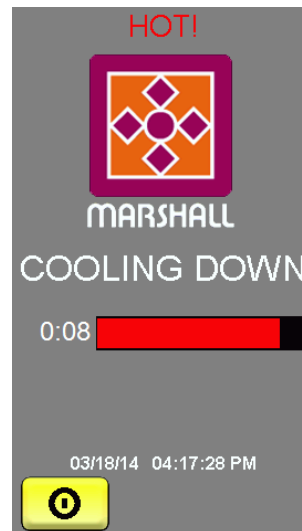
## Tools Button:

A press of the tools button will bring the user to the first page of the available tools. Note that while the broiler is in READY mode, only the first page of the tools is available. See the **TOOLS** section pages 10-18 for more details.

## COOLING DOWN MODE

Once the broiler is turned off using the power button  from the PREHEATING mode home screen or the READY mode home screen, the broiler will go to COOLING DOWN mode.

During the COOLING DOWN mode, heat is turned off but the conveyors are running at different speeds to prevent grease bonding of the conveyor shafts. The word "HOT" is displayed at the top of the screen to remind the user that the broiler is still hot even though the heat is off. The COOLING DOWN mode screen is shown below.



**COOLING DOWN MODE SCREEN**

0:08 

## Cool Down Timer:

The cool down timer shows the remaining cool down time in minutes while the timer bar gives the user a quick reference of the remaining time versus total time. Once the cool down timer has elapsed, the broiler will go to the OFF mode.



## Power Button:

In this mode, the power button is yellow indicating that the broiler can be turned back on by pressing on the power button for 2 seconds. The broiler will then go to the PREHEATING mode.

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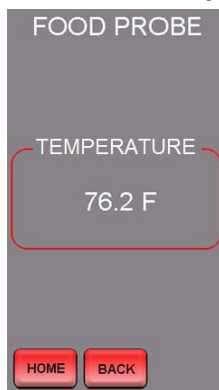



## FOOD PROBE (OPTIONAL)

The food probe button is only useable while the broiler is in READY mode. It can be used for two purposes:

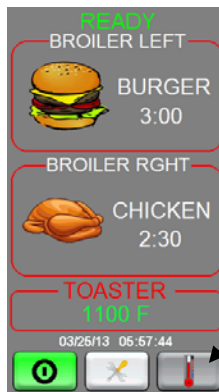
- **To take live temperature measurements of a food product.** This is useful to verify that a food product is cooked properly.
- **To initiate a log for a recipe.** This functionality allows the manager to record temperature measurements of the different recipes that can later be retrieved using a USB flash drive.

### To take live temperature measurements of a food product:

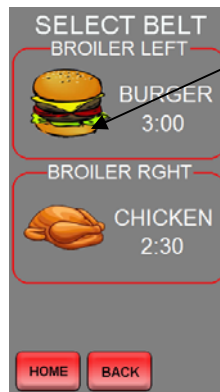


1. Connect the food probe into the food probe receptacle on the unit.
2. Press the food probe button  to go to the FOOD PROBE screen.
3. Insert the food probe into a food product to take a measurement.
4. To cancel or go back to READY mode home screen, press the home or back button.

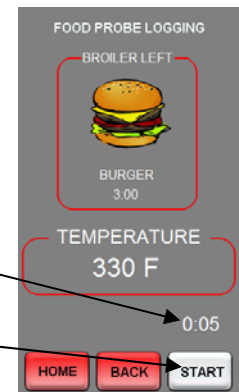
### To initiate a log for a recipe:



Press and hold for 3 seconds the food probe button




Select a recipe by pressing anywhere inside the belt window



Equalization timer

Press the start button

1. Connect the food probe into the unit.
2. Press and hold the food probe button  for 3 seconds. The select belt screen will show up.
3. For Model with dual broiler belts, press anywhere inside the belt window of the recipe to be logged.
4. The food probe logging screen will come up showing the selected belt with the active recipe (representative icon, recipe name and cook time) as well as a live temperature reading window below it.
5. Insert the food probe into the food product according to sanitary codes and normal restaurant procedures.
6. Nothing is being logged yet. The user must wait until a certain temperature is reached which depends on what is being sampled, as well as specific restaurant procedures.

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7. When temperature reaches a specific point (known to the user), the user presses the start button. The user must keep the food probe into the food sample at this point.
8. Once the equalization timer has elapsed it will beep four times, the word temperature will be temporary replaced by "FINAL TEMP" and the final temperature reading will be displayed to let the user know that a temperature measurement has been logged.
9. Repeat steps 4 to 7 to log more measurements of the same recipe.
10. To switch belts, use the back button to go back to the select belt screen. Then repeat step 3 to 7.
11. To go back to the ready mode home screen, press the home button.

The following is logged each time a sample is taken:

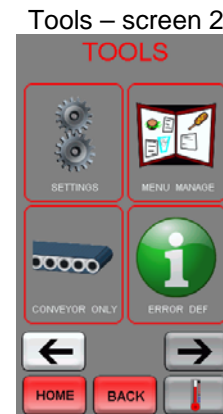
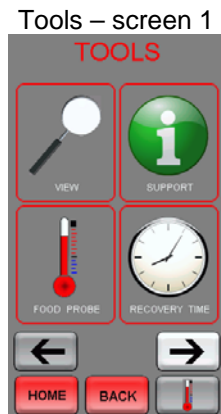
- Date (MM/DD/YY)
- Time (HH:MM:SS)
- Recipe name
- Recipe set point (degree F or C)
- Final temperature reading (degree F or C)
- Recipe cook time (MM:SS)

See the **TOOLS** section for more information on how to retrieve food probe logs using a USB flash drive.

### TOOLS

The tools button  is only available from the OFF mode home screen, the PREHEATING mode home screen and the READY mode home screen.

There are two screens with four tools each for a total of eight available tools. **Note that only the first tool screen is available from the PREHEATING and the READY mode.** The two TOOLS screens are shown below. Use the arrow to navigate between the two pages.



### **VIEW TOOL:**



The VIEW tool allows the user to monitor basic information of the active recipe of the broiler belt(s). Simply press the VIEW tool button to go to the VIEW screen. Each of the broiler belt window(s) will have the names of the active recipe, the temperature set points of the recipe, the current temperatures of the cooking chamber and the recipe cook time. Press the back button to return to the TOOLS screen or the home button to go to the OFF, PREHEATING, or READY mode home screen.

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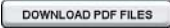
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## SUPPORT TOOL:

Press the SUPPORT tool button to get contact information about Marshall Air Systems, Inc., the model and serial number of the broiler or download PDF files of guides and manuals for the broiler.

### To download pdf files (only possible while the broiler is in OFF mode):

1. Unscrew USB port cover.
2. Insert USB flash drive in USB port located below touch screen control.
3. From the support screen, press the download PDF files button . Wait until the screen displays the word "SUCCESS". An error message will be displayed if the download could not be completed.
4. Remove USB flash drive from USB port and put cover back on. Use the back button to go back to the SUPPORT screen or the home button to go back to the OFF mode home screen.
5. The PDF files can now be transfer to a computer.





## FOOD PROBE TOOL:

The FOOD PROBE tool allows the user to do two things:

- Retrieve food probe logs using a USB flash drive.
- Recalibrate the food probe using the factory defaults or by using ice and boiling water.

To select one of the two options, first press on the FOOD PROBE tool button . The screen will display the two options.

### To retrieve food probe logs using a USB flash drive:

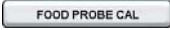

1. Press the food probe log button . This will take the user to the food probe log screen showing a list of the last eight food probe logs took using the steps describe previously in the "FOOD PROBE" section.
2. Remove USB port cover and insert the USB flash drive into the USB port (located below touch screen control).
3. Press the USB button  to start downloading. Wait until the screen displays the word "SUCCESS". An error message will be displayed if the download could not be completed.
4. Remove USB flash drive from USB port and put cover back on. Use the back button to go back to the SUPPORT screen or the home button to go back to the OFF, PREHEATING, or READY mode home screen.
5. The TXT file can now be transferred to a computer.

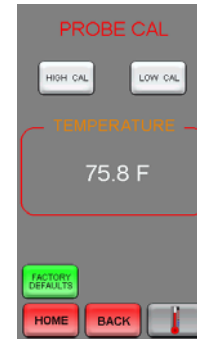
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### To recalibrate the food probe:



From the FOOD PROBE tool screen press the food probe calibration button . The keypad screen will come up asking for a password. Enter password "1423" using the keypad followed by the enter button . The food probe calibration screen will then be displayed.



### Using the factory defaults:

1. Press the factory defaults button .
2. The controller will automatically be recalibrated using the factory defaults and the FOOD PROBE tool screen will come back up.

### Using ice and boiling water:

1. Connect the food probe to the broiler.
2. Using precaution, get a glass of ice water and a small pot of boiling water ready and put them close enough to the broiler so it can be reached with the food probe.
3. Insert and stir the food probe into the glass of ice water and wait until temperature stabilizes (around 0 degree C or 32 degree F) and then press the low calibration button .
4. Next, insert the food probe into the pot of boiling water and wait until the temperature stabilize (around 100 degree C or 212 degree F) and then press the high calibration button . The food probe is now recalibrated.

To cancel recalibration, press the back button to return to the FOOD PROBE tool screen or the home button to go back to the OFF, PREHEATING, or READY mode home page.

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## RECOVERY TIME TOOL:



The recovery time is defined as the amount of time it takes for the broiler to go from room temperature to set point. This data is useful for service and HACCP purposes. To access the RECOVERY TIME screen,

simply press the RECOVERY TIME tool button . The screen will show a list of recovery times with the date and time that they were recorded.

### To download the list to a USB flash drive:




1. Unscrew USB port cover and insert an USB flash drive into the USB port of the broiler (located below touch screen control).
2. Press the USB button  and wait until the screen displays the word "SUCCESS". An error message will be displayed if the download could not be completed.
3. Remove USB flash drive from USB port and put cover back on. Use the back button to go back to the tools screen or the home button to go back to the OFF, PREHEATING or READY mode home screen.
4. The TXT file can now be transferred to a computer.

**To exit recovery time screen**, press the back button to go back to the previous page or the home button to go back to the OFF, PREHEATING, READY or COOLING DOWN mode home screen.





## SETTINGS TOOL (ONLY ACCESSIBLE WHILE IN OFF MODE):

The SETTINGS tool is to allow qualifying service agencies to perform testing on the unit as well as to allow the store personal to make general setting changes to the broiler. Once the SETTINGS tool button is pressed, the SETTINGS screen will come up showing three options:

- Hardware test (password restricted for servicing only) 
- System configuration (password restricted for servicing only) 
- General configuration 

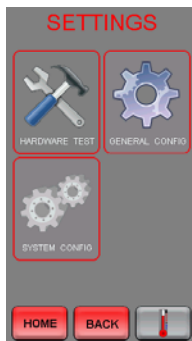
Only the general configuration option is accessible to the store personal.

**To change the general settings of the broiler**, press the general configuration button . The keypad screen will come up asking for a password. Enter password "1423" using the keypad followed by pressing

the enter button . This will bring up the general configuration screen 1. To navigate between general configuration screen 1 and screen 2, use the arrow buttons.

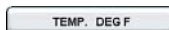
# OWNER'S MANUAL

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### LANGUAGE

Press this button to toggle between the different languages (if available).



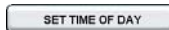
### TEMPERATURE UNITS

Press to toggle between setting the broiler for degree Fahrenheit (F) or degree Celsius (C).



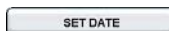
### TIME FORMAT

Press to toggle between standard or military time formats.



### TIME

Press to use keypad to set the time. The time format is HH/MM.



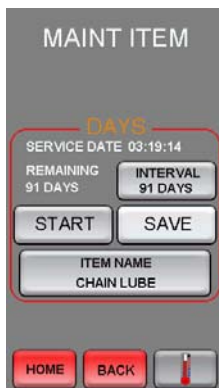
### DATE

Press to use keypad to set the date. The date format is MM/DD/YY.



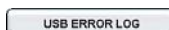
### MAINTENANCE MESSAGE REMINDERS

This feature allows the user to set up multiple recurrent maintenance message reminders. Press on the button to switch to the MAINT ITEM screen.



### To set up a maintenance message reminder:

1. Press the item name button to enter the name of the maintenance message using the keypad.
2. Press the interval day's button to enter the reminder interval period in days using the keypad.
3. To activate the maintenance message reminder, press the start button. Note that the maintenance message reminder can be started at a later time.
4. Press the save button to save entries and go back to the previous page.
5. To cancel, press the back button to return to the previous page or the home button to return to the OFF mode home screen



### USB ERROR LOG

This feature allows the user to download an error report to a USB flash drive. To do so, unscrew USB port cover, insert USB flash drive into the USB port located in left side of the control cabinet and press the USB error log button. Wait until the screen displays the word "SUCCESS". An error message will be displayed if the download could not be completed.

Remove USB flash drive from USB port and put cover back on. Use the back button to go back to the previous page or the home button to go back to the OFF mode home screen.

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The TXT file can now be transferred to a computer.

### I/O FIRMWARE UPDATE I/O FIRMWARE UPDATE

To download an I/O firmware update, unscrew USB port cover, insert USB flash drive with a valid file format into USB port located in left side of the control cabinet and press the I/O firmware update button. This will take the user to the I/O firmware upload screen.



**To start the download** press the yes button to start the download. The download process will take about twenty seconds after which the controller will go back to the previous screen.

**To cancel the download** press the no or back or home button. The no and back button will take the user back to the previous screen while the home button will take the user back to the OFF mode home screen.

### VERSION NUMBERS FIRMWARE VERSION NUMBERS

Press this button to get information about the firmware versions. This is useful information for the manufacturer.

### EXPORT RECIPES

### EXPORT RECIPES

This feature allows the user to copy all the different recipes on the broiler to a USB flash drive. The user can then use the flash drive to import those recipes in other units or to edit them using the Menu Editor application.

To copy all the recipes from a broiler to a USB flash drive, simply remove the USB port cover and insert the USB flash drive into the USB port. Press the EXPORT RECIPES button and wait until the screen shows "SUCCESS". Press the BACK button to go back to the previous screen or the HOME button to go directly to the OFF mode home screen.

A "recipe.menu" file has been created into the root directory of the USB flash drive and can be used to import recipes into other unit or to edit those recipes via the Menu Editor application


### IMPORT RECIPES IMPORT RECIPES


Use this feature to upload recipes into a unit. Simply remove the USB port cover and insert the USB flash drive with a valid recipes file (recipe.mnu) into the USB port. Press the IMPORT RECIPES button and wait until the screen shows "SUCCESS". All the new recipes settings are now available in the broiler. Press the BACK button to go back to the previous screen or the HOME button to go directly to the OFF mode home screen.



### MENU MANAGEMENT TOOL (ONLY ACCESSIBLE WHILE IN OFF MODE):

This is where the user can add, modify or delete recipes. Up to twelve different recipes can be programmed.

To access the MENU MANAGEMENT screen press the menu management button . The keypad screen will come up asking for a password. Enter password "1423" using the keypad followed by the enter

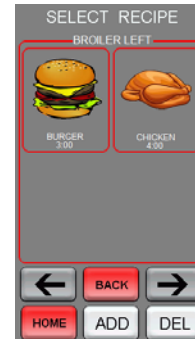
button . The MENU MANAGEMENT screen will then come. Press on the broiler belt window

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## 2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL




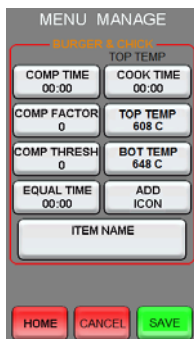
to add, modify or delete recipes. The add/modify/delete screen will come up. If there are more than four recipes available for that belt, use the arrow buttons to switch pages.




### To add a recipe:


Press the add button . This will bring up the add/modify a recipe screen.


 Press to change the recipe cook time using the keypad. The cook time is defined as how much time it takes for the product to travel from the entrance of the cooking chamber to the exit of the cooking chamber. **Note that the cook time needs to be set to a different value than 00:00 in order to be able to save the recipe.**





 Press to change the recipe top temperature set point using the keypad.


 Press to change the recipe bottom temperature set point using the keypad.

 Press to select a recipe icon. This will bring the select a recipe screen. Using the previous and next buttons, navigate to the desired food icon and simply press on it to select it.

 Press to change the compensation time using the keypad. See **TIME COMPENSATION** page 18 for more details.

 Press to change the compensation factor using the keypad. See **TIME COMPENSATION** page 18 for more details.

 Press to change the compensation threshold using the keypad. See **TIME COMPENSATION** page 18 for more details.

 Press to change the equalization time using the keypad. The equalization time is used with the food probe log functionality. This defines how long the controller waits after the user presses the start button on the FOOD PROBE LOGGING screen (see FOOD PROBE section page 11-13) before logging the final temperature. This time is mandated by various local sanitation codes and specific restaurant procedures.

 Press to enter a recipe name using the keypad.

Once all the parameters have been set, press the save button to save and return to the add/modify/delete recipe screen.


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To cancel, press the cancel button to go back to the previous screen or the home button to go back to the off mode home screen.

### To modify a recipe:

From the add/modify/delete recipe screen, use the arrow buttons to navigate to the desired recipe and select the recipe by pressing on the recipe window. Once selected, the recipe will be highlighted and the add button will become the modify button . Press on the modify button and this will bring up the add/modify a recipe screen described above. Follow the same instructions described in the add a recipe section to modify the recipe.

Once all the parameters have been set, press the save button to save and return to the add/modify/delete recipe screen. To cancel, press the cancel button to go back to the previous screen or the home button to go back to the OFF mode home screen.

### To delete a recipe:

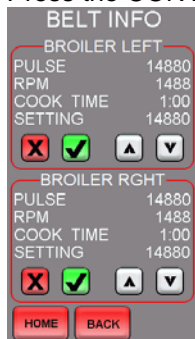
From the add/modify/delete recipe screen, use the arrow buttons to navigate to the desired recipe and select the recipe by pressing on the recipe window. Once selected, the recipe will be highlighted. Simply press the delete button  to delete the selected recipe.

### CONVEYOR ONLY TOOL (ONLY ACCESSIBLE WHILE IN OFF MODE):






The CONVEYOR ONLY tool allows the user to run the conveyors without heating. This is useful for servicing purposes. Note that the toaster conveyor is linked to the broiler conveyor motor and therefore can not be independently adjusted.


Press the CONVEYOR ONLY button  to go to the CONVEYOR ONLY screen.



The broiler conveyor will automatically start running at 1:00 cook time.

**To change the conveyor speed**, press and hold the up  or down  arrow buttons until desired speed is reached.

**To stop the conveyor**, press the conveyor stop button .


**To start the conveyor**, press the conveyor start button .

To exit CONVEYOR ONLY mode press the back button to return to the tools screen or the home button to return to the OFF mode home screen.



### ERROR DEFINITION TOOL (ONLY ACCESSIBLE WHILE IN OFF MODE):

This tool gives the user a description of all the possible error messages displayed during the broiler operation.

Press on the error definition button  to display the list of possible errors. Use the arrow buttons to navigate to the desired error definition and simply press on the error definition to display the description.

Use the back button to go back to the previous page or the home button to go back to the OFF mode home screen.

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## TIME COMPENSATION

This feature allows the unit to compensate for medium/long term temperature variations due to quantity and/or type of food being fed into the broiler.

Basically, if the temperature of the cooking chamber remains for the **compensation time** above (or below) the set point plus (or minus) the **compensation threshold**, then the unit will automatically subtract (or add) cooking time (defined as a percentage of the current recipe time, **compensation factor**) to the current recipe. This will not change the programmed time, but will shorten (or lengthen) the recipe until the temperatures return to normal.

Each recipe can have its own compensation parameters, independent of all other recipes.

## MAINTENANCE MESSAGES

If one or more maintenance message reminder timers have elapsed and the broiler is transitioning from COOLING DOWN mode to OFF mode, the maintenance items screen will come up and a beeping will be heard.



Press the back button or the home button to acknowledge. The beeping will stop and the OFF mode home screen will come up.

Once the user is done with one of the items from the maintenance list, the timer for that item can be reactivated at any time while in OFF mode following the instructions from **TOOLS – MAINTENANCE MESSAGE REMINDERS** section page 15.

Note that the maintenance alert screen will come up every time that the broiler goes from COOLING DOWN mode to OFF mode until all items from the list have been reactivated

## EMERGENCY STOP SWITCH

An emergency stop switch is available on the front of the unit. This toggle switch is for stopping the conveyors immediately in case of a conveyor jam or other problem requiring the unit to shut down. **Do not use the switch for normal shut downs at the end of the day.** Use it only if the conveyor jams or you need to stop the broiler quickly. This switch stops the conveyors and turns off the burners and turns off power to the control panels. When you turn the “Emergency Shut Off Switch” back on, the control will cycle through and initialize and then go to the OFF mode. From here you can turn on the broiler as normal.

## IV. SCHEDULED MAINTENANCE

### CLEANING DURING OPERATION

#### GREASE AND ASH REMOVAL FROM GREASE TRAY

Use caution when removing the Grease Tray as it will be extremely HOT. DO NOT clean the Grease Tray in cold water, as cold water will warp the hot tray. To avoid cooling the broiler down during cleaning, replace the used Grease Tray with a clean one immediately after removing the used one.

### DAILY CLEANING PROCEDURES



**CAUTION:** Do not touch the broiler section immediately after broiler shut-down. The temperature inside enclosures is in excess of 260°C (500°F), which eliminates the need to clean any parts inside the enclosures for sanitary purposes. Any grease

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that may build up on the exterior of the enclosures should be cleaned off with a damp cloth and a minimum amount of detergent. **Never use water on the enclosure. Disconnect the power supply to the broiler before cleaning or servicing.**



**CAUTION:** UNDER NO CIRCUMSTANCES SHOULD OVEN CLEANER BE USED ON THIS BROILER. OVEN CLEANER WILL CREATE CAUSTIC FUMES THAT CAUSES ELECTRICAL COMPONENT DAMAGE, AND WILL CAUSE MANY OTHER PROBLEMS IF USED TO CLEAN THIS BROILER.



**CAUTION:** DO NOT ALLOW WATER TO CONTACT THE (2) COOLING FANS. DOING SO MAY CAUSE THE BROILER TO TRIP THE GROUND FAULT RECEPTACLES AND NOT OPERATE. PLEASE COVER THE FANS WITH PLASTIC OR OTHER TO PREVENT WATER FROM CONTACTING THE FANS.



**CAUTION:** KEEP THE BROILER AREA FREE AND CLEAR FROM COMBUSTIBLES.

1. Allow broiler burners and chain to operate for 30 minutes after cooking last patty to burn off excess grease on broiler components. Then turn the unit off and allow to cool. (This applies every time a meat chain is turned off -- regardless of what time of day meat chain is shut down -- and regardless of how few patties were broiled in the last 30 minutes, last hour, etc.) This will clean some parts of the cooking chamber. Failure to perform this procedure daily will result in poor cooking times.
2. Remove all exterior panels except those which are attached with screws. Be careful not to touch any hot internal broiler components.

*	Grease Drain Channel	Figure 3
*	Grease Pans	Figure 2
*	Crumb Tray (Toaster Section)	Figure 2
	Front and Rear Tunnel Guard	Figure 2
	Heat Shield	Figure 2
	Tunnel Filler	Figure 2
*	Broiler Arm Cover and Heat Guard	Figure 2
*	Broiler Grease Tray	Figure 2
	Tube Bundles (2)	Figure 2
	Meat Stripper	Figure 3
*	Grease Catch Pan and Insert	Figure 2
	Toaster Bun Tray	Figure 2
*	Toaster Arm Covers	Figure 2
<b>* NOTE: these items may be removed during the 30 minute period.</b>		

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3. With the conveyor running and heat OFF, wire brush the broiler conveyor and, as it cools, wipe with damp cloth.
4. Scrape deposits from the axles with the axle scraping tool, furnished with each machine as shown in Figure 6.  
\* **THIS IS IMPORTANT TO PREVENT GREASE FIRES AT THE REAR OF THE BROILER.**
5. Remove grease and meat residue from any part of remaining broiler structure where visible. Use a damp cloth with detergent and a putty knife for best results. \* **DO NOT SCRAPE THE LOWER PLATEN (HOLDING AREA).**
6. The tube bundles (2) (Figure 2) should be removed and wire brushed. Further cleaning is not necessary; however, make sure carbon deposits are scraped from between the tubes with a tool such as a screwdriver.
7. Additional cleaning should exhibit good housekeeping and entail a general wiping of all exterior surfaces. **DO NOT GET WATER ON THE ELECTRICAL CABINET OR THE HEATING ELEMENTS. NEVER HOSE THE MACHINE.**
8. After cleaning all removable parts as noted, allow to dry and reassemble.

## MONTHLY CLEANING PROCEDURES

1. Remove the broiler conveyor chain from the machine and steam clean or soak in detergent solution. The conveyor is removed by taking the conveyor apart at the cut links. When the conveyor is removed, check all heating elements and replace elements showing extreme corrosion. Check bearings for excessive wear and order replacements where needed. (See Figure 5 for cut link illustration.) Make certain conveyors are reinstalled going in the correct direction. **PLACING CHAIN ON BACKWARDS WILL CAUSE SEVERE BINDING PROBLEMS.**
2. Remove spark guard and wipe out. (Figure 2)

## QUARTERLY CLEANING PROCEDURES & PREVENTIVE MAINTENANCE

1. If required, remove conveyor and soak in hot soapy water overnight. The chain is removed by lifting axle up to produce slack and separating as described in Figure 5. When replacing chain, make certain the conveyor is installed properly. **PLACING CHAIN ON BACKWARD WILL CAUSE SEVERE BINDING PROBLEMS. CLOSE** open links to match other links. (Figure 5)
2. If required, spread conveyor links open with screwdriver or chain pliers (part#500033). Lift front axle up to make slack in the conveyor belt, unhook conveyor chain and remove to gain access to lower cooking chamber for cleaning side walls. Make reference to the orientation of the conveyor links and the conveyor direction for reassembly. (Figure 5)
3. Lubricate the roller (drive) chain with a few drops of any grade motor or machine oil.
4. Remove and inspect all motor brushes and replace if less than 1/4" (6mm) is left.
5. **CAUTION: DISCONNECT POWER BEFORE OPENING PANEL.** Retighten the screw lugs on the main power wires at the main terminal block or contactor inside the control box. Check that other electrical connections are still tight. Check that fuse block wire connection screws are tight.

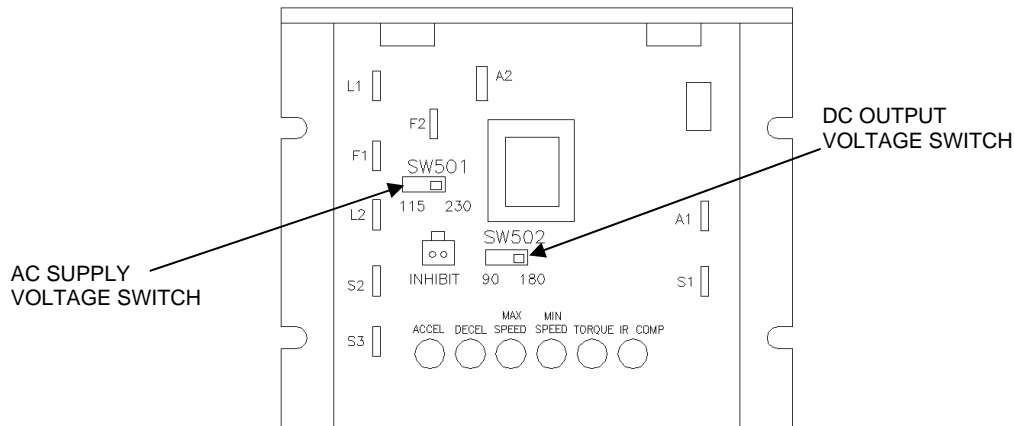
**INVENTORY THE SPARE PARTS KIT (IF APPLICABLE) AND ORDER MISSING PARTS AS NEEDED. KEEP A COMPLETE SET OF PARTS ON HAND AT ALL TIMES.**

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### V. MOTOR SPEED BOARDS



It is necessary when installing replacement circuit boards, to check the settings of the AC input switches.

1. Check the product schematic for the correct input voltage (115, 208 or 240).
2. Set AC input switch SW501 to the correct position. If the schematic calls for an input voltage of 115, set switch SW501 to 115. If the schematic call for an input voltage of 208-240, set switch SW501 to 230.

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## VI. TROUBLE SHOOTING

This section contains a list of possible problems with your Autobroil. By locating the problem in this section, you may be able to make a quick repair. **ALL ELECTRICAL TROUBLE SHOOTING INVOLVING ACCESS INTO THE MOTORS OR ELECTRICAL ENCLOSURES MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN.**

**\* INSTRUCTIONS MARKED WITH ASTERISKS SHOULD BE PERFORMED BY AUTHORIZED SERVICE PERSONNEL.**

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>1. MACHINE HAS POWER BUT ELEMENTS ARE OUT.</b>	A. Check to make sure that broiler is turned on and that the correct voltage is coming out of switch (See Electrical Schematic) B. Check the power is passing through the solid state relays. C. Check wiring to individual elements D. Check fuses to each element. E. Check elements	A. Turn broiler on. B. Replace bad relay(s). C. Tighten wires to element connections. D. Replace fuses. E. Replace elements
<b>2. CONVEYOR CHAIN WILL NOT MOVE.</b>	A. Check for object caught in conveyor, causing a jam. *B. Check speed board fuse (Refer to Wire Map). *C. Check 10 amp control fuse (Refer to Wire Map). D. Check to see if motor shaft is moving. *E. Check switch to make sure power is flowing through it. *F. Connect motor control leads to an operating motor speed control board.	A. Remove object. B. Replace if blown and turn broiler off and on. C. Replace if blown D. Sprocket needs to be tightened. E. Replace switch. F. If motor runs, replace motor control board. If motor still does not run, replace motor.
<b>3. CONVEYOR RUNS BUT SPEED IS CONSTANT</b>	*A. There are five parts to the motor system. They are the motor, the circuit board, the rotary speed control and the fuse mounted on the side of the control cabinet. The most likely problem would be a blown fuse.	A. Using spare parts, replace one part at a time until the trouble spot is identified.

**INSTRUCTIONS MARKED WITH AN ASTERISK (\*) SHOULD BE PERFORMED BY AUTHORIZED SERVICE PERSONNEL**

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PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>4. REPEATED MECHANICAL BINDING.</b></p>	<p>A. Check to see that chain is not on backward</p> <p>B. Inspect chain closely for bent or warped links that may be snagging and causing a binding condition. Also check that the chain links are not climbing out of the sprockets as the conveyor rotates.</p> <p>C. Make sure the axle assembly is clean and free of grease and food residue to allow smooth movement of the conveyor.</p> <p>D. Check the axle assembly to make certain all set collars, bearings, etc. is properly positioned and secure.</p> <p>E. Disassemble conveyor axle assembly and check condition of bushings and bearings for excessive wear.</p> <p>F. Visually inspect the motor drive chain assembly for smooth rotation of chain.</p> <p>G. Make sure conveyor is not catching on meat stripper. See Figure 3.</p>	<p>A. See proper chain installation on Figure 5.</p> <p>B. Straighten or replace bad links. Season new links with cloth saturated with shortening before broiler reaches full operating temperature.</p> <p>C. Clean axle. See Figure 5.</p> <p>D. Reposition and secure as needed.</p> <p>E. Replace if worn or damaged.</p> <p>F. Make certain there are no binding or worn components</p> <p>G. Straighten bent stripper.</p>
<p><b>5. MEAT DOES NOT COOK COMPLETELY.</b></p>	<p>A. Check to make sure tube bundle is clean.</p> <p>B. Check to make sure the heat shield is installed (Figure 2)</p> <p>C. Check to make sure all elements are working. If not, check fuses in the control cabinet that protects the elements.</p> <p>D. Check the speed of the conveyor.</p> <p>E. Check refrigeration of meat. Holding temperature of meat may be lower than 0°F (-18°C)</p> <p>F. Check for excessive exhaust by momentarily turning exhaust fan off.</p> <p>G. Check setting on temperature controller</p>	<p>A. Clean tube bundle with wire brush.</p> <p>B. Install heat shield.</p> <p>C. Replace fuses and/or heating elements.</p> <p>D. Adjust speed.</p> <p>E. Adjust product storage temperature.</p> <p>F. Not applicable.</p> <p>G. Adjust temperature</p>

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PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>6. CANNOT MAINTAIN CONSISTENT TEMPERATURE DURING COOKING.</b>	<p>A. Check that tube bundles are being cleaned in accordance with Item 6 in Section IV.</p> <p>B. Check store power supply for large voltage variation. A 5% swing in voltage will require more than a 5% change in speed to counteract.</p> <p>C. Meat of different temperatures is being used. (Frozen vs. partially thawed.)</p> <p>D. Check for excessive exhaust by momentarily turning off exhaust fan.</p> <p>E. Check to make sure the heat shield is installed (Figure 2)</p> <p>F. Check to make sure all elements are working. If not, check fuses in the control cabinet that protects the elements.</p>	<p>A. Clean tube bundles with wire brush.</p> <p>B. Not applicable.</p> <p>C. Adjust product storage temperature.</p> <p>D. Replace bad or damaged exhaust fan.</p> <p>E. Install heat shield.</p> <p>F. Replace fuses and/or heating elements.</p>
<b>7. MEAT OVERCOOKED ON OUTSIDE AND UNDERCOOKED ON INSIDE</b>	<p>A. Check refrigeration of meat. Holding temperature of meat may be lower than 0°F (-18°C).</p> <p>B. Check that tube bundles are being cleaned in accordance with Item 6 in Section IV.</p>	<p>A. Adjust product storage temperature.</p> <p>B. Clean tube bundles with wire brush.</p>
<b>8. MEAT NOT SLIDING INTO HAMBURGER CATCH AREA.</b>	<p>A. Meat stripper (Figure 3) needs cleaning.</p> <p>B. Meat stripper needs adjustment.</p> <p>C. Wire grate missing.</p>	<p>A. Clean meat stripper.</p> <p>B. Adjust meat stripper.</p> <p>C. Install wire grate.</p>
<b>9. BUNS WILL NOT GET HOT ENOUGH</b>	<p>*A. Check toaster elements electrical power.</p> <p>B. Check temperature set point.</p> <p>*C. Check element connections to top of toaster platens</p> <p>*D. Check the sensor to make sure it is inserted into side of platen.</p>	<p>A. Check temperature control power output.</p> <p>B. Adjust set point as needed.</p> <p>C. Tighten</p> <p>D. Remove control cabinet lid and push sensor into position.</p>
<b>10. BUNS WILL NOT FEED CORRECTLY.</b>	<p>A. Check for buildup of black residue on wire rack caused by improper cleaning.</p>	<p>A. See cleaning instructions under Daily Cleaning Procedure.</p>

**INSTRUCTIONS MARKED WITH AN ASTERISK (\*) SHOULD BE PERFORMED BY AUTHORIZED SERVICE PERSONNEL**

# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL



The following Error Messages are associated with the touch screen controls:

PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>11. "TOO HOT" ERROR MESSAGE</b></p> <p>The broiler and/or toaster chamber temperature has risen above the acceptable program to cook reliably.</p>	<p>A. Bad solid state relay.</p> <p>B. Bad I/O board</p>	<p>A. Replace proper solid state relay</p> <p>B. Replace I/O board</p>
<p><b>12. "TOO COOL" ERROR MESSAGE</b></p> <p>The broiler and/or toaster chamber temperature has fallen below the acceptable program to cook reliably.</p>	<p>A. Hang on covers/parts not in place</p> <p>B. Failed element fuse</p> <p>C. Bad element</p> <p>D. Bad solid state relay</p> <p>E. Bad contactor</p> <p>F. Loose wire or connection</p>	<p>A. Install parts correctly</p> <p>B. Replace fuse</p> <p>C. Replace element</p> <p>D. Replace solid state relay</p> <p>E. Replace contactor</p> <p>F. Check wire connections</p>
<p><b>13. "CHAMBER TC1 ERROR" ERROR MESSAGE</b></p> <p>Chamber TC1 (electrical chamber - top) is not providing proper temperature.</p>	<p>A. Loose thermocouple</p> <p>B. Failed thermocouple</p>	<p>A. Fix wiring connection</p> <p>B. Replace thermocouple</p>
<p><b>14. "CHAMBER TC2 ERROR" ERROR MESSAGE</b></p> <p>Chamber TC2 (electric chamber – bottom) is not providing proper temperature.</p>	<p>A. Loose thermocouple</p> <p>B. Failed thermocouple</p>	<p>A. Fix wiring connection</p> <p>B. Replace thermocouple</p>
<p><b>15. "FOOD PROBE ERROR" ERROR MESSAGE</b></p> <p>The food probe is not providing proper temperature.</p>	<p>A. Food probe is not connected</p> <p>B. Failed food probe</p>	<p>A. Plug in food probe</p> <p>B. Replace food probe</p>
<p><b>16. "CHAMBER TC4 ERROR" ERROR MESSAGE</b></p> <p>Chamber TC4 (toaster chamber) is not providing proper temperature.</p>	<p>A. Loose thermocouple</p> <p>B. Failed thermocouple</p>	<p>A. Fix wiring connection</p> <p>B. Replace thermocouple</p>
<p><b>17. "TACH # ERROR" ERROR MESSAGE</b></p> <p>Motor # is not providing proper feedback.</p>	<p>A. Check for object caught in conveyor causing a jam</p> <p>B. Check motor # .5amp fuse inside of the control cabinet</p>	<p>A. Remove object</p> <p>B. Turn broiler off, replace fuse and turn broiler back on.</p>

# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL



PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>17. "TACH # ERROR" ERROR MESSAGE</b>  Motor # is not providing proper feedback.	C. Check to see if motor shaft is moving D. Check control circuit fuse E. Connect motor control leads to an operating motor speed control board.	C. Sprocket set screw needs to be tightened. D. Replace if blown E. If motor runs, replace motor control board. If motor still does not run, replace motor.
<b>18. "RECOVERY ERROR" ERROR MESSAGE</b>  The broiler did not reach temperature set points in a predictable time frame.	A. Pilot flame goes out B. Burner will not light at all C. Toaster will not get hot enough	A. See table problem 3 B. See table problem 4 C. See table problem 9
<b>19. "EEPROM CORRUPT ERROR" ERROR MESSAGE</b>  Retrieving some stored parameters has failed.	A. No USB drive is connected B. USB drive is corrupted C. USB drive is full	A. Insert USB drive into USB port B. Insert new USB drive C. Remove files from USB drive and try again

## VII. ASSEMBLY & DISASSEMBLY INSTRUCTIONS

- To Replace the Heating Elements:
  - Disconnect power to the broiler.
  - Remove the access cover on the element box on the top right side of the broiler.
  - Disconnect the wires to the element to be replaced.
  - Remove the screws attaching the access cover on the left side of the broiler.
  - Pull the element out of the broiler through the slot in the side of the broiler.
  - Insert a new element, being careful to position the element rods through the central support.
  - Reconnect wiring and install covers.
  - Connect power and test operation.
- When replacing the thermocouple which attaches controller, make certain it is inserted through side wall of machine into cooking chamber into elements with clip (See Figure 3).
- To properly set the clearance between the meat stripper and the conveyor chain, the machine must be HOT. Loosen the bolts holding the brackets to the sides of the unit and adjust their position until the top edge of the stripper is within 1/16" (2mm) of the hot conveyor. See Figure 3 and Figure 5.

**WARNING: THIS APPLIANCE IS NOT CAPABLE OF BEING SAFELY PLACED INTO OPERATION DURING A POWER FAILURE AND NO ATTEMPT TO OPERATE IT SHOULD BE MADE.**

# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL



## VI. REPLACEMENT PARTS

When ordering parts, make sure to specify the machine model number, and serial number as shown by the label attached to the right side cover. See separate sections below for models 2424 and 121224.

PART #	DESCRIPTION	QUANTITY PER UNIT	FIGURE
127028	Arm, Toaster, LH	1	3
117248	Arm, Toaster, RH	1	3
101357	Bearing, 3/4" bore	4	4, 5
100977	Bearing, 1" bore (CP4INTLCE Only)	1	4
124578	Bearing, Idler 1.250" OD x .500 ID	2	8, 10
116090	Bearing, Idler 1.626 Dia., 500 DEG F	2	3
124677	Bracket, Arm Bearing	2	3
500035	Chain, Roller	4.3 FT	4
500033	Chain Pliers	1	6
118041	Channel, Grease Drain	1	3
141643	Circuit Board, (Speed Control) 230V Input	2	Schematic
504285	Control, I/O Board	1	Schematic
167170	Control, Touch Screen (CP3 Only)	1	Schematic
167180	Control, Touch Screen (CP4INTLCE Only)	1	Schematic
124676	Conveyor Arm, LH (For 9 1/2" loading arms)	1	3
132579	Conveyor Arm, RH (For 9 1/2" loading arms)	1	3
121696	Conveyor Wiper Asby, 2424	1	3
127673	Conveyor Wiper Asby, 121224	1	3
500025	Conveyor, 12" (Broiler Section) 70.25" Long, each conveyor. Order conveyor belt by the foot.		2
500027	Conveyor, 24" (Toaster Section) 70.25" Long. Order conveyor by the foot.		2
500027	Conveyor, 24" (Broiler Section) 72.50" Long. Order conveyor by the foot.		2
128147	Cover, Loading Arm 9.5", Single Belt Broiler	1	2, 8
124685	Cover, Loading Arm 9.5", Dual Belt Broiler	1	9
130440	Cover, Element Lower	1	3
130694	Cover, Heat Tunnel	1	3
121658	Cover, Toaster Arm, LH	1	2
127027	Cover, Toaster Arm, RH	1	2
118529	Crosstube, .5" Dia. x 24.563"	1	3
116084	Crosstube, .5" Dia. x 24.875"	2	3, 8
145727	Element w/ Thermocouple Clip (includes element 503366)	2	Schematic
503366	Element, 1350W 208V	9	3, Schematic
144139	Fan, Cooling	2	Schematic
130446	Filler, Tunnel	1	2

# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL



PART #	DESCRIPTION	QUANTITY PER UNIT	FIGURE
503574	Filter, Electrical Noise (CE Broilers Only)	1	Schematic
500218	Foot, Bullet	4	Not Shown
501318	Fuse, Non 20 amps (CP3 Only)	12	Schematic
501318	Fuse, Non 20 amps (CP4INTLCE Only)	11	Schematic
502739	Fuse, AGC 10 amps (CP3 Only)	2	Schematic
502739	Fuse, AGC 10 amps (CP4INTLCE Only)	1	Schematic
501139	Fuse, AGC .5 amps (CP3 Only)	2	Schematic
501139	Fuse, AGC .5 amps (CP4INTLCE Only)	1	Schematic
500061	Fuse, AGC 1.5 amps (CP3 Only)	1	Schematic
503193	Fuse, GMA-3 3 amps (CP4INTLCE Only)	2	Schematic
504207	Fuseblock, 3 Pole, for Element Fuses	4	Schematic
500069	Fuseblock, 2 Pole, with Quick Disconnect Terminals (CP3 Only)	2	Schematic
500069	Fuseblock, 2 Pole, with Quick Disconnect Terminals (CP4INTLCE Only)	1	Schematic
500068	Fuseholder, Panel Mount (CP3 Only)	1	Schematic
503099	Fuseholder, Panel Mount, for speed board fuse (CP4INTLCE Only)	2	Schematic
500732	Ground Lug	1	Schematic
136555	Guard, Front Tunnel	1	2
123832	Guard, Heat, Loading Arm Cover	1	2, 8, 9
118426	Guard, Motor Sprocket	1	4
118702	Guard, Rear Tunnel	1	2
118425	Guard, Spark	1	2, 7
145749	Heat Shield, Tunnel Top	1	2
122551	Idler, 1.688" OD, .755" ID	2	3, 8, 10
118402	Insert, Broiler Catch Pan	1	2
124675	Kit, Conveyor Arm, Broiler	1	8
148549	Kit, Motor Brush (Includes 2 motor brushes)	1	N/A
501827	Knob with Stud, Toaster Platen Adjustment	2	4
136519	Meat Stripper 2424	1	3
130442	Meat Stripper 121224	1	3
119531	Meat Stripper Hanger, LH	1	3
119530	Meat Stripper Hanger, RH	1	3
503980	Module, Speed Control	1	Schematic
500940	Motor, Drive 90 VDC (CP3 Only)	1	Schematic
500940	Motor, Drive 90 VDC (CP4INTLCE Only)	2	Schematic
117234	Motor Mounting Bracket	1	4
121625	Mount, Motor Idler	1	4
131398	Mount, Motor Pick-Up (CP3 Only)	1	4
131398	Mount, Motor Pick-Up (CP4INTLCE Only)	1	4

# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL



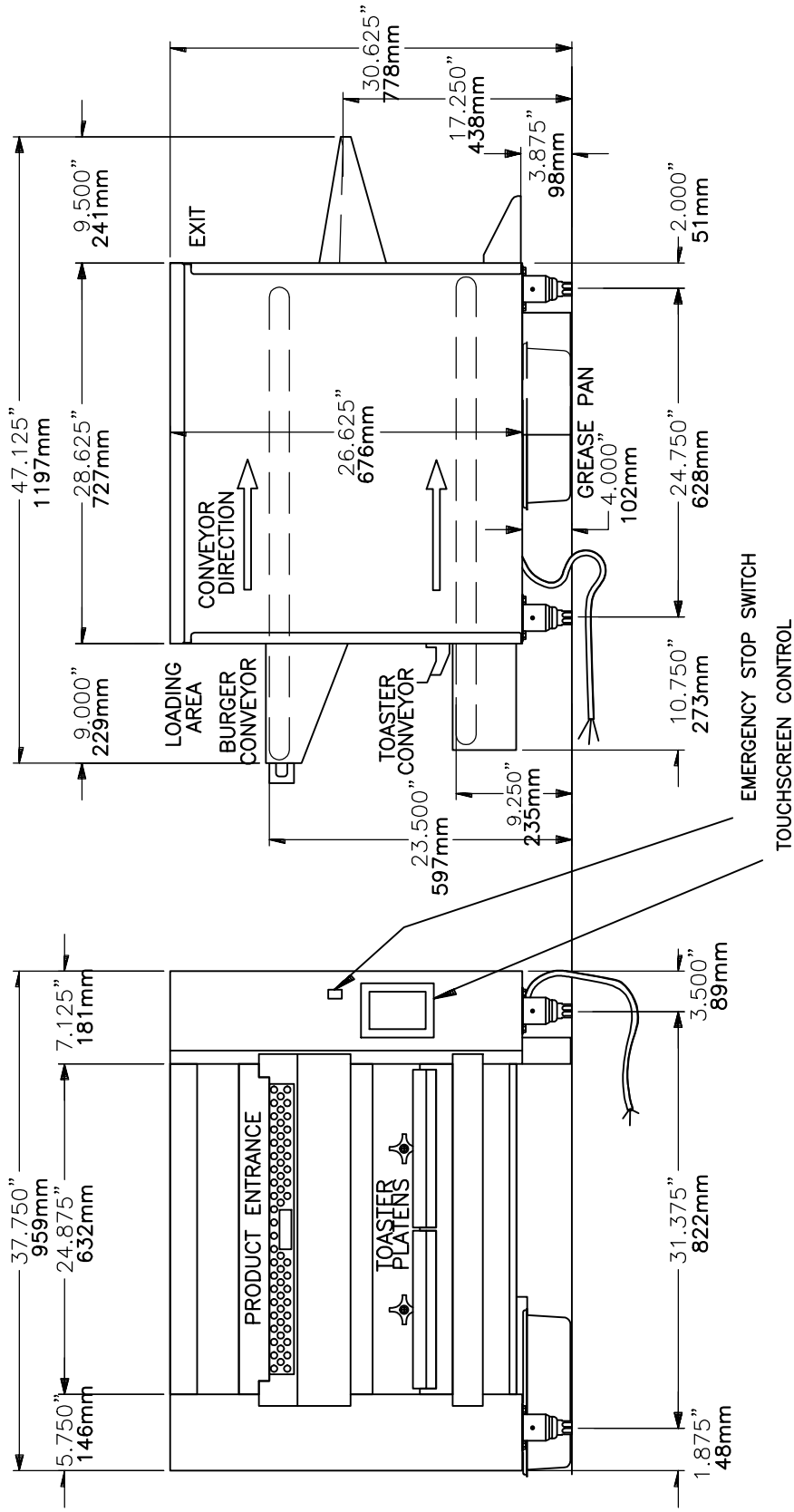
PART #	DESCRIPTION	QUANTITY PER UNIT	FIGURE
124662	Pan, Grease	1	2
157572	Pan, Half Size Pan, 4" Deep	1	2
123879	Pan, Hamburger Catch	1	2
501991	Pick-Up, Motor (CP3 Only)	1	Schematic
501991	Pick-Up, Motor (CP4INTLCE Only)	2	Schematic
120029	Pin, Conveyor Support	1	4
118731	Plate, Bearing Backup	4	4, 5
130809	Reflector, Heat Tunnel	3	13
500211	Relay, 3 Pole Contactor	2	Schematic
504105	Relay, Solid State 75A	5	Schematic
100367	Scraper, Axle	1	6
129746	Set Collar, .505" Dia. 500117	2	4
128489	Set Collar, .755" Dia.	1	3
500518	Set Collar, .250" ID (CP4INTLCE Only)	2	5
500118	Set Collar, 0.750" ID (CP4INTLCE Only)	1	5
128487	Shaft, Drive, Broiler	1	4
123844	Shaft, Drive, Toaster	1	4
120030	Shaft, Conveyor Idler, Broiler	1	3, 8, 10
116088	Shaft, Conveyor Idler, Toaster	1	3
108582	Sheet, Toaster Platen	2	4
118007	Side Panel	2	2
502809	Spring, 2.750"	4	3
115813	Spring Tensioning Bracket	4	3
116087	Spring Tensioning Rod	4	3
500040	Sprocket, 3510 x ½ (Motor)	2	4
124580	Sprocket, 3512 x ½ (For Idler)	1	4
143366	Sprocket, 3512 x ½ (For Idler) (CP4INTLCE Only)	1	Schematic
124643	Sprocket, 3512 x .750" (Toaster) (CP4INTLCE Only)	1	4
502838	Sprocket, 3515 x .750" (Toaster)	1	4
129210	Sprocket, 3524 x .750" (Broiler)	1	4
502839	Sprocket, 3524 x .750" (Broiler) (CP4INTLCE Only)	1	4
134825	Sprocket, 5010 x ¾ (Drive sprocket for conveyors)	4	5
152705	Sprocket, 5010 x 1 (CP4INTLCE Only)	2	5
501864	Switch, Rocker (Emergency Stop Switch)	1	Schematic
503087	Terminal Strip 12 Pole	1	Schematic
503416	Thermocouple, Type K, Toaster Platen	1	Schematic

# OWNER'S MANUAL

2424, 121224 AUTOBROIL™ WITH TOUCHSCREEN CONTROL

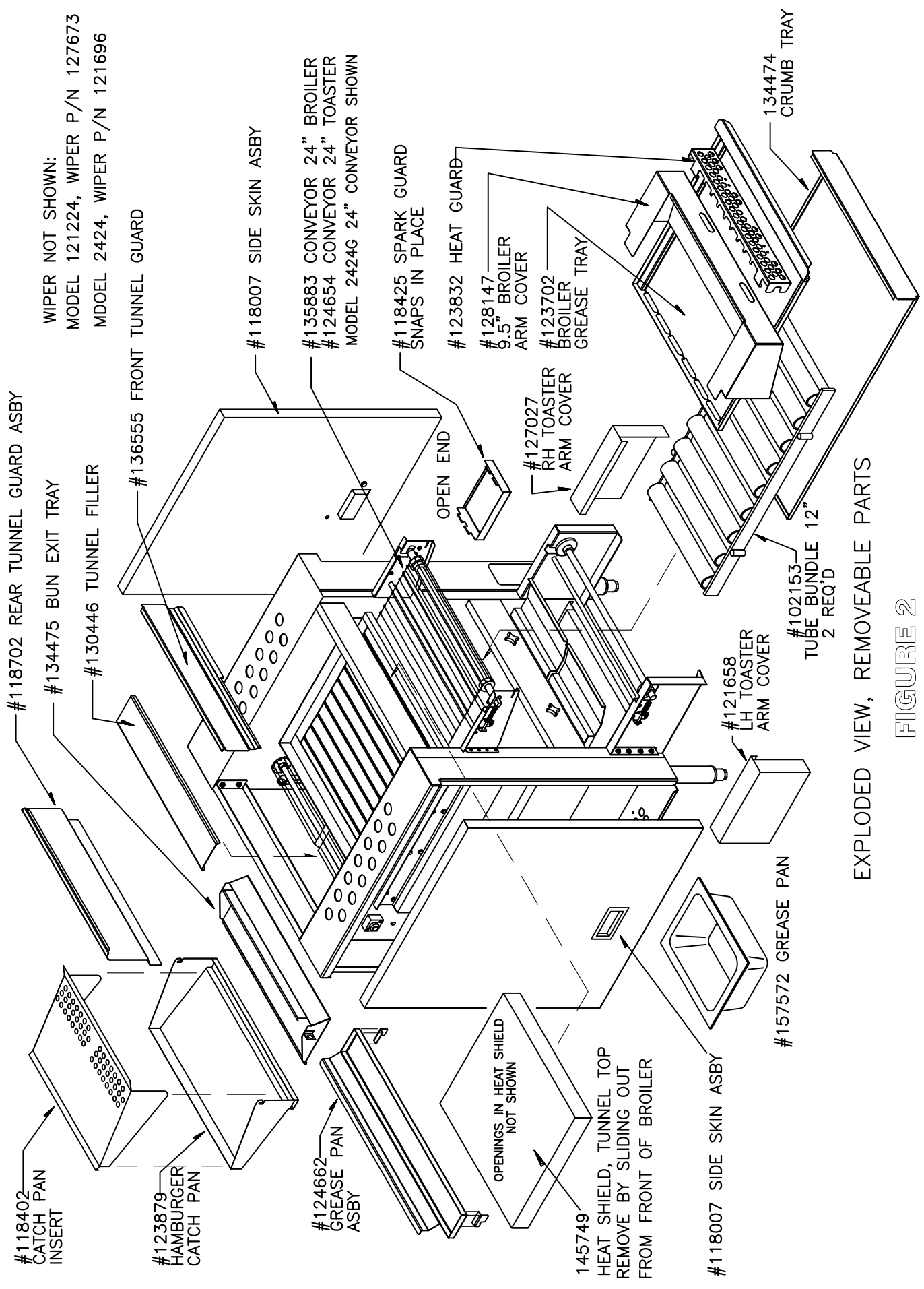


PART #	DESCRIPTION	QUANTITY PER UNIT	FIGURE
152647	Thermocouple Kit, Type K, 36" (For Broiler Section)	2	Schematic
118427	Thermocouple Mount, Toaster Platen	1	11
123844	Toaster Drive Shaft	1	4
501819	Toaster Platen	2	11, 12, Schematic
124655	Toaster Platen, LH (complete assembly)	1	11
124656	Toaster Platen, RH (complete assembly)	1	12
502916	Transformer, 115/230 Primary, 24V Secondary	1	Schematic
134475	Tray, Bun Exit	1	2
118401	Tray, Front Grease Tray	1	N/A
102153	Tube Bundle, 12"	2	2
128320	Washer, 1.000" OD x 0.765" ID (CP4INTLCE Only)	6	5



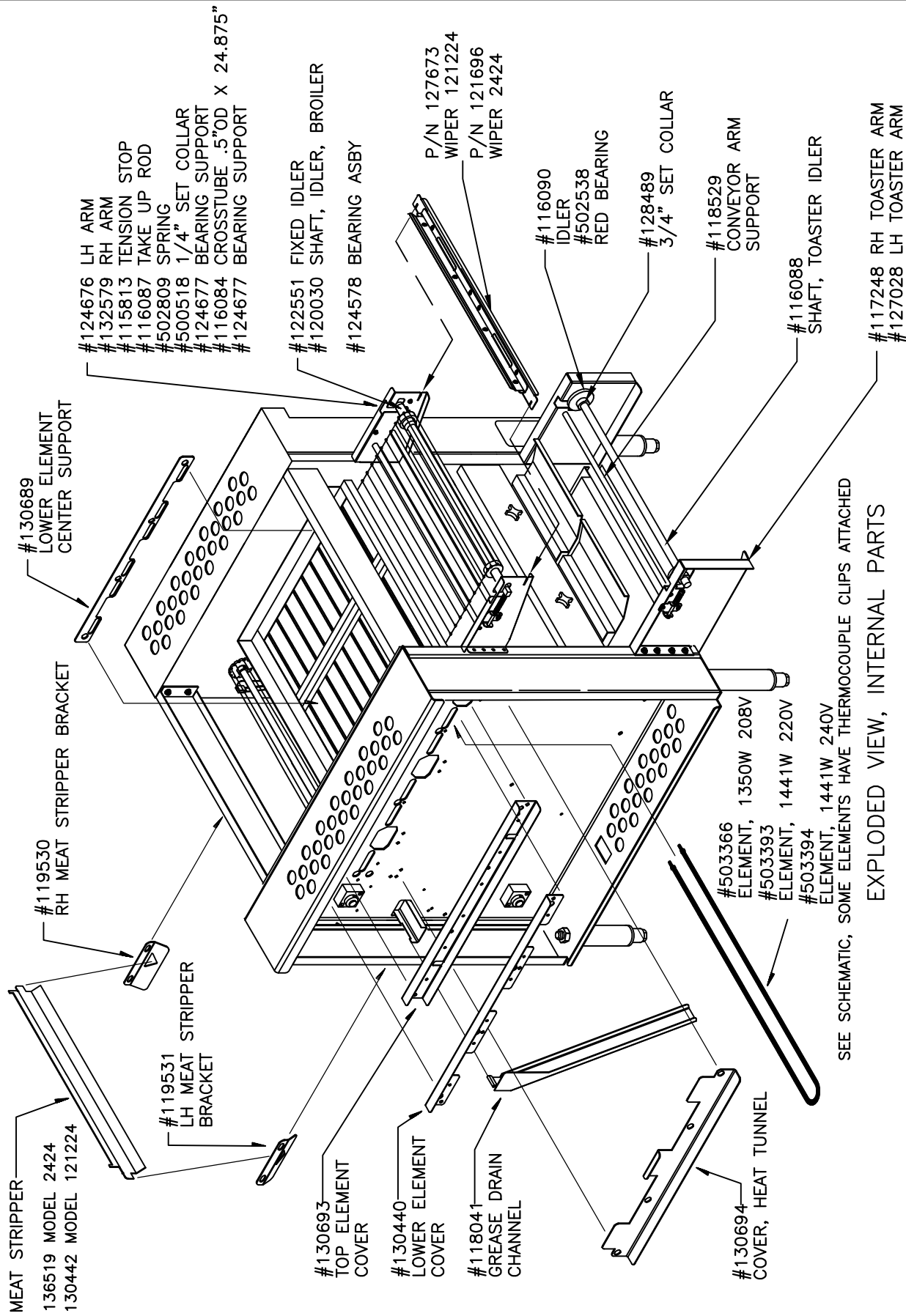
OPTIONAL STAND NOT SHOWN  
 Note: Power cord supplied by others for International Broilers.  
 OVERALL VIEW

FIGURE 1



EXPLODED VIEW, REMOVEABLE PARTS

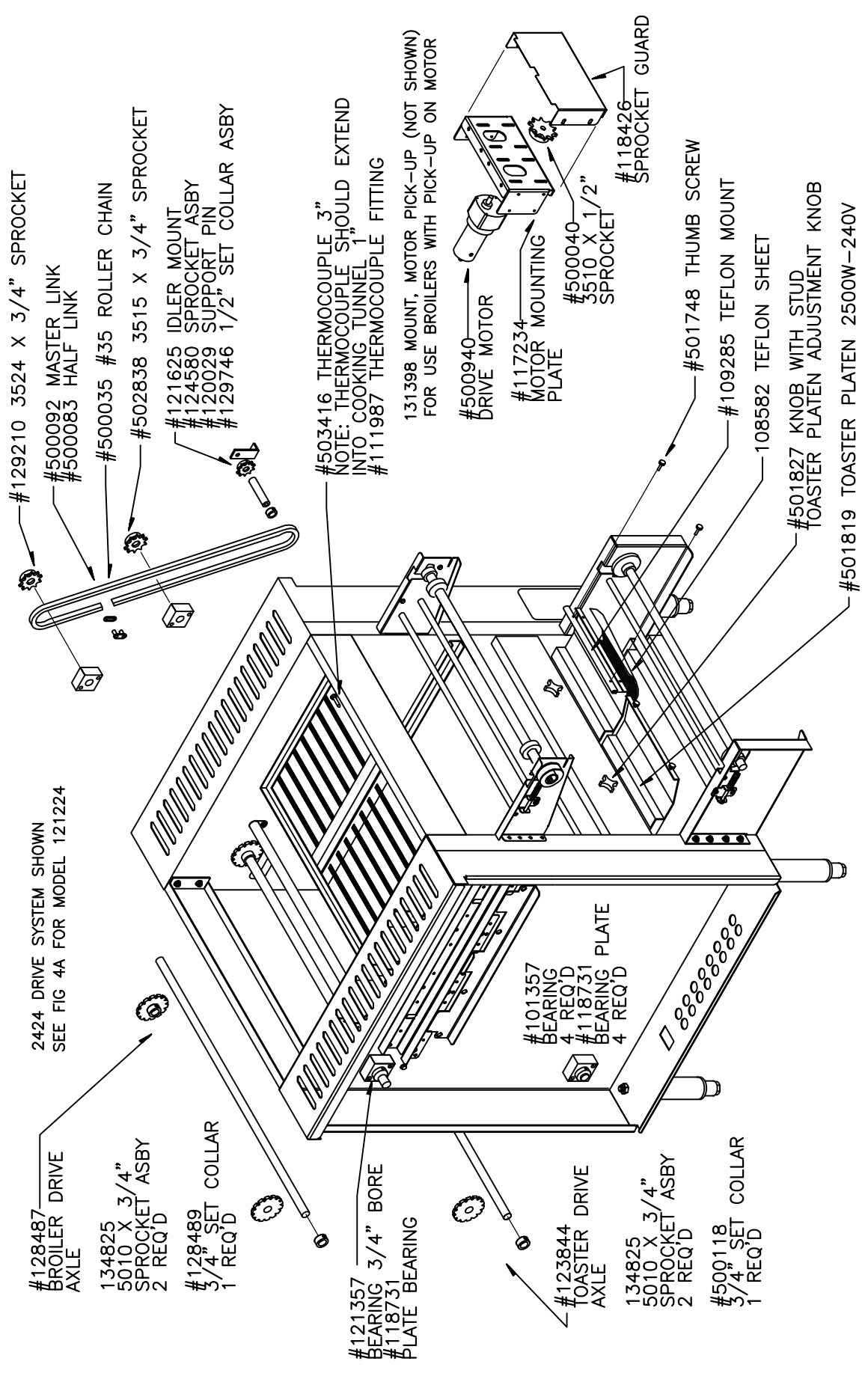
FIGURE 2



SEE SCHEMATIC, SOME ELEMENTS HAVE THERMOCOUPLE CLIPS ATTACHED

EXPLODED VIEW, INTERNAL PARTS

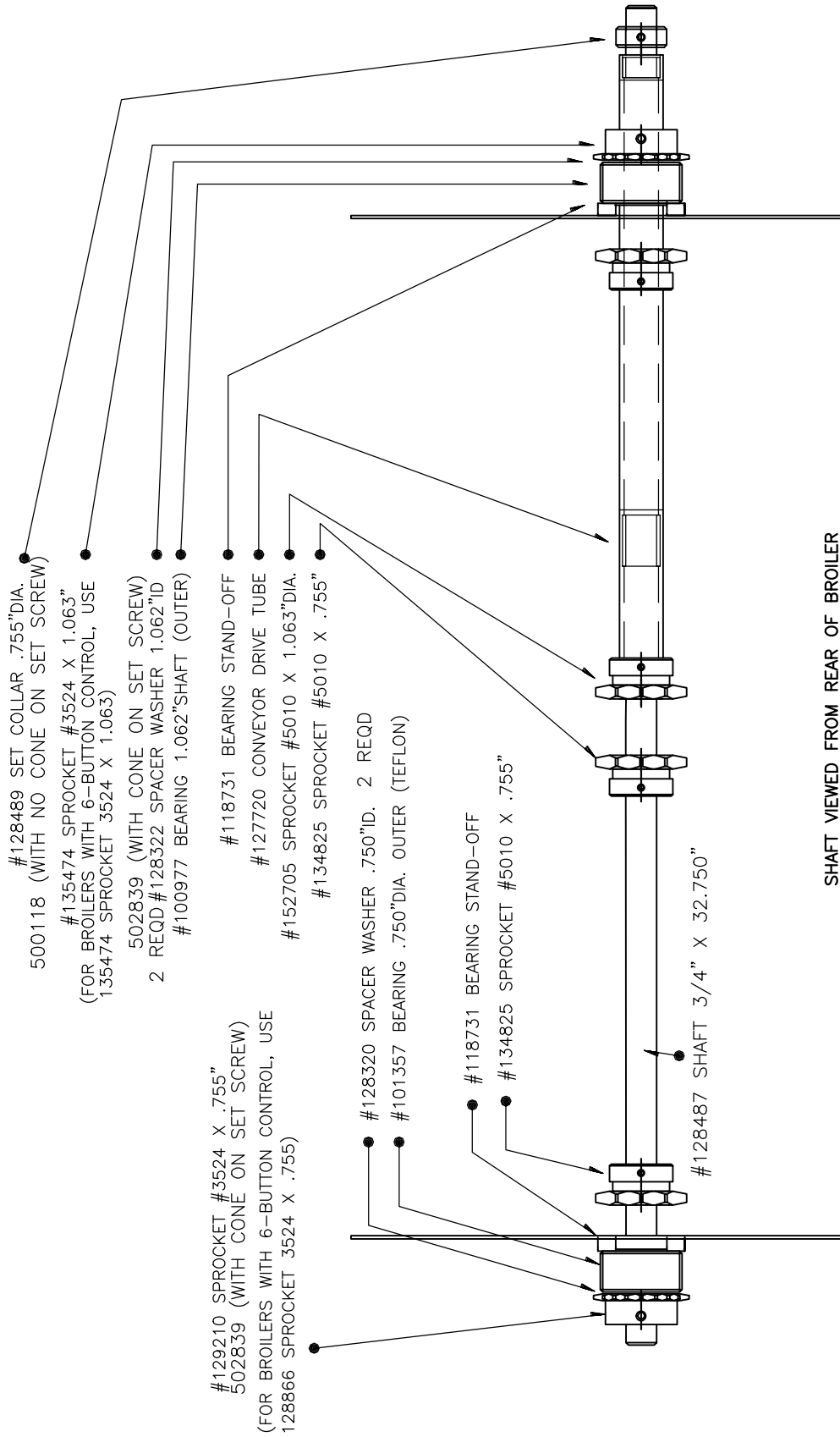
FIGURE 3



NOTE: ELECTRICAL AND GAS COMPONENTS ARE LOCATED ON THE RIGHT SIDE OF UNIT.

DRIVE SYSTEM AND TOASTER PARTS

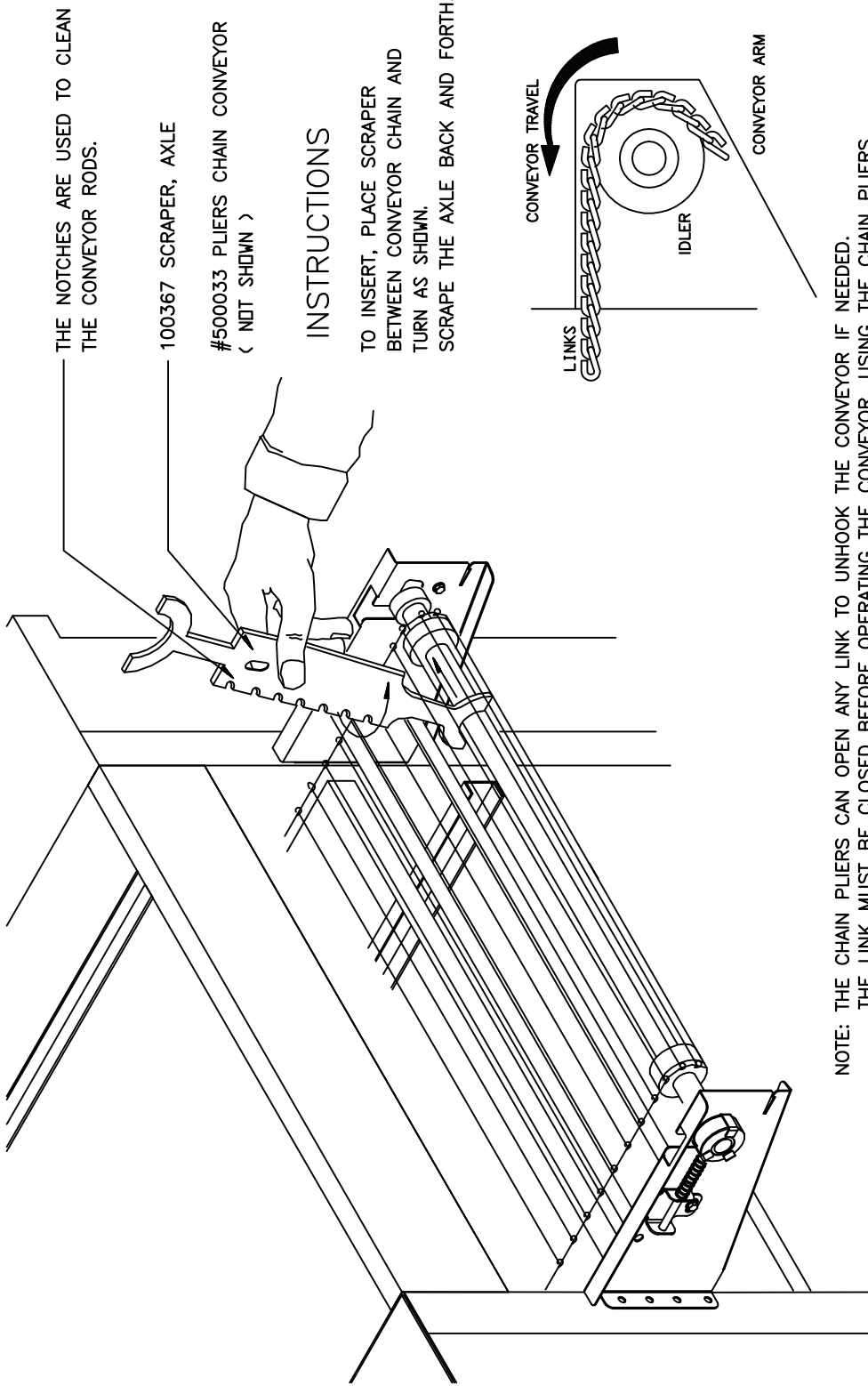
FIGURE 4



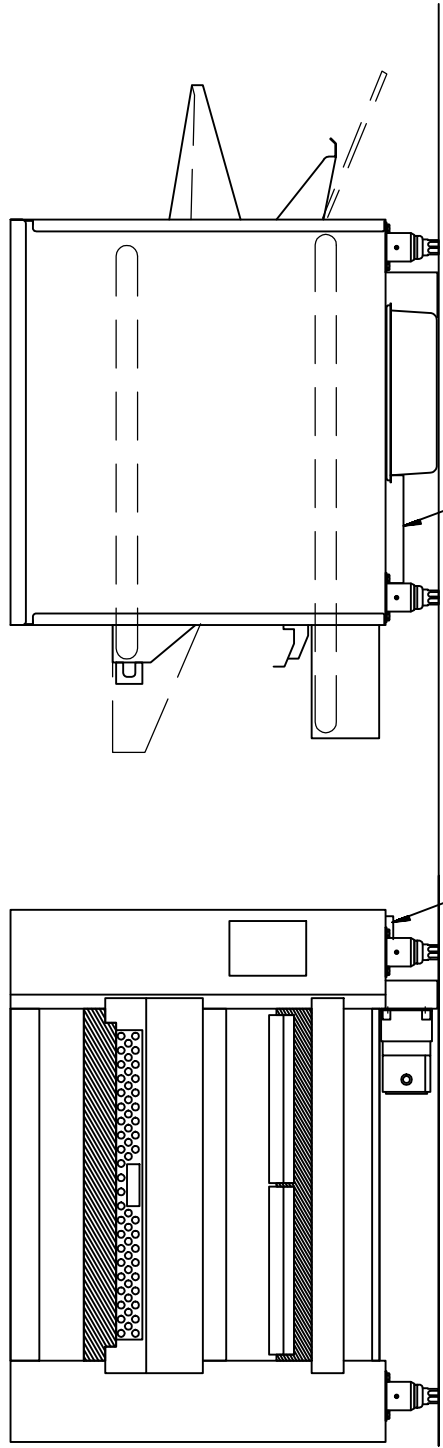
SHAFT VIEWED FROM REAR OF BROILER

DRIVE SYSTEM 121224

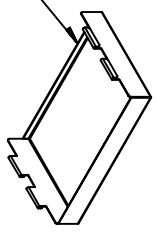
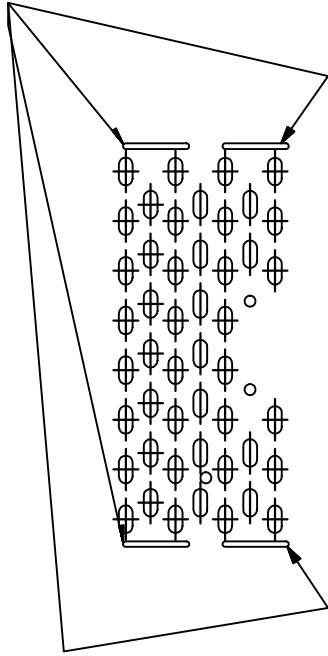
FIGURE 5



AXLE SCRAPER  
FIGURE 6



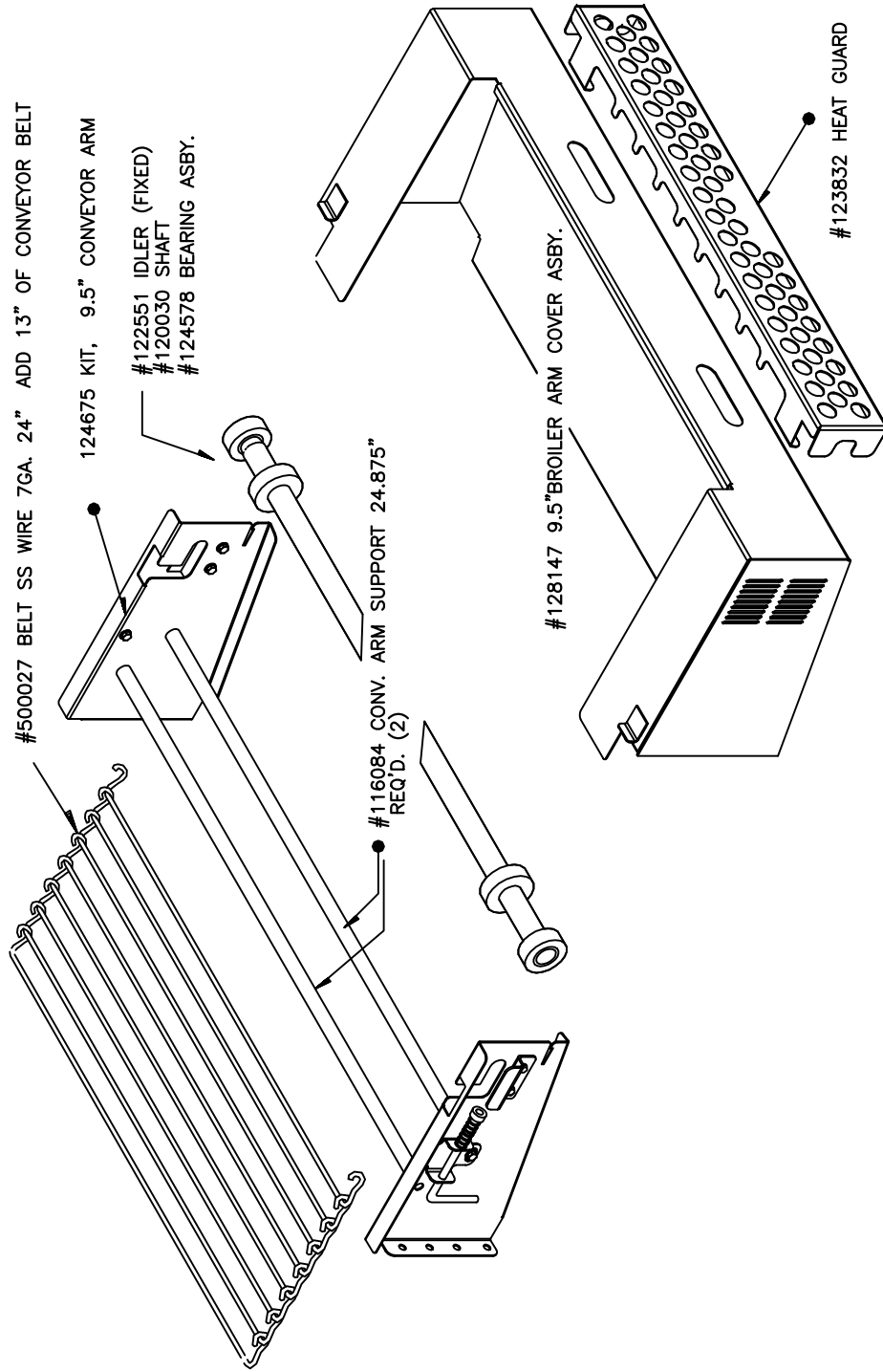
ENLARGED VIEW OF 4 SLOTS ON THE UNDER SIDE OF THE BROILER TO MOUNT THE SPARK GUARD



INSTALLATION INSTRUCTIONS

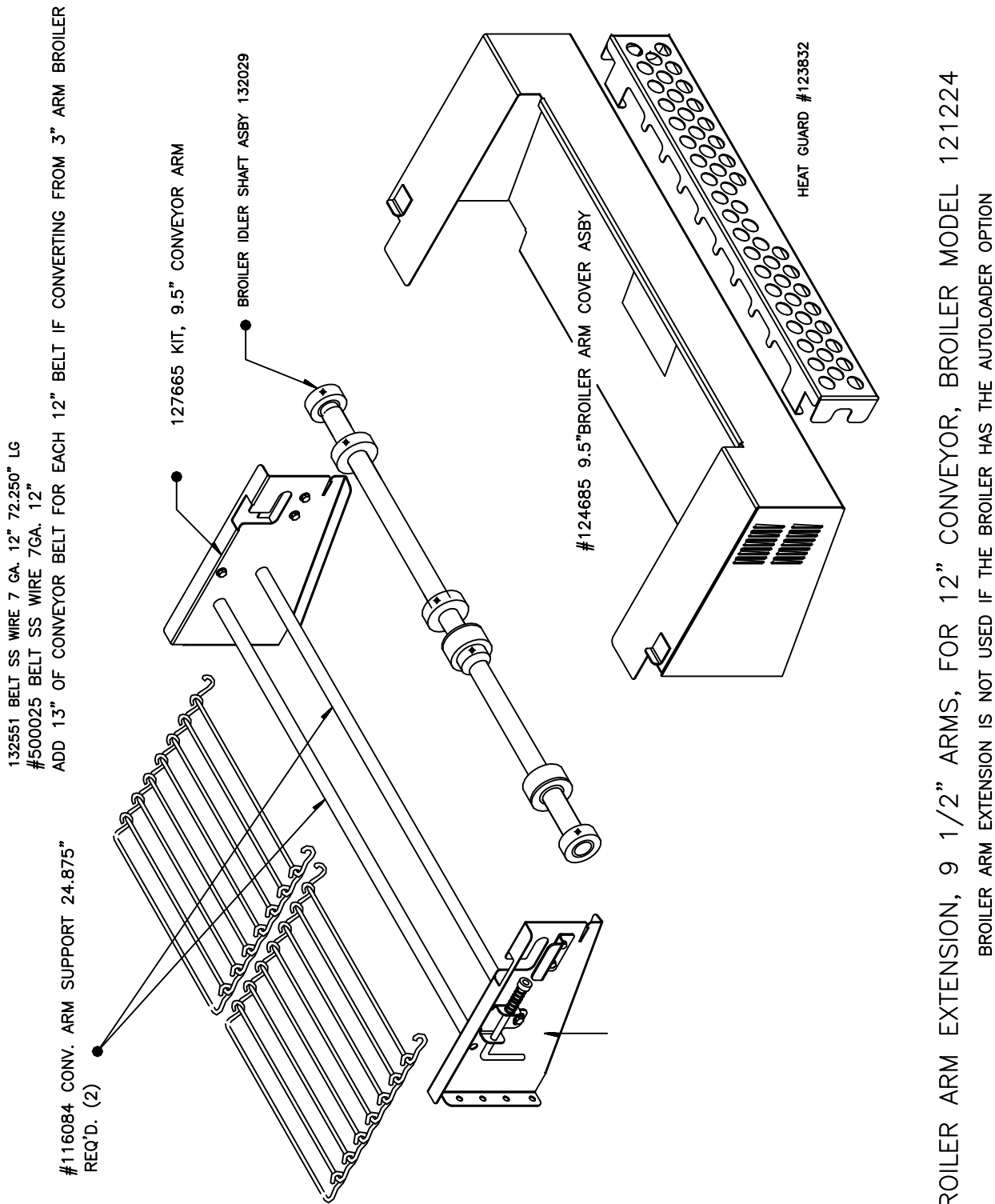
TO INSTALL THE SPARK GUARD INSERT ONE SIDE INTO THE SLOTS ON THE MACHINE THEN PRESS THE OTHER SIDE INTO THE SLOTS UNTIL THE SPARK GUARD CATCHES ON THE TABS.

FIGURE 7



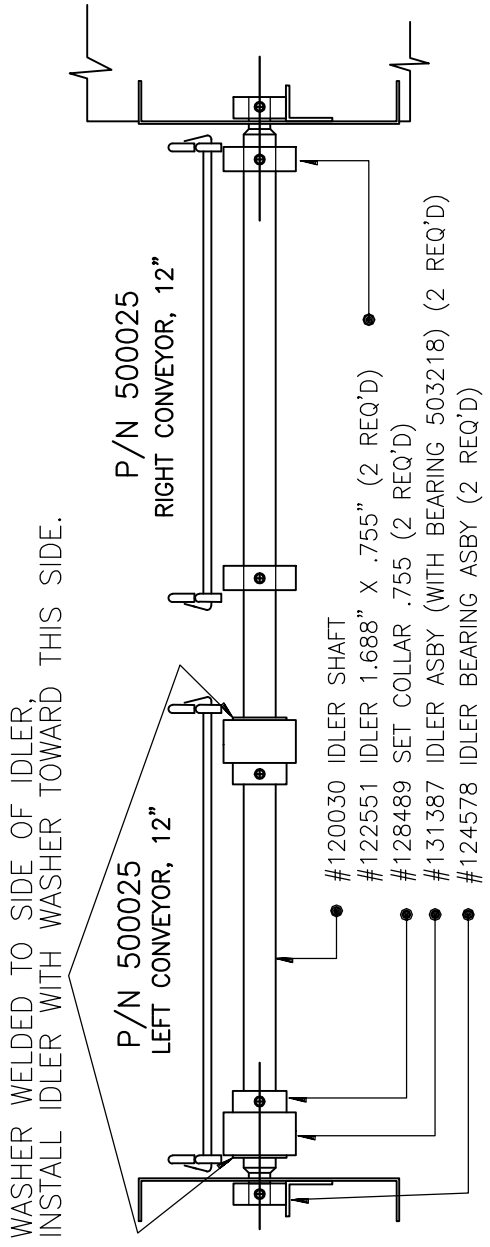
BROILER ARM EXTENSION, 9 1/2" ARMS, FOR 24" CONVEYOR, BROILER MODEL 2424  
 BROILER ARM EXTENSION IS NOT USED IF THE BROILER HAS THE AUTOLOADER OPTION

FIGURE 8



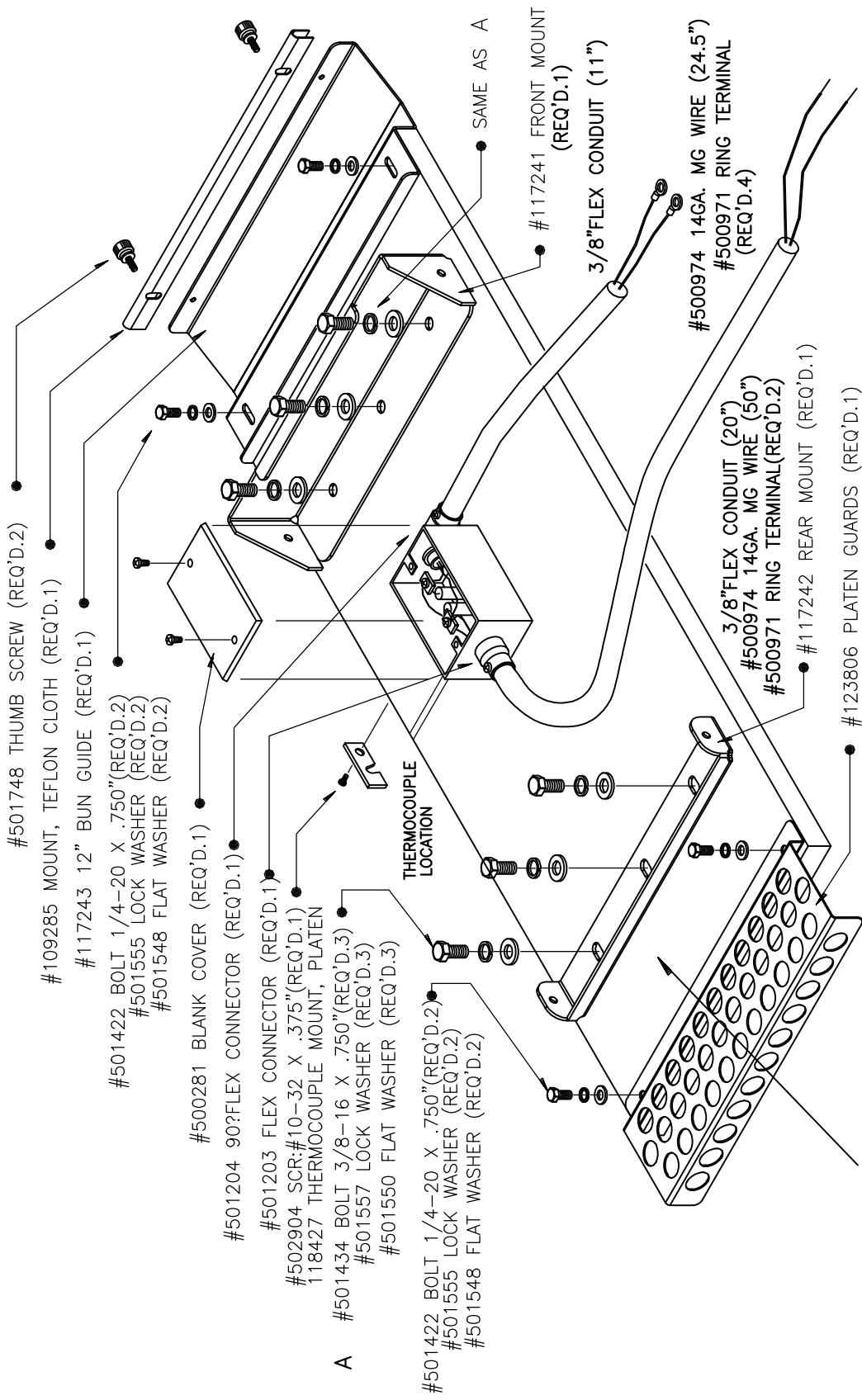
BROILER ARM EXTENSION, 9 1/2" ARMS, FOR 12" CONVEYOR, BROILER MODEL 121224  
 BROILER ARM EXTENSION IS NOT USED IF THE BROILER HAS THE AUTOLOADER OPTION

FIGURE 9



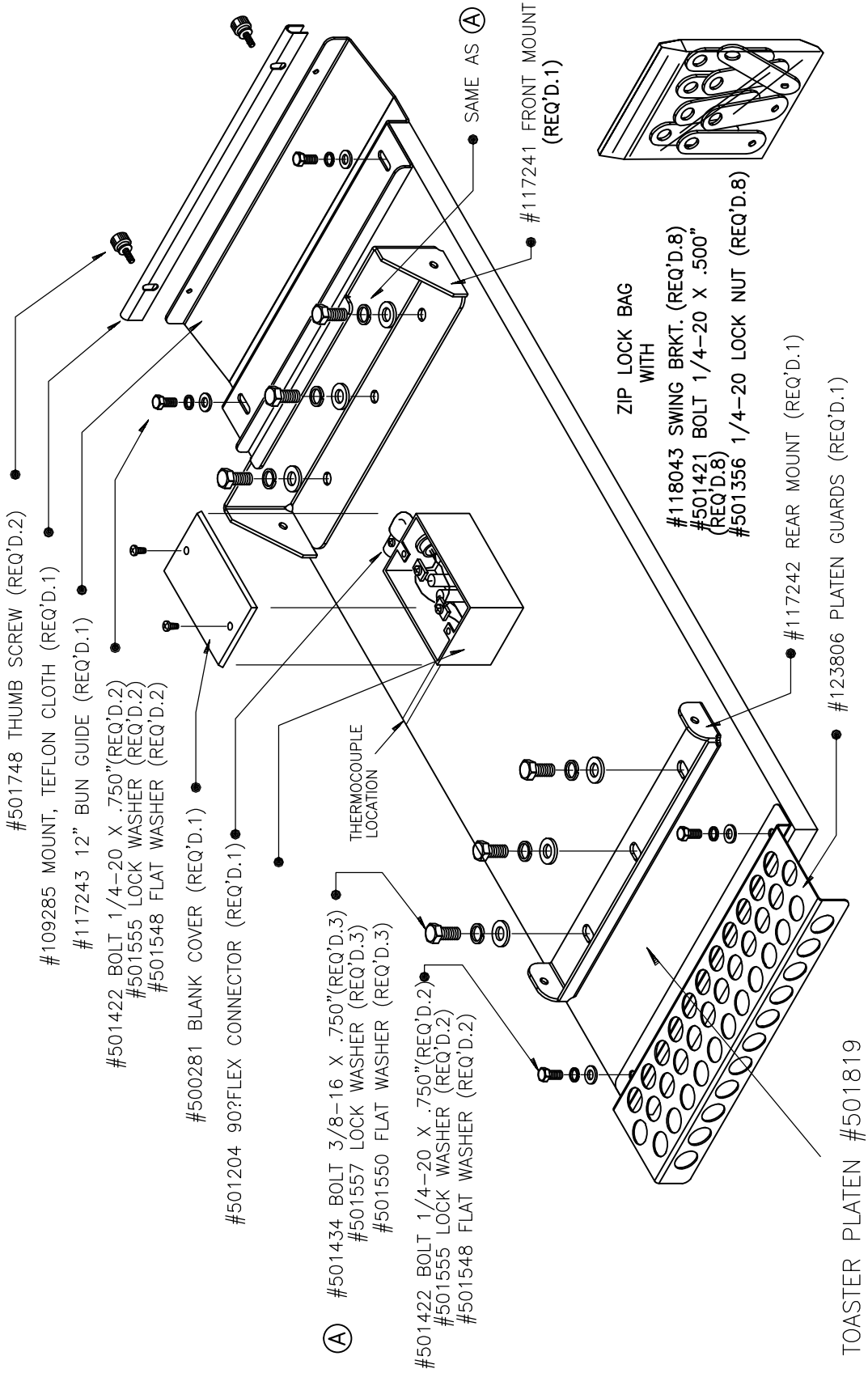
VIEW FROM LOADING END OF BROILER

BROILER IDLER SHAFT ASSEMBLY #132029  
**FIGURE 10**



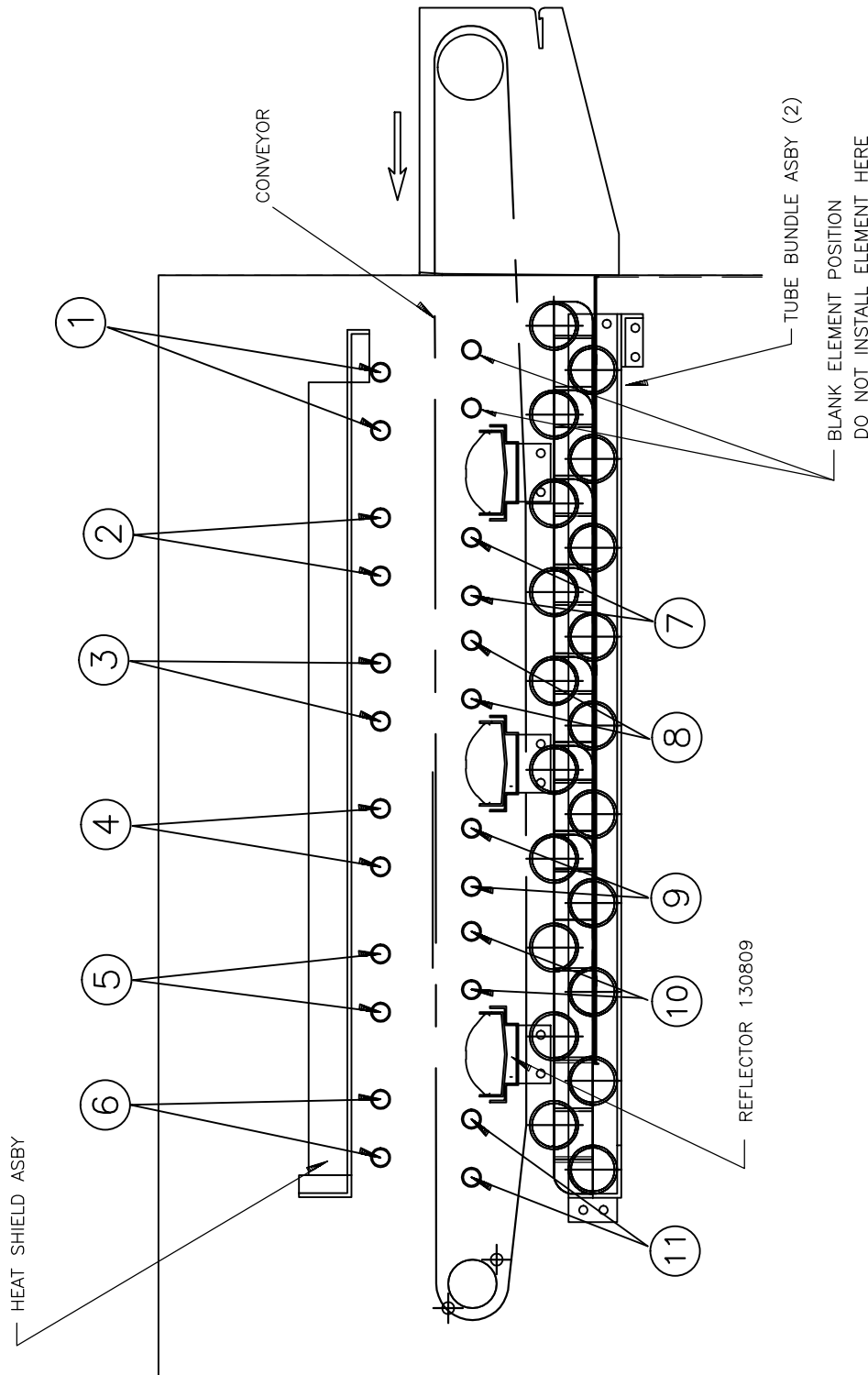
PLATEN ASSEMBLY, LEFT, P/N 124655

FIGURE 11



PLATEN ASSEMBLY, RIGHT P/N 124656

FIGURE 12



11 HEATING ELEMENTS TOTAL, 2 HAVE THERMOCOUPLE CLIPS WELDED TO THE ELEMENTS  
ELEMENTS AT POSITION 2 AND 7 HAVE THERMOCOUPLES ATTACHED.

ELEMENT LOCATIONS  
SECTION VIEW THRU BROILER  
FIGURE 13

# CONTROL QUICK GUIDE

MODEL 2424, 121224 AUTOBROIL™



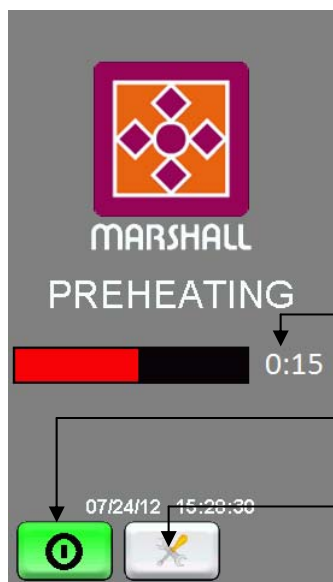
## OFF MODE:

This is the OFF mode home screen. In this mode, the power button is red to indicate that even though the broiler control is powered on, the broiler itself is turned off.

**Power Button:** Press and hold for 2 seconds to turn broiler on. The broiler will go to PREHEATING mode.

**Tools Button:** Press to go to the tools screen to navigate between the different tools. See owner's manual for more details.

**Food Probe Button:** The food probe button is grayed out to indicate that the food probe functionality is inactive while in OFF mode.



## PREHEATING MODE:

This is the PREHEATING mode home screen. The PREHEATING mode allows the broiler to reach temperature set point before cooking. In this mode, the power button is green indicating that the broiler is operating. Once the preheat timer has elapsed, the broiler will go to cook mode.

**Preheat Timer:** The remaining preheat time is displayed in minutes. The red timer bar gives the user a quick reference of the remaining time versus total time.

**Power Button:** Press and hold for 2 seconds to turn broiler off. The broiler will go to COOLING DOWN mode.

**Tools Button:** Press to go to the tools screen to navigate between the different tools. See owner's manual for more details.

# CONTROL QUICK GUIDE

MODEL 2424, 121224 AUTOBROIL™



**READY MODE:** (MODEL 121224 represented in Figure)

This is the READY mode home screen. This screen shows the broiler belt window(s) associated with the top broiler conveyor(s) and the TOASTER belt window associated with the bottom toaster conveyor. Note that the toaster conveyor is linked to the broiler conveyor motor and therefore can not be independently adjusted.

**Broiler Belt Window:**

Each of the broiler window(s) shows the active recipe with the belt name, a representative food icon, the recipe name and the recipe cook time. See **MENU MANAGEMENT** in Owner's Manual for more information about adding, modifying or deleting recipes.

**To change a broiler belt recipe:**

- Press anywhere inside the desired broiler window. The select recipe screen will show up.
- Press on one of the available recipes to select. The controller will get back to the cooking home screen showing the newly selected recipe.

**Toaster Window:**

The TOASTER window displays the temperature set point of the toaster chamber. A press anywhere inside the TOASTER window will display the actual toaster chamber temperature for 8 seconds.

**To change the toaster temperature set point:**

- Press anywhere inside the TOASTER window for 5 seconds. A numeric pad screen will show up asking for a password, enter "1423" and press the enter button.
- After entering the password, "Enter Toaster Set Point" screen will show up. Enter new set point and press enter to save. To cancel, press the back or home button.

**Food Probe Button:**

- Press to go to the live food probe screen and take live temperature readings of food products. See owner's manual for more details.
- Press and hold to go to the food probe log screen where the user can record temperature measurements for the different food products. Those temperature measurements can later be retrieved using a USB flash drive. See owner's manual for more details.

**Tools Button:** Press to go to the tools screen to navigate between the different tools. See owner's manual for more details.

**Power Button:** Press and hold for 2 seconds to turn broiler off. The broiler will go to COOLING DOWN mode.



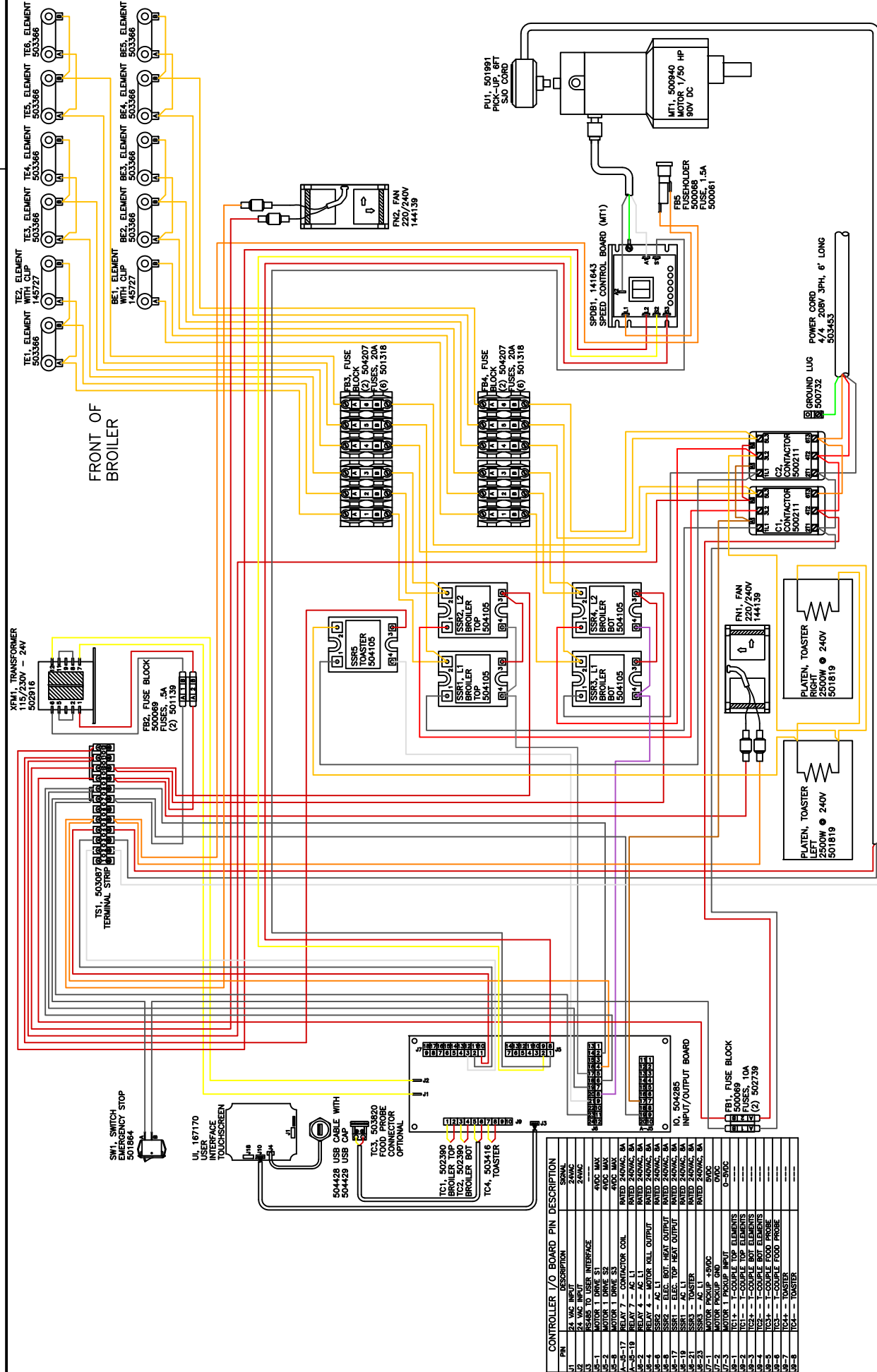
**COOLING DOWN MODE:**

This is the COOLING DOWN mode screen. During the COOLING DOWN mode, the power button is yellow to indicate that all burners are turned off but the conveyors are running at different speeds to prevent grease bonding of the conveyor shafts.

Once cooling down has elapsed, the broiler will go to OFF mode.

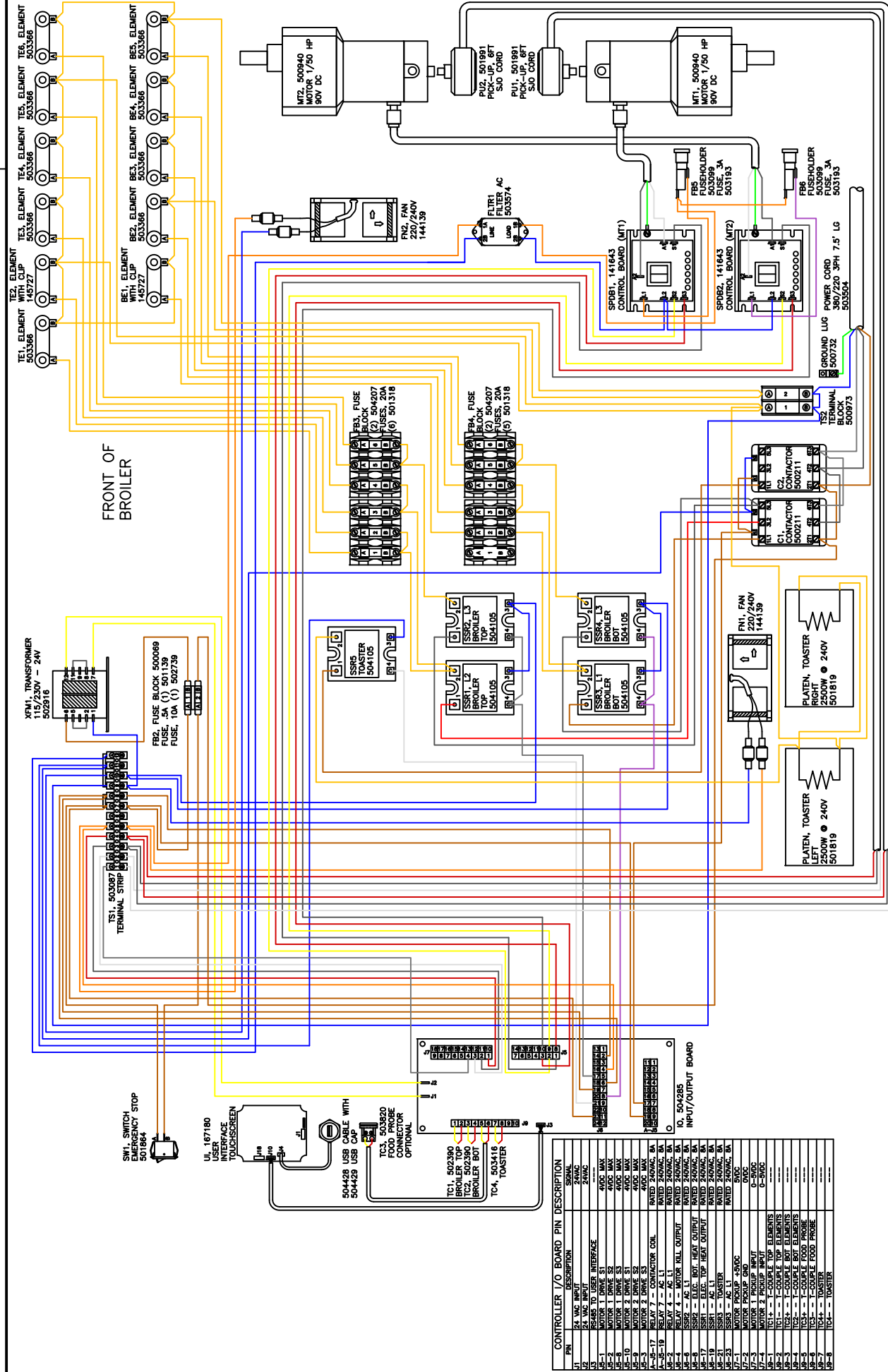
**Cool Down Timer:** The remaining cool down time is displayed in minutes. The red timer bar gives the user a quick reference of the remaining time versus total time.

**Power Button:** Press and hold for 2 seconds to turn broiler back on. The broiler will go to PREHEATING mode.



PIN	DESCRIPTION	SIGNAL
U1	24 VAC INPUT	24VAC
U2	24 VAC INPUT	24VAC
U3	INTERFACE	INTERFACE
U4	MOTOR 1 DRIVE S1	4VDC MAX
U5	MOTOR 1 DRIVE S2	4VDC MAX
U6	MOTOR 2 DRIVE S1	4VDC MAX
U7	MOTOR 2 DRIVE S2	4VDC MAX
U8	RELAY 1 - COIL	24VAC
U9	RELAY 2 - COIL	24VAC
U10	RELAY 3 - COIL	24VAC
U11	RELAY 4 - COIL	24VAC
U12	RELAY 5 - COIL	24VAC
U13	RELAY 6 - COIL	24VAC
U14	RELAY 7 - COIL	24VAC
U15	RELAY 8 - COIL	24VAC
U16	RELAY 9 - COIL	24VAC
U17	RELAY 10 - COIL	24VAC
U18	RELAY 11 - COIL	24VAC
U19	RELAY 12 - COIL	24VAC
U20	RELAY 13 - COIL	24VAC
U21	RELAY 14 - COIL	24VAC
U22	RELAY 15 - COIL	24VAC
U23	RELAY 16 - COIL	24VAC
U24	RELAY 17 - COIL	24VAC
U25	RELAY 18 - COIL	24VAC
U26	RELAY 19 - COIL	24VAC
U27	RELAY 20 - COIL	24VAC
U28	RELAY 21 - COIL	24VAC
U29	RELAY 22 - COIL	24VAC
U30	RELAY 23 - COIL	24VAC
U31	RELAY 24 - COIL	24VAC
U32	RELAY 25 - COIL	24VAC
U33	RELAY 26 - COIL	24VAC
U34	RELAY 27 - COIL	24VAC
U35	RELAY 28 - COIL	24VAC
U36	RELAY 29 - COIL	24VAC
U37	RELAY 30 - COIL	24VAC
U38	RELAY 31 - COIL	24VAC
U39	RELAY 32 - COIL	24VAC
U40	RELAY 33 - COIL	24VAC
U41	RELAY 34 - COIL	24VAC
U42	RELAY 35 - COIL	24VAC
U43	RELAY 36 - COIL	24VAC
U44	RELAY 37 - COIL	24VAC
U45	RELAY 38 - COIL	24VAC
U46	RELAY 39 - COIL	24VAC
U47	RELAY 40 - COIL	24VAC
U48	RELAY 41 - COIL	24VAC
U49	RELAY 42 - COIL	24VAC
U50	RELAY 43 - COIL	24VAC
U51	RELAY 44 - COIL	24VAC
U52	RELAY 45 - COIL	24VAC
U53	RELAY 46 - COIL	24VAC
U54	RELAY 47 - COIL	24VAC
U55	RELAY 48 - COIL	24VAC
U56	RELAY 49 - COIL	24VAC
U57	RELAY 50 - COIL	24VAC
U58	RELAY 51 - COIL	24VAC
U59	RELAY 52 - COIL	24VAC
U60	RELAY 53 - COIL	24VAC
U61	RELAY 54 - COIL	24VAC
U62	RELAY 55 - COIL	24VAC
U63	RELAY 56 - COIL	24VAC
U64	RELAY 57 - COIL	24VAC
U65	RELAY 58 - COIL	24VAC
U66	RELAY 59 - COIL	24VAC
U67	RELAY 60 - COIL	24VAC
U68	RELAY 61 - COIL	24VAC
U69	RELAY 62 - COIL	24VAC
U70	RELAY 63 - COIL	24VAC
U71	RELAY 64 - COIL	24VAC
U72	RELAY 65 - COIL	24VAC
U73	RELAY 66 - COIL	24VAC
U74	RELAY 67 - COIL	24VAC
U75	RELAY 68 - COIL	24VAC
U76	RELAY 69 - COIL	24VAC
U77	RELAY 70 - COIL	24VAC
U78	RELAY 71 - COIL	24VAC
U79	RELAY 72 - COIL	24VAC
U80	RELAY 73 - COIL	24VAC
U81	RELAY 74 - COIL	24VAC
U82	RELAY 75 - COIL	24VAC
U83	RELAY 76 - COIL	24VAC
U84	RELAY 77 - COIL	24VAC
U85	RELAY 78 - COIL	24VAC
U86	RELAY 79 - COIL	24VAC
U87	RELAY 80 - COIL	24VAC
U88	RELAY 81 - COIL	24VAC
U89	RELAY 82 - COIL	24VAC
U90	RELAY 83 - COIL	24VAC
U91	RELAY 84 - COIL	24VAC
U92	RELAY 85 - COIL	24VAC
U93	RELAY 86 - COIL	24VAC
U94	RELAY 87 - COIL	24VAC
U95	RELAY 88 - COIL	24VAC
U96	RELAY 89 - COIL	24VAC
U97	RELAY 90 - COIL	24VAC
U98	RELAY 91 - COIL	24VAC
U99	RELAY 92 - COIL	24VAC
U100	RELAY 93 - COIL	24VAC

REV	DESCRIPTION	DATE	REV. BY
1	POWER CORD WAS 502845	4/14/2015	S.A.
DRAWN BY: S.A. DATE: 4/2/2015			
GENERIC NAME: SCHEMATIC			
PRODUCT LINE: BRL			
MATERIAL: REFERENCE			
SIZE: A	ROUTE: ELECT	DWG. NO.: 167173	REV.: 1
SCALE: NTS	IMAGE MAY BE REDUCED	CODE: CP3	
<b>MARSHALL AIR SYSTEMS, INC.</b>			
SCHEMATIC, AUTOBROIL 2424			
208VAC 3PH, W/ TOUCHSCREEN			



REV	DESCRIPTION	DATE	REV. BY	DATE	REV. BY	DRAWN BY:	DATE:	MARSHALL AIR SYSTEMS, INC.							
1	POWER CORD WAS 503552	4/10/2015	S.A.	4/2/2015	S.A.	S.A.	4/2/2015	SCHEMATIC, AUTOBROIL 2424							
								380/220VAC 3PH, W/ TOUCHSCREEN							
								SIZE:	A	ROUTE:	ELECT	DWG. NO.:	167183	REV.:	1
								SCALE:	NTS	IMAGE MAY BE REDUCED	CODE:	CP4INTLCE			