



Models 1824G & 2424G

24G Series Flatbottom Gas Fryers Installation & Operation Manual



DEAN

NON-CE &



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

24-Hour Service Hotline 1-800-551-8633

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*** 8196000 ***

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.

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. See NATIONAL CODE REQUIREMENTS in Chapter 3 of this manual for specifics.

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

IF, DURING THE WARRANTY PERIOD, THE CUSTOMER USES A PART FOR THIS ENODIS EQUIPMENT OTHER THAN AN UNMODIFIED NEW OR RECYCLED PART PURCHASED DIRECTLY FROM FRYMASTER/DEAN, OR ANY OF ITS AUTHORIZED SERVICE CENTERS, 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 SERVICE CENTER.



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. 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 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**

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 National or European Community (CE) Standards.



24G Series Flatbottom Gas Fryers

Installation & Operation Manual

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24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 1: INTRODUCTION

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 all EU countries.

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.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 1: INTRODUCTION

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

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

WARNING

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.

DANGER

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.

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.

B. Qualified Installation Personnel

1. Qualified installation personnel are individuals, or firms, corporations, or companies, which, either in person or through a representative are engaged in and are responsible for the installation of gas-fired appliances. Qualified personnel must be experienced in such work, be familiar with all gas precautions involved, and have complied with all requirements of applicable national and local codes.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 1: INTRODUCTION

1.5.1 Definitions (cont.)

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.***

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 2: IMPORTANT INFORMATION

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.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 2: IMPORTANT INFORMATION

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:	18 x 24 inches (45.7 x 61 cm)	24 x 24 inches (61 x 61 cm)
Oil Capacity:	45-70 lb (23-35 kg)	65-90 lb (33-45 kg)
ENERGY REQUIREMENTS: Gas [Natural or Propane (G20/25 & G31)]: Electrical, Non-CE: Electrical, CE:	120,000 BTU/Hr (30,7 kcal; 35,1 kW) 115V/60~1Ø 230V/50~1Ø	
APPROXIMATE SHIPPING WEIGHT (lb): (kg):	285 129	300 138

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 2: IMPORTANT INFORMATION

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

Dean 24G Series Flatbottom gas fryers come standard with an electronic thermostat for reliable temperature control. Fryers can be ordered with boil-out feature (optional- available only with electronic thermostat controller).

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.
- Air prover 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, BTU/hr (kW/hr) of the burners, outlet gas pressure in BTU/hr (kW/hr), 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, BTU/hr (kW/hr) of the burners, outlet gas pressure in inches W.C. (mbars) 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.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 2: IMPORTANT INFORMATION

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 120 VAC (Non-CE), or 230VAC (CE), 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 6-inch (15-cm) adjustable legs or optional 5-inch (13-cm) casters;
 3. Combustible construction with a minimum clearance of 6-inch (15 cm) side and 6-inch (15 cm) rear, and equipped with factory-supplied 6-inch (15-cm) adjustable legs or optional 5-inch (13-cm) casters.

 DANGER

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

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 2: IMPORTANT INFORMATION

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.
2. NON-CE INSTALLATION STANDARDS: Fryer installation must conform with local codes, or in the absence of local codes, to the appropriate national standards as listed below:

a. <u>U.S. installations must meet:</u> American National Standard Institute ANSI Z83.11 American Gas Association 8501 E. Pleasant Valley Road Cleveland, OH 44131 National Electrical Code ANSI/NFPA #70 American National Standard Institute 1430 Broadway New York, NY 10018 NFPA Standards #96 and #211 National Fire Protection Association 470 Atlantic Avenue Boston, MA 02110	b. <u>Canadian installations must meet:</u> CAN 1-B149 Installation Codes Canadian Gas Association 55 Scarsdale Road Don Mills, ONT, M3B 2R3 Canadian Electric Code c22.1, part 1 Canadian Standards Association 178 Rexdale Blvd. Rexdale, ONT, M9W 1R3 c. <u>Australian installations must meet:</u> AS5601/AG601 Installation Codes Standards Australia International 25 Raglan Street South Melbourne, VIC 3205
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2.6 Equipment Installed at High Altitudes

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

24G SERIES FLATBOTTOM GAS FRYERS
CHAPTER 2: IMPORTANT INFORMATION

2.7 Air Supply and Ventilation



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 500-600°F (260-316°C). 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 500°F (260°C) 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 18 inches (45-cm) 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.

2.8 Conversion of Units (CE Systems)

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

CHAPTER 3: INSTALLATION INSTRUCTIONS

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.



CAUTION

Fryers may not function properly if curb mounted. Do not curb mount Dean 24G Series Flatbottom gas fryers.



DANGER

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 is 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. Install locking casters on the front channel assembly.
4. Proceed to Step 3.3, Leveling the Fryer, after legs and rear rigid casters are installed.

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

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. Ensure the weight is evenly distributed to avoid damaging the channel assemblies.
3. Place one lock washer on each hex head screw.
4. Insert hex head screws with lock washers [1/4-20 threads by ¾" 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 50 inch-lbs. (5.65 Nm) 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 1-1/16-inch (27 mm) 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 1-inch (25.4 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.

24G SERIES FLATBOTTOM GAS FRYERS
CHAPTER 3: INSTALLATION INSTRUCTIONS

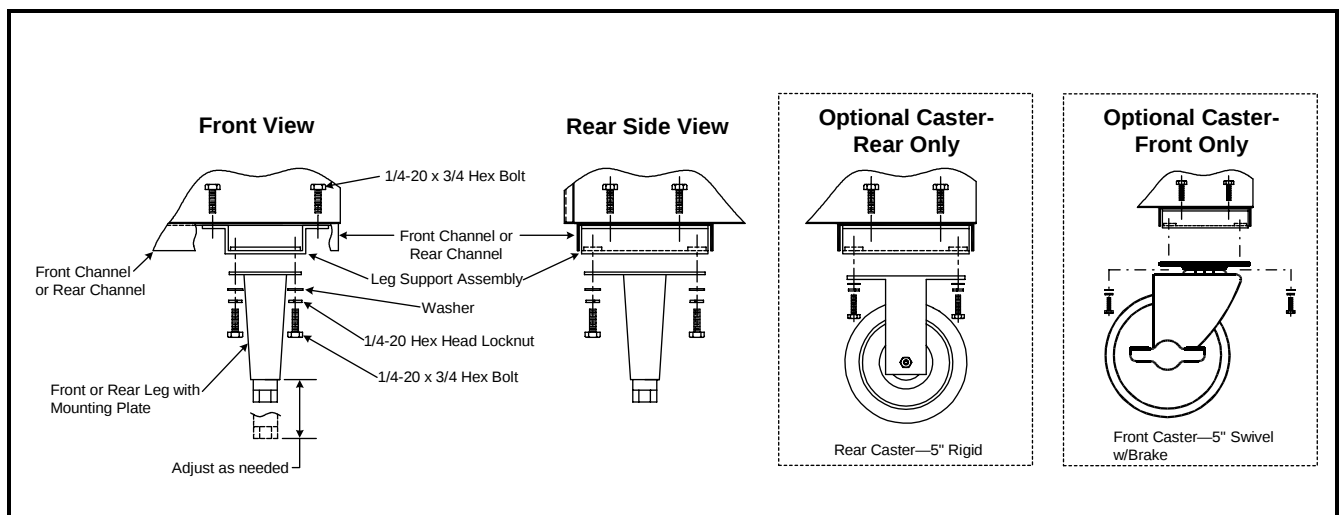
3.3 Leveling the Fryer (cont.)

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

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 3: INSTALLATION INSTRUCTIONS

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.

DANGER

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

CE REQUIREMENTS

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

COUNTRIES	CATEGORIES	GAS	PRESSURE (MBAR)
GERMANY (DE)	II2ELL3B/P	G20/G25; G30/G31	20 50
	I3P	G31	50
AUSTRIA (AT)	II2H3B/P	G20; G30/G31	20 50
BELGIUM (BE)	II2E(R)B	G20/G25	20/25
	I3+	G30/G31	28-30/37
DENMARK (DK) FINLAND (FI) SWEDEN (SE)	II2H3B/P	G20; G30/G31	20 30
SPAIN (ES) GREECE (GR) ITALY (IT) IRELAND (IE) PORTUGAL (PT) UNITED KINGDOM (GB)	II2H3+	G20; G30/G31	20 28-30/37
SPAIN (ES)	II2H3P	G20; G31	20 37 AND 50
FRANCE (FR)	II2Esi3+	G20/G25; G30/G31	20/25 28-30/37
	II2Esi3P	G20/G25; G31	20/25 50
LUXEMBOURG (LU)	II2E3B/P	G20; G30/G31	20 50
NETHERLANDS (NL)	II2L3P	G25; G31	25 50
	II2L3B/P	G25; G30/G31	25 30

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 3: INSTALLATION INSTRUCTIONS

3.4 Gas Connections (cont.)

NATIONAL CODE REQUIREMENTS: NON-CE

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 U.S. Food and Drug Administration.

This equipment is manufactured to use the type of gas specified on the rating plate attached to the door. Connect equipment stamped "NAT" only to natural gas and that stamped "PRO" only to LP (Propane) gas.

Australia Only: Installation is to be in accordance with the requirements of AS5601/AG601, local regulatory authority requirements and other statutory regulations.

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.

Installation shall be made with a gas connector that complies with national and local codes. Quick disconnect devices, if used, shall likewise comply with national and local codes.

DANGER

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.

The gas supply (service) line must be the same size or greater than the fryer inlet line. Dean 24G Series gas fryers are equipped with a 3/4" (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.

Recommended Gas Supply Line Sizes			
Gas Types	Number of Fryers		
	1	2 to 3	4 or more (*)
Natural Gas	3/4" (22 mm)	1" (28 mm)	1-1/4" (35 mm)
Propane Gas	1/2" (15 mm)	3/4" (22 mm)	1" (28 mm)
(*) When exceeding 18 feet (6 meters) for a configuration of more than four fryers, it is necessary to provide a 1 1/4" (35 mm) rigid gas connection.			

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

3.4 Gas Connections (cont.)

 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.

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 propane/LP (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.

 WARNING

If the incoming gas pressure is in excess of ½" PSI (3.45 kPa/35 mbar), a step-down regulator will be required.

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 ½" PSI (3.45 kPa/35 mbar), **a step-down regulator will be required.**

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

3.4 Gas Connections (cont.)

 DANGER

When pressure-testing incoming gas supply lines, disconnect the fryer from the gas line if the test pressure is ½" PSI [14" W.C. (3,45 kPa)] 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 3-10 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.

- 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. CE Only: 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

24G SERIES FLATBOTTOM GAS FRYERS
CHAPTER 3: INSTALLATION INSTRUCTIONS

3.4 Gas Connections (cont.)

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 3/4" (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 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.

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.

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

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.

 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.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 3: INSTALLATION INSTRUCTIONS

3.6 Gas Inputs

CE UNITS ONLY:

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	810-2628	3/BUE
		G25	2,50	810-2628	3/BUE
		G31	1,60	810-2317	3/RED
†Orifice size listed is for fryers operating at altitudes of 610 meters or less.					

Adjustments for different gases are as follows:

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

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 3-13. (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.

NON-CE UNITS ONLY:

Nominal Heat Inputs (Qn), Gas Type, Orifice Size, Gas Pressures and Adjustments, Orifice Quantity, Pilot Markings and Burner Adjustments are listed in the table below:

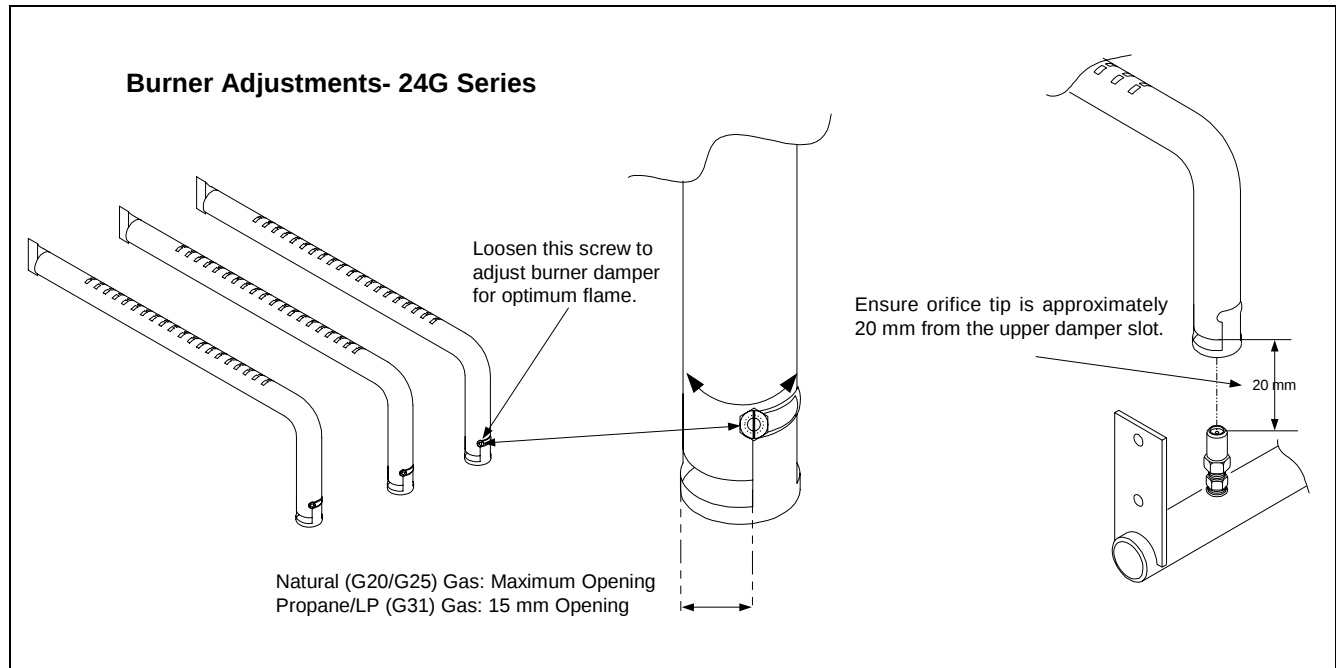
MODEL	NOMINAL HEAT INPUT- Qn (BTU)	GAS TYPE	ORIFICE SIZE [MM (Drill Size)]	MANIFOLD GAS PRESSURE (INCH W.C.)	ORIFICE QUANTITY	PILOT MARKING	BURNER AIR ADJUSTMENT (SEE ILLUSTRATION PAGE 3-11)
24G Series (All)	120	NAT LP	2.82(#34)	4	3	26N	Opening- Maximum
			1.78(#50)	11	3	16LP	Opening- 15-mm

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 3: INSTALLATION INSTRUCTIONS

3.6 Gas Inputs (cont.)

Gas Type	Orifice Part Number*
Natural	810-2051
Propane	810-2317
* Orifice sizes are listed for altitudes of 2000 feet and less.	



⚠ 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.

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 3-13 for gas valve illustration when performing gas conversion procedures.

24G SERIES FLATBOTTOM GAS FRYERS
CHAPTER 3: INSTALLATION INSTRUCTIONS

3.7 Gas Conversion Procedures (cont.)

CE UNITS ONLY:

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 propane/LP G31 (or vice-versa) gas, 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.

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.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 3: INSTALLATION INSTRUCTIONS

3.7 Gas Conversion Procedures (cont.)

NON-CE UNITS ONLY:

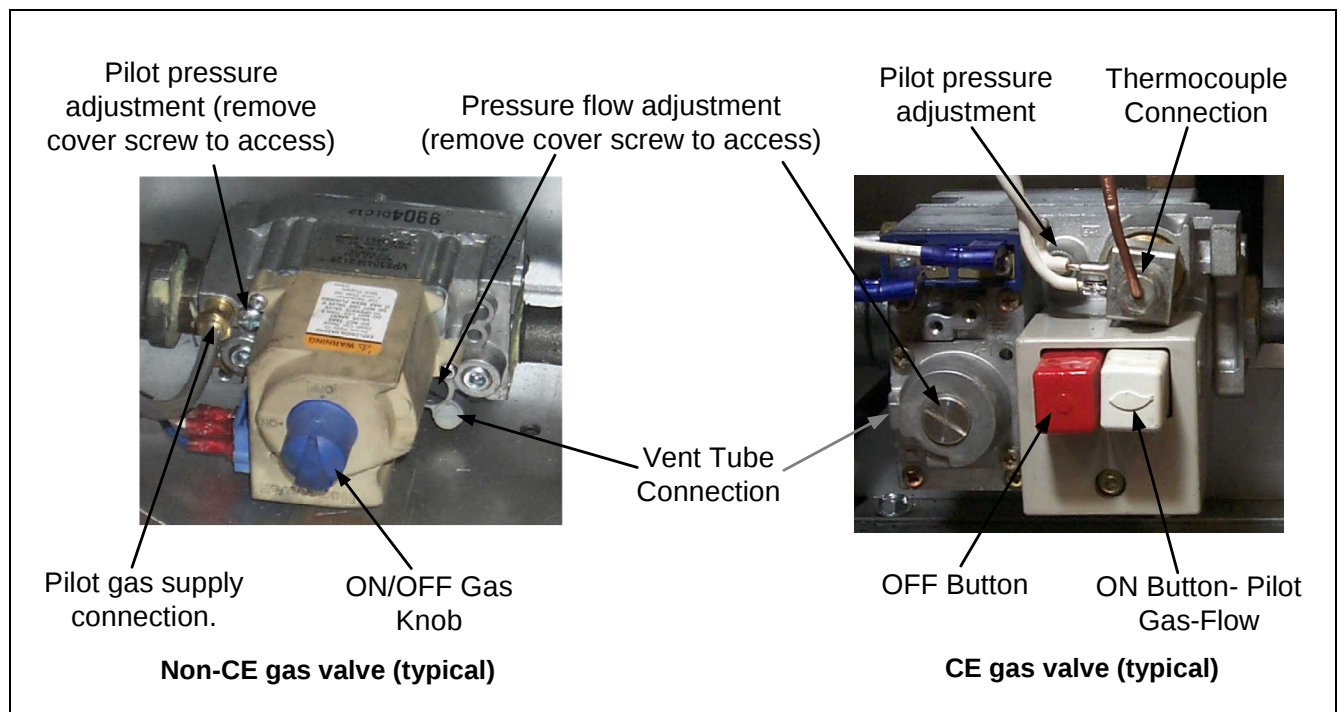
See gas valve illustration below for reference when performing gas valve conversions.

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

- ◆ Burner orifices and pilot orifice **MUST** be replaced (see page 3-11 for required component part numbers).
- ◆ Adjust orifice gas pressure by turning the gas-valve adjustment screw (see page 3-11 for gas types and pressures).
- ◆ 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.

Conversion from one gas family to another (i.e. changing from natural gas to propane) requires special components. Obtain the necessary components using the tables on page 3-11.

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



24G SERIES FLATBOTTOM GAS FRYERS
CHAPTER 3: INSTALLATION INSTRUCTIONS

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.

Natural Gas to Propane Components		Propane To Natural Gas Components	
REF	DESCRIPTION	REF	DESCRIPTION
810-2400	Pilot orifice (16LP)	810-0811	Pilot orifice (26N)
Burner orifice* (See Tables on Pages 3-10 – 3-11)		Burner orifice* (See Tables on Pages 3-10 – 3-11)	
New Rating Plate	Contact factory at time of conversion.	New Rating Plate	Contact factory at time of conversion.
* Burner orifices listed on pages 3-10 – 3-11 are for fryers operating at altitudes of 2000 feet (610 meters) or less. For altitudes greater than 2000 feet (610 meters), contact the factory for the correct orifice size.			

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 115VAC single-phase 60-hertz (Non-CE), or 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

CHAPTER 4: FRYER OPERATIONS

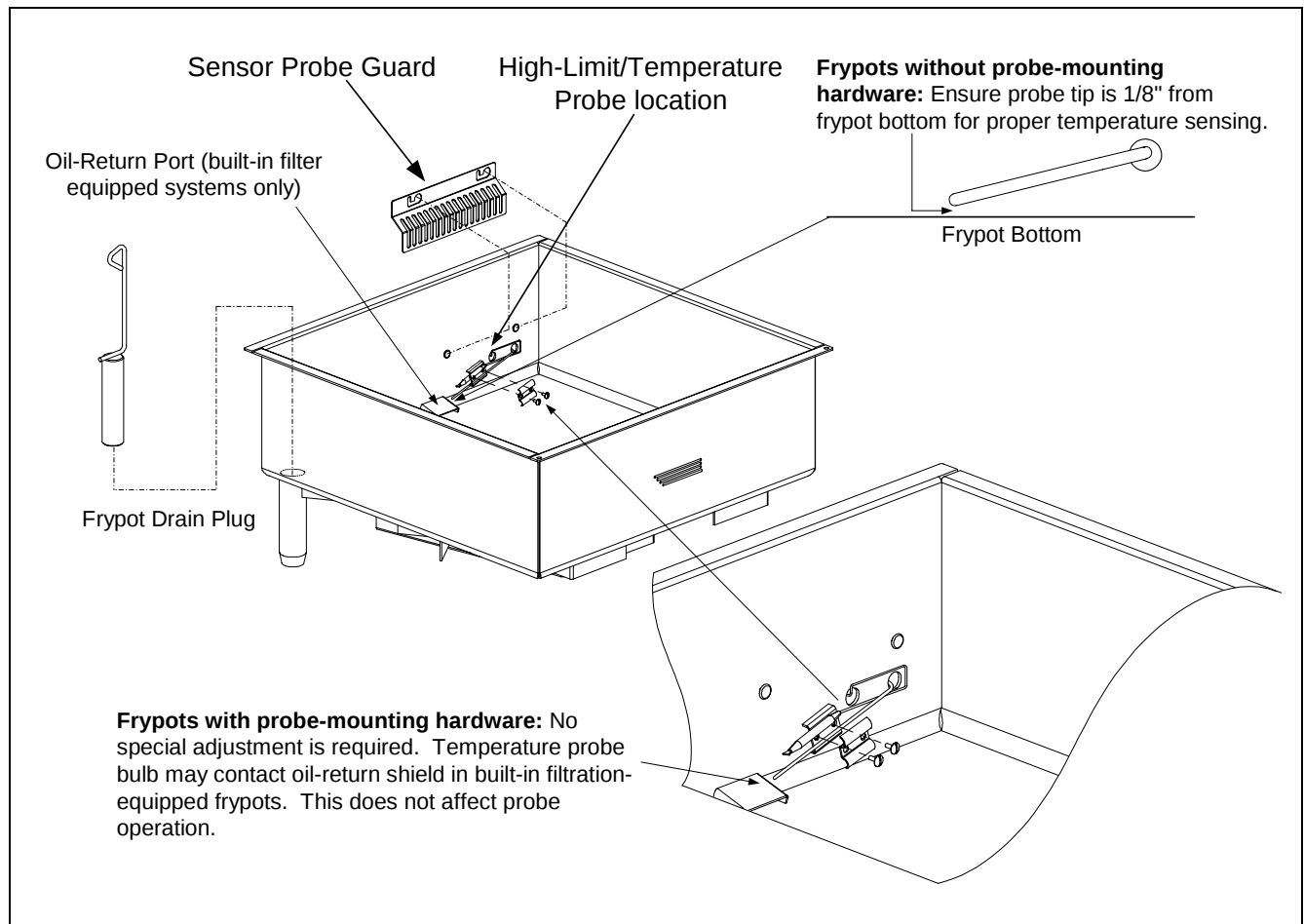
4.1 Initial Start-up

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).

NOTE: Current production units are equipped with a probe clamp that holds the sensor bulbs in the proper position. Probe adjustment is not normally required.



24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 4: FRYER OPERATIONS

4.1.1 Pilot Lighting Procedures, Standing Pilot



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.

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.

CE Units Only:

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 Thermatron controller to the lowest setting.
3. Depress the red button 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 appropriate 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).

24G SERIES FLATBOTTOM GAS FRYERS

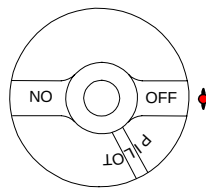
CHAPTER 4: FRYER OPERATIONS

4.1.1 Pilot Lighting Procedures, Standing Pilot (cont.)

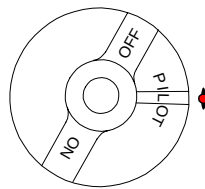
8. Press the white pilot light button on the gas valve and hold approximately 45 seconds to 1 minute, until the pilot stays lit. (If fryer is equipped with a piezo ignitor, press and hold the white pilot light button, then repeatedly press the piezo ignitor button until the pilot lights. Release the 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 in the lines 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.

NON-CE UNITS ONLY:

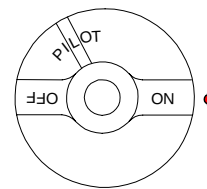
120V/230V Gas Valves: Rotate the knob counter-clockwise to the ON or PILOT positions. Depress and rotate the knob clockwise to turn the gas valve to OFF.



Off position



Pilot position



On position

The pilot is located at the right burner tube, at the base of the frypot. Use a long match or taper to light the pilot. Perform the following steps in sequence before lighting the pilot:

1. Turn off the manual shut-off valve on the incoming gas supply line.
2. Turn the Thermatron controller to the lowest setting.
3. Depress and turn the gas valve knob to the Off position.
4. Wait at least 5 minutes for any accumulated gas to disperse.

Note: Inspect high-limit thermostat/temperature probe location prior to filling frypot with water or oil. Ensure that connecting hardware is intact and bulbs are properly attached.

5. Fill the frypot with oil or water to the appropriate oil level line scribed on the frypot back.
6. Open the manual shut-off valve on the incoming gas supply line and rotate the gas valve knob to the PILOT position.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 4: FRYER OPERATIONS

4.1.1 Pilot Lighting Procedures, Standing Pilot (cont.)

7. Push and hold the knob in and apply a lighted match or taper to the pilot burner head. Continue to hold the knob in for about 60 seconds after the flame appears on the pilot. Release the knob. The pilot should remain lit.

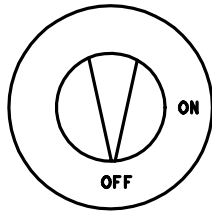
4.1.2 Pilot Lighting Procedures, Electronic Ignition Systems



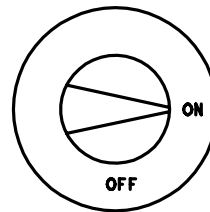
WARNING

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

24V Gas Valves for Electronic Ignition: Rotate the knob counter-clockwise to the ON position. Rotate the knob clockwise to turn the gas valve to OFF.



Off position



On position

1. Turn gas valve knob to ON.
2. Turn electric power on with the appropriate rocker switch.
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 Thermatron 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.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 4: FRYER OPERATIONS

4.2 Boil-Out Procedure

NOTE: Consult store operational procedures to ensure that frypot boil-out is an approved procedure before proceeding.

 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.

 WARNING

Leave fryer OFF for a minimum of 10 minutes prior to filtering to allow frypot heat to dissipate. Frypot damage can occur if the shortening is drained immediately after turning fryer off.

1. Empty frypot and pour in cleaning solution concentrate. Add water to the upper oil level line scribed in the back of the frypot.
2. Thermatron Controller-Equipped Fryers: Set temperature dial 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 to On.
4. The main burner will ignite.
5. Thermatron Controller-Equipped Fryers: Reset the controller-dial to 200°F (93°C).
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 and high-limit thermostat sensing probes.

24G SERIES FLATBOTTOM GAS FRYERS
CHAPTER 4: FRYER OPERATIONS

4.2 Boil-Out Procedure (cont.)

 CAUTION

Do not leave fryer unattended. The boil-out solution may foam and overflow. If this happens, turn the Thermatron dial to the lowest setting and the power switch "Off". Resume boil out when foam dissipates.

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

 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. Thermatron Controller-Equipped Fryers: After boil out is complete, turn the Thermatron dial to the lowest setting and turn fryer power switch 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.
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 eliminate water from the frypot.

IMPORTANT!

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

 WARNING

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

Allow oil/shortening to cool to 100°F (38°C) before draining into an appropriate container for disposal.

NOTE: Where approved, it is recommended that the boil-out procedure be performed each time the oil is changed.

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 4: FRYER OPERATIONS

4.3 Final Preparation

 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.

 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 appropriate oil level line scribed into the back of the frypot.
2. When using a solid shortening, cut the shortening into small pieces and pack it into the frypot, leaving no air spaces. Ensure the sensor probe cover is in place to prevent damage to the sensing bulbs.
3. Thermatron Controller with Melt Cycle Option Enabled: Set the Thermatron controller to the desired working temperature. The burners will cycle on approximately 5 seconds, and off for approximately 15 seconds until the temperature reaches 150°F (66°C). The Thermatron controller will then switch to normal operation.
4. Before starting operation, set the Thermatron controller to the probable working temperature and wait for the temperature to stabilize.

24G SERIES FLATBOTTOM GAS FRYERS

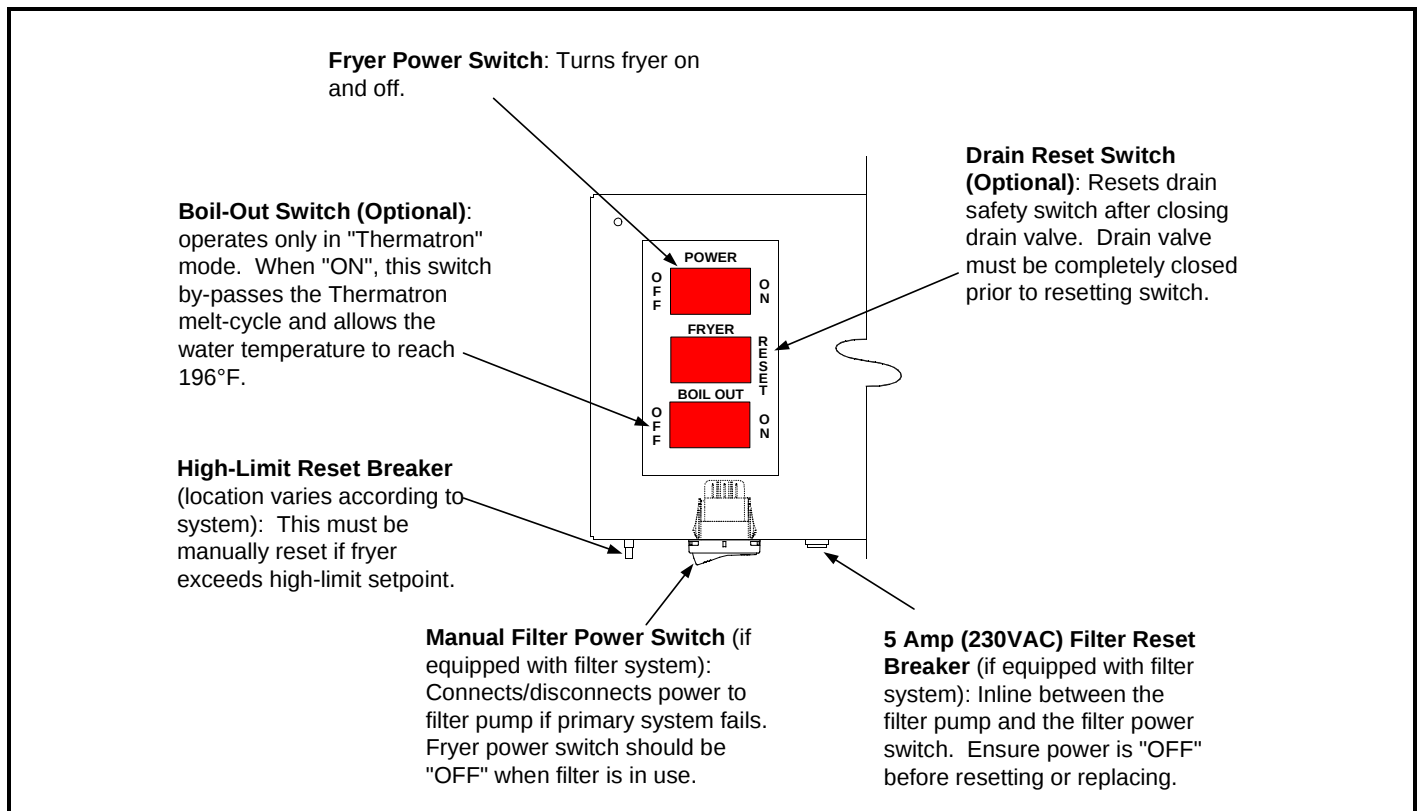
CHAPTER 5: CONTROLLER OPERATION

5.1 Operating Fryers with Thermatron Controllers

24G Series Flatbottom gas fryers come equipped with a solid-state Thermatron or electronic thermostat controller, and are operated with the following controls:



Thermatron 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 (Optional) – When the Boil-Out switch is "ON", it will bypass the melt cycle, and allow the water temperature to reach approximately 196°F (91°C).

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

5.1 Operating Fryers with Thermatron Controllers (cont.)

MANUAL FILTER POWER SWITCH (older systems with built-in filtration) – 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

CHAPTER 6: PREVENTATIVE MAINTENANCE

6.1 General



DANGER

Never attempt to clean the fryer during the cooking process or when the frypot is filled with hot oil or shortening. If water comes in contact with oil or shortening heated to cooking temperature, it will cause spattering, 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 (if allowed).



WARNING

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

24G SERIES FLATBOTTOM GAS FRYERS

CHAPTER 6: PREVENTATIVE MAINTENANCE

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 the 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 and firebox baffles 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.

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CHAPTER 6: PREVENTATIVE MAINTENANCE

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.

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CHAPTER 7: TROUBLESHOOTING

NOTE: Refer to the wiring diagram affixed inside the fryer cabinet door when troubleshooting electrical components.

 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
Pilot will not ignite; no evidence of gas at pilot burner.	1. Ensure the combination gas valve is in PILOT position and that gas is available at the valve (check quick-disconnect and/or gas-line connections). 2. Remove pilot gas supply line and check for obstructions. Blow out with compressed air if necessary, then reinstall. 3. Check pilot burner orifice for obstructions.
Pilot burner ignites but will not remain lit when gas knob is released.	1. Check that the lead from the thermocouple is tightly screwed into the pilotstat bushing on the gas control valve. 2. Remove end of thermocouple lead from pilotstat bushing and clean with fine sandpaper. Ensure the bushing is clean. 3. Thermocouple possibly defective (millivolt output should be 12-28mv); replace. 4. Pilot flame may be incorrectly adjusted. Adjust flame to 1-½" high by turning pilot flow adjustment screw.

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CHAPTER 7: TROUBLESHOOTING

7.1 Pilot Burner Malfunctions (cont.)

PROBLEM	CORRECTIVE ACTION
Pilot burner ignites properly and burns properly, but goes out when the exhaust blower comes on.	1. Pilot flame may be adjusted too low, even though it appears to be satisfactory. Re-adjust higher as described previously. 2. Pilot flame may be adjusted too high and is on the verge of blowing out. Re-adjust lower. 3. With the exhaust blower in operation, the extra air causes the pilot to blow out. The pilot assembly may be too low between the burners. Adjust the pilot assembly to where the pilot hood is above the burners.

7.2 Main Burner Malfunctions

PROBLEM	CORRECTIVE ACTION
Main burner will not come on even though air blower is in operation; no gas pressure at main burner.	1. Check that the combination gas valve is ON. 2. Check that the pilot is lit and is operating properly. 3. Check high-limit switch. Replace if defective. 4. Check air prover switch (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 air prover switch for continuity and replace if defective.
Air blower is not operating, although power is present at the fryer.	1. Cooked product or other material may have fallen into the flue and lodged in the blower wheel, preventing it from turning. Remove debris and clean flue and blower wheel. 2. Blower motor may have overheated and shut off on thermal overload. Allow motor to cool (20 minutes) for condition to correct itself. If problems with blower overheating persist, call for service. 3. The temperature probe or interface board may be defective. Call for service.

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CHAPTER 7: TROUBLESHOOTING

7.2 Main Burner Malfunctions (cont.)

PROBLEM	CORRECTIVE ACTION
Main burner flames are small and appear lazy; Oil or shortening does not come up to temperature quickly.	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 3.5 – 4" W.C. (10 mbar) on natural and 14" W.C. (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 regulator adjustment cover.
Signs of excessive frypot temperature; oil or shortening quickly becomes discolored.	1. Check Thermatron controller; may be out of calibration. Re-calibrate in accordance with instructions in Section 7.3. 2. Check probe adjustment (systems without probe-bulb clamps). Probe should be 1/8" or less to bottom of frypot (see illustration on page 4-1). Ensure sensor bulb clamp is present and securely fastened (current production models). 3. <u>Authorized Service Agent Only</u>: Check gas pressure. 4. Cooking oil or shortening is of inferior quality or used too long. Replace with quality oil or shortening. 5. <u>Authorized Service Agent Only</u>: May be a short circuit in system. Check wiring.

7.3 Thermatron Controller Calibration

If the Thermatron controller requires adjustment, do the following:

1. Set the controller dial to the desired oil temperature and allow the oil or shortening temperature to stabilize.
2. When oil temperature reaches setpoint (burners will cycle on and off four times, indicating setpoint temperature has been reached), check the temperature with a high-quality immersion thermometer. Insert the thermometer within 2-inches of the probe-bulb cover plate.
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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CHAPTER 7: TROUBLESHOOTING

7.4 Recommended Spare Parts

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

Gas Valve-24V, **CE** – G20/G25 – 807-2091
Gas Valve-24V, **CE** – G31– 807-2127
Gas Valve-24V, **Non-CE** – Natural – 807-3555
Gas Valve-24V, **Non-CE** – LP/Propane – 807-3690
Gas Valve-120V, **Non-CE** – Natural – 810-2156
Gas Valve-120V, **Non-CE** – Propane – 810-2323
Burner Tubes – 810-2129
High-Limit Thermostat, **CE** – 410°F (210°C) – 807-3560
High-Limit Thermostat, **Non-CE** – 435°F (224°C) – 807-3559
Thermocouple, **Non-CE** – 807-3550
Thermocouple, **CE** – 810-1152
Temperature Sensor Probe – 106-0882SP
Theratron Interface Board, **Non-CE** 120V – 807-3566
Theratron Interface Board, **CE** 208/230V – 807-3722
Potentiometer, Theratron Controller – 807-3536
Power Switch – 807-3574
Boil-Out Switch (6-Terminal) – 807-3579
Fryer Reset Switch (Momentary) – 807-3576
Filter Power Switch (Manual) – 807-3580
Blower Motor, 120V – 807-3573
Blower Motor, 230V – 106-3088SP
Sail Switch (Air Prover Switch) – 807-3746
Ignition Module – 807-3554
Direct Spark Ignitor Assembly – 106-1643SP
Ignition Cable – 106-1644SP
Sense Wire, Direct Spark Ignitor – 106-1645SP



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