

# OWNER'S MANUAL

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



# MARSHALL

**Autobroil™ Model F12G  
W/ Touchscreen Control  
(QQ4 SERIES)**

**Marshall Air Systems, Inc.**  
419 Peachtree Drive South  
Charlotte, North Carolina USA 28217  
704-525-6230  
704-525-6229 FAX

Sales and Service  
1-800-722-FISH (3474)

(24 Hour Hotline, Telephone Assistance Available For Diagnostic and Troubleshooting)



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## MODEL F12G (QQ4 SERIES) AUTOBROIL™



### 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

#### F12G AUTOBROIL™ w/ Touchscreen Control

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

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

TYPE OF GAS: \_\_\_\_\_

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

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

GAS PRESSURE SETTINGS : SEE PAGE 5 \_\_\_\_\_

GAS PRESSURE BURNERS:  
MIN \_\_\_\_\_ MAX \_\_\_\_\_

#### MENU SETTINGS:

<u>BACK BELT RECIPE SPEED</u>	<u>FRONT BELT RECIPE SPEED</u>	<u>GLOBAL TEMPERATURE</u>
1 _____	_____	_____ (750°F)
2 _____	_____	
3 _____	_____	
4 _____	_____	
5 _____	_____	
6 _____	_____	

START-UP TECHNICIAN: \_\_\_\_\_ SERVICE AGENCY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY/STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_ PAGER: \_\_\_\_\_ FAX: \_\_\_\_\_

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

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

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

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



## II. BROILER INSTALLATION

### PRE-INSTALLATION

1. After uncrating the Autobroil™ (broiler), inspect for shipping damage. Check that all controls are intact on the electrical cabinet front. Set the broiler in place and leave the plastic wrapping on to protect it from the debris and trash of building construction. DO NOT remove plug from gas inlet pipe. Check that broiler has not been dented or damaged by the carrier. To file a concealed damage claim, follow the instructions attached to the outside of the shipping crate. Warranty does not cover freight damage.
2. Installation must be performed by a Qualified Service Company. The term "Qualified Service Company" means any individual, firm, corporation or company which is either engaged in and is responsible for the installation or replacement of gas piping on the outlet side of the meter, or the service regulator when a meter is not provided, or the connection, installation or repair of gas appliances, who is experienced in such work, familiar with all precautions required, and has complied with all the requirements of the authority having jurisdiction.
3. A remote gas shut-off valve must be provided and interlocked to the exhaust fire protection system.
4. This broiler is power fan exhausted, therefore it is necessary to provide adequate make up air equal to the amount removed. In addition, 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.
5. The broiler must be isolated from the gas supply piping system during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.45kPa).

### BROILER LOCATION

**WARNING: IF NOT INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, THIS PRODUCT COULD EXPOSE YOU TO SUBSTANCES IN FUEL OR FROM FUEL COMBUSTION WHICH CAN CAUSE DEATH OR SERIOUS ILLNESS AND WHICH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.**

1. Position broiler to properly align with exhaust hood (refer to equipment plan). Note nameplate clearance.
2. The exhaust hood/ventilator for the broiler 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 9" from sides and 9" from food loading end and food delivery end.
4. Make sure broiler is level.
5. Adequate clearance should be maintained to allow easy access to loading and unloading areas of the broiler.
6. For servicing, broiler must be moved two feet clear from all surrounding equipment.

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

### ELECTRICAL INFORMATION

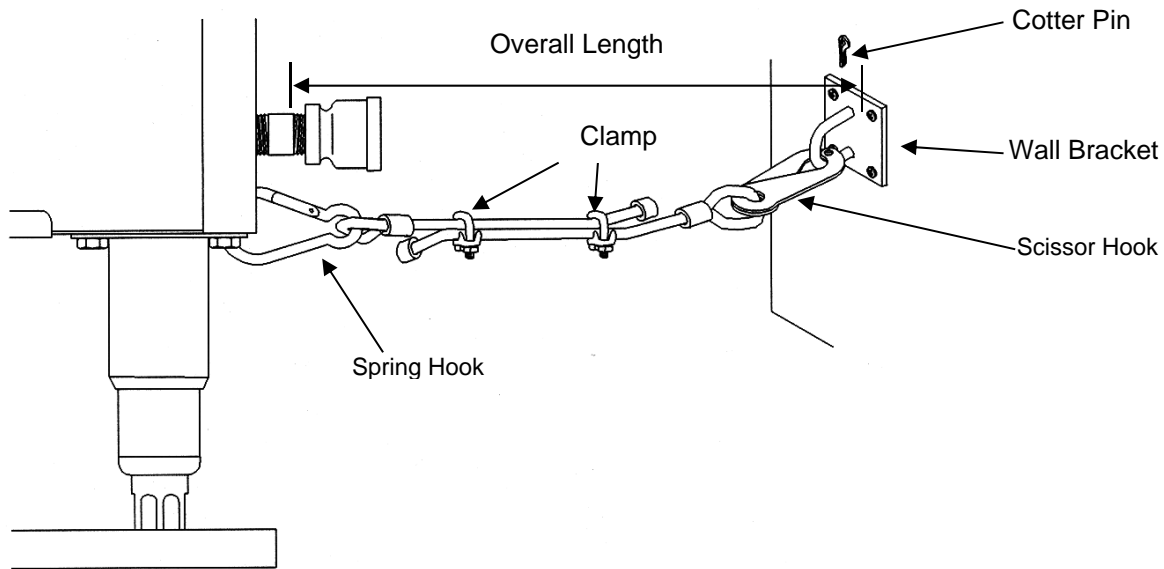
1. Make certain the supply voltage and number of supply conductors agrees with the Electrical Schematic. The load-carrying conductors should be sized according to the loads shown on the Electrical Schematic per local codes and the National Electrical Code. A grounding lug is attached inside the control cabinet. Safety precautions dictate this lug to be used.
2. On a new electrical service – **MAKE CERTAIN THAT VOLTAGE IS WITHIN 10% OF THE UNIT'S RATED VOLTAGE AND THAT THE NEUTRAL IS IN FACT NEUTRAL. SERIOUS DAMAGE WILL OCCUR BY HAVING VOLTAGE ON THE NEUTRAL.** Appliance should be protected by a properly sized circuit breaker furnished from the main building circuit panel.
3. There is an Electrical Schematic located in the Owner's Manual and also inside the electrical cabinet of the machine.



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

### GAS PIPING TO BROILER

1. Installation of this broiler must conform with local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z-223.1-latest edition.
2. In Canada, this broiler is to be installed in accordance with Standard CGA B149.1 or B149.2 Installation Codes for gas burning appliances and equipment and any local applicable requirements.
3. The broiler is supplied with a 3/4" female pipe thread. The installer must make the pipe connection to the broiler in accordance with the "National Fuel Gas Code," ANSI Z-223.1-latest edition. The gas line connected to the 3/4" female pipe thread cannot be less than a 3/4" pipe. The gas pressure and gas volume required by this broiler is shown on Page 5. Gas piping from source to broiler must be adequate to satisfy these requirements when all other gas appliances in the restaurant are operating at maximum demand.
4. A flexible AGA approved gas line is available (#500175 48" flex gas line with restraint). Instructions are:
  - (1) The installation shall be made with a connector that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.699-latest edition, and Addenda Z21.69a-latest edition, and a quick-disconnect device that complies with the Standard for Quick-Disconnect Devices for Use With Gas Fuel, ANSI Z21.41-latest edition, and Addenda, Z21.41a-latest edition and Z21.41b-latest edition.
  - (2) Adequate means must be provided to limit the movement of the broiler without depending on the connector and the quick-disconnect device or its associated piping to limit the broiler movement.



Optional restraining device is available.

- (3) The restraining device must always be connected when the broiler is in operation. Disconnect for movement necessary for service and cleaning. Then reconnect the restraint when the broiler has been returned to its normal position.
- (4) The restraining device is a separate line and should be no less than 6 inches away from the gas connector. It should also be in a parallel position to the floor. Using the adjustable clamps, alter the length of the cable so that the overall length is 3 to 6 inches shorter than the length of the gas connector including the fittings. Attach the wall bracket to an existing wall or other architecturally sound surface. Attach scissor hook to the wall bracket and secure with cotter pin. Finally, attach the spring hook to the gas broiler. Make certain that the overall length of the line is 3 to 6 inches shorter than the gas connector at this point.

5. See Page 2, Pre-Installation Item 5 for instructions on gas supply line pressure testing.

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

### **PRE-OPERATION CHECK**

Before lighting and operating your broiler, perform a 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.** Particularly make sure all burners are in place and that the shields are in position on the bottom burners. Make sure the cover plate is installed in the cutout above the high speed oven portion of broiler.
2. Start conveyor chains and check for binding. The conveyor chains should run free and not be catching on any parts.
3. The speed of the conveyor chains should be changed from slow to fast, and back again without the chain stopping.

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4. Check that gas pressure at broiler is correct (see Performance Criteria shown in chart below).
5. Check that broiler grease pans short and long are in place under burners (see Figure 3).

### PERFORMANCE CRITERIA

1. The manifold pressure for each burner and broiler inlet pressure and gas amount is listed below:

TYPE OF GAS:	PRESSURE AT THE BROILER	MANIFOLD PRESSURE
Natural	5.5 - 10.0 IWC	Low 2.0 IWC/High 5.0 IWC
Propane	11.0-14.0 IWC	Low 4.0 IWC/High 9.5 IWC
<b>Total Gas Amount</b>	42,000 BTUH @ 100 % HIGH FIRE	

Manifold pressure is measured by a pressure gauge on the outlet side of the safety gas valve. With the unit on for at least twenty minutes and the broiler temperature controller set at 200°F (93°C), the pressure should be at 2.0 IWC (4.5 IWC for propane). With the broiler temperature set for 800°F (427°C) the high fire pressure is 5.0 IWC (9.5 IWC for propane). High pressure is adjusted using the adjustment screw on of the safety gas valve. Low fire is adjusted using the modulating gas valve. See Figure 8 for gas system layout.

2. The burners in the broiler modulate and are a special infrared type. All of the air for combustion must be injected through the venturis. This makes orifice design and alignment very critical. The orifice design, in combination with the correct natural or propane gas pressure will result in adequate air aspiration and mixing. There are no air shutters. No air adjustment is needed.

**CAUTION: DO NOT STACK BOXES OR IN ANY WAY BLOCK AREA IN IMMEDIATE VICINITY OF VENTURIS OR IN ANY OTHER WAY OBSTRUCT FLOW OF COMBUSTION AIR.**

3. The flame rod igniter flame is adjustable with a small screwdriver. The cap screw behind the 1/4" gas line exiting the valve should be removed. The small adjusting screw is under the cap screw. Turning the small adjusting screw inward (clockwise) will reduce the flame to the igniter. The igniter flame should be uniform and just large enough to make a flame envelope around the end of the sensor and igniter.
4. The burners will be bright orange when burning properly. If a dull red is observed after 30 minutes of warm-up with a blue flame below the burner face, the orifice may be dirty, damaged, or misaligned. "Popping," or burning back at the orifice of the burner, is a result of the burner screen being loose or a faulty gasket under the burner screen. LP broilers may exhibit a light "popping" sound when the broiler is turned off; this is normal.

**NOTE: IF BURNER SCREEN IS TORN OR HAS A HOLE, OR IF A GASKET IS LEAKING, THE BURNER MUST BE REPAIRED (see Figure 5).**



### III. OPERATING INSTRUCTIONS

#### BROILER ADJUSTMENT - DAILY

#### LIGHTING INSTRUCTIONS FOR ELECTRONIC IGNITION SYSTEM

1. Turn exhaust system on. (Some hoods are so powerful that the broiler must be lit before the exhaust is turned on).
2. Make sure filters are in place in the hood.
3. Turn unit on by pressing the On/Off button for 2 seconds.
4. Verify all of the burners have ignited. Ignition is electronic.
5. If pilot flame or burners fail to light, press for 2 seconds the On/Off button and wait five minutes before attempting to relight.
6. Allow the unit burners and conveyor chain to warm up until the control displays **READY** (with the chain at approximately the correct speed).
7. Place product on the broiler chain. Based on the appearance of the product, reset the cook time for the desired broiling quality. (Note: This single product should be cooked to the maximum degree of the Minimum/Maximum doneness tolerance.)

#### SHUT-OFF INSTRUCTIONS

1. Press the On/Off button for 2 seconds.
2. The control will go into COOLING DOWN mode and the conveyors will stop running in approximately 10 minutes.

**WARNING:** If the cool down waiting period is not observed, the conveyor chain may warp.

3. Turn exhaust system off.

**NOTE:** Note the gas control knob/slide switch on top of each safety gas valve is "ON". All safety gas valves with a slide switch will have a clear sealant over the switch and connectors. The sealant is to help keep water out of the valve. The switch will always be sealed in the "ON" position.

### OPERATION OF THE TOUCHSCREEN USER INTERFACE

#### OFF MODE

Once the broiler is connected to a 120VAC outlet, the touchscreen 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 preheat 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 for more details.

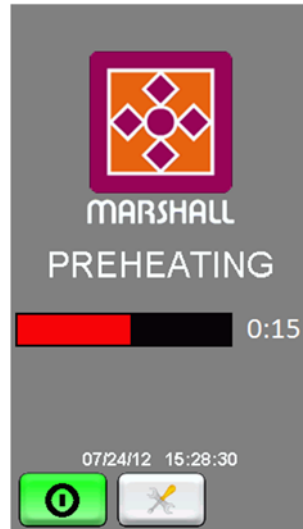


#### **Food Probe button:**

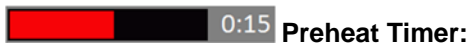
The food probe button allows the user to take live temperature readings of food products as well as recording temperature readings of the different food products (recipes) that can be retrieved later using a USB flash drive. In off mode, the food probe button is grayed out indicating that the food probe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

### PREHEAT MODE

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



**PREHEAT MODE – HOME SCREEN**



The preheat timer shows the remaining preheat time in minutes while the timer bar gives the user a quick reference of the remaining time versus total time. Once the preheat 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 preheat mode, only the first page of the tools is available. See the **TOOLS** section for more details.

### READY MODE

After the preheat timer elapsed, the broiler goes to the ready mode. The ready mode home screen is shown below.



### READY MODE – HOME SCREEN

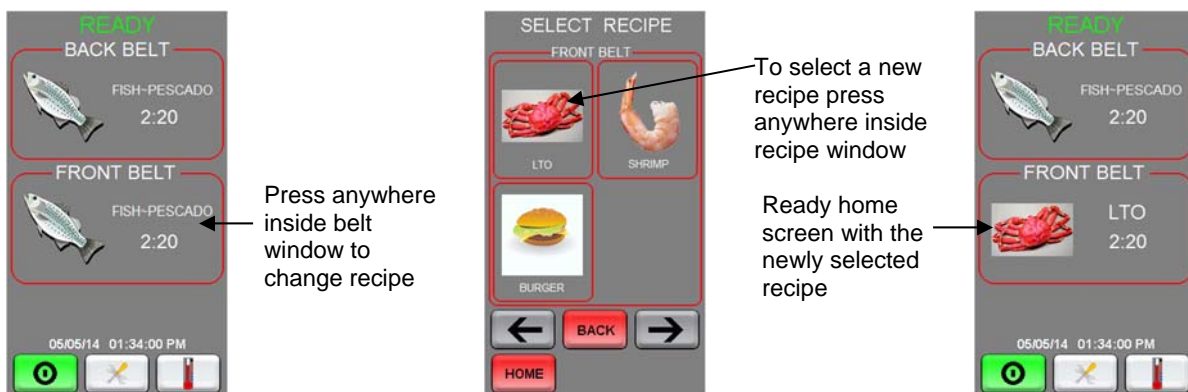
The word “READY” in green is displayed at the top of the screen to let the user know that the broiler has reached temperature set point and is now ready for cooking.



#### **Belt Window:**

Each of the broiler's belts has its associated belt window with the belt name, 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** for more information about adding, modifying or deleting belt recipes.

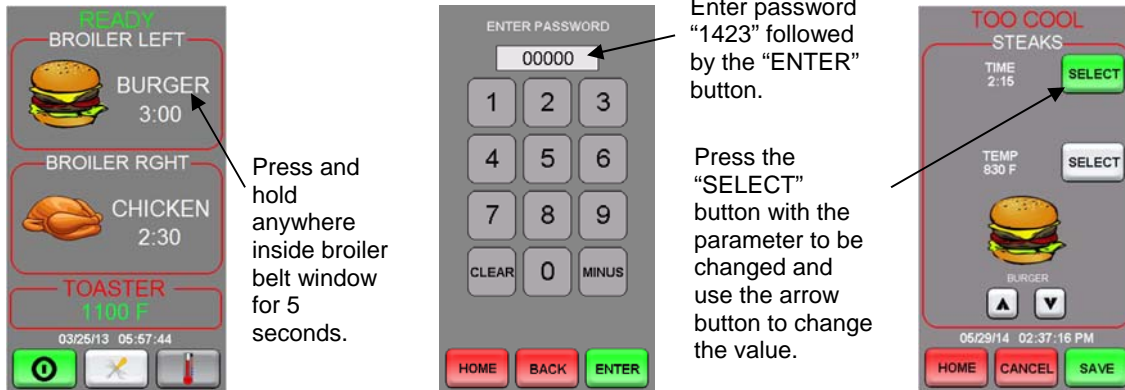
#### **To change a belt recipe while in ready mode:**



1. Press anywhere inside the desired 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.


- 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.
- 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:



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

### 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.



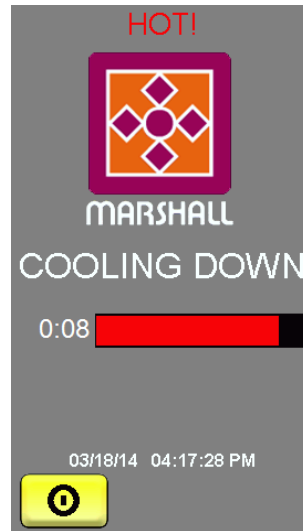
### Tools Button:

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 for more details.

### COOL DOWN MODE

Once the broiler is turned off using the power button  from the preheat mode home screen or the ready mode home screen, the broiler will go to cool down mode.

During the cool down mode, all burners are 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 burners are off. The cool down mode screen is shown below.



**COOL DOWN MODE SCREEN**

 **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:**

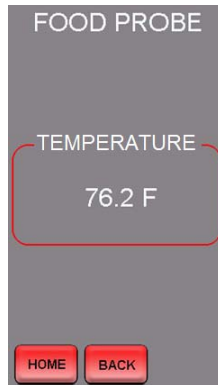
In this mode, the power button is yellow indicating that the broiler can be turned back on by pressing on the power button for 2 seconds. The broiler will then go to the preheat mode.


### FOOD PROBE (OPTIONAL)

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

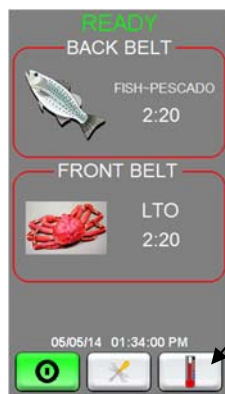
- **To take live temperature measurements of a food product.** This is useful to verify that a food product is cooked properly.
- **To initiate a log for a recipe.** This functionality allows the manager to record temperature measurements of the different recipes that can later be retrieved using a USB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

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



1. Connect the food probe into the 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.

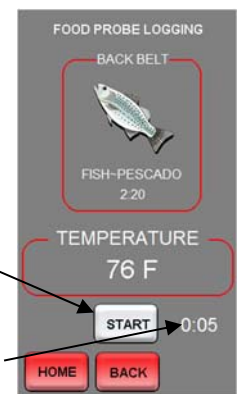
### To initiate a log for a recipe:



Press and hold for 3 seconds the food probe button




Select a recipe by pressing anywhere inside the belt window



Press the start button

Equalization timer

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. Press anywhere inside the belt window of the recipe to be logged. 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.
4. Insert the food probe into the food product according to sanitary codes and normal restaurant procedures.
5. 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.
6. 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.
7. 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.
8. Repeat steps 4 to 7 to log more measurements of the same recipe.
9. To switch belts, use the back button to go back to the select belt screen. Then repeat step 3 to 7.

10. 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)

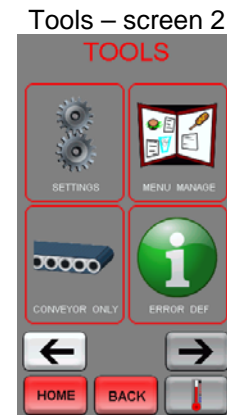
See the **TOOLS** section for more information on how to retrieve food probe logs using a USB flash drive.

## TOOLS



The tools button is only available from the off mode home screen, the preheat 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 preheat and the ready mode.** The two tool 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 on each belt. Simply press the view tool button to go to the view screen. Each belt window will have the names of the active recipes, the temperature set points of the recipe, the current temperature 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, preheat, or ready mode home screen.



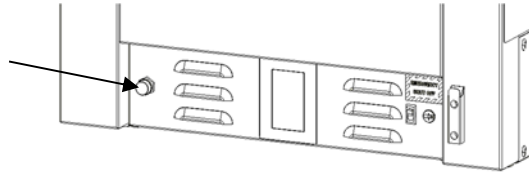
### SUPPORT TOOL:

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 on the left side of the control cabinet.

Remove USB port cover and insert USB flash drive here



### USB PORT LOCATION


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 use ice and boiling water.

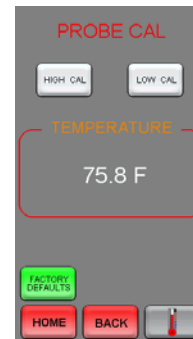
To select one of the two options, first press on the food probe tool button . The screen will display the two options.

### 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 (see figure for USB port location).
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, preheat, or ready mode home screen.
5. The TXT file can now be transferred to a computer.

### 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 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 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, preheat, or ready mode home page.




### RECOVERY TIME TOOL:

The recovery time is defined as the amount of time it takes for the broiler to go from 200°F up to 50°F below 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 (see figure for USB port location).
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, preheat 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, preheat, ready or cool down mode home screen.





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

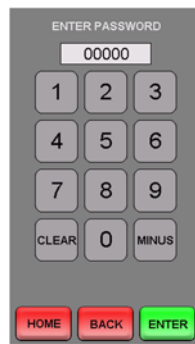
The settings tool is to allow qualifying service agencies to perform testing on the unit as well as to allow the store personal to make general setting changes to the broiler. Once the settings tool button is pressed, the settings screen will come up showing three options:

- 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.



**LANG. ENGLISH** LANGUAGE

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

**TEMP. DEG F** TEMPERATURE UNITS

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

**TIME: AMPM** TIME FORMAT

Press to toggle between standard or military time formats.

**SET TIME OF DAY** TIME

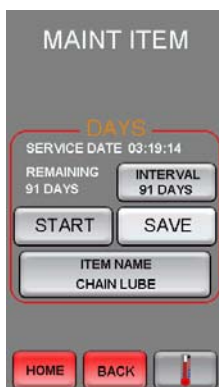
Press to use keypad to set the time. The time format is HH/MM.

**SET DATE** DATE

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

**MAINTENANCE** MAINTENANCE MESSAGE REMINDERS

This feature allows the user to set up multiple recurrent maintenance message reminders. Press on the button to switch to the maintenance 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 days 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** 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.

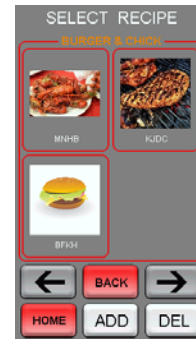


### MENU MANAGEMENT TOOL (ONLY ACCESSIBLE WHILE IN OFF MODE):

This is where the user can add, modify or delete recipes on the different belts. Each belt can have up to twelve different recipes.

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 up showing the two belt windows. Press on the belt window for which a recipe will be added, modified or deleted and the add/modify/delete screen will come up. If more than four recipes are available for that belt, use the arrow buttons to switch pages.




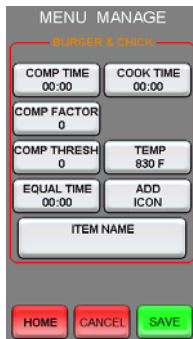
# OWNER'S MANUAL


## MODEL F12G (QQ4 SERIES) AUTOBROIL™





### 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.


 Press to change the recipe 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** for more details.

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

 Press to change the compensation threshold using the keypad. See **TIME COMPENSATION** 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) 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.


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.

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### 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.


Press the conveyor only button  to go to the conveyor only screen.



Both conveyors will automatically start running at 1:00 cook time.

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

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


**To start a 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.

### 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.

### 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.

### MAINTENANCE MESSAGES

#### For Serial Numbers Before 05193

If one or more maintenance message reminder timers have elapsed and the broiler is transitioning from cool 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 .

Note that the maintenance alert screen will come up every time that the broiler goes from cool down mode to off mode until all items from the list have been reactivated.

#### For Serial Numbers After 05192

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



To reset a maintenance items:

1. Once a maintenance item has been performed, press the associated RESET TIMER button. The enter password screen will come up.
2. Enter password "1000" followed by the ENTER button to reset its timer. The maintenance items screen will come back up unless no items are left. In this case the touchscreen control will go back to OFF mode home screen.
3. Repeat step 1 and 2 for any other maintenance items left.
4. To exit maintenance items screen and return to the off mode home screen, press the HOME button.



### IV. SCHEDULED MAINTENANCE

It is important that your unit is clean and maintained to provide optimum performance. If there is carbon buildup on the unit frame and parts, it must be cleaned. The carbon buildup will absorb heat and reduce reflectivity and may cause product charring.

#### **CLEANING DURING OPERATION**

Grease and Ash removal from Grease Tray.

Use caution when removing the Grease Trays as they will be extremely HOT. DO NOT clean the Grease Tray in cold water, as cold water will warp the hot tray.

#### **DAILY CLEANING PROCEDURES**

**CAUTION:** Do not touch the broiler section immediately after broiler shut-down. The temperature inside enclosures is in excess of 500°F (260°C), which eliminates the need to clean any parts inside the enclosures for sanitary purposes. Any grease 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 or allow burner faces to get wet as this could cause premature burner or gasket failure. 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 EAT HOLES IN THE GAS VALVES AND GAS LINES, CAUSTIC FUMES CAUSE ELECTRICAL COMPONENT DAMAGE, AND WILL CAUSE MANY OTHER PROBLEMS IF USED TO CLEAN THIS BROILER.**

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

1. Allow broiler burners and chain to operate until the control goes from **HOT** to **OFF** after cooking last product to burn off excess grease on broiler components. (This applies every time the unit is turned off -- regardless of what time of day unit is shut down -- and regardless of how little products 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. Turn off unit, wait 30 minutes and disconnect electricity.
3. Remove all exterior panels except those which are attached with screws. Be careful not to touch any hot internal broiler components.

**WARNING: THE BURNER SCREEN (LOCATED UNDER THE TOP BROILER BURNER), IS MADE FROM METAL MESH. THIS MATERIAL DETERIORATES WITH USE. INSPECT THIS SCREENS DAILY AND REPLACE IF SCREEN IS SEVERLY CORRODED. FAILURE TO DO SO CAN RESULT IN METAL PARTICLES BEING SERVED TO YOUR CUSTOMER.**

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4. Remove the following items and wash with soapy water when they are cool enough to touch with bare hand.

*	Exit Tray	Figure 2
*	Loading Tray	Figure 2
*	Chain Guards (4)	Figure 2
	Long Grease Pan	Figure 3
	Short Grease Pan	Figure 3
* <b>NOTE:</b> These items may be removed during the 30 minute cooling period.		

5. Using the Conveyor Only button on the control which turns the conveyor on and leaves the heat off brush the broiler conveyor and, as it cools, wipe with damp cloth.
6. Scrape deposits from the axles with the axle scraping tool, furnished with each machine. **\*THIS IS IMPORTANT TO PREVENT GREASE FIRES AT REAR OF THE UNIT.** The axle scraper provided with the unit is a handy tool for cleaning the dirt and grime off of the axles. To insert, place end of scraper in between conveyor and turn scraper. Scrape the axle back and forth. One end of the scraper is made to scrape a  $\frac{3}{4}$ " diameter shaft. The other end of the scraper is made to scrape a  $\frac{1}{16}$ " diameter shaft
7. 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.
8. After cleaning all removable parts as noted, allow to dry and reassemble.

### **QUARTERLY CLEANING PROCEDURES & PREVENTIVE MAINTENANCE**

1. Perform daily cleaning procedures.
2. Lubricate the roller (drive) chain with a few drops of any grade motor or machine oil.
3. Remove and inspect all motor brushes and replace if less than 1/4" is left.
4. **Do not** remove internal gas lines for cleaning.
5. Clean the pilot igniter flame sensor rod. It is important to follow the instructions in Figure 11 to prevent damage to the igniter.
6. **INVENTORY THE SPARE PARTS KIT AND ORDER MISSING PARTS AS NEEDED. KEEP A COMPLETE SET OF PARTS ON HAND AT ALL TIMES.**

### **BIANNUAL PREVENTIVE MAINTENANCE**

1. Perform daily and quarterly cleaning procedures.
2. Replace burner shields with new ones (see Figure 3) if excessive corrosion is evident.



3. Remove upper burners and burner screens. To remove burner, simply lift out of cutout. Shake off all debris. Hold burners with mesh facing the floor. Brush burner mesh with soft brush. Brush off reverberators, making sure all debris is removed from all of the openings. **DO NOT WASH UPPER BURNERS AS IT WILL DESTROY GASKET. See Figure 11.** Blow out burners through the venturi opening with a low pressure air source.

**Caution: Do not drop burners or get wet as this may add to premature burner failure.**

4. Remove lower burners and shields. To remove burners, remove side skins and unlock lower burner (see Fig. 9). Slide burners out through opening. Hold burners with mesh facing the floor. Brush burner mesh with soft brush. Wash burner shields. **DO NOT WASH BURNERS AS IT WILL DESTROY GASKET. See Figure 11.** Blow out burners through the venturi opening with a low pressure air source.

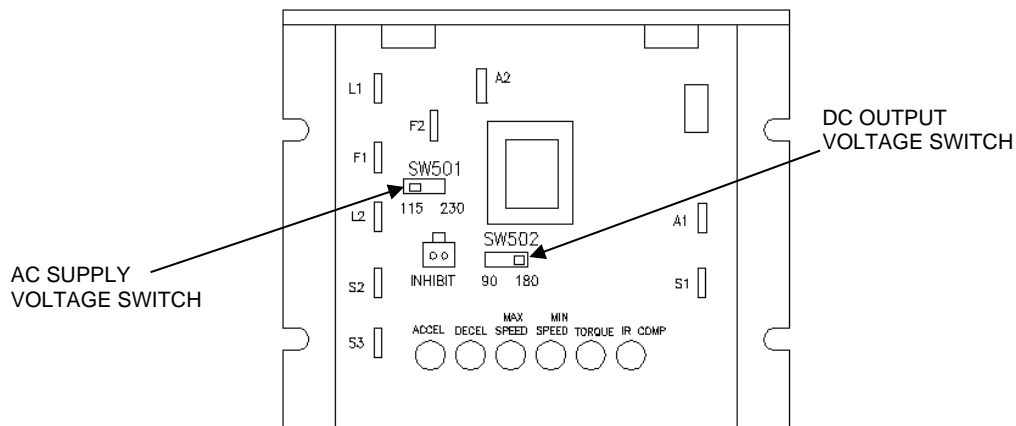
**Caution: Do not drop burners or get wet as this may add to premature burner failure.**

5. Before putting burners back in place, clean gas orifices:
  - (1) Orifices are passageways directing gas flow into burners. Uneven gas flow or poor air to gas ratio is caused by dirty or damaged orifices.
  - (2) Orifices are made of brass. Use special care in cleaning--don't gouge or make gas holes bigger.
  - (3) To reach orifices, remove burners.
  - (4) Use a chenille stem (similar to a pipe cleaner) dipped in rubbing alcohol to clean orifices. Swab until clean; free of carbon build-up. Do not use drill bit; this will damage the orifices. Chenille stems are available in the craft section of your local department store or craft store.

### **ANNUAL PREVENTIVE MAINTENANCE**

1. Perform daily, quarterly and biannual cleaning procedures.
2. Every year, replace the carryover tube (lower) and orifice. Kit #163049 consists of these parts.
3. Every other year, replace flame runners, orifices, igniter, thermocouple, motor brushes, upper screens and lower shields. Kit #157524 consists of these parts.
4. Inspect all conveyor bearings and replace if required.
5. If required, remove conveyor and soak in hot soapy water overnight. To remove conveyor, separate conveyor at the cut link. Turning the conveyor "ON" may be required to locate the cut link. If there is not a cut link, open a link with chain pliers (part #500033) to separate conveyor. When replacing the conveyor, make certain the conveyor is installed properly. Make reference to the orientation of the conveyor links and the conveyor direction before reassembly (see Figure 4). **PLACING CONVEYOR ON BACKWARD WILL CAUSE SEVERE BINDING PROBLEMS.** CLOSE all open links with pliers to match other links.
6. Lubricate roller drive chain(s) with SAE30 motor oil or machine oil.

### 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.



### VI. TROUBLE SHOOTING

This section contains a list of possible problems with the unit. **ALL ELECTRICAL TROUBLE SHOOTING INVOLVING ACCESS INTO THE MOTORS OR ELECTRICAL ENCLOSURES MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN. All items marked with asterisks (\*) should be performed by qualified service personnel certified to perform service on gas fired appliances.**

**BEFORE TROUBLESHOOTING IS STARTED: CHECK UNIT IS PLUGGED IN, CHECK FOR TRIPPED CIRCUIT BREAKER, CHECK THAT GAS LINE IS CONNECTED AND TIGHT, CHECK THAT POWER SWITCH ON AND THE GAS LINE VALVE OPEN.**

PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>1. BURNER WILL NOT LIGHT AT ALL</b></p> <p><b>(PREVENTIVE MAINTENANCE NEEDS TO BE COMPLETED FIRST, WHICH MAY SOLVE THE PROBLEM.)</b></p>	<p>A. Hot Surface Ignition, pilot not lit.</p> <p>B. Orifice</p> <p>C. Check that flame runner is fully lit.</p> <p>D. Pilot.</p> <p>*E. Gas valve.</p> <p>*F. Pilot Jumpers</p>	<p>A. Recycle On/Off button or replace igniter.</p> <p>B. Check that orifice is not plugged. (If it is necessary to change the orifices, new ones must be ordered from the local part distributor.</p> <p>C. Clean flame runner orifice or remove and clean flame runner.</p> <p>D. Pilot must light and stay lit in order for burner to light. Check pilot see problem #3.</p> <p>E. Check that main gas valve and modulating gas valve are working.</p> <p>F. Check the pilots to make certain they are not plugged.</p>
<p><b>2. CONVEYOR CHAIN WILL NOT MOVE.</b></p>	<p>A. Check for object caught in conveyor, causing a jam.</p> <p>B. Check 1.5 amp fuse inside of the control cabinet.</p> <p>C. Check to see if motor shaft is moving.</p> <p>*D. Check control circuit fuse.</p> <p>*E. Connect motor control leads to an operating motor speed control board. (Dual motor broilers only)</p>	<p>A. Remove object.</p> <p>B. Turn broiler off, replace fuse, and turn broiler on.</p> <p>C. Sprocket set screw needs to be tightened.</p> <p>D. Replace if blown.</p> <p>E. If motor runs, replace motor control board. If motor still does not run, replace motor.</p>

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

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PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>3. PILOT FLAME GOES OUT</b> (STUDY FIGURES 6 AND 7 FOR PILOT OPERATION).</p> <p><b>(PREVENTIVE MAINTENANCE NEEDS TO BE COMPLETED FIRST, WHICH MAY SOLVE THE PROBLEM.)</b></p>	<p>A. Wires from pilot assembly loose.</p> <p>*B. Pilot assembly dirty or bent.</p> <p>*C. Low gas pressure.</p> <p>*D. Pilot orifice or pilot gas line clogged.</p> <p>*E. Check to see if igniter rod or shield is against the frame wall</p>	<p>A. Trace wires to where they plug into gas valve and check connection (see Figure 8).</p> <p>B. Check for bent pilot gas line and/or dislodge debris. Clean according to Figure 11.</p> <p>C. Increase gas pressure to broiler (see Figure 8).</p> <p>D. Dislodge debris or replace orifice. Blow out w/can of air.</p> <p>E. Adjust mounting bracket accordingly to the position of igniter</p>
<p><b>4. MAIN GAS VALVE(S) DOES NOT WORK</b></p>	<p>A. Manual on/off switch on the top of the gas valve is turned off.</p> <p>*B. Failed igniter.</p> <p>*C. Failed transformer.</p> <p>D. Loose connection at gas valve wiring harness.</p> <p>*E. Failed gas valve.</p>	<p>A. Turn switch to on position.</p> <p>B. Replace igniter.</p> <p>C. Check for 120 Volts at the primary side of the transformer and 24 Volts on the secondary output. Replace transformer if necessary.</p> <p>D. Check to be sure connector is securely plugged into the gas valve.</p> <p>E. Replace valve.</p>
<p><b>5. BURNER BACKFIRES.</b> Flashback blue flame at entrance to burner makes motor-boating sound like a blowtorch. <b>IMPORTANT: If burner backfires, turn it off. Continued operation will cause damage to the entire burner.</b></p>	<p>A. Burner screen failure (hole) or burner gasket.</p> <p>*B. Burner over-fired; manifold pressure too high.</p>	<p>A. Replace or rebuild burner.</p> <p>B. Check and reset gas control regulator to give rating plate/label value for manifold pressure (shown under Performance Criteria on Page 5). Wait 5 minutes and relight. Flashback will not occur immediately unless a larger opening in or around the burner screen is evident. Wait an hour after relighting to check that problem is solved. Figure 8 illustrates which valve sets high and low gas pressures.</p>

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

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PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>5. BURNER BACKFIRES.</b> Flashback blue flame at entrance to burner makes motor-boating sound like a blowtorch. <b>IMPORTANT: If burner backfires, turn it off. Continued operation will cause damage to the entire burner.</b></p>	<p>C. Loose screws holding burner screen.</p>	<p>C. Check to ensure all screws holding the burner screen in place are snug, if your burner has removable screens (see Figure 5.).</p>
<p><b>6. COOK TIMES HAVE HAD TO BE CHANGED BECAUSE BROILER TEMPERATURE HAS DECREASED OVER A PERIOD OF DAYS.</b></p> <p><b>(PREVENTIVE MAINTENANCE NEEDS TO BE COMPLETED FIRST, WHICH MAY SOLVE THE PROBLEM.)</b></p>	<p>*A. Low gas pressure.</p> <p>B. Hang on covers and burner shields not in place.</p> <p>C. Holes in the upper broiler burner reverberator are obstructed.</p> <p>D. Burner orifices clogged.</p> <p>E. Air blowing into broiler chamber for A/C registers or exhausts hood makeup air.</p> <p>F. No item above solves situation.</p>	<p>A. Check gas pressure gauges and correct gas pressures to machine settings.</p> <p>B. Install parts correctly.</p> <p>C. Clean holes and reverberators.</p> <p>D. Clean the burner orifices using a chenille stem dipped in alcohol. Chenille stems are available in the craft section of your local department store or at your local craft store.</p> <p>E. Redirect air flow away from broiler chamber.</p> <p>F. Record recovery times using control and contact Marshall Air Customer Service.</p>
<p><b>7. EXCESSIVE GREASE PAN FIRES</b></p>	<p>A. Dirty grease pan.</p>	<p>A. Clean grease pans.</p>
<p><b>8. FLAMES VISIBLE AT EXHAUST STACK OR IN CHAMBER</b></p>	<p>*A. Low gas pressure.</p>	<p>A. Check and reset gas control regulator to give rating plate/label value for manifold pressure (shown under Performance Criteria on Page 5). Figure 8 illustrates which regulator sets high and low pressures.</p>

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

# OWNER'S MANUAL

## MODEL F12G (QQ4 SERIES) AUTOBROIL™



PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>9. CONVEYOR RUNS BUT SPEED IS CONSTANT</b>	<p>*A. Check all wire to speed module, speed control board and pick up wires</p> <p>*B. Check both motors for output voltages being the same</p> <p>*C. Check voltages to the speed modules, speed control boards and pick-ups. Match to the opposite working motor.</p>	<p>A. Repair or replace as necessary</p> <p>B. Take chains off and check for drag in conveyors and if none, replace motor</p> <p>C. Where the voltages are wrong, determine the parts that need to be replaced</p>
<b>10. REPEATED MECHANICAL BINDING</b>	<p>A. Conveyor loose.</p> <p>B. Check to see that chain is not on backward.</p> <p>C. 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>D. Make sure the axle assembly is clean and free of grease and food residue to allow smooth movement of the conveyor.</p> <p>E. Check the axle assembly to make certain all set collars, bearings, etc. are properly positioned and secure.</p> <p>*F. Disassemble conveyor axle assembly and check condition of bushings and bearings for excessive wear.</p> <p>G. Visually inspect the motor drive chain assembly for smooth rotation of chain.</p>	<p>A. Tension Conveyor.</p> <p>B. See proper chain installation on (Figure 4).</p> <p>C. Straighten or replace bad links. Adjust sprockets.</p> <p>D. Clean axle with axle scraper (see Page 4).</p> <p>E. Reposition set collars, bearings, etc. Tighten set collar set screws.</p> <p>F. Replace if worn or damaged.</p> <p>G. Make certain there are no binding or worn components.</p>
<b>11. GROUND FAULT RECEPTACLES TRIP</b>	<p>A. Water has seeped into control cabinet.</p>	<p>A. Plug broiler into a non-ground fault receptacle using an extension cord. This will allow broiler to operate and dry out.</p>

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# OWNER'S MANUAL

## MODEL F12G (QQ4 SERIES) AUTOBROIL™



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

PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>12. TACH ERROR 1 TACH ERROR 2</b></p> <p>When a problem occurs, the message <b>TACH 1 OR 2 ERROR</b>, will be displayed which almost immediately will cause the unit to shut down and display <b>HOT – TACH ERROR</b>. After 10 minutes, the unit will go the off mode.</p>	<p>A. Jammed Conveyor</p> <p>B. Failed Fuse</p> <p>C. Loose Wire or Connector</p> <p>D. Loose Pick-up</p> <p>E. Damaged Pick-up</p> <p>F. Failed Speed Control Circuit Board</p> <p>G. Failed Motor</p> <p>H. Failed Speed Module</p>	<p>A. Remove Items Preventing Conveyor From Moving</p> <p>B. Replace Fuse</p> <p>C. Check wire connections</p> <p>D. Tighten Pick-Up</p> <p>E. Replace Pick-Up</p> <p>F. Replace Circuit Board</p> <p>G. Replace Motor</p> <p>H. Replace Speed Module</p>
<p><b>NOTE:</b> If you have a TACH ERROR on only one of the conveyors, as a temporary work around to keep the one working conveyor running you can use the following procedure:</p> <p>Turn on the unit using the Power Button. The unit will start, and you will get a TACH ERROR. The broiler will go into the HOT mode. Press anywhere on the screen and the tach error beep will stop. During this operation, the control will still display the TACH ERROR message, but the unit will not shut down to the <b>HOT</b> mode.</p> <p>This procedure will allow the store operator to continue in operation until a service agency technician can get to the store to fix the problem.</p>		
<p><b>13. HOT – PROBE ERROR OFF – PROBE ERROR</b></p> <p>When a problem occurs, the message chamber <b>TCI ERROR</b> will be displayed. After 10 minutes, the unit will go to the off mode.</p>	<p>A. Loose Thermocouple</p> <p>B. Failed Thermocouple</p>	<p>A. Fix wiring connection</p> <p>B. Replace Thermocouple</p>
<p>If this error occurs, this unit will default to 100 percent heater output to allow the broiler to continue to operate until the problem is fixed. In this case, the recipe cook time should be temporarily adjusted to achieve the desired cooked product using the 100 percent heat. A <b>PROBE ERROR</b> message will be displayed until the problem is fixed.</p>		
<p><b>14. FOOD PROBE ERROR</b></p>	<p>A. Food Probe Not Connected</p> <p>B. Failed Food Probe</p>	<p>A. Plug in Food Probe</p> <p>B. Replace Food Probe</p>
<p><b>15. CONTROL WILL NOT TURN ON TO OFF MODE.</b></p>	<p>A. Bad controller</p>	<p>A. Replace controller</p>

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

# OWNER'S MANUAL

## MODEL F12G (QQ4 SERIES) AUTOBROIL™



### VII. REPLACEMENT PARTS

When ordering parts, make sure to specify the machine model number, type of gas and serial number as shown by the label attached to the right side cover.

<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY PER UNIT</u>	<u>LOCATION</u>
111934	Adjustable Cover Plate	1	Figure 3
146156	Bearing	6	Figure 4
108749	Bearing Mount Asby	2	Figure 4
108604	Burner Shield, Lower (Set of 2)	1	Figure 3,10
108554	Burner, Metal Mesh 15"	4	Figure 3,5,10
113753	Carry-Over Tube	1	Figure 8
108797	Center Bearing Support Asby	1	Figure 4
111826	Chain Guard	2	Figure 2
157375	Chain Guard	1	Figure 2
500035	Chain, #35 Roller	2 pcs @ 2.6'	Figure 4
503820	Connector, Food Probe (Optional)	1	Schematic
169406	Control, Touch Screen (QQ4B & QQ4BR)	1	Schematic
169414	Control, Touch Screen (QQ4AINTL)	1	Schematic
172090	Control, Touch Screen (QQ4A)	1	Schematic
144581T	Control, 6-Button / Touchscreen Conversion (QQ4A)	1	Not Shown
157373T	Control, 6-Button / Touchscreen Conversion (QQ4BR, QQ4B)	1	Not Shown
156595T	Control, 6-Button / Touchscreen Conversion (QQ4AINTL)	1	Not Shown
146207T	Control, 6-Button / Touchscreen Conversion (QQ4)	1	Not Shown
158447T	Control, 6-Button / Touchscreen Conversion (QQ4BINTL)	1	Not Shown
500023	Conveyor Belt, 6" Rod	2	Figure 4
111988	Conveyor Idler Assembly	1	Not Shown
500940	Conveyor Motor	2	Schematic
130360	Conveyor Tension Rod Assembly	2	Figure 4
502199	Conveyor Tensioning Spring	2	Figure 4

# OWNER'S MANUAL

## MODEL F12G (QQ4 SERIES) AUTOBROIL™



<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY PER UNIT</u>	<u>LOCATION</u>
110590	Cord and Plug	1	Schematic
502411	Coupling, Brass ¼ Comp x 1/8 FPT	2	Figure 8
502212	Coupling, Brass ¼ Comp x 1/8 MPT	2	Figure 8
500674	Coupling, Brass ¼ Compression	2	Figure 8
111827	Cover, Wrap	1	Figure 2
157635	Diverter, Air (Optional)	1	Not Shown
501864	Emergency Stop Switch	1	Schematic
166178	Exit Tray (Standard)	1	Figure 2
158120	Exit Tray w/Burger Catch (Optional)	1	Figure 2
157726	Feet, Glide - Set of 4 (Standard)	1	Not Shown
111887	Flame Runner Left	1	Figure 8
504030	Food Probe (Optional)	1	Not Shown
501139	Fuse, 0.5A	3	Schematic
500062	Fuse, 5A	1	Schematic
111891	Gas Flex-Tube Assembly	1	Not Shown
111892	Gas Flex-Tube Assembly	1	Not Shown
504136	Gas Flex-Tube, ¼" x 10"	5	Figure 8
502631	Gas Flex-Tube, 5/8" x 12"	2	Figure 8
500070	Gauge, Gas	1	Figure 8
115678	Grease Cup	1	Figure 2
115676	Grease Drain	1	Figure 2
115711	Grease Pan Short	1	Figure 3
115712	Grease Pan Long	1	Figure 3
157548	Idler Asby, Tensioning Shaft	1	Figure 4
152107	Igniter Pilot (LP)	1	Figure 8, Schematic
158567	Igniter Pilot (NAT)	1	Figure 8, Schematic
162581	Kit, Burner Gasket w/ Screws for (4) Burners	1	Figure 5

# OWNER'S MANUAL

## MODEL F12G (QQ4 SERIES) AUTOBROIL™



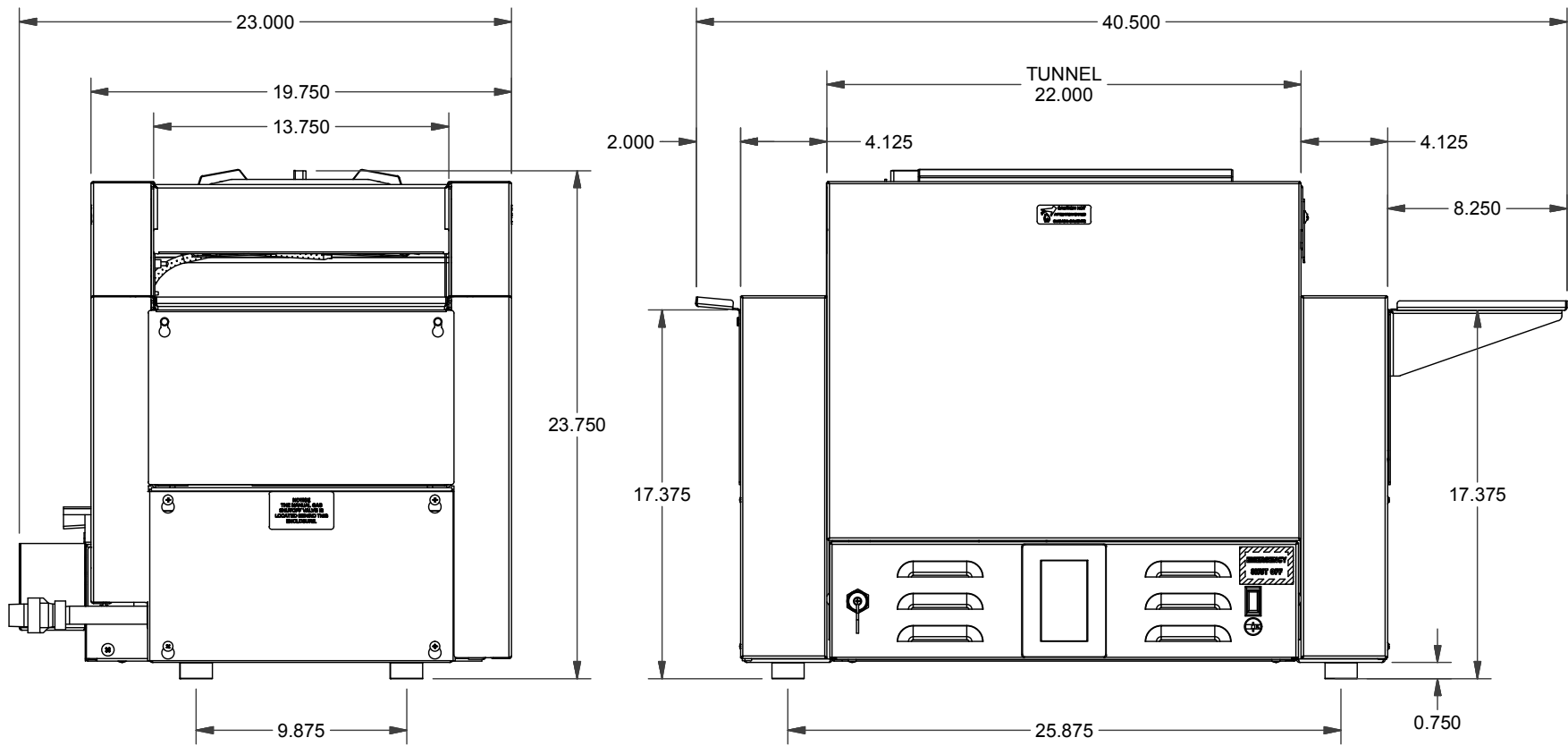
<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY PER UNIT</u>	<u>LOCATION</u>
<a href="#">107127</a>	Kit, Burner Screen Frame Asby	1	Figure 5
157714	Kit, Leg, 8" (Optional)	1	Not Shown
<a href="#">148549</a>	Kit, Motor Brush	1	Figure 4
<a href="#">157713</a>	Kit, Refrigerator Mount (Optional)	1	Not Shown
<a href="#">163049LP</a>	Kit, 1 year, Preventative Maintenance LP	1	Not Shown
<a href="#">163049</a>	Kit, 1 year, Preventative Maintenance Natural	1	Not Shown
157524LP	Kit, 2 year, Preventative Maintenance LP	1	Not Shown
<a href="#">157524</a>	Kit, 2 year, Preventative Maintenance Natural	1	Not Shown
<a href="#">157608</a>	Kit, Thermocouple w/ Fitting	1	Figure 10
149901	Leg, 5"	4	Not Shown
157714	Leg, 8" (Kit of 4)	1	Not Shown
<a href="#">500083</a>	Link, Half	1	Figure 4
<a href="#">500092</a>	Link, Master	1	Figure 4
<a href="#">155105</a>	Link, Open	2	Figure 4
111830	Loading Tray	1	Figure 2
157387	Manifold, Lower Burner Assembly	1	Figure 8
157390	Manifold, Upper Burner Assembly	1	Figure 8
<a href="#">503984</a>	Module, Gas	1	Schematic
503980	Module, Speed	1	Schematic
<a href="#">500940</a>	Motor	2	Figure 4, Schematic
501343	Nut, Acorn ¼	8	Figure 4
<a href="#">500104</a>	Orifice, #53 Lower Burner (NAT)	2	Figure 8
<a href="#">500469</a>	Orifice, #54 Upper Burner (NAT)	2	Figure 8
501016	Orifice, #61 Lower Burner (LP)	2	Figure 8
501024	Orifice, #63 Upper Burner (LP)	2	Figure 8
501729	Orifice, Flame Runner Lower #74 (NAT)	1	Figure 8
<a href="#">163001</a>	Orifice, Flame Runner Lower #78 (LP)	1	Figure 8

# OWNER'S MANUAL

## MODEL F12G (QQ4 SERIES) AUTOBROIL™

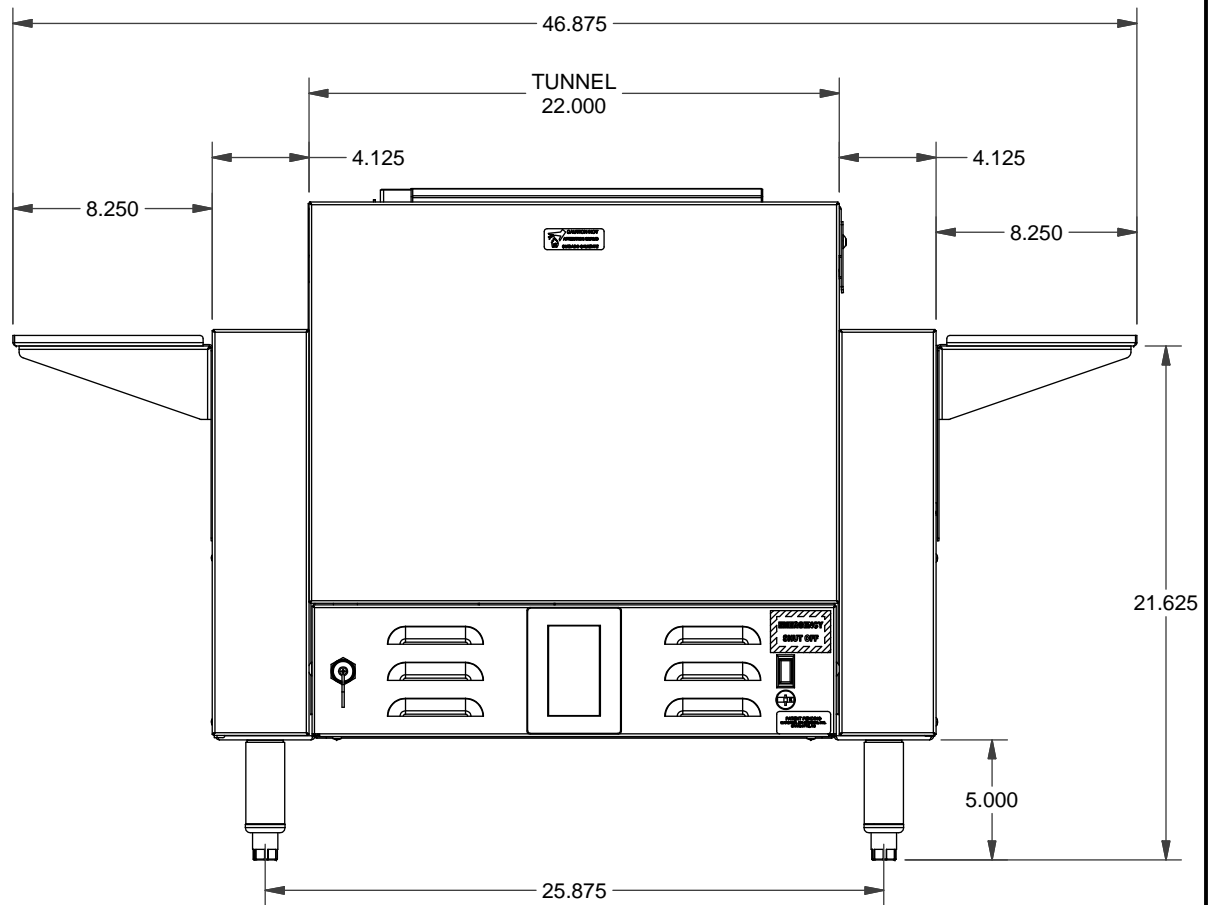
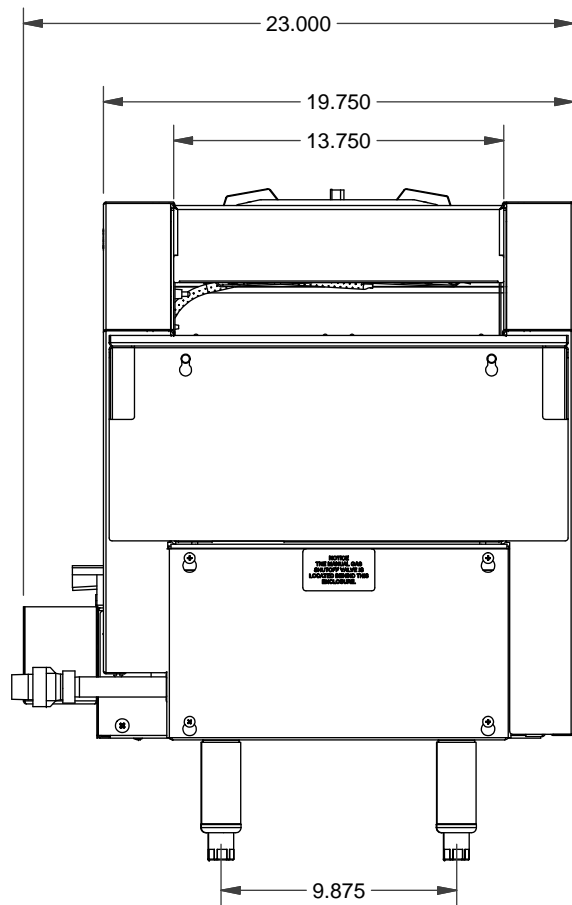


<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY PER UNIT</u>	<u>LOCATION</u>
501718	Orifice, Flame Runner Upper #70 (NAT)	1	Figure 8
163001	Orifice, Flame Runner Upper #78 (LP)	1	Figure 8
501991	Pick-Up, Motor Speed Control	2	Figure 4, Schematic
111984	Retainer, Burner Screen (Retainers only)	4	Figure 3
108407	Screen, Burner Top (Incl: 1 left & 1 right w/retainers)	2	Figure 3,10
29746	Set Collar Asby, .505" Dia.	2	Figure 4
108810	Shaft, Conveyor Drive	2	Figure 4
105419	Side Skin, Middle (For Back)	1	Figure 2
157829	Side Skin, Middle (For Front)	1	Figure 2
135031	Speed Control Board	2	Schematic
113744	Sprocket 10 Tooth 5/8 Pitch	2	Figure 4
120814	Sprocket 3518 x .505"	2	Figure 4
500040	Sprocket, 3510 x .500"	2	Figure 4
501747	Transformer 24V	3	Schematic
127359	Valve, Gas Main (LP)	1	Figure 8, Schematic
502868	Valve, Gas Main (NAT)	1	Figure 8, Schematic
502203	Valve, Gas Modulating (LP)	1	Figure 8, Schematic
502193	Valve, Gas Modulating (NAT)	1	Figure 8, Schematic
501555	Washer, Lock 1/4"	8	Figure 4



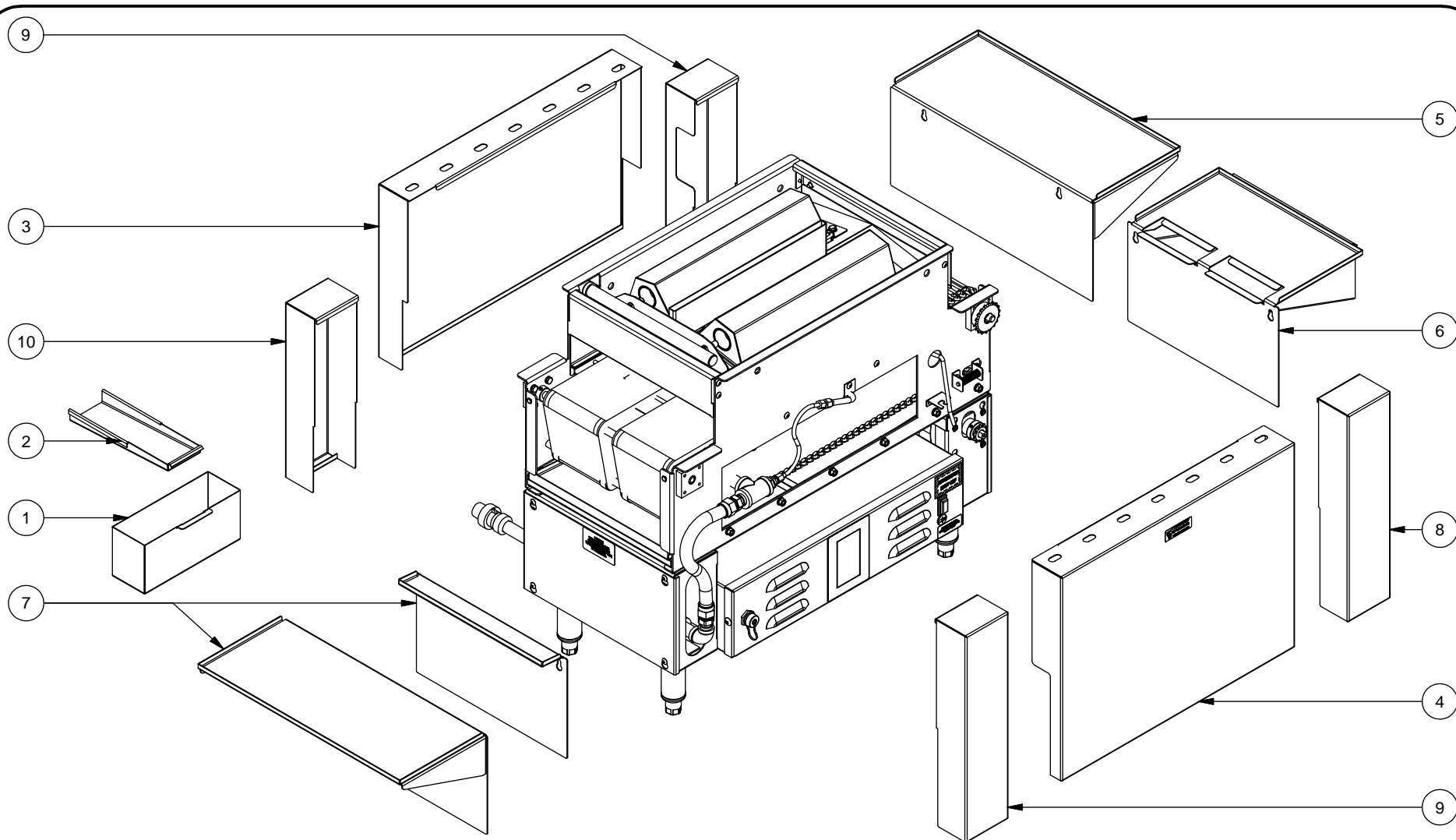
DIMENSIONAL DRAWING QQ4B & QQ4BR

FIGURE 1



DIMENSIONAL DRAWING QQ4A & QQ4AINTL

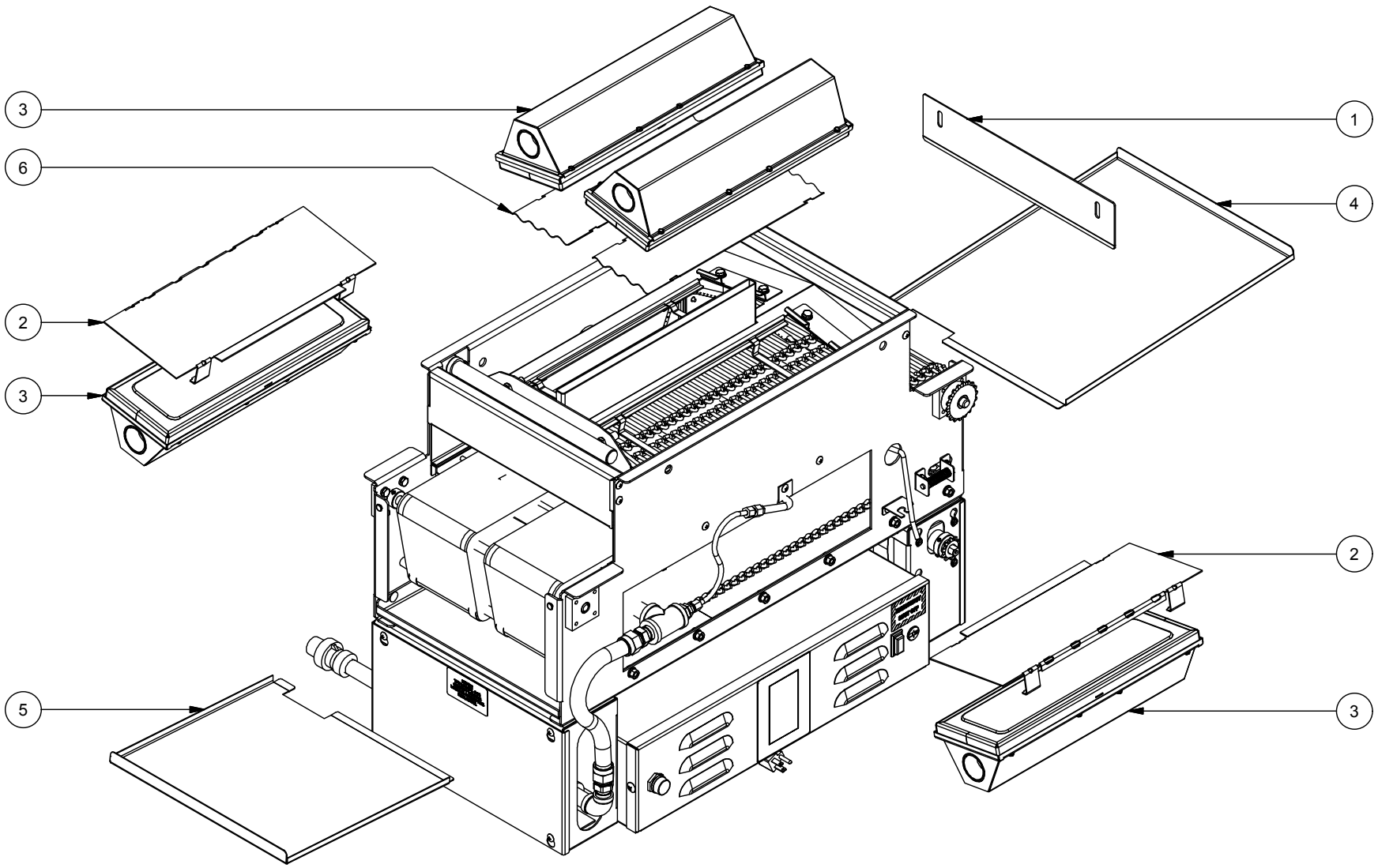
FIGURE 1A



Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	115678	GREASE CUP	1
2	115676	GREASE DRAIN	1
3	105419	SIDE SKIN, MIDDLE	1
4	157829	SIDE SKIN, MIDDLE FRONT	1
5	166178	TRAY, 8" W/ GUSSETS	2
6	158120	TRAY, EXIT F12G WITH BURGER CATCH	1
7	111830	TRAY, LOADING F12G SHORT (QQ4B & QQ4BR)	1
	166178	TRAY, 8" W/GUSSETS (QQ4A & QQ4AINTL)	
9	111826	WRAP, CHAIN GUARD	2
8	157375	WRAP, CHAIN GUARD	1
10	111827	WRAP, COVER	1

## EXTERNAL REMOVABLE PARTS

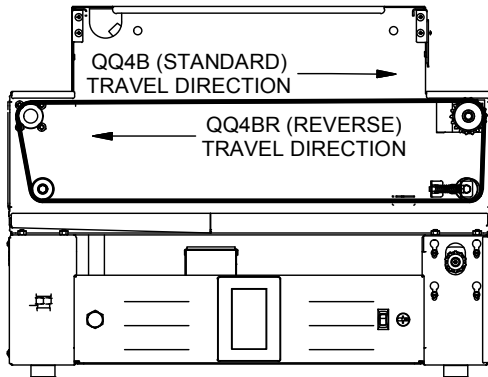
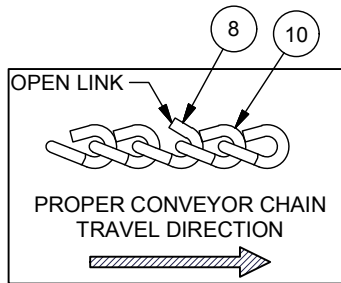
# FIGURE 2



Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	111934	ADJUSTABLE COVER PLATE	1
2	108604	BURNER SHIELD, LOWER (SET OF 2)	1
3	108554	BURNER, METAL MESH 15" F12G	4
4	115712	GREASE PAN LONG	1
5	115711	GREASE PAN SHORT	1
6	108407	SCREEN, BURNER, TOP (LEFT & RIGHT SET)	1

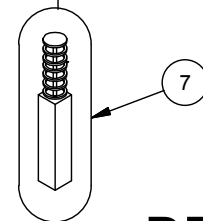
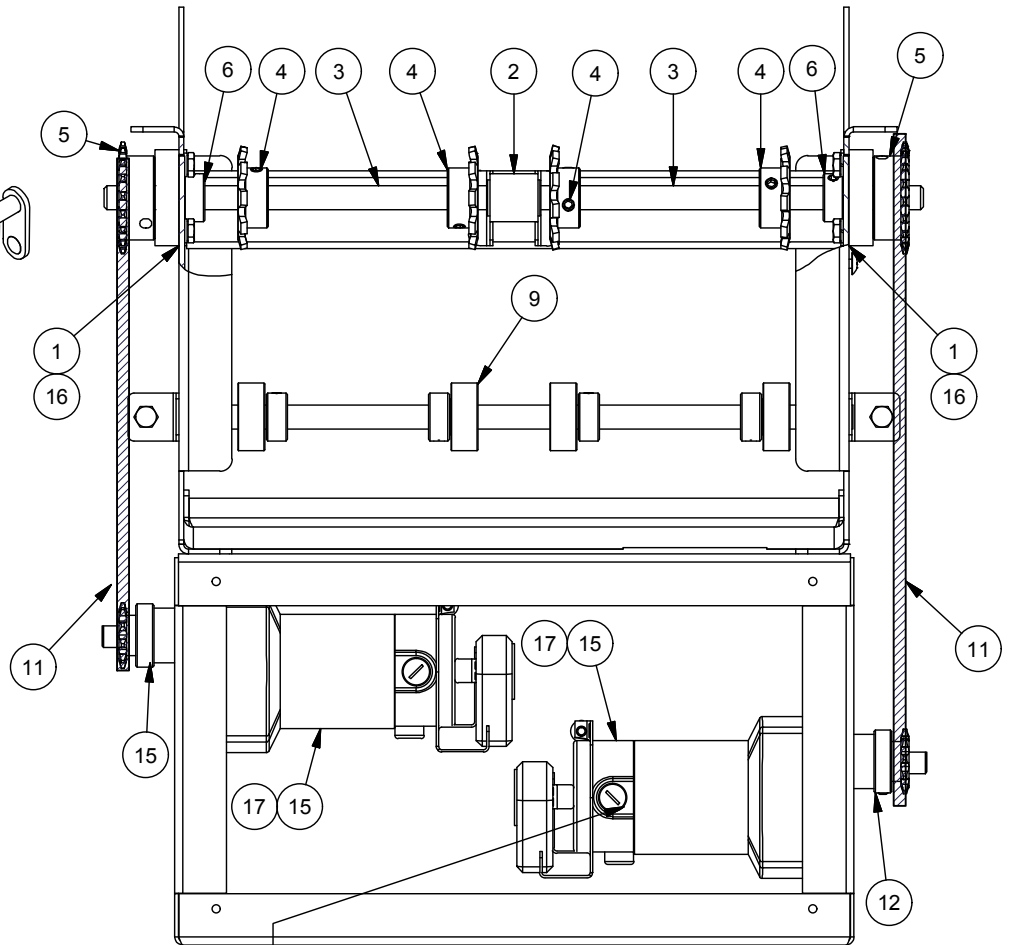
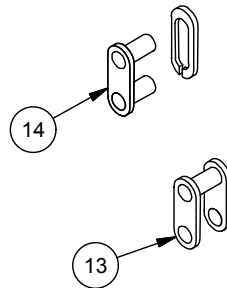
# INTERNAL REMOVABLE PARTS

# FIGURE 3



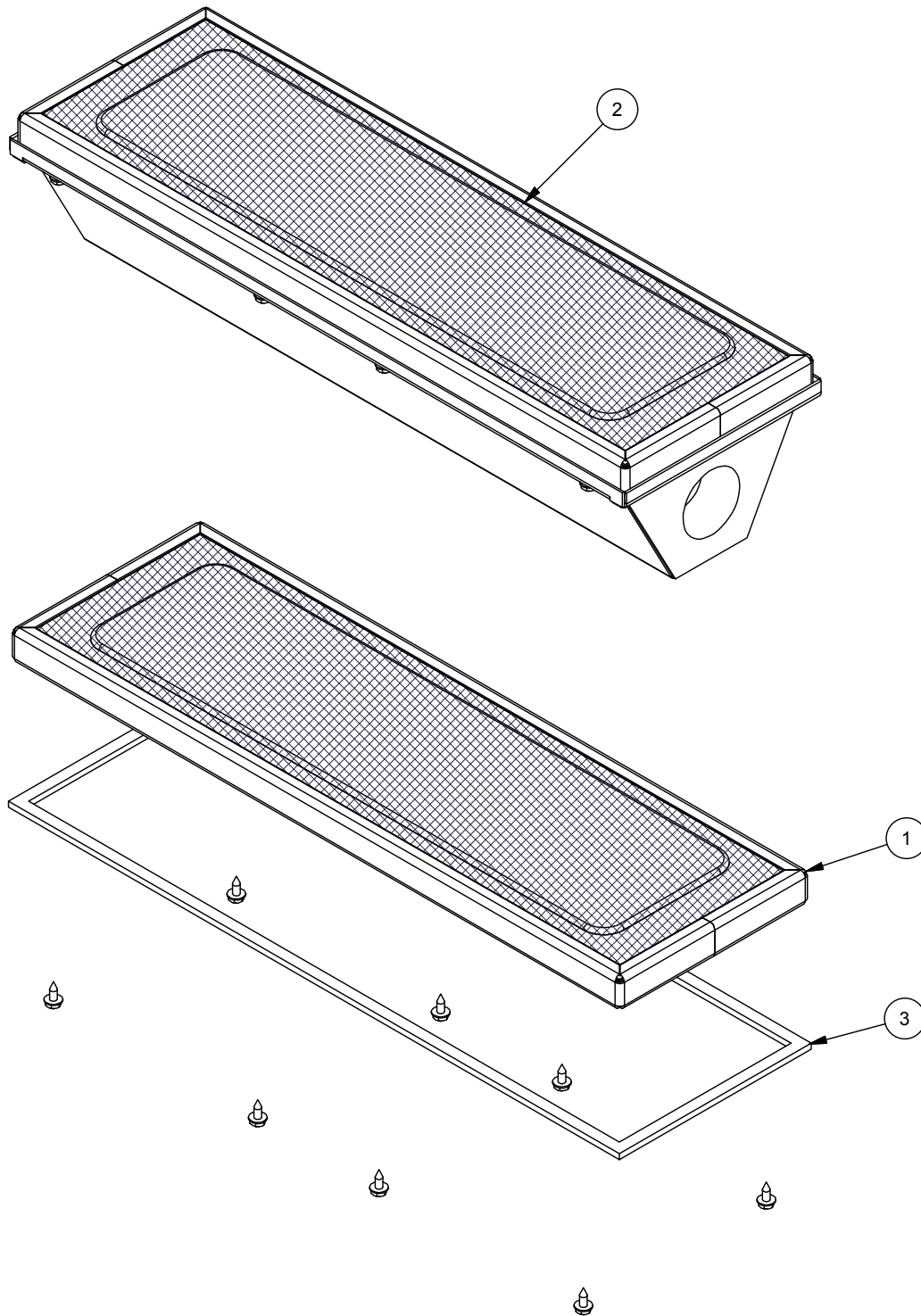
SOME DETAIL REMOVED FOR CLARITY

Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	108749	BEARING MOUNT ASBY	2
2	108797	CENTER BEARING SUPPORT ASBY	1
3	108810	SHAFT, CONVEYOR DRIVE	2
4	113744	SPROCKET ASBY, 10 TOOTH 5/8 PITCH	4
5	120814	SPROCKET ASBY, 3518 X .505"	2
6	129746	SET COLLAR ASBY, .505" DIA	2
7	148549	KIT, MOTOR BRUSH	1
8	155105	LINK, OPEN	2
9	157548	IDLER ASBY, TENSIONING SHAFT	1
10	500023	CONV BELT, 6" ROD	2
11	500035	CHAIN, #35 ROLLER	2
12	500040	SPROCKET, 3510 X .500"	2
13	500083	LINK, HALF	1
14	500092	LINK, MASTER	1
15	500940	MOTOR, 1/50 HP, 90V DC, 9RPM 40IN-LB	2
16	501555	WASHER, LOCK 1/4 PLATED STL	8
17	501991	PICK-UP, MOTOR SPEED CONTROL	2



SOME DETAIL REMOVED FOR CLARITY

# DRIVE SYSTEM FIGURE 4



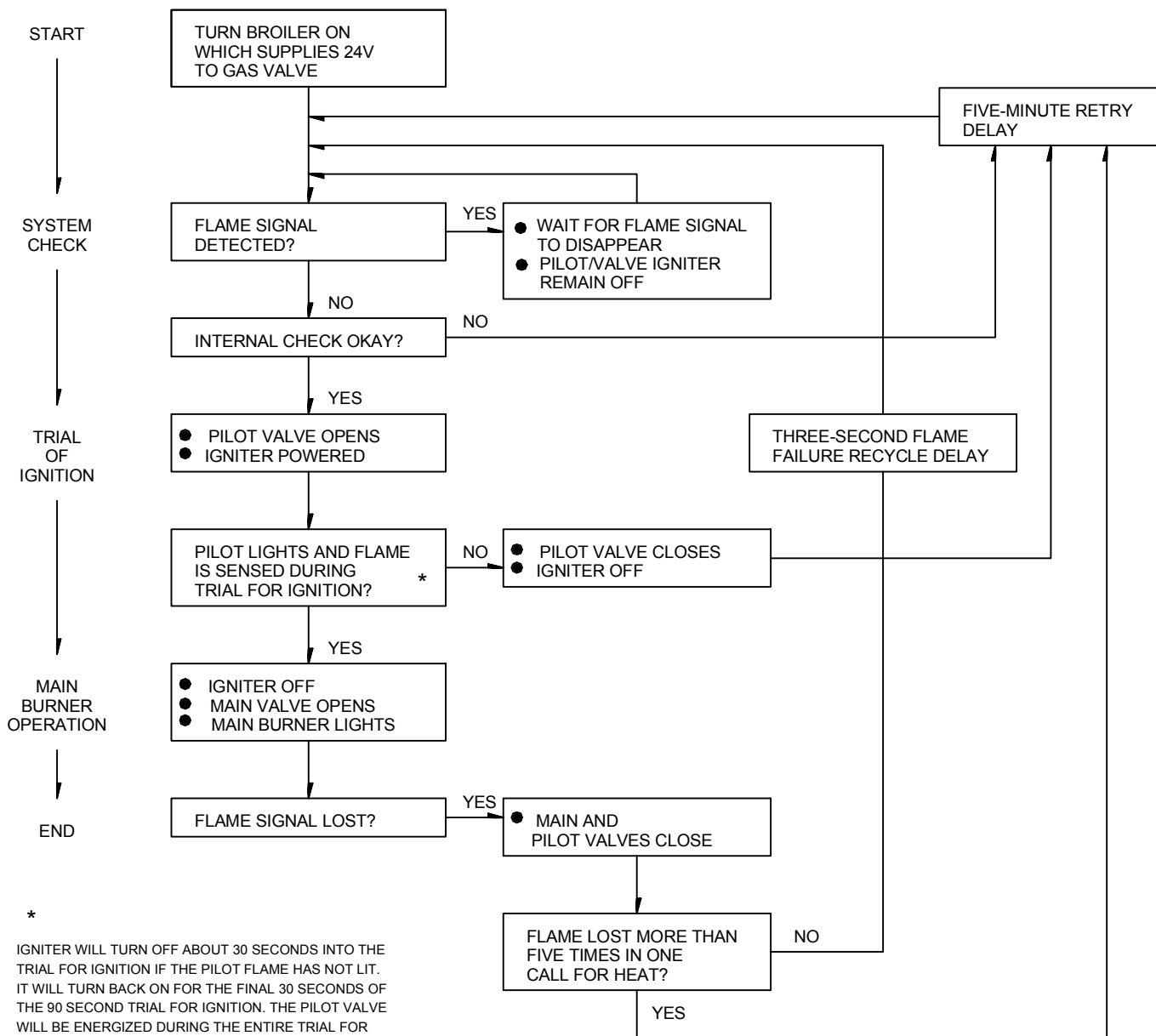
Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	<a href="#">107127</a>	KIT, BURNER SCREEN FRAME ASBY	1
2	<a href="#">108554</a>	BURNER, METAL MESH 15" F12G	1
3	<a href="#">162581</a>	KIT, BURNER GASKET FOR 4 BURNERS	1

# BURNER ASSEMBLY

## FIGURE 5

## SEQUENCE OF OPERATION

THE HOT SURFACE PILOT IGNITION SYSTEM USES BOTH PROVEN HOT SURFACE IGNITION (HSI) TECHNOLOGY AND FLAME RECTIFICATION TECHNOLOGY TO ACHIEVE A NEW LEVEL OF SAFETY IN GAS BURNER CONTROL. THE CONCEPT OF A PROVEN HOT SURFACE IGNITER HAS BEEN USED FOR YEARS IN GAS RANGES AND CLOTHES DRYERS; FLAME RECTIFICATION IS THE STANDARD FLAME PROVING METHOD IN DOMESTIC WARM AIR FURNACES AND BROILERS. IN THE SV9501 SYSTEM, A PROVEN HOT SURFACE IGNITER IS USED TO LIGHT A SMALL PILOT, NOT THE MAIN BURNER AS IN A DOMESTIC OVEN. IF THE HSI IS MISSING OR BROKEN, THE PILOT VALVE WILL STILL OPEN DURING THE 90 SECOND IGNITION TRIAL WHICH ALLOWS LIGHTING THE PILOT WITH A MATCH. WHEN, THROUGH FLAME RECTIFICATION, THE FLAME ROD SENSES PILOT FLAME, THE MAIN VALVE OPENS AND THE PILOT LIGHTS THE MAIN BURNER. IF THE PILOT IS NOT PROVED, THE MAIN GAS VALVE WILL NOT OPEN.



\*  
IGNITER WILL TURN OFF ABOUT 30 SECONDS INTO THE TRIAL FOR IGNITION IF THE PILOT FLAME HAS NOT LIT. IT WILL TURN BACK ON FOR THE FINAL 30 SECONDS OF THE 90 SECOND TRIAL FOR IGNITION. THE PILOT VALVE WILL BE ENERGIZED DURING THE ENTIRE TRIAL FOR IGNITION. THIS IS NORMAL OPERATION FOR THIS GAS IGNITION SYSTEM. THIS ALLOWS FOR THE PILOT TO BE LIT WITH A MATCH DURING THE IGNITION TRIAL IN THE EVENT THE HSI IS BROKEN.

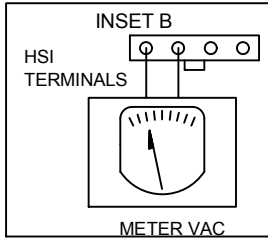
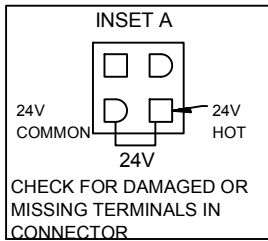
## HOT SURFACE (HSI) PILOT SYSTEM

# FIGURE 6

- TURN OFF GAS SUPPLY
- ASSURE SAFETY VALVE SWITCH IS IN ON POSITION
- DISCONNECT SYSTEM CONTROL HARNESS
- TURN THE BROILER ON.

CHECK FOR PROPER VOLTAGE AT CONTROL HARNESS (SEE INSET A). VOLTAGE SHOULD BE 24V BETWEEN 24V COMMON AND 24V HOT.

- NO
- CHECK:
    - LINE VOLTAGE POWER
    - LOW VOLTAGE TRANSFORMER
    - WIRING
    - POWER TO HEAT SWITCH



YES

PLUG HARNESS INTO SAFETY VALVE CONTROL WAIT FOR INTERNAL CHECK DELAY

IGNITER WARMS UP AND GLOWS RED

- NO
- UNPLUG PILOT BURNER CABLE, MEASURE VOLTAGE AT HSI ELEMENT OUTPUT (SEE INSET B) 24V NOMINAL

NO

REPLACE SAFETY VALVE CONTROL

NOTE: IGNITER WILL CYCLE OFF AND BACK ON ONCE DURING THE 90 SECOND IGNITION TRIAL

- YES
- REPLACE IGNITER/FLAME ROD ASSEMBLY
- RECONNECT PILOT BURNER CABLE

YES

\*TURN ON GAS SUPPLY  
\*PILOT BURNER LIGHTS

- NO
- CHECK THAT PILOT GAS IS FLOWING

NO

REPLACE SAFETY VALVE CONTROL

- YES
- MEASURE VOLTAGE BETWEEN 24V HOT AND 24V COMMON LEADS TO SAFETY VALVE CONTROL. MUST MEASURE AT LEAST 19.5VAC WITH IGNITER POWERED (SEE INSET A). THIS CHECK MUST BE DONE WITH THE SAFETY VALVE CONTROL CONNECTED AND IGNITER POWERED.

- NO
- CHECK TRANSFORMER AND LINE VOLT SUPPLY

YES

- YES
- REPLACE IGNITER/FLAME ROD ASSEMBLY

MAIN VALVE OPENS AND MAIN BURNERS LIGHT

- NO
- CHECK THAT PILOT FLAME MAKES GOOD CONTACT WITH PILOT BURNER FLAME RUNNER
  - CHECK FOR GOOD ELECTRICAL CONNECTION THROUGH THE PILOT TUBING
  - IF BOTH OF THE ABOVE ARE GOOD, REPLACE IGNITER/FLAME ROD ASSEMBLY
  - BURNER ORIFICES ARE PLUGGED

YES

SYSTEM IS OKAY

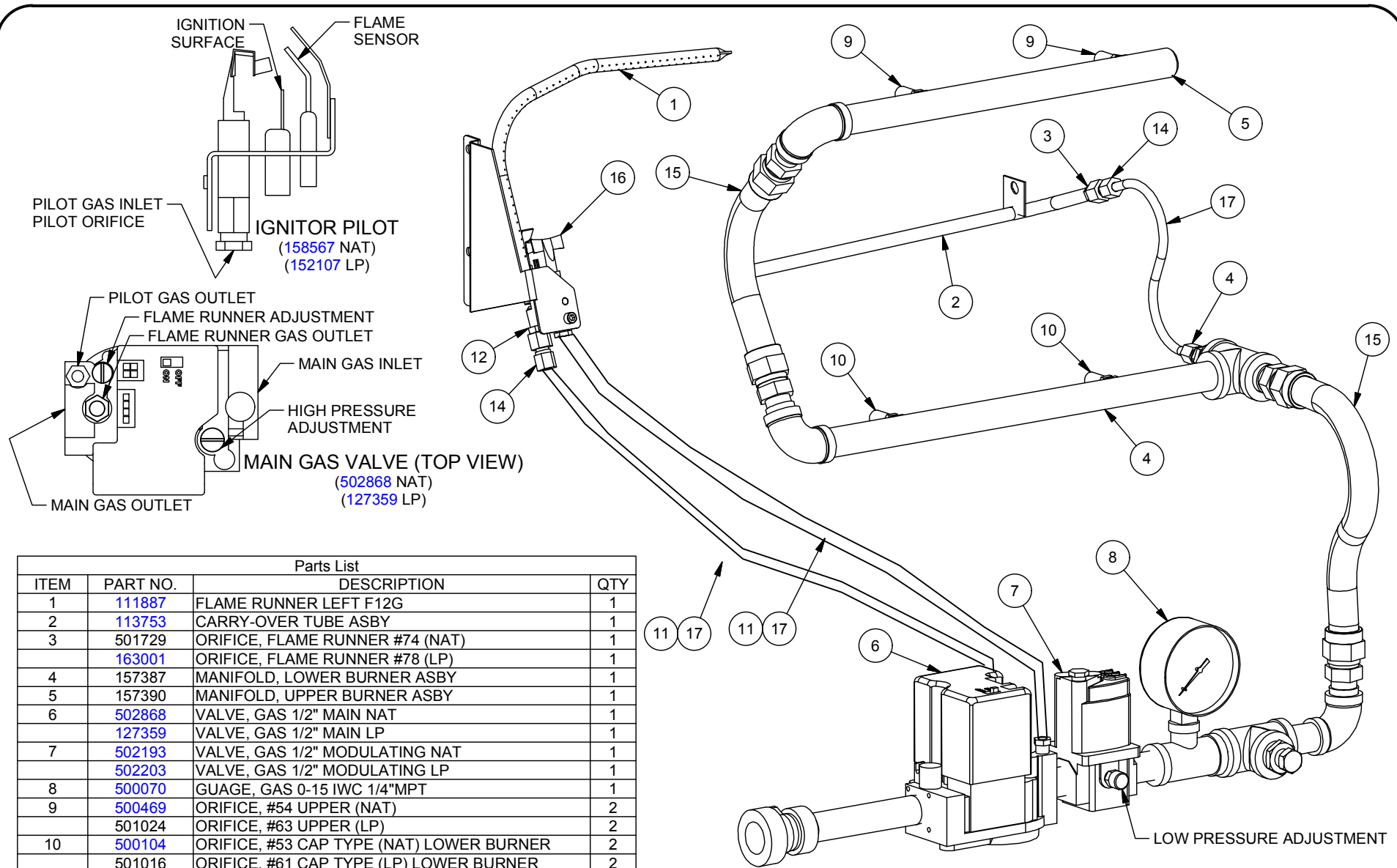
MAIN BURNERS LIGHT

NO

REPLACE SAFETY VALVE CONTROL

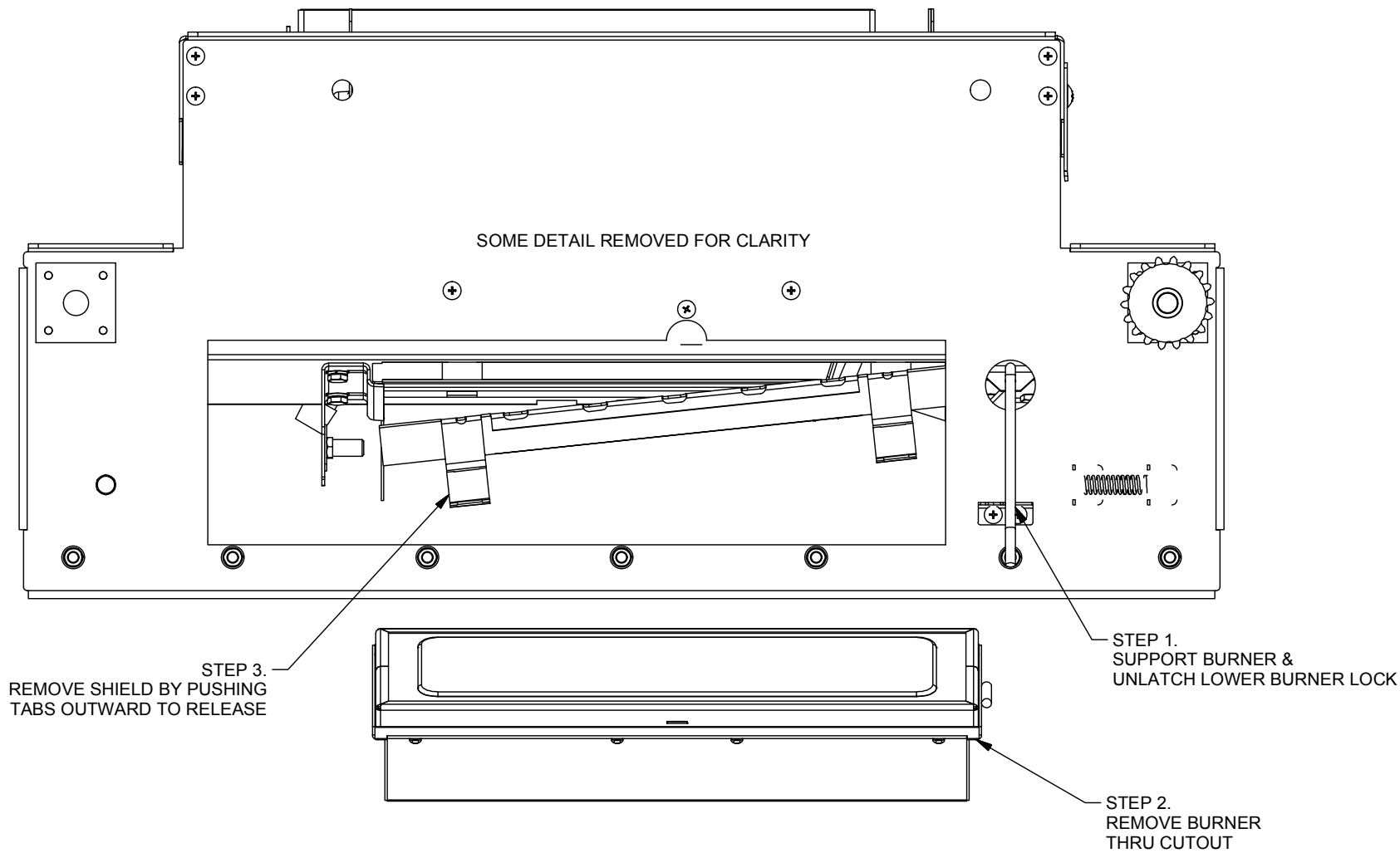
# HOT SURFACE (HSI) PILOT SYSTEM

## FIGURE 7



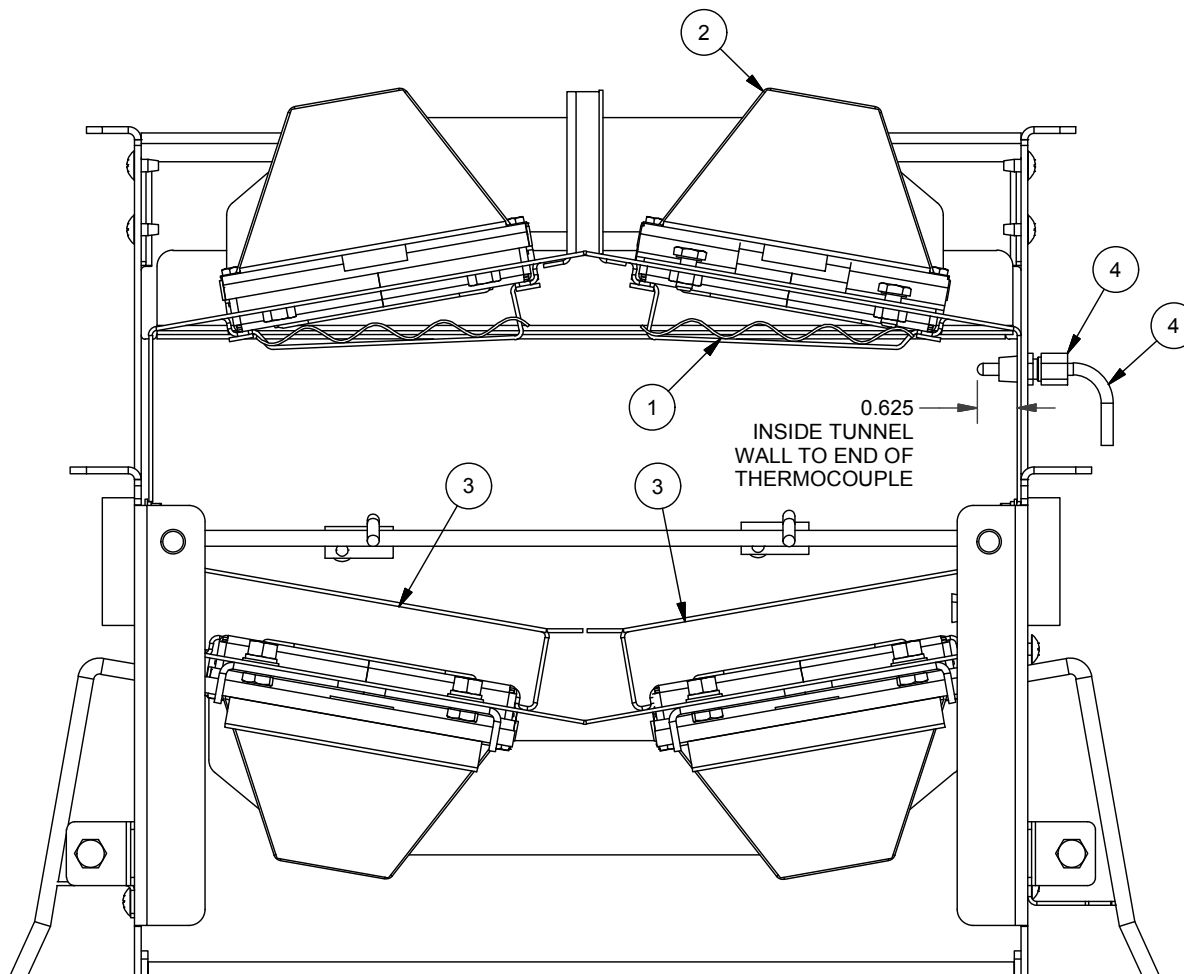
Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	111887	FLAME RUNNER LEFT F12G	1
2	113753	CARRY-OVER TUBE ASBY	1
3	501729	ORIFICE, FLAME RUNNER #74 (NAT)	1
	163001	ORIFICE, FLAME RUNNER #78 (LP)	1
4	157387	MANIFOLD, LOWER BURNER ASBY	1
5	157390	MANIFOLD, UPPER BURNER ASBY	1
6	502868	VALVE, GAS 1/2" MAIN NAT	1
	127359	VALVE, GAS 1/2" MAIN LP	1
7	502193	VALVE, GAS 1/2" MODULATING NAT	1
	502203	VALVE, GAS 1/2" MODULATING LP	1
8	500070	GUAGE, GAS 0-15 IWC 1/4" MPT	1
9	500469	ORIFICE, #54 UPPER (NAT)	2
	501024	ORIFICE, #63 UPPER (LP)	2
10	500104	ORIFICE, #53 CAP TYPE (NAT) LOWER BURNER	2
	501016	ORIFICE, #61 CAP TYPE (LP) LOWER BURNER	2
11	500674	COUPLING, BRASS 1/4 COMPRESSION	2
12	501718	ORIFICE, FLAME RUNNER #70 (NAT)	1
	163001	ORIFICE, FLAME RUNNER #78 (LP)	1
14	502411	COUPLING, BRASS 1/4 COMP X 1/8	2
15	502631	GAS FLEX-TUBE, 5/8" X 12"	2
16	158567	IGNITER, PILOT (NAT)	1
	152107	IGNITOR, PILOT (LP)	1
17	504136	GAS FLEX-TUBE, 1/4" X 10"	5

**GAS DISTRIBUTION**  
**FIGURE 8**



## LOWER BURNER & SHIELD REMOVAL

# FIGURE 9



Parts List			
ITEM	PART NO.	DESCRIPTION	QTY
1	108407	SCREEN, BURNER, TOP	2
2	108554	BURNER, METAL MESH 15" F12G	4
3	108604	BURNER SHIELD, LOWER	2
4	157608	KIT, THERMOCOUPLE	1

## THERMOCOUPLE LOCATION

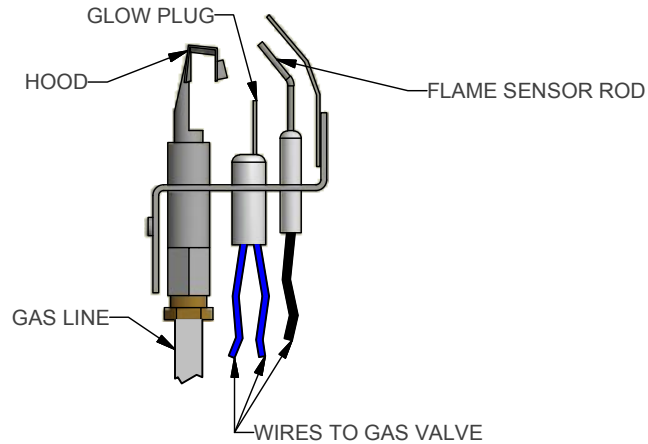
# FIGURE 10

## QUARTERLY PILOT CLEANING INSTRUCTIONS

TO CLEAN PILOT IGNITER

1. LOOK FOR DEBRIS / ASH BUILD UP.
2. USING A SMALL WIRE BRUSH OR SAND PAPER, LIGHTLY BRUSH SENSOR ROD AND INSIDE OF HOOD. BE VERY CAREFUL NOT TO BREAK SENSOR ROD.
3. BRUSH ALL SIDES OF ROD TO MAKE SURE IT GETS CLEAN.
4. **DO NOT BRUSH GLOW PLUG, IT WILL BREAK EASILY.**
5. BLOW AIR INTO THE SENSOR ROD AREA TO HELP REMOVE ASH AND DEBRIS FROM CLEANING.

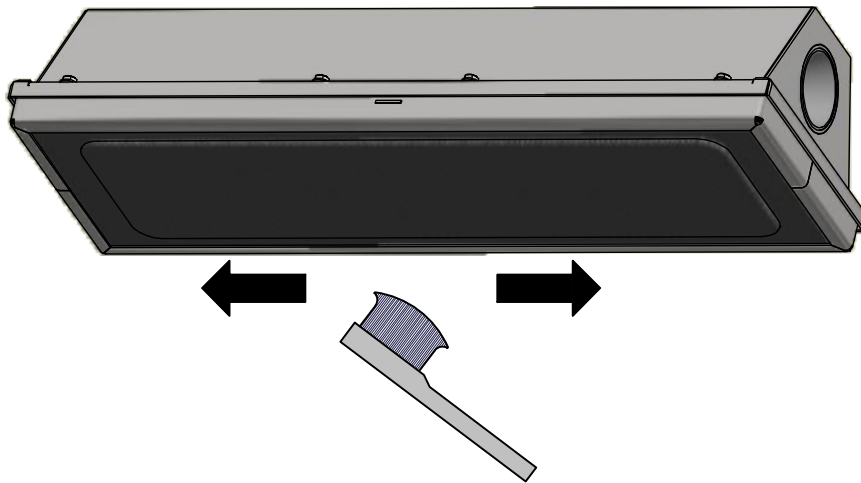
IF SENSOR ROD OR GLOW PLUG DOES BREAK, THE IGNITER **MUST** BE REPLACED



## BIANNUAL BURNER CLEANING INSTRUCTIONS

TO CLEAN (4) BURNERS

1. REMOVE (4) BURNERS (SEE INSTRUCTIONS UNDER BIANNUAL CLEANING).
2. SHAKE OFF LOOSE DEBRIS.
3. HOLDING THE BURNER WITH THE MESH FACING THE FLOOR, BRUSH THE MESH WITH A SOFT BRISTLED BRUSH. **DO NOT WASH / RINSE WITH WATER!**



## QUARTERLY/BIANNUAL CLEANING INSTRUCTIONS

# FIGURE 11

# TOUCHSCREEN CONTROL QUICK GUIDE

AUTOBROIL™ – MODEL F12G AND F12



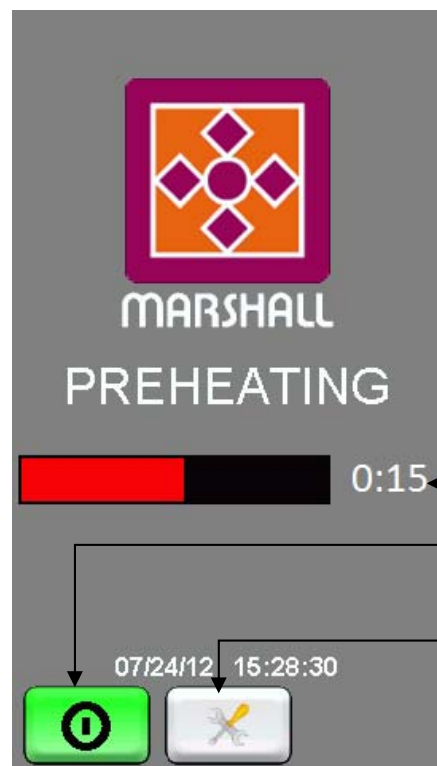
## OFF MODE:

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.



## PREHEAT 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 READY MODE.

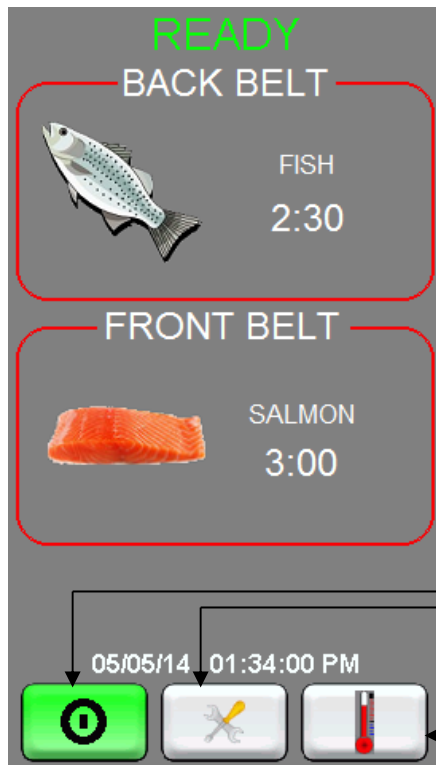
**Preheat Timer:** The remaining preheat time is displayed in minutes. The red timer bar gives the user a quick reference of the remaining time versus total time.

**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.

# TOUCHSCREEN CONTROL QUICK GUIDE

AUTOBROIL™ – MODEL F12G AND F12



## READY MODE:

This is the READY MODE home screen. Each of the broiler's belts has its associated belt window with the belt name, a representative food icon, the recipe name and the recipe cook time. Each belt can also have up to 12 different recipes to choose from. See owner's manual for more information about adding, modifying or deleting recipes

### To change recipe on a specific belt:

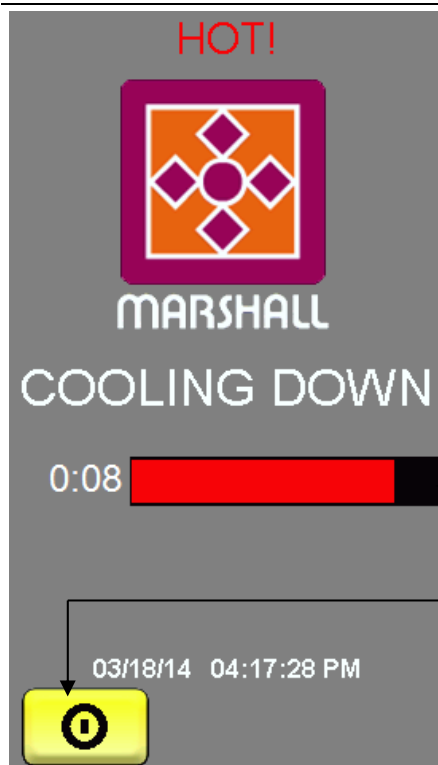
- Press anywhere inside the desired belt window. The select recipe screen will show up.
- Press on one of the available recipes to select. The controller will get back to the READY MODE home screen showing the newly selected recipe for that belt.

**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.

### 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.



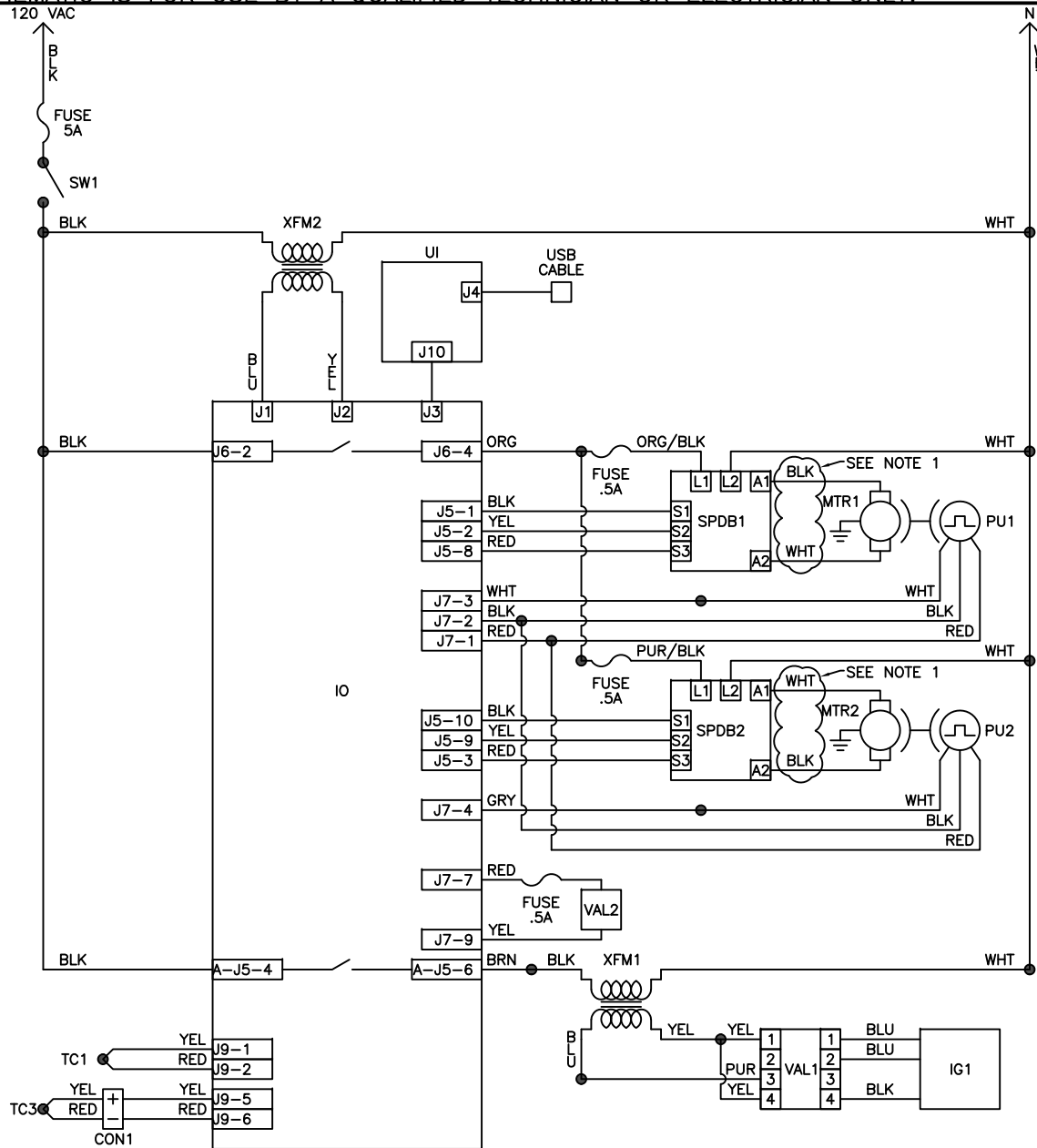
## COOL DOWN MODE:

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.

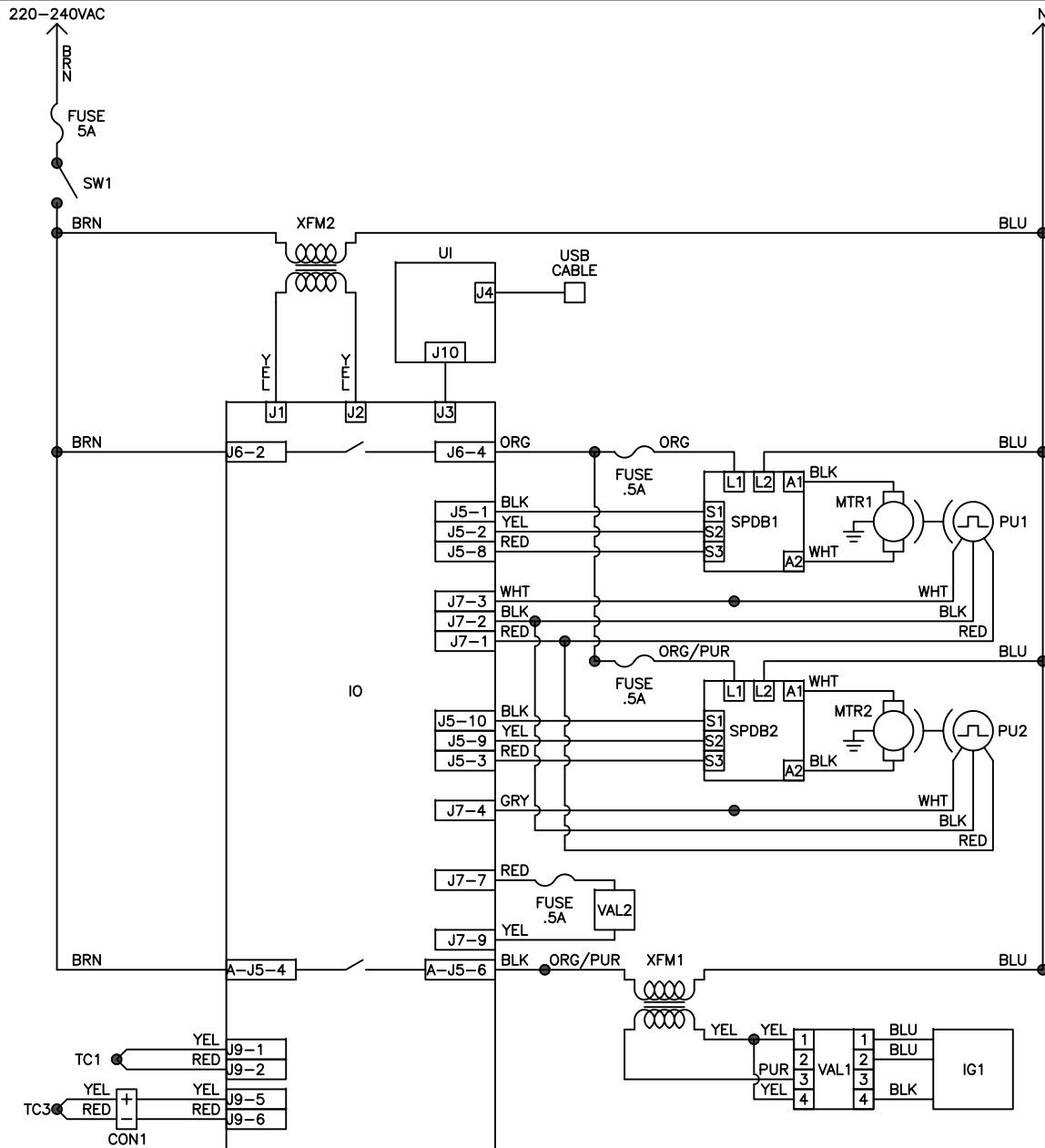
**Cool Down Timer:** The remaining cool down time is displayed in minutes. The red timer bar gives the user a quick reference of the remaining time versus total time.

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



- POWER CORD, 14/3 NEMA 5-15 - #502075
- FUSE 5A - #500062
- SW1, EMERGENCY SWITCH - #501864
- XFM2, TRANSFORMER 24V - #501747
- UI, TOUCHSCREEN USER INTERFACE:  
 #169406 (QQ4B & QQ4BR)  
 #163380 (QQ4B-RUB)  
 #172090 (QQ4A)
- USB CABLE - #504428
- IO, INPUT/OUTPUT BOARD - #504285
- FUSE .5A - #501139
- SPBD1, SPEED CONTROL BOARD - #135031
- MTR1, MOTOR - #500940
- PU1, PICK-UP - #501991
- } BACK CONVEYOR
- FUSE .5A - #501139
- SPBD2, SPEED CONTROL BOARD - #135031
- MTR2, MOTOR - #500940
- PU2, PICK-UP - #501991
- } FRONT CONVEYOR
- NOTE 1:** BLK & WHT MOTOR WIRES ARE REVERSED ON THE QQ4BR MODEL.
- FUSE .5A - #501139
- VAL2, MODULATING VALVE - #502193 (NAT), #502203 (LP)
- XFM1, TRANSFORMER 24V - #501747
- VAL1, MAIN GAS VALVE - #502868 (NAT), #127359 (LP)
- IG1, IGNITER - #148489 (NAT), #148490 (LP)
- TC1, BROILER THERMOCOUPLE - #146245
- TC3, FOOD PROBE (OPTIONAL) - #504030
- CON1, THERMOCOUPLE CONNECTOR (OPTIONAL) - #503820

REV	DESCRIPTION	DATE	REV. BY	DRAWN BY: S.A.	DATE: 6/12/2014	MARSHALL AIR SYSTEMS, INC.			
1	UPDATE COMPONENT LOCATION AND WIRING	7/10/2014	S.A.	GENERIC NAME: <b>SCHEMATIC</b>		<div style="font-size: 1.2em; font-weight: bold;">SCHEMATIC</div> <div style="font-size: 1.2em; font-weight: bold;">F12G W/ TOUCHSCREEN CONTROL</div>			
2	ADDED QQ4B	3/23/2016	S.A.	PRODUCT LINE: FAB	PRODUCT CLASS: BRL				
3	ADDED QQ4BR & QQ4A SPECS	12/1/2016	S.A.	MATERIAL: REFERENCE					
				SIZE: A	ROUTE: ELECT	DWG. NO.: 163381	REV.: 3		
				SCALE: NTS		IMAGE MAY BE REDUCED NTS	CODE: QQ4B, QQ4BR, QQ4B-RUB & QQ4A		



- CORD, 12/3 SJTOW INTL NO PLUG - #504237
- FUSE 5A - #500062
- SW1, EMERGENCY SWITCH - #501864
- XFM2, TRANSFORMER 24V - #502916
- UI, TOUCHSCREEN CONTROL - #169414
- USB CABLE - #504428
- IO, INPUT/OUTPUT BOARD - #504285
- FUSE .5A - #501139
- SPDB1, SPEED CONTROL BOARD - #141643
- MTR1, MOTOR - #500940
- PU1, PICK-UP - #501991
- FUSE .5A - #501139
- SPDB2, SPEED CONTROL BOARD - #141643
- MTR2, MOTOR - #500940
- PU2, PICK-UP - #501991
- FUSE .5A - #501139
- VAL2, MODULATING VALVE - #502193 (NAT), #502203 (LP)
- XFM1, TRANSFORMER 24V - #502916
- VAL1, MAIN GAS VALVE - #502868 (NAT), #127359 (LP)
- IG1, IGNITER - #158567 (NAT), #152107 (LP)
- TC1, BROILER THERMOCOUPLE - #146245
- TC3, FOOD PROBE (OPTIONAL) - #504030
- CON1, THERMOCOUPLE CONNECTOR (OPTIONAL) - #503820

BACK CONVEYOR

FRONT CONVEYOR

REV	DESCRIPTION	DATE	REV. BY	DRAWN BY: S.A.	DATE: 8/18/2016	MARSHALL AIR SYSTEMS, INC.				
				GENERIC NAME: SCHEMATIC		SCHEMATIC				
				PRODUCT LINE: FAB	PRODUCT CLASS: BRL	F12G DUAL - TOUCHSCREEN CONTROL				
				MATERIAL: REFERENCE	SIZE: A	ROUTE: ELECT	DWG. NO.: 169263	REV.: 0		
				" X "		SCALE: NTS	IMAGE MAY BE REDUCED NTS	CODE: QQ4AINTL		