

**OPERATOR'S MANUAL
FRYMASTER BIGL30 SERIES MANUAL LOV™
GAS FRYER**



This equipment chapter is to be installed in the Fryer Section of the *Equipment Manual*.

FOR YOUR SAFETY
Do Not Store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.



**MANUFACTURED
BY**



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NOTICE

IF, DURING THE WARRANTY PERIOD, THE CUSTOMER USES A PART FOR THIS MANITOWOC EQUIPMENT OTHER THAN AN **UNMODIFIED** NEW OR RECYCLED PART PURCHASED DIRECTLY FROM FRYMASTER DEAN, OR ANY OF ITS AUTHORIZED SERVICERS, AND/OR THE PART BEING USED IS MODIFIED FROM ITS ORIGINAL CONFIGURATION, THIS WARRANTY WILL BE VOID. FURTHER, FRYMASTER DEAN AND ITS AFFILIATES WILL NOT BE LIABLE FOR ANY CLAIMS, DAMAGES OR EXPENSES INCURRED BY THE CUSTOMER WHICH ARISE DIRECTLY OR INDIRECTLY, IN WHOLE OR IN PART, DUE TO THE INSTALLATION OF ANY MODIFIED PART AND/OR PART RECEIVED FROM AN UNAUTHORIZED SERVICER.

NOTICE

This appliance is intended for professional use only and is to be operated by qualified personnel only. A Frymaster DEAN Factory Authorized Servicer (FAS) 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.



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.



WARNING

After installation of a gas fryer and after any maintenance to the gas system of a gas fryer-manifold, valve, burners, etc. – check for gas leaks at all connections. Apply a thick soapy solution to all connections and ensure there are no bubbles. There should be no smell of gas.

NOTICE

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



DANGER

Adequate means must be provided to limit the movement of this appliance without depending upon the gas line connection. 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.

 **CAUTION**

No warranty is provided for any Frymaster fryer used in a mobile or marine installation or concession. Warranty protection is only offered for fryers installed in accordance with the procedures described in this manual. Mobile, marine or concession conditions of this fryer should be avoided to ensure optimum performance.

 **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**

Do not spray aerosols in the vicinity of this appliance while it is in operation.

 **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**

This product contains chemicals known to the state of California to cause cancer and/or birth defects or other reproductive harm.

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

 **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.

 **WARNING**

To ensure the safe and efficient operation of the fryer and hood, the electrical plug for the 120-volt line, which powers the hood, must be fully engaged and locked in its pin and sleeve socket.

NOTICE

The instructions in this manual for using a bulk oil system for filling and discarding oil are for an RTI system. These instructions may not be applicable to other bulk oil systems.

 **WARNING**

This appliance is not intended for use by children under the age of 16 or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision concerning use of the appliance by a person responsible for their safety. Do not allow children to play with this appliance.

 **WARNING**

If the electrical power supply cord is damaged, it must be replaced by a Frymaster Factory Authorized Servicer or a similarly qualified person in order to avoid a hazard.

MANUAL LOV™ GAS WARRANTY STATEMENT

Frymaster, L.L.C. makes the following limited warranties to the original purchaser only for this equipment and replacement parts:

A. WARRANTY PROVISIONS - FRYERS

1. Frymaster L.L.C. warrants all components against defects in material and workmanship for a period of two years.
2. All parts, with the exception of the frypot, O-rings and fuses, are warranted for two years after installation date of fryer.
3. If any parts, except fuses and filter O-rings, become defective during the first year after installation date, Frymaster will also pay straight-time labor costs up to two hours to replace the part, plus up to 100 miles/160 km of travel (50 miles/80 km each way).

B. WARRANTY PROVISIONS - FRYPOTS

1. Frymaster warrants the frypot assembly for fifteen (15) years. First ten (10) years parts and labor. Years eleven (11) through fifteen (15) frypot only. Components attached to the frypot, such as the high-limit, probe, gaskets, seals, ignitors and related fasteners, are also covered by the fifteen year warranty if replacement is necessitated by the frypot replacement. Components that are not part of the frypot assembly, such as the blower, gas valve, micro switches, doors and cabinetry are not covered by the frypot warranty. Leaks due to abuse or from threaded fittings such as probes, sensors, high-limits, drain valves or return piping are not included. If the frypot is found to be defective, Frymaster will replace the frypot, allowing up to the maximum time per the Frymaster time allowance chart hours of straight-time labor plus up to 100 miles/160 km of travel (50 miles/80 km each way) to change the frypot.
2. This warranty is limited to fryers operating on natural or propane (LP) gas. Fryers that operate on manufactured gas (also known as town gas or high-hydrogen gas) have a lifetime frypot warranty, parts only.

C. WARRANTY PROVISIONS – COMBUSTION CHAMBERS

1. Frymaster L.L.C. warrants the combustion chambers against defective material or workmanship for a period of ten years from the original installation date, parts and labor.
2. The combustion chamber consists of the infrared burners and the structural components to mount the burners. This warranty does not cover ancillary components, including the igniter, blower, high-limit thermostat, and temperature probe.
3. This warranty is limited to fryers operating on natural or propane (LP) gas.

E. PARTS RETURN

All defective in-warranty parts must be returned to a Frymaster Factory Authorized Servicer within 60 days for credit. After 60 days, no credit will be allowed.

F. WARRANTY EXCLUSIONS

This warranty does not cover equipment that has been damaged due to misuse, abuse, alteration, or accident such as:

- improper or unauthorized repair (including any frypot which is welded in the field);
- failure to follow proper installation instructions and/or scheduled maintenance procedures as prescribed in your MRC cards. Proof of scheduled maintenance is required to maintain the warranty;
- improper maintenance;
- damage in shipment;
- abnormal use;
- removal, alteration, or obliteration of either the rating plate or the date code on the heating elements;
- operating the frypot without shortening or other liquid in the frypot;
- no fryer will be warranted under the ten-year program for which a proper start-up form has not been received.

This warranty also does not cover:

- transportation or travel over 100 miles/160 km (50 miles/80 km each way), or travel over two hours;
- overtime or holiday charges;
- consequential damages (the cost of repairing or replacing other property which is damaged), loss of time, profits, use or any other incidental damages of any kind.

There are no implied warranties of merchantability or fitness for any particular use or purpose.

This warranty is applicable at the time of this printing and is subject to change.

BIGL30 MANUAL LOV™ SERIES GAS FRYER

CHAPTER 1: INTRODUCTION

NOTE: The Frymaster BIGL30 fryer requires a start-up, demonstration and training before normal restaurant operations can begin.

1.1 General

Read the instructions in this manual thoroughly before attempting to operate this equipment. This manual covers all configurations of models and BIGL30 Manual LOV™ fryers. Models designated BIGL30 are equipped with FootPrint Pro built-in filtration systems. The fryers in this model family have most parts in common, and when discussed as a group, will be referred to as “Manual LOV™ fryers.

Although similar in appearance to the BIPH55 McDonald’s fryers, the BIGL30 Manual LOV™ fryers feature a low oil volume frypot. The Euro-Look design incorporates a rounded topcap and a large round drain which ensures that fries and other debris will be washed into the filter pan. The BIGL30 Manual LOV™ fryers are controlled with an M3000 Manual LOV™ controller. Fryers in this series come in full- or split-vat arrangements, and can be purchased in batteries of up to five vats.

Manual LOV™ high-efficiency gas fryers employ a unique infrared burner system that uses up to 43% less energy to cook the same volume as conventional open-burner fryers.

Manual LOV™ gas fryers are of an open-frypot design with no tubes, which makes cleaning the stainless frypot quick and easy.

Heating is supplied by a pair of infrared burner assemblies mounted on each side of the frypot. A dedicated blower mounted on the front of the frypot supplies combustion air for the burners. Manual LOV™ Gas fryers can be configured for natural gas or propane (LP), as required by the customer.

Each frypot is equipped with a temperature probe for precise temperature control.

All fryers in this series require an external source of AC electrical power. Units can be configured for voltages ranging from 100 VAC to 240 VAC.

BIGL30 Manual LOV™ fryers are shipped completely assembled. All fryers are shipped with a package of standard accessories. Each fryer is adjusted, tested, and inspected at the factory before crating for shipment.

This appliance is only for professional use and shall be used by qualified personnel only, as defined in Section 1.6.

1.2 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 that follow.

 **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.

Your fryer is equipped with automatic safety features:

1. High-temperature detection shuts off gas to the burner assembly should the controlling thermostat fail.
2. A safety circuit on units with filter systems prevents burner ignition with the drain valve open.

1.3 Controller Information

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. While this device is a verified Class A device, it has been shown to meet the Class B limits. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of the equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

If necessary, the user should consult the dealer or an experienced radio and television technician for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

1.4 European Community (CE) Specific Information

The European Community (CE) has established certain specific standards regarding equipment of this type. Whenever a conflict exists between CE and non-CE standards, the information or instructions concerned are identified by means of shadowed boxes.

1.5 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.**

1.6 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.

QUALIFIED INSTALLATION PERSONNEL

Qualified installation personnel are individuals, firms, corporations, and/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 who are familiar with Frymaster equipment and who have been authorized by Frymaster, L.L.C. to perform service on the equipment. All authorized service personnel are required to be equipped with a complete set of service and parts manuals, and to stock a minimum amount of parts for Frymaster equipment. A list of Frymaster Factory Authorized Servicers (FAS's) is located on the Frymaster website at www.frymaster.com. *Failure to use qualified service personnel will void the Frymaster warranty on your equipment.*

1.7 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 its 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.

***Frymaster* DOES NOT ASSUME RESPONSIBILITY FOR DAMAGE OR LOSS
INCURRED IN TRANSIT.**

1.8 Parts Ordering and Service Information

For non-routine maintenance or repairs, or for service information, contact your local Frymaster Authorized Servicer (FAS). In order to assist you quickly, the Frymaster Authorized Servicer (FAS) 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. Part numbers are found in the Service and Parts Manual. Parts orders may be placed directly with your local FAS or distributor. A list of Frymaster Factory Authorized Servicers (FAS's) is located on the Frymaster website at www.frymaster.com. If you do not have access to this list, contact the Frymaster 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 FAS/Distributor. Service may also be obtained by calling the Frymaster Service Department at 1-800-551-8633 or 1-318-865-1711 or by email at service@frymaster.com. 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.

BIGL30 MANUAL LOV™ SERIES GAS FRYER

CHAPTER 2: INSTALLATION INSTRUCTIONS

2.1 General Installation Requirements

Qualified, licensed, and/or authorized installation or service personnel, as defined in Section 1.7 of this manual, should perform all installation and service on Frymaster equipment.

Conversion of this appliance from one type of gas to another should only be performed by qualified, licensed, and/or authorized installation or service personnel as defined in Section 1.7 of this manual.

Failure to use qualified, licensed, and/or authorized installation or service personnel (as defined in Section 1.7 of this manual) to install, convert to another gas type or otherwise service this equipment will void the Frymaster warranty and may result in damage to the equipment or injury to personnel.

Where conflicts exist between instructions and information in this manual and local 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 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 **Shipping Damage Claim Procedure** in Chapter 1.)

2.1.1 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.

 **WARNING**

Do not block the area around the base or under the fryers.

 **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.

One of the most important considerations of efficient fryer operation is ventilation. Make sure the fryer is installed so that products of combustion are removed efficiently, and that the kitchen ventilation system does not produce drafts that interfere with 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.

 **DANGER**

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

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 BTU per hour.*

For installations in the United States, 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.

2.1.2 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. In the absence of local codes, installation must conform to the national Fuel Gas Code, ANSI Z223.1/NFPA 54 or the Natural Gas and Propane Installation code, CSA B149.1, as applicable including:

1. The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of the system at test pressures in excess of ½ psi (3.5 kPa).
2. The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psi (3.5 kPa).

2.1.3 Electrical Grounding Requirements

All electrically operated appliances must be grounded in accordance with all applicable national and local codes, and, where applicable, CE codes. In the absence of local codes, the appliance must be grounded in accordance with National Electrical Code, ANSI/NFPA 70, or the Canadian Electrical Code, CSA C22.2, as applicable. All units (cord connected or permanently connected) should be connected to a grounded power supply system. 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**

This appliance is equipped with a special (grounding) plug for your protection against electrical shock, and must be plugged directly into a properly grounded receptacle. Do not cut, remove, or otherwise bypass the grounding prong on this plug!

 **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.

2.1.4 Australian Requirements

To be installed in accordance with AS 5601, local authority, gas, electricity, and any other relevant statutory regulations.

If casters are fitted, the installation must comply with AS5601 and AS1869 requirements.

2.2 Caster/Leg Installation

Depending upon the specific configuration ordered, your fryer may have been shipped without installed casters or legs. **DO NOT INSTALL THIS APPLIANCE WITHOUT CASTERS OR LEGS. If the appliance requires the installation of casters or legs, install them in accordance with the instructions included in your accessory package.**

On an appliance with casters; the installation shall be made with a connector that complies with the Standard for Moveable Gas Appliances, ANSI Z21.69 • CSA 6.16, and a quick disconnect device that complies with the Standard for Quick-Disconnect Devices for Use With Gas Fuel, ANSI Z21.41 • CSA 6.9.

2.3 Pre-Connection Preparations

 **DANGER**

DO NOT connect this appliance to the gas supply before completing each step in this section.

After the fryer has been positioned under the 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 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.

 **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.

2. Level fryers equipped with legs by screwing out the legs approximately 1 inch then adjusting them so that 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 hood be 24 in. (600 mm) when the appliance consumes more than 120,000 BTU per hour. **NOTE:** There are no built-in leveling devices on fryers equipped with casters. The floor where the fryer is to be installed must be level.
3. Test the fryer electrical system:
 - a. Plug the fryer electrical cord(s) into a grounded electrical receptacle.
 - b. Place the computer switch in the **ON** position. Verify that the display indicates **MLT-CYCL**.
 - c. Place the computer power switch in the **OFF** position. Verify that the display indicates **OFF**.
4. 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.
5. Verify the minimum and maximum gas supply pressures for the type of gas to be used in accordance with the accompanying tables.

CE Standard for Incoming Gas Pressures for Fryers Manufactured After April 1999					
Gas	Pressure (mbar) ⁽¹⁾	Orifice Diameter		Regulator Pressure	
		Single Vat	Dual Vat	Single Vat	Dual Vat
G20	20	2 x 3.18	2 x 3.18	7 mbar	8 mbar
G25	20 or 25	2 x 3.18	2 x 3.18	10 mbar	11.2 mbar
G30	28/30 or 50	2 x 1.95	2 x 1.95	17 mbar	17 mbar
G31	37 or 50	2 x 1.95	2 x 1.95	20.6 mbar	20.6 mbar

(1) mbar = 10,2 mm H₂O

Non-CE Standard for Incoming Gas Pressures		
Gas	Minimum	Maximum
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

6. For fryers equipped with a FootPrint Pro system or basket lifts, plug the electrical cord(s) into a power receptacle behind the fryer.

2.4 Connection to Gas Line

⚠ 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.

⚠ DANGER

The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of the system at test pressures in excess of ½ PSI (3.45 kPa, 13.84 inches W.C.) to avoid damage to the fryer's gas tubes and gas valve(s).

⚠ DANGER

The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ PSI (3.45 kPa, 13.84 inches W.C.)

⚠ DANGER

“Dry-firing” your unit will cause damage to the frypot and can cause a fire. Always ensure that cooking oil or water is in the frypot before firing the unit.

⚠ 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 factory authorized servicer for service.

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 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.

Gas Connection Pipe Sizes			
(Minimum incoming pipe size should be 1 1/2" (41 mm))			
Gas	Single Unit	2 - 3 Units	4 or more units*
Natural	3/4" (22 mm)	1" (28 mm)	1 1/4" (36 mm)
Propane	1/2" (15 mm)	3/4" (22 mm)	1" (28 mm)
Manufactured	1" (28 mm)	1 1/4" (36 mm)	1 1/2" (41 mm)

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

The MANUAL LOV™ Series gas fryer has received the CE mark for the countries and gas categories indicated in the table below. **NOTE:** The nominal heat input (QN) is 21kW except for AT, DE, LU and category 3P/B, which is 23kW.

NOTICE- Australia Only

The air pressure switch on the combustion blower should read: Full Vat units-122pa (0.5 inches W.C.) and for Split Vat units-180pa (0.72 inches W.C.).

CE Approved Gas Categories by Country			
COUNTRIES	CATEGORIES	GAS	PRESSURE (MBAR)
AUSTRIA (AT)	I12H3B/P	G20	20
		G30, G31	50
BELGIUM (BE)	I2E(R)B	G20, G25	20, 25
	I3+	G30, G31	28-30, 37
BULGARIA (BG), CROATIA (HR), FINLAND (FI), ROMANIA (RO), SLOVENIA (SI), TURKEY (TR)	I12H3B/P	G20	20
		G30, G31	30
ESTONIA (EE), LATVIA (LV)	I2H	G20	20
FRANCE (FR)	I12Esi3+	G20, G25	20, 25
		G30, G31	28-30, 37
	I12Esi3P	G20, G25	20, 25
		G31	50
GERMANY (DE)	I12ELL3B/P	G20, G25	20
		G30, G31	50
	I3P	G31	50
HUNGARY (HU)	I12HS3B/P	G25	25
		G30, G31	50
CYPRUS (CY), CZECH REPUBLIC (CZ), GREECE (GR), IRELAND (IE), ITALY (IT), PORTUGAL (PT), SLOVAKIA (SK), SPAIN (ES), UNITED KINGDOM (GB)	I12H3+	G20	20
		G30, G31	28-30, 37
LUXEMBOURG (LU)	I12E3B/P	G20, G25	20
		G30, G31	50
NETHERLANDS (NL)	I12L3B/P	G25	25
		G30, G31	30
ICELAND (IS) MALTA (MT), NORWAY (NO),	I3B/P	G30, G31	30
POLAND (PL)	I12E3B/P	G20, G25	20
		G31	37
SWITZERLAND (CH)	I12H3+	G20	20
		G30, G31	28-30, 37
	I12H3B/P	G20	20
		G30, G31	50
DENMARK (DK), SWEDEN (SE), LITHUANIA (LT)	I12H3B/P	G20	20
		G30, G31	30
	I2H	G20	20

CE Standard

Required airflow for the combustion air supply is 2m³/h per kW.

1. Connect the quick-disconnect hose to the fryer quick-disconnect under 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. Doing so may allow some of the compound to enter the gas stream, resulting in clogging of burner orifices and/or the control valve.

2. Open the gas supply to the fryer and check all piping, fittings, and gas connections for leaks. A soap solution should be used for this purpose.
3. Close the fryer drain valve and fill the frypot with water or oil to the bottom OIL LEVEL line at the rear of the frypot. Light the fryer described in the “Lighting Instructions” topics found in Chapter 3 of this manual.

 **DANGER**

“Dry-firing” your unit will cause damage to the frypot and can cause a fire. Always ensure that cooking oil or water is in the frypot before firing your unit.

4. The burner manifold pressure should be checked at this time by the local gas company or an authorized service agent. The tables below and on the following page list the burner manifold gas pressures for the various gas types that can be used with this equipment.

CE Standard Burner Manifold Gas Pressures for Fryers Manufactured After April 1999		
Gas	Pressure (mbar)	
	Single Vat	Dual Vat
Natural Gas Lacq (G20) under 20 mbar	7	8
Natural Gas Gronique * (G25) under 25 mbar	10	11.2
Natural Gas Gronique (G25) under 20 mbar	10	11.2
Butane/Propane (G30) at 28/30 or 50 mbar	17	17
Propane (G31) under 37 or 50 mbar	20.6	20.6

Non-CE Standard Burner Manifold Gas Pressures	
Gas	Pressure
Natural	3" W.C. 0.73 kPa
Propane	8.25" W.C. 2.5 kPa

5. Check the programmed temperature thermostat setting. (Refer to the controller manual shipped with the fryer for the setpoint programming instructions for your particular controller.)

2.5 Converting to another Gas Type

⚠ DANGER

This appliance was configured at the factory for a specific type of gas. Converting from one type of gas to another requires the installation of specific gas-conversion components. Conversion instructions are included with conversion kits.

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 1.7 of this manual.

MANUAL LOV™ Series gas fryers manufactured for non-CE countries use different burners for each type gas. The burners in fryers built for Propane gas have a special gray-colored coating on the burner tiles to enable them to withstand the higher caloric value of the Propane gas. Burners designed for use in propane units may be used in natural gas applications, but not vice versa.

Non-CE Gas Conversion Kits

Natural Gas to Propane (LP) Gas

Full Vat before 09/10: PN 826-2527
 Dual Vat before 09/10: PN 826-2529
 Full Vat after 09/10: PN 826-2965
 Dual Vat after 09/10: PN 826-2966

Propane (LP) Gas to Natural Gas

Full Vat before 09/10: PN 826-2528
 Dual Vat before 09/10: PN 826-2530
 Full Vat after 09/10: PN 826-2967
 Dual Vat after 09/10: PN 826-2968

Non-CE Gas Conversion Kits for Australia

Natural Gas to Propane (LP) Gas

Full Vat before 09/10: PN 826-2745
 Dual Vat before 09/10: PN 826-2746
 Full Vat after 09/10: PN 826-2969
 Dual Vat after 09/10: PN 826-2970

Propane (LP) Gas to Natural Gas

Full Vat before 09/10: PN 826-2747
 Dual Vat before 09/10: PN 826-2748
 Full Vat after 09/10: PN 826-2971
 Dual Vat after 09/10: PN 826-2972

Units manufactured for export to CE countries are equipped with “universal” burners that may be used with either Natural (G20, G25) gas or Butane (G30) and Propane (G31) gasses.

CE Gas Conversion Kits for Units with Gas Valve 810-1715

G20 or G25 (Natural) to G30 or G31 Gas:
 before 09/10 PN 826-2973
 after 09/10 PN 826-2975

G30 or G31 to G20 or G25 (Natural) Gas:
 before 09/10 PN 826-2974
 after 09/10 PN 826-2976

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.
2. Between a 2nd family (G20 or G25) and a 3rd family gas (G30 Butane or G31 Propane):
 - a. Change the orifices.
 - b. Adjust the manifold pressure.
3. Remove the old rating plate and return to Frymaster. Affix the new rating plate included with the conversion kit in place of the old rating plate stating the gas has been converted.
4. If the destination language changes, replace the rating plate. Call your local service agency or KES for a label kit. The language of reference will be on the corner of the label.

2.6 Positioning the Fryer

1. Once the fryer has been positioned at the frying station, use a carpenter's level placed across the top of the frypot to verify that the unit is level, both side-to-side and front-to-back.

To level fryers, adjust the casters being careful to ensure the fryer(s) are at the proper height in the frying station.

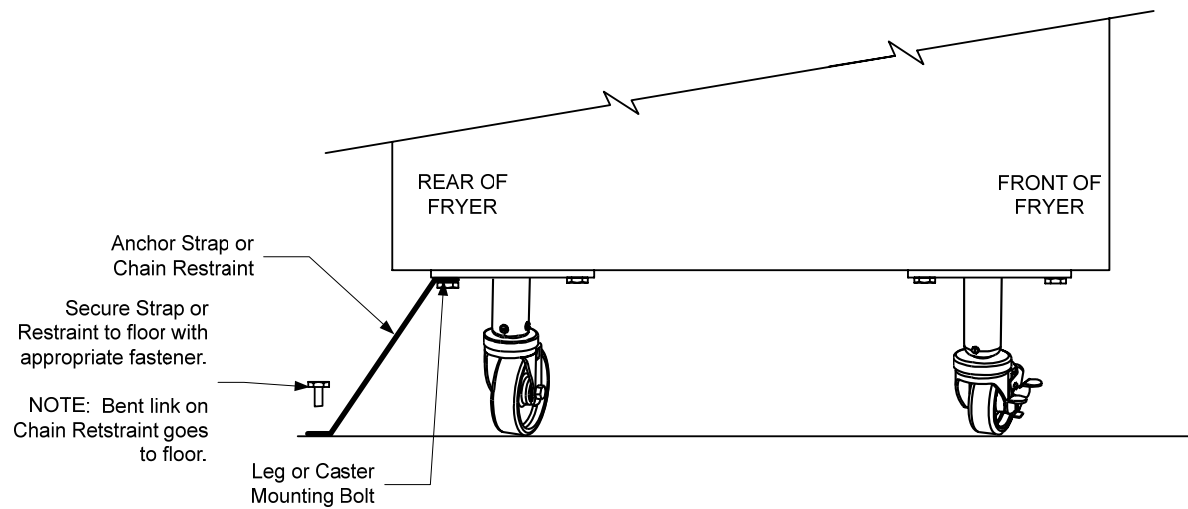
When the fryer is leveled in its final position, install the restraints provided by the KES to limit its movement so that it does not depend on or transmit stress to the connection. Install the restraints in accordance with the provided instructions. If the restraints are disconnected for service or other reasons, they must be reconnected before the fryer is used.

DANGER

Hot oil can cause severe burns. Avoid contact. Under all circumstances, oil must be removed from the fryer before attempting to move it to avoid spills, falls, and severe burns. Fryers may tip and cause personal injury if not secured in a stationary position.

DANGER

Adequate means must be provided to limit the movement of this appliance without depending on the connector and the quick-disconnect device or its associated piping to limit the appliance movement.

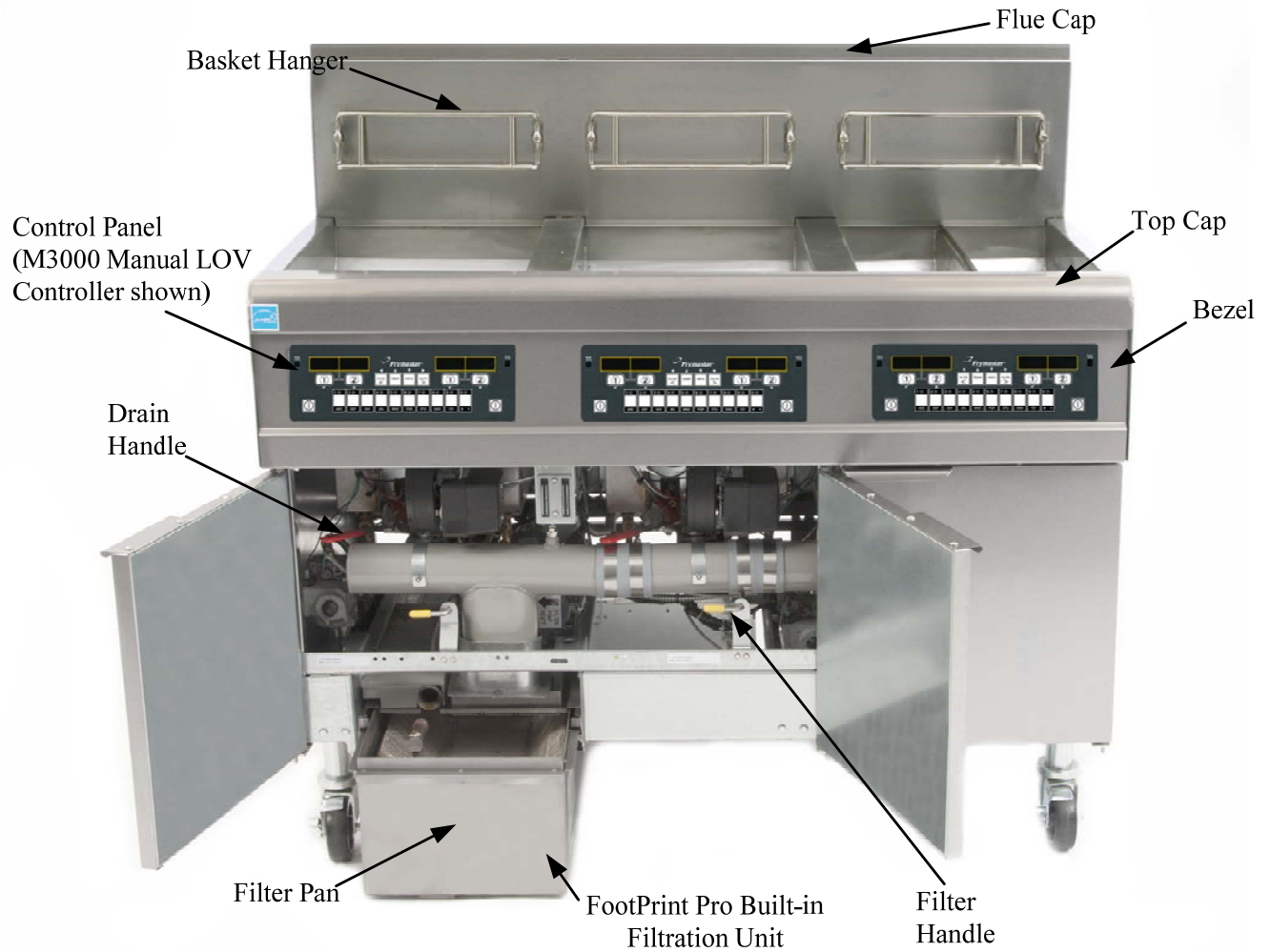


2. Close fryer drain-valve(s).
3. Clean and fill frypot(s) to the bottom oil level line with cooking oil. (See *Equipment Setup and Shutdown Procedures* in Chapter 3.)

BIGL30 MANUAL LOV™ SERIES GAS FRYER

CHAPTER 3: OPERATING INSTRUCTIONS

FINDING YOUR WAY AROUND THE BIGL30 MANUAL LOV™ SERIES GAS FRYER

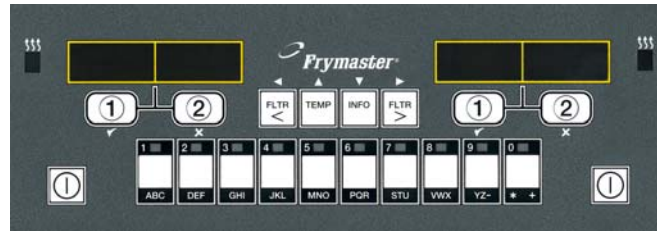


TYPICAL CONFIGURATION (BIGL330 SHOWN)

NOTE: The appearance of your fryer may differ slightly from that shown depending upon the configuration and date of manufacture.

3.1 Controller Operation and Programming

This fryer is equipped with a Manual LOV™ M3000 controller (illustrated below). Fryers with Manual LOV™ M3000 controllers should refer to the Manual LOV™ M3000 Controller Manual 819-6964 for the controller programming and operating procedure.



MANUAL LOV™ M3000 CONTROLLER

Refer to Chapter 4 of this manual for operating instructions for the built-in filtration system.

3.2 Equipment Setup and Start-Up Procedures

⚠ WARNING

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

⚠ CAUTION

The cooking oil capacity of the MANUAL LOV™ Series gas fryer is 32 lbs. (3.8 gallons/14.5 liters) at 70°F (21°C) for a full-vat.

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

If solid shortening is being used, make sure it is packed down into the bottom of the frypot.

3.2.1 Setup

⚠ WARNING

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

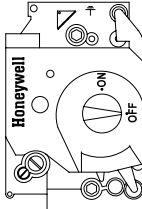
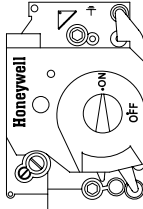
⚠ DANGER

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

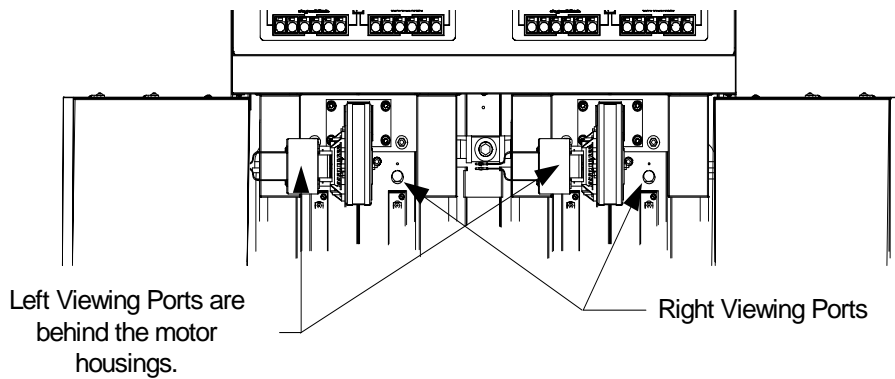
1. Fill the frypot with cooking oil to the bottom OIL LEVEL line located on the rear of the frypot. This will allow for oil expansion as heat is applied. Do not fill cold oil any higher than the bottom line; overflow may occur as heat expands the oil.
2. Ensure that the power cord(s) are plugged into the appropriate receptacle(s). Verify that the face of the plug is flush with the outlet plate, with no portion of the prongs visible.
3. Ensure that the oil level is at the *top* OIL LEVEL line when the oil *is at its cooking temperature*. It may be necessary to add oil to bring the level up to the proper mark, after it has reached cooking temperature.

3.2.2 Lighting the Fryer

1. Press the controller ON/OFF switch to the OFF position.

For CE Fryers	For Non-CE Fryers
<p>Placing the ON/OFF switch on the controller in the OFF position also turns off the gas valve. Wait five minutes before continuing with Step 2, which will also turn on the gas valve. NOTE: There is not a physical ON/OFF knob on CE gas valves.</p>	<p>After placing the ON/OFF switch on the controller in the OFF position, turn the gas valve knob to the OFF position. Wait 5 minutes, then turn the knob to the ON position and proceed with Step 2.</p>
	

2. Press the controller ON/OFF switch to the ON position and program the controller for normal cooking temperature.
3. If the burners fail to light, press the ON/OFF switch to the OFF position and wait 60 seconds. Repeat step 2.
4. The fryer will automatically enter the melt cycle mode if the frypot temperature is below 180°F (82°C). (**NOTE:** During the melt cycle, the burners will repeatedly fire for a few seconds, then go out for a longer period.) When the frypot temperature reaches 180°F (82°C), the unit will automatically switch to the heating mode. The burners will remain lit until the frypot temperature reaches the programmed cooking temperature. Once the fryer reaches setpoint, the controller display changes to ---- or product name and the fryer is ready for use. To exit the melt cycle, press and hold the X button during melt cycle. The controller displays EXIT MELT? YES/NO. Press the button associated with YES to EXIT MELT?
5. After the burners have been lit for at least 90 seconds, observe the flames through the burner viewing ports located on each side of the combustion air blower.

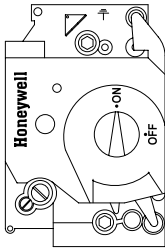
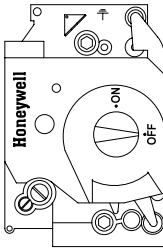


The optimum burn is a bright orange-red glow. If a blue flame is observed, or if there are dark spots on a burner face, adjust the air gas mixture as follows: On the side of the blower housing opposite the motor is a plate with a locking nut. Loosen the nut enough to allow the plate to be moved, then adjust the position of the plate to open or close the air intake opening until a bright orange-red glow is obtained. Carefully hold the plate in position and tighten the locking nut.

3.3 Shutting the Fryer Down

For short-term shut down during the workday, place the controller ON/OFF switch in the **OFF** position and put the frypot covers in place (if the fryer is so equipped).

When shutting the fryers down at closing time, filter the oil and clean the fryers. Place the controller ON/OFF switch in the **OFF** position. Then place the gas valve in the off position. See illustration below.

For CE Fryers	For Non-CE Fryers
<p>Placing the ON/OFF switch on the controller in the OFF position also turns off the gas valve. NOTE: There is not a physical ON/OFF knob on CE gas valves.</p>	<p>After placing the ON/OFF switch on the controller in the OFF position, turn the gas valve knob to the OFF position.</p>
	

Filter the oil and clean the fryers (See Chapters 4 and 5).

Put the frypot covers in place (if the fryer is so equipped).

BIGL30 MANUAL LOV™ SERIES GAS FRYER

CHAPTER 4: FILTRATION INSTRUCTIONS

WARNING

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

4.1 Preparing the Built-In Filtration System for Use

The FootPrint Pro filtration system allows the oil in one frypot to be safely and efficiently filtered while the other frypots in a battery remain in operation.

Section 4.1.1 covers preparation of the Filter Paper and Filter Pad configurations for use.

4.1.1 Preparing the Built-In Filtration System for Use with Filter Paper or Filter Pad

The FootPrint Pro filtration system allows the oil in one frypot to be safely and efficiently filtered while the other frypots in a battery remain in operation. The FootPrint Pro filtration system uses a filter paper configuration which includes a crumb tray, large hold-down ring, and metal filter screen.

1. Pull the filter pan out from the cabinet and remove the crumb tray, hold-down ring, filter paper and filter screen (see Figure1). Clean all components with a solution of detergent and hot water then dry thoroughly.

The pan cover must not be removed except for cleaning, interior access, or to allow a shortening disposal unit (SDU) built before January 2004 to be positioned under the drain. Disposal instructions are on page 1-13 in the controller manual.

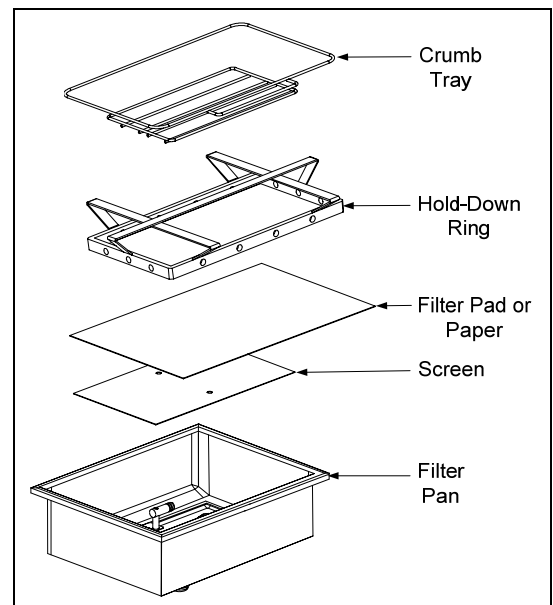


Figure 1

2. Inspect the filter pan connection fitting to ensure that both O-rings are in good condition (see Figure 2).
3. Then in reverse order, place the metal filter screen in the center of the bottom of the pan, then lay a sheet of filter paper on top of the screen, overlapping on all sides (see Figure1). If using a filter pad, ensure the rough side of the pad is up and lay the pad over the screen, making sure that the pad is in between the embossed ridges of the filter pan.
4. Position the hold-down ring over the filter paper and lower the ring into the pan, allowing the paper to rest on the sides of the filter pan (see Figure 3).
5. When the hold-down ring is in position, if using filter paper, sprinkle one packet of filter powder or the manufacturers recommended amount evenly over the paper. (See Figure 4)

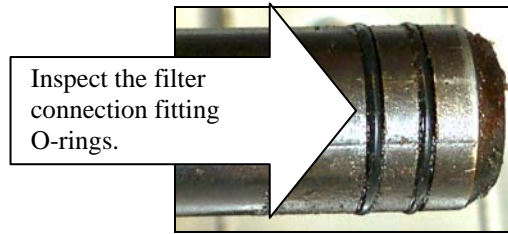


Figure 2



Figure 3



Figure 4

DO NOT use filter powder with the pad!

6. Replace the crumb tray in the filter pan, then push the filter pan back into the fryer, positioning it under the drain.

4.2 Filtration

An M3000 controller prompts the user when to filter on the Manual LOV™ fryer if option is selected in setup. After a preset number of cook cycles the controller displays **FILTER NOW?** alternating with **YES NO**. Follow the instructions on page 2-15 in the controller manual. If NO is selected or a cook cycle is started, the controller will prompt again soon to filter the oil.

On demand filtration is used to manually start a filter. See page 2-14 in the controller manual for the filter menu.

The fryer **MUST** be at setpoint temperature for any filtration operation to start.

Note: Do NOT filter multiple vats simultaneously.

4.2.1 Operation of the Filter

⚠ DANGER

Draining and filtering of cooking oil must be accomplished with care to avoid the possibility of a serious burn caused by careless handling. The oil to be filtered is at or near 350°F (177°C). Ensure drain handles are in their proper position before operating any switches or valves. Wear all appropriate safety equipment when draining and filtering cooking oil.

⚠ DANGER

NEVER attempt to drain cooking oil from the fryer with the burners lit! Doing so will cause irreparable damage to the frypot and may cause a flash fire. Doing so will also void the Frymaster warranty.

1. Ensure that the filter is prepared. See Section. 4.1.
2. Make sure the oil is at operating temperature.
3. Drain the frypot into the filter pan by rotating the drain valve handle 90° (see Figure 7). If necessary, use the *Fryer's Friend* clean-out rod to clear the drain from **inside** the frypot.

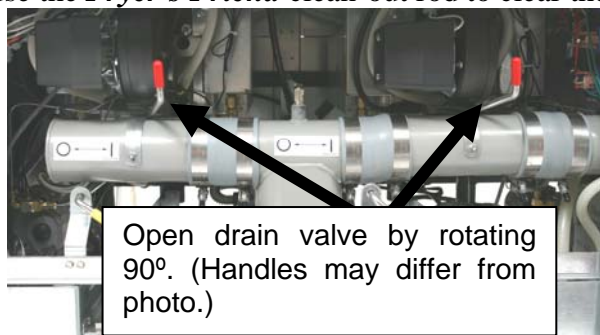


Figure 7

⚠ DANGER

Do not drain more than one frypot at a time into the built-in filtration unit to avoid overflow and spillage of hot oil that may cause severe burns, slipping and falling.

⚠ DANGER

NEVER attempt to clear a clogged drain valve from the front of the valve! Hot oil will rush out creating the potential for severe burns.

⚠ DANGER

DO NOT hammer on the drain valve with the cleanout rod or other objects. Damage to the ball inside will result in leaks and will void the Frymaster warranty.

4. After the oil has drained from the frypot, rotate the filter handle towards the “I” to start the pump and begin the filtering process. There may be a slight delay before the pump activates (see Figure 8).

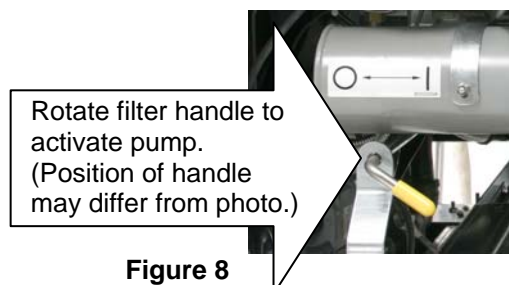
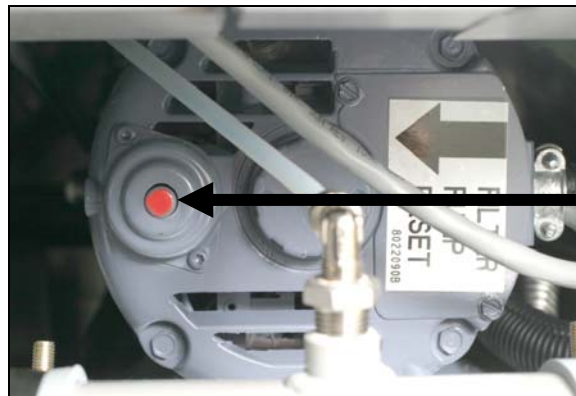


Figure 8

5. The filter pump draws the oil through the filter medium and circulates it back up to and through the frypot during a filter.
6. After the oil is filtered (about 5 minutes), close the drain valve allow the fryer to refill. Let the filter pump run 15 to 30 seconds after the oil begins to bubble.
7. Ensure the drain valve is fully closed. (If the drain valve is not fully closed, the fryer will not operate.)
8. Turn the filter off by rotating the handle to original position.

⚠ WARNING

The filter pump is equipped with a manual reset switch in case the filter motor overheats or an electrical fault occurs. If this switch trips, turn off power to the filter system and allow the pump motor to cool 20 minutes before attempting to reset the switch (see photo below).



Filter Pump Reset Switch

⚠ WARNING

Use caution and wear appropriate safety equipment when resetting the filter pump reset switch. Resetting the switch must be accomplished with care to avoid the possibility of a serious burn caused by careless maneuvering around a drain tube and around a frypot.

⚠ 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.

4.4 Draining and Disposing of Waste Oil

When your oil has reached the end of its usable life, drain the oil into an appropriate METAL container for transport to the disposal container. Frymaster recommends the use of the McDonald's Shortening Disposal Unit (MSDU). **NOTE:** If using an MSDU built before January 2004, the filter pan cover must be removed to allow the unit to be positioned beneath the drain. To remove the lid, lift up on the front edge and pull it straight out of the cabinet. Refer to the documentation furnished with your disposal unit for specific operating instructions. If a shortening disposal unit is not available, allow the oil to cool to 100°F (38°C), then drain the oil into a METAL stockpot or similar METAL container. When draining is finished, close the fryer drain valve securely.

⚠ DANGER

Draining and filtering of cooking oil must be accomplished with care to avoid the possibility of a serious burn caused by careless handling. The oil to be filtered is at or near 350°F (177°C). Ensure all hoses are connected properly and drain handles are in their proper position before operating any switches or valves. Wear all appropriate safety equipment when draining and filtering oil.

⚠ DANGER

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

⚠ DANGER

When draining oil into a disposal unit, do not fill above the maximum fill line located on the container.

1. Turn the computer power switch to the **OFF** position.
2. Position a METAL container with a sealable cover under the drainpipe. The METAL container must be able to withstand the heat of the oil and hold hot liquids.
3. Follow the instructions for disposing of oil on page 1-13 in the controller manual. 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

NEVER attempt to clear a clogged drain valve from the front of the valve! Hot oil will rush out creating the potential for severe burns.

⚠ DANGER

DO NOT hammer on the drain valve with the cleanout rod or other objects. Damage to the ball inside will result in leaks and will void the Frymaster warranty.

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

BIGL30 MANUAL LOV™ SERIES GAS FRYER

CHAPTER 5: PREVENTIVE MAINTENANCE

5.1 FRYER PREVENTATIVE MAINTENANCE CHECKS AND SERVICE

⚠ DANGER

The crumb tray in fryers equipped with a filter system must be emptied into a fire-proof container at the end of frying operations each day. Some food particles can spontaneously combust if left soaking in certain shortening material.

5.2 DAILY CHECKS AND SERVICE

5.2.1 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.

5.2.2 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 and dust.

Clean the outside of the fryer cabinet with a clean, damp cloth soaked with McDonald's All Purpose Concentrate, removing oil, dust, and lint from the fryer cabinet. Wipe with a clean, damp cloth.

⚠ WARNING

Use McDonald's All Purpose Concentrate. Read the directions for use and precautionary statements before use. Particular attention must be paid to the concentration of cleaner and the length of time the cleaner remains on the food-contact surfaces.

⚠ DANGER

Never attempt to clean fryer during the cooking process or when the frypot is filled with hot oil. If water comes in contact with oil heated to cooking temperature, it can cause the oil to splatter and severely burn nearby personnel.

5.2.3 Clean the Built-in Filtration System Daily

⚠ WARNING

Never operate the filter system without oil in the system.

⚠ WARNING

Never use the filter pan to transport old oil to the disposal area.

⚠ WARNING

Never drain water into the filter pan. Water will damage the filter pump.

There are no periodic preventive maintenance checks and services required for your FootPrint Pro Filtration System other than daily cleaning of the filter pan with a solution of hot water and McDonald's All Purpose Concentrate.

If you notice that the system is pumping slowly or not at all, verify that the filter pan screen is on the bottom of the filter pan, with the paper on top of the screen. Verify that the two O-ring(s) on the fitting at the right front of the filter pan are present and in good condition.

5.2.4 Clean Frypot and Filter Pan Daily

Carbonized oil will accumulate on the filter pan and detachable parts and accessories such as baskets. See the Maintenance Filter procedure instructions on page 2-16 in the controller manual to clean the frypot.

Clean the filter pan and all detachable parts and accessories with a a solution of hot water and McDonald's All Purpose Concentrate. Rinse and **thoroughly dry** each part. DO NOT use steel wool or abrasive pads to clean these parts. The scratches that result from such scrubbing make subsequent cleanings more difficult.

⚠ WARNING

Use McDonald's All Purpose Concentrate. Read the directions for use and precautionary statements before use. Particular attention must be paid to the concentration of cleaner and the length of time the cleaner remains on the food-contact surfaces.

⚠ DANGER

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

If you notice that the system is pumping slowly or not at all, verify that the filter pan screen is on the bottom of the filter pan, with the pad on top of the screen. Verify that the two O-ring(s) on the fitting at the right front of the filter pan are present and in good condition.

5.3 WEEKLY CHECKS AND SERVICE

5.3.1 Clean Behind Fryers

Clean behind fryers in accordance with the procedure detailed in maintenance requirement card (MRC) 14A.

5.3.2 Boiling Out the Frypot (Deep Clean)

After the fryer has been in use for a period of time, a hard film of caramelized oil will form on the inside of the frypot. This film should be periodically removed to maintain your fryer's efficiency by following the boil out procedure that follows.

1. Before switching the fryer(s) ON, close the frypot drain valve(s), then fill the empty frypot with a mixture of cold water and detergent. Follow instructions on detergent container when mixing.
2. Program the controller for boil-out as described on page 2-21 in the controller manual.
3. Simmer the solution for one hour. Do not allow the water level to drop below the bottom oil-level line in the frypot during the boil-out operation.

 **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.

4. Turn the fryer ON/OFF switch(s) to the OFF position.
5. Add two gallons (7.6 liters) of water. Drain out the solution and clean the frypot(s) thoroughly.

 **WARNING**

Do not drain boil-out solution into a shortening disposal unit (SDU), 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.

6. Refill the frypot(s) with clean water. Rinse the frypot(s) twice, drain and dry with a clean towel. Thoroughly remove all water from the frypot and elements before refilling the frypot with oil.

 **DANGER**

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

5.1.5 Clean Detachable Parts and Accessories – Weekly



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

Wipe the filter pan and all detachable parts and accessories with a clean dry cloth. Use a cloth dampened with a solution of McDonald's All Purpose Concentrate to remove accumulated carbonized oil. Rinse and thoroughly dry each part. DO NOT use steel wool or abrasive pads to clean these parts. The scratches that result from such scrubbing make subsequent cleanings more difficult.

6.4 MONTHLY CHECKS AND SERVICE

5.4.1 Check 3000 Set Point Accuracy

(This check applies only to units equipped with 3000 or CM3.5 Controllers.)

1. Insert a good-grade thermometer or pyrometer probe into the oil, with the end touching the fryer temperature-sensing probe.
2. When the controller display shows a series of dashes “----” or a product name (indicating that the frypot contents are within the cooking range), press the  switch once to display the temperature and setpoint of the cooking oil as sensed by the temperature probe.
3. Press the  switch twice to display the set point. The setpoint is the temperature with a dot after it.
4. Note the temperature on the thermometer or pyrometer. All three readings should be within $\pm 5^{\circ}\text{F}$ (2°C) of each other. If not, contact a Factory Authorized Servicer for assistance.

5.5 QUARTERLY CHECKS AND SERVICE

5.5.1 Clean Combustion Air Blower Assembly

1. Disconnect the blower wiring harness and remove the four blower mounting nuts (see Figure 1 below). In some positions, the module may need to be removed prior to removing the blower.

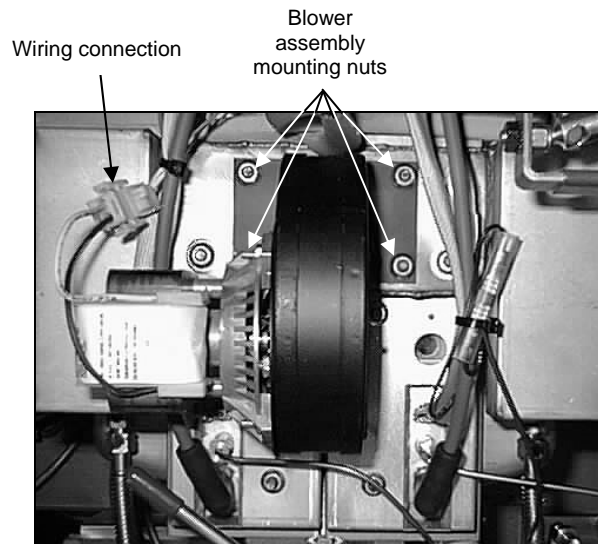


Figure 1

2. Remove the three fasteners that secure the blower motor assembly to the blower housing, and separate the two components (see Figure 2 on the following page).

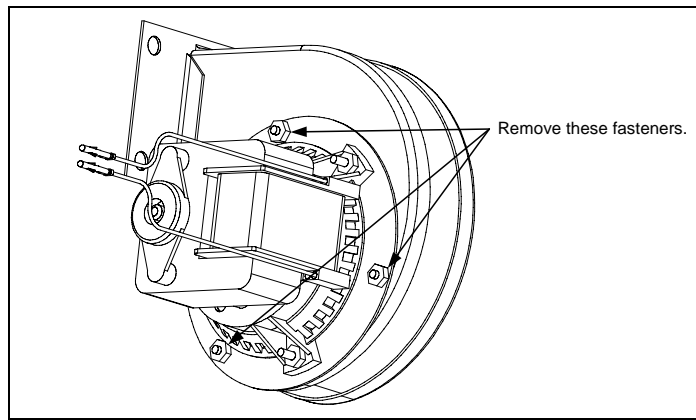


Figure 2

3. Wrap the motor with plastic wrap to prevent water from entering it. Spray degreaser or detergent on the blower wheel and the blower housing. Allow it to soak for five minutes. Rinse the wheel and housing with hot tap water, then dry with a clean cloth (see Figure 3).

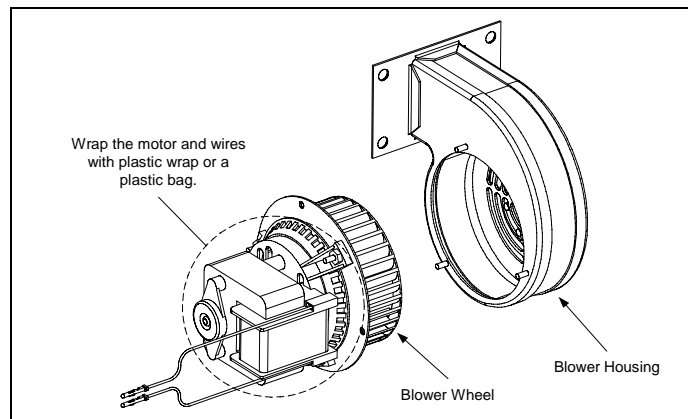


Figure 3

4. Remove the plastic wrap from the blower motor assembly. Reassemble the blower motor assembly and blower housing. Reinstall the blower assembly in the fryer.
5. Reinstall the blower shield or shield assembly.
6. Light the fryer in accordance with the procedure described in Chapter 3, Section 3.2.2.
7. After the burners have been lit for at least 90 seconds, observe the flames through the burner viewing ports located on each side of the combustion air blower (see Figure 4 on the following page).

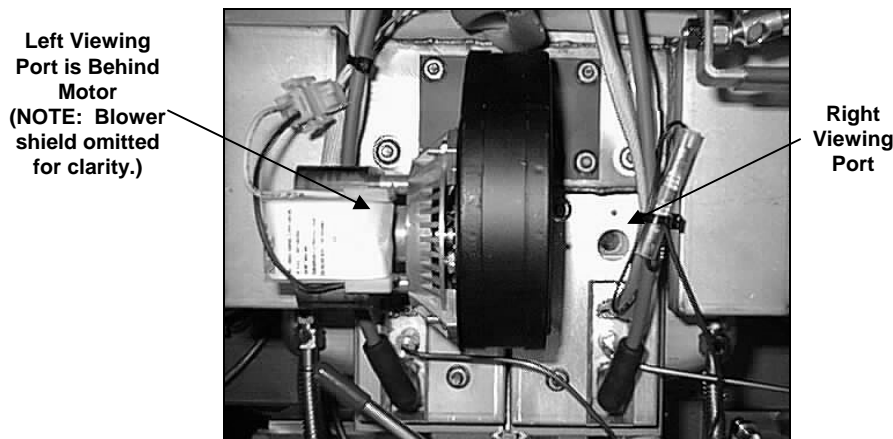
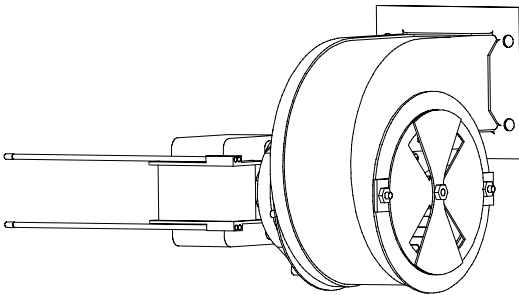


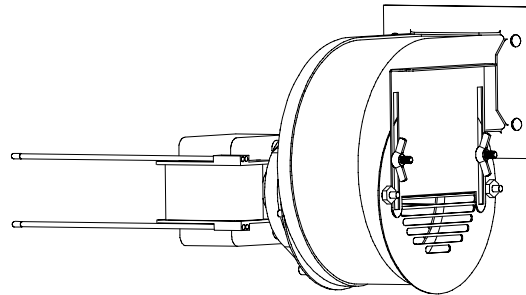
Figure 4

The air/gas mixture is properly adjusted when the burner manifold pressure is in accordance with the applicable table on page 2-7 and the burners display a bright orange-red glow. If a blue flame is observed, or if there are dark spots on a burner face, the air/gas mixture requires adjustment.

On the side of the blower housing opposite the motor is a plate with one or two locking nuts. Loosen the nut(s) enough to allow the plate to be moved, then adjust the position of the plate to open or close the air intake opening until a bright orange-red glow is obtained. Carefully hold the plate in position and tighten the locking nut(s).



TYPICAL BLOWER ASSEMBLY



SOME CE BLOWER ASSEMBLIES
MAY BE CONFIGURED THIS WAY

5.6 SEMI-ANNUAL CHECKS AND SERVICE

5.6.1 Clean Gas Valve Vent Tube

NOTE: This procedure is not required for fryers configured for export to CE countries.

1. Set the fryer power switch and the gas valve to the OFF position.
2. Carefully unscrew the vent tube from the gas valve. **NOTE:** The vent tube may be straightened for ease in removal.

3. Pass a piece of ordinary binding wire (.052 inch diameter) through the tube to remove any obstruction.
4. Remove the wire and blow through the tube to ensure it is clear.
5. Reinstall the tube and bend it so that the opening is pointing downward.

5.6.2 Check Burner Manifold Pressure



This task should be performed by qualified service personnel only. Contact your FAS to arrange this service.

5.7 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 recommends that a Factory Authorized Servicer inspect this appliance at least annually as follows:

5.7.1 Fryer

- Inspect the cabinet inside and out, front and rear for oil.
- Verify that the flue opening is not obstructed by debris or accumulations of solidified oil.
- 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 probe guards are present and properly installed.
- Verify that component box components (i.e. controller, transformers, relays, interface boards, etc.) are in good condition and free from oil 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 is in good condition and free of leaks and that the frypot insulation is in serviceable condition.
- Verify that wiring harnesses and connections are tight and in good condition.

5.7.2 Built-In Filtration System

- 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 are present and in good condition. Replace O-rings and seals if worn or damaged.
- Check filtration system integrity as follows:
 - Verify that filter pan cover is present and properly installed.
 - 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 oil 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 microswitches. No air bubbles should be visible in any frypot.
 - 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 to return to the frypot (indicated by bubbles in the oil). Return the oil return handle to the OFF position. The frypot should have refilled in no more than 2 minutes and 30 seconds.

BIGL30 MANUAL LOV™ SERIES GAS FRYER

CHAPTER 6: OPERATOR TROUBLESHOOTING

6.1 Introduction

This chapter provides an easy reference guide to some of the common problems that may occur during the operation of your equipment. The troubleshooting guides that follow are intended to help you correct, or at least accurately diagnose, problems with your equipment. Although the chapter covers the most common problems reported, you may encounter problems that are not covered. In such instances, the Frymaster Technical Services staff will make every effort to help you identify and resolve the problem.

When troubleshooting a problem, always use a process of elimination starting with the simplest solution and working through to the most complex. Most importantly, always try to establish a clear idea of why a problem has occurred. Part of your corrective action involves taking steps to ensure that it doesn't happen again. If a controller malfunctions because of a poor connection, check all other connections while you're at it. If a fuse continues to blow, find out why. Always keep in mind that failure of a small component may often be indicative of potential failure or incorrect functioning of a more important component or system.

If you are in doubt as to the proper action to take, do not hesitate to call the Frymaster Technical Service Department or your local Frymaster Factory Authorized Servicer for assistance.

Before calling a servicer or the Frymaster HOTLINE (1-800-551-8633):

- **Verify that electrical cords are plugged in and that circuit breakers are on.**
- **Verify that gas line quick-disconnects are properly connected.**
- **Verify that any gas line cutoff valves are open.**
- **Verify that frypot drain valves are fully closed.**
- **Have your fryer's model and serial numbers ready to give to the technician assisting you.**

 **DANGER**

Hot oil will cause severe burns. Never attempt to move this appliance when filled with hot cooking oil or to transfer hot cooking oil 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 a factory authorized servicer only.

6.2 Troubleshooting Fryers

6.2.1 Controller and Heating Problems

PROBLEM	PROBABLE CAUSES	CORRECTIVE ACTION
No display on the controller.	A. Controller not turned on. B. No power to fryer. C. Failed controller or other component	A. Press the ON/OFF switch to turn the controller on. B. Verify that the fryer is plugged in and that the circuit breaker is not tripped. C. Call your FAS for assistance.
Controller displays IS VAT FULL? YES NO after a filtration.	A. Normal after filtering. B. Oil may be in the filter pan.	A. Press ▲ (YES) if the vat is full, otherwise press ▼ (NO). B. Follow controller prompts to clear message. If problem persists, call your FAS for assistance.
Controller displays CHANGE FILTER PAD?	Daily filter pad change prompt has occurred.	Press ▲ (YES), follow prompts and change the filter pad or paper.
Fryer repeatedly cycles on and off when first started.	Fryer is in melt cycle.	This is normal operation. This will continue until the fryer temperature reaches 180°F (82°C).
Fryer does not heat.	A. Drain valve is open. B. Gas valve is not turned on. C. Manual gas shut off valve closed. D. Improperly connected quick-disconnect fitting on gas line. E. Obstructed or failed combustion air blower.	A. Close drain valve. B. Turn the gas valve knob to the ON position. C. Verify that any in-line manual shut off and gas main valve is open. D. Verify that the quick-disconnect fitting on the flexible gas line is firmly connected to the fryer. E. Verify that combustion air blower is running. If not, call your FAS for service. If combustion air blower is functional, clean and adjust per instructions in Chapter 6 of this manual.
Fryer is operating normally, but recovery is slow when cooking.	Dirty or obstructed combustion air blower.	Clean and adjust per instructions in Chapter 5 of this manual.
Heat indicator is on and blower is running, but burner will not ignite.	Blown fuse on interface board or ignition module.	Contact your FAS for service.
Fryer is operating normally, but produces a popping sound when burners ignite.	A. Dirty or obstructed combustion air blower. B. Dirty or obstructed gas valve vent tube (non-CE fryers only). C. Malfunctioning combustion air blower.	A. Clean and adjust per instructions in Chapter 5 of this manual. B. Clean per instructions in Chapter 6 of this manual. C. If blower is slow to come up to speed, contact your FAS for service.
Controller displays HEATING FAILURE.	Gas valve off, failed controller, failed transformer, open high-limit thermostat.	It is normal for this message to appear during startup if the lines have air in them. Check that the gas valve is on. If it continues, shut the fryer down and call your FAS for assistance.

6.2.2 Error Messages and Display Problems

PROBLEM	PROBABLE CAUSES	CORRECTIVE ACTION
Controller displays LOW TEMP.	Frypot temperature has dropped more than 30°F (17°C) lower than setpoint in idle mode or 45°F (25°C) in cook mode.	This display is normal for a short while if a large batch of frozen product is added to the frypot or if the fryer is not heating properly. If the issue persists call your FAS for assistance.
Controller displays HOT HI-1.	Frypot temperature is more than 410°F (210°C) or, in CE countries, 395°F (202°C).	Shut the fryer down immediately and call your FAS for assistance.
Controller displays RECOVERY FAULT/ YES and alarm sounds.	Recovery time exceeded maximum time limit.	Clear error and silence the alarm by pressing the ▲ (YES) button. Maximum recovery time is 2:25. If the error continues call your FAS for assistance.
Controller display is in wrong temperature scale (Fahrenheit or Celsius).	Incorrect display option programmed.	Toggle between F° to C° by pressing and holding ◀ and ▶ simultaneously until TECH MODE appears. Enter 1658 . The controller displays OFF . Turn the controller on to check temperature. If the desired scale is not displayed, repeat.
Controller displays HIGH LIMIT FAILURE DISCONNECT POWER.	A. Open drain valve B. Failed high limit	A. Close the drain valve. B. Shut the fryer down immediately and call your FAS for assistance.
Controller displays TEMP PROBE FAILURE.	Problem with the temperature measuring circuitry including the probe or damaged controller wiring harness or connector.	Shut the fryer down and call your FAS for assistance.
Controller displays SERVICE REQUIRED followed by an error message.	An error has occurred which requires a service technician.	Press the ▲ (YES) button if the issue is fixed or press the ▼ (NO) button to continue cooking and call your FAS for assistance. In some cases, cooking may not be available.

6.2.3 Filtration Problems

PROBLEM	PROBABLE CAUSES	CORRECTIVE ACTION
Fryer filter prompt is displayed after each cook cycle.	Filter prompt setting incorrect.	Change the filter prompt setting.
Filter menu functions won't start.	Temperature too low or controller displays OFF.	Ensure fryer is at setpoint before starting; ensure the controller is ON.
Controller displays WAIT FOR FILTER.	Another function is still in process.	Wait until the previous function ends to start another filtration cycle.

Filter pump won't start or pump stops during filtering.	A. Power cord is not plugged in or circuit breaker is tripped. B. Pump motor has overheated causing the thermal overload switch to trip. C. Blockage in filter pump.	A. Verify that the power cord is fully plugged in and the circuit breaker is not tripped. B. If the motor is too hot to touch for more than a few seconds, the thermal overload switch has probably tripped. Allow the motor to cool at least 45 minutes then press the Pump Reset Switch (see page 4-4). C. Call your FAS for assistance.
Filter Pump runs, but oil return is very slow.	Improperly installed or prepared filter pan components or cold oil.	Remove the oil from the filter pan and replace the filter pad or paper, ensuring that the filter screen is in place <i>under</i> the pad or paper. Verify that O-rings are present and in good condition on filter pan connection fitting.
Controller displays OIL IN DRAIN PAN / CONFIRM	Drain valve open or possibility that oil is in drain pan.	Press ▲ (CONFIRM) and follow directions for FILL VAT FROM DRAIN PAN.

6.2.4 Error Log Codes (For M3000 Controller Only)

Code	ERROR MESSAGE	EXPLANATION
E03	ERROR TEMP PROBE FAILURE	Temp probe reading out of range
E04	HI 2 BAD	High limit reading is out of range.
E05	HOT HI 1	High limit temperature is past more than 410°F (210°C), or in CE countries, 395°F (202°C)
E06	HEATING FAILURE	A component has failed such as controller, interface board, gas valve, ignition module or open-high limit.
E20	INVALID CODE LOCATION	SD card removed during update
E21	FILTER PAD or PAPER PROCEDURE ERROR (Change Filter Pad or Paper)	25 hour timer has expired or a dirty filter may be causing an incomplete filtration.
E22	OIL IN PAN ERROR	Oil may be present in the filter pan.
E25	RECOVERY FAULT	Recovery time exceeded maximum time limit. Recovery time should not exceed 2:25 for gas.
E27	LOW TEMP ALARM	Oil temperature has dropped 15°F (9°C) lower than setpoint in idle mode or 45°F (25°C) in cook mode. (This message may appear if a product is dropped and the start cook button is not pressed immediately or if too large of cook loads are dropped or adding cold oil to the fryer.)

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