



SERVICE MANUAL

BROASTER® 1600 AND 1800

PRESSURE FRYER w/SMART TOUCH CONTROL

Be sure ALL installers read, understand, and have access to this manual at all times.



1600

1800

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Broaster Company
2855 Cranston Road, Beloit, WI 53511-3991
608/365-0193 broaster.com

Design Certified By:

1600: CSA, NSF and UL

1800: CSA (AGA & CGA), NSF and UL

Manual #17270 1013 Rev 11/25

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Printed In U.S.A.

FOR YOUR SAFETY

Do not use or store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance. Improper installation, adjustments, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

For the sake of safety and clarity, the following words used in this manual are defined as follows:



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



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



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

All adjustments and repairs shall be made by an authorized Broaster Company representative.

If there is a power failure, turn cook/filter switch OFF. On the Model 2400GH, also slide switch on gas valve OFF. DO NOT attempt to operate unit during a power failure.



Failure to read and understand this manual completely could result in serious injury or death. Be sure ALL operators read, understand and have access to this manual at all times.



Rags or paper containing cooking oil can catch fire if exposed to heat. Laundering will not remove the oil. Dispose of all oil-soiled papers and rags in a trash container that is in a ventilated area away from all cooking equipment or other heat sources such as direct sunlight.



If at any time the POWER ON light does not turn off when the cook/filter switch is moved to the OFF position, disconnect the power to the fryer and contact your local Broaster Company representative for service immediately.



DO NOT operate unit without filter pan and filter pan cover in its proper position. Filter pan cover must be wiped clean after each filtering cycle.



Make sure Pressure Relief Valve and Pressure Gauge ports on bottom of cover are clear of any oil or grease buildup.

cont'd on next page

1800GH:

Post, in prominent locations, instructions to be followed in the event that the user smells gas. This information can be obtained from your local gas supplier.



WARNING Make sure a restraining device is used that complies with the Standard for *Commercial Gas Ranges*, ANSI Z83.11/ CSA 1.8 to guard against transmission of strain to the gas connectors.



DANGER Failure to restrain the fryer could allow it to move, causing hot shortening to spill out, or a possible break in the gas line causing an explosive condition.

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FLOW CHART - 1600 & 1800E 10 - 8

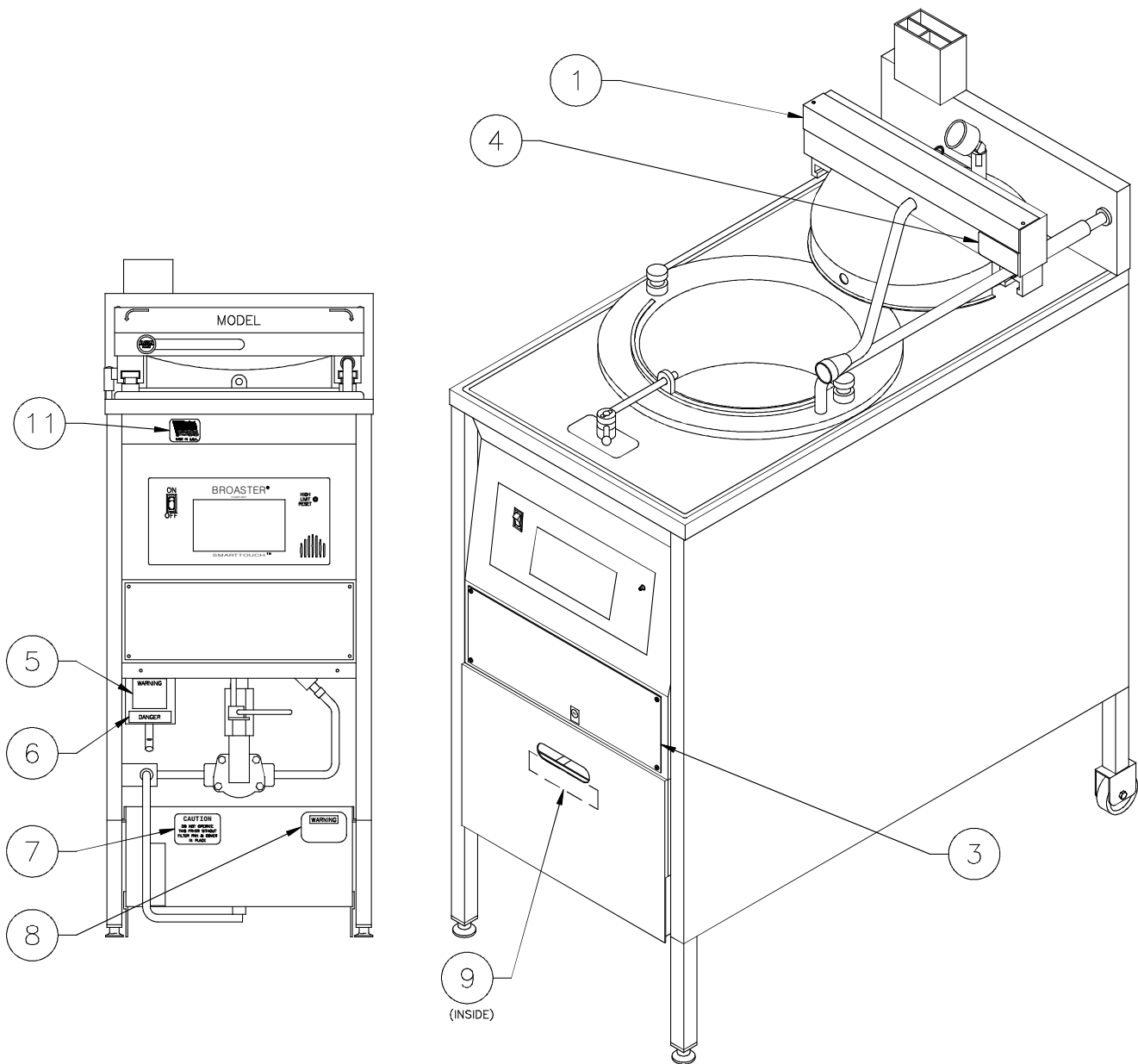
FLOW CHART - 1800GH 10 - 9

1 - WARNING SIGNS

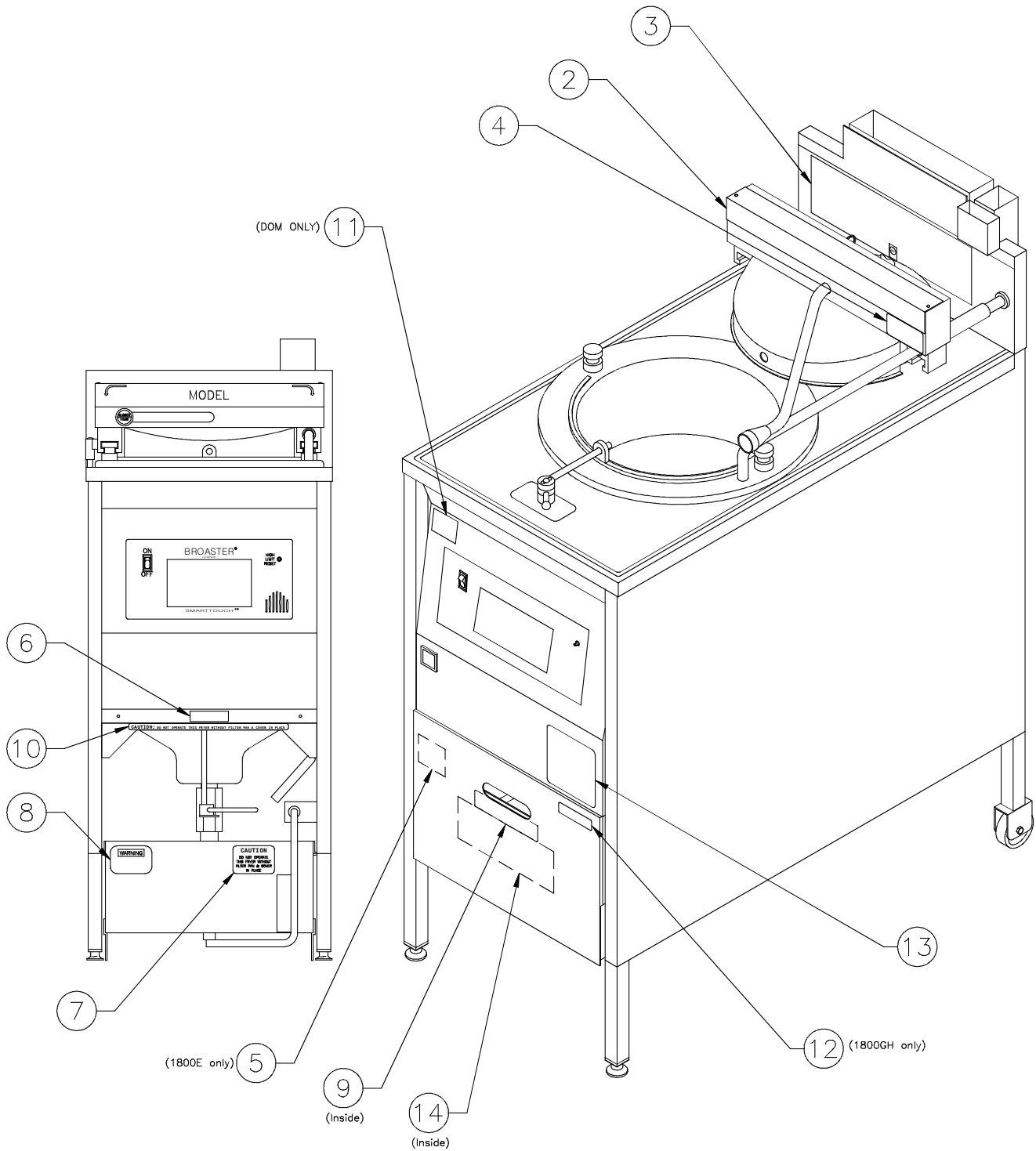
When servicing a Broaster® Pressure Fryer, be sure all safety devices and warning signs are in place and legible. If not, The Broaster Company should be notified in writing of the lack of warning signs and the existence of an unsafe condition.

If you need replacement warning signs or manuals, contact an authorized Broaster Company representative or The Broaster Company Service Department at 608/365-0193.

1600 Domestic Labeling



1800 Domestic Labeling

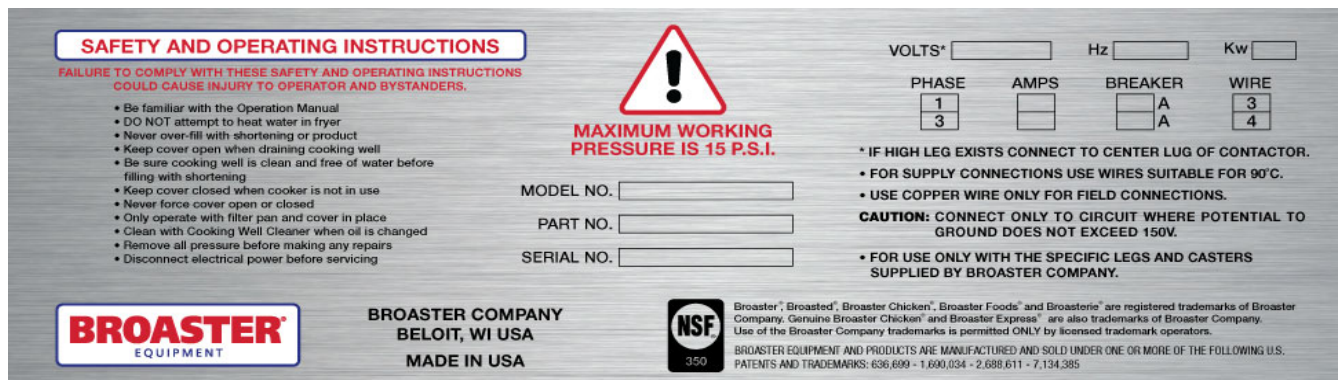




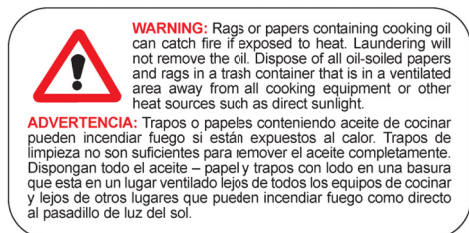
Item 1 - Part #10733



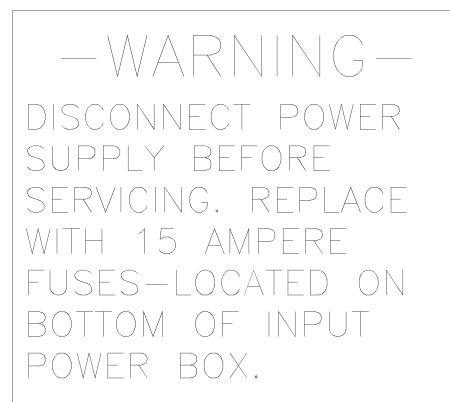
Item 2 - Part #10886



Item 3 - Part #18018



Item 4- Part #16368



Item 5 - Part #11073

— DANGER —
NEVER OPEN POT DRAIN VALVE
WHILE UNDER PRESSURE

Item 6 - Part #06375

CAUTION

DO NOT OPERATE
THIS FRYER WITHOUT
FILTER PAN & COVER
IN PLACE

Item 7 - Part #15725

WARNING

HOT SHORTENING!
DO NOT USE THIS
CONTAINER
TO TRANSPORT
HOT SHORTENING

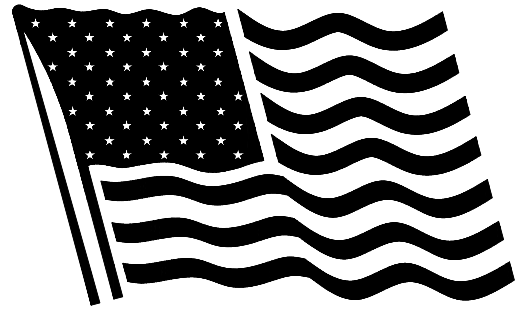
Item 8 - Part #11028

WATER & HOT OIL DO NOT MIX!
DO NOT POUR CONTENTS BACK
INTO COOKING WELL OR FILTER.
BODILY INJURY MAY OCCUR!

Item 9 - Part #10900

CAUTION: DO NOT OPERATE THIS FRYER WITHOUT FILTER PAN & COVER IN PLACE

Item 10 - Part #15785



MADE IN U.S.A.

Item 11 - Part #15398 Domestic Only

MANUAL SHUTOFF VALVE
LOCATED BEHIND THIS PANEL

Item 12 - Part #11746 (1800GH Only)

BROASTER® 1800GH

INTENDED FOR OTHER THAN HOUSEHOLD USE

GAS	NATURAL	LP
RATING BTU/HR	65,000	65,000
MANIFOLD PRESSURE	3.5 in-wc	10 in-wc

CLEARANCES inches

	US	CAN
BACK	6	6
RIGHT SIDE	0	1
LEFT SIDE	0	1



FOR USE ONLY IN
NON-COMBUSTIBLE
LOCATIONS.

ANSI Z83.11 – CSA 1.8 -
ANSI / NSF 4
MH63565
GAS FOOD SERVICE EQUIPMENT

BROASTER COMPANY • BELOIT, WI USA
PARTS AND SERVICE SUPPLIED BY AUTHORIZED BROASTER DISTRIBUTORS

18156

Item 13 - (1800GHDOM after Aug 2022)

BROASTER® 1800GH

INTENDED FOR OTHER THAN HOUSEHOLD USE

FOR USE WITH G20 GAS

65,000 BTU/HR, 17.2 kW NET

MANIFOLD PRESSURE 8.7 mBAR

CLEARANCES mm

	EU
BACK	152
RIGHT SIDE	0
LEFT SIDE	0

CE 2797

UKCA 0086

FOR USE ONLY IN
NON-COMBUSTIBLE
LOCATIONS.

BROASTER COMPANY • BELOIT, WI USA
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15777

Item 13 - (1800GHCE after July 2003)
#15777 for G20/Nat Gas

BROASTER® 1800GH

INTENDED FOR OTHER THAN HOUSEHOLD USE

FOR USE WITH G31 GAS

65,000 BTU/HR, 17.6 kW NET

MANIFOLD PRESSURE 25.0 mBAR

CLEARANCES mm

	EU
BACK	152
RIGHT SIDE	0
LEFT SIDE	0

CE 2797

UKCA 0086

FOR USE ONLY IN
NON-COMBUSTIBLE
LOCATIONS.

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16993

Item 13 - (1800GHCE after July 2003)
16993 for G31/ LP Gas

OPERATING INSTRUCTIONS

START UP

YOU ARE NOT REQUIRED TO PHYSICALLY LIGHT THE PILOT ON THIS UNIT.

1. TURN THE MANUAL SHUT-OFF VALVE TO THE "ON" POSITION. WAIT 5 MINUTES BEFORE TURNING GAS VALVE ON.
2. MOVE SLIDE SWITCH ON GAS VALVE TO "ON".
3. MOVE COOK / FILTER SWITCH TO THE "COOK" POSITION.

SHUT DOWN

1. TURN COOK / FILTER SWITCH TO "OFF" POSITION.
2. MOVE SLIDE SWITCH ON GAS VALVE TO "OFF".
3. TURN THE MANUAL SHUT-OFF VALVE TO THE "OFF" POSITION.

INSTALL IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD FUEL GAS CODE ANSI Z223.1 LATEST ADDITION.

PN 15694

Item 14 - Part #15694 Domestic

2 - ELECTRIC POWER SUPPLY



Many sections in this manual pertain to checking and repairing electrical components. **High voltage** will be encountered in several instances. Only persons trained and equipped for checking high voltage shall undertake such repairs.

If no component operates, check main power supply. Be sure main circuit breaker is ON and main fuses are good.

Correct voltage will be either 208 or 240V.

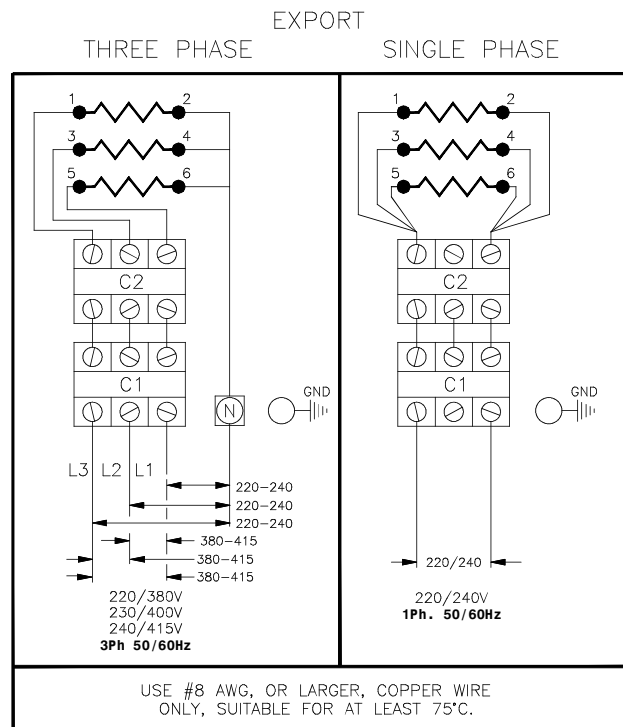
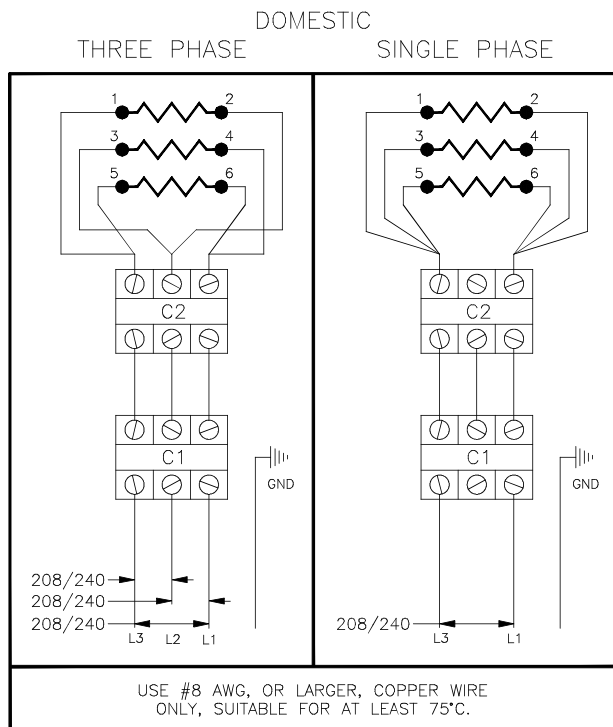
Perform the following if unit will not turn on:

1. Disconnect main power supply.
2. Be sure all connections are tight. If power supply is proper, see TROUBLESHOOTING section.

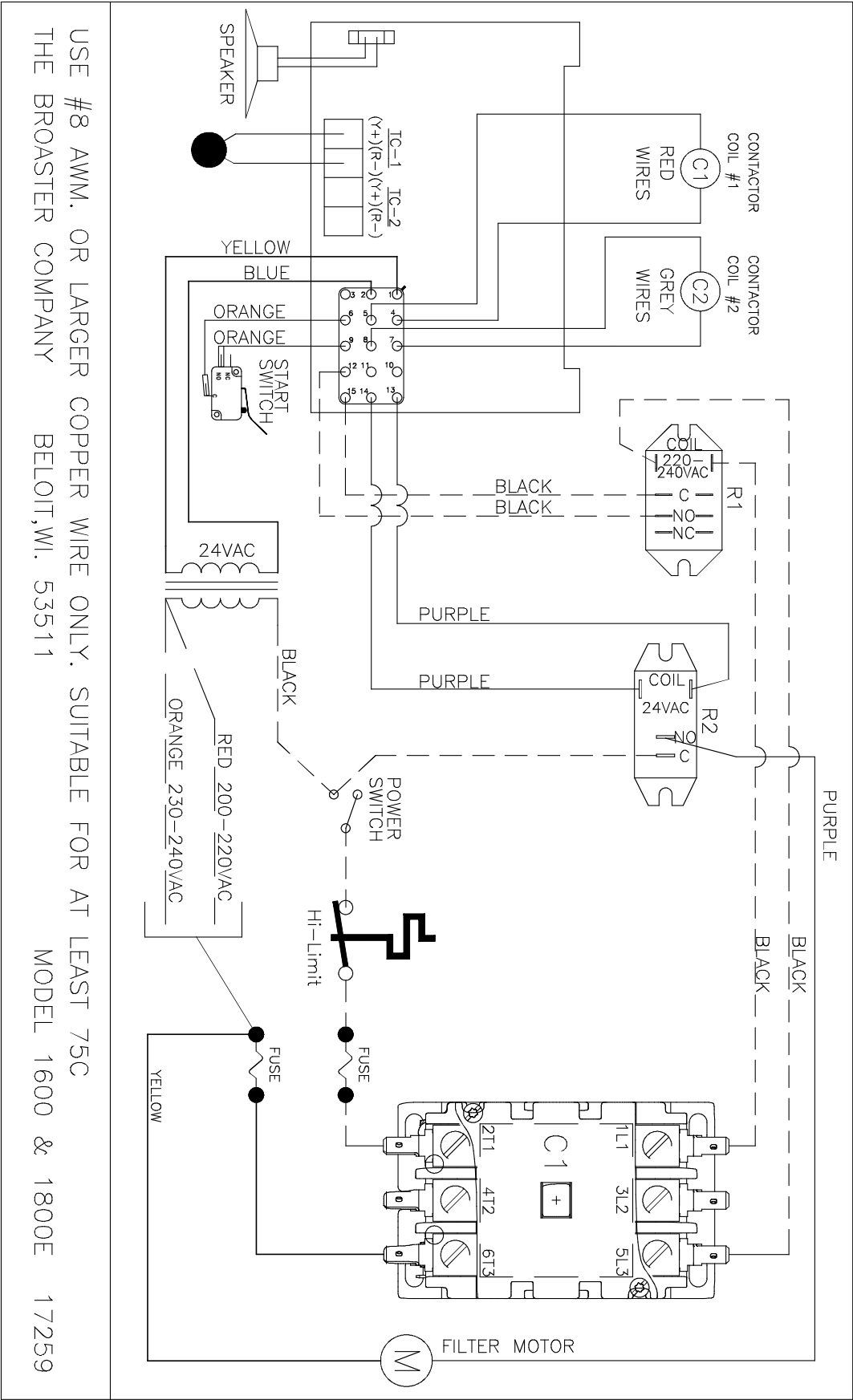
Wiring diagrams are located on inside front panel.

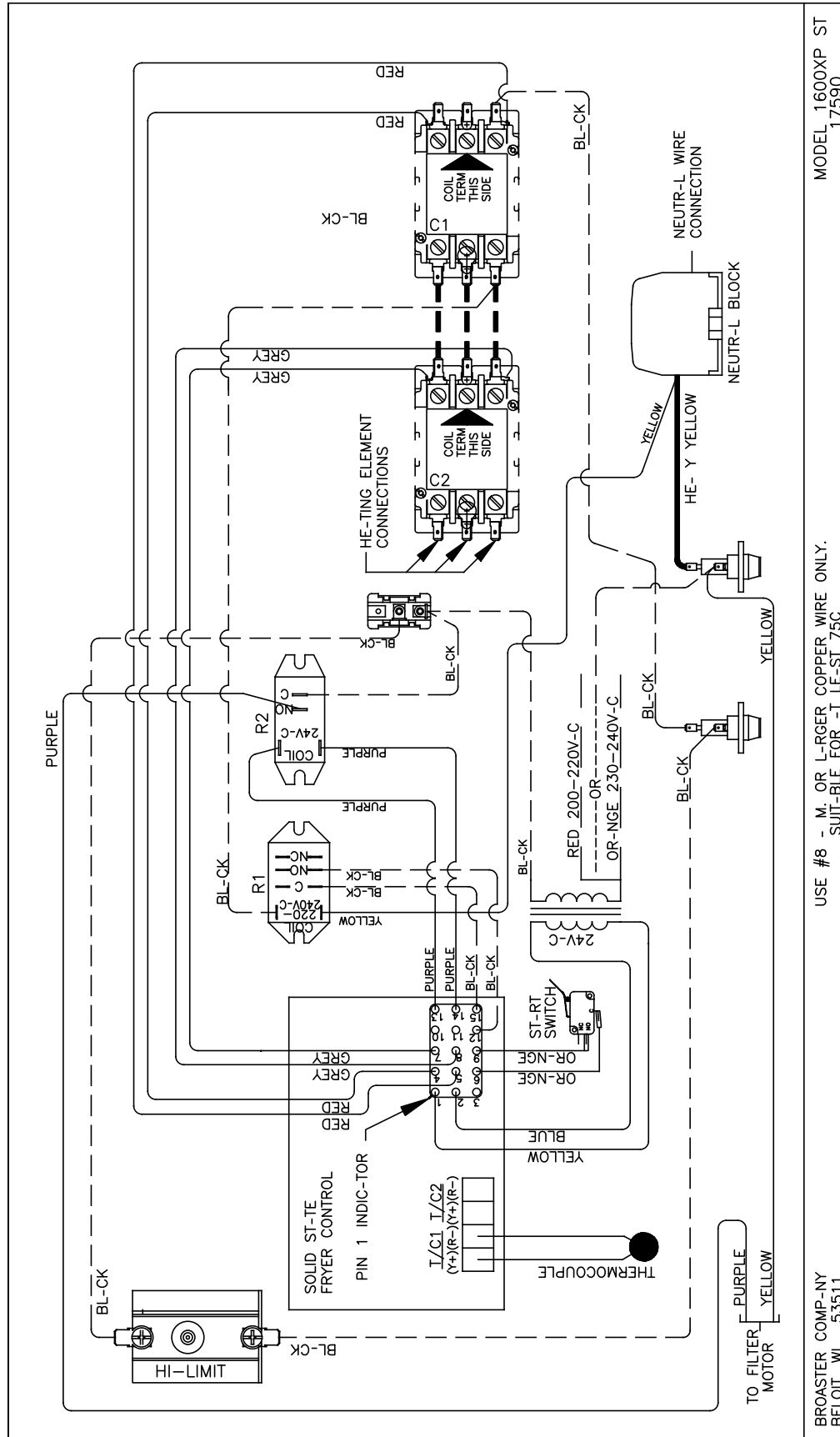
WIRING DIAGRAMS

Three and Single Phase Wiring Connections:



DOMESTIC - 1600 and 1800E SmartTouch

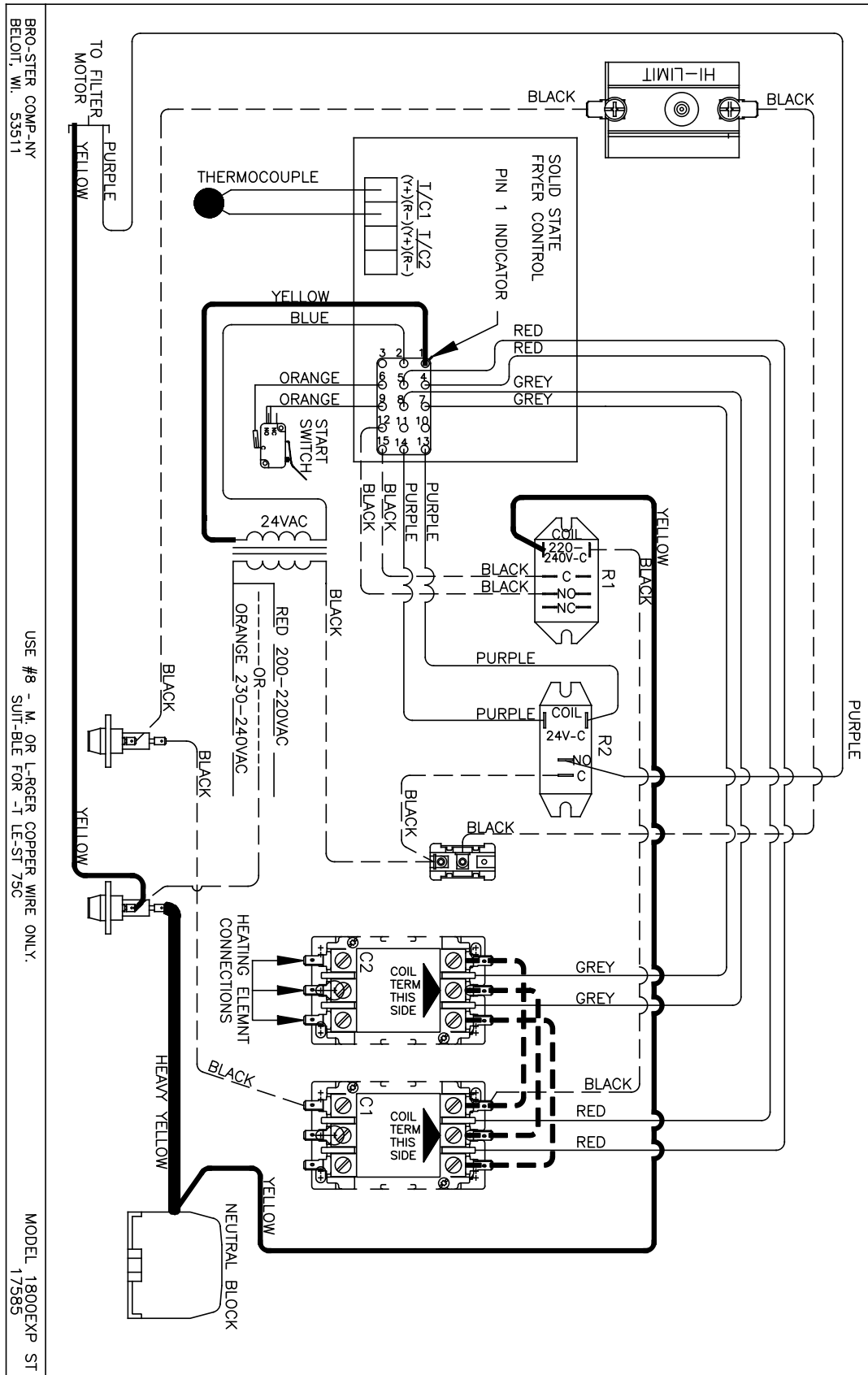




BROASTER COMP-NY
BELOIT, WI. 53511

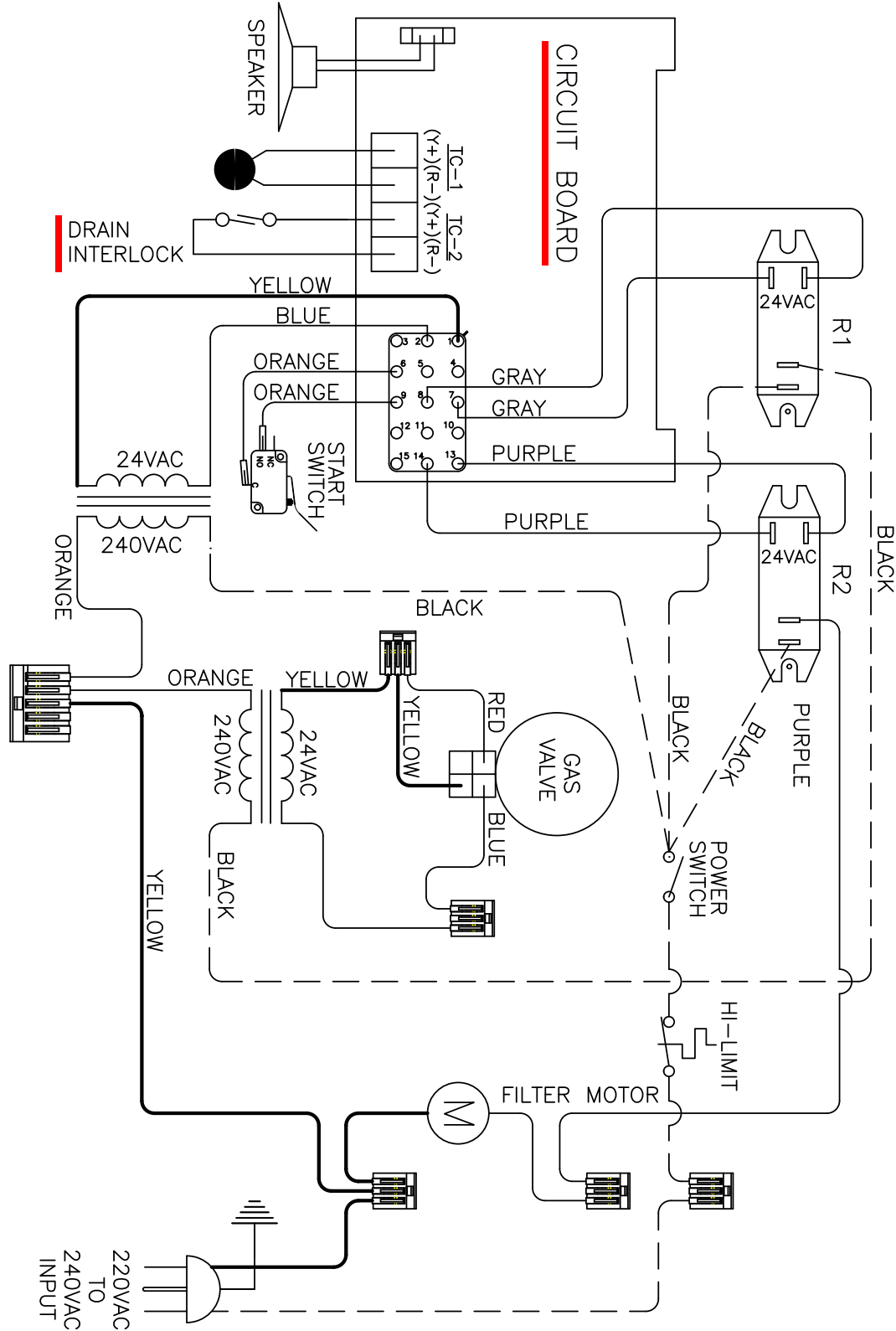
USE #8 - M. OR L-RGR COPPER WIRE ONLY.
SUIT-BLE FOR -T LE-ST 75C

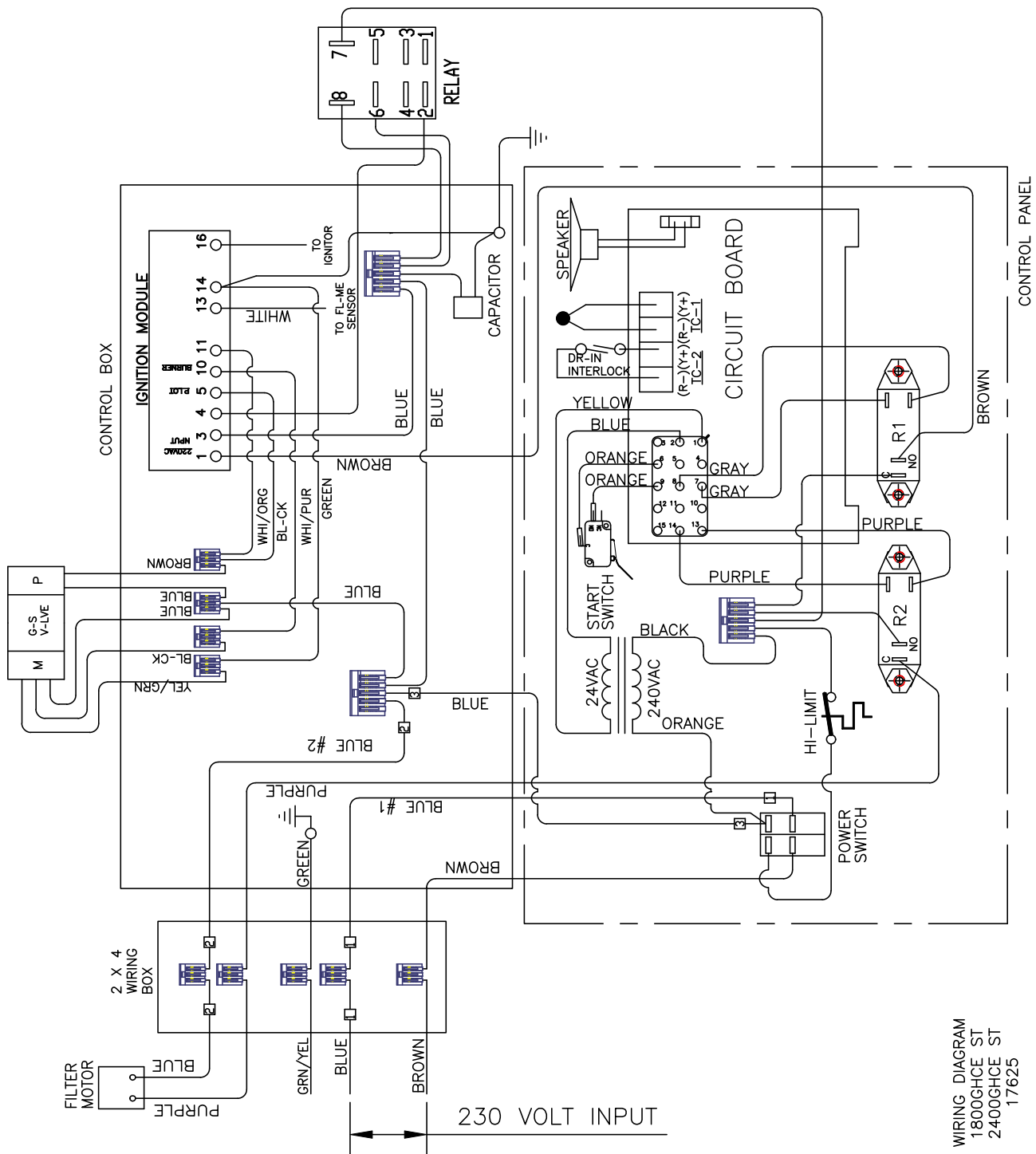
MODEL 1600XP ST
17590





USE COPPER WIRE ONLY SUITABLE FOR AT LEAST 75C MODEL 1800GHXP ST 17680
BROASTER COMPANY BELOIT, WI 53511 & 2400GHXP ST

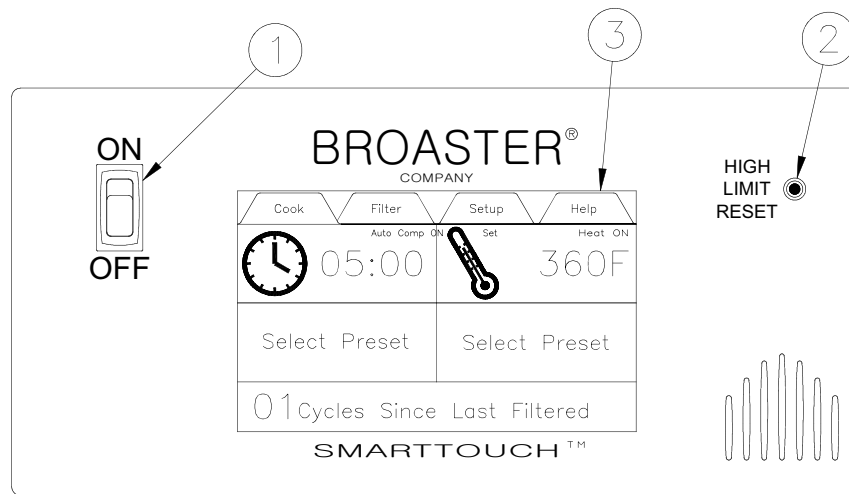




WIRING DIAGRAM
1800GHCE ST
2400GHCE ST
17625

3 - SMART TOUCH CONTROL PANEL

SMART TOUCH FAMILIARIZATION



1. Power Switch: This switch has two positions: ON or OFF.

2. Hi-Limit Control: Prevents oil temperature from exceeding 475°F. When this control trips, the power to the unit will be shut down. Turn unit OFF and DO NOT attempt to operate until it has been serviced by an authorized Broaster Company representative.

NOTICE

It is possible for this control to trip during shipment. If it does, fully depress red reset button. If control “clicks” it was tripped. If not, it is correctly reset.

3. Touch Control Screen: Touching this screen controls the many options of the fryer.

On initial power up you may be asked to enter the current date and time, and verify the Serial Number. Or the screen will have the word CAUTION flashing on the screen.

If the date and time entry screen appears press the box after “Month” and a keypad will appear. Enter the number of the month and press the enter key. Repeat this action

for the Day, Year, Hours, Minutes, Seconds, AM and PM boxes. When finished press the green OK button in the bottom right corner of the screen. The next display will ask you if this date should be used to establish the warranty start date. Press the green OK button.

You will then see a display asking you to verify the serial number of your fryer. Enter the serial number using the keyboard and press enter.

NOTICE

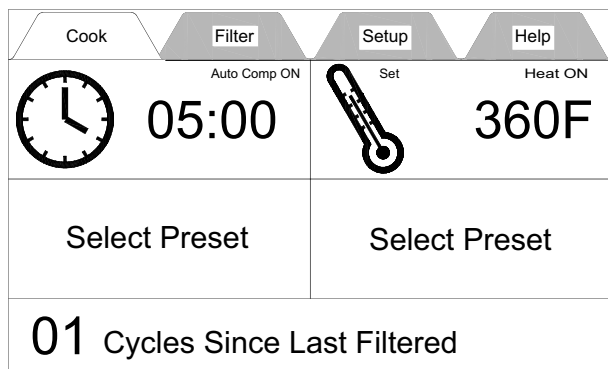
The date/time display and the serial number display will not appear again when the power switch is turned off and back on.

If the CAUTION screen appears it is there to remind you to check the oil level before the heating elements or burner are activated. If the oil is at the proper level, press the green OK button in the bottom right corner of the screen.

Along the top of the screen are four tabs (Cook, Filter, Setup and Help) to help you setup and use your fryer.

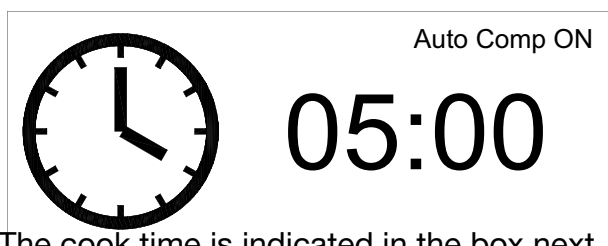
This tab is the main working screen. From

COOK TAB



this screen can be set the Cook Cycle Time, Cook Temperature, Product Preset and the number of loads cooked since the last time the oil was filtered.

CookTime Display:



The cook time is indicated in the box next to the clock face. To change the time press the time display twice and a keypad will appear.

Enter the cook time for the product you are cooking, as you enter the time it will appear above the keypad. To save this time press the enter key the new time will be entered and the keypad will disappear.

If no entry is made or the enter key is not pressed within 25 seconds, no change is made to the time.

When a cooking cycle is started the box below the cook time turns yellow and shows the amount of time remaining in the cycle. The right box displays "CUSTOM". The word "CUSTOM" also replaces the tabs across the top of the display. "CUSTOM" indicates you are in manual cooking mode.

At the end of the cycle the left box alternates between red and white, the alert sounds and continues until the exhaust valve is opened by turning the small handle on the Counter Top, from "CLOSED" to "OPEN".

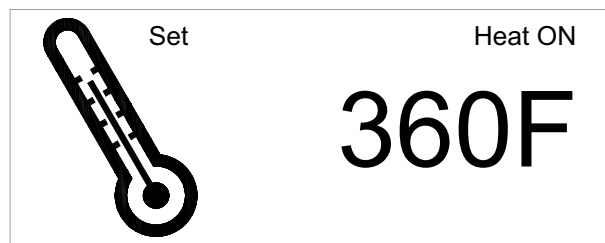
Auto Comp

In the upper right corner of the cook time display is the Auto Comp indicator. It will be black if Auto Comp is off and green if Auto-Comp is on.

To turn Auto Comp on or off press the cook time display twice. When the keypad appears the Auto Comp toggle switch is in the upper right corner of the keypad. If the button is red Auto Comp is off, if it is green Auto Comp is on. Press the Auto Comp button to change it then press the enter key.

Our recommendation is that Auto Comp should be on when cooking a load of product.

Temperature Display:



The temperature is indicated next to the thermometer.

When the fryer is turned on in the morning this box will be yellow and "Heat On" will be displayed. The temperature will alternate between "LOW" and the set temperature until the oil temperature reaches the set temperature.

There are other times when this will occur;

1. Anytime the temperature is changed.
2. After a filtering cycle.
3. When a preset is selected and the oil temperature is not at the preset temperature.

In any of these cases when the oil temperature reaches the set temperature the box turns green indicating the oil is up to the set temperature.

The temperature shown in this box can be either the “Set” temperature of the “Actual” temperature as indicated above the thermometer. To change from one to the other press anywhere in the box for 3 seconds. An alert will sound when you press the box and a second alert will sound when the change is made.

To set the temperature, press the temperature box twice and a keypad will appear. Enter the temperature for the product you want to cook, as you enter the temperature, it will appear above the keypad. To save this temperature press the enter key.

Select Preset Display:



Select Preset

There are 2 “Select Preset” boxes.

All of the Broaster Company Products are preloaded into the memory of the control and can be selected when you want to cook that product. The cook time and cook temperature for that product will be automatically entered in the Time and Temperature displays.

To select a product, press either preset box and a menu of the products will be displayed. Tap the product you wish to select.

If the wrong product comes up, don’t worry! Tap the preset box again and the menu will appear.

When the item has been selected a picture of the item will appear in the left box and a description of the item will appear in the right box. When a cook cycle is started the left box turns yellow and the time remaining in the cycle is displayed. The picture moves to the right box.

If the menu item to be cooked uses a different temperature the temperature box will either remain green meaning it is all right to start a cook cycle or it will turn yellow meaning the temperature is too low to start a load. Wait to start a cook cycle until the temperature is green.

When the temperature is green. Load the product as recommended and move the small handle on the top of the fryer from open to close. This will start the cycle timer counting down. When the load is done an alert will signal that the cooking cycle is complete.

Cycles Since Last Filtered:



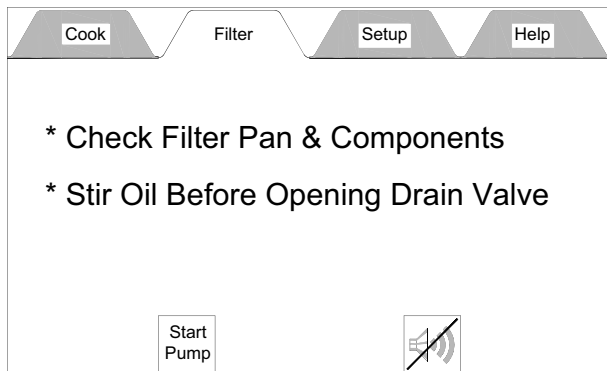
01 Cycles Since Last Filtered

It is recommended the oil should be filtered every 5 loads.

This box indicates how many cook cycles have been done since the last time the oil was filtered. It is active and can be pressed at any time to go to the filter display except during a cooking cycle. Once you reach a preset number of cycles, you will be shown a filter options screen. If a filter cycle is bypassed the next cycle will turn red and start flashing.

This number can be changed and the procedure will be explained in the Setup Tab section.

FILTER TAB



This tab is the filter motor control and has two buttons; a Start Pump button and a Alert Silence button.

There are also two reminders to observe before filtering the oil. SEE SECTION 9 - COOKING OIL CARE AND FILTERING before starting the pump motor.

When the Start Pump button is pressed the filter running display appears as shown below.



The timer in the middle of the screen starts counting up. When it reaches 5:00 minutes an alert sounds and a reminder flashes (see below) to close the drain valve. To silence the alert press the button with the speaker on it. DO NOT press the Stop Pump button.



The pump will continue to run and will automatically stop when the counter says 10:00 minutes. You will see the display below.



To return to the Cook Tab, press the red X in the upper left corner. The Caution Display will appear advising the oil level be checked. If the oil level is OK press the green OK button.

SETUP TAB

This tab may or may not be secured. In either case press the box with the 4 stars. When the keypad appears, enter 0540 and press Enter and the setup display will appear.

Cook	Filter	Setup	Help
Time & Date Adjustment		Language Selection	
Temperature		Alert Settings	
Energy Save Setting		Counter / Totalizers	
Pin Maintenance		Diagnostics	
Presets		Enter Service Contact Info	
Shortening Management		Exit Setup	

This display only appears when the service PIN is entered. The highlighted boxes above indicate that there are other processes available only to the service technician. All other boxes are the same as those available to the owner/operator.

Time & Date Adjustment:

X		Set Date & Time	
Month	<input type="text"/>	Hours	<input type="text"/>
Day	<input type="text"/>	Minutes	<input type="text"/>
Year	<input type="text"/>	Seconds	<input type="text"/>
		AM	PM
		OK	

To set the date and time, press the box after "Month" and a keypad will appear. Enter the number of the month and press the enter key. Repeat this action for the Day, Year, Hours, Minutes, Seconds, AM and PM boxes. When finished press the green OK button. To leave this display without making a change press the red X or the green OK.

Temperature:

Pressing this option opens the Temperature Settings Display.

Pressing the Degrees box switches the units to either Degrees F (fahrenheit) or Degrees C (Celsius).

X	Temperature Settings	
Temperature Units: <input type="button" value="Degrees F"/>		
Temperature Calibration:	0 F <input type="button" value="+"/> <input type="button" value="-"/>	
Actual Temp w/Calibration:	000 F	
OK		

The + or - buttons are used during the calibration process described on page 3-11.

Energy Save Setting:

Pressing this option opens the Energy Saving Settings display.

X

Energy Saving Settings

Set Energy Save Timer (HH:MM):

00:00

Set Auto Shut Off Timer (HH:MM):

00:00

(Setting Either Timer to 00:00 will disable the function)

OK

You have two options on this display:

OPTION 1: Energy Saving Option.

The fryer will go into this mode when the specified idle time has passed. When the fryer goes into the energy saving mode the oil temperature will drop to 270° F (132° C) and remain there until the fryer is prompted by pressing the green OK button, to resume the normal cooking temperature. When the fryer enters the energy saving mode the display shown below appears.

Energy Save Mode

Set temperature is 270F

Allow temperature to recover
before cooking

OK

When the OK button is pressed the display returns to the normal Cook Tab display and the temperature will be yellow and Low and the set temp will be alternating. **DO NOT** start cooking until the temp display is green.

OPTION 2: Auto Shut Off Timer.

When this option is set, the control will shut off all heaters, and the display shown below will appear.

Heat Off

due to inactivity

Hit "OK" to resume and allow
temperature to recover
before cooking

OK

Follow the instructions on the screen to resume use of the fryer.

Pin Maintenance:

Pressing this option opens the Pin Maintenance display.

X

PIN Maintenance

PIN

PIN On/Off

OFF

OK

To set the PIN code press the button with the 4 stars and a keypad will appear. Enter the desired 4 digit PIN code and press Enter. The Pin number will be saved. To activate the PIN press the PIN ON/OFF button to toggle it ON or OFF.

Presets:

Pressing this option opens a list of products with a picture of the product and the cook time and cook temperature pre-loaded.

This is where the product preset is either shown or not shown as a preset on the Cook Tab.

	Select Preset or	Add New	Load Menu	Export Menu
# 1	<input type="checkbox"/>	Chicken 8pc Mixed FRESH		
# 2	<input type="checkbox"/>	Chicken Popcorn Cajun IQF		
# 3	<input type="checkbox"/>	Chicken Popcorn Regular IQF		
# 4	<input type="checkbox"/>	Chicken Tenders Home Style IQF		
# 5	<input type="checkbox"/>	Chicken Tenders Regular IQF		
# 6	<input type="checkbox"/>	Burrito Bean'n Beef IQF		
# 7	<input type="checkbox"/>	Burrito Breakfast IQF		
# 8	<input type="checkbox"/>	Burrito Pizza IQF		

By default all products will be shown. To turn any product off, press the item once and the Edit/Create Preset display will appear.

Edit / Create Preset					Delete
Edit / Enter Preset Name: Chicken Popcorn Cajun IQF					
Edit / Enter Preset Number: 02					
Stage	Temperature	Time	Comp On / Off	Active	
1	360F	05:00	On	Yes	
2	000F	00:00			
3	000F	00:00			
					OK

Here you can edit the name of the product, change its position on the list, set the cook time and temperature, set Auto Comp to be on or off during the cooking cycle and whether or not this item should be active as a preset on the Cook Tab.

Creating a new product or deleting a product on the list will be described later.

Name Edit:

To edit the name of the current product press the Edit / Enter Preset Name bar and a typewriter keyboard will appear. The cursor will be at the end of the name. To change the name press the BACK button and the cursor will delete the name one letter each time the BACK button is pressed.

Delete the letters until you get to the place where you want to start making the change. To get the numbers and symbols to come up press the Symbol key.

When you have completed entering the changed name press the ENTER key.

Position Edit:

To change the position of this item on the menu list, press the Edit / Enter Preset Number bar and a number pad will appear. Enter the number of the position you want this item to appear then press the ENTER key. The product will be inserted at the position you have selected and all items after it will be renumbered.

Time & Temperature Edit:

There are 3 stages shown. Most of the cooking will be done on stage 1. To edit this feature press the button and a number pad will appear. Enter the desired cooking temperature or time and press the ENTER button. If a number is entered and the ENTER button is not pressed within 30 seconds the number pad will disappear and no changes will be made.

Auto Comp On / Off:

This button toggles Auto Comp on or off.

Active:

This button allows the item to be shown in the preset menu list of the Cook Tab. If the button says Yes the item appears on the list if No it does not.

You can quickly tell when a product is not active because the name and number of the item will be greyed out.

ADD NEW:

Pressing this button opens a display to enter a new product to the menu list. This display is similar to the Edit display except all information must be added.

Stage	Temperature	Time	Comp On / Off	Active
1	000F	00:00	On	Yes
2	000F	00:00		
3	000F	00:00		

To enter the name press the Edit / Enter Preset Name bar and a typewriter keyboard will appear. Enter the name of the new product and press ENTER.

The Preset Number automatically defaults to the next number after the last item on the list. This can be changed by pressing the Edit / Enter Preset Number bar and entering the number on the keypad where you want this item to appear and pressing Enter.

Set the cook temperature and cook time the same way as when editing a preset.

Set Auto Comp and Activity accordingly.

Press the green OK button to save the new product.

Menu Transfer:

The Smart Touch control allows a revised menu to be transported from one fryer to other fryers which also have a Smart Touch control. This is done from the Preset tab using the Load Menu and Export Menu buttons along the top of the display.

Select Preset or	Add New	Load Menu	Export Menu
# 1	<input type="checkbox"/>	Chicken 8pc Mixed FRESH	
# 2	<input type="checkbox"/>	Chicken Popcorn Cajun IQF	
# 3	<input type="checkbox"/>	Chicken Popcorn Regular IQF	
# 4	<input type="checkbox"/>	Chicken Tenders Home Style IQF	
# 5	<input type="checkbox"/>	Chicken Tenders Regular IQF	
# 6	<input type="checkbox"/>	Burrito Bean'n Beef IQF	
# 7	<input type="checkbox"/>	Burrito Breakfast IQF	

EXPORT MENU:

When you make changes to the menu on one fryer and want to put the same menu on other fryers with the SmartTouch Control you can export the revised menu from this fryer to the Flash Drive and load it unto the other fryers.

Plug the flash drive into the USB port in the front panel above the control panel.

Press the Export Menu button once and the control will ask you for a filename. Press the Enter Menu File Name bar and a keyboard will appear. Enter a name you will recognize then press the ENTER Button.

NOTICE

The file name can only be 8 characters long.

When the ENTER key is pressed a box will appear that says Exporting Menu... with a progress bar.

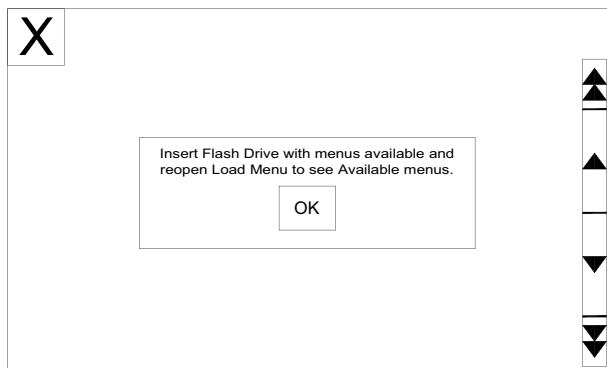
When the export is complete the box will say "Menu Exported". Press the OK button and the Preset display will appear.

Remove the flash drive from the USB port.

LOAD MENU:

Menu changes that have been downloaded to a Flash Drive can be loaded onto another fryer with the SmartTouch control.

Plug the flash drive into the USB port in the front panel above the control panel. Press the Load Menu button on the Preset menu display and the display below will appear.



Press the OK button to download and see the available menus.

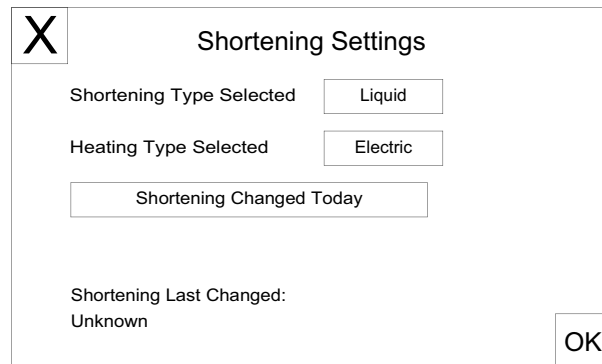
When the display appears there may be more than one menu. Press the bar for the menu you want loaded and a “Loading Menu...” box will appear with a progress bar.

When the menu is loaded a box will appear saying “Menu Loaded”. Press the OK button and the Preset display will appear.

Remove the flash drive from the USB port.

SHORTENING MANAGEMENT:

Pressing this option opens the Shortening Management Display.



Pressing the button next to Shorting Type toggles between “Liquid” and “Solid”.

The Heating Type Selected button is only available to the Service Tech. Pressing this button toggles the type between Electric and Gas.

Pressing the “Shortening Changed Today” button enters today’s date and time as a reminder when the oil was last changed. this also resets the “Cycles Since Last Filtered” counter to 00 on the Cook Tab.

LANGUAGE SELECTION:

Pressing this option will allow you to change the language used in all displays. (This option is not yet active)

ALERT SETTINGS:

Pressing this option allows you to set conditions for several features.

The image shows a screen titled "Alert Settings" with a back button (X) in the top left and an OK button in the bottom right. The screen contains five settings, each with a numerical value and two buttons (- and +) for adjustment, except for the last one which is a toggle switch.

Setting	Value	-	+
Filter Reminder Cycles	05		
Alert Volume	05		
Keypad Volume	02		
Tone	03		
Stir / Agitate Reminder	OFF		

The numbers left of the boxes indicate the current setting. They can be changed by pressing the “-” or “+” buttons.

Filter Reminder Cycles: This sets the number of cook cycles between each oil filter cycle. Broaster Company recommends 5 cook cycles however, you can set it as you desire.

Alert Volume: This should be set loud enough to be able to hear it above any other noises in the kitchen.

Keypad Volume: It should be loud enough to hear while making changes in front of the fryer or when operating the fryer.

Tone: There are a range of tones from low to very high. Chose the one that suits your operation.

Stir/Agitate Reminder: This alert appears when 3 conditions occur.

1. When the fryer is first turned on in the morning, this reminder will appear after the oil comes up to the set temperature.
2. After a filter cycle has been completed this reminder will appear after the oil comes up to the set temperature.
3. If the fryers has been setting idle for 2

hours or longer this reminder will appear to alert you to stir the oil to get it to a uniform temperature.

After making the adjustments on this display press the green OK button to save the entries.

To go back to the Cook display either press the “Exit Setup” button or the Cook Tab.

HELP TAB

This display provides instructions for the items in the boxes. They are available at any time to help you set up the control to cook product. This information is also available in the Operation Manual.

The image shows a screen titled "Help" with four tabs at the top: Cook, Filter, Setup, and Help. The Help tab is selected. Below the tabs is a list of help topics, each in a box.

Help Topics
Service Contact Information
How to Set the Time
How to Set the Temperature
How to Select a Preset
How to Filter
Cleaning Procedures

CALIBRATION

Calibration will be necessary when temperature sensor probe or controller is replaced. Calibrate using an accurate non-mercury test thermometer.

1. Set the Smart Touch controller to 360° F (182.2° C) and thoroughly heat cooking oil. When HEAT ON light goes out, stir oil. If HEAT ON light comes back on while stirring, allow unit to recover until light goes out. Continue this process until the HEAT ON light does not come on while stirring the oil.
2. On the top row of tabs, press the Setup Tab and the Enter PIN display will appear.

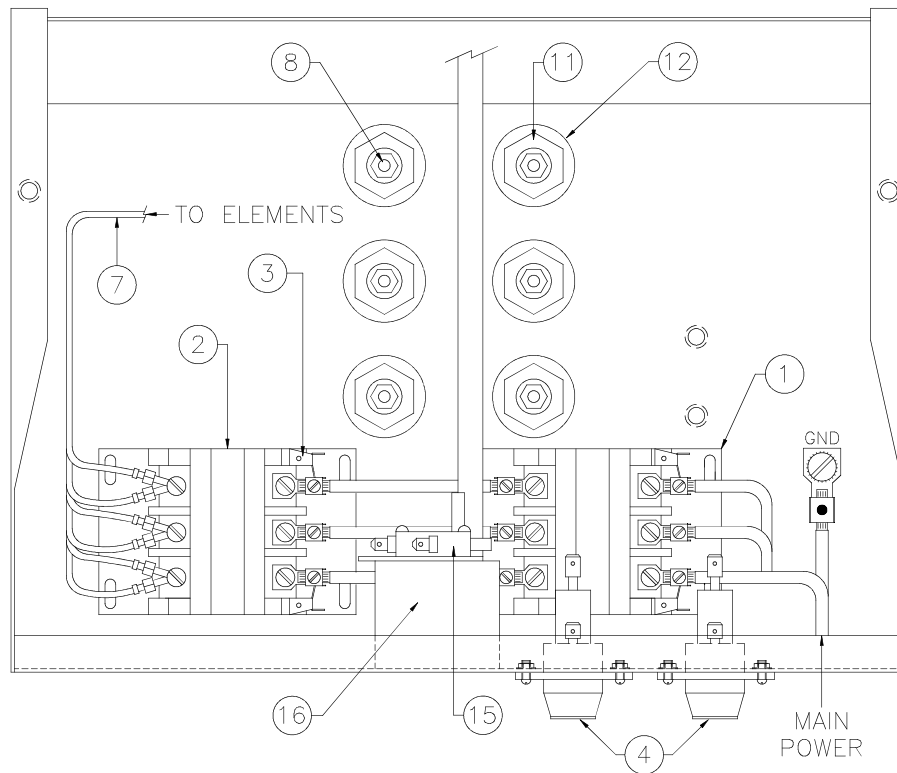
3. Press the box with the four stars in the middle and when the keypad appears enter service PIN code 0540 and press Enter.

4. Press the Temperature button and the Temperature Settings display will appear.
5. Check cooking oil temperature one inch below oil surface in the center of the cooking well. Compare this temperature to the Actual Temp w/Calibration in the Temperature Setting display.

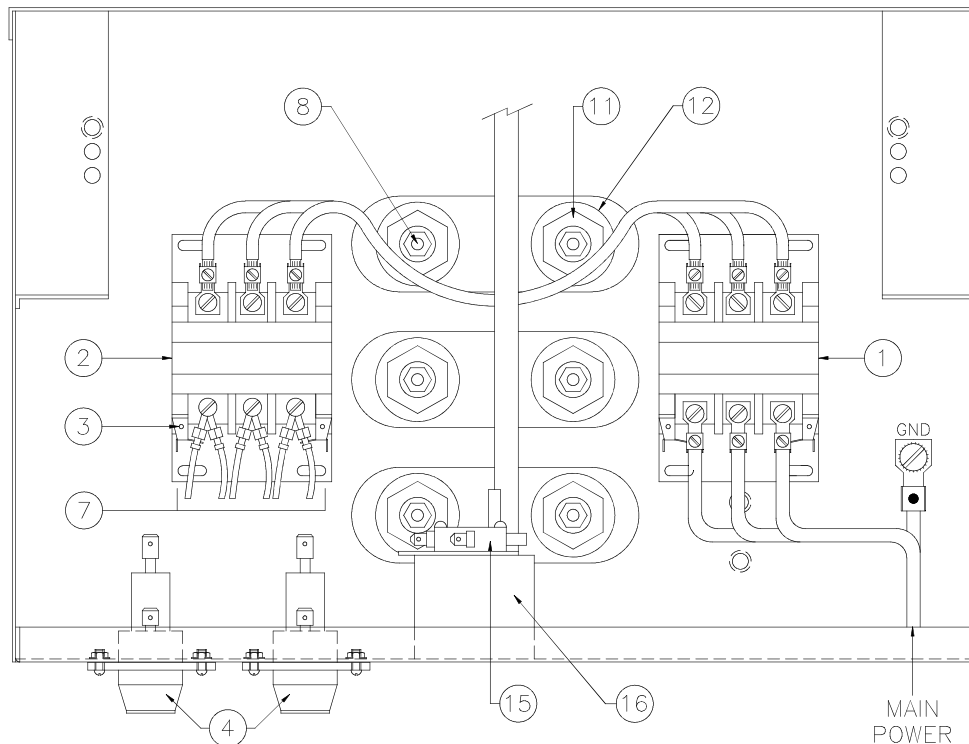
6. Use the + or - buttons to raise or lower the Actual Temp w/Calibration to match temperature taken with the test thermometer.

4 - POWER INPUT BOX

1600 Pressure Fryer:



1800E Pressure Fryer:



CONTACTORS (1600/1800E)

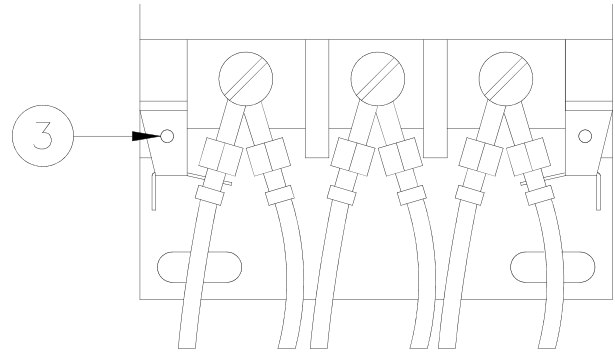
1. See ACCESS FOR SERVICE.

CAUTION

When the controller initializes it will ask you to check the oil level.

2. Connect main power supply.
3. Turn on power switch. You should hear an audible snap followed by another shortly after the first.
4. Check voltage through primary contactor (1) using a voltmeter. For single phase, check across two outside connections opposite applied voltage wires. Meter should indicate 208 or 240 volts. For three phase, check across any two of three connections. Meter should indicate 208 or 240 volts across all combinations. If not, cook/filter switch, contactor, main power supply, hi-limit open or power cord may be faulty.
5. Check voltage between any two of the three connections opposite element wires on secondary contactor (2). Any great drop in voltage indicates a poor connection or dirty contact within the contactor.
6. Secondary contactor (2) will close when temperature display indicates "Heat On". Make same checks as in step 4 between any two of the three connections on element wire side of contactor. Any drop in voltage indicates a poor or dirty contact within the contactor.

7. Disconnect main power supply.



8. If either contactor will not close electrically, check coil (3) with an ohmmeter. With needle nose pliers, disconnect wire(s) from one side of the coil. Meter should indicate a closed circuit. If not, coil is faulty.

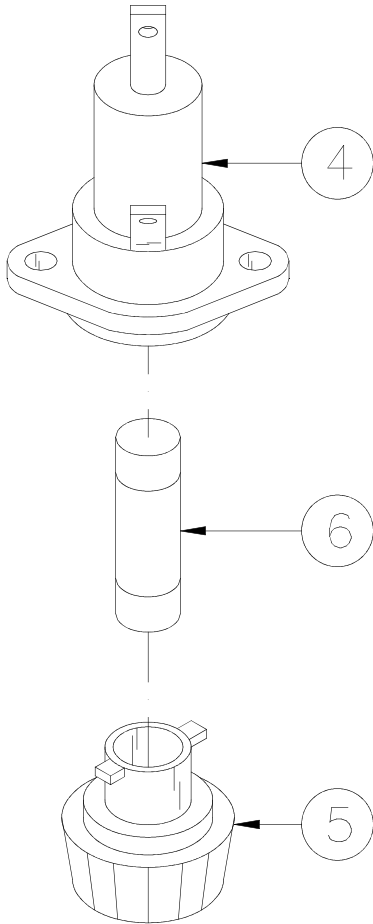
Replacement:

1. See ACCESS FOR SERVICE.
2. Remove all wires from the contactor.
3. Remove two mounting screws. Remove contactor.
4. Install new contactor in reverse order. Be sure all wire connections are secure and in their original location. See wiring diagram.

FUSE (1600/1800E)

Two 15 amp fuses protect the control and filter circuits.

1. See ACCESS FOR SERVICE.



2. With needle nose pliers, disconnect wire(s) from one end of fuse holder (4).
3. Check between two terminals of fuse holder with an ohmmeter. Meter should indicate a closed circuit. If not, fuse may be faulty.

Fuse Replacement:

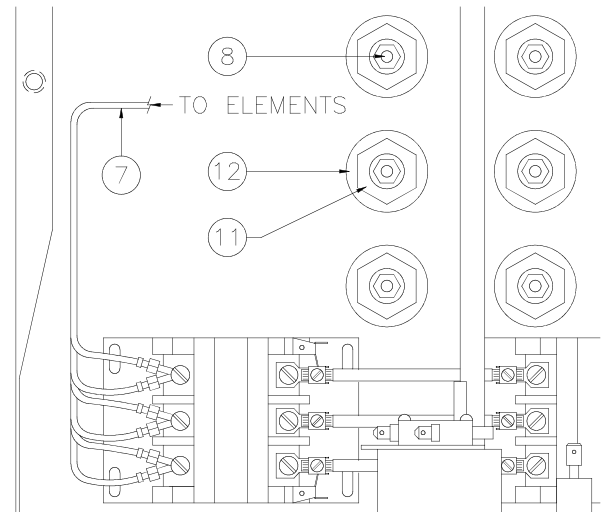
1. Remove end cap (5) and replace fuse (6).

HEATING ELEMENTS (1600/1800E)

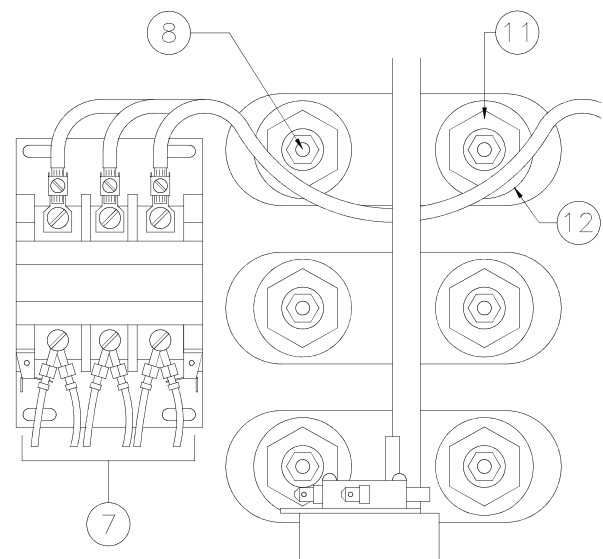
All elements heat the oil when the Smart Touch controller calls for heat. If HEAT ON light is illuminated for long periods of time, this may indicate a faulty element or wire connection.

1. See ACCESS FOR SERVICE.

1600:



1800E:



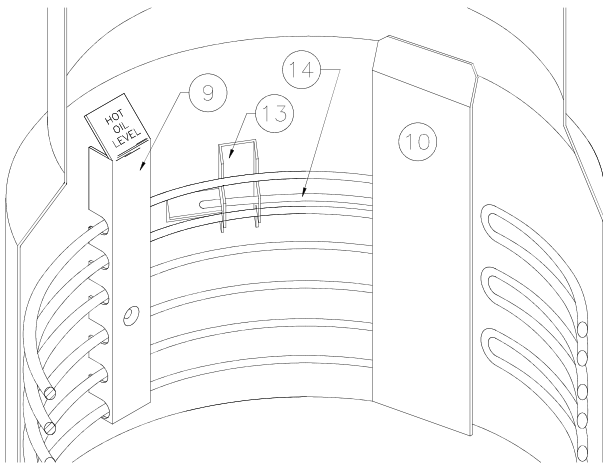
Continued:

2. Disconnect one wire (7) from suspected element (8).
3. Check across two connections of element with an ohmmeter. Meter should indicate a closed circuit. If not, element is faulty.

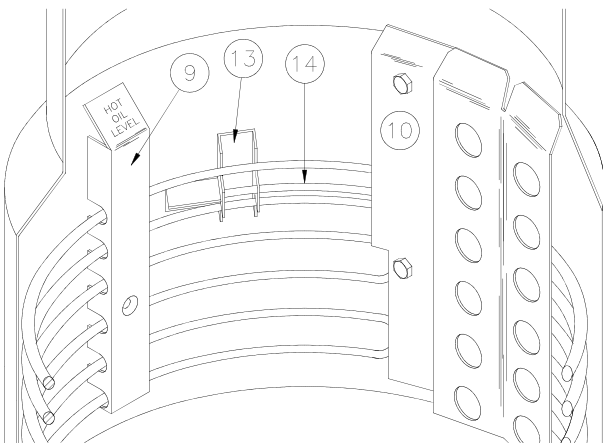
Replacement:

1. See ACCESS FOR SERVICE.
2. Drain cooking oil from the cooking well.

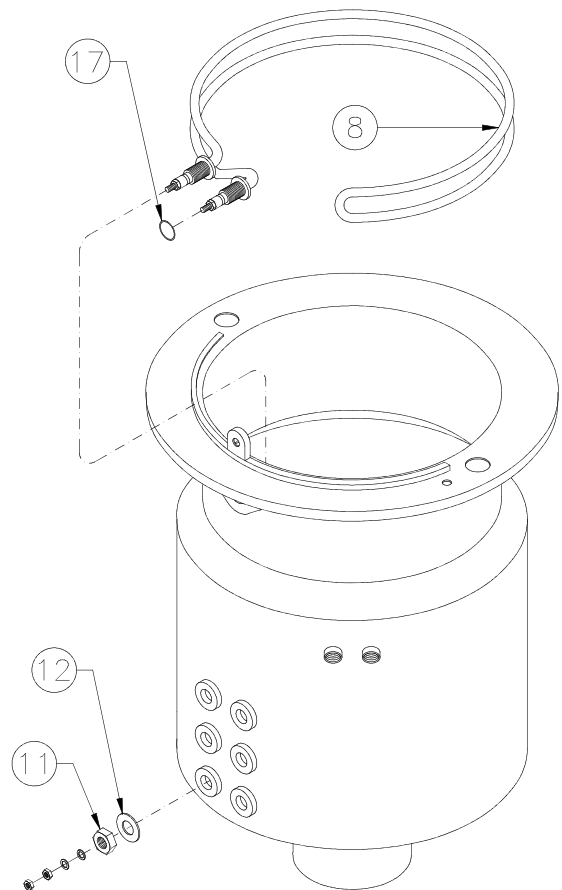
1600:



1800E:



3. Remove three brackets (9) from inside cooking well that secure elements to the cooking well.
4. Remove capillary guard (10).
5. Remove element wires (7), large nut (11) and washer (12) from element(s).
6. To remove bottom or center element, remove element or elements above it.
7. Position element to allow removal of probe bracket (13). Lightly pry inward on top element if necessary. Slide probe bracket off the temperature sensor probe (14).
8. From inside the cooking well, slide element out and lift on end to remove. Squeeze slightly to clear neck of cooking well.

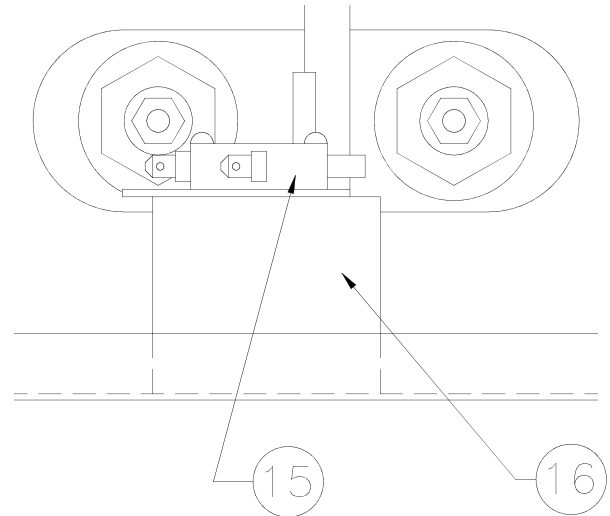


9. Install new element (8) in reverse order. Use new O-rings (17) located between element and inside of the cooking well.
10. Install large element nut and tighten.
11. Be sure all wire connections are secure and in their original location.

LIMIT SWITCH

When the pressure regulating valve is CLOSED, switch supplies power to the timing circuit.

1. See ACCESS FOR SERVICE.



2. With needle nose pliers, disconnect one wire from the switch (15).
3. CLOSE pressure regulating valve. Check between remaining wire and terminal where other wire was disconnected with an ohmmeter. Meter should indicate a closed circuit. If not, mounting bracket is out of adjustment or switch is faulty.

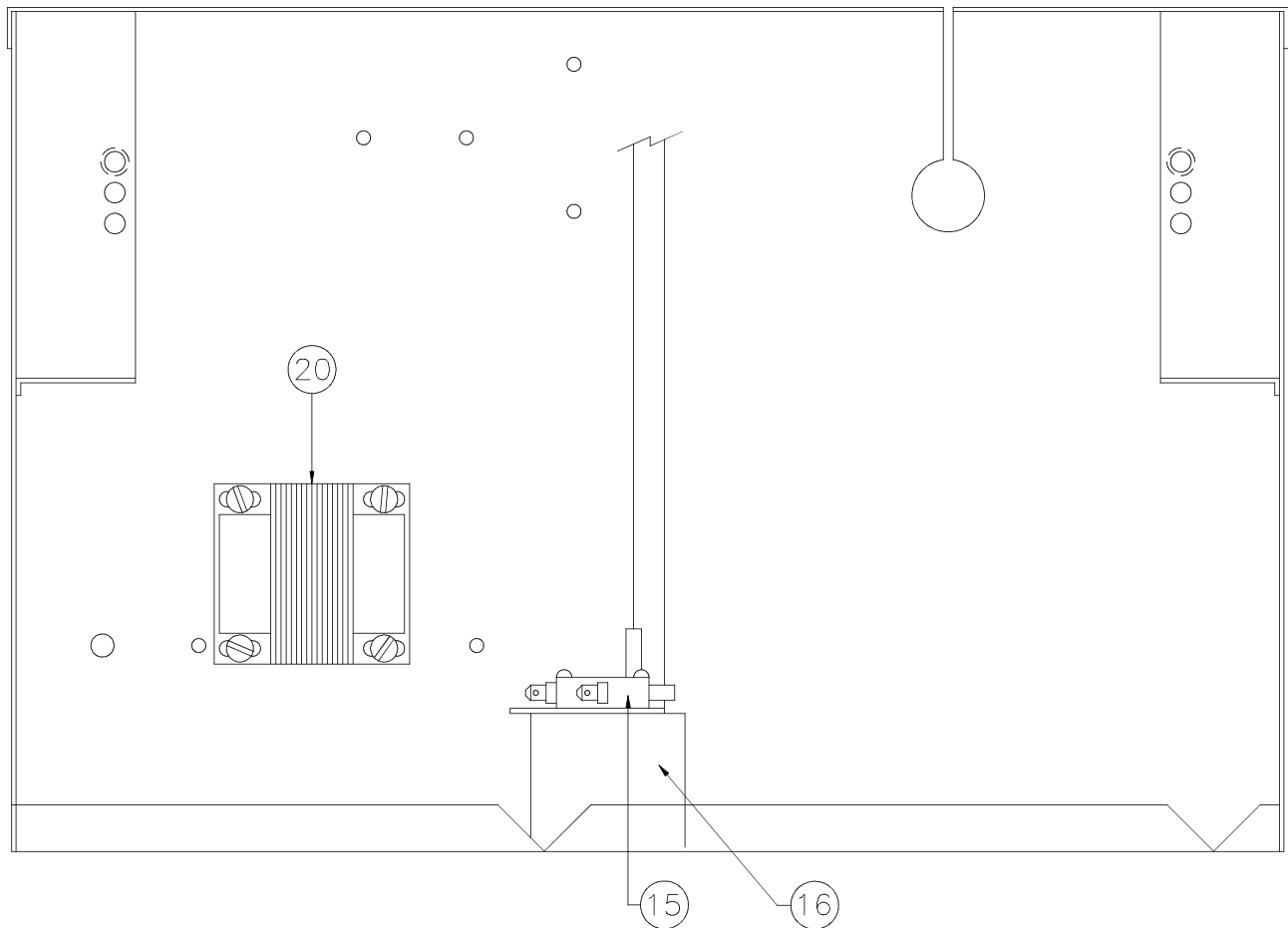
Adjustment:

1. With pliers, bend mounting bracket (16) closer or further away from control rod.

Replacement:

1. See ACCESS FOR SERVICE.
2. Remove wires from switch.
3. Remove two mounting screws.
4. Install new switch in reverse order. Be sure all wire connections are secure and in their original location.

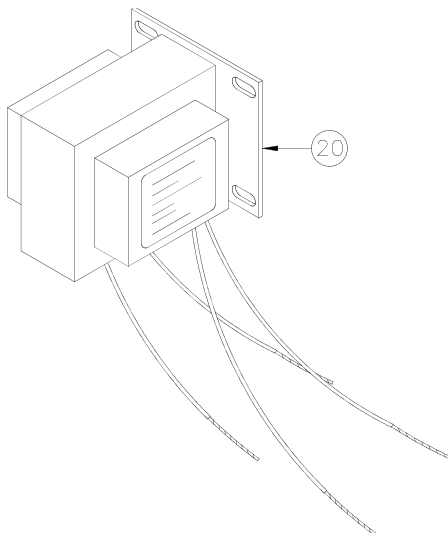
1800GH Pressure Fryer:



TRANSFORMER (1800GH)

The transformer (20) supplies power to the gas control valve.

1. See ACCESS FOR SERVICE.



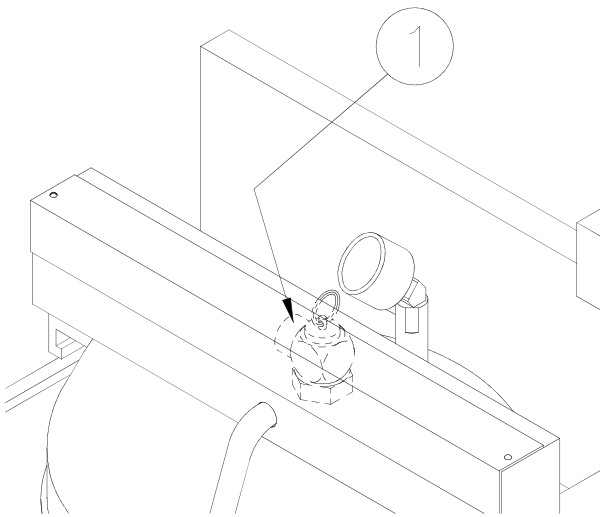
2. Disconnect one wire from the primary (black and white wires) side and secondary (yellow and blue wires) side of the transformer.
3. Check between the two primary wires with an ohmmeter. Meter should indicate a closed circuit, If not, transformer is faulty.
4. Check between the two secondary wires with an ohmmeter. Meter should indicate a closed circuit. If not, transformer is faulty.

5 - COVER AND YOKE

PROPER COVER OPERATION

- Never use force to OPEN the cover. OPEN only when no pressure is present in the cooking well.
- If cover will not open easily, be sure the pressure regulating valve is OPEN. If cover will not OPEN, turn power switch OFF.

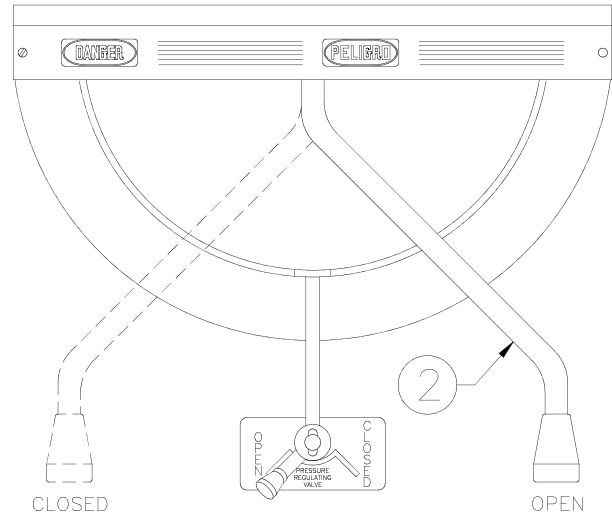
⚠ WARNING Keep away from safety relief valve opening without heat and steam protective apparel. Escaping steam could cause serious burns.



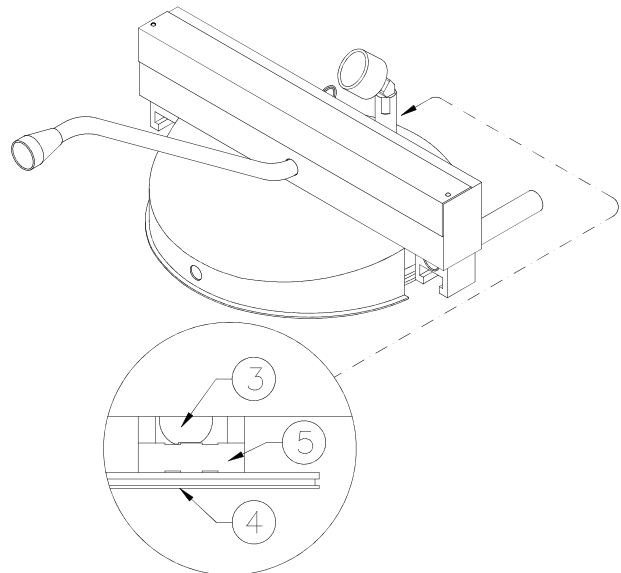
- Using a hot mitt, lift safety relief valve (1) handle. If pressure is released, do not attempt to open the cover. Do not attempt to operate the unit until it has been serviced.

NOTICE

Always fully rotate cover handle (2) OPEN or CLOSED.

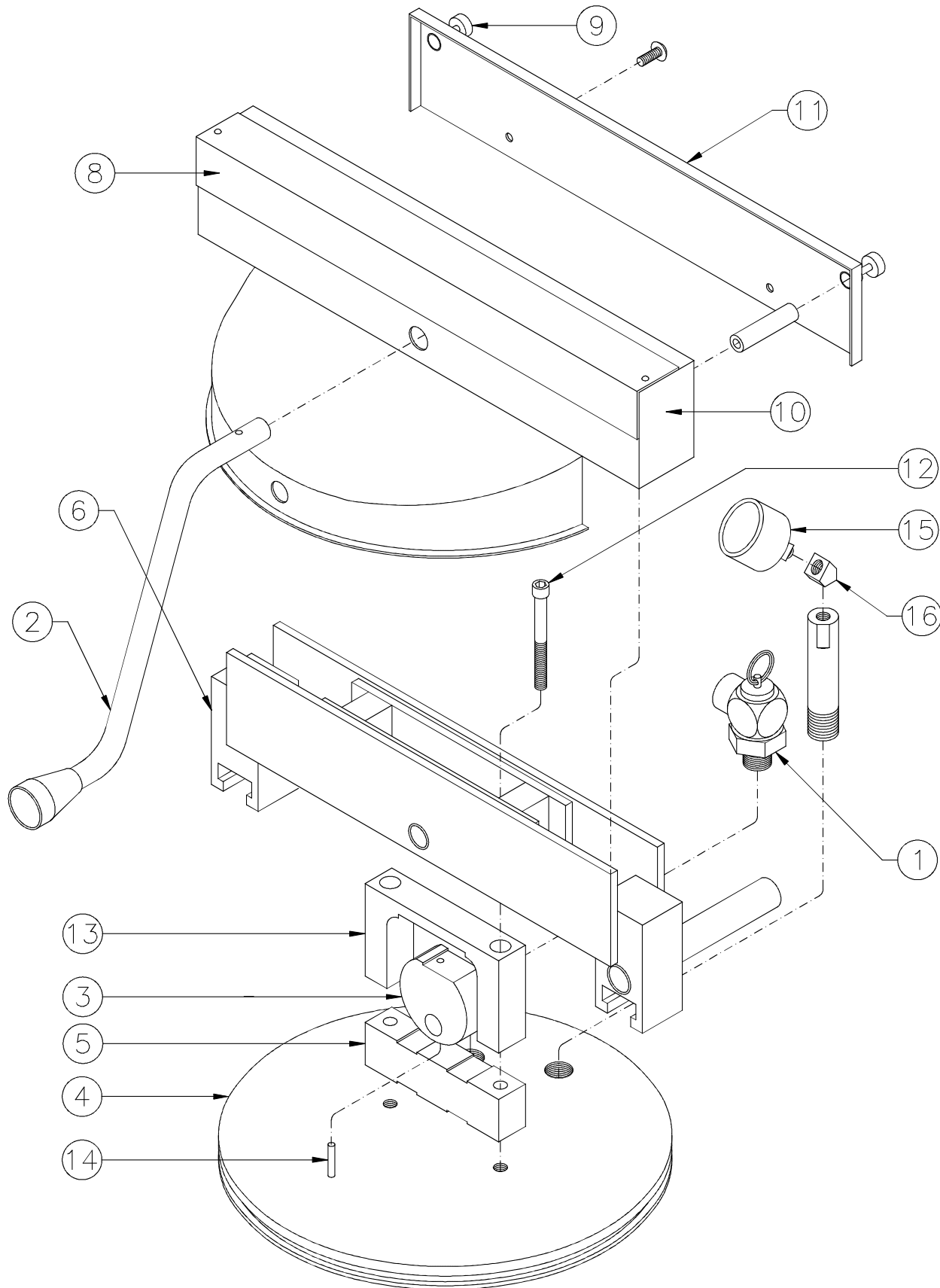


To CLOSE cover, slide cover forward then rotate the handle (2) counterclockwise. To OPEN cover, push down on cover handle then slowly rotate the handle clockwise. Slide cover toward the rear of the unit.



When handle is rotated, cam (3) moves cover (4) in or out of the cooking well. Cam and spacer block (5) lock the cover when pressure in cooking well pushes up on the cover.

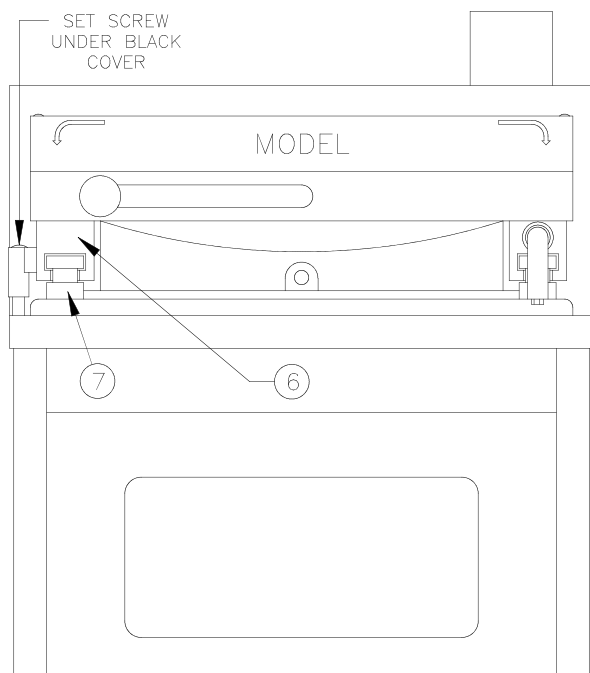
FAMILIARIZATION



ADJUSTMENTS

Height Adjustment:

Proper alignment of the left side yoke latch (6) and latch column (7) is essential. Remove black cover and turn set screw in or out to raise or lower the yoke latch.

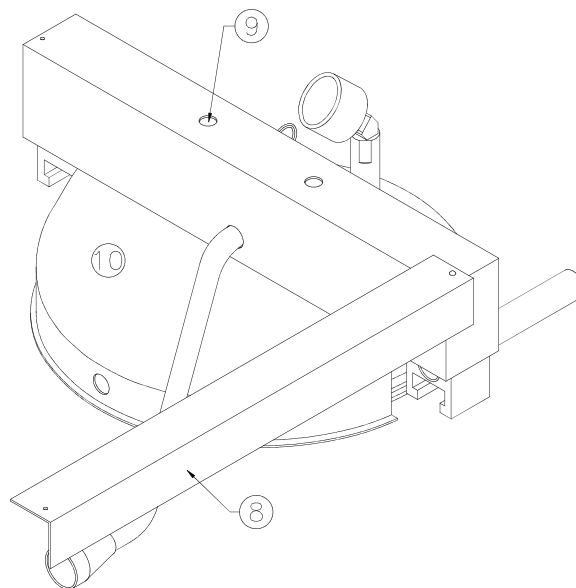


Centering Cover:

This is important for prevention of steam leaks and keeping O-ring wear to a minimum.

NOTICE

It is important warning sign (8) be placed back into its original position and screw replaced after making this adjustment. If this sign becomes worn or illegible, it must be replaced immediately.

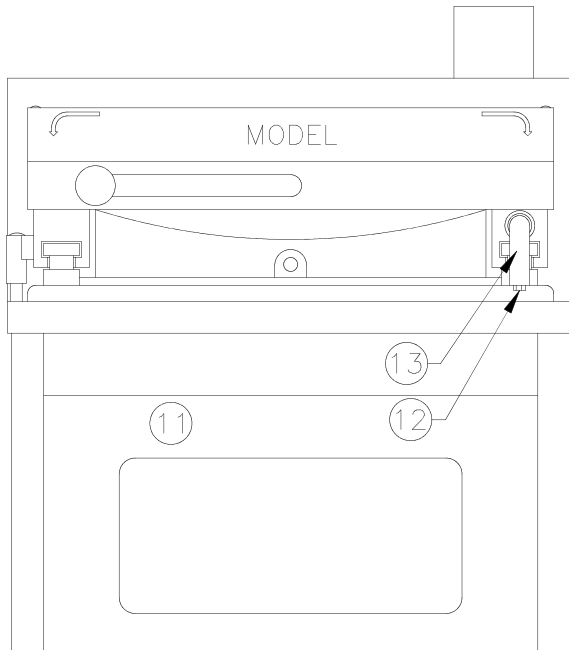


1. Remove screw from left side of warning sign (8) and swing out toward the right.
2. Loosen but do not remove two cover bolts (9) in top of splash shield (10).
3. Open and close cover several times in cooking well to let cover seek its own center. With cover in CLOSED position, tighten each cover bolt a little at a time while alternating between the two.
4. Using a torque wrench, tighten each bolt to a maximum torque of 180 in/lbs or 15 ft/lbs.

REMOVAL

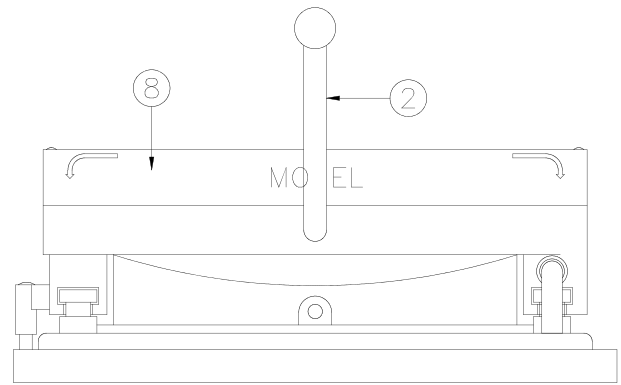
To remove complete cover and yoke assembly:

1. OPEN cover and push assembly to the rear. CLOSE cover so it rests on the counter top.



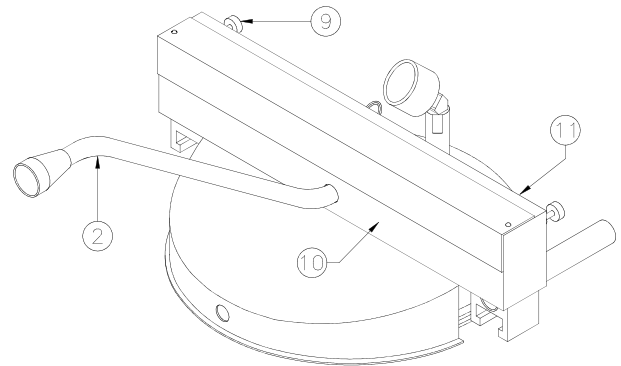
2. Remove front panel (11). Remove bolt (12) from bottom of slide rod, remove bolt from back of slide rod (1600) and remove rod (13). Complete assembly can now be removed from the unit.

DISASSEMBLY



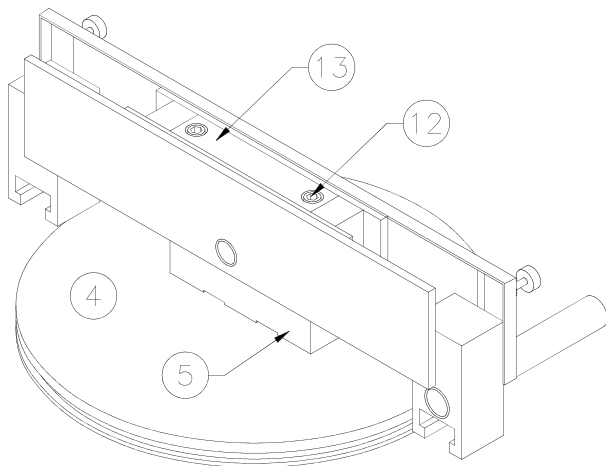
NOTICE If warning sign (8) becomes worn or illegible, it must be replaced immediately.

1. Rotate cover handle (2) to a centered position.

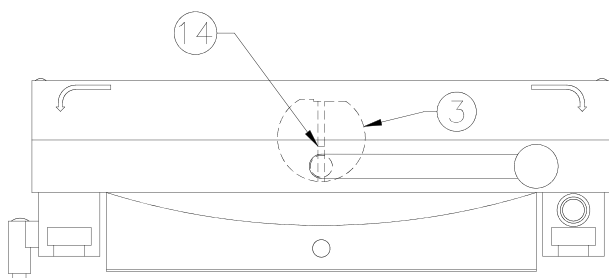


2. Loosen screws (9) attaching splash guard (10) to back panel assembly (11).
3. Slide splash guard (10) forward and up towards the end of the cover handle (2).

Continued:



4. Remove two cover bolts (12).
5. Lift yoke bar up. The cover (4) and spacer block (5) will remain.
6. Remove lifter box (13).
7. Rotate cover handle to the OPEN position.



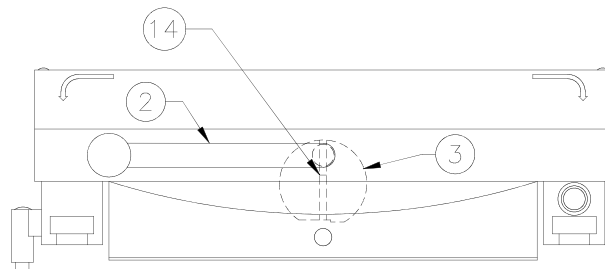
8. Locate grooved pin (14) hole in the flat of the cam (3).

NOTICE Be sure to note how the handle and cam are removed. Use a stiff wire to tie the handle and cam together after removal.

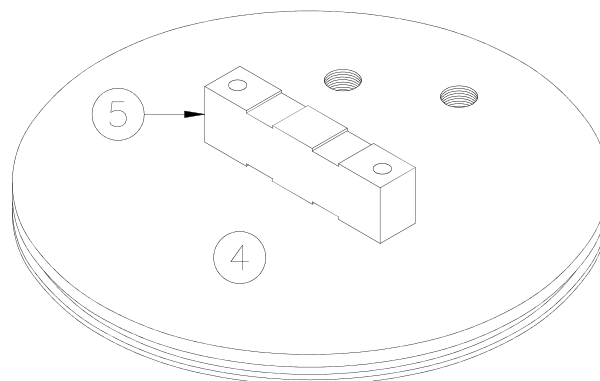
9. Use a 1/8 inch punch to remove grooved pin. Remove handle and cam.
10. Clean lifter box, handle, cam and yoke bar where lifter box slides up and down.

ASSEMBLY

1. Install cam (3) into yoke bar.



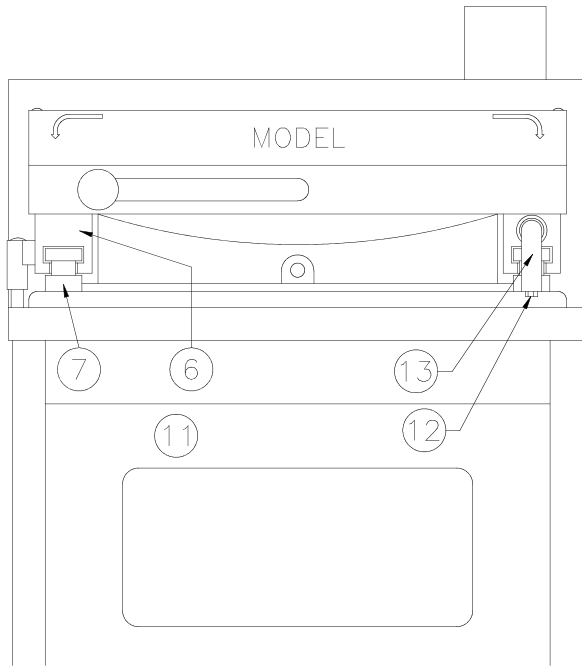
2. Install handle (2) through splash guard, into yoke bar then into the cam.
3. Align holes in handle and cam then install a new grooved pin (14). Be sure the grooved pin is installed flush with the cam.
4. Lubricate inside of yoke bar where lifter box slides up and down.
5. Lubricate lifter box then install lifter box into the yoke bar.
6. Lower assembly over the cover (4) and spacer block (5).



7. Rotate cover handle to the CLOSED position.

Continued:

8. Align holes in lifter box, spacer block and cover.
9. Install new cover bolts but do not tighten.
10. Install slide rod through bearings on right hand side of yoke bar.



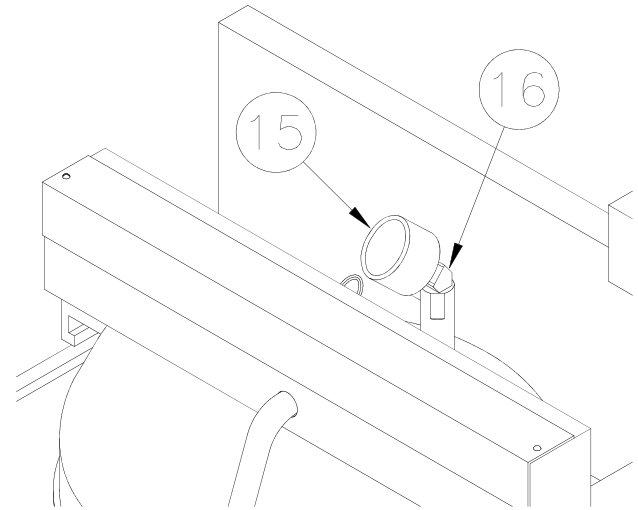
11. Place assembly onto counter top. Place slide rod (13) into the rear support, install bolt into front of the slide rod and install bolt on back of slide rod (1600).
12. Pull cover forward. If yoke latch (6) and latch columns (7) do not line up, adjust slide rod (13) to the left or right.
13. Center cover within the cooking well. See **Centering Cover**.

PRESSURE GAUGE

Gauge indicates pressure within the cooking well. Operating pressure is 12-14 PSI.

Replacement:

1. OPEN the pressure regulating valve then the cover.



2. Unscrew gauge (15) from the elbow (16).
3. Use teflon tape on the threads. Screw new gauge onto the elbow.

SAFETY RELIEF VALVE

The safety relief valve opens in the event pressure in the cooking well meets relief pressure rating of the valve. **DO NOT** alter or attempt to repair this valve.

⚠ WARNING Keep away from safety relief valve opening without heat and steam protective apparel. Escaping steam could cause serious burns.

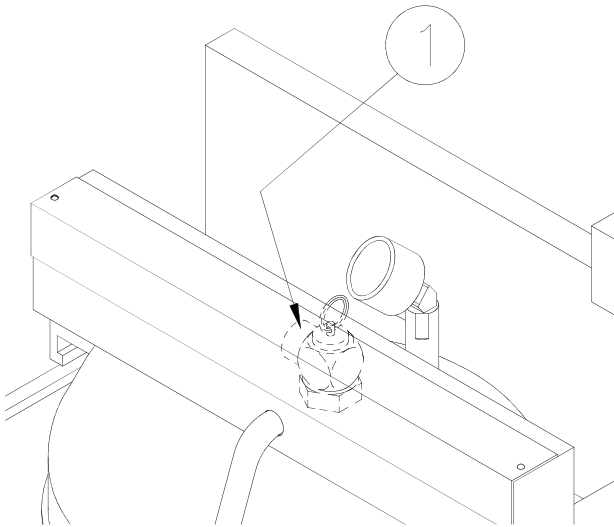
1. See PROPER COVER OPERATION.

Replacement:

NOTICE

Replacement valve must have a 15 PSI relief pressure.

1. OPEN cover and pressure regulating valve.

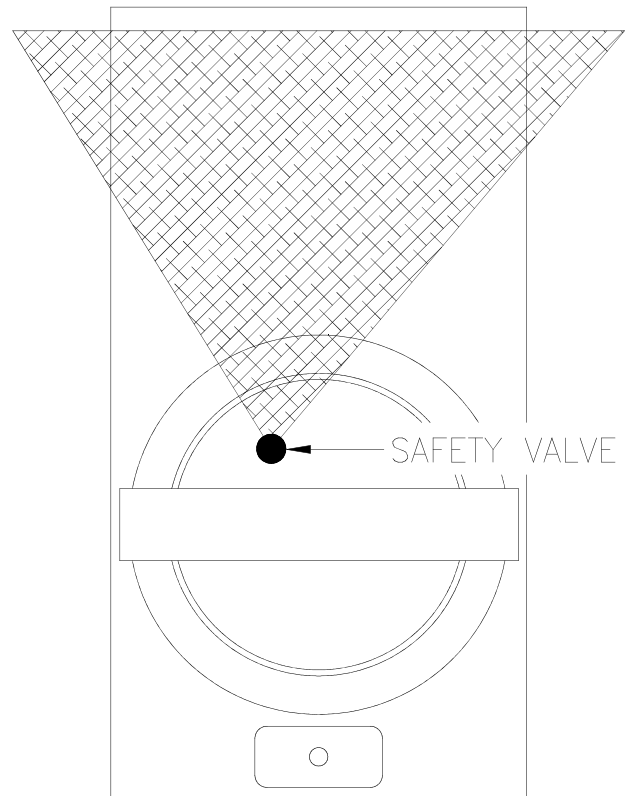


2. Unscrew valve (1) from the cover.

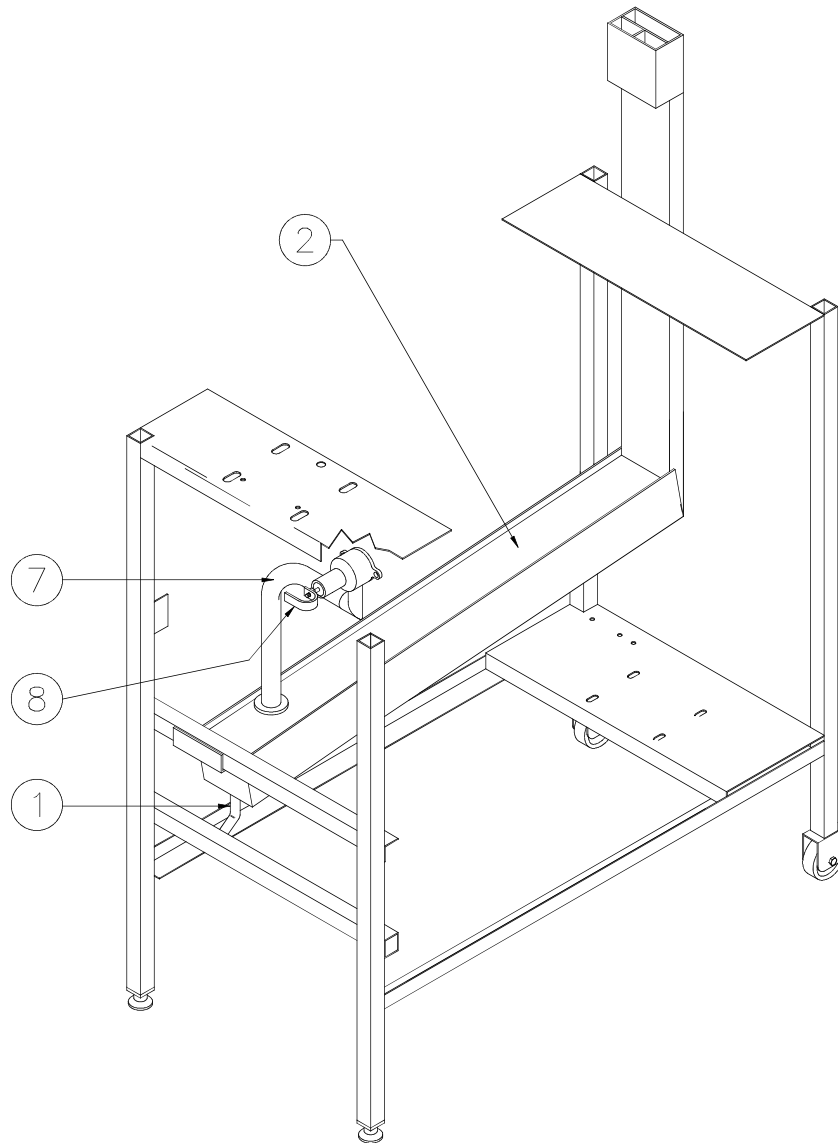
NOTICE

DO NOT install valve discharge opening in the direction of foot traffic areas.

3. Apply teflon tape to threads. Screw new valve into the cover with valve discharge opening facing the rear, at an angle, away from foot traffic as shown below.



6 - 1600 PRESSURE SYSTEM

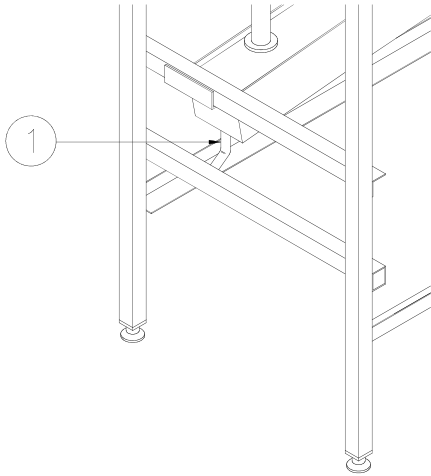


⚠ DANGER **DO NOT** attempt to tighten, repair, or replace any fitting, line or component unless main electric power is disconnected, pressure regulating valve is **OPEN** and cooking oil has cooled. Hot oil could spray out under pressure causing serious burns.

The following operator habits may cause the pressure system to become faulty:

- Overfilling cooking well with oil: See operation manual for correct oil level.
- Overloading basket with product: Oil level will raise too high.
- Breeding then dropping: Excess coating can collect in pressure regulating valve and exhaust tank. See operation manual for coating instructions.
- Opening pressure regulating valve quickly at the end of a cooking cycle: Excess coating can collect in pressure regulating valve and exhaust tank.

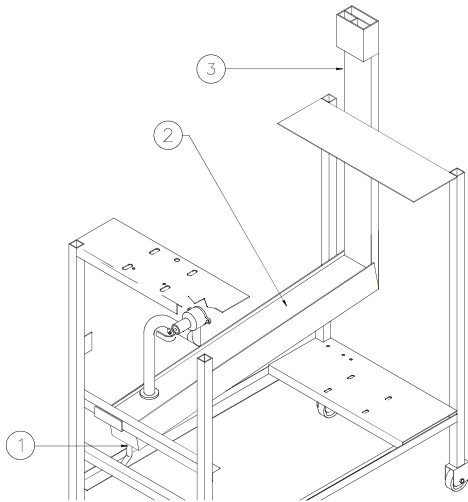
EXHAUST DRAIN TUBE



Tube (1) drains condensation from exhaust tank into the condensate pan.

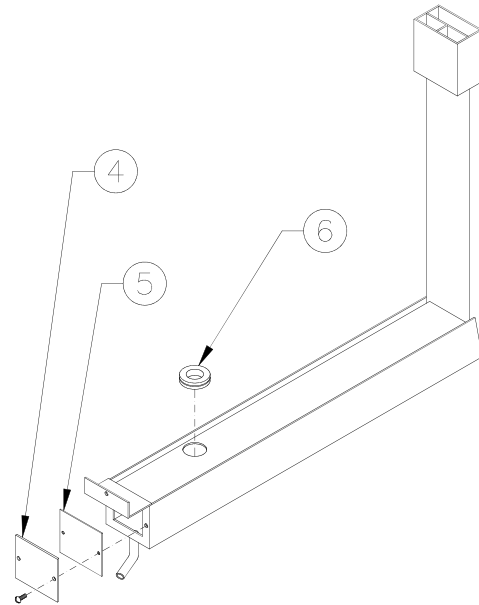
EXHAUST TANK

Steam and vapors are exhausted through this tank.



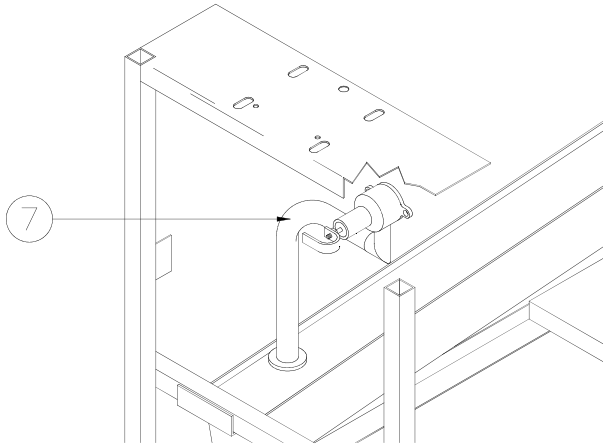
See previously mentioned operator habits. Tank (2) can become obstructed. The obstruction usually forms where exhaust drain tube (1) meets tank. Tank will then become filled with liquid. Liquid may be forced up the stack (3) when pressure is released at the end of a cooking cycle.

Cleaning:



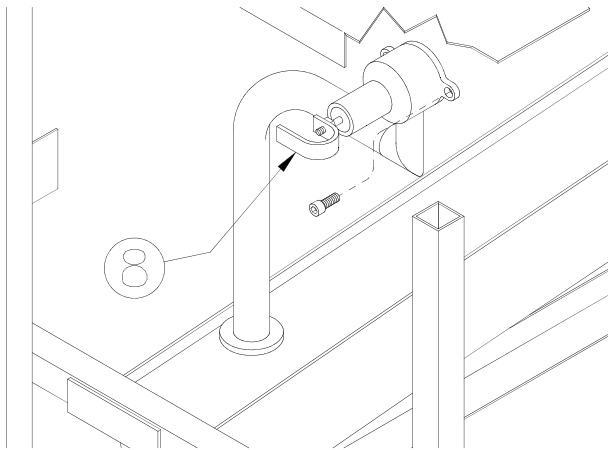
1. Remove two screws, cover (4) and seal (5) from tank.
2. Scrape inside of tank clean.
3. Replace seal (5) and grommet (6) if necessary.
4. Assemble in reverse order.

EXHAUST TUBE



Tube (7) directs steam and vapors from cooking well into the exhaust tank.

PRESSURE REGULATING VALVE

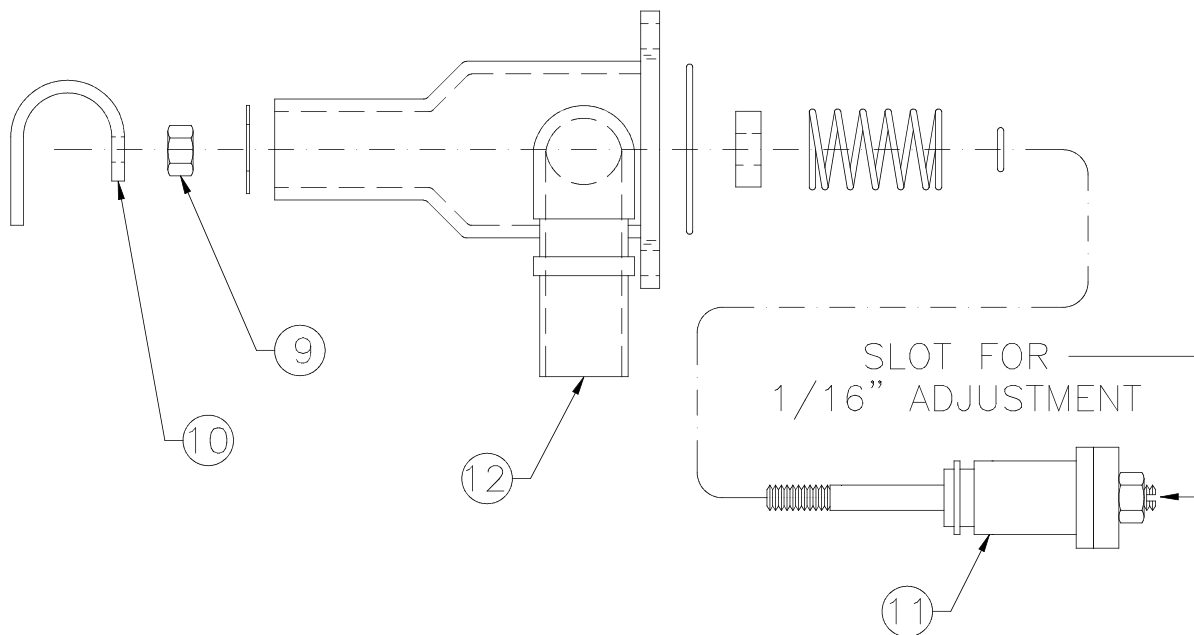


Valve (8) is preset to maintain a maximum pressure of 12-14 psi during a cooking cycle. Pressure may build slowly or remain low when cooking small loads. Add one or two quartered potatoes with product to help build and maintain maximum pressure.

Replacement:

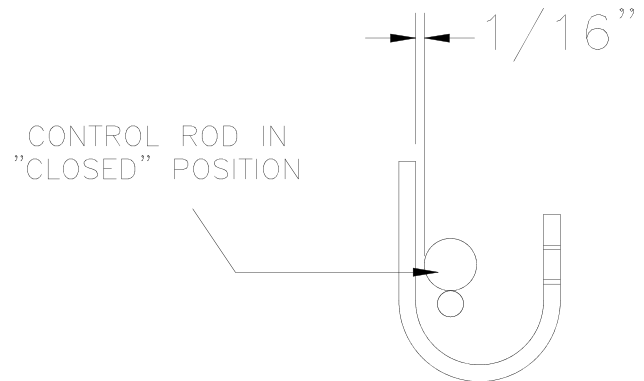
1. Disconnect main electric power supply.
2. Slide right hand squeeze clamp, on valve outlet, to the left.
3. Pull silicone sleeve and exhaust tube (7) free of valve outlet.
4. Remove two allen screws mounting valve to the cooking well and remove valve.
5. See **Repair**.
6. Install silicone sleeve and exhaust tube onto the valve outlet.
7. Slide right hand squeeze clamp onto the valve outlet.

Repair:

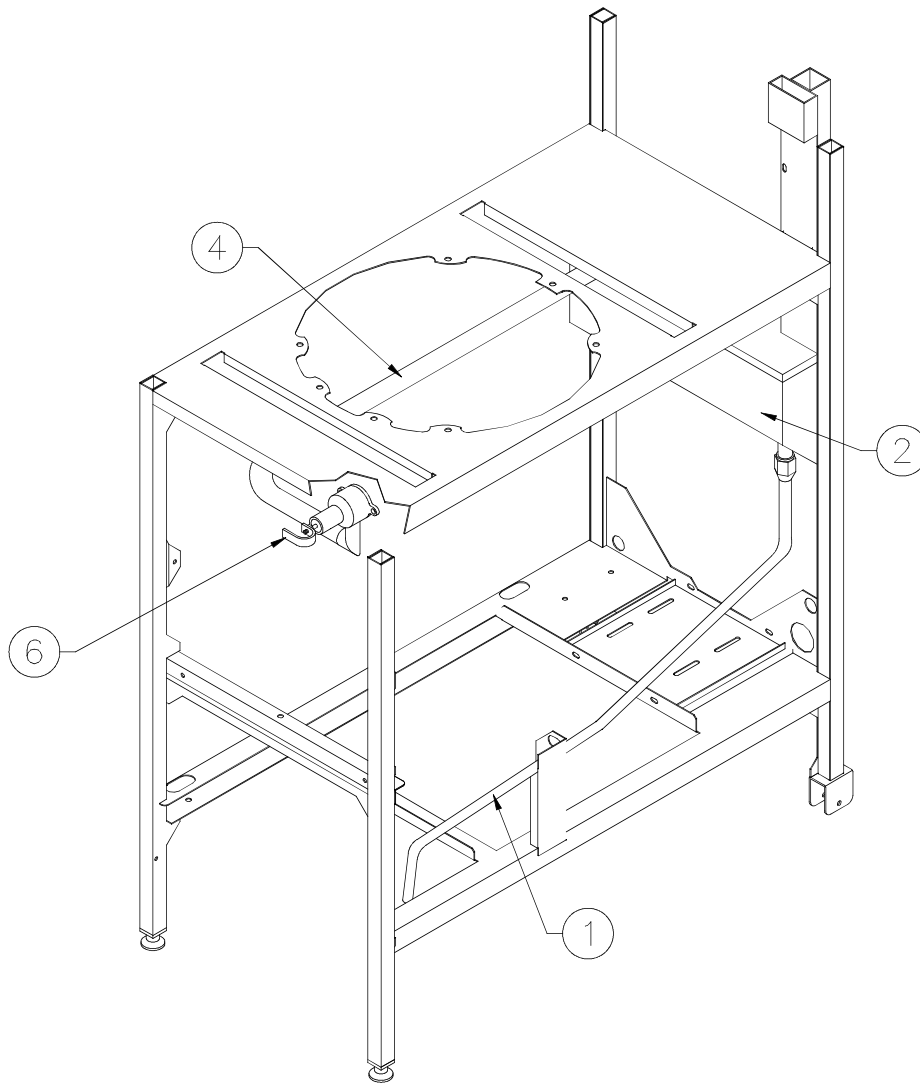


Use repair kit #15279.

1. Remove two allen screws which attach the valve assembly to the cooking well.
2. Remove valve from the unit.
3. Loosen locking nut (9) then remove valve control yoke (10) from the stem assembly (11).
4. Remove entire stem assembly from the housing (12) by pushing on threaded end of the stem assembly.
5. Remove all components from the stem assembly (11).
6. Clean then dry all metal components, not replaced, with hot water and a mild detergent.
7. Install new parts from the repair kit. Lubricate all O-rings and contacting surfaces with olive oil.
8. Mount valve assembly back on cooking well with the allen screws. With the open end of the yoke pointing to the left.
9. With control arm in the "CLOSED" position, a distance of $1/16$ " should be maintained between the control yoke (10) and control rod. While locking nut (9) is loose, adjust distance in the pressure port located on inside top of the cooking well. Using a screwdriver, turn stem assembly (11) either clockwise or counterclockwise to obtain this distance.
10. Tighten locking nut.



7 - 1800 PRESSURE SYSTEM

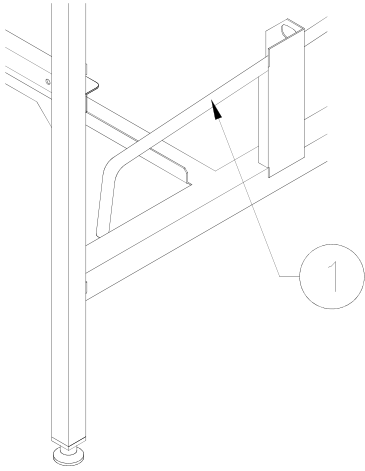


DO NOT attempt to tighten, repair, or replace any fitting, line or component unless main electric power is disconnected, pressure regulating valve is OPEN and cooking oil has cooled. Hot oil could spray out under pressure causing serious burns.

The following operator habits may cause the pressure system to become faulty:

- Overfilling cooking well with oil: See operation manual for correct oil level.
- Overloading basket with product: Oil level will raise too high.
- Breeding then dropping: Excess coating can collect in pressure regulating valve and exhaust tank. See operation manual for coating instructions.
- Opening pressure regulating valve quickly at the end of a cooking cycle: Excess coating can collect in pressure regulating valve and exhaust tank.

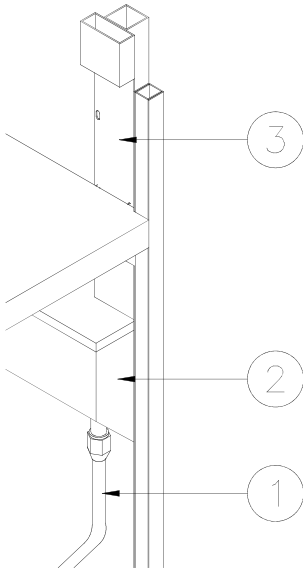
EXHAUST DRAIN TUBE



Tube (1) drains condensation from exhaust tank into the condensate pan.

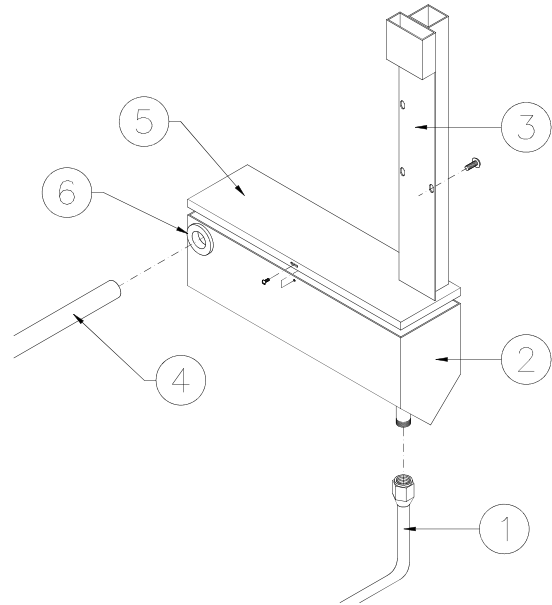
EXHAUST TANK

Steam and vapors are exhausted through this tank.



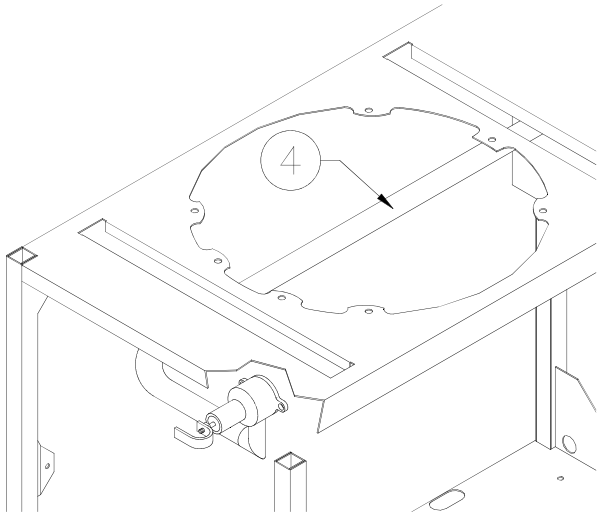
See previously mentioned operator habits. Tank (2) can become obstructed. The obstruction usually forms on the bottom of tank where exhaust drain tube (1) is connected. Tank will then become filled with liquid. Liquid may be forced up the stack (3) when pressure is released at the end of a cooking cycle.

Cleaning:



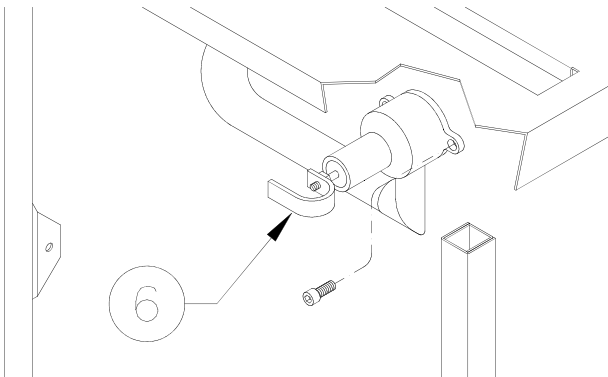
1. Remove exhaust drain tube (1) from bottom of the tank (2).
2. Remove two screws from the stack (3) which mounts tank to the unit.
3. Pull tank away from the frame. Exhaust tube (4) will separate from the tank.
4. Remove two screws holding cover (5) to the tank then remove cover. Remove rubber grommet (6) on side of the tank. Set the tank in a sink and clean thoroughly.
5. Clean silicone rubber from cover underside. Seal cover with silicone during assembly.
6. Clean all tubes.
7. Replace grommet (6) if necessary.
8. Assemble in reverse order.

EXHAUST TUBE



Tube (4) directs steam and vapors from cooking well into the exhaust tank.

PRESSURE REGULATING VALVE

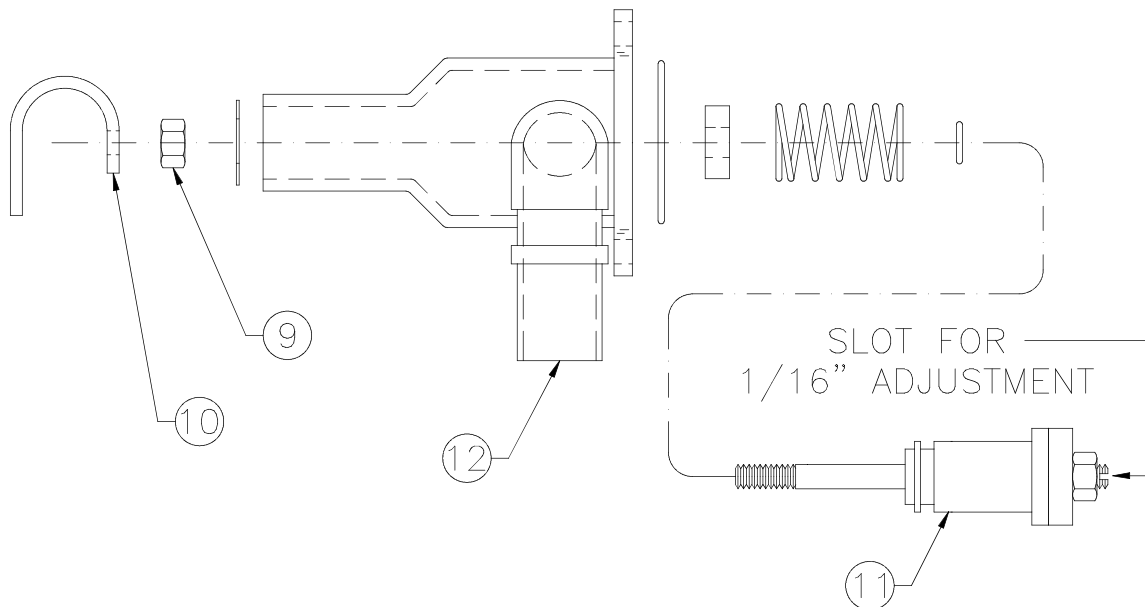


Valve (6) is preset to maintain a maximum pressure of 12-14 psi during a cooking cycle. Pressure may build slowly or remain low when cooking small loads. Add one or two quartered potatoes with product to help build and maintain maximum pressure.

Replacement:

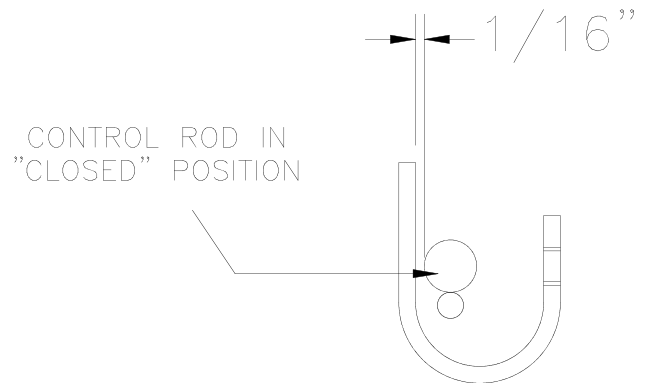
1. Disconnect main electric power supply.
2. Slide right hand squeeze clamp, on valve outlet, to the left.
3. Pull silicone sleeve and exhaust tube (4) free of valve outlet.
4. Remove two allen screws mounting valve to the cooking well and remove valve.
5. See **Repair**.
6. Install silicone sleeve and exhaust tube onto the valve outlet.
7. Slide right hand squeeze clamp onto the valve outlet.

Repair:



Use repair kit #11447.

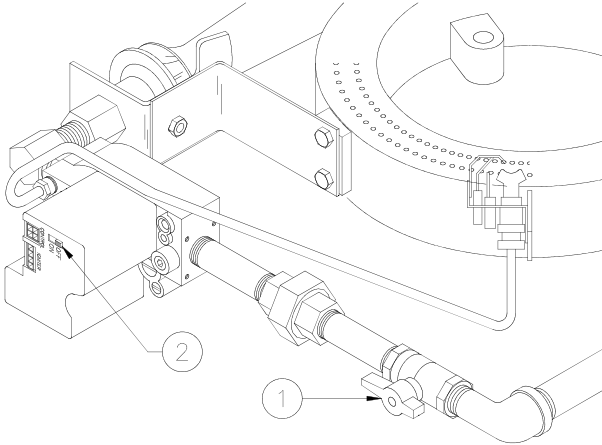
1. Remove two allen screws which attach the valve assembly to the cooking well.
2. Remove valve from the unit.
3. Loosen locking nut (7) then remove valve control yoke (8) from the stem assembly (9).
4. Remove entire stem assembly from the housing (12) by pushing on threaded end of the stem assembly.
5. Remove all components from the stem assembly (11).
6. Clean then dry all metal components, not replaced, with hot water and a mild detergent.
7. Install new parts from the repair kit. Lubricate all O-rings and contacting surfaces with olive oil.
8. Mount valve assembly back on cooking well with the allen screws. With the open end of the yoke pointing to the left.
9. With control arm in the "CLOSED" position, a distance of $1/16$ " should be maintained between the control yoke (10) and control rod. While locking nut (9) is loose, adjust distance in the pressure port located on inside top of the cooking well. Using a screwdriver, turn stem assembly (11) either clockwise or counterclockwise to obtain this distance.
10. Tighten locking nut.



8 - 1800GH MAIN BURNER SYSTEM

MODEL 1800GH LIGHTING INSTRUCTIONS

Start Up:



1. Turn cook/filter switch OFF.
2. See OIL LEVEL in the operation manual.
3. Turn gas shut-off valve (1) ON. Wait five minutes before turning gas control ON.
4. Slide switch (2) on top of gas valve to ON.

NOTICE

The Model 1800GH has an intermittent pilot burner. This type of pilot lights when the controller calls for heat and goes out when the controller is not calling for heat.

5. To light pilot and main burners, turn cook/filter switch to COOK.

Shut Down:

1. Turn cook/filter switch OFF.
2. Turn gas valve switch (2) OFF.
3. Turn gas shut-off valve (1) OFF.

GAS CONVERSION

To convert from one type of gas to another, five components must be changed: gas valve, pilot burner orifice, main burner orifice and gas data plate. Notify Broaster Company Service Department of a conversion in writing.

Main Burner Orifice Sizes Up To 2000 Feet Above Sea Level:

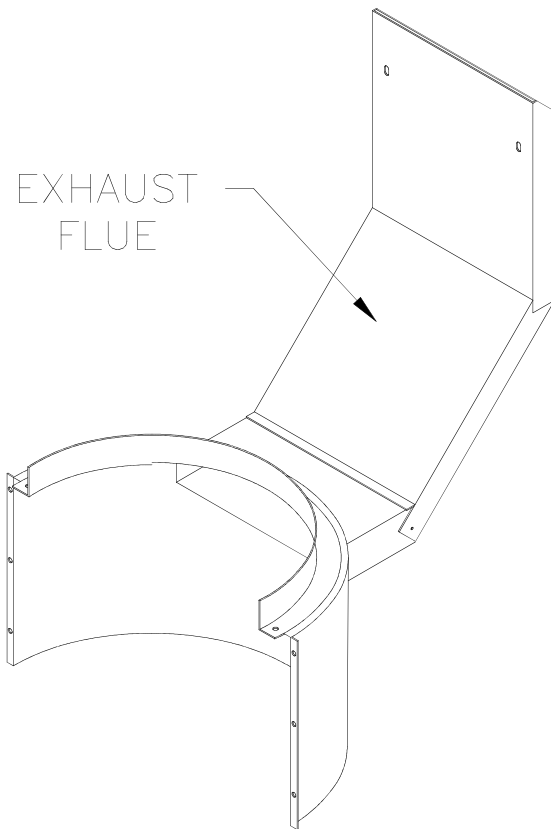
Natural Gas: #24

Propane: #41

HIGH ALTITUDE

Standard gas units operate up to 2000 feet above sea level. Installations above this require a special main burner orifice. Contact Broaster Company for orifice sizing.

VENTILATION

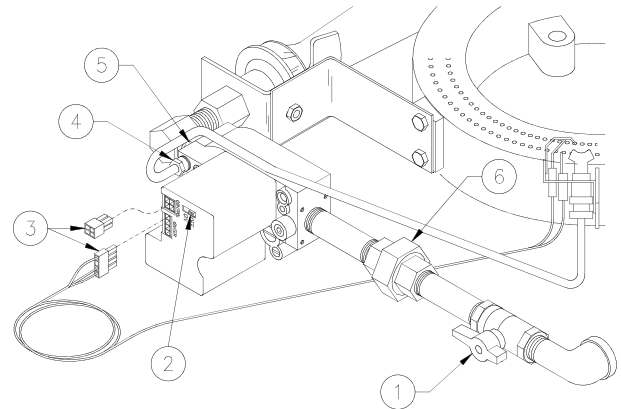


- Never modify exhaust flue! Back pressures from added extensions can cause high ambient temperatures near the controls.
- Make sure unit is correctly ventilated. Restrictions, drafts or other adverse conditions might affect proper operation of the burner and combustion assemblies.

GAS VALVE

Regulates gas supply. The gas valve has a two position switch: OFF to stop all gas flow, and ON allows gas flow to pilot and main burners as needed. Adjustment for gas pressure and gas flow to pilot burner are also found on the valve.

Replacement:



1. Turn cook/filter switch, manual gas shut off valve (1) and switch (2) OFF.
2. Turn main gas supply OFF.
3. Disconnect main electric supply.
4. Remove condensate pan and front panel.
5. Disconnect gas valve wire harnesses (3).
6. Loosen fitting (4) that mounts pilot burner gas supply line to gas valve.
7. Loosen brass union nut (5).
8. Loosen pipe union (6).
9. Remove piping from gas valve.

Continued:

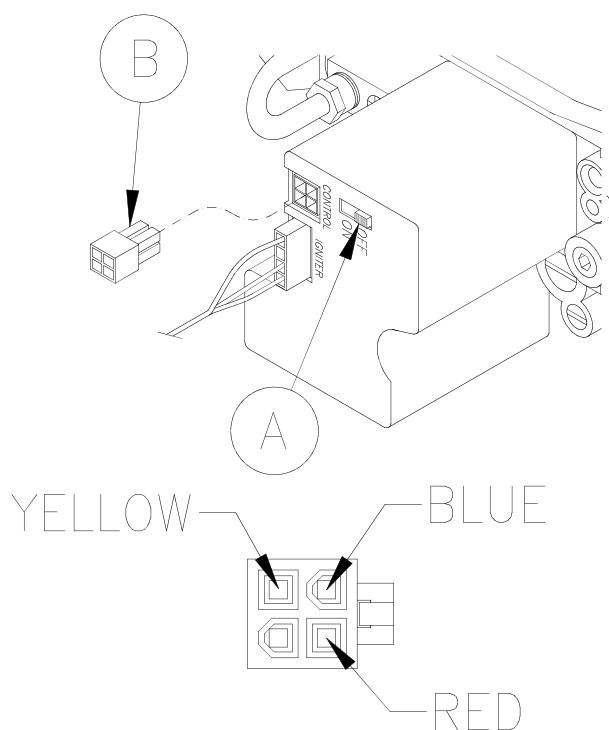


Be sure pilot burner gas supply line is fully installed into gas valve fitting during installation. If not, a gas leak may be the result.

10. Install in reverse order. Use gas pipe sealer on pipe threads. Check all gas connections and pipes with a soap and water solution. Bubbles indicate a gas leak.

GAS VALVE POWER CHECK

1. Turn SWITCH A to off.
2. Pull out plug B.
3. Turn the COOK/FILTER switch to COOK.
4. At the end of the plug, check for 24VAC between the blue and red wire and the blue and yellow wire. (see



5. Refer to the TROUBLESHOOTING FLOW CHART on page 11-10 if there is no voltage at either or both places.

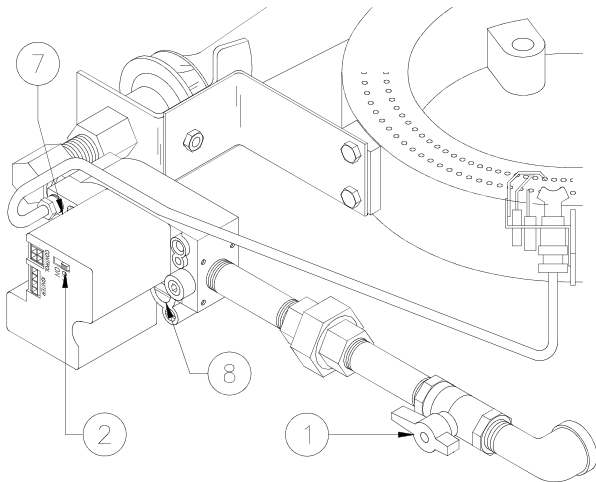
FLAME ADJUSTMENTS

Gas Pressure Adjustment:

Always check gas pressure after a new gas valve installation. Check pressure when other gas equipment is also operating. This will ensure adequate pressure during peak operating times.

There is a pressure tap in output side of the gas valve for manometer hook-up. Correct output gas pressures, in Water Column, are:

Natural Gas: 3.5" W.C.
Propane Gas: 10.0" W.C.



1. Turn cook/filter switch, manual gas shut off valve (1) and switch (2) OFF.
2. Remove pressure tap (7) on gas valve.
3. Install manometer.
4. Turn gas shut off valve (1) ON.
5. Light pilot see MODEL 1800GH LIGHTING INSTRUCTIONS. Turn gas valve switch (2) ON.



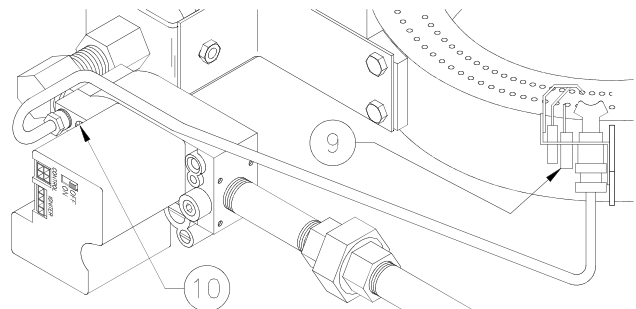
Check cooking oil level before turning power switch on .

6. Turn cook/filter switch to COOK.

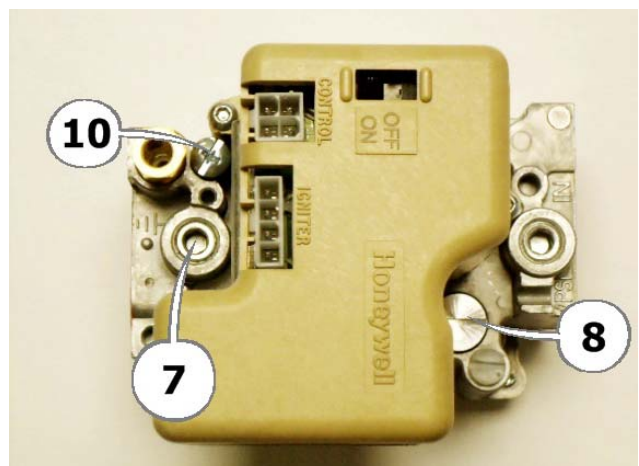
7. Remove regulator adjustment cover (8). Adjust pressure when main burner is on.
8. Turn cook/filter switch, manual gas shut off valve (1) and switch (2) OFF.
9. Remove manometer. Replace pressure tap plug. Use gas pipe sealer on threads.
10. Turn manual gas shut off valve (1) ON.
11. Slide gas valve switch (2) ON.
12. Turn cook/filter switch to COOK.
13. Check pressure tap with a soap and water solution when main burner is on. Bubbles indicate a gas leak.

Pilot Burner Flame Adjustment:

Pilot burner flame must surround sensor (9).



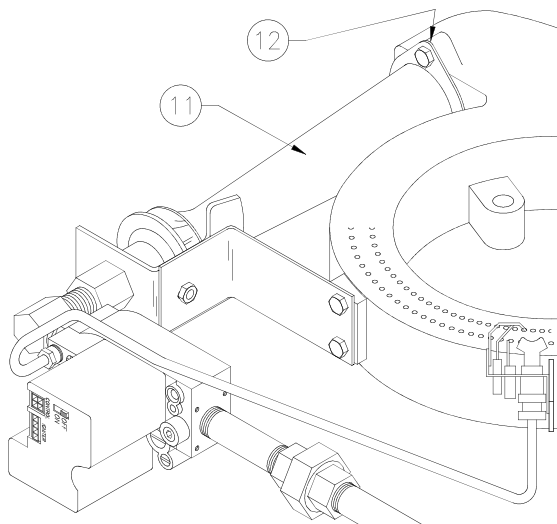
1. Remove screw (10).
2. Adjust flame and replace screw.



Main Burner Flame:

Flame must be blue and sit on the burner surface. During normal operation, a slight “whoosing” sound may be heard when burner shuts off. If you cannot adjust the flame correctly check the following:

1. Air shutter adjustment. See AIR SHUTTER Adjustment.
2. Centered main burner orifice. After installing a new gas valve or piping, brackets can shift causing gas not to travel down center of the venturi. A bad air/gas mixture is the result.
3. Drafts on floor can affect combustion. Drafts can be caused by open doors, fans and ventilation systems. See VENTILATION.
4. Incorrect ventilation can affect combustion. See VENTILATION.
5. Gas pressure is a main factor for good operation. Be sure correct water column is present. See Gas Pressure Adjustment under FLAME ADJUSTMENTS.



6. Loose venturi (11) or bad gasket (12) can affect combustion. Tighten or replace gasket.

AIR SHUTTER

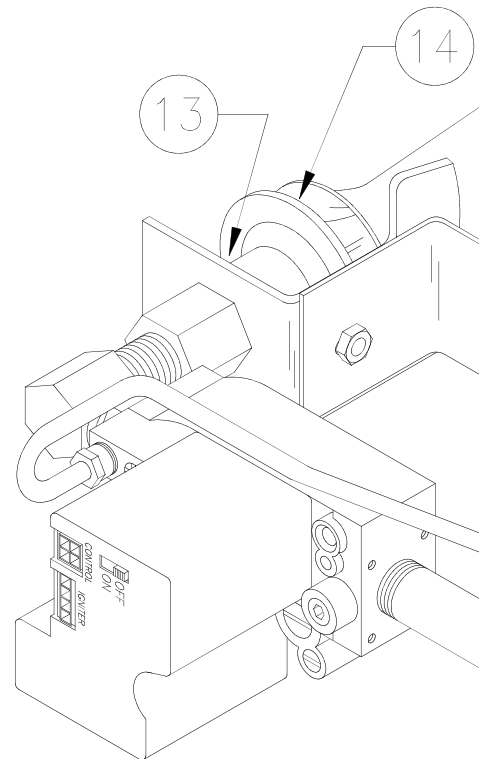
Maintains air/gas mixture for good combustion. Start with a 1/4" gap after installing a new gas valve or piping.

Adjustment will be necessary if main burner flame is mostly orange or yellow. If flame is out of adjustment, check combustion chamber and flue for soot build-up.



If soot is present, DO NOT operate unit until all soot is removed and correction made. Soot is black and powdery to the touch. See COMBUSTION CHAMBER.

Adjustment:



1. Loosen locknut (13) which locks air shutter.
2. Screw shutter (14) in or out to obtain a blue flame. Flame should start burning slightly above main burner.
3. Tighten locknut.

COMBUSTION CHAMBER

Combustion chamber directs heat from main burner flame across fins on cooking well and out the exhaust flue (15). If main burner flame is not adjusted correctly, soot deposits can form on the combustion chamber (16), exhaust flue (15) and cooking well (17). Soot is identified as black and powdery to the touch.

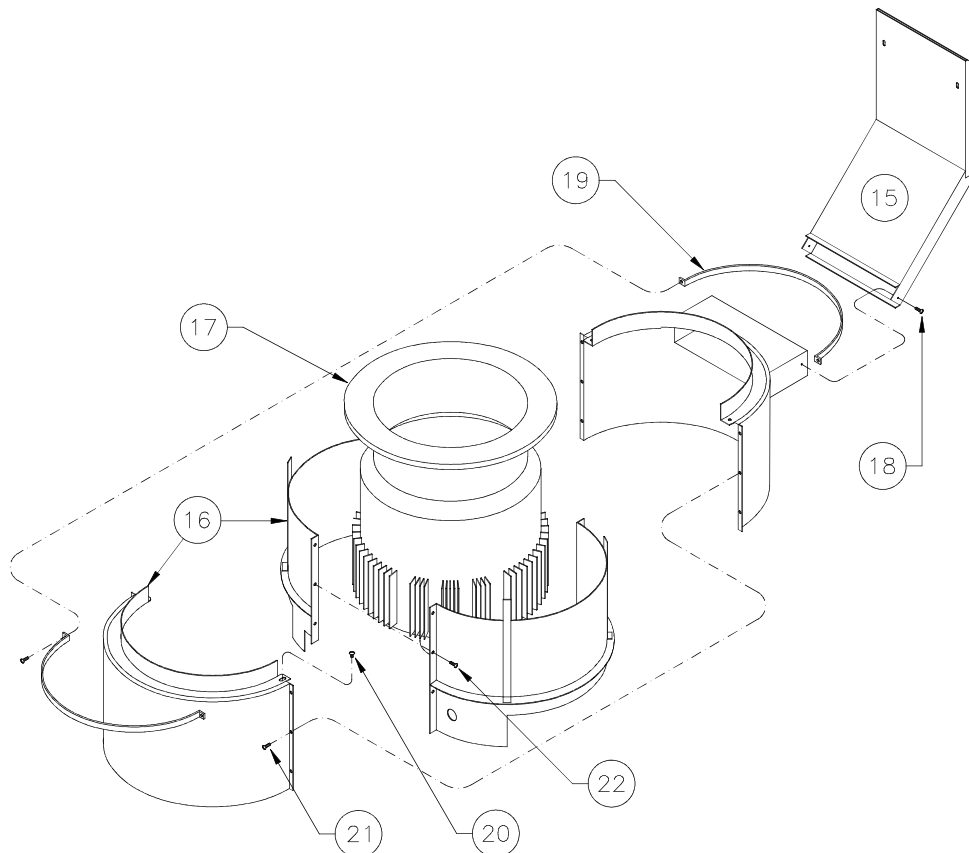
⚠ WARNING If soot is present, **DO NOT** operate unit until all soot is removed and corrections made.

⚠ WARNING Allow combustion chamber parts to cool before servicing. Hot metal may cause serious burns.

Cleaning:

1. Turn power switch, gas valve switch and manual gas shut off valve OFF.
2. Turn main gas supply OFF.

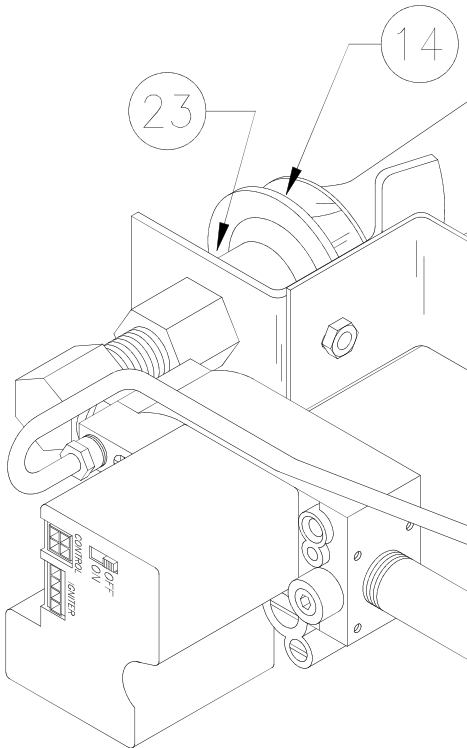
3. Disconnect main electric supply.
4. Remove condensate pan.
5. Remove left and right hand side panels.
6. Remove exhaust flue mounting screws (18) from combustion chamber. Remove upper mounting nuts inside upper flue opening and remove flue (15).
7. Remove outer wall clamp (19).
8. Remove screw (20) on top of outer wall weldments.
9. Remove screws (21) on both sides of outer walls and remove.
10. Remove screws (22) on both sides of inner jackets and remove.
11. Clean exhaust flue, inner jacket, outer wall and cooking well.
12. Assemble in reverse order.



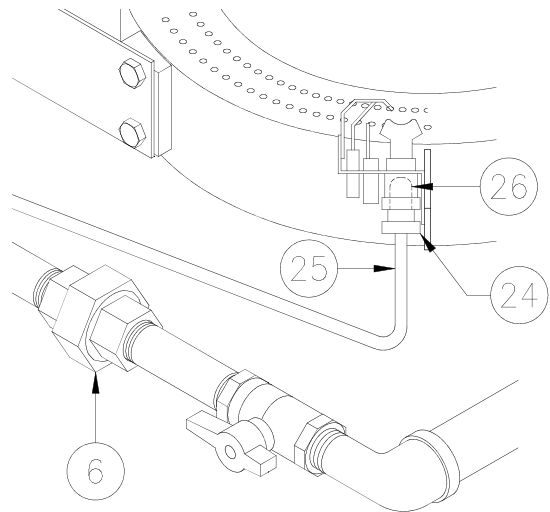
MAIN BURNER ORIFICE

Replacement:

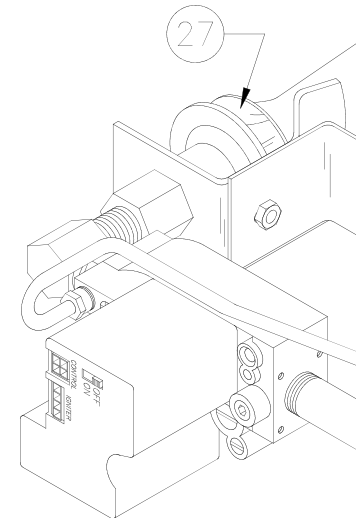
1. Turn cook/filter switch, gas valve switch and manual gas shut off valve OFF.
2. Turn main gas supply OFF.
3. Disconnect main electric supply.
4. Remove condensate pan.
5. Facing the front of unit, remove left hand side panel if possible.



6. Loosen two locknuts (23) behind air shutter (14).
7. Screw air shutter and locknuts away from gas valve as far as possible.

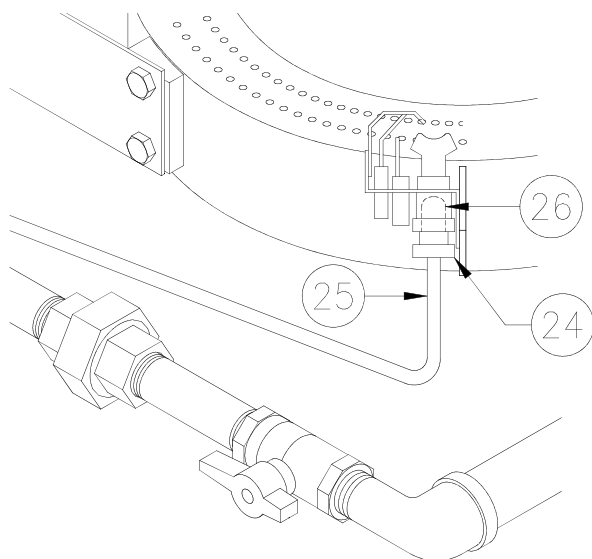


8. Loosen brass fitting (24) and pull 1/4" gas supply line (25), brass fitting and pilot burner orifice (26) free of burner.
9. Loosen pipe union (6).
10. While pulling on gas valve, loosen air shutter and locknuts until they can be removed.



11. Remove main burner orifice (27).
12. Assemble in reverse order. Adjust air shutter. See AIR SHUTTER. Check all connections and pipes with a soap and water solution. Bubbles indicate a gas leak.

PILOT BURNER ORIFICE



Orifice (26) is located above brass fitting (24).

Replacement:

1. Remove condensate pan.
2. Turn cook/filter switch, gas valve switch and manual gas shut off valve OFF.
3. Loosen brass fitting (24) from pilot burner.
4. Pull 1/4" gas supply line (25) and brass fitting free of burner. It may be necessary to loosen gas valve side of gas supply line.
5. Remove orifice (26).
6. Install new orifice in reverse order. Check all gas connections with a soap and water solution. Bubbles indicate a gas leak.

9 - DRAIN VALVE AND FILTER SYSTEM

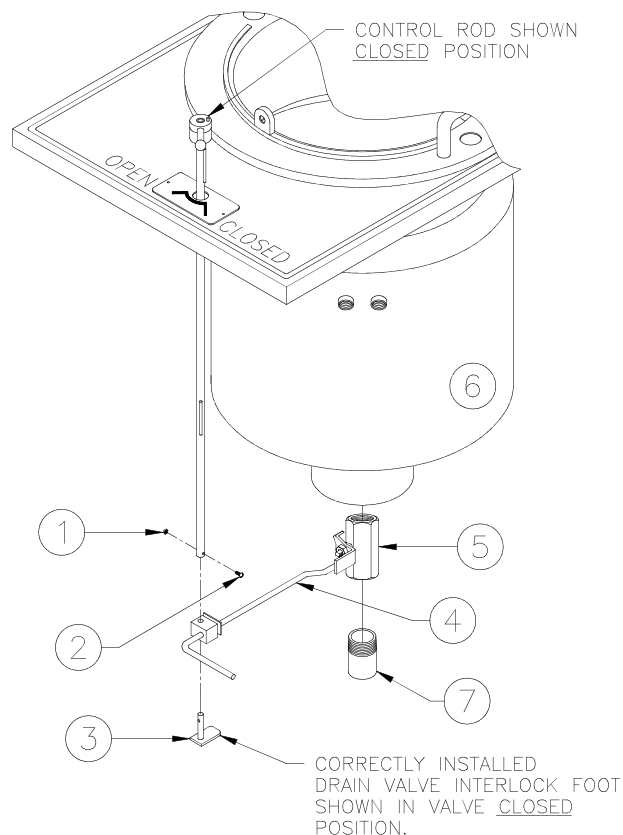
DRAIN VALVE

Used to drain oil from cooking well into filter pan or container made for handling hot oil.

⚠ DANGER Never drain oil unless pressure regulating valve is OPEN. Hot oil could spray out under pressure causing serious burns.

Replacement:

1. Disconnect main electric supply.
2. Remove filter pan from under the unit. Drain cooking oil from cooking well into a container made for handling hot oil.
3. Remove nut (1), screw (2) and interlock (3).
4. Remove nut mounting handle (4) to the drain valve (5).
5. Remove nipple (7) from drain valve.
6. Unscrew drain valve from the cooking well (6).
7. Assemble in reverse order using #15820 Primer & #15359 Sealant on cooking well threads.



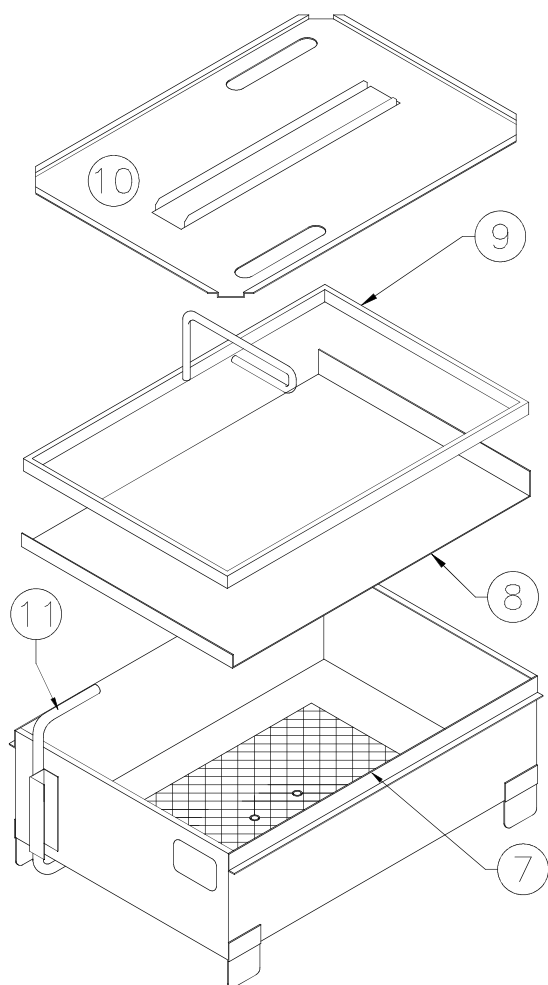
FILTER PAN

See Operation Manual for detailed filtering procedures.

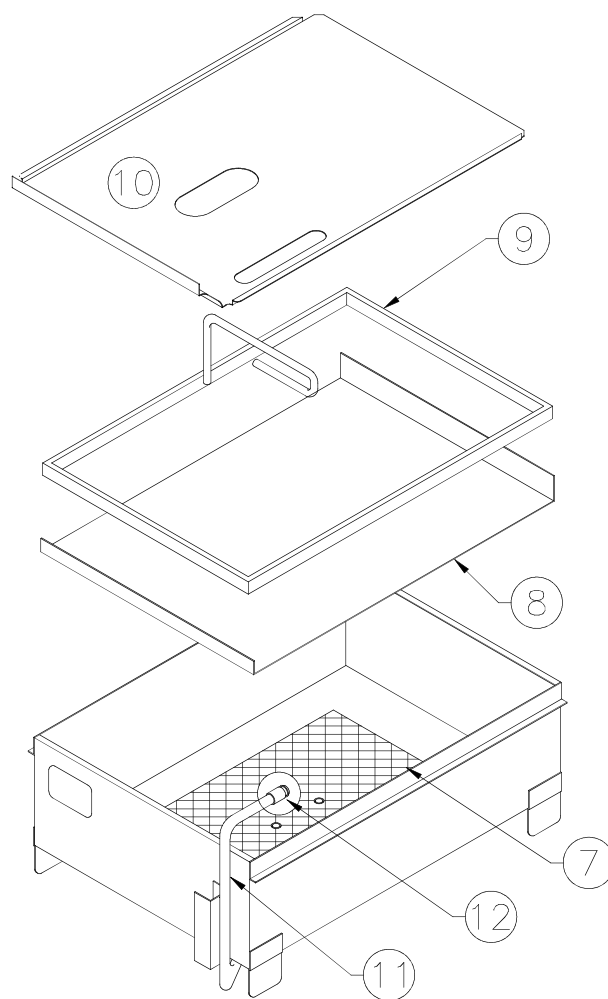
Filter Pan Assembly:

⚠ WARNING **DO NOT** use the filter pan to transport hot oil. Hot oil could splash causing serious burns.

1600:



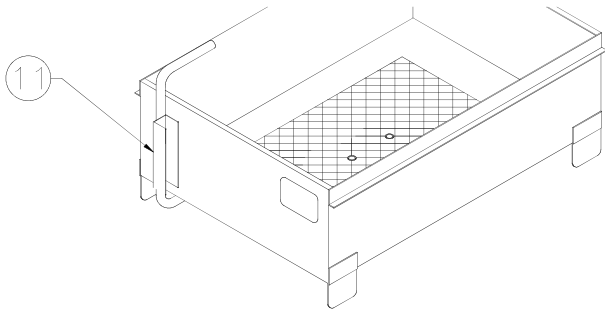
1800:



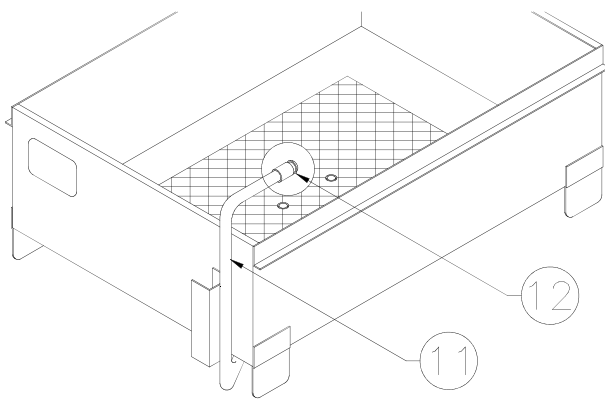
Be sure filter components are assembled correctly. Correct order is filter screen (7) on bottom of filter pan, filter paper (8), filter hold-down (9), one cup (1600) or two cups (1800) of Broaster® filtering compound on top of filter paper and cover (10) on filter pan.

Preventive Maintenance:

1600:



1800:



1. Use a clean cloth or paper towel to wipe crumbs from filter hold down and the filter pan interior before replacing filter paper. This will help prevent crumbs from causing a poor seal or entering the riser line (11) and pump.



WARNING Rags or papers containing cooking oil can catch fire if exposed to heat. Laundering will not remove the oil. Dispose of all oil-soiled papers and rags in a trash container that is in a ventilated area away from all cooking equipment or other heat sources such as direct sunlight.

2. Be sure the O-ring (12) (1600: located in suction line) is in good condition, lubricated with cooking oil and installed correctly.

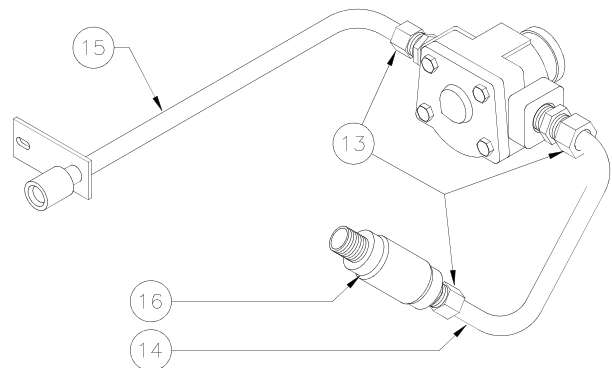
CHECK VALVE

Prevents cooking oil from draining into the filter pan from cooking well.

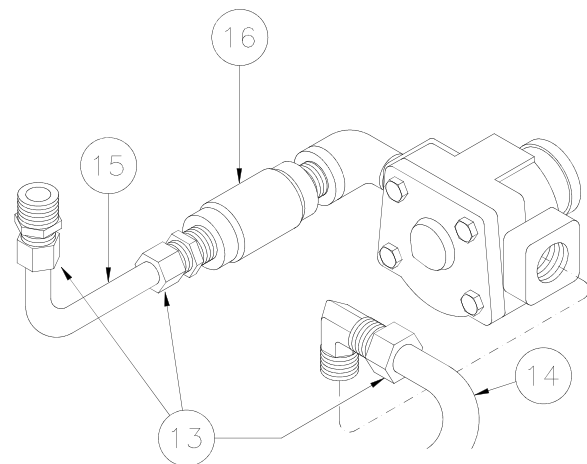
Replacement:

1. Disconnect main electric power supply.
2. Drain cooking oil from the cooking well and into a container made for handling hot oil then close the drain valve.
3. Remove left hand side panel (1800).

1600:



1800:



4. Loosen fitting (13), motor mounting bolts, remove pipe (14 and 15) (1800: slide motor back to remove pipe).

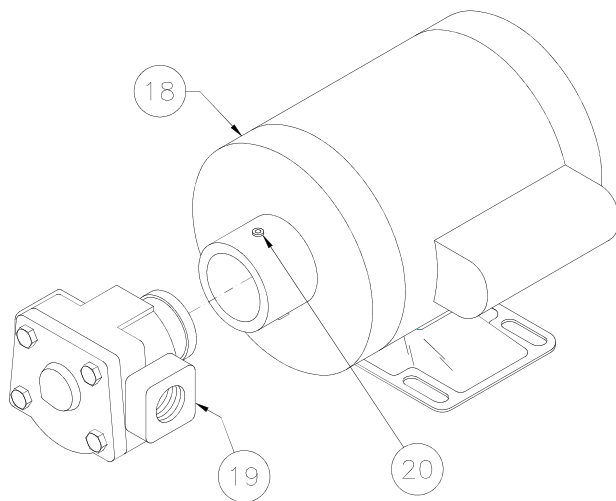
Continued:

5. Unscrew valve (16).
6. Remove any fittings from the valve.
7. Install in reverse order using #15820 Primer & #15359 Sealant on pipe threads.

Installation hint:

1. When installing a fitting or pipe nipple into the valve, be sure to place wrench on the same side of valve into which fitting or nipple is being installed. **DO NOT** tighten across the valve! Distortion of valve seat could occur.
2. When installing compression fittings on tubing, tighten nut finger tight then turn 1-1/4 turns more.

MOTOR



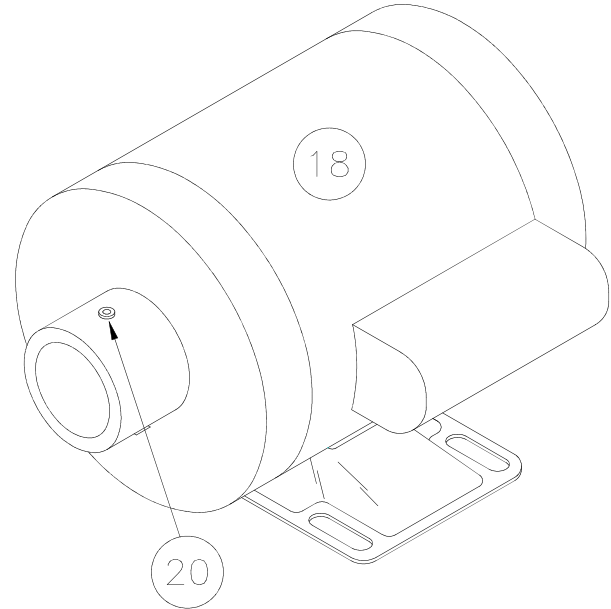
Motor (18) turns pump (19) which returns cooking oil from filter pan to the cooking well.

Motor has a manual reset thermal overload. If overload trips, push red reset button on back after motor has cooled.

⚠ WARNING Turn power switch OFF before resetting manual reset thermal overload.

Replacement:

1. Disconnect main electric power supply.
2. Disconnect conduit wires and conduit from the motor.



3. Loosen three set screws (20) in neck of motor (18) which hold pump in place.
4. Remove motor mounting bolts and remove motor.
5. Install in reverse order.

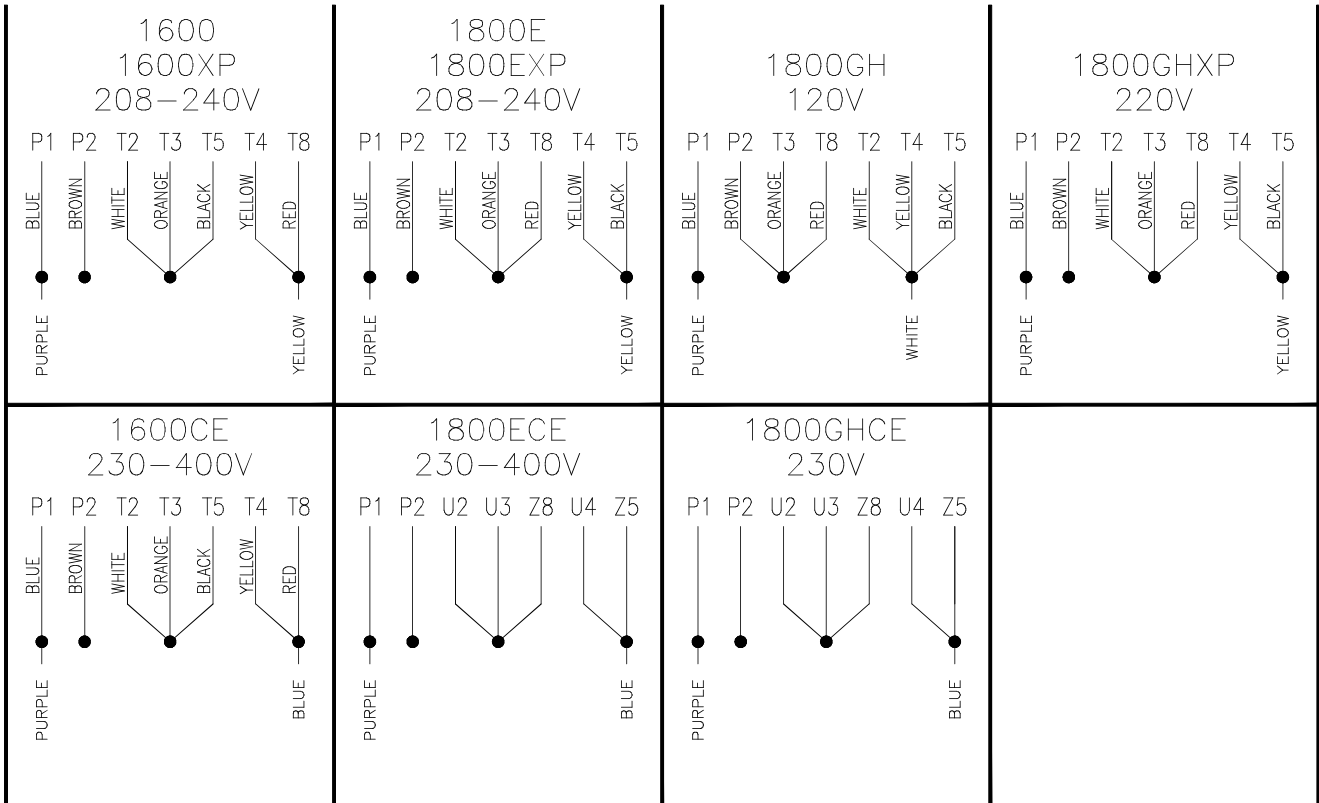
Installation Hints:

1. Be sure pump is fully installed into the motor neck before tightening set screws.
2. Tighten three set screws in neck a little at a time, in sequence, around neck until tight. This will prevent any unnecessary binding on shafts of the pump and motor.

MOTOR WIRING:

Be sure motor is wired for correct voltage and correct direction. See below for correct wire connections.

DOMESTIC & EXPORT



EUROPEAN UNION

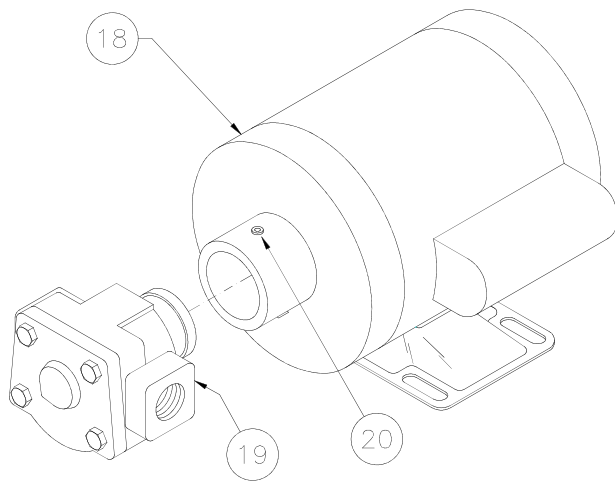
● = WIRENUT

PUMP

Pumps cooking oil from filter pan to the cooking well.

Removal:

1. Disconnect main electric power supply.
2. Drain cooking oil from cooking well into a container made for handling hot oil and close drain valve.



3. Remove piping from pump (19).
4. Loosen three set screws (20) in neck of motor (18) which hold pump in place. Remove pump.
5. Assemble in reverse order using teflon tape on pipe threads.

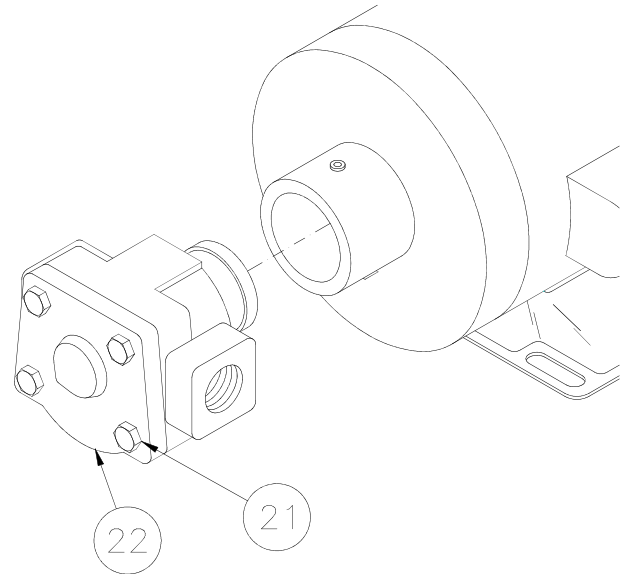
Installation Hints:

1. Loosen motor mounting bolts to help install piping.
2. See MOTOR Installation Hints.

Pump Cleaning:

Cleaning will be necessary if pump is seized and tripping thermal overload on the motor.

1. See PUMP Removal. Remove pump.



2. Remove four bolts (21) and cover (22).
3. Remove interior gears.
4. Clean gears and covers.
5. Replace O-ring and shaft seal if necessary.
6. Install in reverse order using #15820 Primer & #15359 Sealant on pipe threads.

Reassembly Hints:

1. Pour olive oil or cooking oil on gears and inside front cover bearing where gear shaft is installed. Turn gears by hand for good oil coverage.
2. Be sure cover O-ring is in place before tightening bolts.

10 - TROUBLESHOOTING

All adjustments and repairs shall be made by an authorized Broaster Company representative.

ELECTRICAL TIPS

COMPLAINT	CAUSE	REMEDY
Probe Fault	1. Open probe circuit 2. Probe wires reversed 3. Probe changes more than 100°F in two seconds.	1. Replace probe 2. Correct wiring 3. Turn power switch OFF. Contact service person.
HI Temperature	Oil temperature has reached 415°F/213°C.	1. Turn power switch OFF. Contact service person.
Internal Fault	An internal fault has been discovered in the control.	1. Turn power switch OFF. Contact service person.
Heater Fault - appears if the oil temperature is less than 250°F/121°C and the temperature does not raise at least 6°F/4°C during any 6 minute time period.	1. Gas valve switch is off. 2. No gas present. 3. Oil temperature not rising properly.	1. Turn gas valve switch on. 2. Turn main gas valve on. 3. Turn power switch OFF. Contact service person.
C1 Fault (Electric Fryers)	This will appear if power is present at the output of C1 contactor after one second when the power is turned off.	1. Turn power switch OFF. Contact service person.



SMART TOUCH CONTROLLER TIPS

COMPLAINT	CAUSE	1800E REMEDY	1800GH REMEDY
Display reads HEATER FAULT	Oil temperature not rising properly	* Call for service	* Remove anything causing a draft by the unit (like a fan). * Turn on the gas valve. * Call for service
Display is blank	Screen not calibrated	* With unit off, place finger on screen and hold while turning unit on. Touch the small box in the upper left corner until it moves to the upper right corner, then touch it again until it moves to the lower left corner, then touch it again until it disappears. Controller will reboot. * Call for service	
Display doesn't respond when touched			
Display reads PROBE FAULT	* Probe circuit is open or shorted *Probe wires are connected in reverse *Temperature changes more than 100F in two seconds	* Call for service	* Call for service
Display reads HI TEMP FAULT	Temp reaches 415F	* Call for service	* Call for service
Display reads INTERNAL FAULT	Internal fault detected	* Call for service	* Call for service
Display reads C1 FAULT	C1 contactor is stuck in the closed position	* Call for service	* Call for service

1800GH GAS TIPS

COMPLAINT	CAUSE	REMEDY
Pilot burner won't ignite	<ol style="list-style-type: none">1. Gas valve OFF2. Air in pilot gas line3. Gas shut-off valve OFF	<ol style="list-style-type: none">1. Slide switch to ON2. See MODEL 1800GH LIGHTING INSTRUCTIONS3. Turn ON
Main burner won't ignite	<ol style="list-style-type: none">1. Pilot burner not lit2. Gas control OFF3. Controller in Filter, Setup or Help mode4. Controller in Filter, Setup or help mode.	<ol style="list-style-type: none">1. See MODEL 1800GH LIGHTING INSTRUCTIONS2. Turn ON3. Press COOK tab4. Press COOK tab.

COVER AND YOKE TIPS

COMPLAINT	CAUSE	REMEDY
Cover hard to CLOSE	<ol style="list-style-type: none"> 1. O-ring dry or dirty 2. O-ring groove dirty 3. Hard O-ring 	<ol style="list-style-type: none"> 1. Clean and lubricate 2. Clean 3. Replace
Cover won't OPEN  WARNING Never use force to OPEN cover.	<ol style="list-style-type: none"> 1. O-ring dry or dirty 2. O-ring groove dirty 3. Hard O-ring 4. Pressure not released 5. Pressure regulating valve out of adjustment 	<ol style="list-style-type: none"> 1. Clean and lubricate 2. Clean 3. Replace 4. OPEN pressure regulating valve 5. Contact service person
O-ring Break  CAUTION DO NOT rest basket on top flange of cooking well. Damage to area in contact with o-ring can cause leaking under pressure or O-ring failure.	<ol style="list-style-type: none"> 1. O-ring groove dirty 2. Nicks in cooking well or cover 	<ol style="list-style-type: none"> 1. Clean 2. Remove
Pressure Gauge does not indicate rising pressure when exhaust valve is closed.	<ol style="list-style-type: none"> 1. Port is plugged 2. Pressure gauge is damaged 	<ol style="list-style-type: none"> 1. Clean port on bottom of cover 2. Replace pressure gauge

PRESSURE SYSTEM TIPS



DO NOT attempt to tighten, repair or replace any fitting, line or component when there is pressure in the cooking well. Hot oil could spray out under pressure causing serious burns.

COMPLAINT	CAUSE	REMEDY
No pressure	<ol style="list-style-type: none"> 1. Pressure regulating valve OPEN 2. Pressure regulating valve dirty or blocked open 3. Leaks around cover O-ring 	<ol style="list-style-type: none"> 1. CLOSE 2. Contact service person 3. Replace O-ring
Excess pressure		<ol style="list-style-type: none"> 1. Turn power switch OFF. Contact service person.

PRODUCT TIPS

Fresh Chicken:

COMPLAINT	CAUSE	REMEDY
Product too light	1. Low oil temperature 2. No coating 3. Not done 4. Food basket overloaded	1. Check cook temperature 2. Check procedures 3. Increase cook time 4. Decrease load
Product too dark	1. High oil temperature 2. Wrong coating 3. Breaded too long 4. Old oil 5. Breaded too wet	1. Check cook temperature 2. Check procedures 3. Discard 4. Change oil 5. Drain thoroughly prior to breading
Product not done	1. Low oil temperature 2. Food basket overloaded 3. Cook time too short	1. Check cook temperature 2. Decrease load 3. Increase cook time
No flavor	1. Improper marination	1. Check procedures
White spots	1. Product stuck together 2. Food basket overloaded	1. Float basket while loading 2. Decrease load size
Dark spots	1. Dirty oil	1. Filter or replace

Frozen IQF Chicken:

COMPLAINT	CAUSE	REMEDY
Product too light	1. Low oil temperature 2. Not done 3. Food basket overloaded	1. Check cook temperature 2. Increase cook time 3. Decrease load
Product too dark	1. High oil temperature 2. Overcooked 3. Oil old 4. Thawed and refrozen	1. Check cook temperature 2. Decrease cook time 3. Change oil 4. Keep product at 0°F or below
Product not done	1. Low oil temperature 2. Food basket overloaded 3. Cook time too short	1. Check cook temperature 2. Decrease load 3. Increase cook time
No flavor	1. Overcooked 2. Old product	1. Check cook time 2. Discard
White spots	1. Product stuck together 2. Food basket overloaded	1. Float basket while loading 2. Decrease load size
Dark spots	1. Dirty oil	1. Filter or replace

FILTERING TIPS

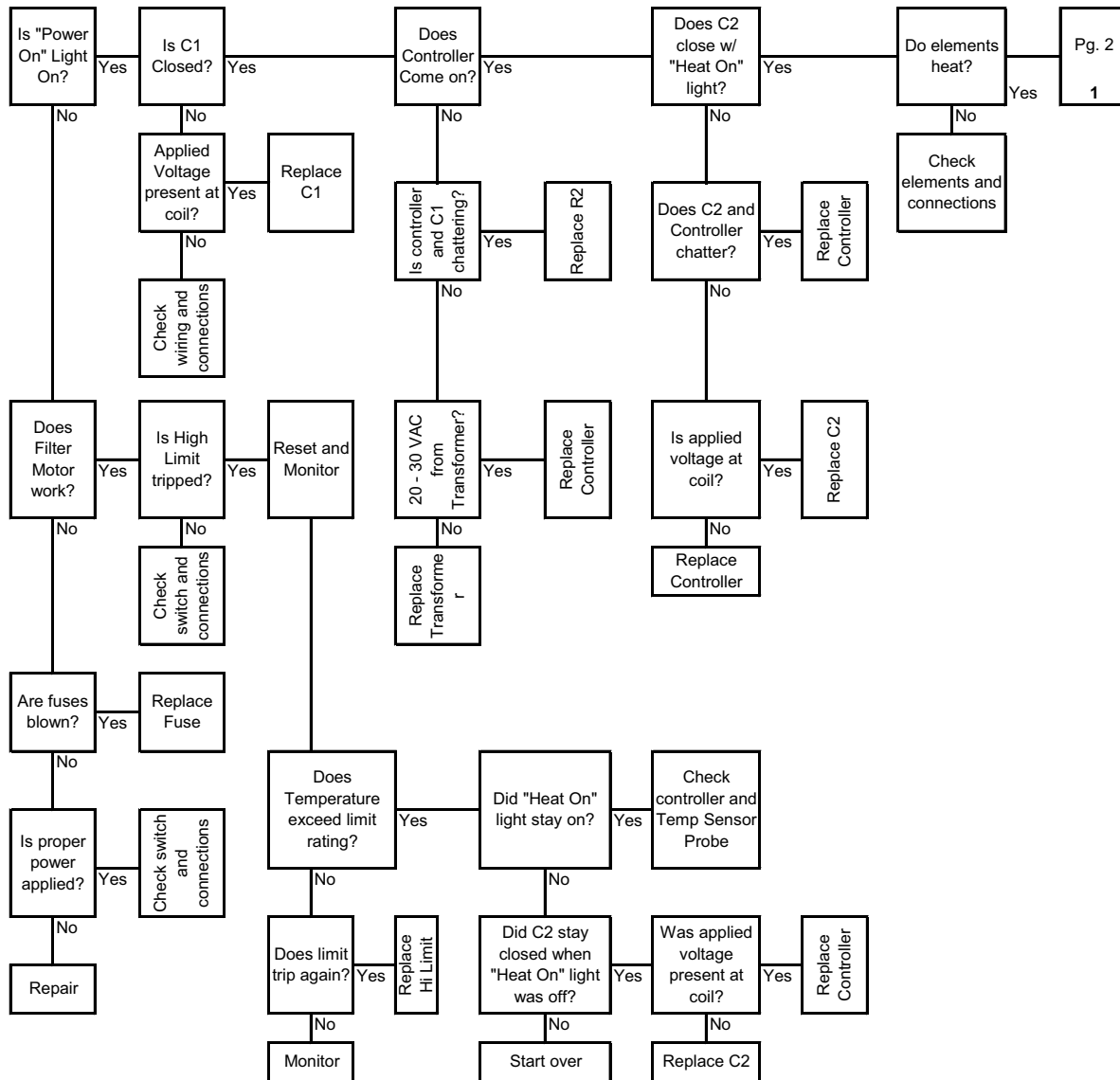
COMPLAINT	CAUSE	REMEDY
<p>Motor will not start</p> <p>⚠ WARNING</p> <p>Turn power switch to OFF position to avoid splashing of oil when motor protector reset button is pushed.</p>	<ol style="list-style-type: none"> 1. Overload tripped 2. Open or faulty wall fuse or circuit breaker 	<ol style="list-style-type: none"> 1. Wait for overload to cool. Push red motor protector reset button located on rear of motor. 2. Check wall fuse or circuit breaker
<p>Motor hums but will not start</p>	<ol style="list-style-type: none"> 1. Solidified shortening in pump 2. Crumbs in pump 	<ol style="list-style-type: none"> 1. Turn cook/filter switch OFF. Contact service person. 2. Turn cook/filter switch OFF. Contact service person.
<p>Motor starts but will not pump</p>	<ol style="list-style-type: none"> 1. Filter pan not completely installed 2. O-ring on riser line not installed 3. Solidified shortening in piping or filter pan 	<ol style="list-style-type: none"> 1. Firmly push filter pan in 2. See FILTERING 3. Turn cook/filter switch OFF. Contact service person.
<p>Motor starts but will not pump or stops at any level</p>	<ol style="list-style-type: none"> 1. Filter paper or hold down improperly installed 2. Not using enough Broaster® filtering compound 	<ol style="list-style-type: none"> 1. See COOKING OIL CARE AND FILTERING 2. Next filtering cycle, make sure proper amount of Broaster® filtering compound is used
<p>Motor starts but stops pumping when oil is level with top of hold down, approximately 1 inch of oil in bottom</p>	<ol style="list-style-type: none"> 1. Filter paper improperly installed or crumbs under filter paper or hold down 	<ol style="list-style-type: none"> 1. See COOKING OIL CARE AND FILTERING

FILTERING TIPS

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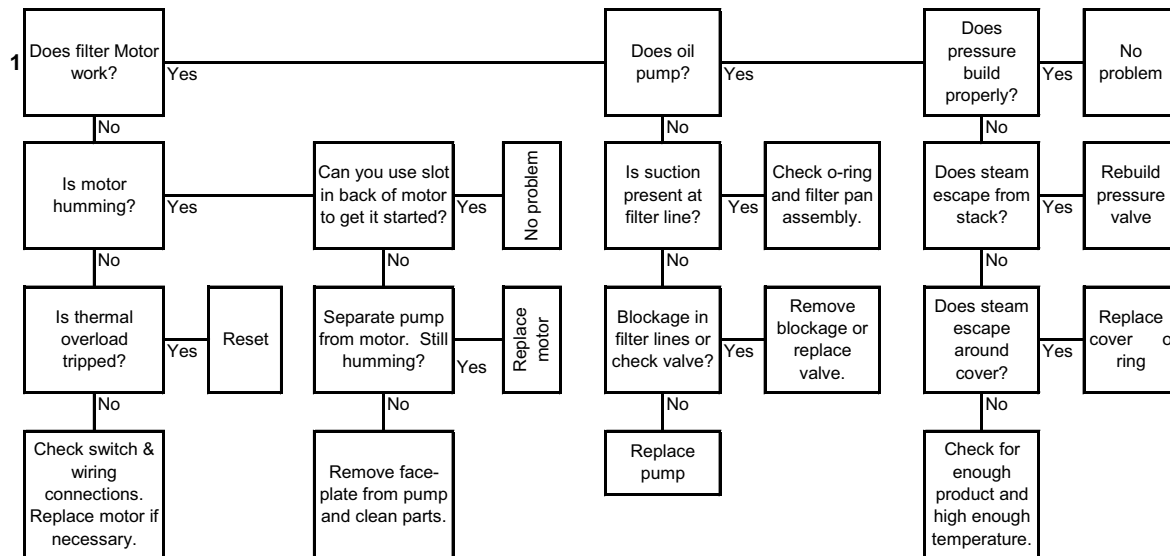
1600 / 1800E Troubleshooting Flow Chart



Controller Alarms

- HI:** Temperature exceeded 415 degrees. Check actual temperature, controller, C2.
- CHEC:** Temperature didn't rise 6 degrees in 3 minutes. Check controller, C2, wiring and connections.
- PROB:** Problem with temperature sensing. Check controller, probe, speaker.
- FAIL:** Internal fault detected or temperature fluctuation. Check controller or probe.

1600 / 1800E Troubleshooting Flow Chart



SERVICE NOTES

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