



Series Code AP and Later

# 35 Series Gas Fryer Installation and Operation Manual

 **Frymaster®**

**CFESA**  
Commercial Food Equipment Service Association

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

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

**Price: \$6.00**  
**\*8195776\***

**JUN 2003**

**NOTICE**

This appliance is intended for professional use only and is to be operated by qualified personnel only. A Frymaster/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. See NATIONAL CODE REQUIREMENTS in Chapter 2 of this manual for specifics.

**NOTICE TO U.S. CUSTOMERS**

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.

**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 the Class B limits.

**CANADA**

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

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

** DANGER**

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**

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**

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 liquids or vapors 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.

**⚠ 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 fry vessels. 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.

**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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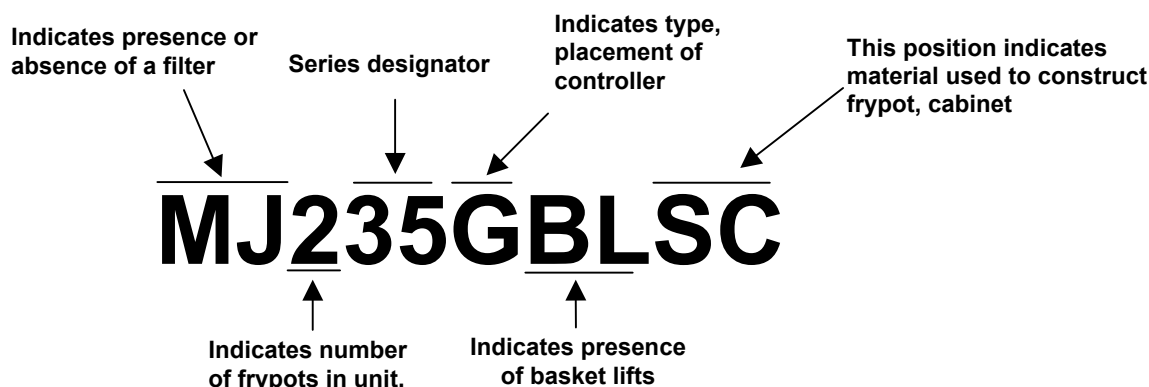
## CHAPTER 1: GENERAL INFORMATION

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### 1.1 Option Designations

There are many options available for the MJ35 series fryer. When the fryer is equipped with these additional features, suffixes are added to the model name to identify the options. The position of the identifying letter is a factor in the option it identifies.

Here's an example of how a MJ35 fryer's options are revealed in the model name and a list of option designators:



#### Possible filter position designators:

- MJ**: Master Jet (indicates there is no filter system with fryers)
- FM**: Filter Magic filter system in separate cabinet banked with fryer
- FP**: Footprint filtration under the fryer
- F**: Fryer is configured for attachment to existing filter system

#### Possible frypot number designators:

- 1 or no additional number before the series designation**: Single frypot
- 2**: Two fryers banked together
- 3**: Three fryers banked together
- 4**: Four fryers banked together
- 5**: Five fryers banked together
- 6**: Six fryers banked together

#### Possible controller designators:

- G**: Thermostat control on front panel
- V**: Thermostat controls located behind cabinet door
- Blank, no designator here**: Standard control behind front panel

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### Possible basket lift designators:

**No text in this position:** No basket lift system

**BL:** Fryer equipped with motorized basket lift

### Possible frypot, cabinet material designators:

**SC:** Stainless steel vat, door and cabinet

**SD:** Stainless steel vat and door painted cabinet



**SE:** Stainless steel vat, door, cabinet and sides

**SP:** Stainless steel vat, painted door and cabinet

**ST:** Cold-rolled steel vat, painted door and cabinet

**SX:** Cold-rolled steel vat, stainless steel door and painted cabinet

## 1.2 Rating Plate

<b>Frymaster</b> L.L.C.		 0049
Shreveport, LA. U.S.A.		
<b>MODEL:</b> <u>35</u>	<b>SERIAL NUMBER:</b> <u>9911FA0356</u>	<b>SERIES:</b> <u>AS</u> <b>WH:</b> <u>90</u>
<b>COUNTRY:</b> <u>IRELAND (IE)</u>	<b>RATING (NOMINAL):</b> <u>24.0KW</u>	
<b>CATEGORY:</b> <u>II2H3P</u>	<b>GAS:</b> <u>G20</u>	<b>PRESSURE:</b> <u>20</u> MBAR
<b>EQUIPMENT PRESSURE ADJUSTMENT:</b> <u>9.00</u> MBAR	<b>IP</b> <u>34</u>	<b>TYPE</b> <u>A</u>
<b>VOLTAGE:</b> <u>0</u> V	<b>FREQUENCY:</b> <u>0</u> HZ	<b>AMPS:</b> <u>.00</u> <b>PHASE:</b> <u>0</u>
<b>SYSTEM:</b> <u>MJ35ST</u>		
<b>CONSULT THE INSTALLATION AND OPERATION MANUAL FOR THE TOTAL AMPERAGE OF MULTIPLE FRYERS.</b>		
<b>THIS EQUIPMENT MUST BE INSTALLED IN ACCORDANCE WITH ALL APPROPRIATE STANDARDS AND REGULATIONS IN A WELL VENTILATED AREA. CONSULT THE INSTALLATION AND OPERATION MANUAL BEFORE USING THIS EQUIPMENT.</b>		
		ENGLISH 8020440D

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### 1.3 Parts Ordering and Service Information

In order to assist you as quickly as possible, the Frymaster Factory Authorized Service Center (FASC) or Service Department representative requires certain information about your equipment. Most of this information is printed on a data plate affixed to the inside of the fryer door.

Parts orders must be placed directly with your local FASC or distributor. Included with fryers when shipped from the factory is a list of Frymaster FASCs. If you do not have access to this list, contact the Frymaster Technical Service Department at 1-800-551-8633 or 1-318-865-1711.

When ordering parts, the following information is required:

Model Number: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Type of Gas or Voltage: \_\_\_\_\_  
Item Part Number: \_\_\_\_\_  
Quantity Needed: \_\_\_\_\_

Service information may be obtained by contacting your local FASC. Information may also be obtained by calling the Frymaster Technical Service Department at 1-800-551-8633 or 1-318-865-1711.

When requesting service, please have the following information ready:

Model Number: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Type of Gas: \_\_\_\_\_

In addition to the model number, serial number, and type of gas, please be prepared to describe the nature of the problem and have ready any other information that you think may be helpful in solving your problem.

**RETAIN AND STORE THIS MANUAL IN A SAFE PLACE FOR FUTURE USE.**

### 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.*



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

Your fryer is equipped with automatic safety features:

1. High temperature detection shuts off gas to the burner assembly if the controlling thermostat fails.
2. A safety switch built into the drain valve of units with built-in filtration systems prevents burner ignition with the drain valve even partially open.

**1.5 European Community (CE) Specific Information**

The European Community (CE) has established certain specific standards regarding equipment of this type. Whenever there is a difference between CE and non-CE standards, the information or instructions concerned are identified by boxes similar to the one below.

<b>Non-CE Standard for Incoming Gas Pressures</b>		
<b>Gas</b>	<b>Minimum</b>	<b>Maximum</b>
Natural	6" W.C.	14" W.C.
	1.49 kPa	3.48 kPa
	14.93 mbar	34.84 mbar
LP	11" W.C.	14" W.C.
	2.74 kPa	3.48 kPa
	27.37 mbar	34.84 mbar



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### **CHAPTER 1: GENERAL INFORMATION**

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#### **1.6 Equipment Description**

35 Series gas fryers are designed for all-purpose frying. Models include MJ35, MJ35G, MJ35GBL and FM35G. Fryers in this series may be equipped with basket lifts and in banks of up to six with a Filter Magic filtration systems or configured for manual filtration (MJ35, MJ35G and MJ35GBL variants). The J2X model is a variant that has no cabinetry. It is designed for “drop-in” installations.

35 Series fryers use a millivolt temperature control circuit, which requires no external power. The MJ35GBL, which has automatic basket lifts, can be configured with 120V or 240V motors.

All models are of an open-pot design with no tubes and have a hand-sized opening into the deep cold zone, which makes cleaning the stainless frypot quick and easy.

Fryers equipped with built-in filtration systems are shipped completely assembled. Fryers without built-in filtration require installation of legs or optional casters at point of use. All fryers are shipped with a package of standard accessories. Each fryer is adjusted, tested, and inspected at the factory before crating for shipment.

Frypots are constructed of welded, heavy-gauge stainless steel or cold-rolled steel. Heating is supplied by a burner assembly having multiple gas jets, which are focused on ceramic targets located around the lower side of the frypot. The burner assembly can be configured for natural gas, propane, or manufactured gas, as required by the customer. A drain is tapped into the center of the frypot, with a front-controlled manual ball valve.

Each fryer is equipped with a thermostat probe for precise temperature control. The thermostat is located on the centerline of the frypot for rapid response to changes in loads and to provide the most accurate temperature measurement.

#### **1.7 Installation, Operating, and Service Personnel**

Operating information for Frymaster equipment has been prepared for use by qualified and/or authorized personnel only, as defined in Section 1.6.

**All installation and service on Frymaster equipment must be performed by qualified, certified, licensed, and or/authorized installation or service personnel, as defined in Section 1.6.**

#### **1.8 Definitions**

##### **QUALIFIED AND/OR AUTHORIZED OPERATING PERSONNEL**

Qualified/authorized operating 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.

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### QUALIFIED INSTALLATION PERSONNEL

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.

### QUALIFIED SERVICE PERSONNEL

Qualified service personnel are those that are familiar with Frymaster equipment and who have been authorized by ***Frymaster*** to perform service on Frymaster equipment. All authorized service personnel are required to be equipped with a complete set of service and parts manuals and stock a prescribed minimum amount of Frymaster equipment parts.

A list of Frymaster Factory Authorized Service Centers (FASC) is included with the fryer when it ships from the factory. ***Failure to use qualified service personnel will void the Frymaster Warranty on your equipment.***

### 1.9 Shipping Damage Claim Procedure

Your Frymaster equipment was carefully inspected and packed before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of the equipment for transport.

#### What to do if your equipment arrives damaged:

1. **File a claim for damages immediately**, regardless of the extent of damages.
2. **Inspect for and record all visible loss or damage**, and ensure that this information is noted on the freight bill or express receipt and is signed by the person making the delivery.
3. **Concealed loss or damage** that was unnoticed until the equipment was unpacked should be recorded and reported to the freight company or carrier **immediately** upon discovery. A concealed damage claim must be submitted within 15 days of the date of delivery. Ensure that the shipping container is retained for inspection.

<b><i>Frymaster</i> DOES NOT ASSUME RESPONSIBILITY FOR DAMAGE OR LOSS INCURRED IN TRANSIT.</b>
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## CHAPTER 2: INSTALLATION INSTRUCTIONS

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### 2.1 General Installation Requirements

**PROPER INSTALLATION IS ESSENTIAL FOR EFFICIENT, TROUBLE-FREE OPERATION OF YOUR FRYER. ANY UNAUTHORIZED ALTERATIONS MADE TO THIS EQUIPMENT WILL VOID THE FRYMASTER WARRANTY.**

Upon arrival, inspect the fryer carefully for visible or concealed damage. (See **Shipping Damage Claim Procedure** in Chapter 1.)

#### **CLEARANCE AND VENTILATION**

The fryer(s) must be installed with a 6" (150 mm) clearance at both sides and back when installed adjacent to combustible construction; no clearance is required when installed adjacent to noncombustible construction. A minimum of 24" (600 mm) clearance should be provided at the front of the fryer.

One of the most important considerations of efficient fryer operation is ventilation. Make sure the fryer is installed to efficiently remove combustion by-products, and the kitchen ventilation system does not produce drafts that interfere with proper burner operation.

The fryer flue opening must not be placed close to the intake of the exhaust fan, and the fryer must never have its flue extended in a "chimney" fashion. An extended flue will change the combustion characteristics of the fryer, causing longer recovery time. It also frequently causes delayed ignition. To provide the airflow necessary for good combustion and burner operation, the areas surrounding the fryer front, sides, and rear must be kept clear and unobstructed.

Fryers must be installed in an area with an adequate air supply and adequate ventilation. Adequate distances must be maintained from the flue outlet of the fryer to the lower edge of the ventilation filter bank. Filters should be installed at an angle of 45°. Place a drip tray beneath the lowest edge of the filter. For U.S. installation, NFPA standard No. 96 states, "A minimum distance of 18 in. (450 mm) should be maintained between the flue outlet and the lower edge of the grease filter." Frymaster *recommends that the minimum distance be 24 in. (600 mm) from the flue outlet to the bottom edge of the filter when the appliance consumes more than 120,000 BTUs per hour.*

Information on construction and installation of ventilating hoods can be found in the NFPA standard cited above. A copy of the standard may be obtained from the National Fire Protection Association, Battery March Park, Quincy, MA 02269.

#### **DANGER**

**Do not attach an apron drainboard to a single fryer. The fryer may become unstable, tip over, and cause injury. The appliance area must be kept free and clear of combustible material at all times.**

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### NATIONAL CODE REQUIREMENTS

The type of gas for which the fryer is equipped is stamped on the data plate attached to the inside of the fryer door. Connect a fryer stamped “NAT” only to natural gas, those stamped “PRO” only to propane gas, and those stamped “MFG” only to manufactured gas.

Installation shall be made with a gas connector that complies with national and local codes, and, where applicable, CE codes. Quick-Disconnect devices, if used, shall likewise comply with national, local, and, if applicable, CE codes.

### ELECTRICAL GROUNDING REQUIREMENTS

All electrically operated appliances must be grounded in accordance with all applicable national and local codes, and, where applicable, CE codes. A wiring diagram is located on the inside of the fryer door. Refer to the rating plate on the inside of the fryer door for proper voltages.

 **DANGER**

**If this appliance is equipped with a three-prong (grounding) plug, it must be plugged directly into a properly grounded receptacle.**

**Do not cut or remove the grounding prong from the plug.**

### 2.2 Caster/Leg Installation

Depending upon the specific configuration ordered, your fryer may have been shipped without installed casters or legs. If casters or legs are installed, you may skip this section and proceed to Section 2.3, Pre-Connection Preparations. Fryers must have castors or legs. **Fryers cannot be curb mounted.**

**Install the casters/legs in accordance with the instructions included in your accessory package.**

### 2.3 Pre-Connection Preparations

 **DANGER**

**Do not connect fryer to gas supply before completing each step in this section.**

After the fryer has been positioned under the fry station exhaust hood, ensure the following has been accomplished:

1. Adequate means must be provided to limit the movement of fryers without depending upon the gas line connections. If a flexible gas hose is used, a restraining cable must be connected at all

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times when the fryer is in use. The restraining cable and installation instructions are packed with the flexible hose in the accessories box that was shipped with your unit.

2. Single unit fryers must be stabilized by installing restraining chains on fryers equipped with casters or anchor straps on fryers equipped with legs. Follow the instructions shipped with the casters/legs to properly install the chains or straps.
3. Level fryers equipped with legs by extending the adjustable portion of the leg out approximately 1 inch, and then further adjust the legs, ensuring the fryer is level and at the proper height in the exhaust hood. Frymaster recommends that the minimum distance from the flue outlet to the bottom edge of the filter be 24 in. (600 mm) when the appliance consumes more than 120,000 BTU per hour.

For fryers equipped with casters, there are no built-in leveling devices. The floor where the fryer is to be installed must be level.

4. Test the fryer electrical system:
  - For fryers equipped with thermostat controls, verify that the power and heat lights are lit.
5. Refer to the data plate on the inside of the fryer door to determine if the fryer burner is configured for the proper type of gas before connecting the fryer quick-disconnect device or piping from the gas supply line.
6. Verify that the minimum and maximum gas supply pressures for the type of gas to be used are in accordance with the following tables.

Non-CE Standard in Incoming Gas Pressure		
Gas	Minimum	Maximum
Natural	6" WC 1.49 kPa 14.93 mbar	14" WC 3.48 kPa 34.84 mbar
LP	11" WC 2.74 kPa 27.37 mbar	14" WC 3.48 k Pa 34.84 mbar

CE Standard in Incoming Gas Pressure		
Gas	Minimum	Maximum
G20	20 mbar	20 mbar
G25	20 mbar	25 mbar
G31	37 mbar	50 mbar

7. For fryers equipped with a Filter Magic II system and/or basket lifts, plug the electrical cord(s) into a power receptacle behind the fryer.

### 2.4 Connection to Gas Line

The 35 Series fryer has received the CE mark for the countries and gas categories indicated in the table below.

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<b>CE Approved Gas Categories</b>			
Country	Category	Gas	Pressure (mbar)
BE	I 2E(R) B	G20/G25	20/25
	I3P	G31	37
DE	I2ELL	G20/25	20
	I3P	G31	50
DK-GR-IT	I2 H	G20	20
FR	II2ESI3P	G20	20/25
		G25	37 and 50
LU	II2E3P	G20/G25	20/25
		G31	50
ES	II2H3P	G20	20
		G31	37 and 50
NL	II2L3P	G25	25
		G31	50
IE-PT-GB-GR	II2H3P	G20	20
		G31	37

### CE Standard

CE regulations require a combustion air supply of 2m<sup>3</sup>/h per kW per fryer. (See rating plate affixed to door for kW rating.)

The size of the gas line used for installation is very important. If the line is too small, the gas pressure at the burner manifold will be low. This may cause pilot outage, slow recovery and delayed ignition. The incoming gas supply line should be a minimum of 1½" (38 mm) in diameter. Refer to the chart below for the minimum sizes of connection piping.

<b>Gas Connection Pipe Sizes</b>			
(Minimum incoming pipe size should be 1 1/2" (38 mm))			
Gas	Single Unit	2 - 3 Units	4 or more units*
Natural	1/2" (13 mm)	1" (25 mm)	1 1/4" (33mm)
Propane	1/2" (13 mm)	3/4" (19 mm)	1" (25 mm)
Manufactured	1" (25 mm)	1 1/4" (33 mm)	1 1/2" (38 mm)

NOTE: For distances of more than 20 feet (6 m) and/or more than 4 fittings or elbows, increase the connection by one pipe size.

Before connecting new pipe to your unit, the pipe must be thoroughly blown out to remove any foreign particles. If these foreign particles get into the burner and controls, they will cause improper and sometimes dangerous operation.

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1. Connect the quick-disconnect hose to the fryer quick-disconnect fitting under the front of the fryer and to the building gas line.

**NOTE:** Some fryers are configured for a rigid connection to the gas supply line. These units are connected to the gas supply line at the rear of the unit.

When using thread compound, use very small amounts on male threads only. Use a pipe thread compound that is not affected by the chemical action of LP gases (Loctite™ PST56765 Sealant is one such compound). **DO NOT** apply compound to the first two threads. This will ensure that the burner orifices and control valve do not become clogged.

2. Open the gas supply to the fryer and check all piping, fittings, and gas connections for leaks. A soap and water solution should be used for this purpose.

### ⚠ DANGER

**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 fryer at the main shut-off valve and contact the local gas company or an authorized service agency for service.**

3. Close the fryer drain valve and fill the frypot with water or boil-out solution to the bottom OIL-LEVEL line at the rear of the frypot. Light the fryer and perform the boil-out procedures that are described in the “Lighting Instructions” and “Boiling Out the Frypot” topics found in Chapter 3 of this manual.

### ⚠ WARNING

**“Dry-firing” your unit will cause damage to the frypot. Always ensure that melted shortening, cooking oil, or water and boil-out solution is in the frypot before firing your unit.**

**CE Standard MJ35 Burner Manifold Pressure**

Gas	Pressure Burners (mbar)	Consumption
Natural Gas Lacq (G20) under 20 mbar	9	2.8m <sup>3</sup> /h
Natural Gas Groningue (G25) under 25 mbar	11	3,00m <sup>3</sup> /h
Natural Gas Groningue (G20) under 20 mbar	11	3,00m <sup>3</sup> /h
Propane (G31) under 37 or 50 mbar	22.5	2,05 kg/h

**CE Standard MJ35 (Belgium) Burner Manifold Pressure**

Gas	Pressure Burners (mbar)	Consumption
Natural Gas Groningue (G25) under 25 mbar	9	2.8m <sup>3</sup> /h
Natural Gas Groningue (G20) under 20 mbar	9	2.8m <sup>3</sup> /h
LP Propane (G31) under 37 or 50 mbar	22.5	2,05 kg/h

### Non-CE Standard Burner Manifold Gas Pressure

Gas	Pressure	Consumption
Natural Gas Groningue (G25) under 25 mbar	4" WC	2.8m <sup>3</sup> /h
Natural Gas Groningue (G20) under 20 mbar	0.87 kPa	2.8m <sup>3</sup> /h
LP Propane (G31) under 37 or 50 mbar	9" WC 2.24 kPa	2,05 kg/h

4. It is suggested that the burner manifold pressure be checked or this may be done by any of an authorized service agent. Refer to “Checking the Manifold Pressure” in Chapter 3 of this manual for the proper procedure.

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### CHAPTER 2: INSTALLATION INSTRUCTIONS

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5. Check the thermostat calibration or temperature programmed into the computer. For units equipped with thermostat controls, refer to the Thermostat Calibration instructions in Chapter 7.

#### 2.5 Converting to Another Gas Type

Your fryer is configured at the factory for either natural gas or Propane (LP) gas.

*If you desire to switch from one type of gas to another, a gas conversion kit must be installed by a Factory Authorized Service Center technician.*



**Switching to a different type of gas without installing the proper conversion kit may result in fire or explosion!**

(1) mbar = 10,2 mm H<sub>2</sub>O

**NEVER ATTACH YOUR FRYER TO A GAS SUPPLY FOR WHICH IT IS NOT CONFIGURED!**



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### Non-CE Gas Conversion Instructions

For fryers at elevations below 5,000 feet (1524 meters), order kit number 826-1964 to convert from natural gas to propane (LP) gas; order kit number 826-1965 to convert from propane (LP) gas to natural gas. The kits contain detailed instructions for the conversion.

For fryers at elevations at or above 5,000 feet (1524 meters), call Frymaster Service (1-800-551-8633) to determine the components appropriate for your configuration and altitude. Contact your local FASC to order the components and arrange for installation.

### CE Gas Conversion Instructions

1. Between G20- and G25-type Natural Gas, adjust the gas pressure at the regulator. (Refer to the CE Standard Burner Manifold Gas Pressure Chart.) Do not change the orifice or pilot.
2. Between a second family gas (G20 or G25) and a third family gas (G31 Propane) or vice versa:
  - a. Change the orifices.
  - b. Change the pilot orifice.
  - c. If the fryer is equipped with a Honeywell gas valve, adjust the gas pressure at the regulator (refer to the CE Standard Burner Manifold Gas Pressure Chart). If the fryer is equipped with a Robertshaw gas valve, the valve must be replaced (see Natural to Propane or Propane to Natural below).
  - e. After adjustment, seal the adjustment screw.
3. If required by regulatory agencies in the country where installed, remove the rating plate and install a new one. Call your local service agency or kitchen equipment supplier to order a new rating plate.
4. If the destination language changes, replace the labels. Call your local service agency or kitchen equipment supplier for a label kit. The language of reference will be on the corner of the label.

The following gas-conversion components are available from your FASC:

#### **Natural (G20/G25) to Propane (G31)**

Package of 10 Burner Orifices: 826-1354; Pilot Orifice: 810-0427; Gas Valve: 806-7102SP (needed to replace Robertshaw valves only)

#### **Propane (G31) to Natural (G20/G25)**

Package of 10 Burner Orifices: 826-1353; Pilot Orifice: 810-0426; Gas Valve: 806-7101SP (needed to replace Robertshaw valves only).

# 35 SERIES GAS FRYERS

## CHAPTER 3: OPERATING INSTRUCTIONS

### 3.1 Start-Up Procedure

#### ⚠ CAUTION

If this is the first time the fryer is being used after installation, refer to Section 3.2, Boil-Out Procedure.

#### ⚠ CAUTION

The cooking oil/shortening capacity of the 35 Series fryer is 40 lbs. (20 liters) at 70°F (21°C).

Before lighting the fryer, make sure the fryer is OFF and the frypot drain valve is closed. Remove the basket support rack, if installed, and fill the frypot to the bottom OIL-LEVEL line.

To prevent scorching, if solid shortening is being used, make sure it is tightly packed down into the bottom of the frypot.

#### Lighting the Pilot on Non-CE Honeywell Valves:

⚠ **WARNING:** Frypot must be filled with water or shortening before lighting.

1. Turn the thermostat knob to the required frying temperature.
2. Push down on the gas valve knob and turn to the PILOT position.
3. Push the knob in and light the pilot. 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.

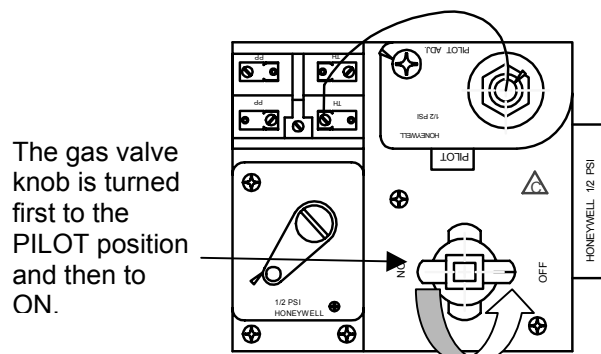
⚠ **CAUTION:** If the pilot fails to remain lit, wait five minutes before attempting to re-light.

4. With the pilot lit, push down and slowly turn the knob to the ON position.
5. The burner will now light and is controllable by the thermostat.

⚠ **CAUTION:** If the pilot and main burner go out, the fryer(s) must be completely shut down at least five minutes before re-lighting.



Light pilot here      Gas valve



Top view of gas valve

## 35 SERIES GAS FRYERS

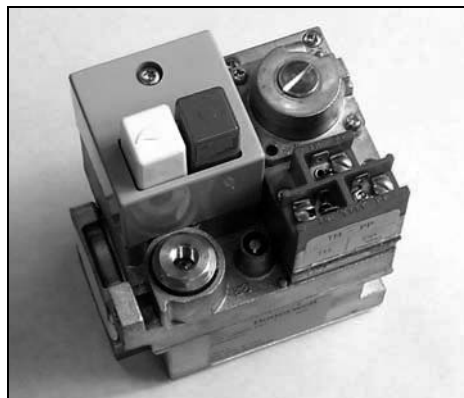
### CHAPTER 3: OPERATING INSTRUCTIONS

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6. Set the thermostat knob to the desired cooking temperature. The U-shaped burner should light and burn with a strong, blue flame.

#### Lighting CE Gas Valve

1. Turn off the manual shut-off valve on the incoming service line.
2. Depress the OFF (red) pilot gas button on the safety control valve to turn gas off.
3. Wait at least five minutes for any accumulated gas to disperse.
4. Open the manual shut-off valve on the incoming service line.
5. Apply a lighted match or taper to the pilot burner head.
6. Depress and hold the white Pilot button on the gas control valve until the pilot stays lit when the button is released. This may take a minute or longer.
7. If the pilot does not stay lit, depress the pilot button and re-light it, holding the button in longer before releasing. It may be necessary to re-light the pilot several times until the gas lines are purged of any trapped air and a constant gas flow is attained.
8. When the pilot stays lit, release the pilot button.
9. The burner will now light and is controllable by the thermostat.
10. Set the thermostat knob to the desired cooking temperature. The U-shaped burner should light and burn with a strong, blue flame.



The white button (on left) turns the gas flow on. The red button (on right) turns the gas flow off.

### 3.2 Boiling Out the Frypot

To ensure that the frypot is free of any contamination resulting from its manufacture, shipping, and handling during installation, the frypot must be boiled out before first use. Frymaster recommends boiling out the frypot each time the oil or shortening is changed.

#### 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.**

1. Before operating the burner, close fryer drain valve and fill empty frypot with a mixture of cold water and boil-out solution. Fill to the frypot oil-level line.
2. To light fryer, follow lighting instructions on Page 3-1.
3. Set thermostat knob to 275<sup>0</sup>F (135<sup>0</sup>C) and turn the fryer gas valve knob to the on position.
4. Simmer the solution for one hour. Caution: NEVER leave the fryer unattended during the boil-out procedure. The solution may foam up and overflow. **To lessen the chance for overflowing, turn the fryer's gas valve knob to the Pilot position occasionally.**

## 35 SERIES GAS FRYERS

### CHAPTER 3: OPERATING INSTRUCTIONS

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5. After the solution has simmered for one hour, turn the fryer's gas valve knob to the Pilot position and allow the solution to cool.
6. Add one gallon (3.8 liters) of cold water and stir. Drain out the solution into a suitable container and clean the frypot thoroughly.
7. Rinse the frypot at least twice by filling the frypot with clean water and draining. Dry the frypot thoroughly with a clean, dry towel.
8. Refill with shortening.

 **WARNING**

**Do not drain boil-out solution into the built-in filtration system. Doing so may cause damage to the filtration pump.**

 **DANGER**

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

### 3.3 Filling With Shortening

The MJ 35 series fryer has a minimum 30 Lbs. (14.5 liters)/ maximum 40 lbs. (19.5 liters) shortening capacity.

1. Ensure the fryer's gas valve is off or in the pilot position.
2. Close the frypot drain valve; remove basket support rack if required.
3. Fill empty frypot to the oil-level line. **When solid shortening is used, it must be thoroughly packed down into the frypot's cold zone.**
4. To melt solid shortening without scorching, the burner should be turned ON for about three seconds and OFF for about 10 seconds; alternate until melted. If any smoke is seen during this process, the oil is heating too quickly and scorching. This melting process is not necessary with liquid shortening.

### 3.4 Shutting the Fryer Down

For short-term shut down during the workday, place the fryer's gas valve in the Pilot position and put the frypot covers in place (if the fryer is so equipped).

When shutting the fryers down at closing time, place the fryer power switch in the OFF position, place the gas valve in the OFF position, and put the frypot covers in place (if the fryer is so equipped).

## 35 SERIES GAS FRYERS CHAPTER 3: OPERATING INSTRUCTIONS



### 3.5 Thermostats

The centerline thermostat on a MJ35 is connected to a temperature knob. On the standard model, the knob is attached directly to the thermostat (see photo above). On the G-series MJ35, a flexible shaft connects the thermostat to a knob mounted on the control panel (see photo at right). Rotating the knob on either model to the desired cooking temperature (setpoint) directly adjusts the thermostat control to that temperature.

The Thermostat Controller requires no programming, but it may require calibration from time to time. To determine if it requires calibration, refer to Check Thermostat Controller Thermostat Calibration on page 5-4.



The thermostat knob on the G-series fryer is flush mounted on an exterior control panel. The knob is connected to the frypot-mounted thermostat by a flexible shaft.

# 35 SERIES GAS FRYERS

## CHAPTER 4: FILTRATION INSTRUCTIONS

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### 4.1 Draining and Manual Filtering

 **DANGER**

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

If your fryer is not equipped with the built-in Filter Magic II Filtration System, the cooking oil or shortening must be drained into another suitable container. FOR SAFE, CONVENIENT DRAINING AND DISPOSAL OF USED COOKING OIL OR SHORTENING, FRYMASTER RECOMMENDS THE USE OF THE FRYMASTER SHORTENING DISPOSAL UNIT (SDU). THE SDU IS AVAILABLE THROUGH YOUR LOCAL DISTRIBUTOR.

1. Ensure the gas valve is off.
2. Screw the drainpipe (provided with your fryer) into the drain valve. Make sure the drainpipe is firmly screwed into the drain valve and that the opening is pointing down.
3. Position a metal container with a sealable cover under the drainpipe. The metal container must be able to withstand the heat of the cooking oil/shortening and hold hot liquids. If you intend to reuse the oil or shortening, Frymaster recommends that a Frymaster filter cone holder and filter be used when a filter machine is not available. If you are using a Frymaster filter cone holder, be sure that the cone holder rests securely on the metal container.
4. Open the drain valve slowly to avoid splattering. If the drain valve becomes clogged with food particles, use the Fryer's Friend (poker-like tool) to clear the blockage.

 **DANGER**

**DO NOT insert anything into the drain from the front to unclog the valve. Hot oil/shortening will rush out, creating an extreme hazard.**

 **WARNING**

**DO NOT hammer on the drain valve with the Fryer's Friend. This will damage the drain valve ball and prevent the valve from sealing securely, resulting in a leaky valve.**

5. After draining the oil/shortening, clean all food particles and residual oil/shortening from the frypot. BE CAREFUL, this material may still cause severe burns if it comes in contact with bare skin.
6. Close the drain valve securely and fill the frypot with clean, filtered or fresh cooking oil or solid shortening to the bottom OIL-LEVEL line.

## 35 SERIES GAS FRYERS

### CHAPTER 4: FILTRATION INSTRUCTIONS

7. Re-light pilot and return to operation.

#### **⚠ DANGER**

**When using solid shortening, pack the shortening down into the bottom of the frypot. DO NOT operate the fryer with a solid block of shortening sitting in the upper portion of the frypot. This will cause damage to the frypot and may cause a flash fire.**

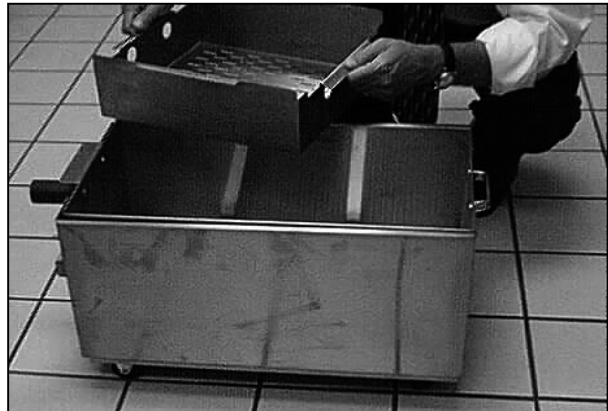
#### **4.2 Filter Magic II Filtration System Operation**

The Filter Magic II Filtration System allows the cooking oil or shortening in one frypot to be safely and efficiently filtered while the other frypots in a battery remain in operation.

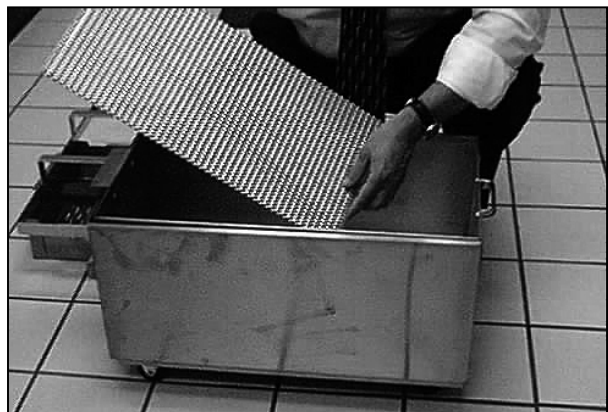
The overwhelming majority of reported problems with the Filter Magic II system are found to be the result of improper operation. Careful attention to the step-by-step instructions that follow will ensure that your system operates as intended.

##### **PREPARING THE FILTER UNIT FOR USE**

1. Slide the filter unit from the cabinet. Remove and clean the crumb tray.
2. Remove the hold-down ring from the filter pan and clean.
3. Remove and discard the used filter paper.
4. Remove the metal filter screen and clean thoroughly using a solution of hot water and detergent.
5. Allow the screen to dry completely.
6. Clean all breading and food particles from the filter pan.
7. Replace the filter screen in the bottom of the pan.



Remove crumb screen, hold-down ring, filter paper and filter screen.



#### **⚠ CAUTION**

**Make sure the inside of the pan is free of all food and breading particles that could prevent the screen from sealing against the bottom of the pan.**

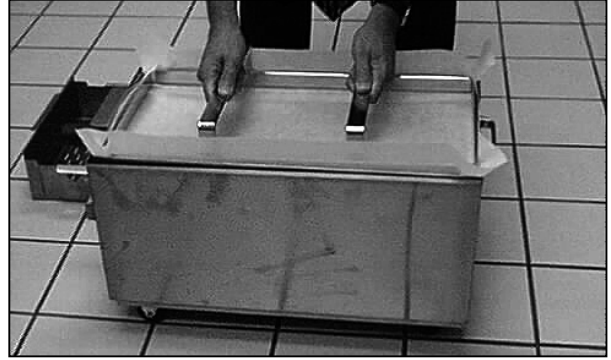
**35 SERIES GAS FRYERS**  
**CHAPTER 4: FILTRATION INSTRUCTIONS**

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8. Lay a sheet of filter paper over the top of the filter pan with the paper overlapping on all sides. Position the hold-down ring over the filter paper on top of the pan and lower the ring into the pan, allowing the filter paper to fold up around the ring as it is pushed to the bottom of the pan.



Place sheet of filter paper over the pan, allowing it to drape over the edges.



Use the hold-down ring to press the paper down into the filter pan.

**⚠ CAUTION**

**Make sure the inside of the pan is free of all food and breading particles that could prevent the paper from sealing against the bottom of the pan.**

9. Sprinkle filter powder over the filter paper. For powder quantity and instructions, see the powder manufacturer's instructions.
10. Replace the crumb tray in the filter pan.
11. Roll the filter pan all the way to the back of the cabinet.



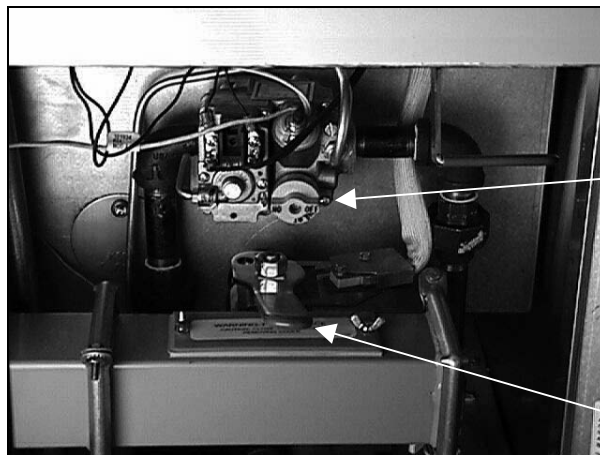
## 35 SERIES GAS FRYERS CHAPTER 4: FILTRATION INSTRUCTIONS

### OPERATION OF THE FILTER UNIT

#### **⚠ CAUTION**

**Never operate the filter unit unless the cooking oil in the fryers has been brought up to cooking temperature.**

1. To filter the cooking oil, turn the gas valve to pilot.
2. Open the drain valve on the fryer you have selected to be filtered. If necessary, use the *Fryer's Friend* steel rod to clear the drain from **inside** the frypot as necessary.



Pilot knob.

Valve handle in open position

#### **⚠ DANGER**

**Never drain more than one fryer at a time—the filter pan may overflow. When unclogging a valve, DO NOT insert anything into the drain from the front of the fryer. Hot oil/shortening will rush out, creating an extreme hazard.**

#### **⚠ WARNING**

**DO NOT hammer on the drain valve with the Fryer's Friend. This will damage the drain valve ball and prevent the valve from sealing securely, resulting in a leaky valve.**

3. When the frypot is empty, use a long-handled, stiff brush to remove sediment from the sides of the frypot. When cleaning the inside of the frypot, avoid striking the high limit thermostat and temperature probe or operating thermostat.

## 35 SERIES GAS FRYERS CHAPTER 4: FILTRATION INSTRUCTIONS

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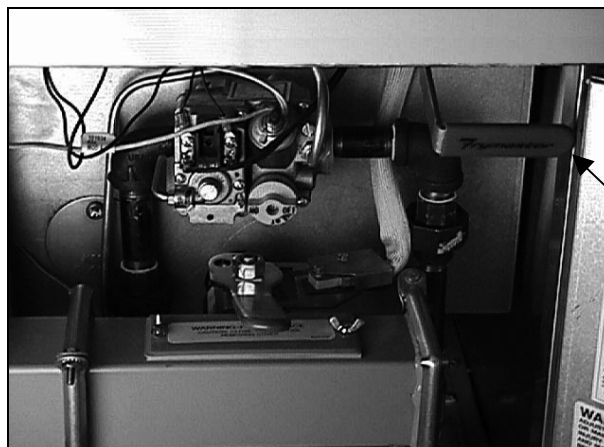
4. Snap the Power Shower into the frypot.



### **⚠ DANGER**

**DO NOT operate the filter without the Power Shower in place. Hot oil will spray out of the fryer and may cause injury.**

5. After all oil has drained from the pot, PULL the filter handle up to the ON position to start the pump and begin the filtering process. There may be a slight delay before the pump activates. The oil, which has passed through the filtering paper, will return to the frypot. If desired, the drain can be left open, allowing the oil to cycle several times through the filter pan. Filter no longer than five minutes.



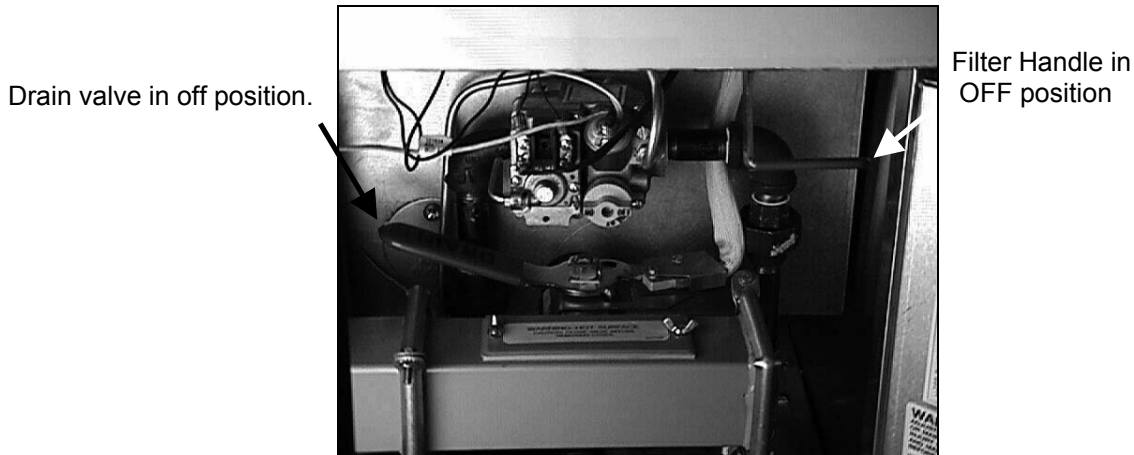
Filter handle in the up (ON) position.

## 35 SERIES GAS FRYERS

### CHAPTER 4: FILTRATION INSTRUCTIONS

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6. After the oil is completely filtered, close the drain valve and allow the fryer to refill. When bubbles appear in the oil, allow the filter to run 10 to 12 seconds longer to clear the lines and prevent shortening from hardening in them, then PUSH the filter handle to the OFF position.



#### **⚠ WARNING**

The filter motor is equipped with a manual reset switch in case it overheats or an electrical fault occurs. If this switch trips, turn off power to the filter system and allow the pump motor to cool 40 minutes before attempting to reset the switch.

6. Remove the Power Shower and allow it to drain.
7. Make sure the drain valve is fully closed. Turn the gas valve to ON and allow the cooking oil/shortening to reach setpoint.

**NOTE:** Ensure the fryer drain valve is fully closed before turning the fryer on. If the drain valve is not fully closed, the fryer will not operate.

#### **CHANGING THE FILTER PAPER**

#### **⚠ DANGER**

Allow the filter pan to cool completely before attempting to change the paper.

Repeat steps 1 through 7 in Section 4.2.

# 35 SERIES GAS FRYERS

## CHAPTER 5: PREVENTIVE MAINTENANCE

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### 5.1 Daily Checks and Services

#### Inspect Fryer and Accessories for Damage

Look for loose or frayed wires and cords, leaks, foreign material in frypot or inside cabinet, and any other indications that the fryer and accessories are not ready and safe for operation.

Inspect the ceramic burner targets. Ensure the targets are in position above each orifice, and that the flame ignites approximately 2½ inches (60mm) above the orifice. The flame should strike the center of the target and be a rich blue color. Call your Factory Authorized Service Center (FASC) if you see any problems.

#### Clean Fryer Cabinet Inside and Out

Clean inside the fryer cabinet with dry, clean cloth. Wipe all accessible metal surfaces and components to remove accumulations of oil or shortening and dust.

Clean the outside of the fryer cabinet with a clean, damp cloth soaked with dishwashing detergent, removing oil/shortening, dust, and lint from the fryer cabinet.

#### DANGER

**Never attempt to clean 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 can cause the oil/shortening to splatter and severely burn nearby personnel.**

#### Filter Cooking Oil/Shortening

The cooking oil/shortening used in your fryer should be filtered at least once every day (more often if the fryer is in constant use). Refer to Chapter 4, Filtration Instructions, for details.

### 5.2 Quarterly Checks and Services

#### Drain and Clean Frypot

During normal usage of your fryer, a deposit of carbonized cooking oil or shortening will gradually form on the inside of the frypot. This deposit must be periodically removed to maintain your fryer's efficiency.

#### DANGER

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

## 35 SERIES GAS FRYERS

### CHAPTER 5: PREVENTIVE MAINTENANCE

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If your fryer is not equipped with the built-in Filter Magic II Filtration System, the cooking oil or shortening must be drained into another suitable container. FOR SAFE, CONVENIENT DRAINING AND DISPOSAL OF USED COOKING OIL OR SHORTENING, FRYMASTER RECOMMENDS THE USE OF OUR SHORTENING DISPOSAL UNIT (SDU). THE SDU IS AVAILABLE THROUGH YOUR LOCAL DISTRIBUTOR.

1. Ensure gas valve is OFF.
2. Screw the drainpipe (provided with your fryer) into the drain valve. Make sure the drainpipe is firmly screwed into the drain valve and that the opening is pointing down.
3. Position a metal container with a sealable cover under the drainpipe. The metal container must be able to withstand the heat of the cooking oil/shortening and hold hot liquids. If you intend to reuse the oil or shortening, Frymaster recommends that our filter cone holder and filter cone be used when a filter machine is not available. If you are using a Frymaster filter cone holder, be sure that the cone holder rests securely on the metal container.
4. Open the drain valve slowly to avoid splattering. If the drain valve becomes clogged with food particles, use the Fryer's Friend (poker-like tool) to clear the blockage.

 **DANGER**

**DO NOT insert the tool into the drain from the front to unclog the valve. Hot oil/shortening will rush out, creating an extreme hazard.**

 **WARNING**

**DO NOT hammer on the drain valve. This will damage the drain valve ball and prevent the valve from sealing securely, resulting in a leaky valve.**

5. After draining the oil/shortening, clean all food particles and residual oil/shortening from the frypot. BE CAREFUL, this material may still cause severe burns if it comes in contact with bare skin.
6. Close the drain valve securely and fill the frypot with a solution of detergent and water to the bottom OIL-LEVEL line. (Frymaster recommends the use of Frymaster Boilout Solution, available through your local distributor, for best results.)
7. Relight the pilot.
8. Set the thermostat to 280°F.
9. Slow the rate at which the frypot heats by occasionally turning the gas valve to pilot.
10. Set the thermostat to 280°F (138°C).
11. Simmer the solution for 1 hour.

## 35 SERIES GAS FRYERS CHAPTER 5: PREVENTIVE MAINTENANCE

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### **WARNING**

**Never leave the fryer unattended during this process. If the solution overflows, turn the gas valve off immediately.**

12. After the solution has simmered for 1 hour, turn the gas valve to the OFF position and allow the solution to cool.
13. Drain the solution into a suitable container (**NOT the Filter Magic II filter pan or Shortening Disposal Unit**) and thoroughly wipe the frypot with a clean towel.
14. Close the drain valve and fill the frypot with clean, cold water and drain. Repeat the rinse process again, and then wipe frypot with a clean, dry towel.
15. Refill with shortening.

### **DANGER**

**Ensure that the frypot is completely free of water before filling with cooking oil or shortening. When the oil or shortening is heated to cooking temperature, water in the frypot will cause splattering.**

#### **Clean Detachable Parts and Accessories**

As with the frypot, a deposit of carbonized oil/shortening will accumulate on detachable parts and accessories such as baskets, sediment trays.

Wipe all detachable parts and accessories with a clean cloth dampened with a detergent solution. (Frymaster recommends the use of Frymaster Fryer 'N' Griddle Cleaner, available through your local distributor, for best results.) Rinse and thoroughly dry each part.

#### **Check Calibration of Thermostat Knob**

1. Set the temperature control knob to frying temperature.
2. Let the burner cycle on and off automatically three times in order for the cooking oil/shortening temperature to become uniform. If necessary, stir to get all shortening in the bottom of the frypot melted.
3. Insert a good-grade thermometer or pyrometer probe into the oil/shortening, with the end touching the fryer temperature-sensing probe.
4. When the burner starts for the fourth time, the thermometer/pyrometer reading should be within  $\pm 5^{\circ}\text{F}$  ( $2^{\circ}\text{C}$ ) of the temperature knob setting. If it is not, calibrate as follows:
  - a. Loosen the setscrew in the temperature control knob until the knob will rotate freely on its shaft.

## **35 SERIES GAS FRYERS**

### **CHAPTER 5: PREVENTIVE MAINTENANCE**

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- b. Rotate the knob until the index line on the knob is aligned with the marking that corresponds to the thermometer or pyrometer reading.
  - c. Hold the knob and carefully tighten the setscrew.
  - d. Recheck the thermometer/pyrometer reading against the temperature control knob setting the next time the burner comes on.
  - e. Repeat steps 4.a. through 4.d. until the thermometer/pyrometer reading and knob setting agree within  $\pm 5^{\circ}\text{F}$  ( $2^{\circ}\text{C}$ ).
5. Remove the thermometer or pyrometer.

If calibration cannot be obtained for any reason, call a Factory Authorized Service Center for assistance.

#### **Check Thermostat Calibration**

1. Set the temperature control knob to  $325^{\circ}\text{F}$  ( $162^{\circ}\text{C}$ ) and insert a good grade thermometer or pyrometer into the frypot so that it touches the thermostat.
2. When the burner cycles off, set the temperature control knob to  $340^{\circ}\text{F}$  ( $170^{\circ}\text{C}$ ). As the reading on the thermometer or pyrometer nears the control knob setting, but before the burner cycles off, reset the knob to  $325^{\circ}\text{F}$  ( $162^{\circ}\text{C}$ ). Just as the reading on the thermometer or pyrometer drops below  $325^{\circ}\text{F}$  ( $162^{\circ}\text{C}$ ), the burner should cycle on. If it does not, calibration is required. Call your Factory Authorized Service Center (FASC) to arrange this service.

#### **Clean Gas Valve Vent Tube**

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

**35 SERIES GAS FRYERS  
CHAPTER 5: PREVENTIVE MAINTENANCE**

**5.3 Semi-Annual Checks and Service**

**Check Burner Manifold Pressure**

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

1. Ensure that the gas valve knob is in the OFF position.
2. Remove the pressure tap plug from burner manifold. (see photo).
3. Insert the fitting for a gas-pressure measuring device into the pressure tap hole.



**⚠ WARNING**  
**The frypot must be filled with shortening or water during this procedure.**

4. Place the gas valve in the PILOT position and light. When the burner lights and continues to burn, note gas pressure reading and compare to the accompanying tables.
5. To adjust burner gas pressure, remove the cap from the gas valve regulator adjustment screw.
6. Increase the setting on the thermostat until the burner comes on.
7. Monitor the gas pressure reading on the man-ometer or pressure gauge.
8. Adjust the gas valve regulator adjustment screw to obtain the prescribed pressure. See the Rating Plate. Turning the screw clockwise increases pressure, counterclockwise decreases pressure.
9. Install the gas valve regulator cap screw when the correct manifold pressure is obtained.
10. Place the gas valve in the OFF position. Remove the

A manometer or water column pressure gauge meter is connected to the manifold here.

<b>Non-CE Standard Burner Manifold Gas Pressures</b>	
<b>Gas</b>	<b>Pressure</b>
Natural	4.0" W.C. 0.73 kPa
LP	8.25" W.C. 2.05 kPa

<b>CE Standard Burner Manifold Gas Pressures</b>	
<b>Gas</b>	<b>Pressure (mbar)</b>
Natural Gas Lacq (G20) under 20 mbar	9
Natural Gas Groningue * (G25) under 25 mbar	11
Natural Gas Groningue (G20) under 20 mbar	11
Propane (G31) under 37 or 50 mbar	22.5
* Belgian specifications on 2-6	



## 35 SERIES GAS FRYERS CHAPTER 5: PREVENTIVE MAINTENANCE

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fitting from the pressure tap hole and reinstall the pressure tap plug.

11. Place the gas valve in the Pilot position. Re-light and check for any gas leaks.
12. Place the gas valve in the OFF position.

### 5.4 Annual/Periodic System Inspection

*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:*

#### **Fryer**

- 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, 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 wiring harnesses and connections are tight and in good condition.

#### **Built-In Filtration System**

## 35 SERIES GAS FRYERS

### CHAPTER 5: PREVENTIVE MAINTENANCE

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- Inspect all oil-return and drain lines for leaks and verify that all connections are tight.
- Inspect the filter pan for leaks and cleanliness. If there is a large accumulation of crumbs in the crumb basket, advise the owner/operator that the crumb basket should be emptied into a fireproof container and cleaned daily.
- Verify that all O-rings and seals (including those on the Power Shower and on quick-disconnect fittings) are present and in good condition. Replace O-rings and seals if worn or damaged.
- Check filtration system integrity as follows:
  - With the filter pan empty, place each oil return handle, one at a time, in the ON position. Verify that the pump activates and that bubbles appear in the cooking oil/shortening (or that gurgling is heard from the Power Shower port) of the associated frypot.
  - Close all oil return valves (i.e., place all oil return handles in the OFF position). Verify proper functioning of each oil return valve by activating the filter pump using the lever on one of the oil return handle microswitches. No air bubbles should be visible in any frypot (or no gurgling should be heard from the Power Shower ports).
  - Verify that the filter pan is properly prepared for filtering, then drain a frypot of oil heated to 350°F (177°C) into the filter pan and close the frypot drain valve. Place the oil return handle in the ON position. Allow all cooking oil/shortening to return to the frypot (indicated by bubbles in the cooking oil/shortening or, on units with Power Showers, cessation of oil flow from the Power Shower). Return the oil return handle to the OFF position. The frypot should have refilled in no more than 2 minutes and 30 seconds.

# 35 SERIES GAS FRYERS

## CHAPTER 6: OPERATOR TROUBLESHOOTING

### 6.1 Fryer Troubleshooting Guide

**WARNING:** Inspection, testing and repair of electrical equipment should be performed by qualified service personnel ONLY. Unplug the unit before servicing except when electrical tests are required.

**DANGER:** USE EXTREME CARE DURING ELECTRICAL CIRCUIT TESTS. LIVE CIRCUITS WILL BE EXPOSED.

**NOTE:** This guide does not include every possible problem and cause. Careful observation of all malfunction indications are logical troubleshooting will be helpful in correcting the problem. See Service Procedures to replace fryer components.

Problem	Probable Cause	Corrective Action
Thermostat does not call for heat, does not energize gas control valve at all.	A. Pilot not lit.	A. Light pilot
	B. Bad gas valve	B. Replace gas valve
	C. Thermostat wires damaged or broken	C. Repair or replace thermostat wires.
	D. Thermostat set too low.	D. Increase thermostat setting.
	E. Thermostat out of calibration	E. Recalibrate. See Service Procedures.
	F. Thermostat bad	F. Replace thermostat
Thermostat does not control at set point.	A. Thermostat out of calibration.	A. Recalibrate thermostat. See Service Procedures.
	B. Contaminated thermostat contacts.	B. Replace thermostat.
Pilot Outage	A. Automatic gas valve knob turned to OFF position	A. Turn gas valve to pilot position, light pilot.
	B. Low pilot flame (will not hold pilot).	B. Adjust pilot flame to 1 1/2" in (38 mm)
	C. Clogged pilot orifice.	C. Remove, clean pilot orifice. Reinstall.
	D. Pilot burner clogged around pilot generator.	D. Remove pilot burner. Clean burner
	E. Pilot flame blowing away from pilot generator (excessive draft in kitchen).	E. Eliminate draft in kitchen
	F. Pilot generator not inserted fully into pilot burner.	F. Reinsert pilot generator into pilot burner until flame surrounds tip.
	G. Pilot generator low output	G. Replace pilot generator
	H. High resistance in hi-limit thermostat contacts.	H. Replace hi-limit thermostat
	I. Defective pilot magnet in gas valve.	I. Replace gas valve.
	J. Corroded connection where pilot generator connects to gas valve.	J. Clean pilot generator connection at gas valve.

## 35 SERIES GAS FRYERS

### CHAPTER 6: OPERATOR TROUBLESHOOTING

Problem	Probable Cause	Corrective Action
Main burner will not come on; pilot remains lit.	A. Loose, dirty or corroded terminals on gas valve.	A. Clean and tighten terminals on gas valve.
	B. Loose, dirty or corroded terminals on thermostat	B. Clean and tighten terminals on thermostat.
	C. High resistance in contacts of thermostat.	C. Replace thermostat. Call for service.
	D. Thermostat out of calibration.	D. Calibrate thermostat. See Service Procedures.
	E. Automatic gas valve defective.	E. Replace automatic gas valve.
	F. Automatic gas valve knob turned to pilot position.	F. Turn gas valve knob to ON position.
Main burner does not light all the way around.	A. Burner flame deflector broken off.	A. Install new burner flame deflector.
	B. Burner gas pressure too high or too low.	B. Adjust gas pressure. Natural: 4.0 in. W.C. (0.99kPa); LP: 10.0 in W.C. (2.49kPa).
	C. One or more main burner orifices clogged	C. Clean burner orifices and blow out with compressed air.
	D. Fryer flue connected directly to vent hood with a chimney-like duct.	D. Remove chimney-like duct and allow for at least 18 inches (45.7 cm) between flue outlet and vent hood filters.
	E. <b>Blocked flue</b>	E. Clear blockage from flue.
Delayed ignition of main burner	A. One or more burner flame deflectors broken.	A. Install new burner flame deflectors.
	B. Pilot flame low — less than 1 inch (25mm)	B. Adjust pilot flame to 1 ½ in (38mm).
	C. Pilot flame directed away from first orifice on burner.	C. Reposition pilot hood to direct flame toward first burner orifice.
	D. Fryer incoming gas pressure too low.	D. Have local gas company raise incoming gas to the proper pressure.
	E. Fryer's incoming gas line too small.	E. Replace incoming gas line with proper size.
	F. One or more burner orifice clogged.	F. Clean burner orifices with proper orifice drill.
Flame rolling out under fryer.	A. Flue obstructed.	A. Clean obstruction from flue.
	B. Too little make-up air in kitchen.	B. Increase make-up air.
Pilot light remains lit when gas valve is pushed in, but goes out when released.	A. Gas valve pilot magnet too weak.	A. Replace gas valve.
	B. Pilot generator has low millivolt output.	B. Replace pilot generator
	C. Hi-limit thermostat stuck open.	C. Replace hi-limit thermostat.
	D. Loose, dirty or corroded hi-limit wires.	D. Clean/tighten hi-limit wires on gas valve.

## 6.2 Basket Lift Installation, Operation, and Troubleshooting

### Installation Instructions

The basket hanger assemblies are shipped in the down position. Before starting your fryer, install the basket rest arms. Turn the basket lift timer to 0; basket lift rods will come up automatically when unit is plugged into electrical outlet.

**35 SERIES GAS FRYERS**  
**CHAPTER 6: OPERATOR TROUBLESHOOTING**

**Basket Lift Operating Instructions**

After the fryer reaches setpoint cooking temperature, place baskets of product on the basket lift arms. Turn basket lift timer to the desired cooking time and push the buttons in the center of the timers. The baskets will be lowered into the shortening. At the completion of the timed cycle, the baskets will automatically be raised. To repeat the cycle, depress the buttons in the center of the timers to lower the baskets. To change the time cycle on the timers, turn knobs to the desired time.

**Basket Lift Troubleshooting**

<b>Problem</b>	<b>Probable Cause</b>	<b>Corrective Action</b>
Lifts continuously travel up and down	A. Microswitch out of adjustment	A. Adjust microswitch to allow proper contact with bell crank.
	B. Microswitch broken	B. Replace broken microswitch.
Basket lift timer will not activate gear motor.	A. Check power from outlet.	A. Replace fuse if necessary.
	B. Loose or broken wire between timer and gear motor.	B. Repair or replace wire as necessary.
	C. Loose or broken wire connections at basket lift timer.	C. Repair or replace wire connections as necessary.
	D. Wire loose in disconnect plug at rear of timers.	D. Push wires into disconnect to gain proper contact.
	E. Defective basket lift timer.	E. Replace timer.
Power to gear motor but gear motor does not move.	A. Defective gear motor	A. Replace gear motor.
	B. Basket lift rod jammed in rod bushings	B. Remove basket lift enclosures, clean and lubricate rods and bushings.
Lift arm does not stop in the raised position	A. Defective gears or brake in gear motor.	A. Replace gear motor.
Basket lift rods binding	A. Rod bushings need lubrication	A. Grease basket lift rods and bushing with Lubriplate-type grease.



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