



**Models 1824 & 2424G**  
CE ONLY

**24G Series Flatbottom Gas Fryers (CE)**  
Installation & Operation Manual



**DEAN**



\*8195705\*

Service Hotline 1-318-865-1711

Price: \$10.00  
819-5705  
JUNE 2002

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

**NOTICE**

This appliance is intended for professional use only and is to be operated by qualified personnel only. A Dean Factory Authorized Service Center (FASC) or other qualified professional should perform installation, maintenance, and repairs. Installation, maintenance, or repairs by unqualified personnel may void the manufacturer's warranty. See Chapter 1 of this manual for definitions of qualified personnel.

**NOTICE**

This equipment must be installed in accordance with the appropriate national and local codes of the country and/or region in which the appliance is installed.

**NOTICE**

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

**NOTICE TO OWNERS OF UNITS EQUIPPED WITH COMPUTERS**

**U.S.**

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 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**

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. See Chapter 1 of this manual for definition of qualified service personnel.

** DANGER**

Adequate means must be provided to limit the movement of this appliance without depending upon the gas line connection. Single fryers equipped with legs must be stabilized by installing anchor straps. All fryers 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 fryer is in use.

**⚠ DANGER**

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

**⚠ DANGER**

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

**⚠ DANGER**

Instructions to be followed in the event the operator smells gas or otherwise detects a gas leak must be posted in a prominent location. This information can be obtained from the local gas company or gas supplier.

**⚠ DANGER**

The crumb tray in fryers equipped with a filter system must be emptied into a fireproof container at the end of frying operations each day. Some food particles can spontaneously combust if left soaking in certain shortening material. Additional information can be obtained in the filtration manual included with the system.

**⚠ WARNING**

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

**⚠ WARNING**

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

**IMPORTANT**

Safe and satisfactory operation of Dean equipment depends upon its proper installation. Installation **MUST** conform with local codes, or in the absence of local codes, to European Community (CE) Standards.

**NOTICE**

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



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# 24G SERIES FLATBOTTOM GAS FRYERS (CE)

## CHAPTER 1: INTRODUCTION

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### 1.1 Applicability and Validity

The Dean 24G Series Flatbottom gas model family has been approved by the European Union (EU) for sale and installation in the following EU countries: AT, BE, KE, KD, ES, FI, FR, GB, IE, IT, LU, NL, NO, PT and SE.

This manual is applicable to and valid for all Dean 24G Flatbottom gas units sold in English-speaking countries, including those in the European Union. Where conflicts exist between instructions and information in this manual and local or national codes of the country in which the equipment is installed, installation and operation shall comply with those codes.

This appliance is only for professional use and shall be used by qualified personnel as defined in Section 1.5.

### 1.2 Ordering Parts

Customers may order parts directly from their local Authorized Parts Distributor. For this address and phone number, contact your maintenance and repair center or call the factory. The factory address and phone numbers are on the back cover of this manual.

To speed up your order, the following information is required:

Model Number	_____	Type	_____
Serial Number	_____		_____
Optional Equipment	_____		_____
Item Part Number	_____	Quantity Needed	_____

### 1.3 Service Information

Call the 1-800-551-8633 or (318) 865-1711 Service Hotline number for the location of your nearest maintenance and repair center. Always give the model and serial numbers of your fryer.

To assist you more efficiently, the following information will be needed:

Model Number	_____	Type	_____
Serial Number	_____		_____
Optional Equipment	_____		_____
Nature of Problem	_____ _____		

**Additional information (i.e. cooking environment, time of day, and other pertinent information) may be helpful in solving your service problem.**

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### 1.4 Safety Information

Before attempting to operate your unit, read the instructions in this manual thoroughly.

Throughout this manual, you will find notations enclosed in double-bordered boxes similar to the ones below.

**CAUTION** boxes contain information about actions or conditions that *may cause or result in a malfunction of your system.*

 **CAUTION**  
Example of a CAUTION box.

**WARNING** boxes contain information about actions or conditions that *may cause or result in damage to your system*, and which may cause your system to malfunction.

 **WARNING**  
Example of a WARNING box.

**DANGER** boxes contain information about actions or conditions that *may cause or result in injury to personnel*, and which may cause damage to your system and/or cause your system to malfunction.

 **DANGER**  
**Hot cooking oil causes severe burns. Never attempt to move a fryer containing hot cooking oil or to transfer hot cooking oil from one container to another.**

### 1.5 Service Personnel

#### 1.5.1 Definitions

##### A. Qualified and/or Authorized Operating Personnel

1. Qualified/authorized operating personnel are those who have carefully read the information in this manual and have familiarized themselves with the equipment functions, or have had previous experience with the operation of equipment covered in this manual.

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**1.5.1 Definitions (cont.)**

**B. Qualified Installation Personnel**

1. Qualified/authorized personnel are those who have carefully read the information in this manual and have familiarized themselves with the equipment functions, or who have had previous experience with the operation of the equipment covered in this manual.

**C. Qualified Service Personnel**

1. Qualified service personnel are those who are familiar with Dean equipment and have been authorized by Dean to perform service on Dean equipment. All authorized service personnel are required to be equipped with a complete set of service parts manuals and stock a minimum amount of parts for Dean equipment. A list of Dean Factory Authorized Service Centers (FASCs) was included with the fryer when shipped from the factory. ***Failure to use qualified service personnel will void the Dean warranty on your equipment.***



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## CHAPTER 2: IMPORTANT INFORMATION

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### 2.1 Receiving and Unpacking Equipment

- A. Check that the container is upright. Use an outward prying motion - *no hammering* - to remove the carton. Unpack the fryer carefully and remove all accessories from the carton. Do not discard or misplace accessories. They will be needed.
- B. After unpacking, immediately check the equipment for visible signs of shipping damage. If damage has occurred, contact the carrier and file the appropriate freight claims. Do not contact the factory. Shipping damage responsibility is between the carrier and the dealer.

**If your equipment arrives damaged:**

1. File claim for damages immediately, regardless of extent of damage.
2. Visible loss or damage: Be sure this is noted on the freight bill or express receipt and is signed by the person making the delivery.
3. Concealed loss or damage: If damage is unnoticed until equipment is unpacked, notify freight company or carrier immediately, and file a concealed damage claim. The claim should be filed within 15 days of date of delivery. Be sure to retain container for inspection.

**NOTE: Dean Does Not Assume Responsibility for Damage or Loss Incurred in Transit.**

- C. Move the fryer to the location of installation and install legs and/or casters as described in Chapter 3.2.
- D. Remove all plastic skin from sides, front, and doors of the fryer(s). Failure to do this prior to initial fryer operation will make it very difficult to remove later.

### 2.2 General

**Qualified, licensed, and/or authorized installation or service personnel only (as defined in Section 1.5) should perform the following:**

- ?? **Installation and service on Dean equipment.**
- ?? **Conversion of this appliance from one gas type to another.**

**Failure to use qualified, licensed, and/or authorized installation or service personnel to install, convert to another gas type or otherwise service this equipment will void the Dean warranty and may result in damage to the equipment or injury to personnel.**

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CHAPTER 2: IMPORTANT INFORMATION**

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## 2.2 General (cont.)

Where conflicts exist between instructions and information in this manual and local code or national codes, or regulations, installation and operation shall comply with the codes or regulations in force in the country in which the equipment is installed.

** DANGER**

**Building codes prohibit a fryer with its open tank of hot oil/shortening from being installed beside an open flame of any type, including those of broilers and ranges.**

Upon arrival, inspect the fryer carefully for visible or concealed damage. (See Receiving and Unpacking Equipment in Section 2.7.)

** CAUTION**

**Dean appliances equipped with legs are for stationary installations. Appliances fitted with legs must be lifted during movement to avoid damage to the appliance and bodily injury. For moveable installations, optional equipment casters must be used. Questions? Call 1-800-551-8633**

### 2.2.1 Fryer Description

Dean 24G Series Flatbottom gas fryers are energy efficient, open frypot, gas-fired units. All units are shipped completely assembled, with accessories packed inside the frypot. All units are adjusted, tested, and inspected at the factory prior to crating for shipment.

Base units described below are designed for use in a commercial food preparation environment after installation as outlined in this manual.

MODEL	1824G	2424G
FRYING VESSEL Frying Area: Oil Capacity	45.7 x 61 cm 23-35 kg	61 x 61 cm 33-45 kg
ENERGY REQUIREMENTS: Gas (Nat or Pro.) Electrical	120,000 BTU/Hr 230V/50~1Ø	
APPROXIMATE SHIPPING WEIGHT (kg)	129	138

## 24G SERIES FLATBOTTOM GAS FRYERS (CE) CHAPTER 2: IMPORTANT INFORMATION

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### 2.3 Principles of Operation

The frypot is constructed of welded steel with heat transfer ducting on the frypot-bottom for efficient heating of oil without scorching.

Base units come with painted cabinetry or optional stainless steel. Base units come with 15-cm (6-inch) adjustable legs or optional 13-cm (5-inch) casters. Multiple units come with casters.

Dean 24G Series Flatbottom gas fryers come with an operating thermostat for reliable temperature control. Fryers can be ordered with a Thermatron temperature controller (optional) and/or boil-out feature (optional-only available with Thermatron controller), or a computer controller (optional).

A draft inducer draws air over the burners for combustion. Air movement directs the combustion products back and forth across the frypot bottom by means of a set of baffles, transferring the heat evenly across the frypot bottom. Cold air is prevented from entering the combustion chamber and cooling the oil during the coasting cycle.

#### 2.3.1 Automatic Safety Features

- ?? High oil temperature detection to shut off power to the main burners through the solenoid-actuated gas valve.
- ?? Combination safety gas valve includes built-in pressure regulator and pilot safety.
- ?? Sail switch built into outlet duct shuts off gas to the burners in the event of blower failure.
- ?? Optional safety switch built into the drain valve prohibits burner ignition if the valve is not completely closed.

### 2.4 Rating Plate

The rating plate can be found on the inside panel of the fryer door. Information on this plate includes the model and serial numbers, kW/hr (BTU/hr) of the burners, outlet gas pressure in mbars (inches W.C.), and configuration: natural or propane gas. Rating plate data is essential for proper unit identification, communicating with the factory or requesting special parts and/or information.

The rating plate is located inside the front door panel. Information provided includes the model and serial number of the fryer, kW/hr (BTU/hr) of the burners, outlet gas pressure in mbars (inches W.C.) and whether the unit has natural or propane gas orifices.



**Fryers **MUST** be connected **ONLY** to the gas-type identified on the attached rating plate.**

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**CHAPTER 2: IMPORTANT INFORMATION**

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## 2.5 Pre-Installation

 **DANGER**

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

 **DANGER**

**Do not connect this appliance to the gas supply before reviewing all information in this chapter.**

- A. **General:** Only licensed personnel (as defined in Section 1.5) should install any gas-fired equipment.
1. A manual gas shut-off valve must be installed in the gas supply line ahead of the fryers for safety and ease of future service.
  2. Dean 24G Series Flatbottom gas fryers require 230VAC and are equipped with a 16-3 SJT power cord.
- B. **Clearances:** The fryer area must be kept free and clear of all combustibles. This unit is design-certified for the following installations:
1. Commercial installation only (not for household use).
  2. Non-combustible floor installation equipped with factory-supplied 15 cm (6-inch) adjustable legs or 13 cm (5-inch) casters;
  3. Combustible construction with a minimum clearance of 15 cm (6-inch) side and 15 cm (6-inch) rear, and equipped with factory-supplied 15 cm (6-inch) adjustable legs or 13 cm (5-inch) casters.
- C. **Installation Standards**
1. CE/EXPORT STANDARDS: Fryer installation must conform with local codes, or in the absence of local codes, to the appropriate national or European Community (CE) standards.

**24G SERIES FLATBOTTOM GAS FRYERS (CE)**  
**CHAPTER 2: IMPORTANT INFORMATION**

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## **2.6 Equipment Installed at High Altitudes**

1. The fryer input rating (kW/hr) is for elevations up to 610 m (2,000 feet). For elevations above 610 m (2,000 feet), the rating should be reduced 4 percent for each additional 305-m (1,000 feet) above sea level. The correct orifices are installed at the factory if the operating altitude is known at the time of the customer's order.

## **2.7 Air Supply and Ventilation**

 **DANGER**

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

1. Keep the area around the fryer clear to prevent obstruction of combustion and ventilation airflow.
2. Do not connect this fryer to an exhaust duct.
3. Correct installation and adjustment will ensure adequate airflow to the fryer system.
4. A commercial, heavy-duty fryer must vent its combustion wastes to the outside of the building. A deep-fat fryer must be installed under a powered exhaust hood, or an exhaust fan must be provided in the wall above the unit, as exhaust gas temperatures are approximately 260-316°C (500-600°F). Check air movement during installation. Strong exhaust fans in the exhaust hood or in the overall air conditioning system can produce slight air drafts in the room.
5. Do not place the fryer's flue outlet directly into the plenum of the hood, as it will affect the gas combustion of the fryer.
6. Never use the interior of the fryer cabinet for storage or store items on shelving over or behind the fryer. Exhaust temperatures can exceed 316°C (600°F) and may damage or melt items stored in or near the fryer.
7. Adequate distance must be maintained from the flue outlet of the fryer(s) to the lower edge of the exhaust filter bank. Per NFPA Standards No. 96, a minimum of 45-cm (18 inches) should be maintained between the flue(s) and the lower edge of the exhaust hood filter.
8. Filters and drip troughs should be part of any industrial hood, but consult local codes before constructing and installing any hood. The duct system, the exhaust hood and the filter bank must be cleaned on a regular basis and kept free of grease.

**24G SERIES FLATBOTTOM GAS FRYERS (CE)**  
**CHAPTER 2: IMPORTANT INFORMATION**

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## **2.8 Conversion of Units**

**Pressure:**

1 mbar = 10,2 mm W.C. = 0,4-inch W.C.

20 mbar = 204 mm W.C. = 8-inch W.C.

1-inch W.C. = 25,4 mm W.C. = 2,5 mbar

**Heat Input:**

1 kW = 3410 BTU/hr

100 BTU/hr = 0,0293 kW

**Temperature:**

0° Celsius = 32° Fahrenheit

Temperature in degrees Celsius = (Temperature in degrees Fahrenheit (F) – 32) x 0,555

100° Celsius = (212° Fahrenheit – 32) x 0,555

# 24G SERIES FLATBOTTOM GAS FRYERS (CE)

## CHAPTER 3: INSTALLATION INSTRUCTIONS

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### 3.1 Installing the Fryer

- A. Initial Installation: If installed with legs, do not push against the fryer's side to adjust its position. Use a pallet or lift jack to lift the fryer slightly and place it where it is to be installed.
- B. Relocating the Fryer: If relocating a fryer installed with legs, remove all weight from each leg before moving.

**Note:** If a leg becomes damaged during movement, contact your service agent for immediate repair/replacement.



**Fryers may not function properly if curb mounted.**



**This fryer may tip and cause personal injury if not secured correctly in a stationary position. Drain all oil/shortening from fryer before moving. Hot oil will splash and cause severe burns upon contact.**

### 3.2 Leg and Caster Installation

#### A. General

1. Install legs and rear rigid casters near where the fryer is to be used, as neither are secure for long transit. Unit cannot be curb mounted and must be equipped with the legs and casters provided.
2. When positioning the fryer, gently lower the fryer into position to prevent undue strain to the legs and internal mounting hardware. Use a pallet or lift jack to lift and position the fryer if possible. Tilting the fryer may damage the legs.
3. The rigid casters must be installed on the fryer rear channel assembly only.
4. Proceed to Step 3.3, Leveling the Fryer, after legs and rear rigid casters are installed.

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**CHAPTER 3: INSTALLATION INSTRUCTIONS**

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### **3.2 Leg and Caster Installation (cont.)**

#### **B. Leg and Rigid Caster Installation**

1. Remove unit from pallet.
2. Carefully raise the unit with a forklift, pallet jack, or other steady means.
3. Place one lock washer on each hex head screw.
4. Insert hex head screws with lock washers [1/4-20 threads by 3/4" long] through bolt holes of leg mounting plates and mount to the front channel. Mount rigid casters to the rear channel following the same procedure. A locknut has been attached to the topside of the base mounting plates at the factory to capture the hex head screw as it is screwed in.
5. Tighten the bolts to 5.65 Nm (50 inch-lbs.) torque.

 **CAUTION**

**For caster retrofit, the unit must be at room temperature and drained of shortening before installing the casters.**

### **3.3 Leveling the Fryer**

- A. Place a carpenter's spirit level across the top of the fryer and level the unit front to back. If the fryer is not level from side to side, a platform or other surface adjustment is needed; there are no side-to-side level adjustments on a fryer equipped with caster/leg combinations. (If a fryer is equipped with legs only, side-to-side level adjustments can be made. If a fryer is equipped with casters only, no level adjustments to the fryer can be made.) If the fryer is not level, the unit may not function efficiently, the oil may not drain properly for filtering and in a multi-fryer battery, it may not match adjacent units.

#### **Legs (Only)**

1. Adjust leg height with an adjustable or open-end wrench by turning the hex bullet on the bottom of the leg.
2. The hex bullet is for minor leg height adjustment only. **Do not adjust more than 22 mm.**
3. When leveling the unit, the leg body should be held firmly to keep the leg from bending or rotating while turning the hex bullet foot to the required height.



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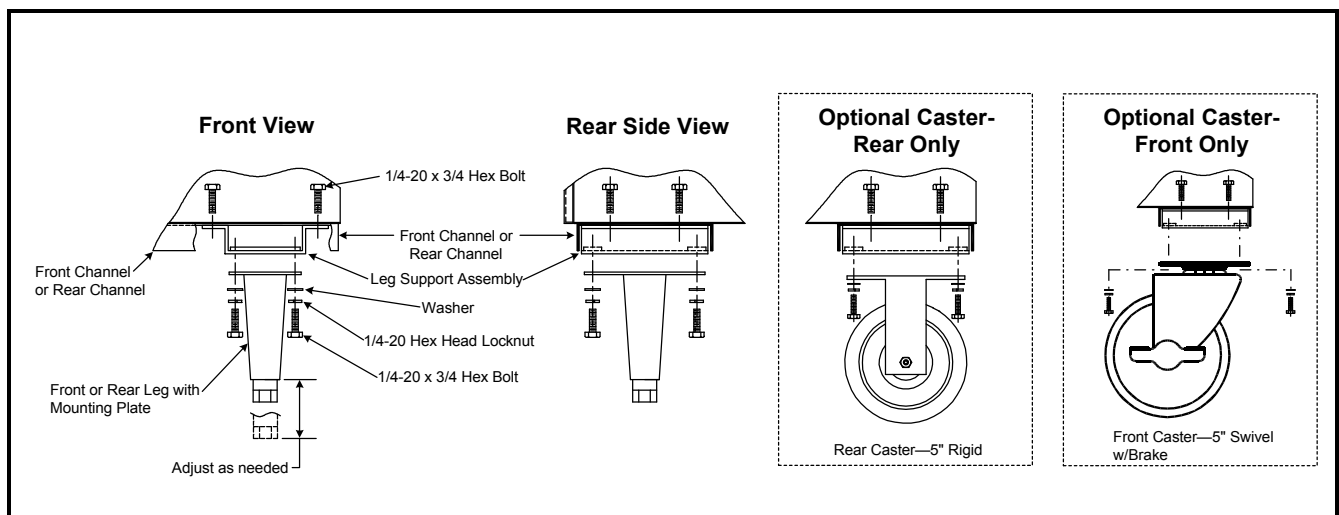
### 3.3 Leveling the Fryer (cont.)

#### Rigid Casters (Only)

1. Install the rigid casters on the fryer rear channel only. Legs must be installed on the front channel.
  2. There are no level adjustments for the rigid casters.
- B. If the floor is uneven or has a decided slope, place the fryer on a level platform.
- C. If the fryer is moved, re-level the fryer following the instructions given in Steps 3.3, A-B.
- D. An installed fryer must be restrained to prevent tipping, which could splash hot oil. Restraints can be straps or chains anchored to an immovable object (wall, floor anchor), or the manner of installation (installing the fryer in an alcove, battering to other appliances, etc.).

#### E. Installing Optional Swivel Casters:

1. Install non-locking casters only at the rear of the unit.
2. Locking casters must be installed at the front of the unit. Locking casters allow the fryer to be "locked" in position for safe operations.
3. Follow the same instructions for leg installations as given above in steps 3.2, B1-5.



Leg and Caster (Optional) Mounting Installation

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### 3.3 Leveling the Fryer (cont.)

**NOTE:** The installation must be inspected after it is complete to ensure it meets the intent of these instructions. The on-site supervisor and/or operator(s) should be informed that the appliance is installed with restraints. If restraints are removed to move fryer (cleaning beneath and behind, relocation, etc.), ensure that they are re-installed when fryer is returned to its permanently installed position.

 **CAUTION**

The fryer **MUST** be connected to the gas supply specified on the rating and serial number plate located on the back of the fryer door.

 **WARNING**

If gas odors are detected, the gas supply **MUST** be shut off at the main shut-off valve. The local gas company or FASC should be contacted immediately to rectify the problem.

### 3.4 Gas Connections

Dean 24G Series Flatbottom gas fryers have obtained CE markings for countries and gas categories shown below:

Countries	Supply Pressures and Gas (mbar)	Appliance Categories
BE Belgium	G20 20/25 G31 37	IIE(R)B3P
DE Germany	G20 20 G31 50	I2E I3P
DK Denmark	G20 20	I2H
ES Spain	G20 20 G31 37 and 50	I12H3P
FR France	G20/G25 20/25 G31 37 and 50	I12ESI3P
GB Great Britain	G20 20 G31 37	I12H3P
GR Greece	G20 20 G31 37 and 50	I12H3P
IR Ireland	G20 20 G31 37	I12H3P
IT Italy	G20 20	I2H
LU Luxembourg	G20/G25 20/25 G31 50	I12E3P
NL The Netherlands	G25 25 G31 50	I12L3P
PT Portugal	G20 20 G31 37	I12H3P

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CHAPTER 3: INSTALLATION INSTRUCTIONS**

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### 3.4 Gas Connections (cont.)

** DANGER**

**Before connecting new pipe to this appliance the pipe must be blown out thoroughly to remove all foreign material. Foreign material in the burner and gas controls will cause improper and dangerous operation.**

The gas supply (service) line must be the same size or greater than the fryer inlet line. Dean 24G Series Flatbottom gas fryers are equipped with 22 mm male ISO 7.1 inlet. The gas supply line must be sized to accommodate all gas-fired equipment connected to that gas supply. Consult local gas companies or suppliers, or your local contractor for minimum supply line requirements.

#### Supply Line Specifications

The gas supply lines must be sized as indicated in the chart below, based on the total number of fryers connected to the main gas supply.

<b>Recommended Gas Supply Line Sizes</b>			
<b>Gas Types</b>	<b>Number of Fryers</b>		
	1	2 to 3	4 or more (*)
G20 and G25	22 mm	28 mm	35 mm
G31	15 mm	22 mm	28 mm

(\*) When exceeding 6 meters for a configuration of more than four fryers, it is necessary to provide a 33 mm rigid gas connection.

** DANGER**

**All connections must be sealed with a joint compound suitable for the gas being used and all connections must be tested with a solution of soapy water before lighting any pilots.**

**Never use matches, candles, or any other ignition source to check for leaks. If gas odors are detected, shut off the gas supply to the appliance at the main shut-off valve and immediately contact the local gas company or an authorized service agency for service.**

** DANGER**

**"Dry-firing" your unit will cause damage to the frypot and can cause a fire. Always ensure that melted shortening, cooking oil or water is in the frypot before firing the unit.**

## 24G SERIES FLATBOTTOM GAS FRYERS (CE) CHAPTER 3: INSTALLATION INSTRUCTIONS

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### 3.4 Gas Connections (cont.)

#### Rigid Connections

Check any installer-supplied intake pipe(s) visually and clean metal particles or other foreign matter from the threads before installing into a service line. If the intake pipes are not clear of all foreign matter, the orifices will clog when gas pressure is applied. When using thread compound on gas piping, use very small amounts and only on male threads. Use a pipe thread compound that is not affected by the chemical action of G31 gases. **DO NOT** apply thread compound to the first two pipe threads – doing so will cause clogging of the burner orifices and control valve.

#### Manual shut-off valve

This gas service supplier-installed valve must be installed in the gas service line ahead of the fryers in the gas stream and in a position where it can be reached quickly in the event of an emergency.

#### Regulating Gas Pressure

The fryer and shut-off valve must be disconnected from the gas supply during any pressure testing of the system.

External gas regulators are not normally required on this fryer. A safety control valve protects the fryer against pressure fluctuations. If the incoming pressure is in excess of 3,45 kPa/35,0 mbar, **a step-down regulator will be required.**

 **DANGER**

**When pressure-testing incoming gas supply lines, disconnect the fryer from the gas line if the test pressure is 3,45 kPa (½" PSI, 14" W.C.) or greater to avoid damage to the fryer's gas piping and gas valve(s).**

- A. Manifold Pressure: Your local service technician should check the manifold pressure with a manometer.
1. Check the rating plate for manifold gas pressures. See page 3-9 for gas types and pressures.
  2. Confirm that the arrow forged into the bottom of the regulator body, which indicates gas flow direction, is pointed downstream towards the fryers. The air vent cap is also part of the regulator and should not be removed.
  3. If a vent line from the gas pressure regulator is used, it should be installed in accordance with local codes or in the absence of local codes, with the appropriate national or European Community (CE) standards.

 **WARNING**

**Use a diluted soap solution to find gas leaks when making new connections.**

**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 3: INSTALLATION INSTRUCTIONS**

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**3.4 Gas Connections (cont.)**

- B. Regulators: Gas regulators can be adjusted in the field, but no adjustments should be made unless the regulator is out of adjustment, or serious pressure fluctuations are observed.
- C. Only qualified service personnel should make adjustments to the regulators.
- D. Orifices: The fryer can be configured to operate on any available gas. The correct safety control valve, appropriate gas orifices, and pilot burner are installed at the factory. While the valve can be adjusted in the field, only qualified service personnel should make any adjustments with the proper test equipment.
  - 1. The following color codes indicate the type of gas to be used for each fryer and associated components.

Gas Type	CE Color Code
G20 and G25	Blue
G31	Red

E. Flexible Couplings, Connectors and Casters

- 1. If the fryer is to be installed with flexible couplings and/or quick-disconnect fittings, the installer must use a heavy-duty certified commercial flexible connector of at least 22 mm NPT (with suitable strain-relief attachments), in compliance with local codes or in the absence of local codes, with the appropriate national or European Community (CE) standards. Quick-disconnect devices must comply with local codes or in the absence of local codes, with the appropriate national or European Community (CE) standards.
- 2. For an appliance equipped with casters, the installation shall be made with a connector that complies with local codes or in the absence of local codes, with the appropriate national or European Community (CE) standards.
- 3. Under no circumstances are the connector and the quick-disconnect device, or its associated piping to be used to limit fryer movement. A restraining bracket is provided on the appliance structural back to prevent the unit from moving from its installed position.

 **WARNING**

**Do not attach accessories to this fryer unless fryer is secured from tipping. The fryer may become unstable, tip over and cause injury.**

**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 3: INSTALLATION INSTRUCTIONS**

### 3.4 Gas Connections (cont.)

4. To limit movement of the fryer, restraints independent of the flexible coupling or connector must be used. Clips are located on the back panel of the fryer for the attachment of restraints.
  5. If disconnection of the restraint is necessary, the restraint must be reconnected after the fryer has been returned to its originally installed position.
- F. After hook up, bleed the gas line of air to ensure that the pilot light will ignite quickly and evenly.

### 3.5 Adjustments/Adaptation To Different Gases

**⚠ WARNING**

**Qualified personnel MUST perform any adaptation, modification, or gas conversion, if required. Failure to use qualified personnel will void the Dean warranty.**

1. Proper operation of appliances requires operator to inspect the following adjustments in Section 3.6 in terms of gas inputs and pressures.
2. Dean 24G Series Flatbottom gas fryers are manufactured to use the type of gas and pressure specified on the rating plate. When changing gas, **adaptation must be performed by qualified personnel as defined in Section 1.5.** Failure to use qualified personnel will void the Dean warranty.

### 3.6 Gas Inputs

Nominal Heat Inputs (Qn), Gas Type, Orifice Size, Part Number and Quantity/Color are listed in the table below:

MODEL	NOMINAL HEAT INPUT- Qn (kW)	GAS TYPE	ORIFICE SIZE (MM)†	ORIFICE PART NO.	ORIFICE QTY/ COLOR
24G Series (ALL)	30	G20	2,50	1826-40	3/BLUE
		G25	2,50	1826-40	3/BLUE
		G31	1,60	810-2317	3/RED

†Orifice size listed is for fryers operating at altitudes of 610 meters or less.

**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 3: INSTALLATION INSTRUCTIONS**

**3.6 Gas Inputs (cont.)**

Adjustments for different gases are as follows:

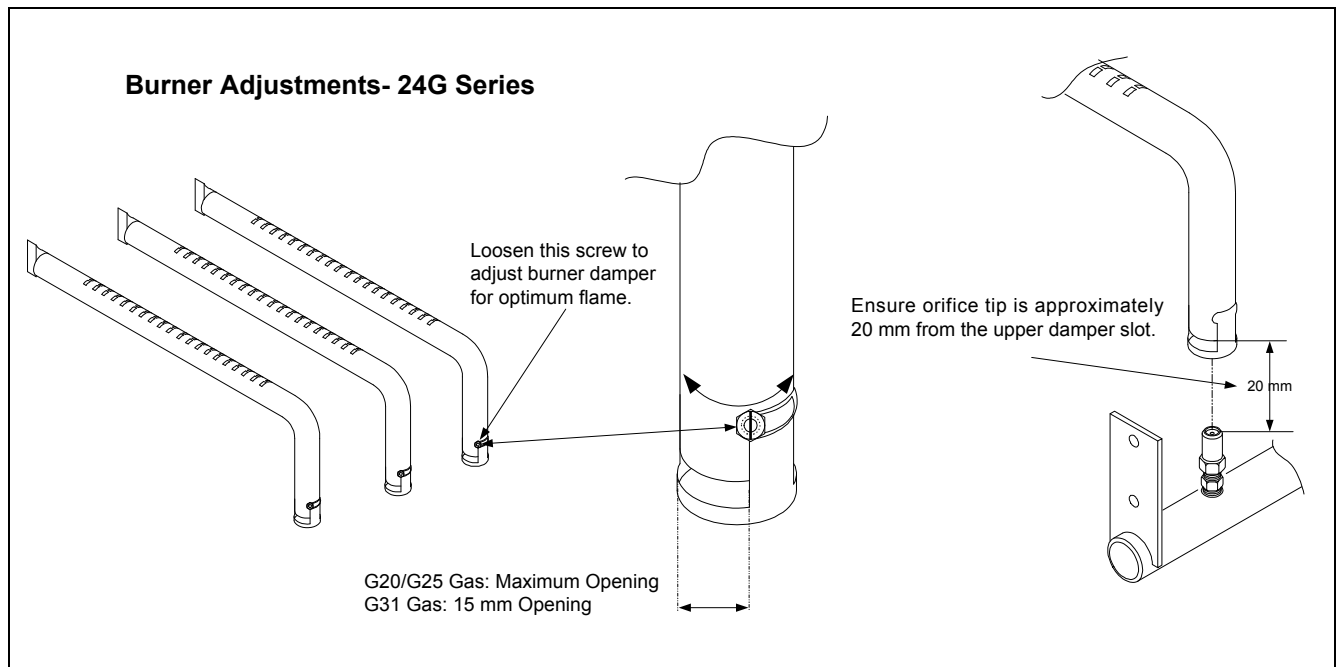
MODEL	ORIFICE SIZE (MM)†	GAS TYPE	GAS PRESSURE AT REGULATOR		BURNER MARKING	PILOT MARKING	BURNER AIR ADJUSTMENT (SEE ILLUSTRATION PAGE 3-9)
			MBAR	INCH W.C.			
<b>24G Series</b>	2,50	G20	14,5	5,8	Blue	26N	Opening- Maximum Opening- Maximum Opening- 15-mm
	2,50	G25*	21,0	8,4	Blue	26N	
	1,60	G31	31,0	12,44	Red	16LP	

**NOTE:** Outlet gas pressure must be adjusted strictly within the above requirements 5 to 10 minutes after the appliance is operating.

For controls and adjustments, please refer to the gas valve illustration on page 3-11. (Pilot Flame Adjustment: Turn the pilot adjustment screw clockwise/counter-clockwise until the desired flame-volume is achieved).

† Orifice size listed is for fryers operating at altitudes of 610 meters or less.

\* Except Belgium (BE). G20 and G25 remain the same: 14,5 mbar.



**⚠ WARNING**

**If gas odors are detected, the gas supply **MUST** be shut off at the main shut-off valve, and the local gas company or authorized service agency contacted for immediate service.**

**24G SERIES FLATBOTTOM GAS FRYERS (CE)**  
**CHAPTER 3: INSTALLATION INSTRUCTIONS**

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### 3.7 Gas Conversion Procedures

**⚠ DANGER**

**This appliance was configured at the factory for a specific type of gas. Converting from one gas type to another requires the installation of specific gas-conversion components.**

**Switching to a different type of gas without installing the proper conversion components may result in fire or explosion. NEVER ATTACH THIS APPLIANCE TO A GAS SUPPLY FOR WHICH IT IS NOT CONFIGURED!**

**Conversion of this appliance from one type of gas to another should only be performed by qualified, licensed, and authorized installation or service personnel, as defined in Section 1.5 of this manual.**

See page 3-11 for gas valve illustration when performing the following conversions.

When converting from G20 to G25 gas, the following procedures apply:

- ?? Equipment replacement is not required.
- ?? Adjust orifice gas pressure to the appropriate value listed in the table on page 3-9 by turning the gas valve "adjustment screw".
- ?? After adjustment, replace the adjustment-screw cover.

When converting from G20 (or G25) gas to G31 propane (or vice-versa), the following procedures apply:

- ?? Burner orifices and pilot orifice **MUST** be replaced.
- ?? Adjust orifice gas pressure to the appropriate value listed in the table on page 3-9 by turning the gas-valve adjustment screw.
- ?? After adjustment, replace the adjustment-screw cover.
- ?? Factory **MUST** be notified so the conversion can be documented and a new rating plate can be sent out.

When converting from G20 (20 mbar) to G25 (25 mbar), or vice-versa, or G31 (37 mbar) to G31 (50 mbar), the following procedures apply:

- ?? Check pilot-adjustment and adjust as necessary.
- ?? Other adjustments are not necessary.

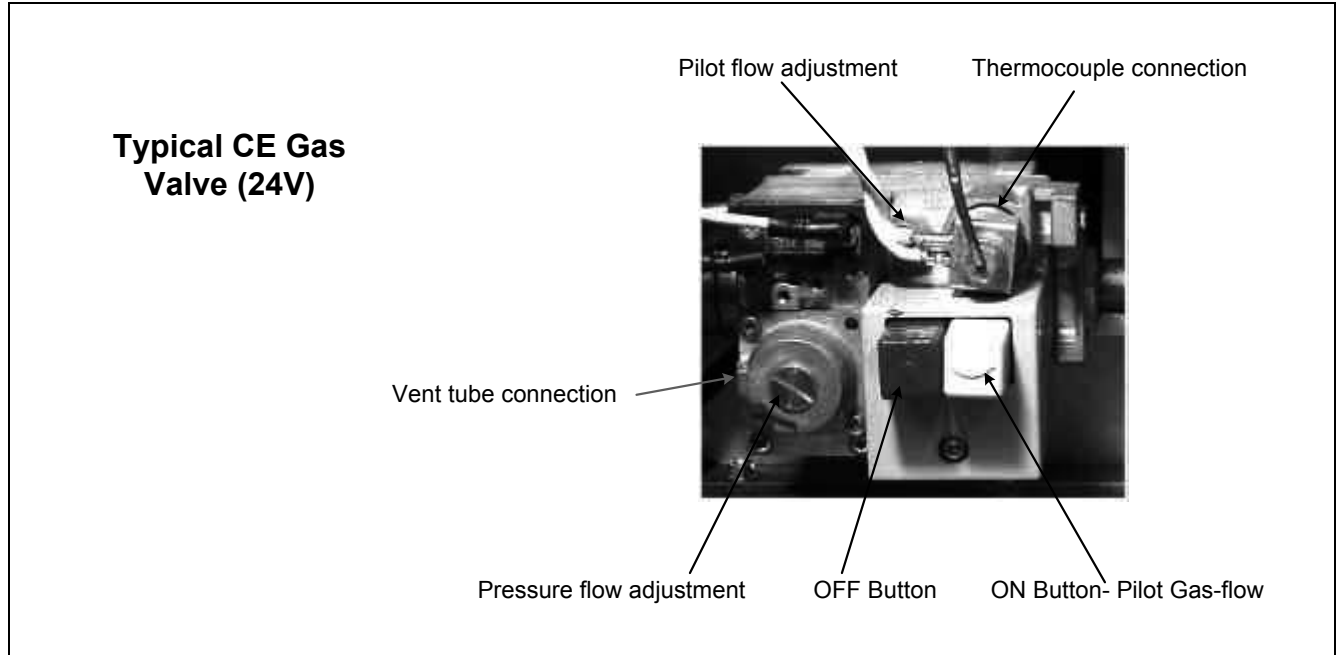


**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 3: INSTALLATION INSTRUCTIONS**

**3.7 Gas Conversion Procedures (cont.)**

Conversion from one gas family to another (i.e. changing from natural gas to propane) requires special components. Obtain the necessary components using the cross-reference in Section 3.8, Gas Conversion Components.

**Conversions can only be executed by qualified, factory-authorized personnel.**



**3.8 Gas Conversion Components**

Use the following components to convert from natural gas to propane and vice-versa. See Section 3.6 for orifice quantities required for conversion.

<b>Natural Gas to Propane Components</b>		<b>Propane To Natural Gas Components</b>	
<b>REF</b>	<b>DESCRIPTION</b>	<b>REF</b>	<b>DESCRIPTION</b>
810-2400	Pilot orifice (16LP)	810-0811	Pilot orifice (26N)
810-2317	Burner orifice (diameter: 1.60 mm)†	1826-40	Burner orifice (diameter: 2.50 mm)†
New Rating Plate	<b>Contact factory at time of conversion.</b>	New Rating Plate	<b>Contact factory at time of conversion.</b>

†Burner orifices listed are for fryers operating at altitudes of 610 meters or less. For altitudes greater than 610 meters, contact the factory for the correct orifice size.

**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 3: INSTALLATION INSTRUCTIONS**

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### **3.9 Electrical Connections**

The fryer when installed must be electrically grounded in accordance with local codes, or in the absence of local codes, with the appropriate national or European Community (CE) standards.

** DANGER**

**This fryer is equipped with a three-prong (grounding) plug for protection against electrical shock and must be plugged directly into a properly grounded, three-prong receptacle. DO NOT CUT, REMOVE, OR OTHERWISE BYPASS THE GROUNDING PRONG ON THIS PLUG!**

The rating plate and wiring diagram are located inside the front door. The fryer is equipped with a 230VAC single-phase 50-hertz system (International/CE). Do not cut or remove the ground prong from the power cord plug. Do not attempt to use the fryer during a power outage.

** DANGER**

**This appliance requires electrical power for operation. Place the gas control valve in the OFF position in case of a prolonged power outage. Do not attempt to operate this appliance during a power outage.**

# 24G SERIES FLATBOTTOM GAS FRYERS (CE)

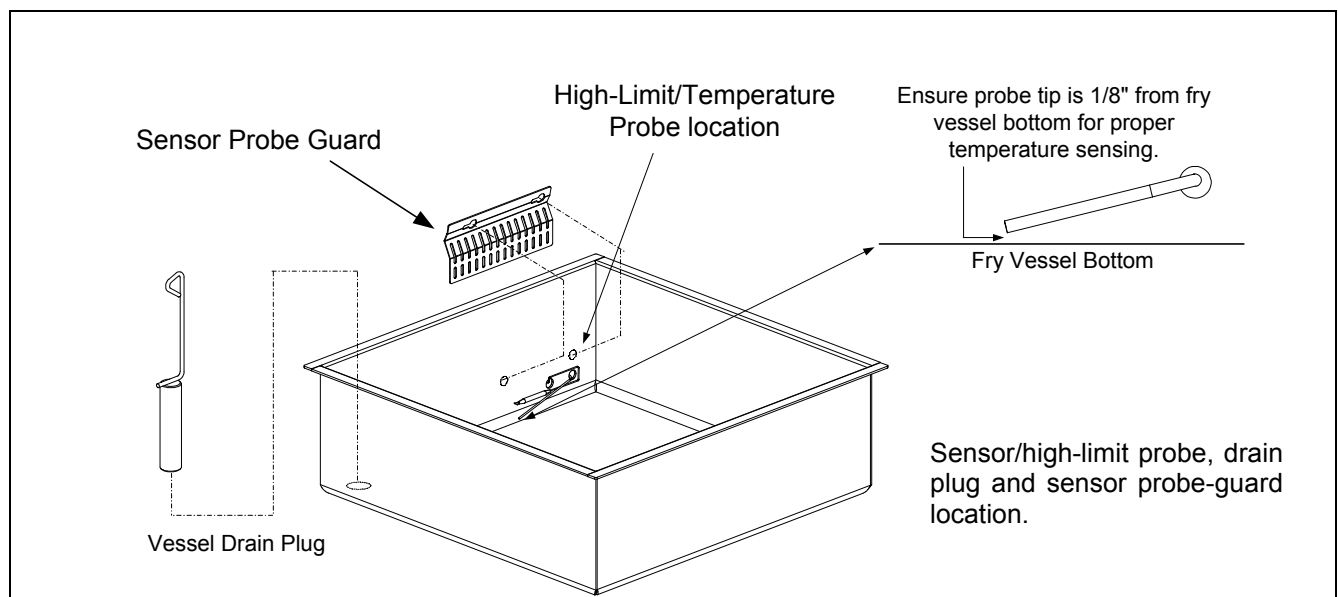
## CHAPTER 4: FRYER OPERATIONS

### 4.1 Initial Start-up

#### **⚠ WARNING**

The on-site supervisor is responsible for ensuring that operators are made aware of the inherent hazards of operating a hot oil frying system, particularly the aspects of system operation, oil filtration, draining and cleaning procedures.

Cleaning: New units are wiped clean with solvents at the factory to remove any visible signs of dirt, oil, grease, etc. remaining from the manufacturing process, then coated lightly with oil. Before any food preparation, wash thoroughly with hot, soapy water to remove any film residue and dust or debris then rinse out and wipe dry. Also wash any accessories shipped with the unit. Close the drain valve completely and replace the drain plug. Ensure the temperature sensing probe is adjusted properly (see illustration).



#### **⚠ WARNING**

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

#### **⚠ DANGER**

Never operate this appliance with an empty frypot. The frypot must be filled with water or cooking oil/shortening before lighting the burners. Failure to do so will damage the frypot and may cause a fire.

## 24G SERIES FLATBOTTOM GAS FRYERS (CE)

### CHAPTER 4: FRYER OPERATIONS

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#### 4.1.1 Pilot Lighting Procedures

Initial Pilot Lighting: All Dean fryers are tested, adjusted and calibrated to sea level conditions before leaving the factory. Adjustments to assure proper operation of pilot may be necessary on installation to meet local conditions, low gas pressure, differences in altitude and variations in gas characteristics. These adjustments correct possible problems caused by rough handling or vibration during shipment, and are to be performed only by qualified service personnel. These adjustments are the responsibility of the customer and/or the dealer and are not covered by the Dean warranty.

The inlet pipe at the lower rear of the fryer brings incoming gas to the pilot safety control valve, then to the pilot and main burners. The pilot is located high in the cabinet, at the base of the frypot.

#### **WARNING**

**When checking for burner ignition or performance, do not get too close to the burners. Slow ignition can cause possible flashback, increasing the potential for facial and body burns.**

Ensure that the following steps are done in sequence before lighting or re-lighting the pilot:

1. Turn off the manual shut-off valve on the incoming service line.
2. Turn the operating thermostat "OFF".
3. Depress the Pilot Off button (red) on the safety control valve to turn "OFF".
4. Wait at least 5 minutes for any accumulated gas to disperse.
5. Fill the frypot with oil or water to the OIL LEVEL line scribed on the frypot back.
6. Open the manual shut-off valve on the incoming service line.
7. Apply a lighted match or taper to the pilot burner head. (If fryer is equipped with a piezo ignitor, go to Step 8).
8. Press the white pilot light button on the gas valve and hold approximately 45 seconds to 1 minute, until the pilot stays lit. (If fryer is equipped with a piezo ignitor, press and hold the white pilot light button, then repeatedly press the piezo ignitor button until the pilot lights. Release the white button after approximately 45 seconds to 1 minute.)
9. If the pilot does not stay lit, depress the white pilot light button and re-light the pilot, holding the button in longer before releasing. Trapped air may necessitate re-lighting the pilot several times until a constant gas flow is attained.
10. When the pilot stays lit, release the white pilot light button.
11. Turn the thermostat to any "ON" setting and ensure the main burner ignites from the pilot.

**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 4: FRYER OPERATIONS**

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**4.1.2 Pilot Lighting Procedures, Electronic Ignition Systems**

** WARNING**

**Never use a match or taper to light pilot on this ignition system.**

1. Turn gas "ON".
2. Turn electric power "ON" with the appropriate rocker switch or controller/computer.
3. The ignition module will energize the pilot gas supply and the ignitor. The ignitor spark will ignite the pilot gas. The presence of the pilot flame is then proved by a flame sensor, which sends a signal to the main gas supply, opening the valve. The operating thermostat or computer/controller controls the fryer after ignition.

** WARNING**

**In the event of prolonged power failure, the ignition module will shut down and lock out the system. Turn the unit power "OFF" and then back "ON" after power has been re-established.**

4. If the pilot flame fails, the ignition module will shut down and lock out the system. To restart, turn the electric power off, wait approximately 5 minutes for the system to recycle itself, then turn the power on again. Repeat Steps 1-3.

**4.2 Boil-Out Procedure**

** DANGER**

**Never leave the fryer unattended during the boil-out process. If the boil-out solution boils over, turn the fryer off immediately and let the solution cool for a few minutes before resuming the process.**

** WARNING**

**Do not drain boil-out solution into a shortening disposal unit, a built-in filtration unit, or a portable filter unit. These units are not intended for this purpose, and will be damaged by the solution.**

** DANGER**

**Remove all drops of water from the frypot before filling with cooking oil or shortening. Failure to do so will cause spattering of hot liquid when the oil or shortening is heated to cooking temperature and may cause injury to nearby personnel.**

**24G SERIES FLATBOTTOM GAS FRYERS (CE)**  
**CHAPTER 4: FRYER OPERATIONS**

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## **4.2 Boil-Out Procedure (cont.)**

1. Empty frypot and pour in cleaning solution concentrate. Add water to the OIL LEVEL line scribed in the back of the frypot.
2. Operating thermostat-equipped fryers: Set dial/temperature controller to 225°F (107°C), just above that of boiling water.
3. Filtration/Boil-Mode-equipped fryers: Turn fryer power switch to "ON". Press the fryer- reset switch (if applicable). Turn the boil-out switch "ON".
4. The main burner will ignite.
5. Operating thermostat-equipped fryers: Reset the thermostat-dial to 93°C (200°F).
6. The burners should shut off, just as the boil-out solution reaches setpoint.

 **CAUTION**

**If the pilot and main burner go out, the fryer(s) *MUST* be left completely shut down at least 5 minutes before lighting.**

7. The burners will heat the boil-out solution to a simmer. Simmer the solution for approximately 45 minutes. Wearing protective gloves, scrub the bottom and sides of the frypot with the frypot brush (optional on certain models), being careful not to disturb the temperature sensing probes and the high-limit thermostat.

 **CAUTION**

**Do not leave fryer unattended. The boil-out solution may foam and overflow if fryer is left unattended. If this happens, turn thermostat and gas valve off. Resume boil out when foam dissipates.**

8. Do not allow the water level to decrease below OIL LEVEL line in frypot during boil-out operation.

24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 4: FRYER OPERATIONS

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## 4.2 Boil-Out Procedure (cont.)

 **WARNING**

**Water or boil-out solution MUST not be allowed to drain into the filter pan or filter system. Irreversible damage will result if water is allowed into the system.**

9. Operating Thermostat-equipped fryers: After boil out is complete, turn the thermostat dial to "OFF". Filtration/Boil-Mode-equipped fryers: After boil out is complete, turn the boil-out and fryer switches to "OFF". Drain the solution from the frypot. Place a metal stockpot of sufficient size to safely hold the entire contents of the frypot under the drain port to collect the water/boil-out solution. Do not allow water or boil-out solution to drain into the filter pan. The filter pump is not designed for water operation, and will be irreparably damaged (see warning statement above).
10. Refill the frypot with fresh water and vinegar to neutralize any residual boil-out solution. Wash all surfaces of the frypot. Drain completely and wipe down all surfaces of the frypot to completely eliminate water from the frypot.

**Important!**

**Refill frypot with oil or wipe frypot interior with oil immediately to prevent oxidation and rust from forming.**

**NOTE:** It is recommended that the boil-out procedure be performed each time the oil/shortening is changed.

**Computer-equipped fryers:** See computer manual for boil-out programming and follow the above procedures for boil-out.

 **WARNING**

**All drops of water MUST be removed from frypot before filling with cooking oil. Do not turn fryer on to dry...extensive damage will occur to frypot, and ALL applicable warranties will be voided.**

 **DANGER**

**Do not go near the area directly over the flue outlet while the fryer is operating.**

**Always wear oil-proof, insulated gloves when working with the fryer filled with hot oil.**

**Always drain hot oil into a metal stockpot of sufficient size to safely hold the entire contents of the frypot.**

**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
CHAPTER 4: FRYER OPERATIONS**

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### 4.3 Final Preparation

**⚠ WARNING**

**NEVER set a complete block of solid shortening in the frypot. To do so will damage the frypot, and void the warranty.**

#### 4.3.1 Filling Fryer with Cooking Oil/Shortening

1. Ensure the drain valve is closed and the drain plug is in place. When using a liquid shortening, fill the fryer to the OIL LEVEL line scribed into the back of the frypot.
2. When using a solid shortening, first melt it in a suitable container, or cut it into small pieces and pack it into the frypot. Ensure the sensor probe cover is in place to prevent damage to the sensing bulbs.
3. Operating Thermostat: Turn the burners "ON" for about 10 seconds, "OFF" for a minute, etc., until the shortening is melted. If you see smoke coming from the shortening while melting this way, shorten the "ON" cycle and lengthen the "OFF" cycle. Smoke indicates potential scorching of the shortening, which will shorten its useful life.
4. Compu-Fry Computer: Press the computer on/off switch to "ON". The burners will initially operate in the MELT CYCLE mode until the shortening reaches 82°C (180°F). It will then automatically switch to normal operation.
5. Thermatron with Melt Cycle Option Enabled: Set Thermatron to the working temperature. The burners will cycle on approximately 5 seconds, and off for approximately 15 seconds until the temperature reaches 66°C (150°F). The Thermatron will then switch to normal operation.
6. Before starting operation, set the Thermatron/Operating Thermostat or program the computer to the probable working temperature and wait for the temperature to stabilize.

**For additional computer instructions, see computer manual.**



# 24G SERIES FLATBOTTOM GAS FRYERS (CE)

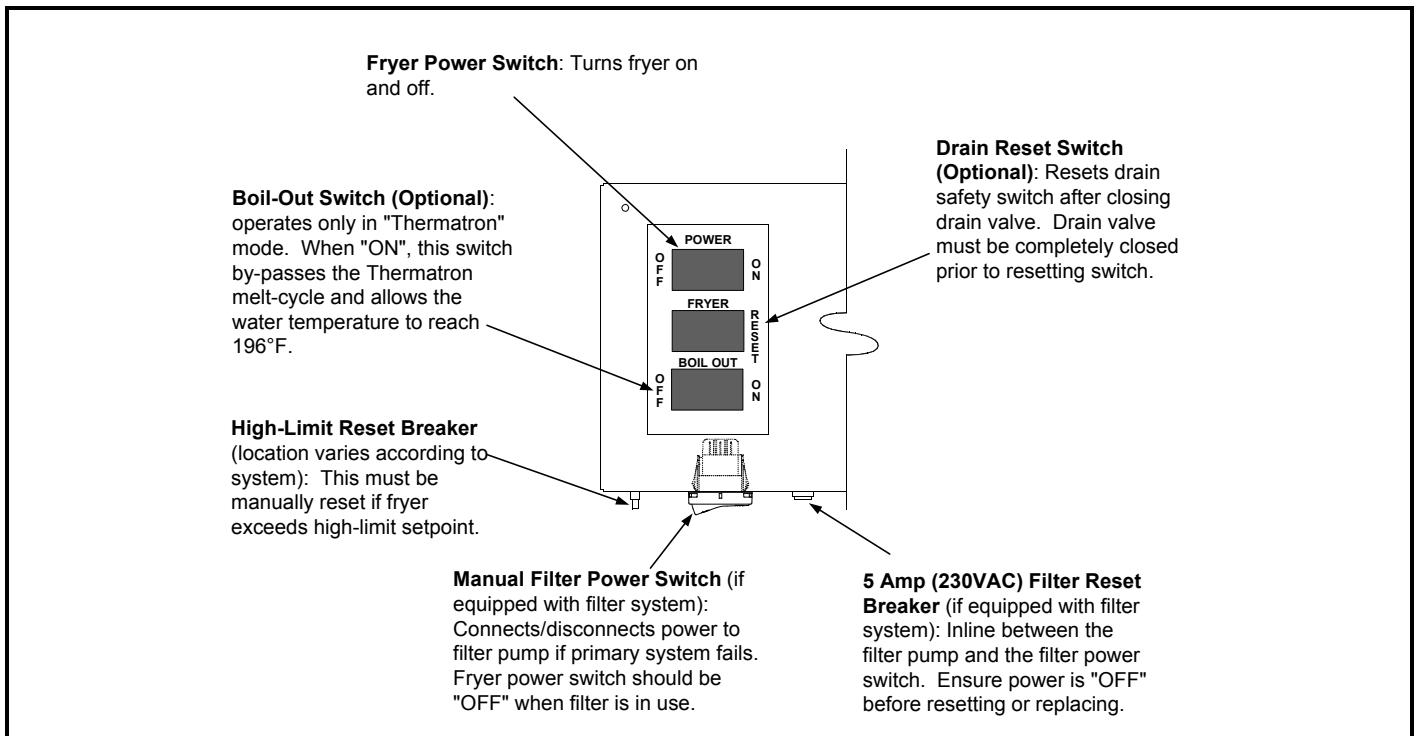
## CHAPTER 5: THERMATRON OPERATION

### 5.1 Operating Fryers with Thermatron Controllers

24G Flatbottom Series gas fryers can come equipped with a solid-state temperature controller, or Thermatron® controller instead of a computer or basic thermostat. A Thermatron system incorporates a temperature-control circuit board, a potentiometer, and a temperature probe. Thermatron systems are operated with the following controls:



Thermatron Temperature Controller



**FRYER POWER SWITCH** – This switch turns the fryer on and off. When the power switch is in the "ON" position, the indicator light will be lit when calling for heat.

**BOIL-OUT SWITCH** –operates only when in the Thermatron mode. When the Boil-Out switch is "ON", it will bypass the Thermatron melt cycle, and allow the water temperature to reach approximately 196°F.

**DRAIN RESET SWITCH (Optional)** – Resets drain safety switch after draining the fryer. Drain valve must be closed completely before resetting switch.

**24G SERIES FLATBOTTOM GAS FRYERS (CE)**  
**CHAPTER 5: THERMATRON OPERATION**

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## **5.1 Operating Fryers with Thermatron Controllers (cont.)**

**MANUAL FILTER POWER SWITCH** (if equipped with filter system) – Controls power to the filter pump in the event the primary system fails. **Fryer Power Switch should be in "OFF" position when in use.**

**HIGH-LIMIT RESET** –Located under control panel. Must be manually reset if the fryer exceeds high-limit setpoint.

**FILTER RESET BREAKER** (7 Amp Circuit Breaker- 120VAC or 5 Amp Circuit Breaker- 230VAC) – the breaker is inline between the filter switch and the pump. Ensure filter power is off prior to resetting or replacing.

**5 AMP (115VAC) or 2 AMP (230VAC) FUSE** – each fryer circuit is protected by a 5 amp (115VAC) or 2 amp (230VAC) fuse located under the control panel or inside the cabinet.

# 24G SERIES FLATBOTTOM GAS FRYERS (CE)

## CHAPTER 6: PREVENTATIVE MAINTENANCE

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### 6.1 General

 **DANGER**

**Never attempt to clean the fryer during the cooking process or when the frypot is filled with hot oil/shortening. If water comes in contact with oil/shortening heated to cooking temperature, it will cause spattering of the oil/shortening, which can result in severe burns to nearby personnel.**

Any equipment works better and lasts longer when maintained properly and kept clean. Cooking equipment is no exception. 24G Series Flatbottom gas fryers should be kept clean during the working day, and thoroughly cleaned at the end of each day. Below are recommendations for daily, weekly and periodic preventative maintenance.

#### 6.1.1 Daily

 **WARNING**

**Use a commercial grade cleaner formulated to effectively clean and sanitize food-contact surfaces. Read the directions and precautionary statements for use. Particular attention must be paid to the concentration of cleaner and the length of time the cleaner remains on the food-contact surfaces.**

- A. Remove and wash all removable parts.
- B. Clean all exterior surfaces of the cabinet. Do not use cleaners, steel wool, or any other abrasive material on stainless steel.
- C. Filter the cooking oil and replace if necessary. The oil should be filtered more frequently when under heavy use.

#### 6.1.2 Weekly

- A. Completely drain the oil from the fryer into a metal stockpot of sufficient size to safely hold the entire contents of the frypot for disposal. Do not use a glass or plastic container.
- B. Clean the frypot by following boil-out procedures in Chapter 4.2 (operating thermostat/Thermatron) or Chapter 6.2.1 (computer-equipped models).

 **WARNING**

**Never allow water to boil down and expose the frypot bottom. Frypot damage will result.**

## 24G SERIES FLATBOTTOM GAS FRYERS (CE) CHAPTER 6: PREVENTATIVE MAINTENANCE

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### 6.1.3 Periodic/Annual

This appliance should be inspected and adjusted periodically by qualified service personnel as part of a regular kitchen maintenance program.

Frymaster/Dean recommends that this appliance be inspected at least annually by a Factory Authorized Service Technician as follows:

- Inspect the cabinet inside and out, front and rear for excessive oil build-up and/or oil migration.
- Verify that the flue opening is not obstructed by debris or accumulations of solidified oil or shortening.
- Verify that burners and associated components (i.e. gas valves, pilot assemblies, ignitors, etc.) are in good condition and functioning properly. Inspect all gas connections for leaks and verify that all connections are properly tightened.
- Verify that the burner manifold pressure is in accordance with that specified on the appliance's rating plate.
- Verify that the temperature and high-limit probes are properly connected, tightened and functioning properly, and that mounting hardware and probe guard are present and properly installed.
- Verify that component box components (i.e. computer/controller, transformers, relays, interface boards, etc.) are in good condition and free from oil migration build-up and other debris. Inspect the component box wiring and verify that connections are tight and that wiring is in good condition.
- Verify that all safety features (i.e. drain safety switches, reset switches, etc.) are present and functioning properly.
- Verify that the frypot/cookpot is in good condition and free of leaks and that the frypot/cookpot insulation is in serviceable condition. Verify that the frypot tube diffusers are present and in good condition (i.e. no visible deterioration or damage).
- Verify that wiring harnesses and connections are tight and in good condition.

### 6.1.4 Stainless Steel Care

 **WARNING**

**DO NOT let water splash into the tank of hot oil. It will splatter and can cause severe burns.**

All stainless steel fryer cabinet parts should be wiped regularly with hot, soapy water during the day, and with a liquid cleanser designed for stainless steel at the end of each day.

- A. Do not use steel wool, abrasive cloths, cleansers or powders.
- B. Do not use a metal knife, spatula or any other metal tool to scrape stainless steel! Scratches are almost impossible to remove.
- C. If it is necessary to scrape the stainless steel to remove any encrusted materials, soak the area first to soften the deposit, then use a wood or nylon scraper only.

# 24G SERIES FLATBOTTOM GAS FRYERS (CE)

## CHAPTER 7: TROUBLESHOOTING

**⚠ DANGER**

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

**⚠ DANGER**

**This equipment should be unplugged when servicing, except when electrical circuit tests are required. Use extreme care when performing such tests.**

**This appliance may have more than one electrical power supply connection point. Disconnect all power cords before servicing.**

**Inspection, testing and repair of electrical components should be performed by an authorized service agent only.**

### 7.1 PILOT BURNER MALFUNCTIONS

PROBLEM	CORRECTIVE ACTION
<p><b>Pilot will not ignite; no evidence of gas at pilot burner.</b></p>	<ol style="list-style-type: none"> <li>1. Ensure the combination gas valve is open and that gas is available at the control.</li> <li>2. Remove pilot gas supply line and check for dirt. Blow out with compressed air if necessary, then reinstall.</li> <li>3. Check pilot burner orifice for dirt.</li> </ol>
<p><b>Pilot burner ignites but will not remain lit when gas knob is released.</b></p>	<ol style="list-style-type: none"> <li>1. Check that the lead from the thermocouple is tightly screwed into the pilotstat power bushing on the gas control.</li> <li>2. Remove end of thermocouple lead from pilotstat power unit bushing and clean with fine sandpaper. Also check that bushing is clean.</li> <li>3. Thermocouple possibly defective; replace.</li> <li>4. Pilot flame may be either too high or too low. Adjust flame by turning pilot flow adjustment.</li> <li>5. Pilot flame of proper size but unstable. Flame wavers and does not envelop the thermocouple completely at all times. Check for drafts, which might be caused by air conditioning equipment or make-up air apparatus. Turn air units off and re-check the pilot.</li> </ol>

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**7.1 PILOT BURNER MALFUNCTIONS (cont.)**

PROBLEM	CORRECTIVE ACTION
<p><b>Pilot burner ignites properly and burns properly, but goes out when the exhaust blower comes on.</b></p>	<ol style="list-style-type: none"> <li>1. Pilot flame may be adjusted too low, even though it appears to be satisfactory. Re-adjust higher as described earlier.</li> <li>2. Pilot flame may be adjusted too high and is on the verge of blowing out. Re-adjust lower.</li> <li>3. With the exhaust blower in operation, the extra air causes the pilot to blow out. Re-adjust lower.</li> </ol>

**7.2 MAIN BURNER MALFUNCTIONS**

PROBLEM	CORRECTIVE ACTION
<p><b>Main burner will not come on even though air blower is in operation; no gas pressure at main burner.</b></p>	<ol style="list-style-type: none"> <li>1. Check that the combination gas valve is open.</li> <li>2. Check that the pilot is lit and is operating properly.</li> <li>3. The gas control may be defective; replace if necessary.</li> <li>4. Check high temperature safety switch. Replace if defective.</li> <li>5. Check sail switch as follows:  Move actuating lever at switch to ensure it is not dragging in the slots (use long tool to avoid burns). If so, bend the arm carefully to clear the obstruction. Check the sail switch for continuity and replace if defective.</li> </ol>
<p><b>Air blower is not operating, although power is present at the fryer.</b></p>	<ol style="list-style-type: none"> <li>1. Cooked product or other material may have fallen into the flue and lodged in the blower wheel, preventing it from turning. Clean out flue and blower wheel.</li> <li>2. Blower motor may have overheated and shut off on thermal overload. This condition will correct itself when motor cools (20 minutes). If problems with blower overheating persist, call for service.</li> <li>3. If fryer is equipped with a Thermatron Controller, the temperature probe or the Thermatron board may be defective. Call for service.</li> </ol>

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**7.2 MAIN BURNER MALFUNCTIONS (cont.)**

PROBLEM	CORRECTIVE ACTION
<b>Main burner flames are small and appear lazy; Frying compound does not come up to temperature quickly.</b>	1. <u>Authorized Service Agent Only</u> : Check gas pressure at the pressure tap of the gas control. Use a standard water-type U-gauge manometer. With the burner in operation, the pressure should be about 10 mbar on natural and 27.5 mbar on propane gases. If not, unscrew the cover of the pressure regulator adjustment and turn the adjusting screw clockwise to increase gas pressure (or counterclockwise to decrease the pressure). Replace cover and plug.
<b>Signs of excessive fry vessel temperature; Oil/shortening quickly becomes discolored.</b>	1. Check operating thermostat; may be out of calibration. Recalibrate in accordance with instructions packaged with thermostat. 2. Check probe adjustment. Probe should be 1/8" or less to bottom of frypot (see illustration on page 4-1) 3. <u>Authorized Service Agent Only</u> : Check gas pressure. 4. Cooking oil/shortening of inferior quality or used too long. Replace with quality oil/shortening. 5. <u>Authorized Service Agent Only</u> : May be a short circuit in system. Check wiring.

**7.3 THERMATRON CALIBRATION**

If the Thermatron controller requires adjustment, do the following:

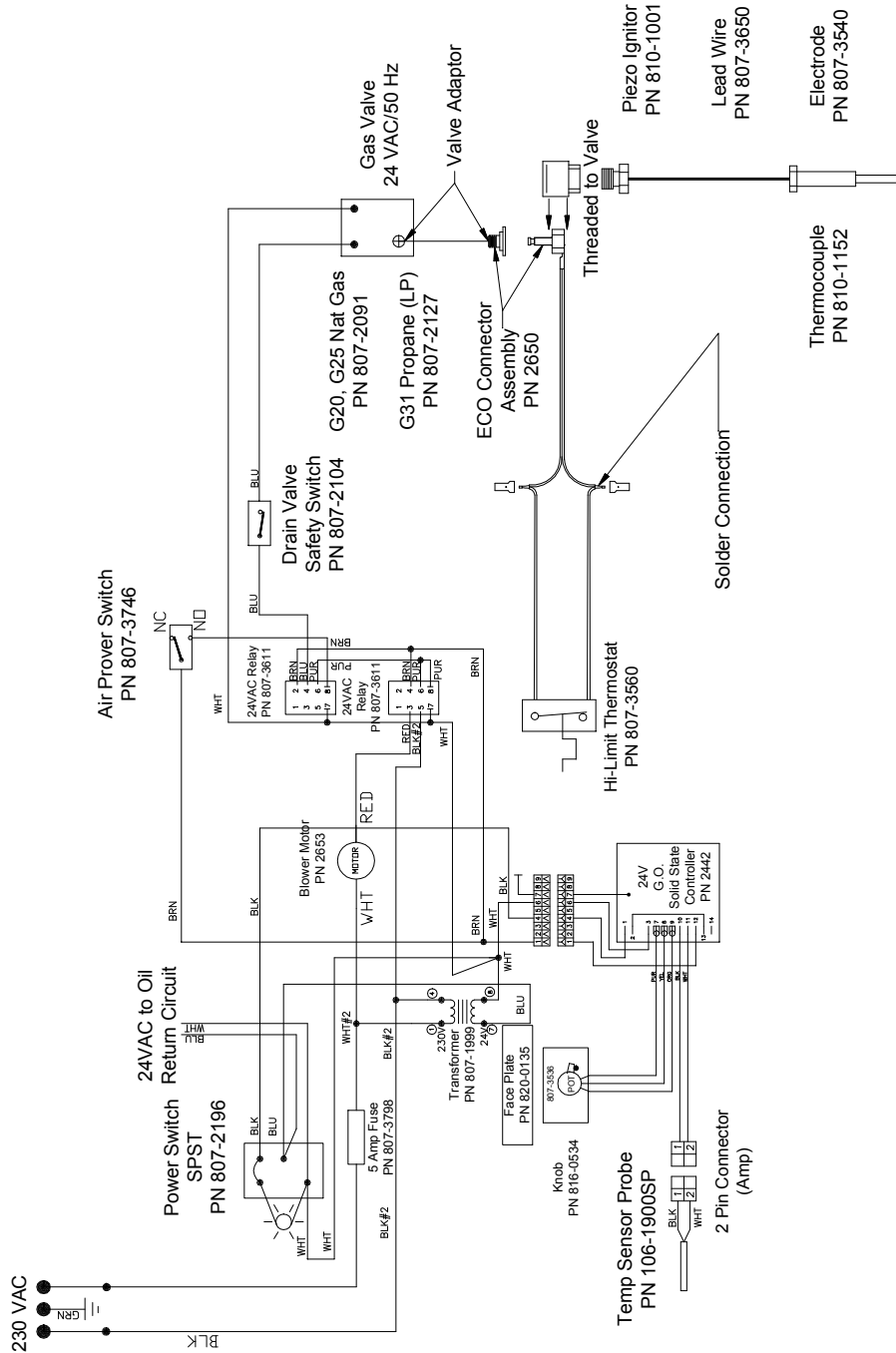
1. Set Thermatron controller dial to the desired shortening temperature and wait for the shortening temperature to stabilize.
2. When shortening temperature reaches setpoint (burners will cycle on and off, indicating setpoint temperature has been reached), check the temperature with a high-quality immersion thermometer.
3. Loosen the knob setscrew and rotate the knob to the correct temperature setting on the Thermatron faceplate.
4. Check the temperature again with a high-quality immersion thermometer to confirm that the setting is correct.
5. Re-tighten the knob setscrew at the calibrated position.

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## 7.4 WIRING DIAGRAMS

**Note:** The diagrams 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.

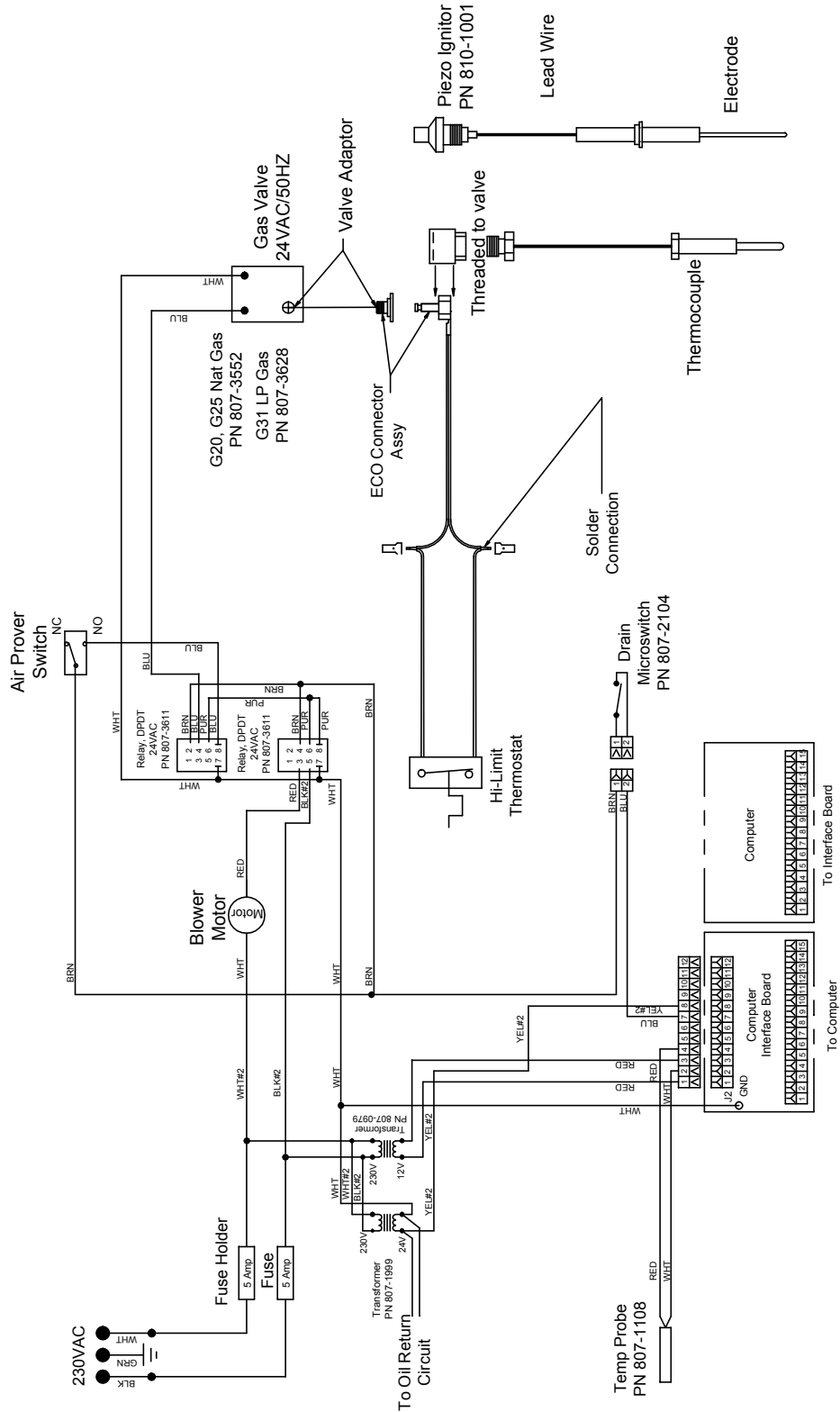
### 7.4.1 24G Series With Thermatron





# 24G SERIES FLATBOTTOM GAS FRYERS (CE) CHAPTER 7: TROUBLESHOOTING

## 7.4.2 24G Series With Computer



**24G SERIES FLATBOTTOM GAS FRYERS (CE)  
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## **7.5 RECOMMENDED SPARE PARTS**

Commonly replaced parts in older 24G Flatbottom Series gas fryers are:

Gas Valve- G20/G25- 807-2091  
Gas Valve- G31- 807-2127  
High-Limit Thermostat- 807-3560  
Thermocouple- 810-1152  
Temperature Sensor Probe- 106-0882SP  
Theratron Board- 807-3722  
Power Switch- 807-3574  
Boil-Out Switch (6-Terminal)- 807-3579  
Fryer Reset Switch (Momentary)- 807-3576  
Manual Filter Power Switch- 807-3580  
Blower Motor- 2653-1  
Sail Switch- 826-1773  
Ignition Module- 807-3554  
Ignitor Assembly- 106-1643SP  
Ignition Cable- 106-1644SP  
Sense Wire- 106-1645SP

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