



# YFG255 Rethernalizer

Service & Parts Manual

# ***Frymaster***<sup>®</sup>



Frymaster, a member of the Commercial Food Equipment Service Association, recommends using CFESA Certified Technicians.

[www.frymaster.com](http://www.frymaster.com)

**24-Hour Service Hotline**

**1-800-551-8633**

Email: [service@frymaster.com](mailto:service@frymaster.com)

11/2023



8 1 9 6 9 0 0

**Please read all sections of this manual and retain for future reference.**

This product has been certified as commercial cooking equipment and **MUST** be installed by professional personnel as specified. Installation, maintenance and repairs should be performed by your Frymaster Factory Authorized Servicer (FAS).

 **DANGER**

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

 **DANGER**

Instructions explaining procedures to be followed **MUST** be posted in a prominent location in the event the operator detects a gas leak. This information can be obtained from the local gas company or gas supplier.

 **DANGER**

Safe and satisfactory operation of your equipment depends on proper installation. Installation **MUST** conform with local codes, or in absence of local codes, with the National Fuel Gas Code, ANSI Z223.1; The Natural Gas Installation Code, CAN/CGA-B149.1; The Propane Installation Code, CAN/CGA-B149.2; or The latest edition of the National Electric Code, N.F.P.A. 70.

**NOTICE**

If, during the warranty period, the customer uses a part for this Frymaster Dean equipment other than an unmodified new or recycled part purchased directly from Frymaster Dean or any of its authorized servicers, and/or the part being used is modified from its original configuration, this warranty will be void. Further, Frymaster Dean and its affiliates will not be liable for any claims, damages or expenses incurred by the customer which arise directly or indirectly, in whole or in part, due to the installation of any modified part and/or part received from an unauthorized servicer.

 **DANGER**

The front ledge of the rethermalizer is not a step. Do not stand on the rethermalizer. Serious injury can result from slips or contact with the hot water.

 **WARNING**

Drawings and photos used in this manual are intended to illustrate operational, cleaning and technical procedures and may not conform to on-site management operational procedures.

 **WARNING**

No structural material on the rethermalizer should be altered or removed to accommodate placement of the rethermalizer under a hood. Questions? Call the Frymaster Service Hotline at 1-800-551-8633.

**NOTICE**

This equipment is to be installed in compliance with the basic plumbing code of The Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration.

### **NOTICE**

The Commonwealth of Massachusetts requires any and all gas products to be installed by a licensed plumber or pipe fitter.

### **CONTROLLERS**

#### **FCC**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation. While this device is a verified Class A device, it has been shown to meet the Class B limits.

#### **CANADA**

This digital apparatus does not exceed the Class A or B limits for radio noise emissions as set out by the ICES-003 standard of the Canadian Department of Communications.

Cet appareil numérique n'émet pas de bruits radioélectriques dépassant les limites de classe A et B prescrites dans la norme NMB-003 édictée par le Ministre des Communications du Canada.

### **DANGER**

**THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.**

Operation, installation, and servicing of this product could expose you to airborne particles of glasswool or ceramic fibers, crystalline silica, and/or carbon monoxide. Inhalation of airborne particles of glasswool or ceramic fibers is known to the State of California to cause cancer. Inhalation of carbon monoxide is known to the State of California to cause birth defects or other reproductive harm.

### **WARNING**

Do not bang rethermalizer baskets or other utensils on the rethermalizer's joiner strip. The strip is present to seal the joint between the cookpot vessels. Banging rethermalizer baskets on the strip will distort the strip, adversely affecting its fit. It is designed for a tight fit and should only be removed for cleaning.

### **DANGER**

Improper installation, adjustment, maintenance or service, and unauthorized alterations or modifications can cause property damage, injury, or death. Read the installation, operating and service instructions thoroughly before installing or servicing this equipment. Only qualified service personnel may convert this appliance to use a gas other than that for which it was originally configured.

### **DANGER**

Adequate means must be provided to limit the movement of this appliance without depending upon the gas line connection or transmitting stress to the electrical conduit. Single rethermalizers equipped with legs must be stabilized by installing anchor straps. All rethermalizers equipped with casters must be stabilized by installing restraining chains. If a flexible gas line is used, an additional restraining cable must be connected at all times when the rethermalizer is in use.

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### 1.1 Functional Description

YFG255 Series gas rethermalizers contain a welded stainless steel cookpot that is heated by gas flames diffused evenly through tubes built into the cookpot.

Flames originate from orifices in a burner manifold positioned beneath the burners. The burners are positioned in the tube openings, at the front of the cookpot. The diameter of the orifices differs for natural (CE:G20/G25) and LP (CE:G31) gas as indicated in the accompanying table.

<b>NON-CE (Altitudes of 2000 feet or less)</b>							
MODEL	INPUT (BTU)	GAS TYPE	ORIFICE MM (INCH)	ORIFICE PART NO.	QTY	EQUIPMENT PRESSURE	
						MBAR	INCH W.C.
YFG255	90	NAT	2.38(#42)	8102926	2	10	4
		LP	1.51(#53)	8102941	2	27.5	11
<b>CE ONLY (Altitudes of 2000 feet or less)</b>							
MODEL	INPUT (kW)	GAS TYPE	ORIFICE MM (INCH)	ORIFICE PART NO.	QTY/ COLOR	EQUIPMENT PRESSURE	
						MBAR	INCH W.C.
YFG255	26.4	G20	2,38	8102926	2/BLUE	10,0	4,0
		G25	2,38	8102926	2/BLUE	15,0	6,0
		G31	1,51	8102941	2/RED	27,0	10,8

An electromechanical gas valve regulates gas flow to the manifold. YFG255 Series gas rethermalizers are equipped with a 24-volt valve system with an electronic ignition system.

### Electronic Ignition Configuration

An ignition module connected to an ignitor assembly controls ignition. The ignition module performs three important functions: it provides an ignition spark, supplies voltage to the gas valve, and proofs the pilot flame.

The module contains a 60-second time delay circuit and a coil that activates the gas valve. The ignitor assembly consists of a spark plug, a pilot, and a flame sensor element.

At start-up the power switch is placed in the "ON" position, supplying 12 VDC to the heat control circuitry in the controller. Current is supplied to the other leg of the heat relay coil which then closes an electronic switch in the 24 VAC circuit to provide current to the ignition module.

Circuitry in the ignition module sends 24 VAC current to the gas valve via a normally closed float switch. Simultaneously, the module causes the ignitor to spark for up to 60 seconds to light the pilot flame. A flame sensor verifies that the pilot is lit by measuring the flow of microamps through the flame. If the pilot does not light (or is extinguished), current to the ignition module is interrupted, preventing the main valve from opening, and the ignition module "locks out" until the power switch is turned "OFF", then back "ON".

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A temperature probe monitors the temperature in the cookpot. When the programmed setpoint temperature is reached, resistance in the probe causes the heat cycle circuitry in the controller to interrupt current flow through the heat relay. This in turn interrupts the 24 VAC current to the ignition module, resulting in closure of the gas valve.

#### **Control Options**

YFG255 Series gas rethermalizers are equipped with a factory preset temperature controller. These are unique in that the components are wired directly to the controller and do not require an interface board.

#### **Temperature Probe**

YFG255 rethermalizers are equipped with a temperature probe with resistance values that correspond directly with the temperature. That is, as the temperature rises, so does resistance. See the resistance table on page 1-20. Circuitry in the controller monitors the probe resistance and controls burner firing when the resistance exceeds or falls below programmed temperatures (setpoints).

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## **1.2 Accessing Rethermalizers for Servicing**

 **DANGER**

**Moving a rethermalizer filled with water may cause spilling or splattering of the hot liquid. Follow the draining instructions included with the rethermalizer before attempting to relocate a rethermalizer for servicing.**

1. Shut off the gas supply to the unit. Unplug the power cords. Remove any attached restraining devices.
2. Disconnect the unit from the gas supply.
3. Relocate the rethermalizer for service accessibility.
4. After servicing is complete, reconnect the unit to the gas supply, reattach restraining devices, and plug in the electrical cords.

## **1.3 Cleaning the Gas Valve Vent Tube (if applicable)**

1. Set the rethermalizer power switch and the gas valve to the "OFF" position.
2. Carefully unscrew the vent tube from the gas valve. **NOTE:** The vent tube may be straightened for ease in removal.
3. Pass a piece of ordinary binding wire (.052 inch diameter) through the tube to remove any obstruction. Remove the wire and blow through the tube to ensure it is clear.
4. Reinstall tube and bend so that the opening is pointing downward.

## **1.4 Adjusting Burner Manifold Gas Pressure**

 **WARNING**

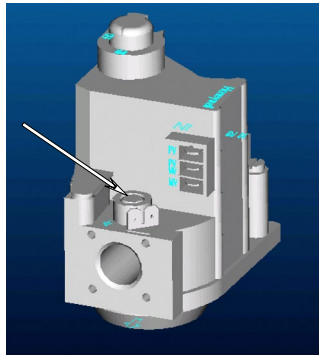
**This task should be performed by qualified service personnel only.**

1. Ensure that the gas valve knob is in the "OFF" position.
2. Remove the pressure tap plug from the gas valve (see arrows in photos on the following page for location).

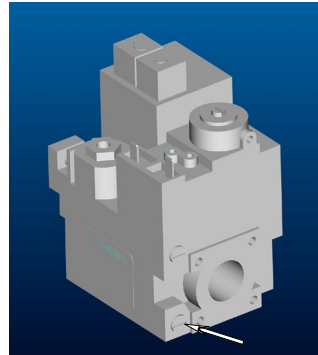
# YFG255 SERIES GAS RETHERMALIZERS

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### 1.4 Adjusting Burner Manifold Gas Pressure (cont.)



Non-CE Electronic Ignition Valve



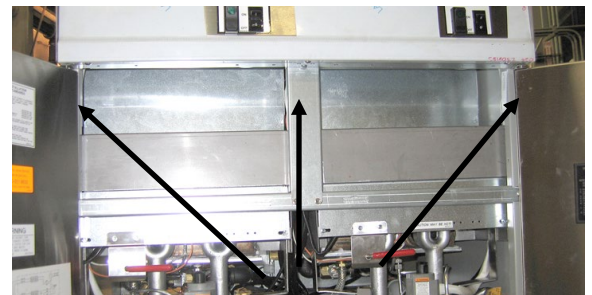
CE Pilot Ignition Valve

3. Insert the fitting for a gas pressure-measuring device into the pressure tap hole.
4. Place the gas valve in the "ON" position then place the rethermalizer power switch in the "ON" position. When the burner lights and continues to burn, note gas pressure reading for correct pressure in accordance with the table on page 1-1.
5. To adjust burner gas pressure, remove the cap from the gas valve regulator and adjust to correct pressure.
6. Place the rethermalizer power switch and the gas valve in the "OFF" position. Remove the pressure-measuring device fitting from the pressure tap hole and reinstall the pressure tap plug.

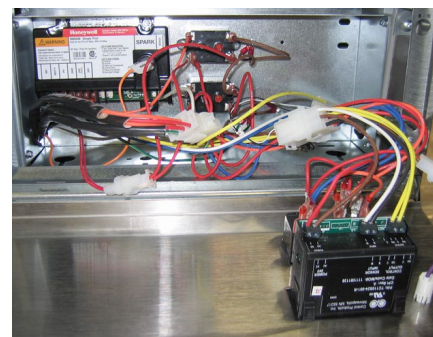
### 1.5 Replacing Rethermalizer Components

#### 1.5.1 Replacing the Controller or Solid State Relays

1. Disconnect the rethermalizer from the electrical supply.
2. Open the cabinet doors and unscrew the three controller panel screws located beneath the bezel. The controller panel will drop down and will rest on the open doors.
3. Mark the wires for reassembly and using a small screwdriver loosen and remove the wires from the rear of the controller. If replacing the relays disconnect the wires and replace the faulty relay.



Remove the three bezel screws.



Mark wires for reassembly.

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### 1.5.1 Replacing the Controller or Solid State Relays cont.

4. Remove the controller from the bezel.
5. Reverse the procedure to install a new controller.

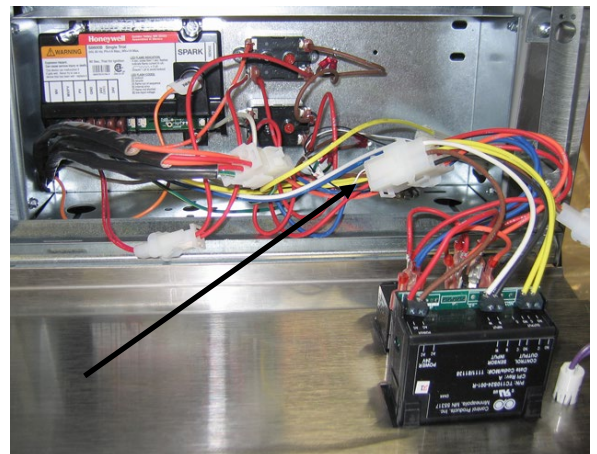
### 1.5.2 Replacing the Temperature Probe

1. Disconnect the rethermalizer from the electrical supply.
2. Drain the water from the cookpot. Allow the cookpot to cool completely before proceeding.
3. Remove the rethermalizer door for easier access to the temperature probe. Lift door up, disengage rod from lower door bracket, and then remove door.



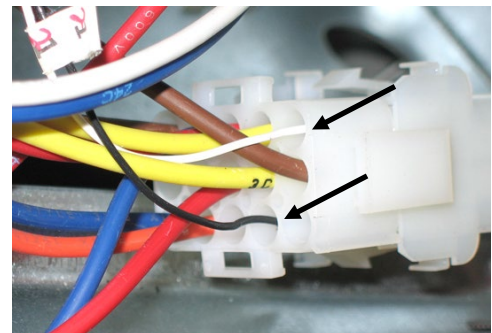
Remove door for easier access to temperature probe.

4. Gain access to probe wires in control box behind controller using the steps in the previous section 1.5.1.
5. Disconnect the probe harness connector (see right).



Unplug connector.

6. Use a pin pusher to remove probe wires from the plug.



Remove probe wires.

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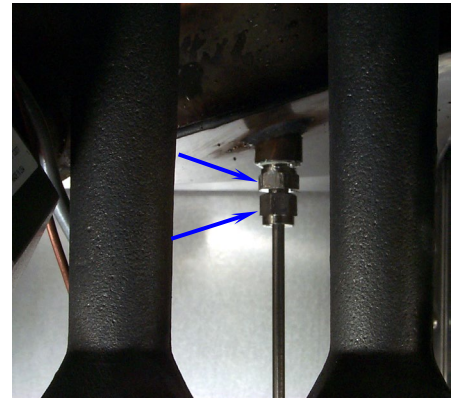
#### 1.5.2 Replacing the Temperature Probe (cont.)

7. Loosen and unscrew completely the compression nut, then the pass-through nut from the cookpot. Proceed to the next step before removing probe from cookpot.

**Note:** The temperature probe can be removed through the top of the cookpot as follows: Ensure the probe wires have been removed from the connector (step 6). Remove the harness insulation. The probe can be pulled through the cookpot from the top (complete step 7 in this section, prior to removing probe).

8. Carefully remove the probe from the cookpot.
9. Reverse steps for installation of new probe.

**IMPORTANT:** When installing new probe, ensure probe is positioned properly with the mounting hardware installed prior to tightening the compression nut. **Once tightened, the probe cannot be repositioned.**



Loosen and unscrew completely the compression nut (bottom arrow) first. Loosen the pass-through nut (top arrow).

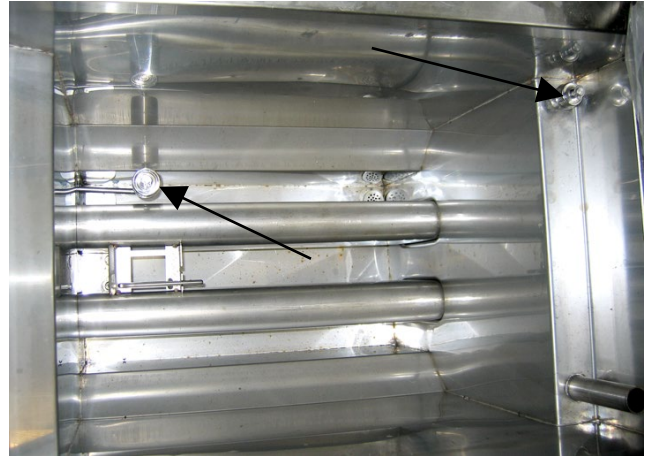


Remove the temperature probe.

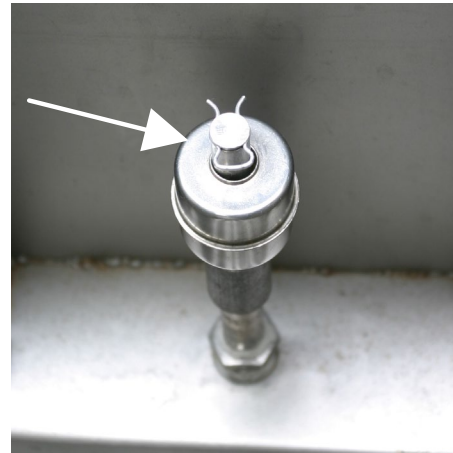
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### 1.5.3 Replacing Float Switches

1. Disconnect the rethermalizer from the electrical power supply.
2. Drain the water from the cookpot. Allow the cookpot to cool completely before proceeding.
3. Unplug the low float switch connector from behind the controller (See section 1.5.1 for instructions on removing the bezel.), or the high level float from the rear of the rethermalizer near the fresh water connection.
4. Remove the clip and float from float switch shaft.
5. Remove the rethermalizer back to gain access to the high level float compression nut. Removal of a burner may be necessary to access the low level float compression nut.
6. Loosen and completely unscrew the compression nut from the cookpot.
7. Carefully pull the float switch shaft out of the cookpot.
8. Reverse the above steps for float switch installation.



The lower float switch (left), the high level float (right).



Remove the clip

### 1.5.4 Replacing the Gas Valve

**⚠ DANGER**

**Drain the cookpot or remove the handle from the drain valve before proceeding further.**

1. Disconnect rethermalizer from electrical and gas supplies.
2. Disconnect the wires from the gas valve terminal block, marking each wire to facilitate reconnections.
3. Remove the pilot gas line fitting from the gas valve.

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4. Remove the pipe union collars to the left and right of the gas valve and remove the valve.
5. Remove the pipefitting from the old gas valve and install on the replacement valve, using Loctite™ PST567 or equivalent pipe thread sealant on threads. Do not apply sealant to the first two pipe threads. Doing so will clog and damage the gas valve.
6. Reverse steps 1-4 to install the replacement gas valve.

#### 1.5.5 Replacing the Pilot Assembly

1. Remove the pilot tubing from the bottom of the pilot assembly.
2. Disconnect the ignition cable and the sense wire.
3. Remove the two pilot mounting screws from the pilot mounting-bracket and remove the pilot.
4. Reverse the procedure to replace the pilot assembly.

#### 1.5.6 Replacing the Cookpot

1. Ensure controller and all power switches are off. Drain water from all cookpots prior to moving rethermalizer.



**Hot water will cause severe burns. Never attempt to move this appliance when filled with hot water or to transfer hot water from one container to another.**

2. Turn gas valve off, then turn gas off at supply valve or meter. Disconnect supply line from gas manifold at rear of rethermalizer.

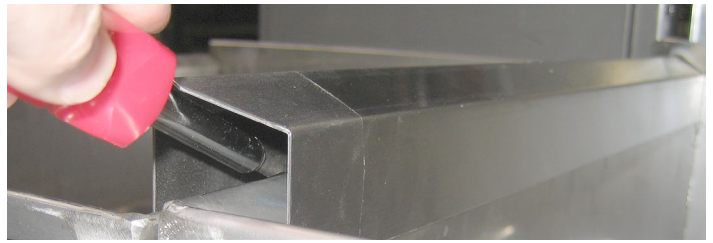
**NOTE:** If restraints are installed on the rethermalizer, disconnect restraints prior to disconnecting the gas supply line.

3. Unplug rethermalizer from electrical supply source.
4. Remove rethermalizer door for access to cabinetry components. Lift door up, disengage rod from lower door bracket, remove and set door aside.

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### 1.5.6 Replacing the Cookpot (cont.)

5. Remove upper cookpot cover and bracket.
6. Carefully pry up and remove capping strip.

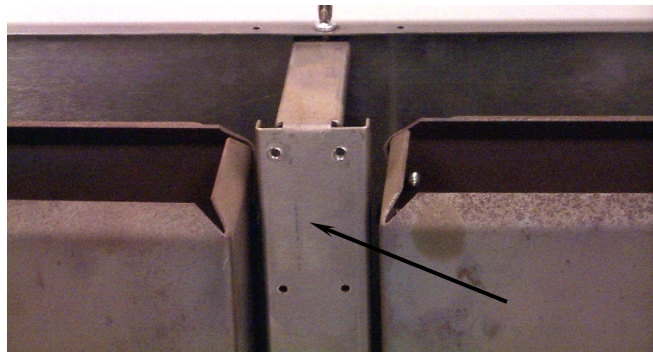


Removing capping strip.

7. Locate all screws securing back panels. Screw location/orientation will vary according to rethermalizer model.

8. Remove back panels on rethermalizer. Retain screws for re-assembly.

9. Remove screw securing back-panel brace to flue cap. Support brace with hand while removing screw to prevent brace from falling away. Remove brace and set aside for reassembly.



Removing back panel to flue cap brace (arrow).

10. Remove screws securing flue-cap braces to cookpot (a nut-driver with an extension or long screwdriver is required). Use care not to drop the screws into the flues. If this happens, the screws can be retrieved when the flue is removed (Step 12). Use a screwdriver or similar tool to free flue cap from cookpots. Remove flue cap by lifting up and off of rethermalizer.



Removing flue cap.

11. Remove gas manifold pipe for access to gas manifold shield by disconnecting at the unions. Ensure gas supply is shut off and supply line is disconnected prior to removing. Set gas manifold aside. Remove screws securing gas manifold shield. Remove shield to access water-return plumbing components connected to the cookpots.



Removing gas manifold shield.

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### 1.5.6 Replacing the Cookpot (cont.)

12. Remove four bolts securing flue to the cookpot being removed. Remove the flue by sliding back and away until clear of cookpot. Retrieve any screws dropped into the flue during removal of the flue cap to cookpot bracket.



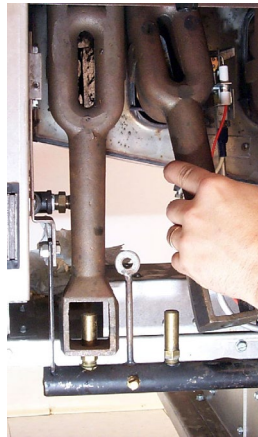
Removing bolts (arrows) securing flue to cookpot.

13. Remove the burner shield. Loosen burner bolts (two per burner) that secure burners to the burner support rail.

**NOTE:** On most rethermalizers, do not remove bolts from burners.

14. Lift each burner upward to clear the orifice, then slant the top of the burner inward to clear the burner-brace keyholes.

Loosening burner bolts prior to burner removal.



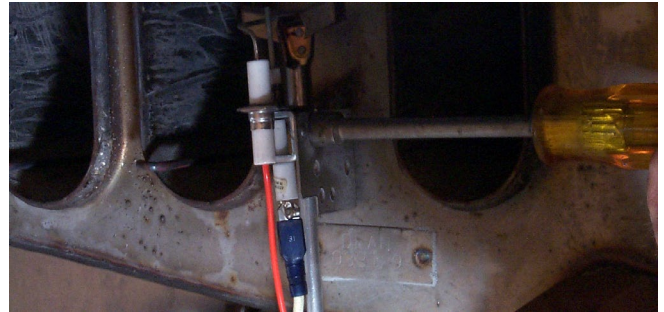
Removing burners from rethermalizer.



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### 1.5.6 Replacing the Cookpot (cont.)

15. Remove screw(s) securing the electronic or standing pilot bracket to the cookpot bracket. Reposition ignitor assembly down and away from cookpot. Use care not to bend, kink or damage the electronic ignition lines and wiring.



Removing electronic/standing pilot assembly.

16. Remove nut from drain valve linkage, then disconnect actuator rod from drain valve actuator.

17. Remove the temperature probe from cookpot. (see Section 1.5.2, Replacing Temperature Probe for specific instructions.

18. Disconnect the fresh water line from the cookpot.

19. The rethermalizer is equipped with float-valve switches, mark the wires and terminals, then disconnect wires from the switch. Secure the wires to prevent damage when cookpot is removed.



Removing bolts (arrows) from burner manifold support brackets (both sides). Leave the burner manifold in place after removing bolts.

20. Remove bolts from brackets securing burner manifold to cookpot. Leave the manifold in place.

21. Using a sharp knife or box-cutter, cut the silicon seal between and in front of the two cookpots. Use care not to scratch stainless steel surfaces.

22. Remove cookpot from rethermalizer by lifting up and out.



Lift cookpot from rethermalizer.

23. Position the cookpot upside down on a suitable work surface.



Cut cookpot seal prior to cookpot removal.

24. Record position of the valve stem in relation to the cookpot prior to removing the drain valve. Using a suitable wrench, remove the drain valve from the cookpot. Use Loctite PST567 sealant when installing drain valve on replacement cookpot.

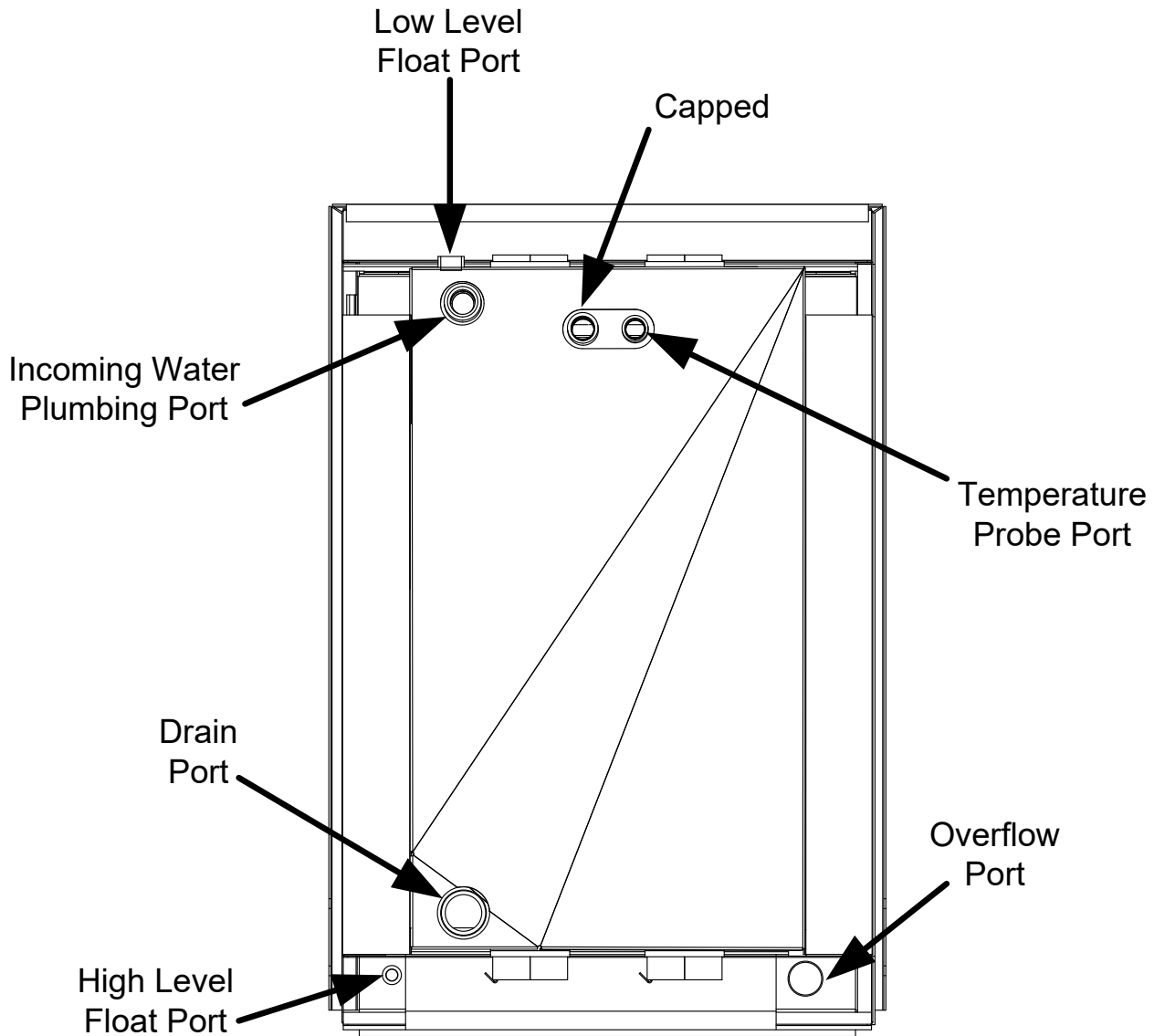
25. Reverse the above steps to install replacement cookpot.

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### 1.5.7 Annotated Cookpot Bottom



**View from bottom of cookpot.**

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### 1.6 Troubleshooting and Problem Isolation

This section is intended to provide technicians with a general knowledge of the broad problem categories associated with this equipment, and the probable causes of each. With this knowledge, the technician should be able to isolate and correct any problem encountered.

Problems you are likely to encounter can be grouped into seven broad categories:

1. Ignition failures
2. Improper burner functioning
3. Improper temperature control
4. Controller-related problems
5. Leakage

The probable causes of each category are discussed in the following sections. Troubleshooting guides are included in Section 1.7 to assist in identifying some of the more common problems.

#### 1.6.1 Ignition Failures

Ignition failure occurs when the ignition module fails to sense a flame within the 60-second time delay period and locks out. Turn the rethermalizer off, locate and fix the problem, then turn rethermalizer back on to clear the module lock.

There are three primary reasons for ignition failure, listed in order of probability:

1. Problems related to the gas and/or electrical power supplies.
2. Problems related to the electronic circuits.
3. Problems related to the gas valve.

#### Problems Related to the Gas and/or Electrical Power Supplies

The main indicators of this are that an entire battery of rethermalizers fails to light. Verify that the quick disconnect hose is properly connected, the rethermalizer is connected to power, the main gas supply valve is open, and the circuit breaker for the rethermalizer electrical supply is not tripped.

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### 1.6.1 Ignition Failures (cont.)

#### Problems Related to the Electronic Circuits

If gas and electrical power are supplied to the rethermalizer, the next most likely cause of ignition failure is a problem in the 24 VAC circuit. First verify that the float switch valve is fully closed and not sticking. (The float switch must be closed for power to reach the gas valve. Often, a starch build up will cause the float switch to stick, impeding movement up and down the shaft. Simple cleaning of the shaft will fix the problem.) If the float switch is fully closed, refer to the troubleshooting guides in this chapter.

#### Problems Related to the Gas Valve

If the problem is not in the 24 VAC circuit or pilot system, it is most likely in the gas valve itself, but before replacing the gas valve refer to the troubleshooting guides in this chapter.

### 1.6.2 Improper Burner Functioning

With problems in this category, the burner ignites but exhibits abnormal characteristics such as "popping", incomplete lighting of burner, fluctuating flame intensity, and flames "rolling" out of the rethermalizer.

**"Popping"** indicates delayed ignition. In this condition, the main gas valve is opening but the burner is not immediately lighting. When ignition does take place, the excess gas "explodes" into flame, rather than smoothly igniting.

The primary causes of popping are:

- Incorrect or fluctuating gas pressure
- Misdirected or weak pilot flame
- Clogged burner orifices
- Clogged burners
- Inadequate make-up air
- Heat damage to the controller or ignition module
- An out-of-adjustment ignitor or broken ignition wire
- A defective ignition module

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#### 1.6.2 Improper Burner Functioning (cont.)

If popping occurs only during peak operating hours, the problem may be incorrect or fluctuating gas pressure. Verify that the incoming gas pressure (pressure to the gas valve) is in accordance with the appropriate CE or Non-CE requirements listed in the Installation and Operation manual that came with the rethermalizer, and that the pressure remains constant throughout all hours of usage. Refer to Adjusting Burner Manifold Pressure in Section 1.4 if burner manifold pressure is suspected of being incorrect.

If popping is consistent during all hours of operation, verify that the pilot is properly positioned above the burner orifice and that the pilot pressure is correct. Correct pilot pressure is indicated by a flame 1 to 1½" long. Also verify that ignitor is properly adjusted (electrode tip 1/8" from pilot hood corner).

Clogged burners and/or burner orifices are also likely causes of delayed ignition. Clogged burners are indicated by uneven flame or partial flame on the burner face. Clogged orifices are indicated by no flame.

Another cause of popping is an insufficient air supply or drafts that are blowing the pilot flame away from the burner. Check for "negative pressure" conditions in the kitchen area. If air is flowing into the kitchen area, this indicates that more air is being exhausted than is being replenished and the burners may be starved for air.

If the rethermalizers gas and air supplies are okay, the problem most likely is with one of the electrical components. Examine the ignition module for signs of melting/distortion and/or discoloration due to excessive heat build-up in the rethermalizer. (This condition usually indicates improper flue performance.). Also, examine the controller for the same conditions. A melted or distorted ignition module is automatically suspect and should be replaced, but unless the condition causing excessive heat in the rethermalizer is corrected, the problem is likely to recur.

Next, ensure the ignition wire is tightly connected at both ends and examine it for obvious signs of damage. Again, if damage is due to excessive heat in the rethermalizer, that problem must also be corrected.

Check for proper operation by disconnecting the wire from the ignitor, inserting the tip of a screwdriver into the terminal, and holding it near the frame of the rethermalizer as the power switch is placed in the "ON" position. A strong, blue spark should be generated for at least 60 seconds.

 **DANGER**

**MAKE SURE YOU ARE HOLDING THE INSULATED HANDLE OF THE SCREWDRIVER AND NOT THE BLADE. THE SPARKING CHARGE IS APPROXIMATELY 25,000 VOLTS.**

Ensure the gap setting of the ignitor is correct (electrode tip 1/8" from pilot hood corner).

*Burners lighting on the left side only* may be caused by a trailing pilot problem or improper burner manifold pressure.

## YFG255 SERIES GAS RETHERMALIZERS

### CHAPTER 1: SERVICE PROCEDURES

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*Fluctuating flame intensity* is normally caused by either improper or fluctuating incoming gas pressure, but may also be the result of variations in the kitchen atmosphere. Verify incoming gas pressure in the same way as for "popping", discussed in the preceding paragraphs. Variations in the kitchen atmosphere are usually caused by air conditioning and/or ventilation systems starting and stopping during the day. As air conditioning/ventilation systems start and stop, the pressure in the kitchen may change from positive or neutral to negative, or vice versa. Changes in airflow patterns may affect flame intensity.

*Flames "rolling" out of the rethermalizer* are usually an indication of negative pressure in the kitchen. Air is being sucked out of the rethermalizer enclosure and the flames are literally following the air. If negative pressure is not the cause, check for high burner-manifold gas pressure in accordance with the procedures in Section 1.4. An obstructed flue, which prevents the rethermalizer from properly exhausting, may also be the cause.

*Excessively noisy burners*, especially with *flames visible above the flue opening*, may indicate that the burner gas pressure is too high, the tube diffusers are defective or burned out, or it may simply be that the gas valve vent-tube is blocked (if applicable). If the gas pressure is correct, the tube diffusers are intact and in good condition, and the vent-tube is unobstructed (if applicable), the gas valve regulator is probably defective.

#### 1.6.3 Improper Temperature Control

Temperature control is a function of several interrelated components, each of which must operate correctly. The principal component is the temperature probe. Depending upon the specific configuration of the rethermalizer, other components may include the controller itself, the temperature probe, and the ignition module.

Improper temperature control problems can be failure to control at setpoint.

##### Failure to Control at Setpoint

The problem may be with the temperature probe or the controller. Refer to the troubleshooting guides in this chapter.

## YFG255 SERIES GAS RETHERMALIZERS

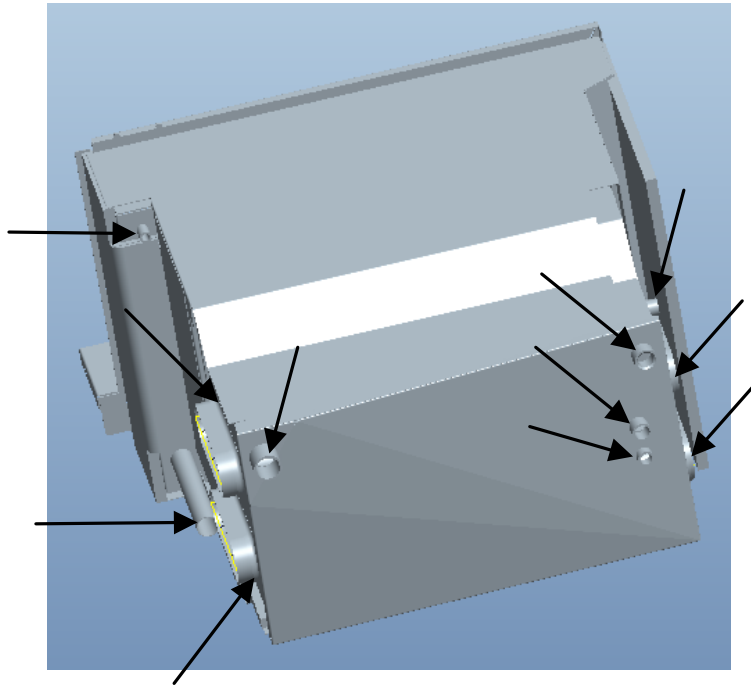
### CHAPTER 1: SERVICE PROCEDURES

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#### 1.6.4 Leakage

Cookpot leaks are almost always due to an improperly sealed temperature probe, float switches and drain fittings. When installed or replaced, each of these components must be sealed with Loctite PST567 sealant or equivalent to prevent leakage. In very rare cases, a leak may develop along one of the welded edges of the cookpot, or where the tube is welded to the cookpot. When this occurs, the cookpot must be repaired or replaced.

If the sides or ends of the cookpot are coated with water minerals, the most likely cause is spillage over the top of the cookpot rather than leakage.



Cookpot locations (indicated by arrows) where potential leaks could occur.

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CHAPTER 1: SERVICE PROCEDURES**

## 1.7 Troubleshooting Guides

The following troubleshooting guides are intended to assist service technicians in quickly isolating the probable causes of equipment malfunctions by following a logical, step-by-step process.

### 1.7.1 General Troubleshooting

<b>PROBLEM</b>	<b>PROBABLE CAUSES</b>	<b>CORRECTIVE ACTION</b>
<b>No display on controller.</b>	A. Rethermalizer is not turned on.	A. Press the ON/OFF switch to turn the controller on.
	B. No power to rethermalizer.	B. Verify that the rethermalizer is plugged in and that the circuit breaker is not tripped.
	C. Failed controller.	C. If available, substitute a controller known to be working for the suspect controller. If the rethermalizer functions correctly, order replacement from FAS.
<b>The controller is illuminated, but there is no output to gas valve.</b>	A. Float switch circuit is open.	A. Ensure float switch circuit is fully closed and is functioning. Make sure float is moving freely up and down and does not have a starch build up and that the shaft is not bent. Replace float switch if defective.
	B. Failed controller.	B. Replace the controller.
	C. Temperature probe defective.	C. Check temperature probe against standard Minco probe resistance chart on page 1-20. If found defective replace temperature probe. .
	D. Gas valve is suspect.	D. Go to "No burner flame" section.

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**1.7.1 General Troubleshooting (cont.)**

<b>PROBLEM</b>	<b>PROBABLE CAUSES</b>	<b>CORRECTIVE ACTION</b>
<b>Heating indicator is on, but burners will not light.</b>	A. Float switch stuck or defective.	A. Press the ON/OFF switch off. Clean float switch and make sure that the float switch is not bent and that the float moves freely up and down. Then press the ON/OFF switch on. Replace if defective.
	B. Gas valve is not turned on.	B. Turn the gas valve knob to the <b>ON</b> position.
	C. Manual gas shut off valve closed.	C. Verify that any in-line manual shut off valve is open. Verify that gas main cut off valve is open.
<b>Heating indicator cycles on and off normally, but burners will not light.</b>	A. Failed controller.	A. If available, substitute a controller known to be working for the suspect controller. If the rethermalizer functions correctly, order replacement from FAS.
<b>Display shows a low temperature, and the rethermalizer appears to operate normally.</b>	A. Defective probe.	A. Check temperature probe against standard Minco probe resistance chart on page 1-20. If defective replace temperature probe.
<b>Unit won't fill with water.</b>	A. Water solenoid defective.	A. Replace the defective solenoid valve.
	B. Float switch stuck or defective.	B. Press the ON/OFF switch off. Clean float switch and make sure that the float switch is not bent and that the float moves freely up and down. Then press the ON/OFF switch on. Replace if defective.
	C. Water supply turned off.	C. Check water supply valve. Use bypass switch to fill.
<b>Fluctuating or erratic lighting of burner flame.</b>	A. Incoming gas supply pressures are not within range [Natural- 6-14" W.C. (1.49-3.49 kPa); Propane- 11-14" W.C. (2.74-3.49 kPa)]	A. Inspect gas supply to rethermalizer. Repair and/or replace faulty components (defective supply shut-off valves, incorrect piping size, etc.)
	B. Air in gas supply lines (new installation).	B. Allow unit to cycle on and off for approximately 30 minutes to force air from gas manifold and lines.

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**1.7.1 General Troubleshooting (cont.)**

<b>PROBLEM</b>	<b>PROBABLE CAUSES</b>	<b>CORRECTIVE ACTION</b>
<b>No burner flame.</b>	A. Pilot does not stay lit.	A. Flame sensor possibly out of alignment. Realign flame sensor. Check flame sensor for loose wires.
	B. Pilot stays lit, and the flame sensor is working, but burners fail to light.	B. Inspect gas valve and replace if defective.
	C. Gas valve is known to be good, but there is not 24 VAC at the gas valve terminals.	C. Inspect temperature probe sensor (while still in cookpot) for damage. Replace if bent, dented or cracked. Inspect leads for fraying, burning, breaks and/or kinks. If found, remove and replace temperature probe.
	D. Continuity from ignition module block to gas valve is not "0".	D. Inspect wiring for breaks or shorts and repair if necessary.

**1.8 Probe resistance Chart**

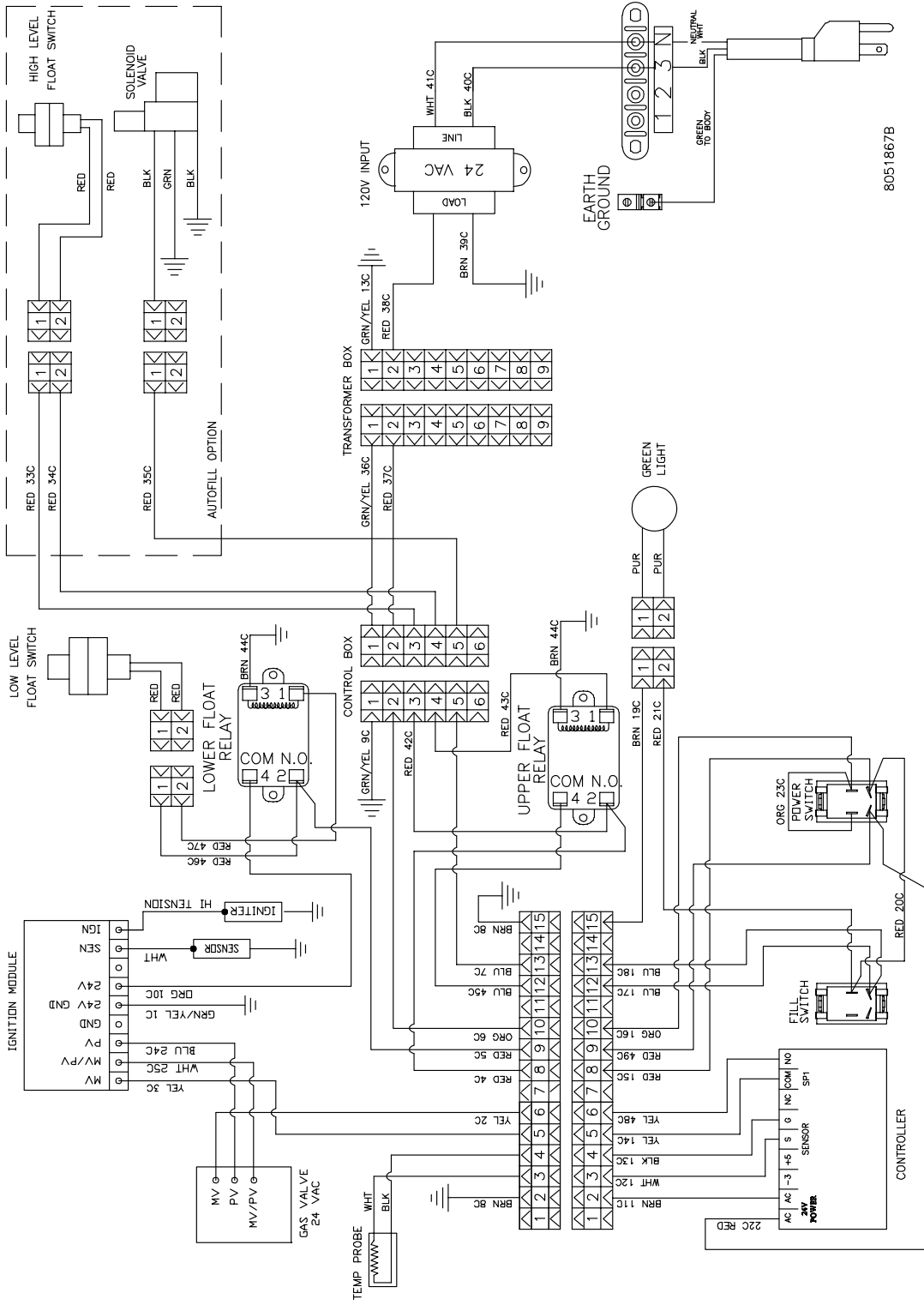
<b>Probe Resistance Chart</b>		
<i>For use with rethermalizers using the Control Products Controller.</i>		
<b>F°</b>	<b>OHMS</b>	<b>C°</b>
50	1059	16
68	1070	18
77	1080	21
86	1091	24
104	1101	27
122	1112	29
140	1122	32
158	1133	35
176	1143	38
194	1154	41
212	1164	43

# YFG255 SERIES GAS RETHERMALIZERS

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### 1.9 Wiring Diagram

**Note:** The diagram in this section depict wiring as of the date of manual publication. It may not reflect design changes made to the equipment after publication. Refer to the wiring diagram affixed to the unit when actually troubleshooting this equipment.

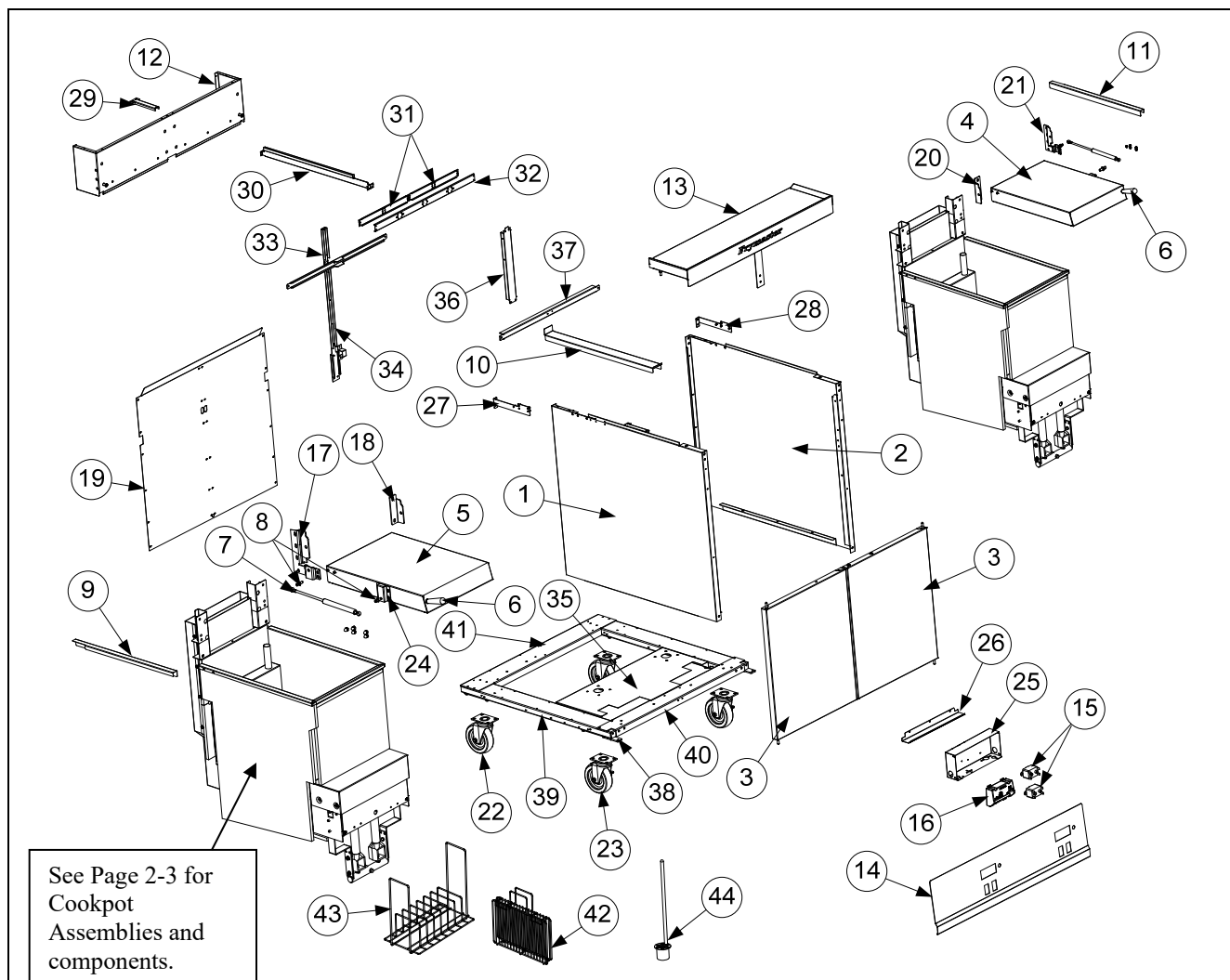


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# YFG255 SERIES GAS RETHERMALIZERS

## CHAPTER 2: PARTS LIST

### 2.1 YFG255 Cabinet and Related Components



ITEM	PART #	COMPONENT
1	2318755	Side Panel, Left Side
2	2328755	Side Panel, Right Side
3	1081803	Door Assembly
	1064067	Pin Assembly
	<a href="#">2305472</a>	Handle, Door
	2307249	Panel, Door
	2307324	Panel, Door Liner
	8100275	Spring, Door Hinge
*	<a href="#">8102346</a>	Magnet, Door
4	1081111	Cover Assembly, Cookpot Right – includes item 6
5	1081110	Cover Assembly, Cookpot Left – includes item 6
6	<a href="#">8101374</a>	Handle, Cover attaches with SS 3/8 Screw <a href="#">8090603</a>
7	<a href="#">8103879</a>	Shock, Gas Spring
8	8103881	Mount, Ball Stud 10MM

\* Not illustrated

**YFG255 SERIES RETHERMALIZERS  
CHAPTER 2: PARTS LIST**

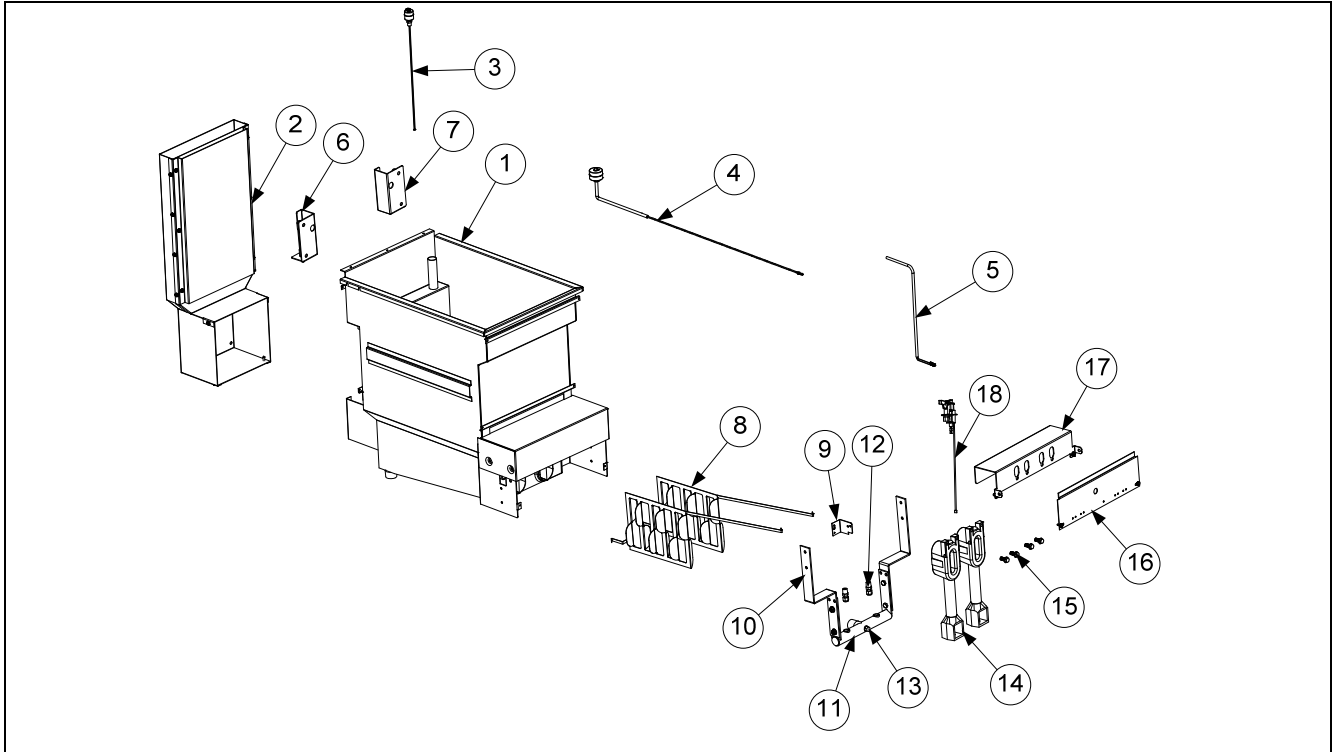
**2.1 YFG255 Cabinet and Related Components (cont.)**

<b>ITEM</b>	<b>PART #</b>	<b>COMPONENT</b>
9	2318098	Strip, Cookpot Rim Left
10	2307244	Strip, Joiner
11	2328098	Strip, Cookpot Rim Right
12	8237899	Fluecap
13	8237944	Topcap
14	2308183	Fascia, Control Panel
15	8070012	Relay, 18A 1/3 HP 24V Coil, Float
16	8262117	Module, Ignition (Dean) Honeywell
*	1063553SP	Cable, Ignition with Rajah Connector
17	2316531	Hinge, Frypot Cover Outer Left
18	2318049	Hinge, Cover Inner Left
19	2208050	Back
20	2328049	Hinge, Cover Inner Right
21	2326531	Hinge, Frypot Cover Outer Right
22	8261117	Caster, 5-inch w/o Brake Kit – includes washers and screws
23	8261118	Caster, 5-inch with Brake Kit – includes washers and screws
24	2308039	Pivot, Cover Front
25	2207231	Box, Component
26	2307383	Seal, Cookpot Cover
27	2218051	Plate, Hinge Backing Left
28	2228051	Plate, Hinge Backing Right
29	2208081	Support, Fluecap
30	2202773	Divider, Cookpot
31	2207229	Brace, Back
32	2207228	Brace, Horizontal Cabinet
33	2207423	Post, Cabinet Rear
34	2208126	Brace, Cabinet Lower
35	2208186	Shield, Vapor
36	2206033	Bracket, Component Box Support
37	2207230	Brace, Rear Cabinet
38	2307192	Hinge, Lower
39	2202793	Channel, Base
40	2207227	Channel, Front Base
41	2207226	Channel, Rear Base
42	8030325	Insert, Master Rack
43	8030324	Master Rack 9½” x 13.00”
44	8238148	Strainer
*	8030278	L-Brush

\* Not illustrated

**YFG255 SERIES RETHERMALIZERS  
CHAPTER 2: PARTS LIST**

**2.2 Cookpot Assemblies and Components**

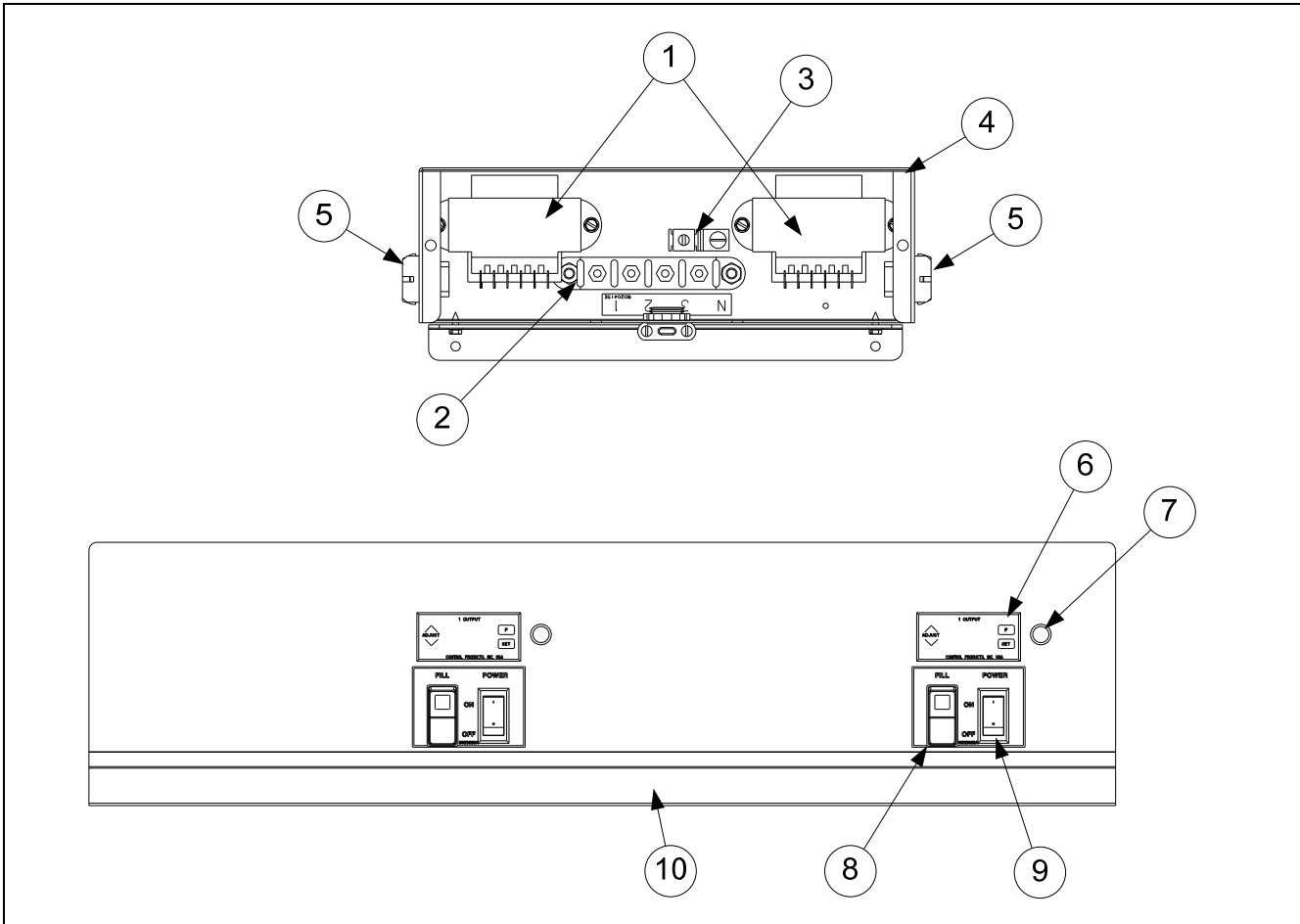


ITEM	PART #	COMPONENT
1	8237641SP	Cookpot
2	1080129	Flue Box Assembly
3	8262622	Upper Float Switch (requires 8130619)
*	8130619	Flareless Male Tube Connection SS
4	8262977	Lower Float Switch (90° bended shaft) (requires 8130619)
*	8262705	Snap Rings, Float Pkg. 5
5	8262787	Kit, Probe, Temp with Controller (see item 6 on page 2-4)
*	8103912	Fitting, Compression ¼" NPT
6	2318164	Support, Hinge Left
7	2328164	Support, Hinge Right
8	2306251	Baffle, Burner
9	2306301	Bracket, Pilot Burner
10	8242228	Support, Burner Manifold
11	8103221	Manifold, Burner
12	8102926	Orifice, Natural Gas (G20/25) 2.38mm (#42)
	8102941	Orifice, Propane (G30/31) 1.51mm (#53)
13	8130154	Plug ⅛" NPT
14	1082612	Burner, Cast Iron with Clip Assy.
15	8090459	Bolt, 5/16 -18 x ¾
16	2001330	Burner, Heat Shield
17	2205955	Bracket, Burner Cast Iron
18	1082481	Assembly, Pilot Natural Gas ( <i>use 1082614 for LP</i> )
*	8071310	Flame Sensor
*	1061238SP	Assembly, Ignitor Natural Gas ( <i>use KIT6627 for LP</i> )

\* Not illustrated

**YFG255 SERIES RETHERMALIZERS  
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**2.3 Transformer Boxes and Control Frame Assemblies**

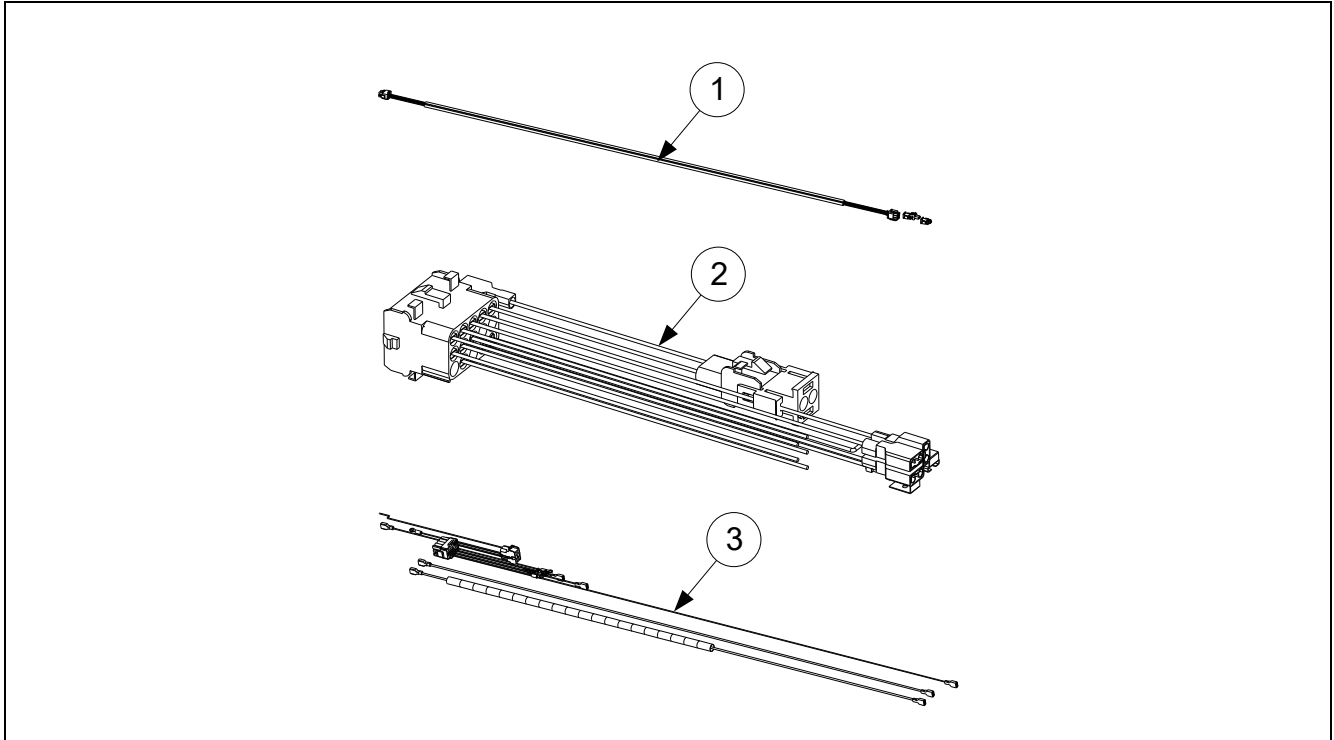


ITEM	PART #	COMPONENT
1	8072176	Transformer, 100/120V 12/24VAC Dual Voltage
2	8071973	Terminal, Post
3	8070070	Terminal, Ground Lug
4	8237781	Box, Transformer
*	2207698	Cover, Transformer Box
5	1080959	Assembly, Harness
6	8262787	Kit, Controller, Digital with Probe and fitting
7	1064729	Assembly, Green Indicator 24V Light
8	8073576	Switch, Fill
9	8074036	Switch, Power
10	2308183	Fascia
*	1082801	Harness Controller, Switch, Light
*	1067649	Cordset 68"

\* Not illustrated

**YFG255 SERIES RETHERMALIZERS  
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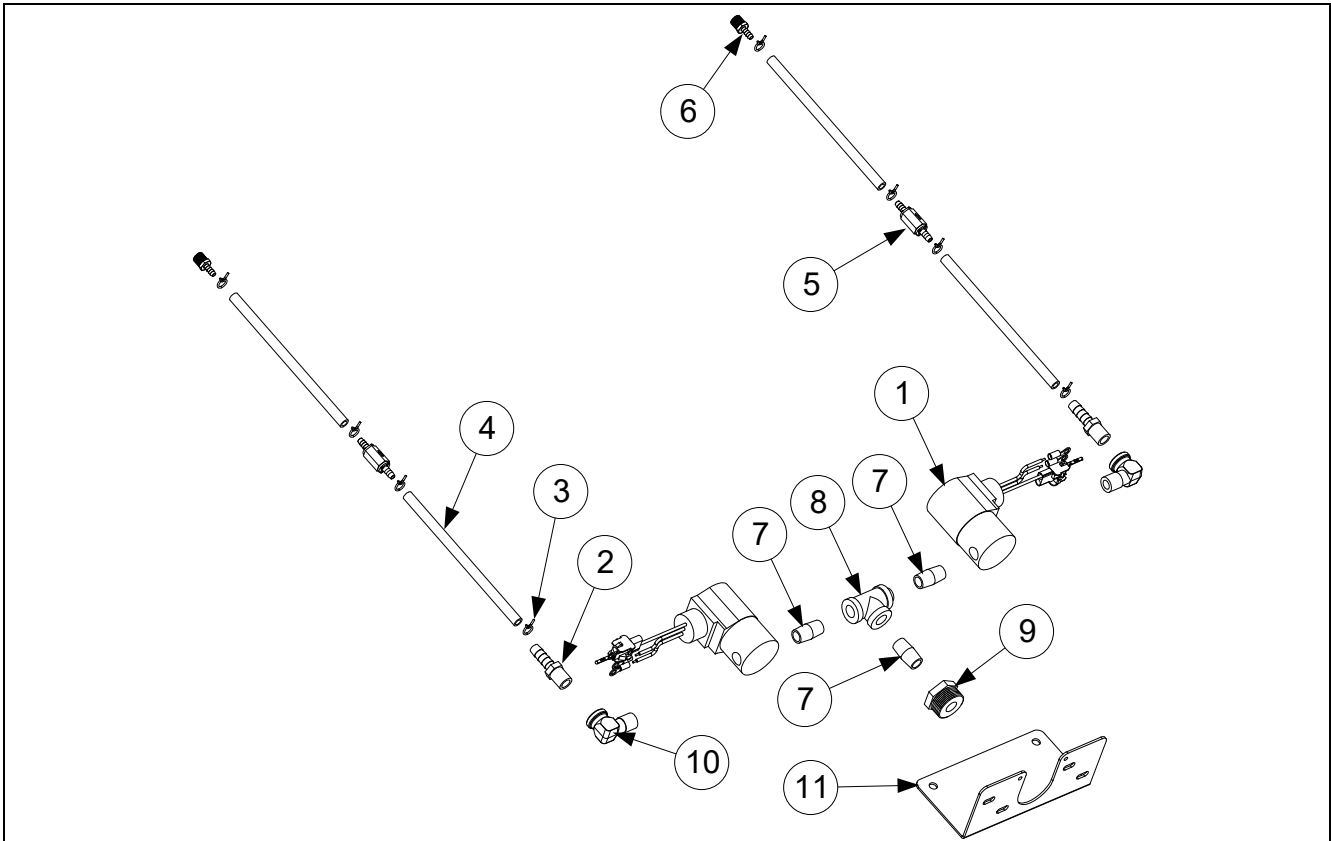
**2.4 Harnesses**



<b>ITEM</b>	<b>PART #</b>	<b>COMPONENT</b>
1	1082800	Harness, Transformer, Solenoid and Float
2	1082801	Harness, Controller, Switch and Light
3	1082802	Harness, Ignition Module and Gas Valve

**YFG255 SERIES RETHERMALIZERS  
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**2.5 Plumbing, Incoming Water**

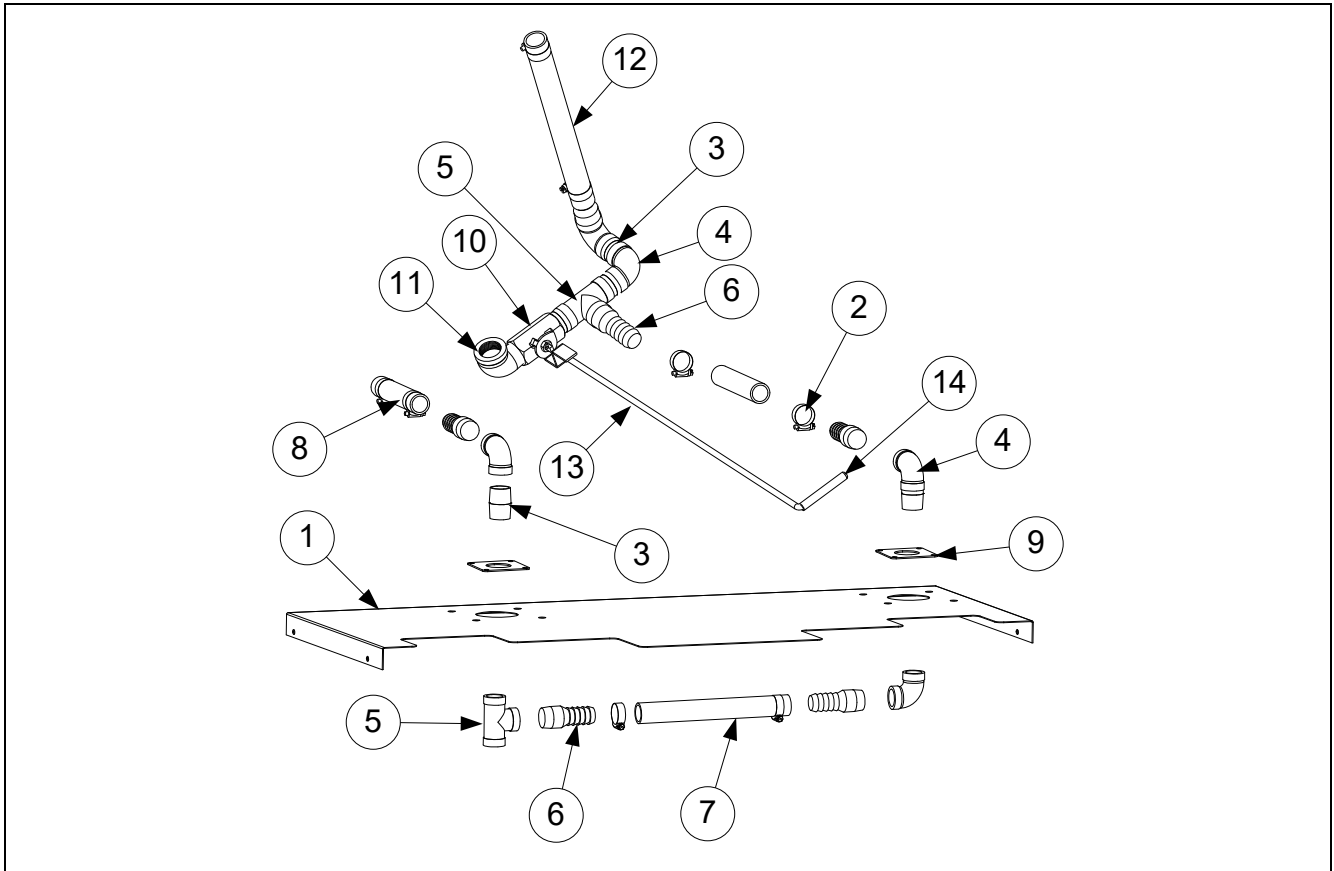


ITEM	PART #	COMPONENT
1	1080933	Solenoid Valve Assembly
2	8103199	Fitting, 1/4" NPT x 3/8" Tube Hose Barb
3	8103244	Clamp, 5/8" Hose
4	8111141	Tubing, Clear Plastic 3/8" ID (sold by the foot)
*	8103243	Valve, In-line Check
5	8103258	Adaptor, 3/8" Barb x 1/2" NPT Brass
6	8130582	Nipple, 1/4" NPT Close Brass
7	8130449	Tee, 1/4" NPT Brass
8	8103573	Adaptor, Pipe to Hose 1/4" NPT x 3/4"
9	8130502	Elbow, 90° Street NPT Brass
10	2206016	Mount Solenoid
11	1080933	Solenoid Valve Assembly

\* Not illustrated

**YFG255 SERIES RETHERMALIZERS  
CHAPTER 2: PARTS LIST**

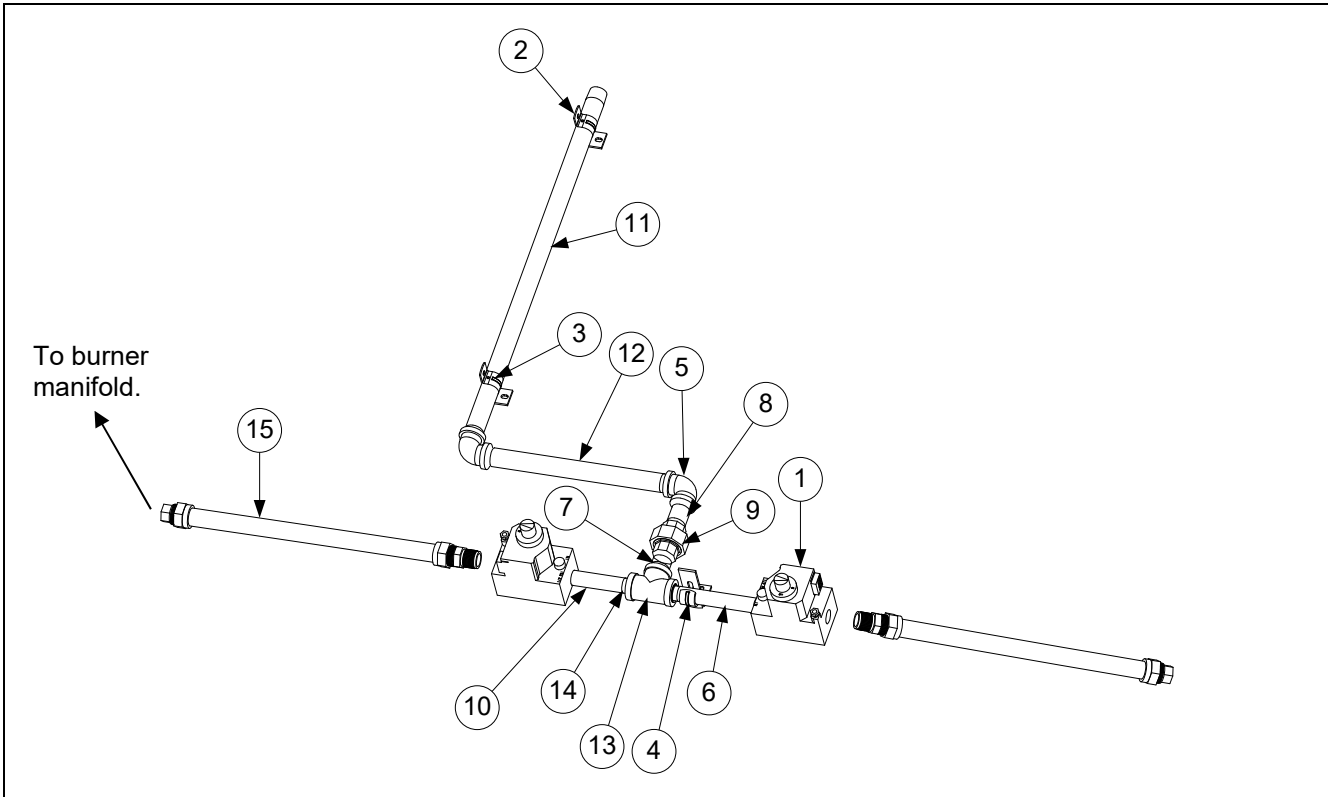
**2.6 Plumbing, Drain**



ITEM	PART #	COMPONENT
1	2208186	Shield, Vapor Front
2	8090374	Clamp, Hose
3	8130138	Nipple
4	8130202	Elbow, 90° 1"
5	8130314	Tee, 1"
6	8130525	Barb Fitting, 1" Pipe to Hose
7	8160779	Hose, Drain 10.25"
8	8160787	Hose, Drain 6.75"
9	8237649	Plate Assembly
10	8103569	Valve, Drain Brass 1" NPT
11	8130266	Elbow, Street 1" NPT
12	8160910	Hose, Drain 12.50"
13	8236279	Handle, Drain Valve
14	8160639	Cap, Vinyl Red

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**2.7 Plumbing, Gas Manifold**



ITEM	PART #	COMPONENT
1	8073552	Valve, Gas Natural 24V Honeywell
	8073628	Valve, Gas Propane 24V Honeywell
2	2001450	Bracket, Gas Valve Support
3	8102808	Clamp, 3/4"
4	8103722	Clamp, 1/2" Pipe Heavy
5	8130066	Elbow, 3/4" NPT 90°
6	8130096	Nipple, 1/2" x 6.00" NPT
7	8130112	Nipple, 3/4" x 2.00" NPT
8	8130114	Nipple, 3/4" x 2.50 NPT
9	8130174	Union, 3/4" NPT
10	8130251	Nipple, 1/2" x 4.50 NPT
11	8130257	Nipple, 3/4" x 24.50" NPT
12	8130382	Nipple, 3/4" x 11.50" NPT
13	8130387	Tee, 3/4" NPT
14	8130763	Bushing, 3/4" x 1/2" ID NPT
15	8102542	Flexline, 3/4" NPT x 18.50"
*	8100703	Gas Line 1/4" x 20.00" (Gas Valve to Pilot Assy.)
*	8100691	Vent Tube
*	8102734	Gas Line, 3/4" x 48.00" with Quick Disconnect

\* Not illustrated

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**2.8 Fasteners**

ITEM	PART #	COMPONENT
*	8090428	Bolt, ¼-inch – 20 x ½-inch Hex Head ZP Tap
*	8090429	Bolt, ¼-inch – 20 x 2.00-inch Hex Head ZP Tap
*	8090514	Capscrew, 5/16-inch-18 NC Hex
*	8090448	Clip, Tinnerman
*	8261366	Nut, 4-40 Keps Hex (Pkg. of 25) (8090237)
*	8261358	Nut, 6-32 Keps Hex (Pkg. of 25) (8090049)
*	8090247	Nut, 8-32 Keps Hex
*	8261376	Nut, 10-32 Keps Hex (Pkg. of 10) (8090256)
*	8090766	Nut, 10-32 Keps Hex SS
*	8090581	Nut, ½ NPT Locking
*	8090020	Nut Cap 10-24 NP
*	8261372	Nut Grip ¼-inch 1/4-20 Hex NP (Pkg. of 10) (8090059)
*	8090417	Nut Flange ¼-inch 1/4-20 Serr
*	8090535	Nut, "T" ¼-inch-20 x 7/16 SS
*	8261389	Nut, Nylock ¼-inch-20 (Pkg. of 10) (8090803)
*	8090540	Nut, Lock ½-inch-13 Hex 2-Way ZP
*	8130154	Plug, Pipe ⅛-inch Brass, Hex Head
*	8261359	Screw, 4-40 x ¾-inch Slotted Round Head (Pkg. of 25) (8090354)
*	8261365	Screw, 6-32 x ⅜-inch Slot Head (Pkg. of 25) (8090095)
*	8090357	Screw, 6 x ⅜-inch Phillips Head NP
*	8090359	Screw, 8 x ¼-inch Hex Washer Head
*	8090360	Screw, 8 x ⅜-inch Hex Washer Slot Head
*	8261371	Screw, 8 x ½-inch Hex Head ZP (Pkg. of 25) (8090361)
*	8090818	Screw, 8 x ½-inch Type B
*	8090364	Screw, 8 x ⅝-inch Hex Washer Head ZP
*	8090518	Screw, 8-32 x ⅜-inch Hex Washer Slotted Head SS
*	8090104	Screw, 8-32 x ½-inch Slotted Head ZP
*	8261363	Screw, 8-32 x ½-inch NP (Pkg. of 25) (8090103)
*	8261360	Screw, 10-24 x 5/16-inch Round Slot Head ZP (Pkg. of 25) (8090024)
*	8261330	Screw, 10-32 x ⅜-inch Slot Head SS (8090117)
*	8091003	Screw, 10-32 x ⅜-inch Hex Trim Head SS
*	8261375	Screw, 10-32 x ¾-inch Hex Trim Head SS (Pkg. of 5) (8090401)
*	8091000	Screw, 10-32 x 1¼-inch Hex Sck C/S
*	8261374	Screw, 10 x ½-inch Hex Head (Pkg. of 25) (8090412)
*	8090266	Screw, 10 x ½-inch Phillips Head ZP
*	8090434	Screw, 10 x ⅜-inch Hex Washer Head NP
*	8090123	Screw, 10 x ¾-inch Slot Head
*	8261389	Screw, 1/4-20 x ¾-inch Hex Head ZP (Pkg. of 10) (8090131)
*	8090582	Washer ½ NPT Locking
*	8090184	Washer, #10 LK ZP
*	8090190	Washer, .625 X .275 X 40 Flat SS
*	8090191	Washer, Lock 1/4 Spring ZP
*	8090193	Washer, Flat 1/4 Nylon
*	8090194	Washer, Flat 5/16 ZP

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