# INSTALLATION, OPERATION, SERVICE, AND PARTS MANUAL

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H50 SERIES GAS FRYERS (Series Codes AY through BE)







Frymaster, L.L.C., 8700 Line Avenue, PO Box 51000, Shreveport, Louisiana 71135-1000 Shipping Address: 8700 Line Avenue, Shreveport, Louisiana 71106 TEL 318-865-1711 FAX (Parts) 318-219-7140 (Tech Support) 318-219-7135 PRINTED IN THE UNITED STATES SERVICE HOTLINE 819 1-800-551-8633

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IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE, OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY, OR DEATH. READ THE INSTALLATION, OPERATING, AND SERVICE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

## 

# FOR YOUR SAFETY, DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE LIQUIDS OR VAPORS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

#### 

POST IN A PROMINENT LOCATION THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE USER SMELLS GAS. THIS INFORMATION SHALL BE OBTAINED BY CONSULTING THE LOCAL GAS SUPPLIER.

THIS EQUIPMENT IS TO BE INSTALLED IN COMPLIANCE WITH THE BASIC PLUMBING CODE OF THE BUILDING OFFICIALS AND CODE ADMINISTRATORS INTERNATIONAL, INC. (BOCA) AND THE FOOD SERVICE SANITATION MANUAL OF THE FOOD AND DRUG ADMINISTRATION.

#### COMPUTERS FCC

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

#### <u>CANADA</u>

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 numerique n'emet pas de bruits radioelectriques depassany les limites de classe A et B prescrites dans la norme NMB-003 edictee par le Ministre des Communcations du Canada.

# \rm 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.

FRYMASTER FRYERS EQUIPPED WITH LEGS ARE FOR PERMANENT INSTALLATION. FOR MOVEABLE OR PORTABLE INSTALLATION, FRYMASTER OPTIONAL EQUIPMENT CASTERS MUST BE USED. QUESTIONS??? CALL 1-800-551-8633.

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# H50 SERIES GAS FRYERS CHAPTER 1: GENERAL INFORMATION

#### 1.1 Parts Ordering and Service Information

In order to assist you quickly, 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. Part numbers are found in the Installation, Operation, Service, and Parts Manual. Parts orders may 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 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/Distributor. Service may also be obtained by calling the Frymaster 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.

#### **1.2 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 one below.

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

Example of a CAUTION box.

#### H50 SERIES GAS FRYERS CHAPTER 1: GENERAL INFORMATION

**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.

# \rm 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 should the controlling thermostat fail.
- 2. An optional safety switch built into the drain valve prevents burner ignition with the drain valve even partially open.

#### **1.3 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 similar to the one below.

Non-CE Standard for Incoming Gas Pressures				
Туре	Minimum Maximun			
	6" W.C.	14" W.C.		
Natural	1.49 kPa	3.49 kPa		
	14.68 mbar	34.72 mbar		
	11" W.C.	14" W.C.		
LP	2.74 kPa	3.49 kPa		
	27.28 mbar	34.84 mbar		

#### **1.4 Equipment Description**

H50 Series high-efficiency gas fryers employ a unique infrared burner system that uses up to 43% less energy to cook the same volume as conventional fryers. Models in this series include MJH50, FMH50, and FPH50 variants. MJH50 variants have no built-in filtration system. FMH50 variants have a built-in Filter Magic II filtration system. The Filter Magic system is housed in its own cabinet, which may be attached to either side of a fryer and which can be located anywhere in a battery of fryers. The FPH50 variants have a built-in FootPrint III filtration system that is located underneath the fryer to conserve floor space. (In batteries of fryers, the FootPrint III system is always located under the leftmost two fryers.)

All H50 Series fryers 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.

Frypots are constructed of welded, heavy-gauge stainless steel, and may be configured with a single (full) vat or dual vats. A drain valve is tapped into the center of the frypot, with a front-operated manual ball valve. Heating is supplied by a pair of infrared burner assemblies mounted on each side of the frypot. Combustion air for the burners is supplied by a dedicated blower mounted on the front of the frypot. H50 Series fryers can be configured for natural gas, propane (LP), or manufactured gas, as required by the customer.

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

All H50 Series fryers come standard with electronic ignition, melt cycle, and boil-out mode. Control options include Computer Magic III computers, solid-state analog controllers, digital controllers, and basket lift timers. Each type is covered in detail in Chapter 3, Fryer Operating Instructions.

All fryers in this series require an external source of AC electrical power. Units can be configured for voltages ranging from 120 VAC to 220 VAC.

Fryers equipped with FootPrint III built-in filtration systems are shipped completely assembled. Fryers without the FootPrint III 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.

#### 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 gasfired 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* Corporation 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 to stock a minimum amount of parts for Frymaster equipment. A list of Frymaster Factory Authorized Service Centers (FASC) was included with the fryer when shipped from the factory. *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.

# <u>Frymaster</u> DOES NOT ASSUME RESPONSIBILITY FOR DAMAGE OR LOSS INCURRED IN TRANSIT.

#### 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 FRYMAS-TER 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 so that products of combustion are removed efficiently, and that 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 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.

## \rm 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.

#### 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.

# 

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.

# 

This equipment 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 use the equipment during a power outage.

#### FCC COMPLIANCE

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

Frymaster computers have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. While these devices are verified as Class A devices, they have 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.

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

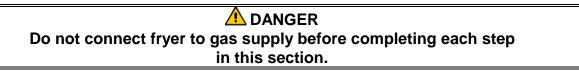
The user may find the booklet "How to Identify and Resolve Radio-TV Interference Problems" helpful. It is prepared by the Federal Communications Commission and is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

### 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.

If your fryer requires the installation of casters/legs, install them in accordance with the instructions included in your accessory package.

#### 2.3 **Pre-Connection Preparations**



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 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 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.
- 4. Test the fryer electrical system:
  - a. Plug the fryer electrical cord(s) into a grounded electrical receptacle.
  - b. Place the power switch in the **ON** position.
    - For fryers equipped with analog controls, verify that the power and heat lights are lit.

- For fryers having computer or digital displays, verify that the display indicates CYCL.
- c. Place the fryer power switch in the **OFF** position. Verify that the power and heat lights are out, or that the display is blank.
- 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 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						
	Pressure	Orifice I Single	Diameter Dual	Regulator Single	Pressure Dual	
Gas	(mbar) <sup>(1)</sup>	Vat	Vat	Vat	Vat	
G20	20	2 x 3.40	2 x 3.40	7 mbar	7 mbar	
G25	20 or 25	2 x 3.40	2 x 3.40	10 mbar	10 mbar	
G30	28/30 or 50	2 x 2.05	2 x 2.05	17 mbar	17 mbar	
G31	37 or 50	2 x 2.05	2 x 2.05	20 mbar	20 mbar	
(1) mbar = 10,2 mm H2O						

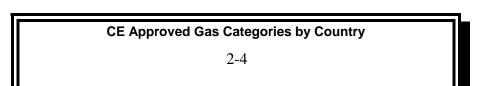
CE Standard for Incoming Gas Pressures for Fryers Manufactured Through April 1999					
		Orifice Diameter Regulator Pressure			
Gas	Pressure (mbar) <sup>(1)</sup>	Single Vat	Dual Vat	Single Vat	Dual Vat
G20	20	2 x 3.40	2 x 3.40	7 mbar	7 mbar
G25	20 or 25	2 x 3.40	2 x 3.40	10 mbar	9 mbar
G30	28/30 or 50	2 x 2.05	2 x 2.05	17 mbar	16,5 mbar
G31	37 or 50	2 x 2.05	2 x 2.05	20,2 mbar	18,5 mbar
(1) mbar =	10,2 mm H	20			

Non-CE Standard				
for Inco	ning Gas I	Pressures		
Gas	Minimum	Maximum		
Natural	6" W.C. 1.49 kPa 14.93 mbar	14" W.C. 3.48 kPa 34.84 mbar		
LP	11" W.C. 2.74 kPa 27.37 mbar	14" W.C. 3.48 kPa 34.84 mbar		

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

#### 2.4 Connection to Gas Line

The H50 Series has received the CE mark for the countries and gas categories indicated in the accompanying table. **NOTE:** The nominal heat input (QN) is 21kW except for AT, DE, LU and category 3P/B, which is 23kW.



COUNTRIES	CATEGORIES	GAS	PRESSURE (MBAR)
	II2H3B/P	G20	20
AUSTRIA (AT)	IIZNJD/P	G30, G31	50
	I2E(R)B	G20, G25	20, 25
BELGIUM (BE)	13+	G30, G31	28-30, 37
	II2H3B/P	G20	20
DENMARK (DK)	IIZHJD/F	G30, G31	30
	II2Esi3+	G20, G25	20, 25
FRANCE (FR)		G30, G31	28-30, 37
FRANCE (FR)	II2Esi3P	G20, G25	20, 25
	IIZESISF	G31	50
FINLAND (FI)	II2H3B/P	G20	20
FINEAND (FI)	IIZI IJD/F	G30, G31	30
	II2ELL3B/P	G20, G25	20
GERMANY (DE)	IIZL LLJD/F	G30, G31	50
	I3P	G31	50
GREECE (GR)	II2H3+	G20	20
GREECE (GR)	112113+	G30, G31	28-30, 37
	II2H3+	G20	20
ITALY (IT)		G30, G31	28-30, 37
IRELAND (IE)	II2H3+	G20	20
IRELAND (IE)	112113+	G30, G31	28-30, 37
LUXEMBOURG (LU)	II2E3B/P	G20	20
LUXEINIBOURG (LU)	IIZE3D/P	G30, G31	50
	II2L3P	G25	25
NETHERLANDS (NL)	IIZLOF	G31	50
NETHERLANDS (NL)	II2L3B/P	G25	25
	IIZLJD/F	G30, G31	30
NORWAY (NO)	I3B/P	G30, G31	30
PORTUGAL (PT)	II2H3+	G20	20
FORTUGAL (FT)	1121137	G30, G31	28-30, 37
	II2H3+	G20	20
	112113+	G30, G31	28-30, 37
SPAIN (ES)	II2H3P	G20	20
	IIZHJF	G31	37, 50
	II2H3B/P	G20	20
SWEDEN (SE)		G30, G31	30
UNITED KINGDOM (UK)	II2H3+	G20	20
	112113+	G30, G31	28-30, 37

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  $1\frac{1}{2}$ " (38 mm) in diameter. Refer to the chart on the following page for the minimum sizes of connection piping.

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

\* 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.

## CE Standard Required airflow for the combustion air supply is 2m<sup>3</sup>/h per kW.

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<sup>TM</sup> 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 solution should be used for this purpose.

## 

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 and 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.

#### 

"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 for any extended period.

<sup>4</sup> It is suggested that the burner manifold pressure be checked at this time by the local gas company or an authorized service agent. Refer to "Check Burner Manifold Pressure" in Chapter 5 of this manual for the proper procedure. The accompanying tables list the burner manifold gas pressures for the various gas types that can be used with this equipment.

Gas Pressur		Burner Manifold	Gas Pressur	
Pressur	e (mbar)		Pressur	e (mbar)
Single Vat	Dual Vat	Gas	Single Vat	Dual Vat
7	7	Natural Gas Lacq (G20) under 20 mbar	7	6,5
10	10	Natural Gas Gronigue * (G25) under 25 mbar	10	9
10	10	Natural Gas Gronigue (G25) under 20 mbar	10	9
17	17	Butane (G30) at 28/30 or 50 mbar	17	16,5
20	20	Propane (G31) under 37 or 50 mbar	20,2	18,5
	red After App Pressur Single Vat 7 10 10 10 17	Gas Pressures red After April 1999 Pressure (mbar) Single Dual Vat Vat 7 7 10 10 10 10 10 17 17	Burner Manifold for Fryers Manufacture         Gas Pressures red After April 1999       Burner Manifold for Fryers Manufacture         Pressure (mbar)       Gas         Single Vat       Dual Vat         7       7         10       10         10       10         10       10         17       17         20       20	Gas Pressures red After April 1999Pressure (mbar)Burner Manifold Gas Pressur for Fryers Manufactured Through ASingle VatDual Vat77101010101010101017172020

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

<sup>5</sup> Check the programmed temperature or analog controller thermostat setting. (Refer to Chapter 3, Operating Instructions, for the setpoint programming instructions for your particular controller.)

#### 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.

# DANGER Switching to a different type of gas without installing the proper conversion kit may result in fire or explosion! NEVER attach your fryer to a gas supply for which it is not configured.

H50 Series 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 KitsNatural Gas to Propane (LP) GasPropane (LFull Vat: Part Number 826-1145Full VatDual Vat: Part Number 826-1147Dual Vat

Propane (LP) Gas to Natural Gas Full Vat: Part Number 826-1146 Dual Vat: Part Number 826-1148

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.

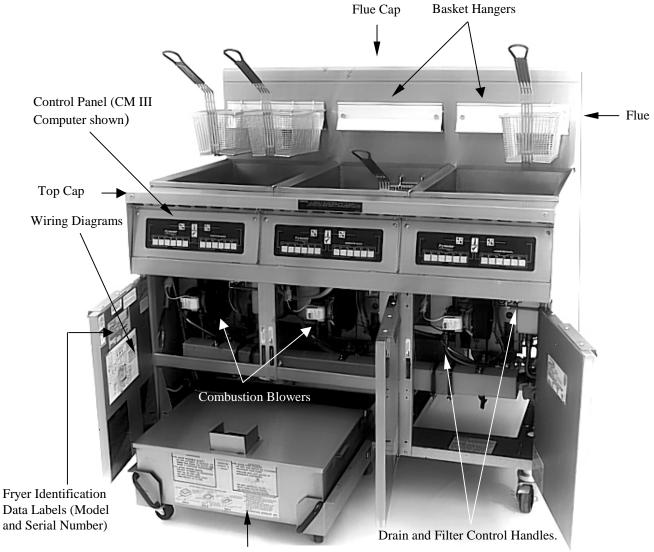
CE Gas Conversion Kits for Units with Gas Valve 810-1011 G20 or G25 (Natural) to G30 or G31 Gas: G30 or G31 to G20 or G25 (Natural) Gas: Part Number 826-1196 Part Number 826-1197

#### 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 2<sup>nd</sup> family (G20 or G25) and a 3<sup>rd</sup> family gas (G30 Butane or G31 Propane):
  - a. Change the orifices.
  - b. Change the gas valve spring (units with valve part number 810-1011only)
  - c. Adjust the manifold pressure.
- 3. Remove the rating plate and install a new one. Call your local service agency or KES for a new rating plate.

4. If the destination language changes, replace the labels. Call your local service agency or KES for a label kit. The language of reference will be on the corner of the label.

#### FINDING YOUR WAY AROUND THE H50 SERIES FRYER



FootPrint III Built-in Filtration Unit

#### TYPICAL CONFIGURATION (FPH350 SHOWN)

#### 3.1 Start-Up Procedure

\rm CAUTION

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

#### 

The cooking oil/shortening capacity of the H50 Series fryer is 50 lbs (25 liters) at 70°F (21°C) for a full pot and 25 lbs (12.5 liters) at 70°F (21°C) for each half of a split pot.

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.

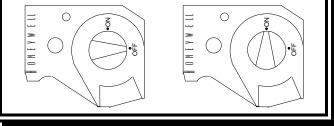
If solid shortening is being used, make sure it is packed down into the bottom of the frypot.

#### Lighting the Fryer

1. Press the computer/controller POWER switch to the OFF position.

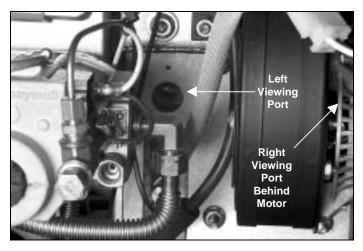
#### Non-CE Fryers

After placing the ON/OFF switch in the OFF position, turn the gas valve knob to the OFF position. Wait 5 minutes, then turn the knob to the ON position.



- 2. Press the computer/controller POWER switch to the ON position and set the thermostat or program the computer for normal cooking temperature.
- 3. If the burners fail to light, press the POWER 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.
- 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, the air/gas mix requires adjustment. Adjustment procedures are different for CE and Non-CE units.

#### Adjusting Air/Gas Mix: Non-CE Units and CE Units Built After April 1999

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).

#### Adjusting Air/Gas Mix: CE Units Built Before May 1999

CE units built before May 1999 are equipped with a shield assembly in front of the blowers. An air shutter plate on the face of the shield assembly regulates the amount of airflow to the blower intake. To adjust the shutter plate, loosen the locking screws and slide the shutter to the left or right as necessary to obtain a bright orange-red glow. Carefully hold the shutter plate in position and tighten the locking screws.

#### 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.

- 1. Before lighting the burners, close the fryer drain valve(s) and fill the frypot to the bottom OIL-LEVEL line with a mixture of cold water and Frymaster *FRYER* '*N*' *GRIDDLE* cleaner or detergent.
- 2. For units equipped with other than Computer Magic III controllers or Solid-State Basket Lift Timers, set the thermostat to, or program the controller for, 200°F (93°C).

For units equipped with Computer Magic III controllers, select the Boil-Out feature in accordance with the procedure **Using the Boil-Out Feature** on page 3-10.

For units equipped with Solid-State Basket Lift Timers, press the Boil-Out Mode button 🛄 to begin the boil-out process.

3. Place the fryer into operation in accordance with Section 3.1 and simmer the solution for 1 hour.

## 

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

4. After the solution simmers for 1 hour, turn the fryer off, allow the solution to cool, then add 2 gallons (7.75 liters) of cold water and stir. Drain the solution into a suitable container and clean the frypot thoroughly.

## 

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

5. Rinse the frypot at least twice by filling the frypot with clean water and draining. Dry the frypot thoroughly with a clean, dry towel.

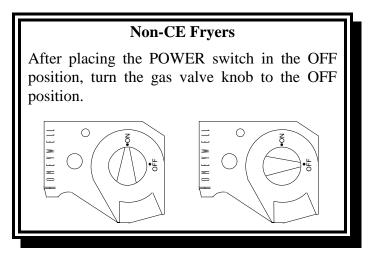
# 

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 Shutting the Fryer Down

For short-term shut down during the workday, place the fryer power 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, place the controller power switch in the OFF position.



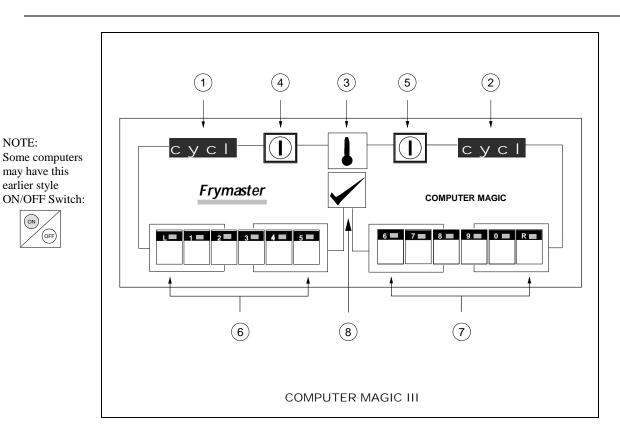
Put the frypot covers in place (if the fryer is so equipped).

#### 3.4 Controller Operation and Programming

Fryers in the H50 Series can be equipped with any of the following controlling devices:

- Computer Magic III
- Analog Controller
- Digital Controller
- Basket Lift Timer

Each type is discussed in detail in the following pages.



#### COMPUTER MAGIC III CONTROLLER

The Computer Magic III control panel includes the following items:

- 1/2. Left and Right LED Displays
  - 3. Temperature Check and Program Lock Switch
- 4/5. Left and Right Frypot Power Switches **NOTE**: On single vat units, either switch will turn the fryer on and off.
- 6/7. Left and Right Product Selection and Coding Keys
  - 8. Program Mode Switch

#### **COMPUTER OPERATING INSTRUCTIONS**

Turn the computer on by pressing the Power Switch 0 (or ON/OFF Switch 2). **NOTE**: A decimal between digits 1 and 2 in either LED Display indicates that the burners are on.

- 1. One of the following will be displayed:
  - a. **cycl**, indicating that the fryer is operating in the melt cycle mode. The fryer will remain in the melt cycle mode until it reaches 180°F (82°C).

- b. **hi**, indicating that the frypot temperature is 21°F (12°C) higher than the setpoint.
- c. L0, indicating that the frypot temperature is 21°F (12°C) lower than the setpoint.
- d. "----," indicating that the frypot temperature is in the cooking range. **NOTE**: For best results, cooking should not be attempted unless the display indicates "----."
- e. **help**, indicating a heating problem.
- f. **hot**, indicating the frypot temperature is in excess of 410°F (210°C).
- g. **prob**, indicating that the computer has detected a problem in the temperature measuring and control circuits.
- 2. Press a product switch to initiate a cook cycle.
  - a. The basket lift (on fryers so equipped) will lower the product into the frypot.
  - b. The display will indicate the previously programmed cook time and begin countdown.
  - c. If shake time is programmed, the operator will be notified of the need to shake the product "X" seconds after the cook cycle has begun (X = amount of time programmed). An alarm will sound, and the display will read SH#, where "#" will be the switch number. If no shake time has been programmed, sh# will not appear during the cook cycle. The alarm is self-canceling.
  - d. At the end of the cooking cycle, an audible alarm will sound, **COOC** will be displayed, and the associated product switch indicator will flash. To cancel the cook alarm, press the appropriate switch.
  - e. At this time, the hold time will be displayed (if programmed greater than zero), and the countdown will begin. When the countdown reaches zero, hD# will be displayed (# will be the switch number) and an alarm will sound. The hold alarm is canceled by pressing the Programming Switch . NOTE: If the display is in use, the hold time countdown will not be displayed.
- 3. To check the frypot temperature at any time, press the Temperature Check Switch I once. To check the setpoint, press the switch twice. If you suspect the temperature probe is defective, check the temperature of the frypot with a thermometer or pyrometer to verify that the computer readout is reasonably close to the measured reading.
- 4. During idle periods when the fryer is on but not in use, "- - " should appear in both displays. If not, check the actual temperature and setpoint.

# **A**CAUTION

The electronic circuitry in your computer can be affected adversely by current fluctuations and electrical storms. Should it fail to function or program properly for no apparent reason, the computer should be reset by unplugging the computer and plugging it back in. This could prevent a service call.

#### COMPUTER PROGRAMMING INSTRUCTIONS

- 1. Turn the computer on by pressing the Power 🛈 Switch (or ON/OFF 🖄 Switch).
- 2. Enter the programming mode by pressing the Program Mode Switch **✓**. Code will appear in the left display. If you enter the programming mode by mistake, press the switch again to exit the programming mode. **NOTE**: If you try to enter the programming mode while the computer is cooking, the display will flash **busy**.
- 3. Enter the number 1650 by pressing the number keys. Unless this code is entered, programming will not be accepted. This is to prevent unauthorized persons from changing your current instructions.
- 4. sp-r (Setpoint) will appear in the left display. Any previously programmed temperature setpoint will appear in the right display. To change the setpoint, enter the desired setpoint temperature using the number keys. For CE units, the highest setpoint allowed is 370°F (188°C). For Non-CE units the number is 375°C (191°C). Press the Program Mode Switch ✓ to lock in the new setpoint (or the old setpoint, if it was not changed). If the unit is a dual vat fryer, sp-L will appear, allowing the setpoint for the left vat to be adjusted or confirmed.
- 5. **selp** (Select Product) will appear in the left display. Press the product button to be programmed (or press 🛽 to return to the normal operating mode).
- 6. **sens** (Sensitivity) appears in the left display. Any previously programmed sensitivity setting will appear in the right display. To change the sensitivity setting, enter the new setting and press ✓ to lock it in. If the setting was not changed, pressing ✓ accepts the previous setting.

Sensitivity is a built-in feature that adjusts cooking time to compensate for the drop in frypot temperature when a basket of product is placed into it. Different food products will vary in density, basket load size, and initial temperature. Food products will also vary in how long it is required to be cooked. A proper sensitivity setting for each product will assure a high-quality product each time. For example: four ounces of fries can be programmed to be cooked to the same quality as two and one-half pounds. Some experimenting with the range of 0 - 9 (0 being least sensitive and 9 being most sensitive) may be required to obtain the desired quality to meet your specifications, but setting 5 is the recommended starting point.

- 7. **COOC** (Cook Time) will now show in the left display. Any previously programmed cooking time will appear in the right display. Pressing ✓ will accept the current cooking time. To change the cooking time, enter the new time using the Number keys. Press ✓ to lock in the new time.
- 8. **sh\_** (Shake Time) appears in the left display. If your product requires shaking during the cooking process, set the number of minutes to cook before shaking using the number keys.

For example, entering "30" means the product needs to be shaken after it has been cooking for 30 seconds. At the end of 30 seconds, an alarm will sound and the product switch will flash for 3 seconds. If your product does not require shaking, enter "0". The number entered will appear in the right display. Press  $\checkmark$  to lock in the programmed time.

9. hd\_ (Hold Time) will appear in the left display. Set the time the product may be held before serving, anything from 13 seconds to 60 minutes. If you do not wish to use the hold time feature, enter 0. Press ✓ to lock in the time.

In the event the same product is being cooked in more than one basket, any product button can be programmed to use the hold timer normally used with a different product button. Example: Program button 3 for 7:00 minutes hold time. Then, when programming button R for hold time, press address 4. Both product button 3 and product button R will then use the same hold time of 7:00 minutes. The button numbers and their assigned address numbers are:

 Button:
 L
 I
 2
 3
 4
 5
 6
 7
 8
 9
 0
 R

 Address:
 I
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12

- 10. **selp** (Select Product) will again appear in the left display. If more products are to be programmed, return to Step 5 and follow all instructions to this point, repeating for each product.
- 11. When you complete your programming, lock in the whole program by pressing the Temperature Check/Program Lock Switch **I**.

#### USING THE BOIL-OUT FEATURE

#### 

Before using this feature, ensure the frypot is filled with a mixture of cold water and Frymaster *FRYER 'N' GRIDDLE* cleaner or detergent.

- 1. To program the fryer for boil-out, press the Power Switch ① (or ON/OFF <sup>∞</sup> Switch) followed by the Program Mode Switch **✓**. **Code** will appear in the left display.
- 2. Enter the code number 1653. The right display will read **boil**. The temperature is automatically set for 195°F (91°C). The fryer will attain this temperature and remain there until the Power 🛈

(or ON/OFF O) Switch is pressed, which cancels the boil-out mode. In high-altitude locations, the fryer must be monitored constantly for boil-over conditions. If boil-over occurs, turn off the fryer immediately, allow it to cool, then re-enter the boil-out mode to continue the process.

#### FRYER RECOVERY TIME CHECK FEATURE

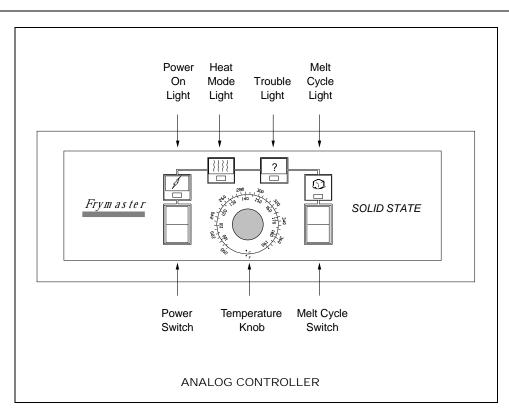
The computer automatically checks the recovery time each time the frypot temperature drops below  $250^{\circ}$ F (121°C). To check recovery time, press the Program Mode Switch  $\checkmark$ . Code will appear in the left display. Enter the code number 1652 on the number keypad. The recovery time will appear in both displays for 5 seconds.

#### SELECTING FAHRENHEIT- CELSIUS DISPLAY MODE

- 1. The computer can display temperatures in either Fahrenheit or Celsius. To change from one to the other, press the Program Mode Switch 🗹. Code will appear in the left display.
- 2. Enter the code number 1 6 5 8 on the number keypad. The computer will toggle the temperature display from Celsius to Fahrenheit or from Fahrenheit to Celsius.
- 3. Press the Temperature Check/Program Lock Switch 🗵 to display the temperature in the newly selected mode.

#### SELECTING FRYPOT TEMPERATURE DISPLAY MODE

- 1. To display the actual frypot temperature at all times, press the Program Mode Switch 🗹. Code will appear in the left display.
- 2. Enter code 165 L in both number keypads. The computer will display the actual frypot temperature. **NOTE**: During the product cooking process, the cooking time will not be displayed, but timing is taking place.
- 3. To return to setpoint display, repeat Steps 1 and 2.



#### ANALOG CONTROLLER

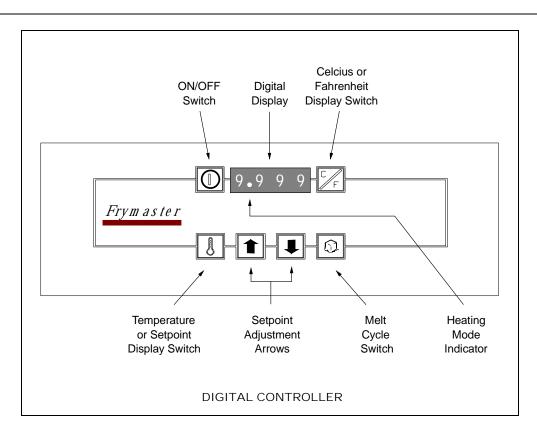
Like the Computer Magic III, the analog controller utilizes a frypot-mounted temperature probe and solid-state electronics mounted on the control panel. The temperature probe is connected to the control circuitry via an interface board behind the control panel. Rotating the Temperature Knob to the desired temperature sets the cooking temperature. When the Power Switch is placed in the ON position, electrical current is supplied to the fryer's components and the Power On Light illuminates.

Placing the Melt Cycle Switch in the ON position causes the burners to cycle on for a few seconds and off for a longer period until the temperature in the frypot reaches 180°F (82°C). At that time the unit automatically enters the heat mode, causing the burners to remain lit until the setpoint is reached. When in the melt cycle, the Melt Cycle Light 😰 will alternately illuminate and go out as the burners cycle on and off.

# CAUTION Do not cancel the Melt Cycle if solid shortening is being used.

When the unit enters the heat mode, the Heat Mode Light 🔄 will illuminate and remain on until the setpoint is reached.

The Trouble Light  $\square$  will illuminate if there is an ignition failure. To reset the controller after an ignition failure, place the Power switch in the OFF position for 30 seconds, then place it back in the ON position. The Trouble Light is also used to indicate the presence of a probe circuit or high-limit circuit problem.



#### DIGITAL CONTROLLER

On the digital controller, the thermostat knob has been replaced with a digital display and a pair of keys for increasing or decreasing the setpoint.

Pressing the ON/OFF Switch 🖸 supplies electrical power to the fryer, and causes the controller software version number to display for 4 seconds in the Digital Display. Following the software version number display, the <u>SETPOINT TEMPERATURE WILL DISPLAY CONSTANTLY</u>. Pressing the Temperature/Setpoint Display Switch will display the actual frypot temperature.

The fryer will automatically enter the melt cycle mode and will continue to cycle on for a few seconds and off for a longer period until the temperature in the frypot reaches 180°F (82°C). At that time, it will enter the heat mode. The purpose of the melt cycle is to gradually melt solid shortening to prevent its scorching, and to prevent creation of "hot spots" on the frypot. To cancel the melt cycle, press the Melt Cycle Switch 🖾.

# CAUTION CAUTION Do not cancel the Melt Cycle if solid shortening is being used.

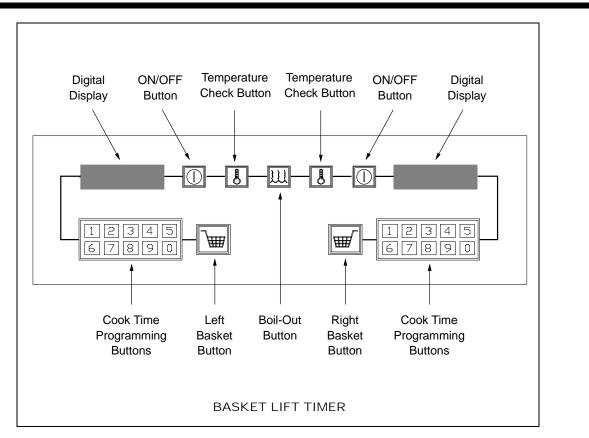
**NOTE:** If solid shortening is not being used, the controller can be programmed to bypass the Melt Cycle as follows: With the controller in the OFF mode, press the Melt Cycle Switch 🖾. The display will show either a "0" (meaning that the melt cycle **can** be bypassed) or a "1" (meaning that

the melt cycle **cannot** be bypassed). To change the bypass option setting, press and hold the Melt Cycle Switch 1 for 5 to 6 seconds to toggle "0" to "1" or "1" to "0". When the display shows the desired setting, release the switch.

The fryer will remain in the heat mode until the setpoint is reached. The Heat Mode Indicator is a decimal point that appears between the first two numbers of the digital display to indicate the unit is heating. When the setpoint is reached, the decimal will go out, indicating the fryer is ready for cooking.

To enter or change the setpoint temperature, press the Up Arrow or Down Arrow keys to raise or lower the temperature setting. The display will change at a rate of about 1 degree per second for approximately the first 12 degrees, then change to a faster rate if the arrow is continuously pressed.

The temperature can be displayed in either Fahrenheit or Celsius. To change from one to the other, press the C/F Switch  $\square$ .



#### SOLID-STATE BASKET LIFT TIMER

The Basket Lift Timer allows the operator to specify individual cooking times for each vat and independently control the operation of each basket lift.

Pressing the ON/OFF O buttons supplies electrical power to the fryer components. The fryer will automatically go into the melt cycle mode if the temperature in the frypot is below 180°F (82°C), cycling on for a few seconds and off for a longer period. The purpose of the melt cycle is to gradually melt solid shortening to prevent its scorching, and to prevent the creation of "hot spots" in the frypot. To cancel the melt cycle mode, press the Right Basket  $\blacksquare$  button.

The cook time for each basket is always shown in the Digital Displays except when the Temperature Check buttons 🖪 are pressed. To change a cook time, enter the new time with the number keys.

To view the setpoint for a frypot, press the corresponding Temperature Check button **I**. The setpoint for the frypot will be shown in the corresponding Digital Display.

#### **NOTE:** For full pot (single vat) units, the setpoint will be shown in the right display only.

To change the setpoint, enter the new temperature using the number keys, then press the Temperature Check button **1** again to lock in the setpoint and return to the cook time mode.

Pressing a Basket button  $\blacksquare$  initiates a cooking cycle. The basket is automatically lowered into the frypot and the cook time in the Digital Display begins to count down. When the countdown reaches zero, the basket is raised from the frypot and a buzzer sounds to alert the operator that cooking is completed. Pressing the Basket button  $\blacksquare$  silences the alarm.

The controller also displays the following trouble messages in the Digital Display of the vat functioning abnormally:

- **HELP** is displayed continuously if there is a heating failure.
- **hot** is displayed if the frypot temperature rises above 385°F (196°C).
- **PROB** indicates a problem with the temperature probe circuit.

#### 4.1 Draining and Manual Filtering

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 a built-in filtration system (FootPrint III or Filter Magic II), 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 using the *Frymaster Shortening Disposal Unit* (SDU). The SDU is available through your local distributor.)

- 1. Turn the fryer power switch to the OFF position. 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.
- 2. 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 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.
- 3. 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.

#### 

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

## 

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.

- 4. 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.
- 5. 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.

# 

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 Built-In Filtration System Operation

Both the FootPrint III (FP III) and Filter Magic II (FM II) filtration systems allow the cooking oil or shortening in one frypot to be safely and efficiently filtered while the other frypots in a battery remain in operation. Although different in design and appearance, the operation of the FootPrint III and Filter Magic II systems is identical. Operation of the FootPrint III system is illustrated in this discussion, but the steps described apply equally to the Filter Magic II system.

Most reported problems with these systems have been found to be caused by 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. Pull the filter unit from the cabinet, open the cover, remove the crumb tray, and remove the paper hold-down ring.







2. After verifying that the metal filter screen is in the bottom of the pan, lay a sheet of filter paper over the top of the pan, overlapping on all sides.



- 3. Position the hold-down ring over the filter paper and lower the ring into the pan, allowing the paper to fold up around the ring as it is pushed to the bottom of the pan.
- 4. Sprinkle filter powder over the filter paper. (For powder quantity, see the filter powder manufacturer's instructions.) Replace the crumb tray in the filter pan and close the cover.





6. Push the filter pan back into the fryer, positioning it all the way to the back of the cabinet. (When the FM II filter assembly is properly positioned, the green HEATER ON indicator will light.)

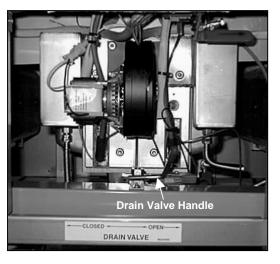


#### **OPERATION OF THE FILTER UNIT**

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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 fryer power OFF, then 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.



# 

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.

# 

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.

2. When the frypot is empty, use a fryer scouring tool to remove sediment on the sides of the frypot.

When cleaning the inside of the frypot, avoid striking the high limit thermostat and temperature probe or operating thermostat.

3. Snap the Power Shower into the frypot.

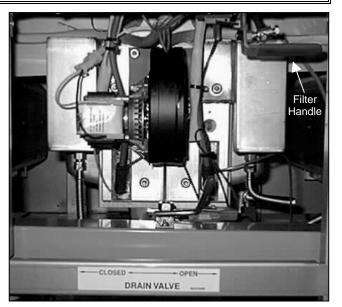


#### H50 SERIES GAS FRYERS CHAPTER 4: FILTRATION INSTRUCTIONS

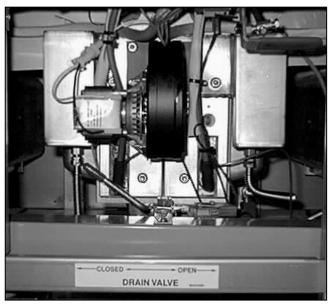
# 

DO NOT operate the filter without the Power Shower in place unless unit is configured with a rear flush option. Hot oil will spray out of the fryer and may cause injury.

4. After all oil has drained from the pot, push the filter handle down and to the rear to start the pump and begin the filtering process. (For units equipped with a rear-flush option, position the control lever to either the Power Shower or Rear Flush position.) There may be a slight delay before the pump activates.



5. After the oil is filtered, close the drain valve and allow the fryer to refill. Let the filter run 10 to 12 seconds after bubbles appear in the oil to clear the lines and prevent hardening of shortening in the lines.

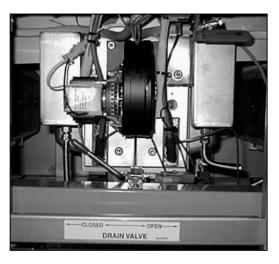


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The filter pump is equipped with a manual reset switch in case the filter motor overheats or an electrical fault occurs. If this switch trips, turn off power to the filter system and allow the pump motor to cool 20 minutes before attempting to reset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

#### H50 SERIES GAS FRYERS CHAPTER 4: FILTRATION INSTRUCTIONS

- 6. When the fryer is full, pull the filter handle up and to the front to the off position. (For units equipped with a rear-flush option, position the control lever to the OFF position.) Remove the Power Shower and allow it to drain.
- 7. Make sure the drain valve is fully closed. (If the drain valve is not fully closed, the controller will display an error message or a trouble light and the fryer will not operate.) Turn the fryer ON and allow the cooking oil/shortening to reach setpoint.



#### CHANGING THE FILTER PAPER

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

1. Pull the filter unit from the cabinet. Remove the crumb tray and paper hold-down ring. Clean both with a solution of hot water and dishwashing detergent.





2. Remove and discard the used filter paper. Be careful, the oil-soaked paper may be very hot and may cause burns.



#### H50 SERIES GAS FRYERS CHAPTER 4: FILTRATION INSTRUCTIONS

3. Remove the metal filter screen and pan and clean thoroughly using a solution of hot water and detergent, ensuring that all breading and food particles are removed from the pan. Allow the screen to dry completely before reinstalling.





# 

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

4. Replace the metal filter screen in the bottom of the pan and lay a sheet of filter paper over the top of the filter pan with the paper overlapping the pan on all sides





- 5. 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.
- 6. Sprinkle filter powder over the filter paper. (For powder quantity and instructions, see the powder manufacturer's instructions.) Replace the crumb tray in the filter pan and close the cover.





7. Push the filter back into the cabinet, making sure that it is positioned all the way to the back. (When the FM II filter is properly positioned, the green HEATER ON indicator will light.)

#### 5.1 Fryer Preventive Maintenance Checks and Service

#### DAILY CHECKS AND SERVICE

#### **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.

#### **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.

# 

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.

#### WEEKLY CHECKS AND SERVICE

#### **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.

# 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 a built-in 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 using our *Shortening Disposal Unit* (SDU). The SDU is available through your local distributor.)

1. Place the fryer power switch in the OFF position. 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.

- 2. 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.
- 3. 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.

# 

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.

- 4. 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.
- 5. 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.)
- 6. Set the thermostat to 200°F (93°C) or program the computer for Boil-Out (see page 3-9) and simmer the solution for 1 hour.

#### 

Never leave the fryer unattended during this process. If the solution overflows, press the ON/OFF switch to the OFF position immediately.

- 7. After the solution has simmered for 1 hour, press the ON/OFF switch to the OFF position and allow the solution to cool.
- 8. Drain the solution into a suitable container (**NOT the built-in filtration system filter pan or the Shortening Disposal Unit**) and thoroughly wipe the frypot with a clean towel.
- 9. Close the drain valve and fill the frypot with clean, cold water and drain into a suitable container (**NOT the built-in filtration system filter pan or the Shortening Disposal Unit**). Repeat the rinse process again, and then wipe frypot with a clean, dry towel.

# \rm **DANGE**R

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, or fish plates

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.

#### MONTHLY CHECKS AND SERVICE

#### **Check Calibration of Analog Controller Thermostat Control Knob**

(This check applies only to units equipped with Analog Controllers)

- 1. Insert a good-grade thermometer or pyrometer probe into the oil/shortening, with the end touching the fryer temperature-sensing probe and set the thermostat knob to frying temperature.
- 2. After the set temperature is reached, let the burner cycle on and off automatically three times to allow the cooking oil/shortening temperature to become uniform. If necessary, stir to get all shortening in the bottom of the frypot melted.
- 3. When the burner starts for the fourth time, the thermometer/pyrometer reading should be within  $\pm$  5°F (2°C) of the thermostat knob setting. If it is not, calibrate as follows:
  - a. Loosen setscrew in thermostat control knob until the knob will rotate freely on its shaft.
  - 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 thermostat knob setting the next time the burner lights.
  - e. Repeat steps 4.a. through 4.d. until the thermometer/pyrometer reading and knob setting agree within ± 5°F (2°C). If calibration cannot be obtained for any reason, call a Factory Authorized Service Center for assistance.
- 5. Remove the thermometer or pyrometer.

#### **Check Computer Magic III Set Point Accuracy**

(This check applies only to units equipped with Computer Magic III Controllers.)

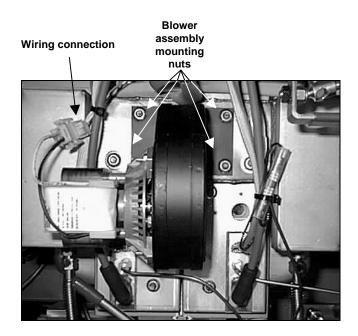
- 1. Insert a good-grade thermometer or pyrometer probe into the oil/shortening, with the end touching the fryer temperature-sensing probe.
- 2. When the computer display shows a series of four dashes "----" with no dot between the first and second dashes (indicating that the frypot contents are within the cooking range), press the switch once to display the temperature of the cooking oil or shortening as sensed by the temperature probe.
- 3. Press the 🛽 switch twice to display the set point.
- 4. Note the temperature on the thermometer or pyrometer. All three readings should be within  $\pm$  5°F (2°C) of each other. If not, contact a Factory Authorized Service Center for assistance.

#### QUARTERLY CHECKS AND SERVICE

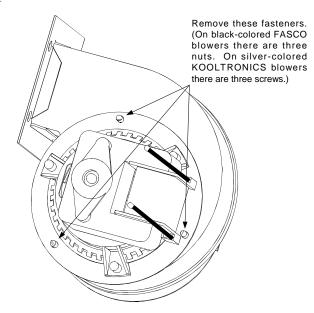
#### **Clean Combustion Air Blower Assembly**

A sheet metal shield or shield assembly prevents inadvertent access to the blower assembly. The specific design varies depending upon the particular configuration of the fryer and the country for which manufactured, but in all cases the shield is attached to the cabinet framing by sheet metal screws. Remove the screws that secure the shield or shield assembly to the cabinet framing and pull the shield out of the fryer to expose the combustion air blower assembly.

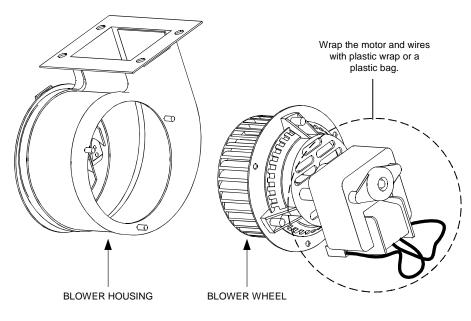
1. Disconnect the blower wiring harness and remove the blower assembly mounting nuts.



2. Remove the three fasteners that secure the blower motor assembly to the blower housing, and separate the two components.

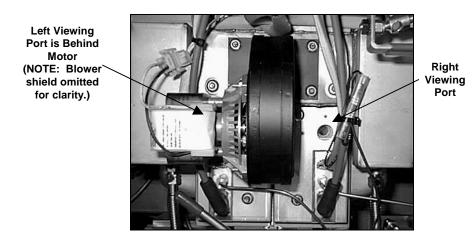


3. Wrap the motor with plastic wrap to prevent water from entering it. Spray degreaser or detergent on the blower wheel and the blower housing. Allow it to soak for five minutes. Rinse the wheel and housing with hot tap water, then dry with a clean cloth.

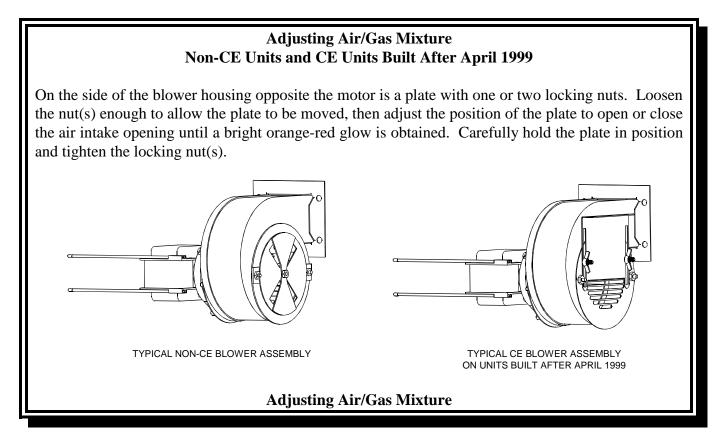


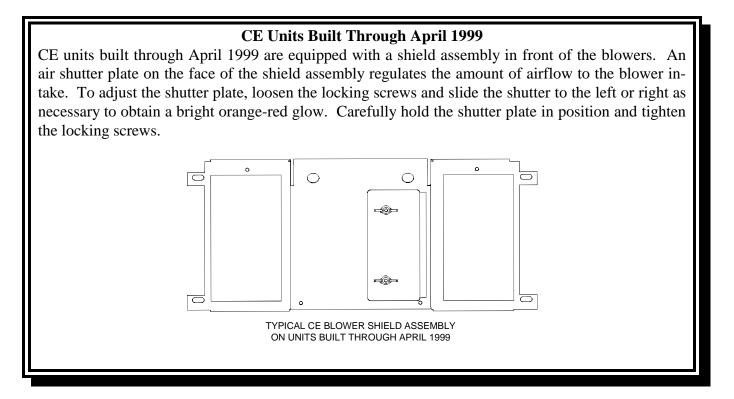
- 4. Remove the plastic wrap from the blower motor assembly. Reassemble the blower motor assembly and blower housing. Reinstall the blower assembly in the fryer.
- 5. Reinstall the blower shield or shield assembly.

- 6. Light the fryer in accordance with the procedure described in Chapter 3, Section 3.1.
- 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.



The air/gas mixture is properly adjusted when the burner manifold pressure is in accordance with the applicable table on page 5-9 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.





#### SEMI-ANNUAL CHECKS AND SERVICE

**Clean Gas Valve Vent Tube** 

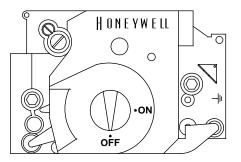
NOTE: This procedure is not required for fryers configured for export to CE countries.

- 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.

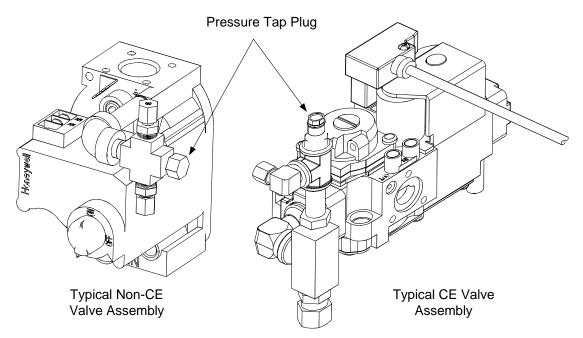
#### **Check Burner Manifold Pressure**

# DANGER Frymaster recommends that ONLY qualified service personnel perform this task.

1. On non-CE fryers, ensure that the gas valve knob is in the OFF position.



2. Remove the pressure tap plug from the gas valve assembly.



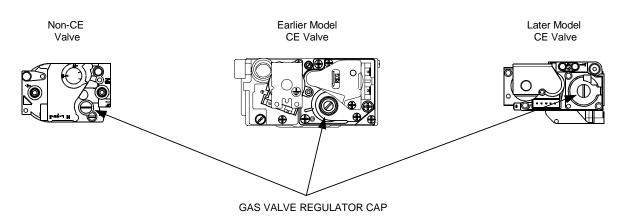
- 2. Insert the fitting for a gas pressure-measuring device into the pressure tap hole.
- 3. On non-CE fryers only, place the gas valve in the ON position.
- 4. Place the fryer power switch in the ON position. When the burner has lit and burned steadily for at least one minute, compare the gas pressure reading to the pressure for the corresponding gas in the appropriate table found on the following page.

CE Standard Burner Manifold Gas Pressures for Fryers Manufactured After April 1999			
	Pressur	e (mbar)	
Gas	Single Vat	Dual Vat	
Natural Gas Lacq (G20) at 20 mbar	7	7	
Natural Gas Gronique * (G25) at 25 mbar	10	10	
Natural Gas Gronique (G25) at 20 mbar	10	10	
Butane/Propane (G30) at 28/30 or 50 mbar	17	17	
Propane (G31) at 37 or 50 mbar	20	20	
* Belgian G25 = 7,0 mbar (sin	gle or dual)		

CE Standard Burner Manifold Gas Pressures for Fryers Manufactured Through April 1999			
	Pressure (mbar)		
Gas	Single Vat	Dual Vat	
Natural Gas Lacq (G20) under 20 mbar	7	6,5	
Natural Gas Gronique * (G25) under 25 mbar	10	9	
Natural Gas Gronique (G25) under 20 mbar	10	9	
Propane (G31) under 37 or 50 mbar	20,2	18,5	
* Belgian G25 = 7,0 mbar (sin	gle) or 6,5 (du	ual)	

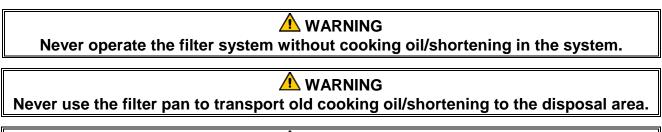
Non-CE Standard Burner Manifold Gas Pressures	
Gas	Pressure
N a tu ra l	3"W.C. 0.73 kPa
LP	8.25"W.C. 2.5 kPa

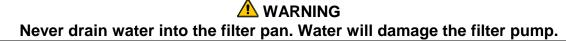
5. To adjust the burner gas pressure, remove the cap from the gas valve regulator and adjust to correct pressure.



6. Place the fryer power switch (and the gas valve in non-CE fryers) in the OFF position. Remove the fitting from the pressure tap hole and reinstall the pressure tap plug.

#### 5.2 Built-in Filtration System Preventive Maintenance Checks and Service



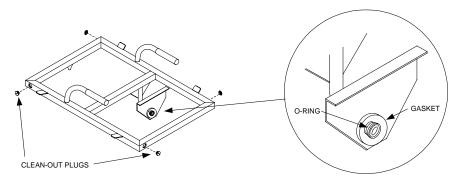


There are no periodic preventive maintenance checks and services required for your FootPrint III or Filter Magic II Filtration Systems other than daily cleaning of the filter pan with a solution of hot water and detergent.

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 o-ring(s) are present and in good condition. For FootPrint III units, there is a single o-ring located on the bottom of the filter pan. For Filter Magic II systems, there is an o-ring on the bottom of the pan and two on the fitting at the inside back of the cabinet.

Immediately after each use, drain the Power Shower completely. If oil is leaking at the point where the Power Shower plugs into the frypot, verify that the o-ring and gasket on the connection fitting are present and in good condition. If you suspect blockage, unscrew the clean-out plugs at each corner of the frame. Place the frame in a pan of hot water for several minutes to melt any accumulation of solidified oil/shortening. Use a long, narrow bottlebrush with hot water and detergent to clean inside

the tubes. If necessary, insert a straightened paper clip or similarly sized wire into the holes in the frame to remove any solidified shortening or other blockages. Rinse with hot water, dry thoroughly, and reinstall the plugs before using.



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Failure to reinstall the clean-out plugs in the Power Shower will cause hot oil/shortening to spray out of the frypot during the filtering process, creating an extreme burn hazard to personnel.

# H50 SERIES GAS FRYERS 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. Never overlook the obvious – anyone can forget to plug in a cord or open a valve. 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.

Some of the troubleshooting actions recommended in this chapter involve removing suspect components and substituting components that are known to be good. Whenever this in indicated, refer to Sections 6.4 and 6.5 for specific instructions.

Each guide begins with a description of a common problem in a six-sided figure. Simply follow the arrows and answer the questions to determine the corrective action to take. 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 Service Center 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.

# \rm DANGER

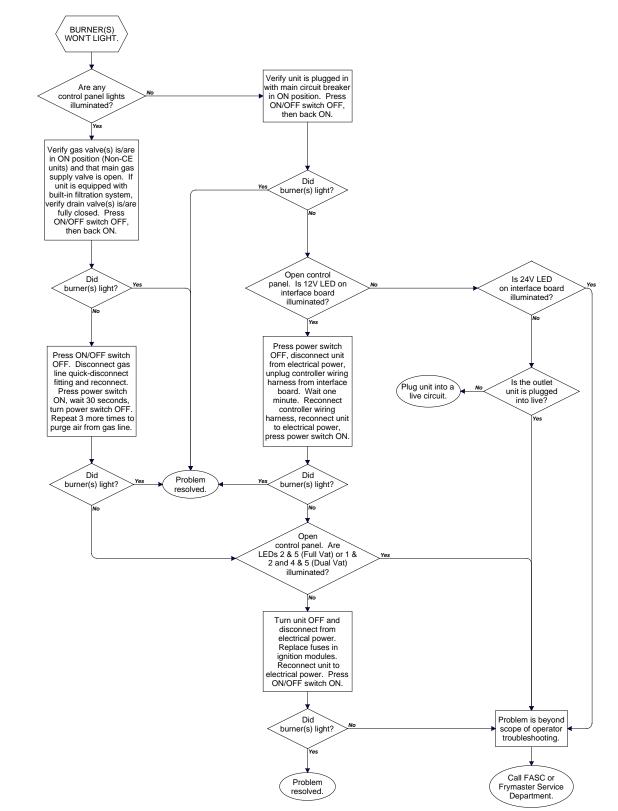
Never attempt to move a fryer containing hot cooking oil/shortening or to transfer hot cooking oil/shortening from one container to another.

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Use extreme care when testing electrical circuits. Live circuits will be exposed.

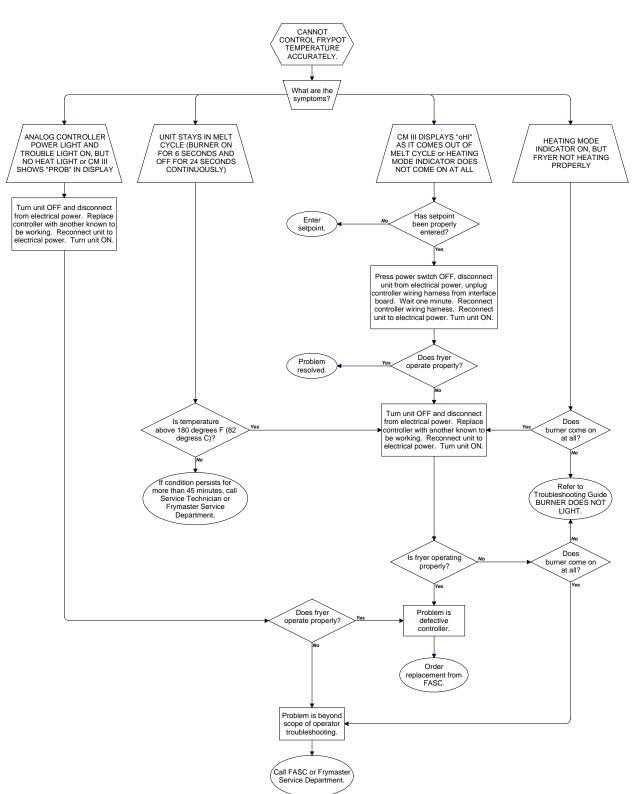
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Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. The equipment should be unplugged when servicing, except when electrical tests are required.



## 6.2 Troubleshooting Fryers and Controllers

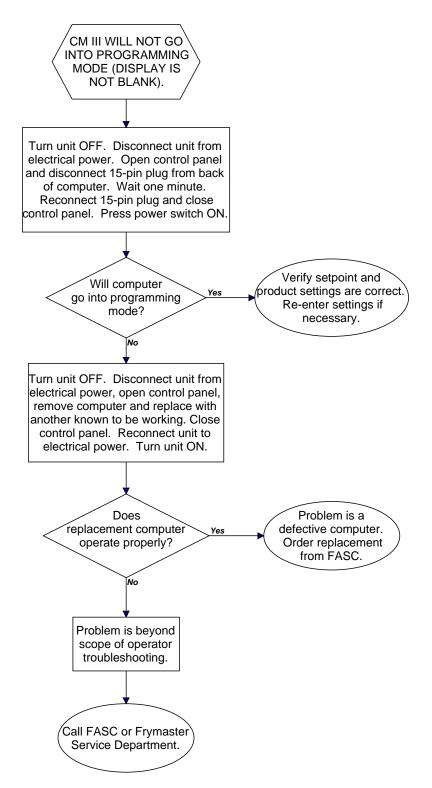
#### H50 SERIES GAS FRYERS CHAPTER 6: OPERATOR TROUBLESHOOTING



#### **Troubleshooting Fryers and Controllers (Continued)**

#### H50 SERIES GAS FRYERS CHAPTER 6: OPERATOR TROUBLESHOOTING

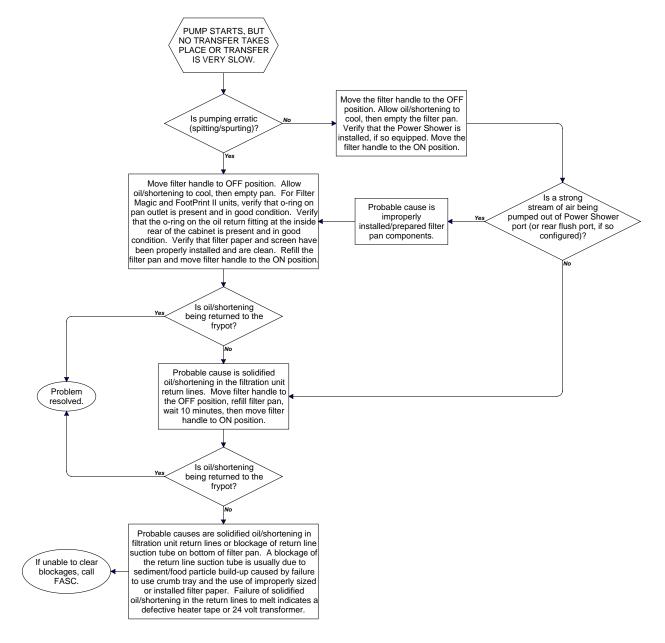
#### **Troubleshooting Fryers and Controllers (Continued)**



#### 6.3 Troubleshooting the Built-in Filtration System



#### H50 SERIES GAS FRYERS CHAPTER 6: OPERATOR TROUBLESHOOTING

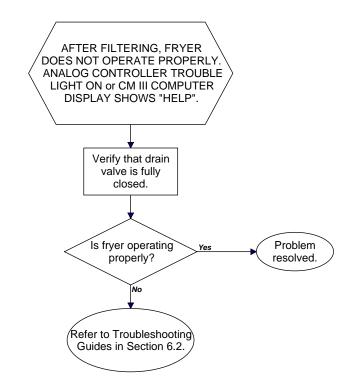


#### Troubleshooting the Built-in Filtration System (Continued)

#### H50 SERIES GAS FRYERS CHAPTER 6: OPERATOR TROUBLESHOOTING

#### POWER SHOWER NOT SPRAYING PROPERLY. How much oil is coming out of the Power Shower? Little or none, but Plenty, but it is Little or none, and it is squirting out nothing is squirting also squirting out around gasket. out around gasket. around gasket. Oil/shortening is not reaching Probable causes are power Probable causes are the Power Shower. Ensure that the shower holes plugged with missing/worn o-rings and Power Shower receptacle in the frypot debris or solidified gasket on Power Shower or is not obstrutcted. If it is clear, refer to oil/shortening in the Power no filter paper in the filter pan the Trouble Shooting Guide Shower tubing. (causing too much pressure). on page 6-6. Move the filter handle to the OFF Position and emove Power Shower. Remove the clean-out plugs and place the unit in a pan of hot water for several Replace o-rings and gasket or install filter minutes to melt the oil/shortening. Insert a straightened paper clip or similarly sized wire into paper, whichever is each hole to clear any blockages. Replace and appropriate. tighten clean-out screws. Verify that gasket and o-ring are in place and in good condition. Completely dry, then reinstall the Power Shower, ensuring that it seats properly in its receptacle. Move the filter handle to the ON position. Is the Power Is Power Problem Yes Shower spraying Shower spraying resolved. properly? properly? No No Problem is beyond scope of operator troubleshooting. Call FASC or Frymaster Service Department.

#### Troubleshooting the Built-in Filtration System (Continued)



#### Troubleshooting the Built-in Filtration System (Continued)

#### 6.4 Replacing the Ignition Module Fuse

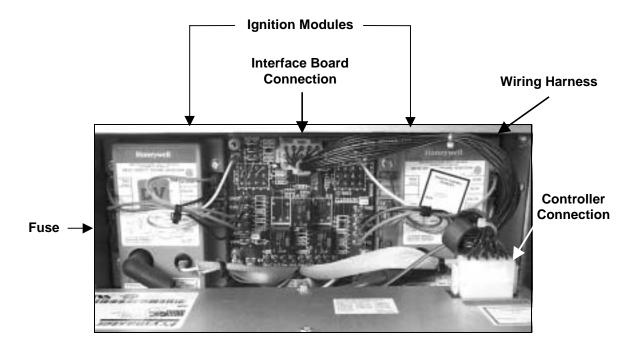
- 1. Disconnect the fryer from the electrical supply.
- 2. Remove the two screws in the upper corners of the control panel and swing the panel open from the top, allowing it to rest on its hinge tabs.
- 3. Using a fuse-puller, remove the 3-amp fuse located on the left side of the ignition module.
- 4. Replace the fuse, close the panel, replace the control panel screws.
- 5. Reconnect the fryer to the electrical supply.

#### 6.5 Replacing the Controller or Controller Wiring Harness

- 1. Disconnect the fryer from the electrical supply.
- 2. Remove the two screws in the upper corners of the control panel and swing the panel open from the top, allowing it to rest on its hinge tabs.

#### H50 SERIES GAS FRYERS CHAPTER 6: OPERATOR TROUBLESHOOTING

- 3. Disconnect the wiring harness from the back of the controller and, if replacing the harness, disconnect it from the interface board.
- 4. Disconnect the ground wire from the controller, and remove the controller by lifting it from the hinge slots in the control panel frame.
- 5. Reverse the procedure to install a new controller or wiring harness.



#### 7.1 Functional Description

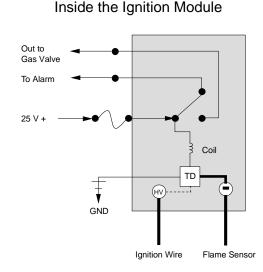
H50 Series fryers contain a welded stainless steel frypot that is directly heated by a high efficiency infrared burner system requiring approximately 43% less energy than conventional burners to cook the same volume.

Self-contained combustion chambers (referred to as "burners") are fitted into rails attached to the sides of the frypot, one on each side. Each combustion chamber is fitted with special ceramic tiles that are heated by the burning of a forced air/gas mixture. The tiles transfer their heat to the frypot by means of infrared radiation, providing much more constant and uniform heat dispersion over the surface of the frypot than do conventional burners. Because relatively less heat is lost to the atmosphere in the process, compared to "open-burner" designs, less fuel is required to achieve and maintain a given frypot temperature.

In full vat units, gas flow to both of the burners is regulated by one electromechanical gas valve. In dual vat units, each burner has its own valve. All fryers in this series are equipped with 24VAC gas valve systems, and all are configured with electronic ignition.

#### THE ELECTRONIC IGNITION SYSTEM

An ignition module mounted in the component box or "shield" (located behind the control panel) is connected to an ignitor assembly at the burner. The ignition module performs four important functions: it provides fuse protection for the 24-volt circuit, provides an ignition spark, supplies voltage to the gas valve, and proofs the burner flame. The module contains a 4-second time delay circuit and a coil that activates the gas valve. Two types are in use. A closed-box design is used in units built for the U.S. market, while the unit used in many units built for export resembles an interface board.



The ignitor assembly consists of a spark plug, an enrichment tube, and a flame sensor.

At start-up, the power switch is placed in the ON position, supplying approximately 12-volts DC to the heat control circuitry in the controller or computer and to one side of the heat relay coils on the interface board. If resistance in the temperature probe indicates the temperature in the frypot is below 180°F (82°C), the current flows through a melt cycle circuit where a timer switch alternately closes for 6 seconds and opens for 24 seconds. If the temperature is 180°F (82°C) or above, the current flows through a heat circuit, bypassing the timer switch. In either case, ground is supplied to the other leg of the heat relay coils, which then close electronic switches in the 24 VAC circuit to provide current to the ignition module. Circuitry in the ignition module sends 24VAC to the gas

valve via a normally closed high-limit switch (and, in fryers with built-in filtration systems, a normally closed drain safety switch). Simultaneously, the module causes the ignitor to spark for 4 seconds to light the burner. A flame sensor verifies the burner is lit by measuring the flow of microamps through the flame. If the burner does not light (or is extinguished), current to the ignition module is cut, the gas valve closes, and the ignition module "locks out" until the power switch is turned off and then back on.

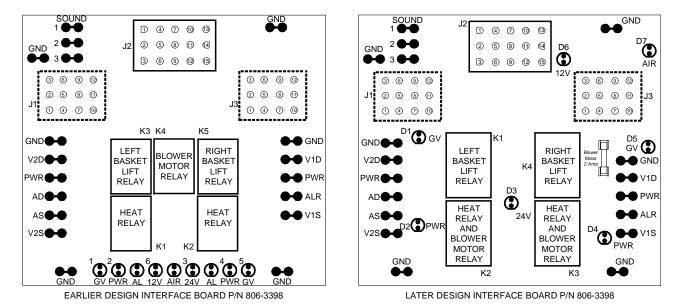
A probe monitors the temperature in the frypot. When the programmed setpoint temperature is reached, resistance in the probe causes the heat cycle circuitry in the controller to cut off current flow through the heat relay. This in turn cuts off the 24 VAC to the ignition module, causing the gas valve to close.

H50 Series fryers may be equipped with solid-state analog controls, digital controls, basket lift timers, or Computer Magic III computers.

All fryers in this series have an interface board located in the component box located behind the control panel.

#### **INTERFACE BOARDS**

The interface board provides a link between the controller/computer and the fryer's individual components without requiring excessive wiring, and allows the controller to execute commands from one central point. The H50 Series of fryers has been in production since 1983. Consequently, servicers are likely to encounter several different interface board designs. Although the boards differ in appearance, basic functioning and electrical connections are the same from one to another. With the exception of manufactured gas units, no matter what generation board is in the fryer now, if it becomes necessary to replace the board, P/N 806-3398 is the replacement part that will be installed. The two boards most likely to be seen (i.e., the two latest designs) are illustrated below.



FREQUENTLY USED TEST POINTS FOR INTERFACE BOARD P/N 806-3398			
	Meter		
Test	Setting	Pins	Results
12VAC Power to Controller	50VAC Scale	1 and 3 on J3 or J2	12-18
24VAC Power to Right Module	50VAC Scale	8 on J3 and GROUND	22-28
24VAC Power to Left Module	50VAC Scale	8 on J1 and GROUND	22-28
120 VAC Power	250VAC Scale	11 on J3 and GROUND	110-125
120 VAC Power to Blowers	250VAC Scale	12 on J3 and GROUND	110-125
24VAC Power to Right High-Limit	50VAC Scale	9 on J3 and GROUND	22-28
24VAC Power to Left High-Limit	50VAC Scale	9 on J1 and GROUND	22-28
Probe Resistance (Right) *	R x 1000 OHMS	2 and 6 on J3 or 13 and 14 on J2	**
Probe Resistance (Left) *	R x 1000 OHMS	2 and 6 on J1 or 14 and 15 on J2	**
Probe Isolation	R x 1000 OHMS	6 on J1 or J3 and GROUND	***
High-Limit Continuity (Right)	Rx10HM	9 on J3 and Wire 13C on Gas Valve	0
High-Limit Continuity (Left)	Rx10HM	9 on J1 and Wire 12C on Gas Valve	0
* Disconnect 15-pin harness from controller before testing probe circuit.			
** See Probe Resistance Chart at end of chapter.			
*** 5 mega-Ohms or greater.			

This standard interface board is also used in a number of fryer types besides the H50 Series. The information contained in this section applies to H50 Series applications ONLY.

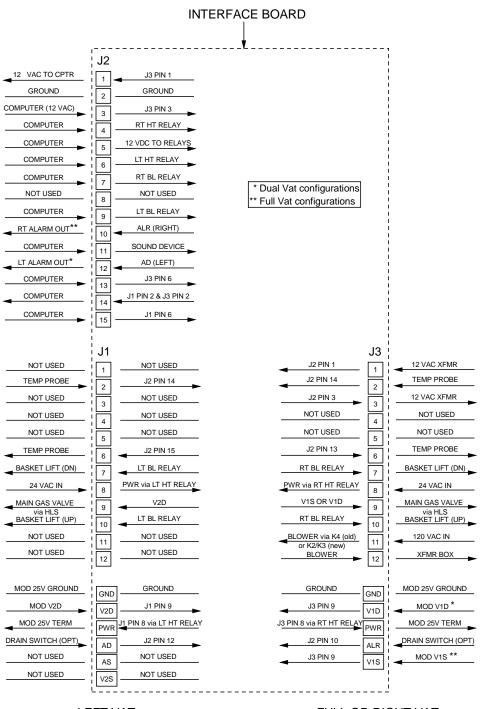
The earlier design board contains two heat relays (K1 and K2) that switch 24 VAC to the ignition and gas valve circuits when the computer/controller heat logic circuit calls for heat. The basket lift relays (K3 and K5) switch 120 VAC to the basket lift motors when signaled by the computer/controller. Relay K4 switches 120 VAC to the blower motor when either K1 or K2 closes. The relays on this board are soldered on – if one fails, the whole board must be replaced.

The newer design board has only four relays. In this design, K2 and K3 are double-pole-double throw (dpdt) relays that supply 24 VAC to the ignition and gas valve circuits, as well as 120 VAC to the blower motor. Relays K1 and K4 supply 120 VAC to the basket lift motors. The relays on this board plug into sockets. If a relay fails, the relay can be replaced.

All interface boards have LEDs to assist in troubleshooting. On the earlier design board, nine LEDs are arranged along the bottom. Later versions have six LEDs at various locations around the board.

	EARLIER DESIGN INTERFACE BOARD LED DIAGNOSTIC LIGHTS
12V	Indicates 12 VAC from transformer
24V	Indicates 24 VAC from transformer
GV	Indicates 24 VAC to gas valve (left or right)
PWR	Indicates 24 VAC to module (left or right)
AL	Indicates module lock-out (left or right)
AIR	CE units: air switch closed. Others: no meaning

	LATER DESIGN INTERFACE BOARD LED DIAGNOSTIC LIGHTS
1	24 VAC to left gas valve (dual vat only)
2	24 VAC to left ignition module
3	24 VAC from transformer
4	24 VAC to right ignition module
5	24 VAC to gas valve (right valve if dual vat)
6	12 VAC from transformer



LEFT VAT

FULL OR RIGHT VAT

CURRENT FLOW THROUGH INTERFACE BOARD 806-3398

#### THERMOSTATS

All fryers in the H50 Series have *temperature probes* located on the front centerline of each the frypot. (Dual vat frypots have a probe in each vat.) In this type thermostat, the probe resistance varies directly with the temperature. That is, as the temperature rises, so does resistance, at a rate of approximately 2 ohms for every 1° F. Circuitry in the controller monitors the probe resistance and controls burner firing when the resistance exceeds or falls below programmed temperatures (setpoints). The temperatures are programmed by means of a keypad on the face of the controller.

H50 Series fryers are also equipped with a *high-limit thermostat*. In the event that the fryer fails to properly control the oil temperature, the high-limit thermostat prevents the fryer from overheating to the flash point. The high-limit thermostat acts as a normally closed power switch that opens when exposed to temperatures above 425°F to 450°F (218°C to 232°C). The different types of thermostats have different part numbers for CE and Non-CE configured models, and are not interchangeable.

#### 7.2 Accessing Fryers for Servicing

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Moving a fryer filled with cooking oil/shortening may cause spilling or splattering of the hot liquid. Follow the draining instructions in Chapter 4 of this manual before attempting to relocate a fryer for servicing.

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

#### 7.3 Cleaning the Gas Valve Vent Tube (Non-CE Units Only)

Refer to Semi-Annual Checks and Service in Chapter 5, Preventive Maintenance.

#### 7.4 Checking the Burner Manifold Gas Pressure

Refer to Semi-Annual Checks and Services in Chapter 5, Preventive Maintenance.

#### 7.5 Measuring Flame Current

When the burner flame is properly adjusted, it will produce a current between  $3.5 \ \mu\text{A}$  and  $6.5 \ \mu\text{A}$ . Flame current is measured by placing a *microamp* (not milliamp) meter in series with the white sensing wire on the ignitor. This is accomplished as follows:

- 1. Place the fryer power switch in the OFF position.
- 2. Disconnect the white sensing wire from one of the burner ignitors and connect it to the positive lead of the meter. Connect the negative lead of the meter to the terminal from which the sensing wire was removed.
- 3. Place the fryer power switch in the ON position to light the burners. After the frypot temperature reaches 200° F (93° C), wait at least one minute before checking the reading. **NOTE:** The closer the unit is to normal operating temperature, the more accurate the reading will be.

#### 7.6 Replacing Fryer Components

#### 7.6.1 Replacing the Controller or the Controller Wiring Harness

Refer to Chapter 6, Section 6.6 for this procedure.

#### 7.6.2 Replacing the Temperature Probe or High-Limit Thermostat

- 1. Disconnect the fryer from the electrical supply.
- 2. Drain cooking oil/shortening below the level of the probe or thermostat.
- 3. Remove the screws from the upper corners of the control panel and swing the panel open from the top, allowing it to rest on its hinge tabs.
- 4. Unplug the controller wiring harness from the back of the controller.
- 5. Remove the controller by lifting it from the hinge slots in the control panel frame.
- 6. If fryer has a built-in filtration system, loosen the bolt securing the oil return handle to the oil return operating rod.
- 7. Disconnect the ignition cables from the ignitors by grasping the boots and gently pulling toward you.
- 8. Remove the component box mounting screws.

- 9. Rotate the top of the component box out of the frame and carefully pull it out enough to disconnect the wiring harness plug(s) from the back of the box.
- 10. Remove the box and set it aside.
- 11. Make a note of the location of the existing wires. Using a pin-pusher, disconnect the temperature probe wires (or high-limit thermostat wires) from the connector plug.
- 12. Unscrew and remove the temperature probe (or high limit thermostat) from the frypot.
- 13. Apply Loctite<sup>®</sup> PST56765 pipe thread sealant or equivalent to the replacement part threads.
- 14. Screw the replacement part into the frypot.
- 15. Connect the wires from the new component to the connector plug, referring to the note made in step 11.
- 16. Reverse steps 1 through 9 to complete the procedure.

#### 7.6.3 Replacing the Interface Board

- 1. Remove the component box per steps 1 through 10 of Section 7.6.2.
- 2. Unplug the controller wiring harness from the interface board.
- 3. Disconnect the wires attached to the interface board, marking or making a note of the wires and terminals to facilitate reconnection.
- 4. Remove the nuts at each corner of the interface board and pull it from the studs.
- 5. Reverse the procedure to install the replacement board, being sure to reinstall the spacers behind the interface board.

#### 7.6.4 Replacing an Ignition Module

- 1. Disconnect the fryer from the electrical supply.
- 2. Remove the screws from the upper corners of the control panel and swing the panel open from the top, allowing it to rest on its hinge tabs.
- 3. Disconnect the wires from the ignition module, marking or making a note of the wires and terminals to facilitate reconnection.
- 4. Remove the four ignition module screws and pull the module from the component box.

5. Reverse the procedure to install the replacement module.

#### 7.6.5 Replacing an Ignitor Assembly

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

- 1. Disconnect the fryer from the electrical supply.
- 2. Disconnect the ignition cable from the ignitor by grasping the boot and gently pulling toward you.
- 3. Remove the sheet metal screw securing the ignitor to the mounting plate and pull the ignitor from the fryer.
- 4. Reverse the procedure to install the replacement ignitor.

#### 7.6.6 Replacing a Combustion Air Blower

Refer to Chapter 5, Quarterly Checks and Service, Clean Combustion Air Blower Assembly for blower removal and replacement procedures.

#### 7.6.7 Replacing a Gas Valve

DANGER Drain the frypot or remove the handle from the drain valve before proceeding further.

- 1. Disconnect fryer from electrical and gas supplies.
- 2. Disconnect the wires from the gas valve terminal block, marking each wire to facilitate reconnection.
- 3. Remove the vent tube and the enrichment tube fitting from the valve.
- 4. Disconnect the flexible gas line(s).
- 5. Carefully unscrew the valve from the manifold. NOTE: Some models may have the valve attached to the manifold by means of a pipe union. In such cases, remove the valve by uncoupling the union.
- 6. Remove all fittings from the old gas valve and install them on the replacement valve, using Loctite<sup>®</sup> PST56765 or equivalent pipe thread sealant.

7. Apply Loctite<sup>®</sup> PST 56765 or equivalent pipe thread sealant to the threads of the manifold (or union). Reverse steps 1-5 to install the replacement gas valve.

#### 7.6.8 Replacing a Burner Assembly

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

- 1. Disconnect the unit from the electrical and gas supplies.
- 2. Remove the combustion air blower per the procedure found in Chapter 5, Quarterly Checks and Service, Clean Combustion Air Blower Assembly.
- 3. Remove the four nuts from the air plenum assembly and pull the assembly straight out toward you until it clears the burner tubes.

**NOTE:** On a dual vat fryer, it will be necessary to remove the drain valve handles before the plenum can be removed.

**NOTE:** If the flexible oil return lines are blocking the plenum, carefully bend them upward enough to clear the plenum.

- 4. Disconnect the ignition cables from the ignitors by grasping their boots and pulling gently toward you.
- 5. Disconnect the flexible gas lines from the burner orifices and ignitor assemblies.
- 6. Remove the four  $\frac{1}{4}$ " (6mm) nuts securing the outer front covers to the frypot assembly.
- 7. Remove the sheet metal screws at the top of the outer front covers and pull the covers straight out toward you until clear of the mounting studs.
- 8. Remove the washers and tubular spacers from the mounting studs, then pull the inner covers straight out toward you until clear of the mounting studs.
- 9. Grasp the burner firmly and pull it toward you until it clears the burner channels, taking care not to damage the ceramic tiles in the process.
- 10. Clean all debris from the burner channels and combustion area.
- 11. Inspect the upper and lower burner rails for cracked or burned out welds.

- a. If the welds in the lower rail are cracked or burned out, the frypot must be replaced. Refer to Section 7.6.9 for procedure.
- b. If the welds in the upper rail are cracked or burned out, the upper rail must be replaced. Refer to Section 7.6.10 for procedure.
- 12. Place a new insulating strip along the top, rear, and bottom edge of the burner and carefully slide it straight into the rails.

**NOTE:** Use P/N 826-0931 for full vat frypots and P/N 826-0932 for dual vat frypots.

- 13. Reverse steps 1 through 8 to reassemble the components.
- 14. Fill the frypot with oil. Turn the fryer on, turn off or bypass the melt cycle, and operate the unit for at least 10 minutes.
- 15. Visually examine the burner flame. The color and intensity on both sides should be the same.
- 16. Use an inspection mirror to check for leaks in areas that cannot be directly observed.
- 17. If a leak is detected, tighten all the lower insulation retainer nuts, allow the frypot to run for five additional minutes, and repeat steps 15 and 16.
- 18. If the leak persists, use a rubber hammer and a small block of wood to tap the corners of the lower combustion chamber insulation retainers. Repeat steps 15 through 17. **Repeat this step until no leakage is detected.**

#### 7.6.9 Replacing the Frypot

- 1. Drain cooking oil/shortening from the frypot.
- 2. Remove all accessories, e.g., frypot covers, basket lift arms, etc. from the fryer.
- 4. Disconnect the fryer from gas and electrical supplies.
- 5. Remove the screws from the top cap above the control panel and lift it up and off the fryer(s).
- 6. Remove the screws from the upper left and right corners of the control panel. Open the panel, disconnect the controller wiring harness and ground wire. Remove the controller from the fryer.
- 7. Disconnect the ignition wires from the ignitor plugs by grasping their boots and gently pulling toward you.

- 8. Remove the screws securing the component box to the frame, and then rotate the top of the box forward and out of the fryer enough to disconnect the wiring harness connector plug(s) on the rear of the box. Set the component box aside.
- 9. Using a pin pusher, remove the temperature probe and high-limit thermostat wires from the plug(s), marking each wire to facilitate re-assembly.
- 10. Remove the cover from the safety drain switch, disconnect the wires from the switch, and pull them out of the switch box.
- 11. If installed, remove the section(s) of square drain from the drain valve(s) of the frypot to be removed.
- 12. Disconnect the gas lines from the burner orifices and ignitor assemblies.
- 13. Remove the frypot hold down bracket.
- 14. Remove the screws from the flue cap sides and back and lift it clear of the fryer(s).
- 15. Disconnect the oil return line(s), if installed, from the frypot to be removed.
- 16. If removing either of the leftmost frypots of in a unit with FootPrint III filtration built after July 1997, remove the screws securing the rear oil return manifold to the frypot.
- 17. Carefully lift the frypot from the fryer cabinet.
- 18. Remove the drain valve(s), temperature probe(s), high-limit thermostat(s), and ignitor assemblies. Inspect each of these components carefully and install them in the replacement frypot if they are in serviceable condition. Use Loctite<sup>®</sup> PST56765 sealant or equivalent on component threads.

**NOTE:** Some servicers, based upon their experience, recommend that probes and thermostats be replaced whenever a frypot is replaced, but this remains the customer's decision.

- 19. Reverse steps 1-17 to reassemble fryer.
- 20. Perform steps 14 through 18 of Section 7.6.8 to ensure that there are no leaks in the burner insulation.

# 

Before installing temperature probe, high-limit thermostat, and drain valve on replacement frypot, clean their threads and apply Loctite<sup>®</sup> PST56765 thread sealant or equivalent.

#### 7.6.10 Replacing Frypot Insulation and/or Upper Burner Rails

**NOTE:** Replacing the burner rails requires completely tearing down the frypot and installing new frypot insulation. Refer to the frypot exploded view on page 7-13 for component identification.

- 1. Remove the frypot per Section 7.6.9.
- 2. Remove the burner assemblies (1).
- 3. Remove insulation retainers and blanket insulation (2).
- 4. Remove the upper oil zone insulation bracket and upper oil zone insulation (3).
- 5. Remove the plenum (4).
- 6. Remove the front lower combustion chamber insulation retainer and insulation (5), and the front lower combustion chamber inner insulation retainer and insulation (6).

**NOTE:** Full vat units have two-piece insulation retainer and insulation components. Dual vat units have one-piece components.

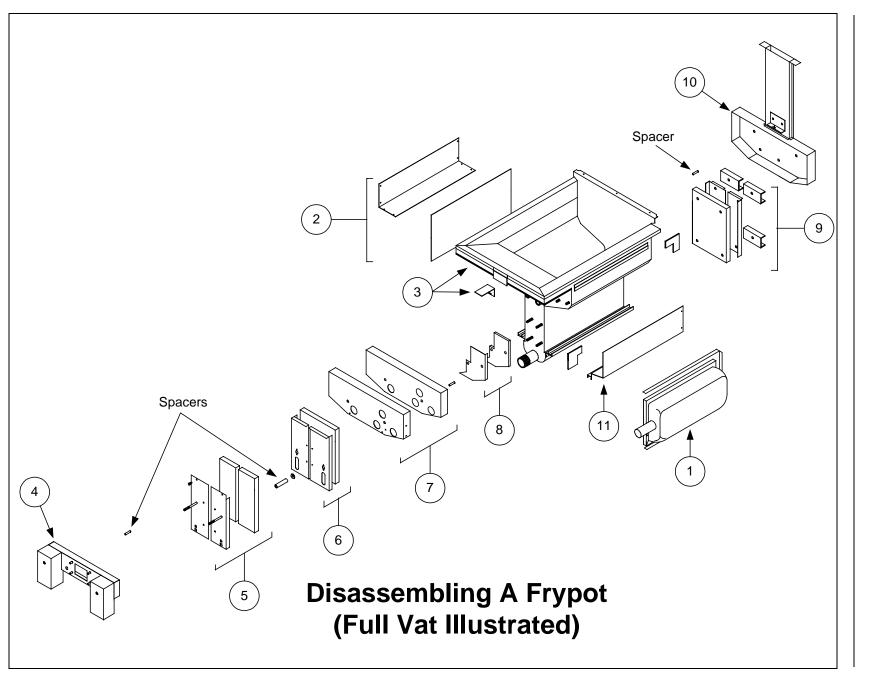
- 7. Remove the upper combustion chamber insulation retainer and insulation (7).
- 8. Remove the inner upper combustion chamber insulation retainer and insulation (8).
- 9. Remove the rear lower combustion chamber retainers, back, and insulation (9).

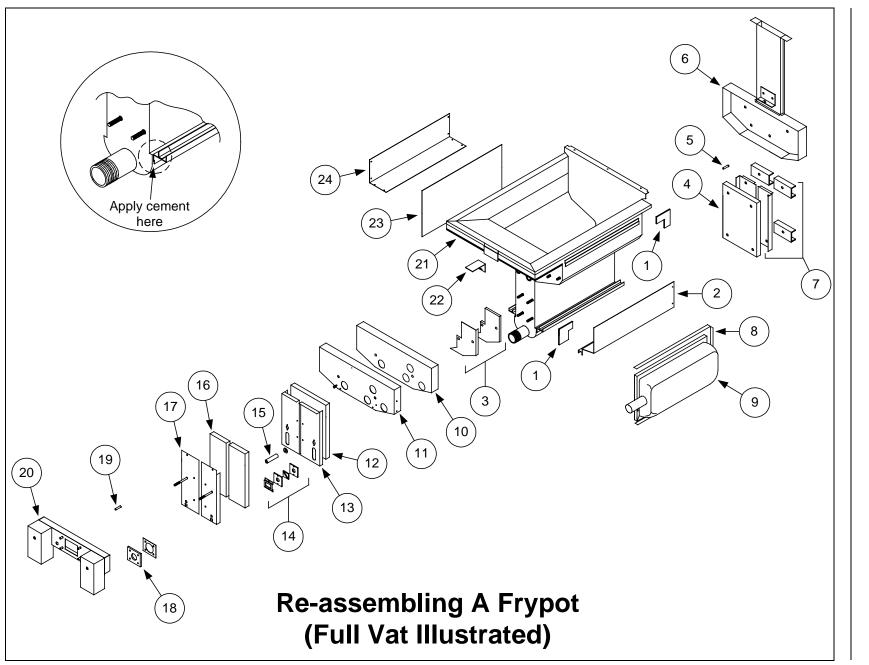
**NOTE:** Full vat units have two-piece backs and four retainers. Dual vat units have one-piece backs and two retainers.

- 10. Remove the flue assembly (10).
- 11. Remove the upper burner rails (11).

**NOTE:** For the following steps, refer to the frypot exploded view on page 7-14 for component identification.

- 12. Remove any residual insulation, sealant, and/or oil from the exterior of the frypot.
- 13. Place the "L" shaped pieces of combustion chamber insulation (1) in the front and rear corners of both upper rail-retaining slots.
- 14. Use a small amount of furnace or muffler repair cement to seal the gaps at each end of both lower rails. (See inset, page 7-14.)





- 15. Install the upper burner rails (2) with the heat deflectors slanting toward the rear of the frypot. The rails will cover the "L" shaped pieces of combustion chamber insulation previously installed.
- 16. Place the upper inner combustion chamber insulation and insulation retainers (3) on the top two studs on each side of the front of the frypot and secure with <sup>1</sup>/<sub>4</sub>"-20 washer-nuts. (It is normal for the retainers to slice off the overhanging insulation.)
- 17. Place the lower rear combustion chamber insulation (4) on the lower four studs at the rear of the frypot.
- 18. Place one 1.625-inch tubular spacer (5) on each of the flue assembly (upper) studs at the rear of the frypot.

**NOTE:** There are three different sizes of spacers. Verify the size to ensure the correct spacers are installed.

Press the flue assembly (6) over the burner rails. It may be necessary to use a rubber mallet or screwdriver to align the components. Use four <sup>1</sup>/<sub>4</sub>"-20 washer nuts to secure the flue assembly. Do not tighten the retainer nuts at this point. They should be finger tight only.

**NOTE:** The flue edge will cover one to two inches of the lower insulation.

20. Install the lower rear combustion chamber back(s) and retainer(s) (7) with the flanged edge(s) against the flue. Secure with  $\frac{1}{4}$  -20 washer nuts.

**NOTE:** Full vat units have two-piece backs and four retainers. Dual vat units come with one-piece backs and only two retainers.

- 21. Insert the burners (9) into the rails to ensure the rail spacing and alignment are correct. The burner should slide freely into and out of the rails. The upper rail can be bent slightly to increase or decrease tension on the burner, and the edges of the slot can be closed or opened slightly to best fit the burner frame.
- 22. Carefully wrap a strip of burner insulation (8) tightly around the rear and sides of the burner frame (9), with the glass-tape side of the strip on the outside. Do not use duct tape or adhesive to secure the strip to the burner frame.
- 23. Align the burner to the burner rails while maintaining tension on the insulation strip. Insert the burner at a slight angle and begin pushing the burner slowly into the rails until it contacts the rear combustion chamber. The fit should be snug, but not excessively tight.
- 24. Verify that the burners are flush with the front edge of the burner rails. Remove the excess burner insulation by cutting with a knife or diagonal pliers. **Do not try to tear the insulation!**

- 25. Insert the upper front insulation (10) into its retainer (11), making sure that the holes in each piece are aligned with one another. Install the assembly with the insulation side toward the frypot and secure with <sup>1</sup>/<sub>4</sub>"-20 washer-nuts. **Do not over tighten.**
- 26. Place a washer on each of the four lower studs on the front of the frypot. Install the lower inner front insulation (12) with the rectangular openings toward the drain valve nipple. Install the lower inner front insulation retainer(s) (13).

**NOTE:** Full vat units have a two-piece insulation retainer. Dual vat units have a one-piece retainer.

- 27. If necessary, replace the sight-glasses and insulation (14).
- 28. Place one washer and one 1.888-inch spacer (15) on each stud.

**NOTE:** There are three different sizes of spacers. Verify the size to ensure the correct spacers are installed.

29. Insert the front lower insulation (16) into the front lower insulation retainer(s) (17) and install assembly on frypot. Secure with <sup>1</sup>/<sub>4</sub>"-20 washer-nuts. If frypot uses two retainers, connect them together with two <sup>1</sup>/<sub>4</sub>" self-tapping screws.

**NOTE:** Full vat units have a two-piece insulation retainer and two pieces of insulation. Dual vat units have one-piece components.

- 30. Return to the rear of the frypot and fully tighten all washer-nuts.
- 31. Remove and replace the plenum gaskets (18).
- 32. Place a 0.938-inch spacer (19) on the plenum-mounting studs, and mount the plenum (20). Ensure the gaskets are clear of the burner tubes by pulling the plenum back slightly. Place a washer on each stud and secure plenum with <sup>1</sup>/<sub>4</sub>"-20 lock-nuts.
- 33. Install the upper oil-zone insulation (21) by pressing it under the upper combustion chamber metalwork. Secure the insulation with the bracket (22) and <sup>1</sup>/<sub>4</sub>" self-tapping screws.
- 34. Install the upper burner rail blanket insulation (23). Position any excess insulation toward the top of the frypot. Avoid overhang past the bottom of the upper burner rail. Overhang in this area will make future burner replacement more difficult.
- 35. Cover the insulation with the insulation retainer (24), and secure with  $\frac{1}{4}$ " self-tapping screws.
- 36. Reinstall probes, drain valves, high-limit thermostats and other pipefittings using Loctite<sup>®</sup> PST56765 sealant or equivalent on their threads.

# 7.7 Troubleshooting and Problem Isolation

Because it is not feasible to attempt to include in this manual every conceivable problem or trouble condition that might be encountered, this section is intended to provide technicians with a general knowledge of the broad problem categories associated with this equipment, and the probable causes of each. With this knowledge, the technician should be able to isolate and correct any problem encountered.

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

- 1. Ignition failures
- 2. Improper burner functioning
- 3. Improper temperature control
- 4. Computer-related problems
- 5. Filtration problems
- 6. Leakage problems
- 7. Basket Lift malfunctions.

The probable causes of each category are discussed in the following sections. A series of Troubleshooting Guides (decision trees) is also included at the end of the chapter to assist in identifying some of the more common problems.

# 7.7.1 Ignition Failures

Ignition failure occurs when the ignition module fails to sense a flame within the 4-second time delay period and locks out. When this happens, the module sends 24 VAC through the interface board alarm circuit to the controller/computer.

Analog controllers indicate ignition failure by illuminating the heat light and trouble light simultaneously. Digital, Computer Magic III, and Basket Lift Timer controls display "H E L p."

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

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

# PROBLEMS RELATED TO THE GAS AND/OR ELECTRICAL POWER SUPPLIES

The main indicators of this are that an entire battery of fryers fails to light and/or there are no indicator lights illuminated on the fryer experiencing ignition failure. Verify that the quick disconnect fitting is properly connected, the fryer is plugged in, the main gas supply valve is open, and the circuit breaker for the fryer electrical supply is not tripped.

# PROBLEMS RELATED TO THE ELECTRONIC CIRCUITS

If gas and electrical power are being supplied to the fryer, the next most likely cause of ignition failure is a problem in the 24 VAC circuit. If the fryer is equipped with a built-in filtration system, first verify that the drain valve is fully closed. (The valve is attached to a microswitch that must be closed for power to reach the gas valve. Often, although the valve handle appears to be in the closed position, the microswitch is still open.) If the valve is fully closed, or the fryer does not have a built-in filtration system, refer to the troubleshooting guides **TROUBLESHOOTING THE 24 VAC CIRCUIT**.

Some typical causes of ignition failure in this category include a defective sensing wire in the ignitor assembly, a defective module, a defective ignition wire, and a defective ignitor.

Occasionally you may encounter an ignition failure situation in which all components appear to be serviceable and the microamp reading is within specification, but the unit nevertheless goes into ignition failure during operation. The probable cause in this case is an intermittent failure of an ignition module. When the unit is opened up for troubleshooting, the module cools down enough to operate correctly, but when the unit is again closed up and placed back into service the module heats up and fails.

# PROBLEMS RELATED TO THE GAS VALVE

If the problem is not in the 24 VAC circuit, it is most likely in the gas valve itself, but before replacing the gas valve refer to **TROUBLE SHOOTING THE GAS VALVE**.

# 7.7.2 Improper Burner Functioning

With problems in this category, the burner ignites but exhibits abnormal characteristics such as "popping," dark spots on the burner ceramics, fluctuating flame intensity, and flames shooting out of the flue.

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

The primary causes of popping are:

- Incorrect or fluctuating gas pressure
- A defective or incorrectly adjusted combustion air blower
- Inadequate make-up air
- Heat damage to the controller or ignition module
- A cracked ignitor or broken ignition wire
- A defective ignition module

• Cracked burner tile (this typically causes a very loud pop)

If popping occurs only during peak operating hours, the problem may be incorrect or fluctuating gas pressure. Verify that the incoming gas pressure (pressure to the gas valve) is in accordance with the appropriate CE or Non-CE Standard found in Section 2.3 of this manual, and that the pressure remains constant throughout all hours of usage. Refer to **Check Burner Manifold Pressure** in the Semi-Annual Checks and Services section of Chapter 5 for the procedure for checking the pressure of gas supplied to the burner.

If popping is consistent during all hours of operation, the most likely cause is an insufficient air supply. Check for "negative pressure" conditions in the kitchen area. If air is flowing into the kitchen area, this indicates that more air is being exhausted than is being replenished and the burners may be starved for air.

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

Verify that the ignition wire is tightly connected at both ends and free of obvious signs of damage. Again, if damage is due to excessive heat in the fryer, that problem must also be corrected.

Check for proper operation by disconnecting the wire from the ignitor (spark plug), inserting the tip of a screw driver into the terminal, and holding it near the frame of the fryer as the power switch is placed in the ON position. A strong, blue spark should be generated for at least 4 seconds.

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

Examine the ignitor (spark plug) for any signs of cracking. A cracked ignitor must be replaced. If all other causes have been ruled out, examine the burner tiles for any signs of cracking. If found, the burner must be replaced.

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

*Dark spots on the burner tiles* are the result of an improper air/gas mixture. Adjust the combustion air blower to reduce the amount of air in the mixture to correct this problem

*Flames shooting out of the flue* are usually an indication of negative pressure in the kitchen. Air is being sucked out of the burner enclosure and the flames are literally following the air. If negative pressure is not the cause, check for high burner manifold gas pressure in accordance with the procedures in Chapter 5.

An *excessively noisy burner*, especially with *flames visible above the flue opening*, may indicate that the gas pressure is too high, or it may simply be that the gas valve vent tube is blocked. If the incoming gas pressure is correct and the vent tube is unobstructed, the gas valve regulator is probably defective.

Occasionally a burner may apparently be operating correctly, but nevertheless the fryer has a *slow recovery rate* (the length of time required for the fryer to increase the oil temperature from 275°F to 325°F (135°C to 163°C)). The primary causes of this are an over-filled vat, a dirty or out-of-adjustment combustion air blower, low burner manifold pressure, and/or damaged burner tiles. Adding oil to the frypot during the recovery process will also cause a slow recovery rate. If these causes are ruled out, the probable cause is a misadjusted gas valve regulator. Refer to the **Check Burner Manifold Pressure** procedure in the Semi-Annual Checks and Service section of Chapter 5.

# 7.7.3 Improper Temperature Control

Temperature control, including the melt cycle, is a function of several interrelated components, each of which must operate correctly. The principle component is the temperature probe. Other components include the interface board, the controller itself, and the ignition module.

Improper temperature control problems can be categorized into melt cycle problems and failure to control at setpoint problems.

# MELT CYCLE PROBLEMS

In fryers equipped with Analog controls, the melt cycle must be initiated by pressing the melt cycle switch. With all other controllers, initiation of the melt cycle is automatic.

Problems may be with the controller itself, the temperature probe, or a malfunctioning heat relay on the interface board.

# FAILURE TO CONTROL AT SETPOINT

Problems in this category may be with the temperature probe, the interface board, or the controller.

# 7.7.4 Computer-Related Problems

# **COMPUTER MAGIC III FEATURES**

## SENSITIVITY OR "STRETCH AND SHRINK TIME"

Sensitivity or stretch time is a programmable feature, patented by <u>*Frymaster*</u>, that increases or decreases the cook time countdown based on variations in the oil temperature from the set point.

The sensitivity for each product button has ten settings (0 through 9). A zero sensitivity setting will disable the feature (no change in cooking time), while a nine will provide the highest sensitivity or most change. The correct sensitivity for any product is based on the product, its density, the set point temperature, and the customer's own requirements.

## RECOVERY TIME OR "RATE OF RISE"

*Recovery time* or rate of rise is a method of measuring a fryer's performance. Put simply, it is the time required for the fryer to increase the oil temperature from 275°F to 325°F (135°C to 163°C). This range is used as a standard since ambient kitchen temperatures can effect the test if lower ranges are used.

The Computer Magic III performs the recovery test each time the fryer warms up. An operator can view the results of the test any time the fryer is above the  $325^{\circ}$ F (163°C) point by pressing the  $\checkmark$  button and entering the code 1652. The test results will be displayed in the computer's LED panel in minutes and seconds. The maximum acceptable recovery time for the H50 Series of fryers is two minutes and twenty-five seconds.

## COMPUTER MAGIC III STRAPPING

The Computer Magic III controller does not automatically recognize a full vat or dual vat fryer. Each computer is set up at the factory for full or dual vat, gas or electric, and controlling or non-controlling applications. This is accomplished through a procedure known as strapping or unstrapping the computer.

Occasionally you may encounter a situation in which a computer that has been strapped for one type of fryer has been installed in another type. An examination of the computer strapping may explain the incorrect functioning of an otherwise good computer.

The computer's straps are numbered S1 through S3, from left to right.

- S1 should be open for non-controlling applications and closed for controlling.
- S2 should be open for electric fryers and closed for gas fryers.
- S3 should be open for full vat and closed for dual vat configurations.

# 

# Do not attempt to alter the strapping of the computer. Doing so may render the computer inoperable and will void the component warranty.

# **COMMON COMPUTER COMPLAINTS**

Most problems concerning computers have to do with programming them. There are four common complaints. The complaints, their causes, and corrective actions are:

1. Fryer constantly displays "Hl."

Cause: Setpoint incorrect or missing.

Corrective Action: Press  $\checkmark$  1650, enter the correct setpoint using keypad, then press  $\square$  to lock in the setpoint.

2. Temperature is displayed in Celsius.

Cause: Computer is programmed to display in Celsius.

Corrective Action: Press 🗹 1658.

3. Temperature is constantly displayed.

Cause: Computer is programmed for constant temperature display.

Corrective Action: Press 🗹 165L.

4. Computer times down too slowly or too quickly.

Cause: Computer is compensating for oil temperature via the sensitivity setting.

Corrective Action: Reprogram sensitivity setting for each product in accordance with programming instructions in Chapter 3.

# 7.7.5 Filtration Problems

The majority of filtration problems arise from operator error. One of the most common errors is placing the filter paper on the bottom of the filter pan rather than over the filter screen.

Whenever the complaint is "the pump is running, but no oil is being filtered," check the installation of the filter paper, including that the correct size is being used. While you are checking the filter paper, verify that the O-ring on the bottom of the filter pan is present and in good condition. A missing or worn O-ring will allow the pump to suck air and decrease its efficiency.

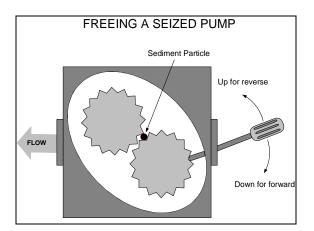
If the pump motor overheats, its thermal overload will trip and the motor will not start until it is reset. If the pump motor does not start, press the red reset switch located on the rear of the motor. If the pump then starts, something caused the motor to overheat. It may just be that several frypots were being filtered one after the other and the pump got hot. Letting the pump cool down for at least a half-hour is all that is required in this case. More often, the pump overheated for one of the following reasons:

- Shortening was solidified in the pan or filter lines.
- The operator attempted to filter oil or shortening that was not heated. Cold oil and shortening are thicker and cause the pump motor to work harder and overheat.

If the motor hums but the pump does not rotate, there is a blockage in the pump. Incorrectly sized or installed paper will allow food particles and sediment to pass through the filter pan and into the pump. When sediment enters the pump, the gears can bind up causing the motor to overload, again tripping the thermal overload. Solidified shortening in the pump will also cause it to seize, with the same result.

A pump seized by debris or hard shortening can usually be freed by manually moving the gears with a screwdriver or other instrument as illustrated below. Make sure power to the pump motor is off before trying this.

- 1. Disconnect power to the filter system.
- 2. Remove the input plumbing from the pump.
- 3. Use a screwdriver to manually turn the gears.
  - Turning the pump gears backwards will release a hard particle and allow its removal.
  - Turning the pump gears forward will push softer objects and solid shortening through the pump and allow free movement of the gears.



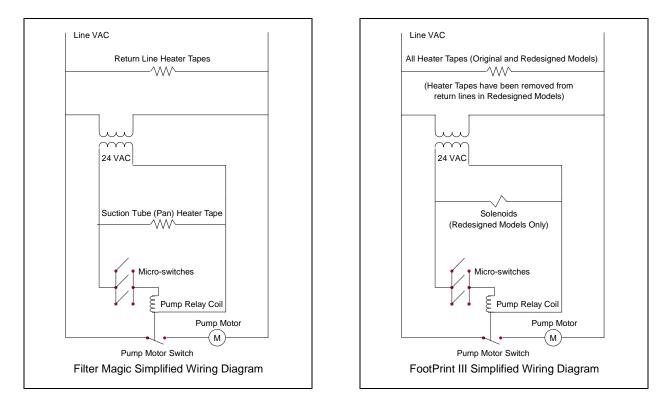
Incorrectly sized or installed paper will also allow food particles and sediment to pass through and clog the suction tube on the bottom of the filter carriage. Particles large enough to block the suction tube may indicate that the crumb tray is not being used.

Pan blockage can also occur if shortening is left in the pan and allowed to solidify. The heater strip on the suction tube is designed to prevent solidification of residual shortening left in the tube. It will not melt or prevent solidification of shortening in the pan.

Blockage removal can be accomplished by forcing the item out with an auger or drain snake. Compressed air or other pressurized gases should not be used to force out the blockage.

Possible problems with the Power Shower include clogged openings, shortening solidified in the tubes, missing clean-out plugs, and missing or worn O-rings. Cleaning the unit and replacing missing plugs and missing or worn O-rings will correct these problems.

The electronics of the Filter Magic and FootPrint III systems are simple and straightforward. Microswitches, attached to handles for each vat and wired in parallel, provide the 24 VAC required to activate the pump relay coil when the handles are moved to the ON position. The activated pump relay coil pulls in the pump motor switch, supplying power to the pump motor.



The oil return line heater tapes in the Filter Magic system are wired directly into the line VAC source and remain energized as long as the unit is plugged in. The filter pan suction tube heater tape, however, is wired into the 24 VAC circuit. The suction tube tape is activated only when the filter pan is positioned all the way to the rear of the cabinet, allowing a pair of "bullet" contactors mounted on the pan to touch a corresponding pair of contactors mounted on the cabinet frame.

For FootPrint III systems built before August 1997, all heater tapes are wired directly into the line VAC source. They remain energized as long as the unit is plugged in. In systems built in August 1997 and later, oil return line heater tapes have been eliminated. In these units, the only heater tape used is on the suction tube and pump. This tape is still wired directly into the line voltage. A pair of vacuum-breaking solenoids is wired into the 24 VAC circuit.

The redesigned FPIII is distinguished from original-design units by the absence of casters on the filter base assembly. The redesign incorporated an improved oil return system that allows oil/shortening to drain back to the filter pan when the filter system is turned off, eliminating the need for most heated oil return components. For a short time, one-piece, welded oil return manifolds were used. The one-piece manifolds have been replaced with Dormont stainless steel flexlines and nipples.

Operation of the redesigned FP-III system is the same as for the original design.

ORIGINAL VS REDESIGNED	FP-III FILTRATION SYSTEM								
Original System	Redesigned System								
Return lines and manifolds wrapped with silicone	No heater strips or aluminum tape on return lines.								
strip heaters and aluminum tape.									
Filter base assembly connected to unit with a	Non-heated Teflon hose with a swivel joint con-								
black, heated return hose beneath the filter.	nects the filter base assembly to the unit above the filter.								
Filter base assembly equipped with swivel cast-	Filter base assembly has no casters.								
ers.									
Operator-removable filter base assembly. (Filter	Filter base assembly is not removable except by								
base assembly stoplocks in cabinet can be ro-	a qualified service technician. (Filter base as-								
tated to remove tray.)	sembly stoplocks fitted with a screw and nut to								
	prevent filter removal.)								
Oil/shortening remains in return lines when filter	Oil/shortening gravity-drains back to the filter pan								
system is turned off.	when filter system is turned off, leaving no oil or								
	shortening in return lines.								

# Square Drain Sub-System

The only change to the square drain sub-system is the addition of a <sup>1</sup>/<sub>4</sub>" NPT vent coupling to the leftmost end sections to allow attachment to a vacuum-breaking solenoid. The new end sections may also be used on the original-design filtration system by plugging the vent port with a <sup>1</sup>/<sub>4</sub>" NPT pipe plug coated with sealant. All other square drain components remain unchanged.

# Power Shower Sub-System

A one-piece, welded rear manifold and Dormont stainless steel flexlines replace the various pieces of  $\frac{1}{2}$ " NPT piping, flexlines, and heater-strips used on the original-design filtration system. A solenoid vent valve is mounted on the left end of the front oil return assembly. It prevents vacuum-lock of the system as oil/shortening drains back to the filter pan when the unit is turned off. The solenoid valve is connected to the square drain sub-system by a clear  $\frac{3}{8}$ " O.D. Teflon tube and threaded fittings. The Gemini ball valve used on the manifold is the same as that used on the earlier design. Eight and one-half-inch stainless steel Dormont flexlines replace the flexlines that connect the manifolds to the valves. Standard  $\frac{1}{2}$ " X  $\frac{1}{2}$ " X 90° black metal street elbows are used to make the connections.

A one-piece manifold is attached to the rear of the leftmost two frypots. This manifold replaces the oil return hose bracket found at the left front of the fryer in original-design units. A 22-inch Dormont stainless steel flexline, running above the filter assembly, connects the front oil return assembly

to the new rear manifold. This replaces the previous stainless steel tubing that ran from the front oil return assembly to the hose bracket at the left front of the cabinet.

# Filter Base Assembly and Pump Sub-System

Casters are not present on the new-design filter base. In addition, the filter base assembly has been redesigned to prevent it being taken out of the cabinet without removing a set of machine screws and nuts. The filter pan is unchanged and is completely removable.

A new Teflon hose with a braided stainless steel covering connects the pump to the rear manifold and replaces the heated hose running from the pump discharge under the unit to the Power Shower plumbing. The new hose is fitted with a 90° swivel at the manifold end and a straight swivel at the pump end to prevent kinking.

The pump plumbing has been changed by the addition of a solenoid valve at the pump discharge, a <sup>1</sup>/<sub>4</sub>" I.D. Dormont stainless steel flexline that connects the solenoid valve to the pump inlet fittings, and miscellaneous standard black metal fittings for connections. This design allows oil/shortening to bypass the pump as it drains from the oil return lines back into the filter pan when the system is turned off. Bypassing the pump expedites draining of the lines. The pump solenoid leads are connected to Pins 7 and 9 of the upper 9-pin plug assembly.

# Filter Wiring Box

The original-design 5-lead cable connecting the filter assembly to the filter wiring box has been replaced with a new, universal 7-lead cable to accommodate the solenoid mounted on the front manifold. The two new leads have a separate connector for attachment to the solenoid. When a filter cable is ordered for either filtration system configuration (original or redesigned), the new 7-wire cable will be sent. The two extra wires and connector will not interfere with the original filtration system or its operation.

# Fryer Heat Shield

The front heat shield between the leftmost two frypots has been modified by the addition of a hole at the lower end to allow routing of the Dormont stainless steel flexline that connects the front manifold to the rear manifold.

## Verifying Solenoid Operation

Proper operation of the 24 VAC manifold and pump solenoids can be verified by removing the pump motor lead from terminal 4 of the pump motor relay in the filter wiring box and then activating the oil return lever. Proper solenoid operation will be evidenced by an audible "click" or vibration of both the pump solenoid and the manifold solenoid.

# 7.7.6 Leakage Problems

Leakage of the frypot will usually be due to improperly sealed high limit thermostats, temperature probes, and drain fittings. When installed or replaced, each of these components must be sealed with Loctite<sup>®</sup> PST56765 sealant or equivalent to prevent leakage. In very rare cases, a leak may develop along one of the welded edges of the frypot. When this occurs, the frypot must be replaced.

If the sides and/or ends of the frypot are coated with oil/shortening, the most likely cause is spillage over the top of the frypot rather than leakage.

The clamps, which hold the drain tube sections together, may loosen over time as the tubes expand and contract with heating and cooling during use. If the section of drain tube connected to the drain valve is removed for whatever reason, make sure that its grommet is in good condition and properly fitted around the nipple of the drain when it is reinstalled. Also, check to insure that the drain tube runs downward from the drain along its whole length and has no low points where oil or shortening may accumulate.

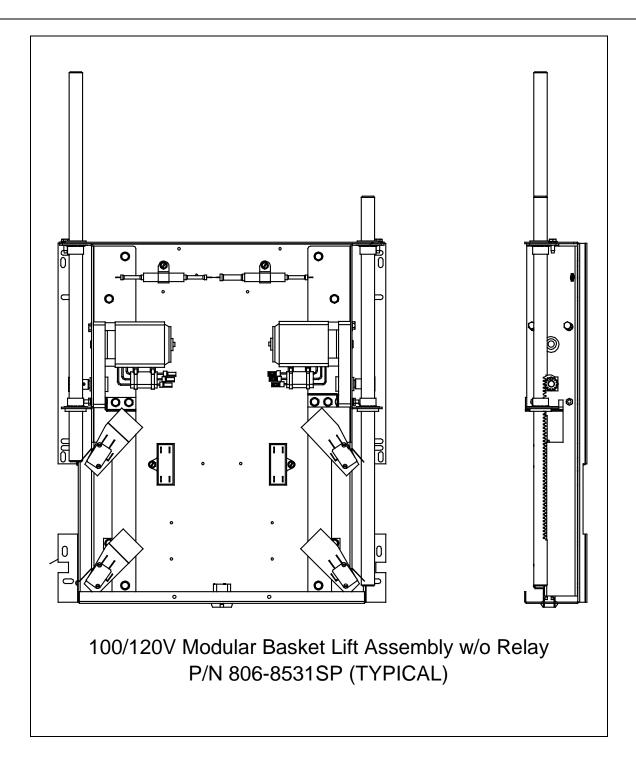
# 7.7.7 Basket Lift Malfunctions

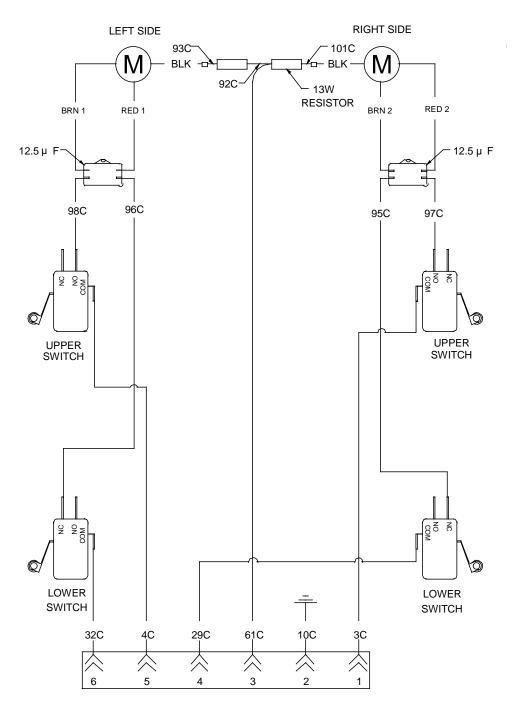
H50 Series fryers may optionally be equipped with automatic basket lifts to ensure uniform cooking times. Basket lifts will always come in pairs, although each operates independently of the other.

Depending upon the specific model, date of manufacture, and customer specifications, an H50 fryer may be equipped with a bell crank style basket lift, or a "modular" basket lift.

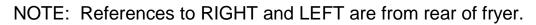
A **modular basket lift** (illustrated on the following page) consists of a toothed rod to which the basket lift arm is attached, a reversible-drive gear motor, and a pair of roller-activated microswitches. The gear motor engages the teeth in the rod, moving it up or down depending upon the direction of rotation of the motor. Microswitches at the upper and lower limits of movement stop the motor when the basket is in the full up or full down position.

Timing circuitry in the controller initiates and stops basket lift operation depending upon the variables programmed by the operator. When the product button is pressed, the timing circuitry activates a coil in the basket lift relay to supply power to the lower microswitch. The microswitches stop the motor at the lift's upper and lower travel limits and reverse the direction of current flow thus reversing the motor direction.



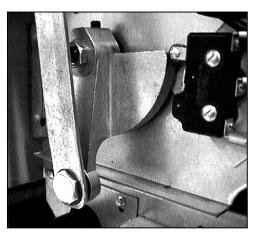


# 100/120V Modular Basket Lift Simplified Wiring Diagram



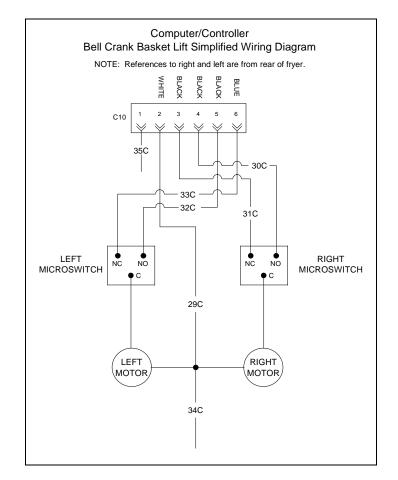
A **bell crank style basket lift** consists of a cam and bell crank that are connected to the basket lift arm by a flat metal link. The cam is attached to a drive motor. The motor rotates the cam, thus raising or lowering the lift arm linked to the bell crank. A roller-activated microswitch is used to limit travel. When the roller in the microswitch is in contact with the cam, the motor is energized. As the cam rotates, the microswitch roller eventually loses contact with the cam and the motor power circuit is broken, de-energizing the motor.

Timing circuitry in the controller initiates and stops basket lift operation depending upon the variables programmed by the operator. When the product button is pressed, the timing circuitry activates a coil in the basket lift relay to supply power to the motor. The microswitch stops the motor at the



Bell crank and cam with basket lift link shown in down position. Note microswitch in upper right corner.

lift's lower travel limit and the switch contacts are reversed. At the end of the programmed cooking time, the timing circuit activates the coil once more and the lift rises until the microswitch again loses contact with the cam, opening the motor power circuit and stopping the motor.



Problems with either basket lift design can be grouped into three categories:

- Binding/jamming problems
- Motor and gear problems
- Electronics problems

# **BINDING/JAMMING PROBLEMS**

Noisy, jerky or erratic movement of the lifts is usually due to lack of lubrication of the rods and their bushings. Apply a light coat of Lubriplate<sup>®</sup> or similar lightweight white grease to the rod and bushings to correct the problem.

With the modular basket lift, another possible cause of binding is improper positioning of the motor, which prevents the gear from correctly engaging the teeth in the rod. To correct the problem, loosen the screws that hold the motor in place and move it forward or backward until the rod has just enough slack to be rotated slightly.

# MOTOR AND GEAR PROBLEMS

With the modular basket lift, the most likely problem to be encountered in this category is erratic motion of the lift due to a worn drive gear. Failure to keep the lift rod and bushings properly lubricated will cause unnecessary wear of the gear. The problem is corrected by replacing the worn gear.

If the lift cycles correctly but fails to remain in the up position (i.e., goes up, but then slowly settles back down into the frypot), the problem is a failed motor brake. A failed motor brake cannot be repaired and requires replacement of the motor itself.

If power is reaching the motor but the motor fails to run, the motor is burned out and must be replaced.

# ELECTRONICS PROBLEMS

Within this category are problems associated with the relays, microswitches, capacitors, resistors, interface board, wiring, and controls. The most common problem in this category is a lift that continuously travels up and down. This is usually caused by a microswitch that is out of adjustment.

Troubleshooting the electronics of either type basket lift is simply a process of verifying current flow through the individual components up to and including the motor. Using a multimeter set to the 250 VAC range, check the connections on both sides of the component for the presence of the applied line voltage. The accompanying simplified wiring diagrams identify the components and wiring connection points.

# 7.7.8 Interpretation of Digital Controller Lights

# Power light on, heat light cycling, trouble light off, and melt light on:

- If fryer oil temperature is below 180°F (82°C), the lights indicate the unit is operating normally.
- If the oil temperature is above 180°F (82°C) and the heat light continues to cycle as if in the melt cycle, this may indicate a defective probe circuit or low incoming 12VAC to the controller.

# Power light on, heat light on, trouble light off, and melt light off:

- If the fryer oil temperature is above 180°F (82°C) and below the setpoint temperature, the lights indicate the unit is operating properly.
- If the oil temperature is above the temperature set on the control knob and the heat light remains lit, this may indicate a defective probe circuit.

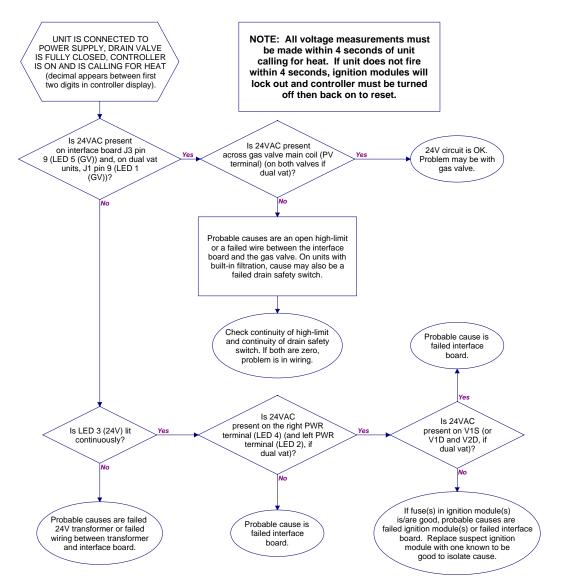
# Power light on, heat light off, trouble light on, and melt light off:

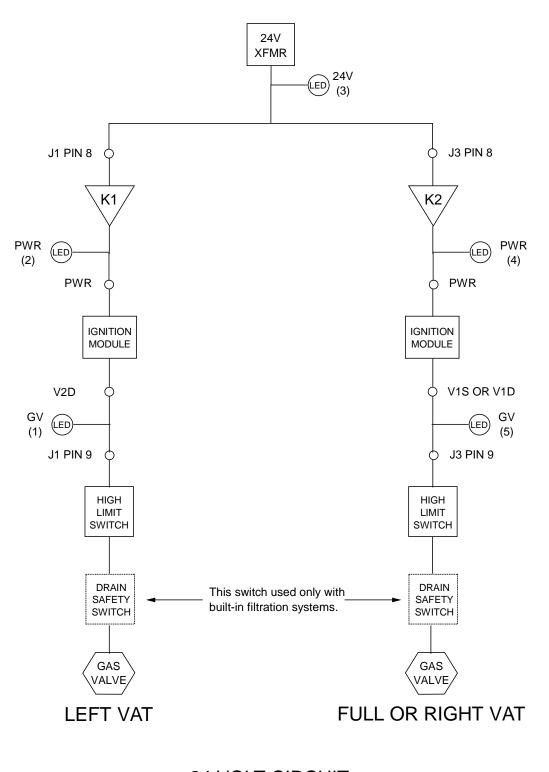
- If the fryer oil temperature is below 410°F (210°C), the lights indicate one of the following:
  - a. The probe circuit is defective, or
  - b. There is a connection problem on pins 2 or 10 on the 15-pin wiring harness.
- If the fryer oil temperature is above 410°F (210°C), the lights indicate a run-away heating circuit.

# 7.8 Troubleshooting Guides

The troubleshooting guides found in the pages that follow are intended to assist service technicians in quickly isolating the probable causes of equipment malfunctions by following a logical, step-bystep process. An additional set of operator troubleshooting guides is contained in Chapter 6. It is suggested that service technicians thoroughly familiarize themselves with both sets.

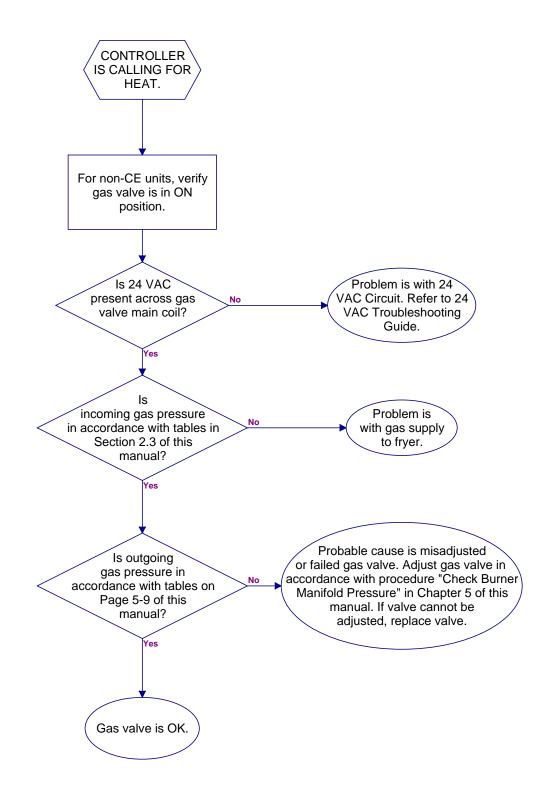
# 7.8.1 Troubleshooting the 24 VAC Circuit



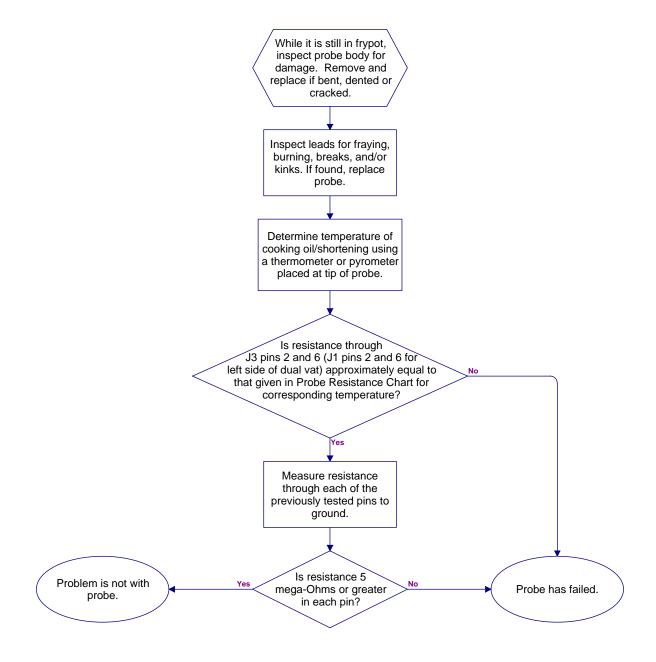


24 VOLT CIRCUIT (IFB 806-3398)

# 7.8.2 Troubleshooting the Gas Valve



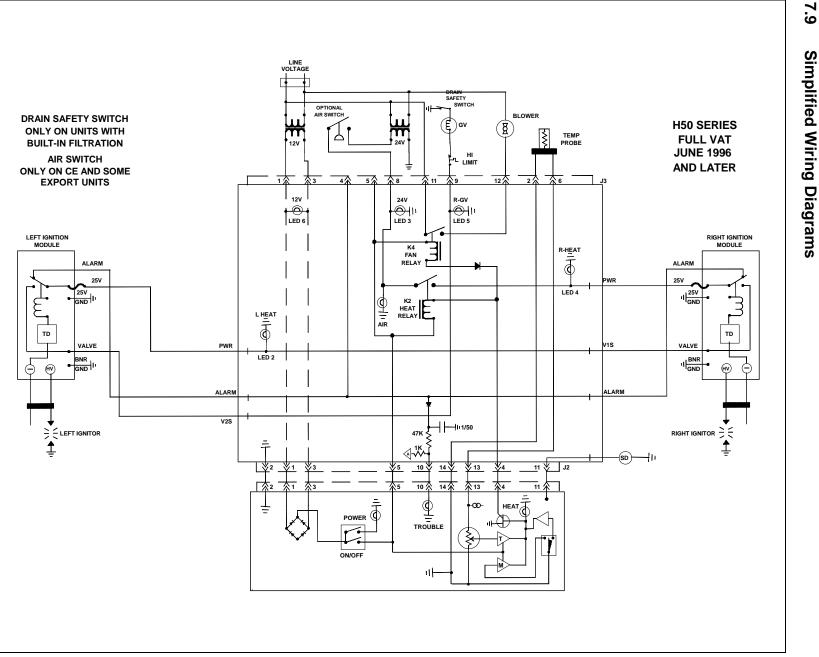
# 7.8.3 Troubleshooting the Temperature Probe



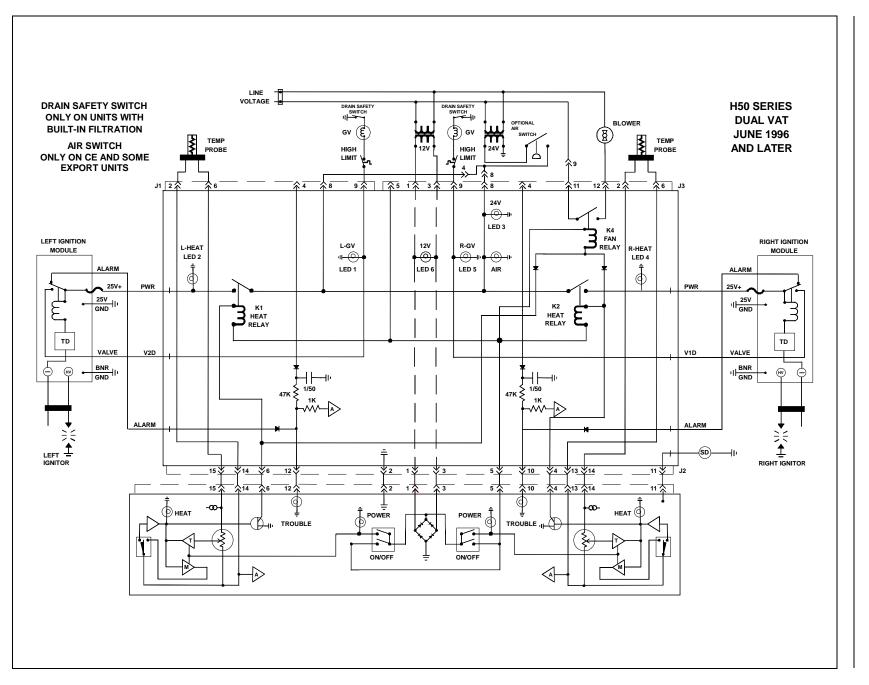
	<b>Probe Resistance Chart</b> For use with H50 Series fryers manufactured with Minco Thermistor probes only.																
F	OHMS	С	F	OHMS	С		F	OHMS	С		F	OHMS	С	-	F	OHMS	С
32	1000	0	83	1107	28		34	1214	57		185	1320	85		236	1424	113
33	1002	1	84	1110	29		35	1216	57		186	1322	86		237	1426	114
34	1004	1	85	1112	29		36	1218	58		187	1324	86		238	1428	114
35	1006	2	86	1114	30		37	1220	58		188	1326	87		239	1430	115
36	1008	2	87	1116	31		38	1222	59		189	1328	87		240	1432	116
37	1000	3	88	1118	31		39	1224	59		190	1330	88		241	1434	116
38	1013	3	89	1120	32		40	1224	60	-	191	1332	88		242	1436	117
39	1015	4	90	1120	32		41	1229	61		192	1334	89		243	1438	117
40	1017	4	91	1124	33		42	1223	61		193	1336	89		244	1440	118
41	1017	5	92	1124	33		43	1233	62	-	194	1338	90		245	1442	118
42	1013	6	93	1128	34		44	1235	62		195	1340	91		246	1444	119
43	1021	6	94	1120	34		45	1233	63		196	1342	91		247	1447	119
43	1025	7	94	1133	35		45	1237	63		190	1342	92		247	1447	120
44	1025	7	95	1135	36		40	1239	64		197	1344	92		240	1449	120
45	1027	8	90	1135	36		48	1241	64		198	1348	92		249	1453	121
40	1030	8	98	1137	37		49	1245	65	-	200	1340	93		250	1455	122
47	1032	9	90	1141	37		49 50	1243	66		200	1352	93 94		252	1455	122
40	1034	9	100	1141	38		50	1247	66		201	1354	94 94		252	1457	122
49 50	1038	10	100	1145	38		52	1249	67	-	202	1354	94 95		253	1459	123
	1038	11	101							-			95 96			1461	
51 52	1040	11	102	1147 1149	39 39		53 54	1253 1255	67 68	-	204 205	1359 1361	96 96		255 256	1463	124 124
52	1042	12	103	1149	- 39 - 40			1255		-	205	1363	90 97		250	1465	124
	-	12	104		-		55		68	-	206		-				
54	1046			1154	41		56	1260	69	-	-	1365	97		258	1469	126
55	1049	13	106	1156	41		57	1262	69	-	208	1367	98		259	1471	126
56	1051	13		1158	42		58	1264	70	-	209	1369	98		260	1473	127
57	1053	14	108	1160	42		59	1266	71	-	210	1371	99		261	1475	127
58	1055	14	109	1162	43		60	1268	71	-	211	1373	99		262	1477	128
59	1057	15	110	1164	43		61	1270	72	-	212	1375	100		263	1479	128
60	1059	16	111	1166	44		62	1272	72	-	213	1377	101		264	1481	129
61	1061	16	112	1168	44		63	1274	73	-	214	1379	101		265	1483	129
62	1063	17	113	1170	45		64	1276	73	-	215	1381	102		266	1485	130
63	1065	17	114	1172	46		65	1278	74	-	216	1383	102		267	1487	131
64	1068	18	115	1174	46		66	1280	74		217	1385	103		268	1489	131
65	1070	18	116	1176	47		67	1282	75		218	1387	103		269	1491	132
66	1072	19	117	1179	47		68	1284	76		219	1389	104		270	1493	132
67	1074	19	118	1181	48		69	1287	76		220	1391	104		271	1495	133
68	1076	20	119	1183	48		70	1289	77		221	1393	105		272	1497	133
69	1078	21	120	1185	49		71	1291	77		222	1395	106		273	1499	134
70	1080	21	121	1187	49		72	1293	78		223	1398	106		274	1501	134
71	1082	22	122	1189	50		73	1295	78		224	1400	107		275	1503	135
72	1084	22	123	1191	51		74	1297	79		225	1402	107		276	1505	136
73	1086	23	124	1193	51		75	1299	79		226	1404	108		277	1507	136
74	1089	23	125	1195	52		76	1301	80		227	1406	108		278	1509	137
75	1091	24	126	1197	52		77	1303	81		228	1408	109		279	1512	137
76	1093	24	127	1199	53		78	1305	81		229	1410	109		280	1514	138
77	1095	25	128	1201	53		79	1307	82		230	1412	110		281	1516	138
78	1097	26	129	1722	54		80	1309	82		231	1414	111		282	1518	139
79	1099	26	130	1204	54	1	81	1311	83		232	1416	111		283	1520	139
80	1101	27	131	1206	55	1	82	1313	83		233	1418	112		284	1522	140
81	1103	27	132	1208	56	1	83	1315	84		234	1420	112		285	1524	141
82	1105	28	133	1210	56	1	84	1317	84		235	1422	113		286	1526	141

# **Probe Resistance Chart (Continued)** For use with H50 Series fryers manufactured with Minco Thermistor probes only.

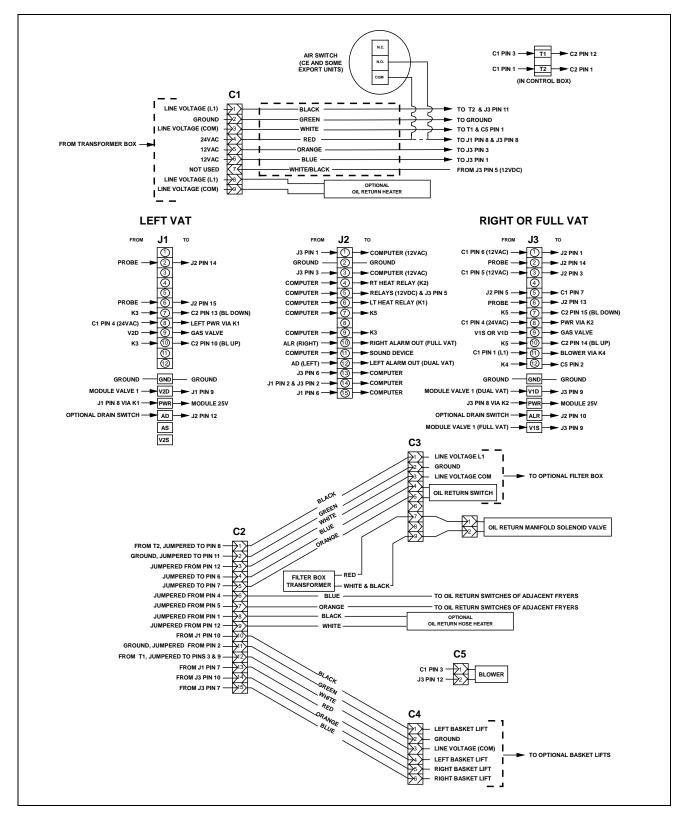
F	OHMS	С	F	OHMS	С		F	OHMS	С	F	OHMS	С	F	OHMS	С
287	1528	142	338	1630	170	-	389	1732	198	440	1833	227	491	1932	255
288	1530	142	339	1632	171		390	1734	199	441	1835	227	492	1934	256
289	1532	143	340	1634	171		391	1736	199	442	1837	228	493	1936	256
290	1534	143	341	1636	172		392	1738	200	443	1839	228	494	1938	257
291	1536	144	342	1638	172		393	1740	200	444	1841	229	495	1940	257
292	1538	144	343	1640	173		394	1740	201	445	1843	229	496	1942	258
293	1540	145	344	1642	173		395	1744	202	446	1845	230	497	1944	258
294	1542	146	345	1644	174		396	1746	202	447	1846	231	498	1946	259
295	1544	146	346	1646	174		397	1748	203	448	1848	231	499	1948	259
296	1546	147	347	1648	175		398	1750	203	449	1850	232	500	1950	260
297	1548	147	348	1650	176		399	1752	204	450	1852	232	501	1952	261
298	1550	148	349	1652	176		400	1754	204	451	1854	233	502	1954	261
299	1552	148	350	1654	177		401	1756	205	452	1856	233	503	1956	262
300	1554	149	351	1656	177		402	1758	206	453	1858	234	504	1958	262
301	1556	149	352	1658	178		403	1760	206	454	1860	234	505	1960	263
302	1558	150	353	1660	178		404	1762	207	455	1862	235	506	1962	263
303	1560	151	354	1662	179		405	1764	207	456	1864	236	507	1964	264
304	1562	151	355	1664	179		406	1766	208	457	1866	236	508	1965	264
305	1564	152	356	1666	180		407	1768	208	458	1868	237	509	1967	265
306	1566	152	357	1668	181		408	1770	209	459	1870	237	510	1969	266
307	1568	153	358	1670	181		409	1772	209	460	1872	238	511	1971	266
308	1570	153	359	1672	182		410	1774	210	461	1874	238	512	1973	267
309	1572	154	360	1674	182		411	1776	211	462	1876	239	513	1975	267
310	1574	154	361	1676	183		412	1778	211	463	1878	239	514	1977	268
311	1576	155	362	1678	183		413	1780	212	464	1880	240	515	1979	268
312	1578	156	363	1680	184		414	1781	212	465	1882	241	516	1981	269
313	1580	156	364	1682	184		415	1783	213	466	1884	241	517	1983	269
314	1582	157	365	1684	185		416	1785	213	467	1886	242	518	1985	270
315	1584	157	366	1686	186		417	1787	214	468	1888	242	519	1987	271
316	1586	158	367	1688	186		418	1789	214	469	1890	243	520	1989	271
317	1588	158	368	1690	187		419	1791	215	470	1892	243	521	1991	272
318	1590	159	369	1692	187		420	1793	216	471	1893	244	522	1993	272
319	1592	159	370	1694	188		421	1795	216	472	1895	244	523	1995	273
320	1594	160	371	1696	188		422	1797	217	473	1897	245	524	1996	273
321	1596	161	372	1698	189		423	1799	217	474	1899	246	525	1998	274
322	1598	161	373	1700	189		424	1801	218	475	1901	246	526	2000	274
323	1600	162	374		190		425	1803	218	476	1903	247	527	2002	275
324	1602	162	375	1704	191		426	1805	219	477	1905	247	528	2004	276
325	1604	163	376	1706	191		427	1807	219	478	1907	248	529	2006	276
326	1606	163	377	1708	192		428	1809	220	479	1909	248	530	2008	277
327	1608	164	378	1710	192		429	1811	221	480	1911	249	531	2010	277
328	1610	164	379	1712	193		430	1813	221	481	1913	249	532	2012	278
329	1612	165	380		193		431	1815	222	482	1915	250	533	2014	278
330	1614	166	381	1716	194		432	1817	222	483	1917	251	534	2016	279
331	1616	166	382	1718	194		433	1819	223	484	1919	251	535	2018	279
332	1618	167	383	1720	195		434	1821	223	485	1921	252	536	2020	280
333	1620	167	384		196		435	1823	224	486	1923	252	537	2022	281
334	1622	168	385	1724	196		436	1825	224	487	1925	253	538	2025	281
335	1624	168	386	1726	197		437	1827	225	488	1927	253	539	2027	282
336	1626	169	387	1728	197		438	1829	226	489	1929	254	540	2029	282
337	1628	169	388	1730	198		439	1831	226	490	1931	254	541	2031	283





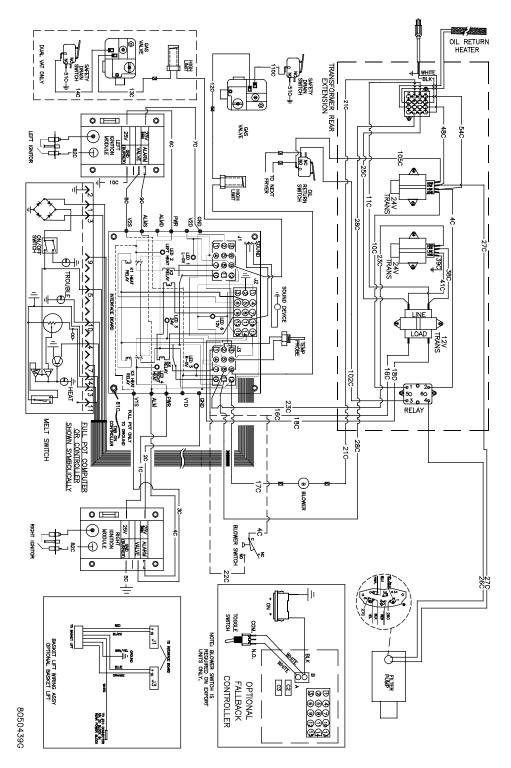


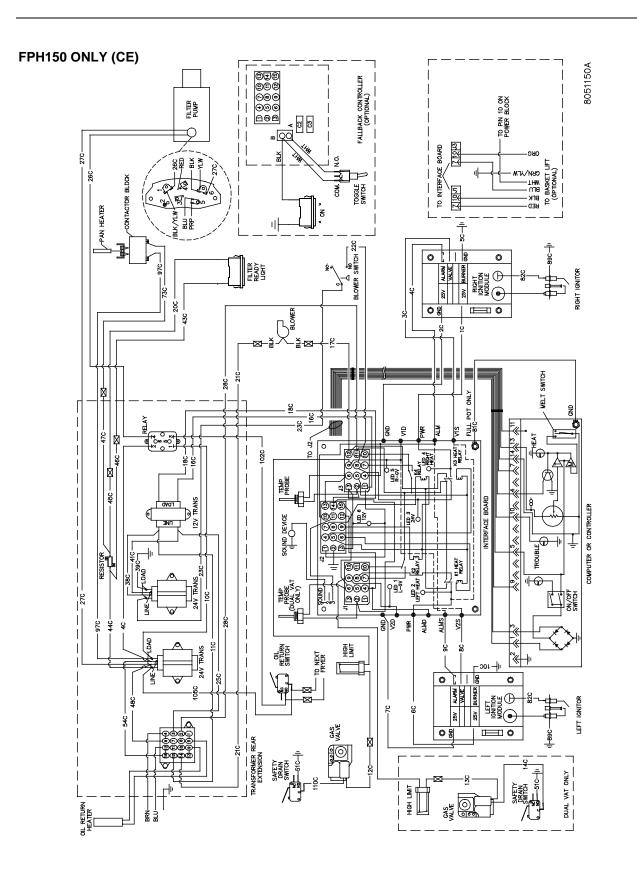
# 7.10 Principal Wiring Connections

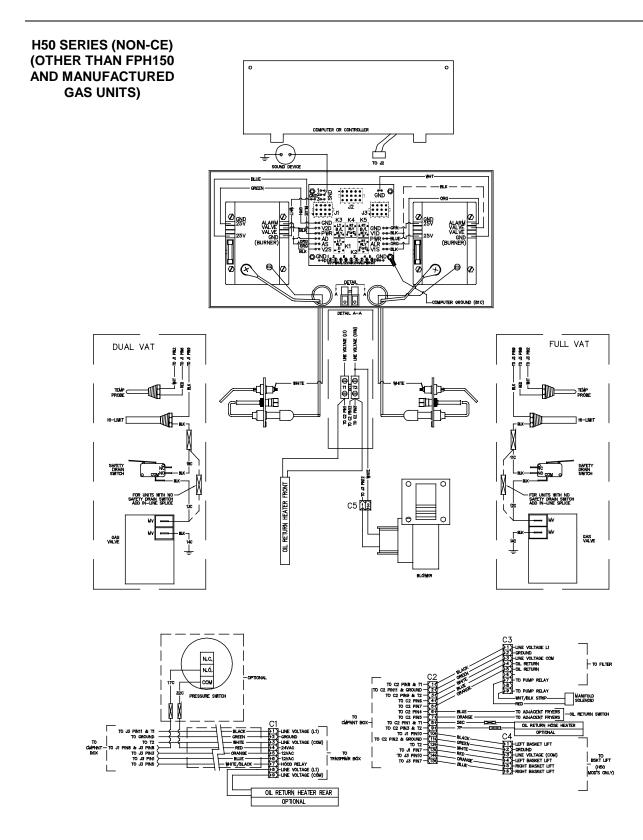


# 7.11 WIRING DIAGRAMS - MAIN

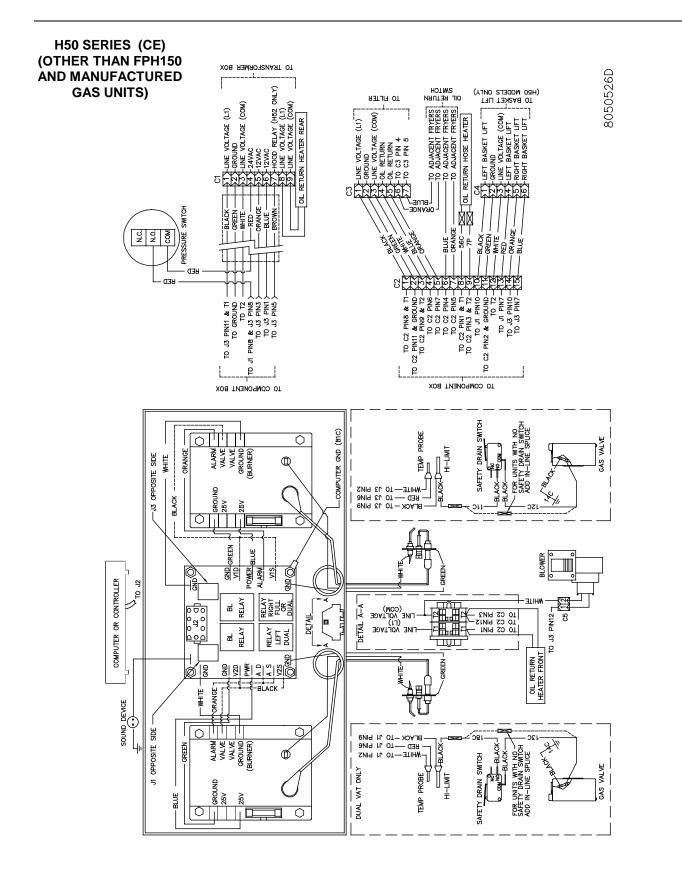
# FPH150 ONLY (NON-CE)

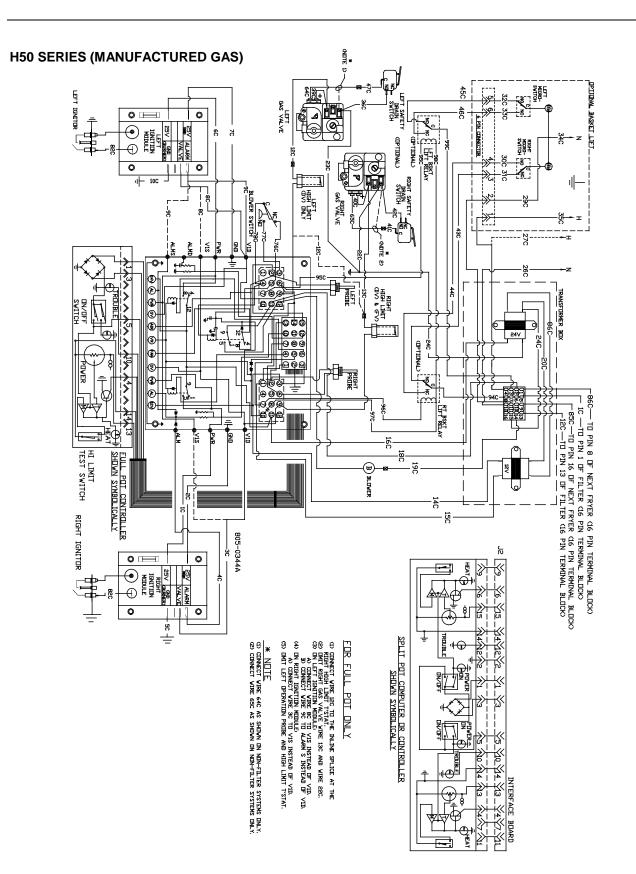






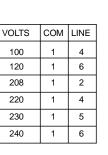
8050502G





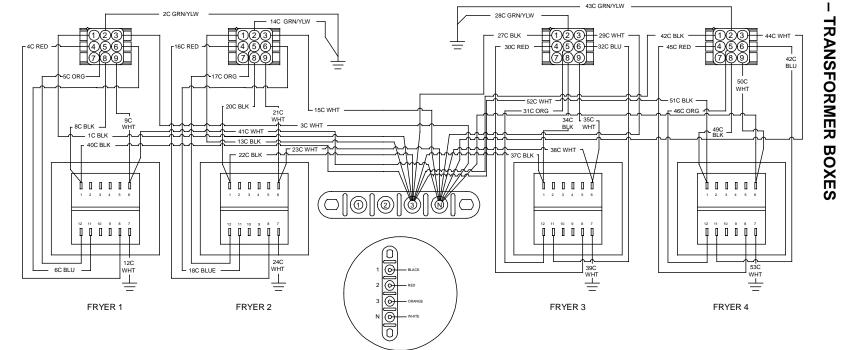
# 7.12 WIRING DIAGRAMS – TRANSFORMER BOXES

# Non-CE Transformer Boxes



(120V CONFIGURATION SHOWN)

NOTE: USE TERMINALS 7 AND 8 FOR 24V OUTPUT. USE TERMINALS 11 AND 12 FOR 12V OUTPUT.

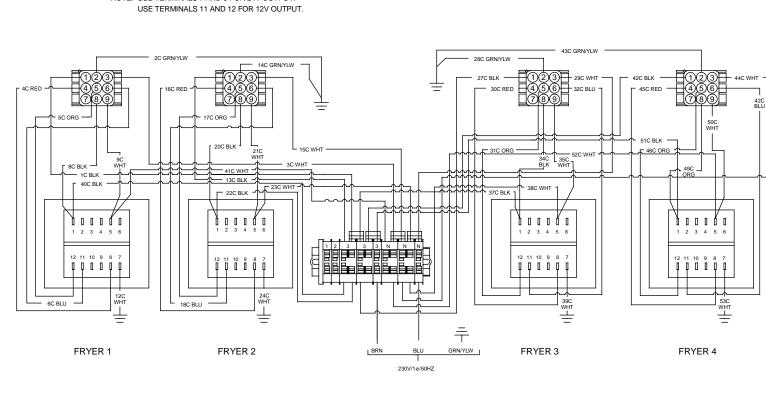


NOTE: FOR BATTERIES HAVING MORE THAN 4 FRYERS, FRYER 5 IS WIRED THE SAME AS FRYER 1, FRYER 6 THE SAME AS FRYER 2, ETC.

8050500D







NOTE: USE TERMINALS 7 AND 8 FOR 24V OUTPUT.

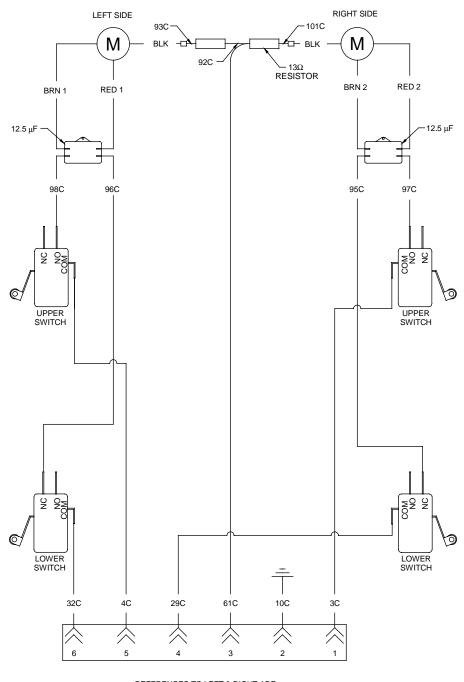
7-48

NOTE: FOR BATTERIES HAVING MORE THAN 4 FRYERS, FRYER 5 IS WIRED THE SAME AS FRYER 1, FRYER 6 THE SAME AS FRYER 2, ETC.

8050530D

# 7.13 WIRING DIAGRAMS – BASKET LIFTS

Modular Basket Lift – 100/120V (Non-CE) NOTE: There is no CE version of this option.

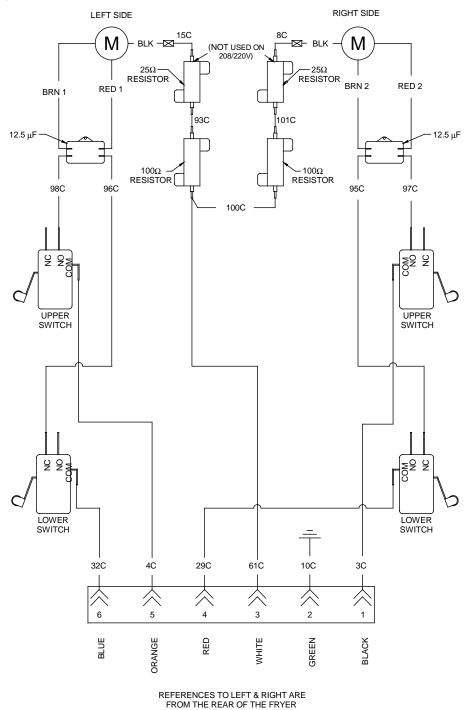


REFERENCES TO LEFT & RIGHT ARE FROM THE REAR OF THE FRYER

8050518D

#### Modular Basket Lift – 208/240V w/o Relay

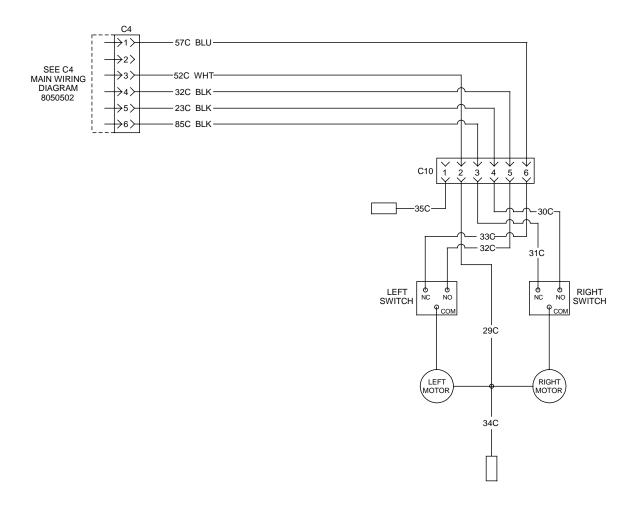
NOTE: This diagram is used for both CE and Non-CE applications.



8050946A

## H50 SERIES GAS FRYERS CHAPTER 7: SERVICE PROCEDURES

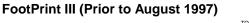
#### Bell Crank Basket Lift NOTE: There is no CE version of this option.

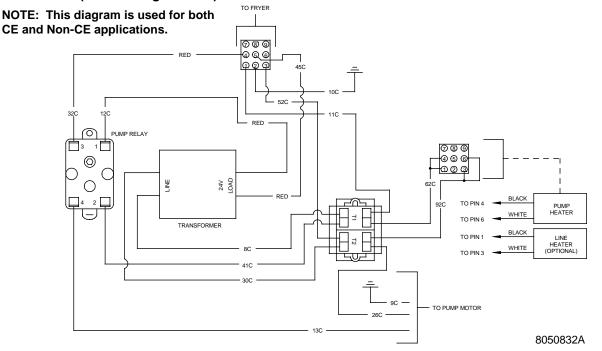


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#### H50 SERIES GAS FRYERS CHAPTER 7: SERVICE PROCEDURES

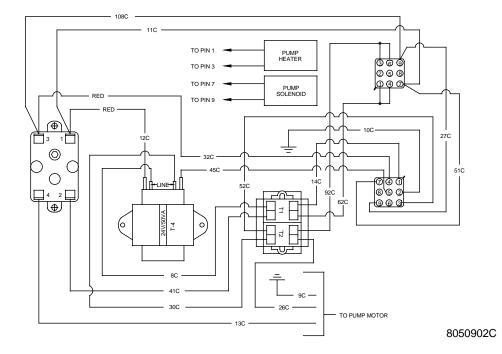
#### 7.14 WIRING DIAGRAMS – FILTER BOXES





#### FootPrint III (August 1997 and Later)

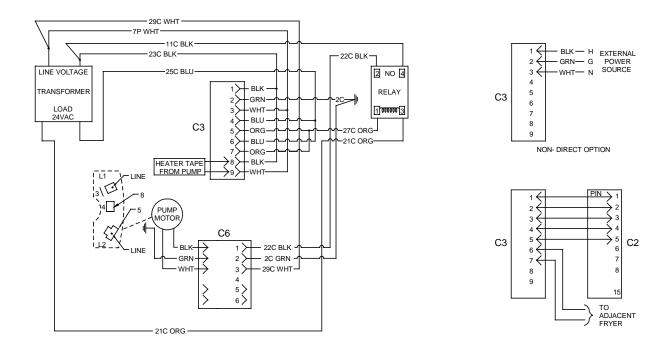
NOTE: This diagram is used for both CE and Non-CE applications.



#### H50 SERIES GAS FRYERS CHAPTER 7: SERVICE PROCEDURES

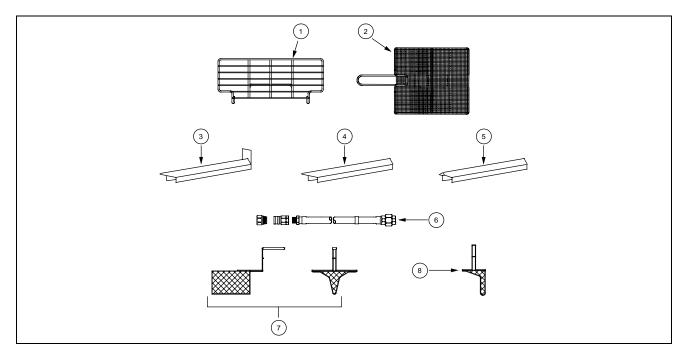
#### Filter Magic II

NOTE: This diagram is used for both CE and Non-CE applications.



8050503E

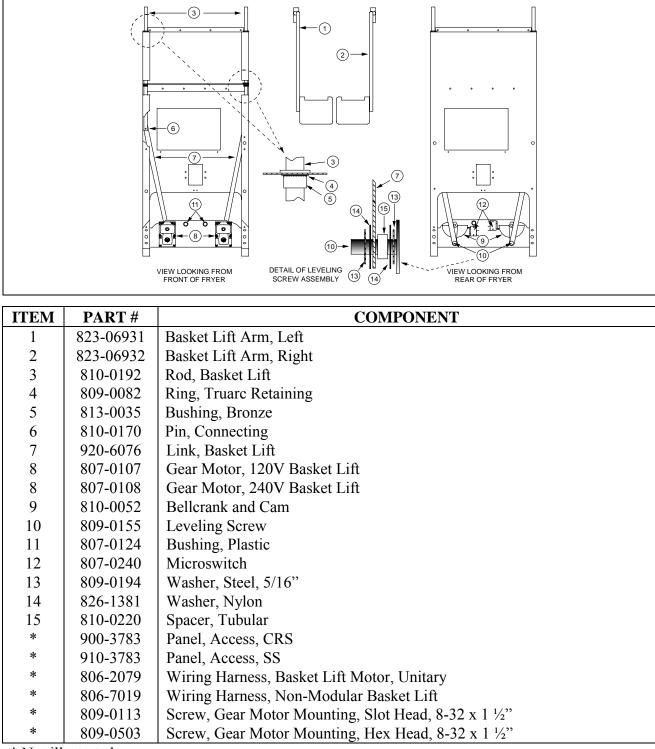
# 8.1 Accessories



ITEM	PART #	COMPONENT
1	803-0133	Basket Support Rack, Dual Vat
*	803-0132	Basket Support Rack, Full Vat
2	803-0136	Basket Support Screen, Full Vat
*	803-0099	Basket, Full (cannot be used with basket lifts)
*	803-0022	Basket, Twin
3	823-1885	Connecting Strip w/back plate (Burger King only)
4	910-6650	Connecting Strip (sharp point, <sup>1</sup> / <sub>2</sub> " sides, 21.73" long)
4	910-7443	Connecting Strip (sharp point, 1" sides, 21.73" long)
4	910-7515SP	Connecting Strip (sharp point, 1" sides, 21.84" long)
4	910-2572	Connecting Strip (sharp point, 3" sides, 21.84" long)
5	910-4617	Connecting Strip (blunt point, <sup>1</sup> / <sub>2</sub> " sides, 20.70" long)
5	910-2285	Connecting Strip (blunt point, 1" sides, 20.80" long)
*	806-3232	Cover, Frypot, Dual Vat
*	806-5518	Cover, Frypot, Full Vat
6	806-1698	Gas Line, Dormont, w/quick disconnect fitting, 36"
6	806-1699	Gas Line, Dormont, w/quick disconnect fitting, 48"
7	803-0103	Sediment Tray, Full Vat
8	803-0107	Sediment Tray, Split Vat, Left
*	803-0108	Sediment Tray, Split Vat, Right

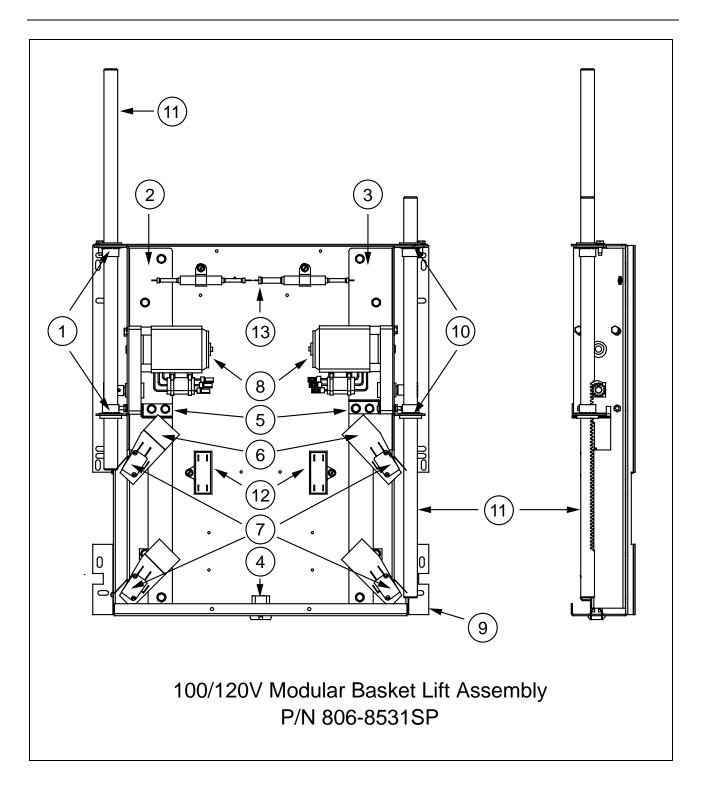
#### 8.2 Basket Lift Assemblies and Component Parts

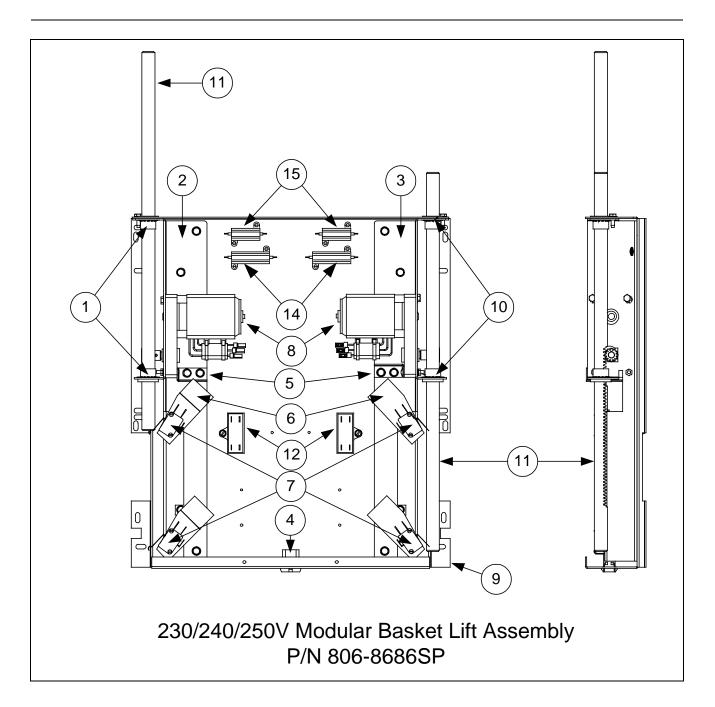
#### 8.2.1 Bell Crank Basket Lifts

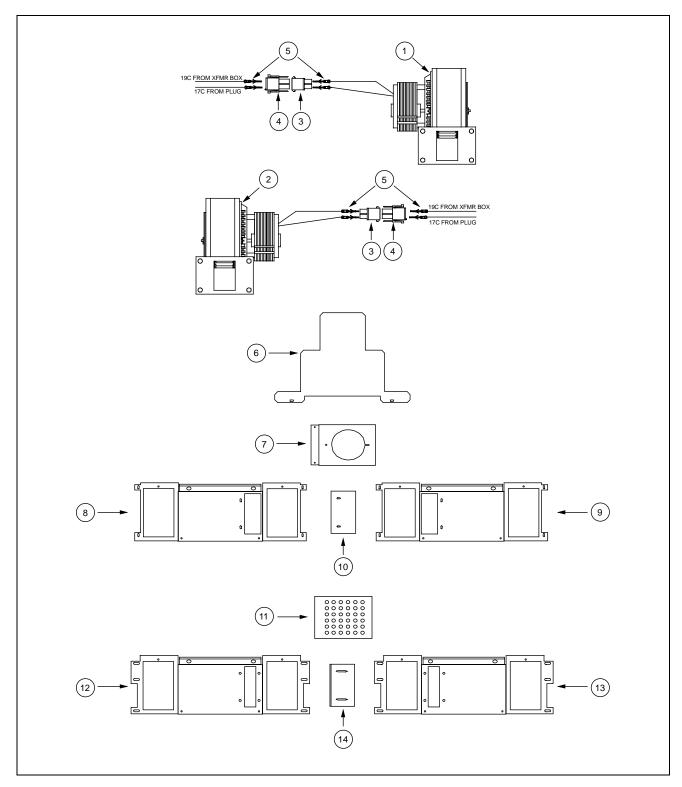


# 8.2.2 Modular Basket Lifts (Illustrations on following pages)

ITEM	PART #	COMPONENT
		Common Components
1	813-0035	Bushing, Bronze, .640" ID
2	901-8499	Chassis, Modular Basket Lift, Left
3	902-8499	Chassis, Modular Basket Lift, Right
4	807-0158	Connector, 6-Pin Female, Panel Mount
5	900-5529	Gusset, Modular Basket Lift Motor
6	812-0442	Insulation, Microswitch
7	807-2572	Microswitch
8	806-5964	Motor Assembly, Modular Basket Lift
9	900-7655	Mount, Modular Basket Lift
10	809-0082	Ring, Truarc Retaining
11	810-1012	Rod, Modular Basket Lift
*	807-2134	10.0 $\mu$ Farad, 250VAC (used in some versions prior to January 1998)
12	807-2133	12.5 μFarad, 250VAC
		Resistors
13	806-8530	Resistor Assembly, 120V Modular Basket Lift (used in 806-8531SP)
14	807-2511	Resistor, 25 watt, 25 ohm (806-8686SP)
15	807-2512	Resistor, 50 watt, 100 ohm (used in 806-8686SP)
		Wire Assemblies
	WIR0073	For 806-8531SP
	806-8555	For 806-8686SP
		Complete Assemblies
	806-8531SP	100/120V w/o Relay
	806-8686SP	230/240/250V w/o Relay







# 8.3 Blower Assemblies and Associated Components

ITEM	PART #	COMPONENT
1		Blower Assembly, Left
	826-1512	120V–60 Hz, 1.54" housing, Non-CE units
	826-1510	240V–50 Hz, 2.71" housing, CE units
2		Blower Assembly, Right
	826-1511	120V-60 Hz, 1.54" housing, Non-CE units
	826-1509	240V–50 Hz, 2.71" housing, CE units
3	807-1068	Connector, 2-Pin, Female (included with Items 1 and 2)
4	807-1067	Connector, 2-Pin, Male (included with Items 1 and 2)
5	826-1332	Terminal, Split Pin, Male (included with Items 1 and 2)
*	900-5987	Shield, Blower Motor
6	900-2433	Shield, Lower Blower
7	823-2571	Blower Box, CE units (use w/2.71" wide blower housings only)
8	901-5539	Shield, Blower, Left, CE units (use w/2.71" wide blower housings only)
9	902-5539	Shield, Blower, Right, CE units (use w/2.71" wide blower housings only)
10	900-2589	Shutter, Blower Shield, CE units (use w/901-5539 & 902-5539)
11	823-2573	Blower Box, CE units (use w/1.54" wide blower housings only)
12	901-2823	Shield, Blower, Left, CE units (use w/1.54" wide blower housings only)
13	902-2823	Shield, Blower, Right, CE units (use w/1.54" wide blower housings only)
14	021-0158	Shutter, Blower Shield, CE units (use w/901-2823 & 902-2823)
*	KIT-0155SP	High Altitude Blower Kit (required above 5000ft, 1525 M)

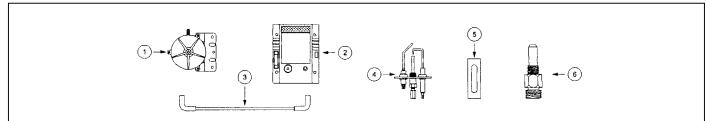
\* Not illustrated.

Notes: For Full Vat units, use Blower Assembly 826-1511 (Non-CE) or 826-1510 (CE).

Orders for 826-1511 and 826-1512 may be filled with either FASCO (black) or KOOL-TRONICS (silver) blowers.

Some earlier CE units were built with blowers having housings 1.54 inches (3.91 cm) wide. Current production CE-units are built with blowers having housings 2.71 inches (6.88 cm) wide. When ordering replacements for CE units, the width of the blower housing must be verified to ensure the correct blower is provided. Blowers and shield components are not interchangeable between the 1.54 inch (3.91 cm) and 2.71 inch (6.88 cm) housings.

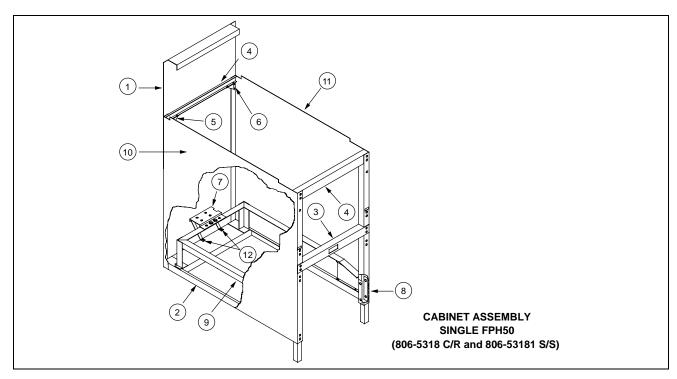
# Burner Ignition System Components and Associated Hardware



ITEM	PART#	COMPONENT
1	807-2263	Air Pressure Switch (use 807-2262 in fryers using 100VAC power supply)
2	807-1006	Ignition Module, Honeywell, 24V (closed box design)
*	807-2971	Ignition Module, Honeywell, 24V (open board design)
3	807-1878	Ignition Cable, 19" (48.26 cm)
3	807-1200	Ignition Cable, 27" (68.58 cm)
4		Ignitor Assembly
	826-0981	Natural Gas (G20, G25)
	826-0982	Propane Gas (G31)
5	816-0059	Gasket
6		Orifice, Natural Gas (G20, G25)
	810-6403	3.40 mm (0-4999 FT, 0-1524 M)
	810-0437	3.60 mm (5000-6999 FT, 1525-2133 M)
	812-1144	3.65 mm (7000-8999 FT, 2134-2743 M)
	812-1145	3.70 mm (9000-10,999 FT, 2744-3352 M)
	812-1146	3.80 mm (11,000-12,000 FT, 3353-3657 M)
6		Orifice, Propane Gas (G31)
	810-0416	2.05 mm (0-4999 FT, 0-1524 M, CE units)
	810-0386	2.05 mm (0-4999 FT, 0-1524 M, Non-CE units)
	812-1147	2.14 mm (5000-6999 FT, 1525-2133 M)
	812-1148	2.18 mm (7000-8999 FT, 2134-2743 M)
	812-1028	2.20 mm (9000-10,999 FT, 2744-3352 M)
	812-1149	2.27 mm (11,000-12,000 FT, 3353-3657 M)
6		Orifice, Other Gases
	812-1222	1.98 mm, Butane (0-4999 FT, 0-1524 M)
	810-1197	1.98 mm, Propane/Natural Gas Mixture (0-4999 FT, 0-1524 M)
	812-1221	5.30 mm, Manufactured Gas (0-4999 FT, 0-1524 M)
	810-0503	1/2" Nut and Sleeve Assembly for use w/812-1221
	810-05031	Ferrule for use w/812-1221
*	826-1196	Conversion Kit, Natural Gas (G20, G25) to Propane Gas (G31)
		Contains Ignitor 826-0982, Orifice 810-0386, and Valve Spring 810-1199
*	826-1197	Conversion Kit, Propane Gas (G31) to Natural Gas (G20, G25)
		Contains Ignitor 826-0981, Orifice 810-0403, and Valve Spring 810-1198
*	KIT-0155SP	High Altitude Blower Kit (use w/FASCO blowers at >5000 FT, 1525 M)

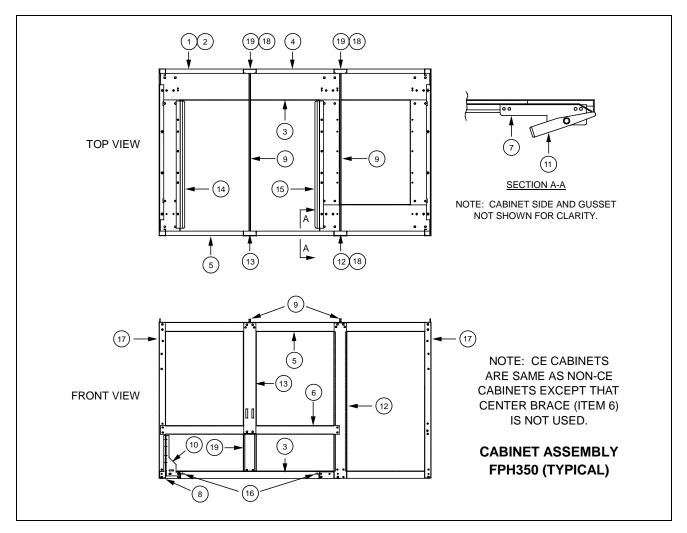
# 8.5 Cabinet Assemblies and Component Parts

# 8.5.1 FPH150



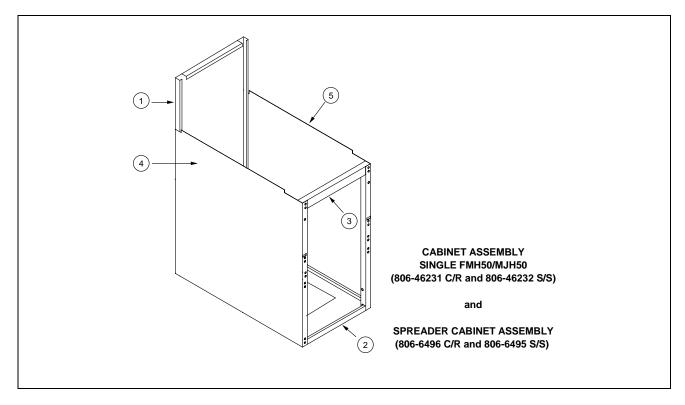
ITEM	PART #	COMPONENT
1	900-7448	Back, Cabinet
2	806-4897	Base Assembly
3	900-4391	Brace, Cabinet, Front
4	900-4813	Brace, Cabinet, Top
5	901-1405	Gusset, Left
6	902-1405	Gusset, Right
*	910-1601	Leg, Adjustable
7	900-4551	Motor Mount
8	900-1621	Plate, Rail Mount
9	806-5317	Rail Assembly
10	901-9324	Side, Cabinet, CR, with access holes, Left
10	902-9324	Side, Cabinet, CR with access holes, Right
11	911-9324	Side, Cabinet, SS, with access holes, Left
11	912-9324	Side, Cabinet, SS, with access holes, Right
12	900-1786	Support, Cantilever
*	901-7447	Rear Extension, Left Side
*	902-7447	Rear Extension, Right Side
*	900-4555	Bracket, Transformer Mounting
*	900-4558	Cover, Rear Extension

#### 8.5.2 FPH50 Batteries

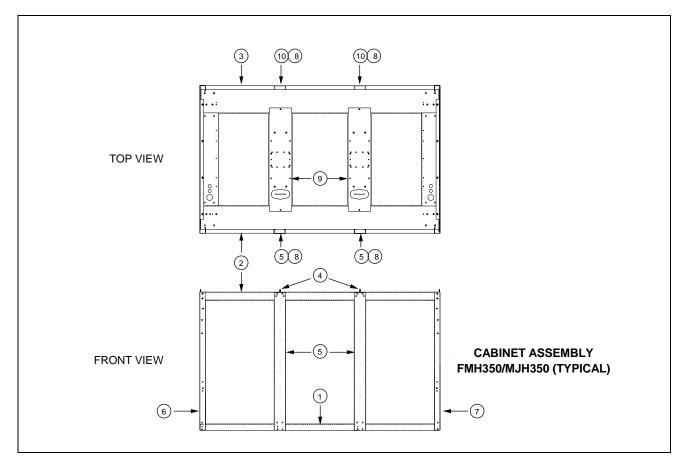


ITEM	PART #	COMPONENT
*	910-7657	Back, Lower Cabinet, FPH250
1	910-9416	Back, Lower Cabinet, FPH350
*	910-9416	Back, Lower Cabinet, FPH450
*	910-7658	Back, Upper Cabinet, FPH250
2	910-9415	Back, Upper Cabinet, FPH350
*	910-9415	Back, Upper Cabinet, FPH450
*	806-5861	Base Assembly, FPH250
3	806-5862	Base Assembly, FPH350
*	806-7085	Base Assembly, FPH450
*	900-7327	Brace, Cabinet Top, Rear, FPH250
4	900-9352	Brace, Cabinet Top, Rear, FPH350
*	900-2666	Brace, Cabinet Top, Rear, FPH450
*	900-7730	Brace, Cabinet Top, Unitary, FPH250
5	900-9430	Brace, Cabinet Top, Unitary, FPH350
*	900-9318	Brace, Cabinet Top, Unitary, FPH450
6	900-7729	Brace, Center, Double (Not used on CE units)
7	900-1959	Bracket, Mounting
8	901-1948	Channel, Side Support, Left
*	910-0889	Cover, Access Opening, Small
*	910-0890	Cover, Access Opening, Large
9	900-7326	Divider, Cabinet
10	901-1810	Gusset, Cabinet, Left
*	902-1810	Gusset, Cabinet, Right (FPH250 only)
11	900-1957	Lock, Filter
12	900-7734	Post, Door, Long
13	900-4773	Post, Door, Short
14	911-4690	Rail, Filter, Top, Left
15	912-4690	Rail, Filter, Top, Right
16	910-5244	Rail, Filter, Unitary
17	900-7678	Side, Cabinet, w/no openings
*	911-7679	Side, Cabinet, Unitary w/access openings
18	809-0413	Spacer, Door Post
19	900-4815	Support, Cabinet Rear

#### 8.5.3 FMH150 and MJH150



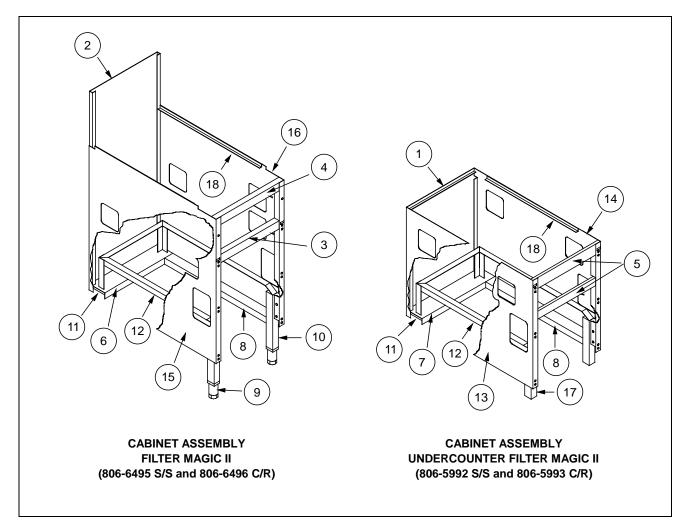
ITEM	PART #	COMPONENT
1	900-7012	Back, Cabinet, CR, w/Access Hole
1	900-6983	Back, Cabinet, CR, w/o Access Hole
1	910-7012	Back, Cabinet, SS, w/Access Hole
1	910-6983	Back, Cabinet, SS, w/o Access Hole
*	900-7274	Back, Spreader Cabinet, CR, w/Access Hole
*	900-7213	Back, Spreader Cabinet, CR, w/o Access Hole
*	910-7274	Back, Spreader Cabinet, SS, w/Access Hole
*	910-7213	Back, Spreader Cabinet, SS, w/o Access Hole
2	900-2568	Base, Cabinet, One-Piece
3	900-4813	Brace, Cabinet, Top
4	901-9324	Side, Cabinet, CR, w/Access Holes, Left
4	901-9323	Side, Cabinet, CR, w/o Access Holes, Left
4	911-9324	Side, Cabinet, SS, w/Access Holes, Left
4	911-9323	Side, Cabinet, SS, w/o Access Holes, Left
5	902-9324	Side, Cabinet, CR, w/Access Holes, Right
5	902-9323	Side, Cabinet, CR, w/o Access Holes, Right
5	912-9324	Side, Cabinet, SS, w/Access Holes, Right
5	912-9323	Side, Cabinet, SS, w/o Access Holes, Right



#### 8.5.4 FMH50 and MJH50 Batteries

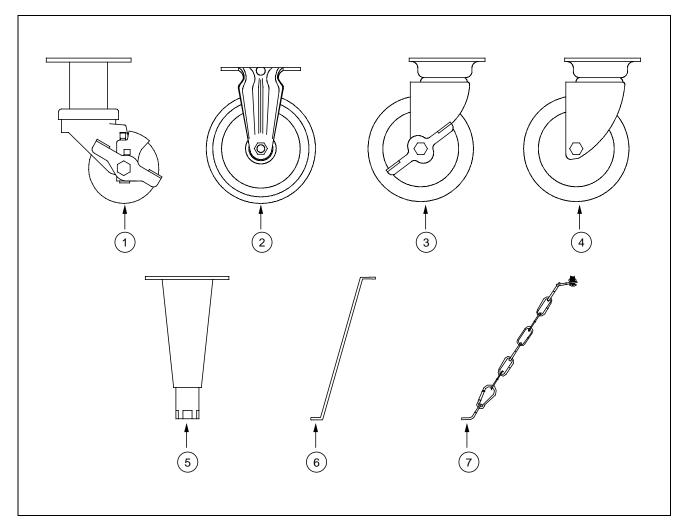
ITEM	PART #	COMPONENT
*	806-6176	Base Assembly, Cabinet, FMH250/MJH250
1	806-6177	Base Assembly, Cabinet, FMH350/MJH350
*	900-7730	Brace, Cabinet, Top, FMH250/MJH250
2	900-9430	Brace, Cabinet, Top, FMH350/MJH350
*	900-7327	Brace, Cabinet, Top, Rear, FMH250/MJH250
3	900-9352	Brace, Cabinet, Top, Rear, FMH350/MJH350
4	900-7326	Divider, Cabinet
5	900-7734	Post, Door, Long
6	911-7679	Side, Cabinet, SS, w/Access Holes, Left
6	901-7679	Side, Cabinet, CR, w/Access Holes, Left
7	910-7678	Side, Cabinet, SS, w/o Access Holes, Unitary
7	900-7678	Side, Cabinet, CR, w/o Access Holes, Unitary
8	809-0413	Spacer, Door Post and Rear Cabinet Support
9	900-7016	Support, Contactor Box
10	900-4815	Support, Rear Cabinet

#### 8.5.5 Filter Magic II



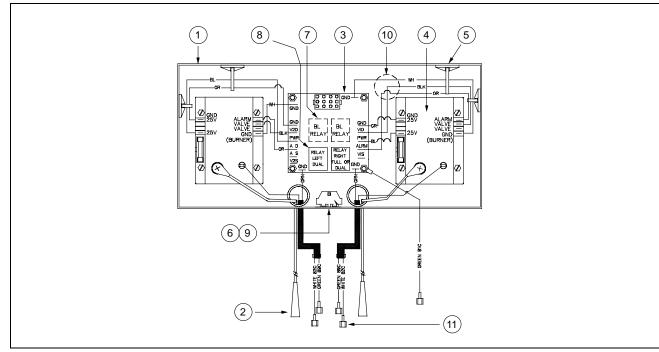
ITEM	PART #	COMPONENT
1	900-4786	Back, Cabinet, Undercounter, CR
1	910-4786	Back, Cabinet, Undercounter, SS
2	900-7274	Back, Cabinet, Unitary, CR
2	910-7274	Back, Cabinet, Unitary, SS
3	900-4391	Brace, Cabinet, Front
4	900-4813	Brace, Cabinet, Top
5	900-4785	Brace, Cabinet, Top and Center, Undercounter
*	901-4390	Channel, Left
*	912-4390	Channel, Left, SS, Undercounter
6	900-4389	Channel, Rear
7	900-4090	Channel, Rear, Undercounter
8	902-4390	Channel, Right
8	911-4390	Channel, Right, SS, Undercounter
9	810-0007	Leg, Adjustable
10	910-1601	Leg, Filter Cabinet
11	806-5209	Pad Assembly, Leg
*	900-1621	Plate, Rail Mount
12	806-5317	Rail Assembly, Filter Pan
*	910-1832	Retainer, Leg Insert, Full Height
13	902-7677	Side, Cabinet, CR, Undercounter, w/Access Holes, Left
13	912-7677	Side, Cabinet, SS, Undercounter, w/Access Holes, Left
14	901-7677	Side, Cabinet, CR, Undercounter, w/Access Holes, Right
14	911-7677	Side, Cabinet, SS, Undercounter, w/Access Holes, Right
15	902-9324	Side, Cabinet, CR, w/Access Holes, Left
15	912-9324	Side, Cabinet, SS, w/Access Holes, Left
16	901-9324	Side, Cabinet, CR, w/Access Holes, Right
16	911-9324	Side, Cabinet, SS, w/Access Holes, Right
17	900-0575	Sleeve, Filter Cabinet Leg, Undercounter
18	900-7277	Stiffener, Cabinet Side

# 8.6 Casters, Legs, and Associated Hardware



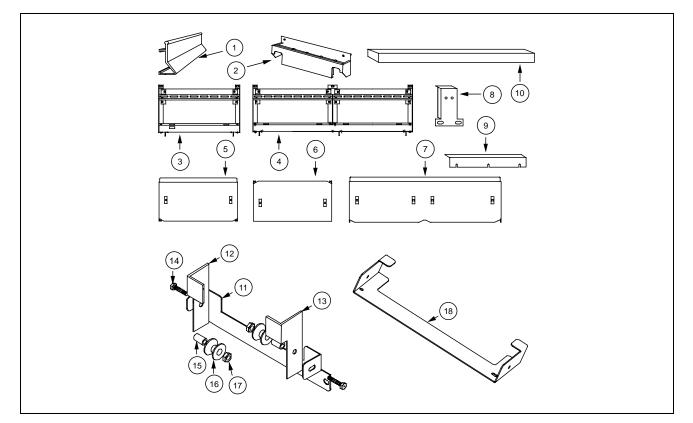
PART #	COMPONENT
810-0651	Caster, 3", w/Brake
810-0378	Caster, Rigid, 5", w/o Brake
810-0357	Caster, Swivel, 5", w/Brake
810-0356	Caster, Swivel, 5", w/o Brake
806-5043	Leg Assembly, Nickel Plated
810-1205	Leg Assembly, SS
806-3811	Leg Assembly, Set of 4, Nickel Plated
826-1095	Anchor Strap Kit (for use on single fryers w/legs)
826-0900	Chain Restraint Kit (for use on fryers w/casters)
	810-0651 810-0378 810-0357 810-0356 806-5043 810-1205 806-3811 826-1095

# H50 SERIES GAS FRYERS PARTS LIST



# **Component Box Assemblies and Associated Component Parts**

ITEM	PART #	COMPONENT
		Common Components, Component Boxes
1	900-7203	Box Component
2		Cable, Ignition
	807-1878	19-inch (48.26 cm)
	807-1200	27-inch (68.58 cm)
3	806-3398	Interface Board
4	807-1006	Module, Ignition
5	807-1359	Mount, Tie-Wrap (used on CE units only)
6	816-0217	Paper, Insulating, Terminal Block
7	807-0834	Relay, Basket Lift (for IFBs w/removable relays only)
8	807-0833	Relay, Heat (for IFBs w/removable relays only)
*	806-3660	Sound Device
*	826-1346	Spacer, Ignition Module (behind module)
*	807-1241	Spacer, Interface Board, <sup>5</sup> / <sub>8</sub> " (behind board)
9	810-1164	Terminal Block, 1-piece, Screwless
10	806-6084	Wire Assembly, Ignition Module
11	806-6085	Wire Assembly, Ignitor
	806-6136SP	Component Box Assembly, Full Vat, Non-CE
	806-6613	Component Box Assembly, Full Vat, CE
	806-6143SP	Component Box Assembly, Dual Vat, Non-CE
	806-6607	Component Box Assembly, Dual Vat, CE



# 8.8 Control Panel Assemblies, Flue Caps, Top Caps, and Related Components

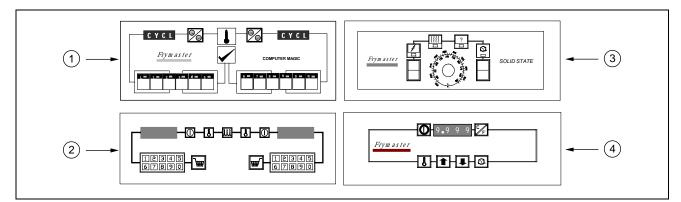
ITEM	PART #	COMPONENT
1	803-0028	Basket Hanger, Universal
2	823-1462	Basket Hanger, Burger King
*	810-1401	Basket Hanger, Wire Form
3	806-4732SP	Control Panel Assembly, Single Fryer (use 806-9712SP on KFC fryers)
4	806-4733SP	Control Panel Assembly, 2-Fryer Battery (use 806-9713SP on KFC fryers)
*	806-4734SP	Control Panel Assembly, 3-Fryer Battery (use 806-9714SP on KFC fryers)
*	806-5018SP	Control Panel Assembly, 4-Fryer Battery (use 806-9715SP for KFC fryers)
*	806-5363	Control Panel Assembly, H50/FB18 Battery
5	910-5018	Flue Cap, Single Fryer, w/lip
6	910-6545	Flue Cap, Single Fryer, w/o lip
7	910-5019	Flue Cap, Single Fryer, Burger King
*	823-2540	Flue Cap, Two-Fryer Battery
*	823-2542	Flue Cap, Two-Fryer Battery, Burger King
*	823-2541	Flue Cap, Three-Fryer Battery
*	823-2543	Flue Cap, Three-Fryer Battery, Burger King
*	823-2569	Flue Cap, Four-Fryer Battery, Universal
8	900-5486	Flue Cap Support
9	900-4253	Flue Cap Retaining Strip, Burger King

#### 8.8 Control Panel Assemblies, Flue Caps ... (Continued)

ITEM	PART #	COMPONENT
*	824-0404	Top Cap, Single Fryer
10	824-0405	Top Cap, Two-Fryer Battery
*	824-0406	Top Cap, Three-Fryer Battery
*	824-0407	Top Cap, Four-Fryer Battery
*	824-0408	Top Cap, H50/G18FB Battery
11	910-4830	Mount, Three-Piece Roller Guide Bracket
12	911-1001	Bracket, Roller Guide, Left
13	912-1001	Bracket, Roller Guide, Right
14	826-1334	Screw, $\frac{1}{4} - 20 \times 1\frac{1}{4}$ "
15	810-0374	Spacer
16	810-0194	Roller, Basket Lift Guide
17	809-0047	Nut, <sup>1</sup> / <sub>4</sub> – 20 Cap
18	910-8284	Mount, One-Piece Roller Guide Bracket (complete assembly 806-9257SP)
*	826-1351	Nut, Cage (receives Basket Hanger Screw)
*	809-0171	Screw, Basket Hanger

\* Not illustrated.

# 8.9 Controller Assemblies



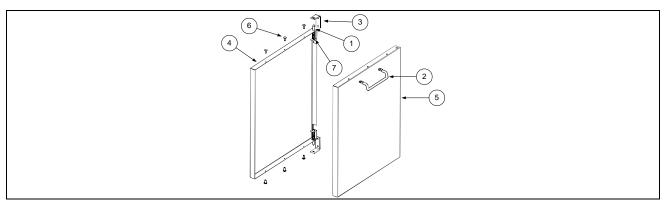
ITEM	PART #	COMPONENT
1		Computer Magic III
	806-7265E	Dual Vat (CE)
	806-3737E	Dual Vat (Non-CE)
	806-7262E	Full Vat (CE)
	806-3706E	Full Vat (Non-CE)
2		Basket Lift Timer
	806-7277	Dual Vat (CE)
	806-3719E	Dual Vat (Non-CE)
	806-7274	Full Vat (CE)
	806-3718E	Full Vat (Non-CE)

# 8.9 Controller Assemblies (Continued)

ITEM	PART #	COMPONENT
3		Analog Controller
	806-3564E	Dual Vat (CE)
	806-3008E	Dual Vat (Non-CE)
	806-3563E	Full Vat (CE)
	806-3006E	Full Vat (Non-CE)
4		Digital Controller
	806-7258E	Dual Vat (CE)
	806-3725E	Dual Vat (Non-CE)
	806-7254E	Full Vat (CE)
	806-3724E	Full Vat (Non-CE)
*	806-9633	KFC1 Computer (requires special control panel assembly – see Page 8-18)

\* Not illustrated.

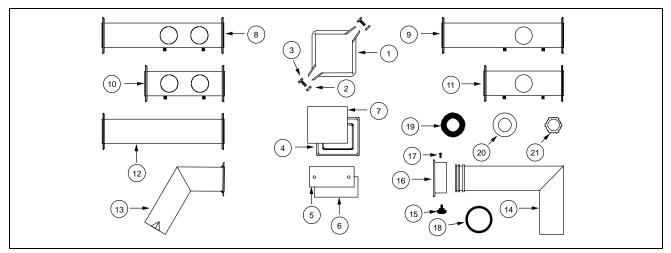
# 8.10 Door Assemblies



ITEM	PART #	COMPONENT
		Common Components (used in both door assemblies)
1	806-4487	Door Pin Assembly
2	810-1392	Handle, Door, Wireform, SS (must be ordered separately)
3	810-1508	Hinge, Door, Universal (must be ordered separately)
4		See specific door assembly
5	824-0616	Panel, Door, Outer
6	826-1379	Screw, #10 x <sup>1</sup> / <sub>2</sub> " Phillips Head, Zinc Plated
7	826-1343	Spring, Door Pin
	806-1962SP	Door Assembly, Universal (for use on units not equipped with FP III)
*	810-0066	Magnet, Door
4	900-6595	Liner, Door
	806-6405SP	Door Assembly, Universal, FPF (for use on FP III-equipped units)
*	810-1105	Magnet, Door
4	900-4807	Liner, Door

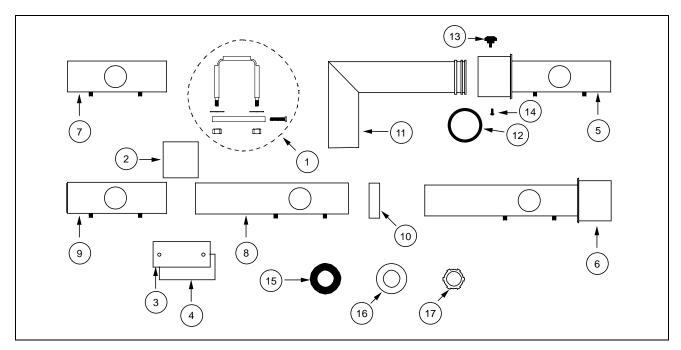
# 8.11 Drain System Components

# 8.11.1 Filter Magic II Square Drain Components, Standard Configuration

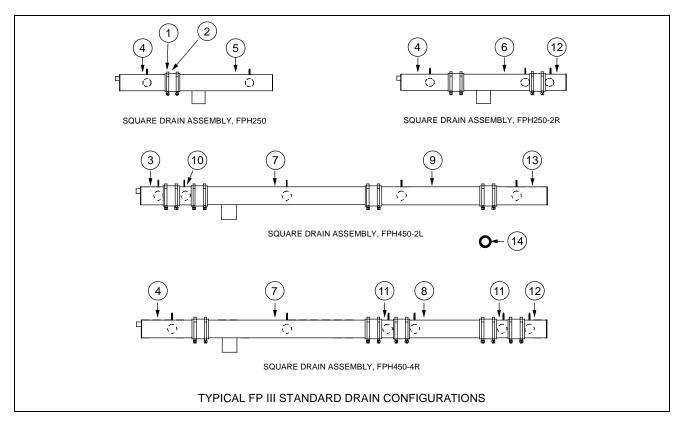


1 2	810-0396	Clamp Section (requires 2 per connection)
	000 0071	Clamp Section (requires 2 per connection)
	809-0071	Nut, <sup>1</sup> / <sub>4</sub> –20
3	826-1375	Screw, 10–32 x <sup>3</sup> / <sub>4</sub>
4	816-0032	Seal (Connection Gasket)
*	826-0877	Kit, Clamp Assembly
5	900-0758	Cover, Cleanout
6	816-0021	Gasket, Cleanout
*	826-1382	Wing Nut, Cleanout Cover Retaining
7	900-0757	Cover, Drain End
		Drain Sections
8	823-0724	Dual Vat, 15.5" Long
9	823-0717	Full Vat, 15.5" Long
10	823-0725	End, Dual Vat, 8.12" Long
11	823-0718	End, Full Vat, 8.12" Long
12	823-0731	Extension, Spreader Cabinet, 15.5" Long
13	823-0719	Drain Outlet, Fixed
	806-4068	Drain Outlet Assembly, Swivel, Complete
14	823-1091	Drain Tube, Swivel
15	810-0388	Knob, Clamping
16	823-1092	Collar, Drain
17	809-0115	Screw, 10–32
18	816-0083	O-Ring, 2.5" ID
19	816-0092	Grommet, Drain Tube
20	826-1345	Washer, Drain Tube Retaining
21	809-0347	Nut, Drain Tube Retaining

# 8.11.2 Filter Magic II Square Drain Components, Foodmaker Configuration

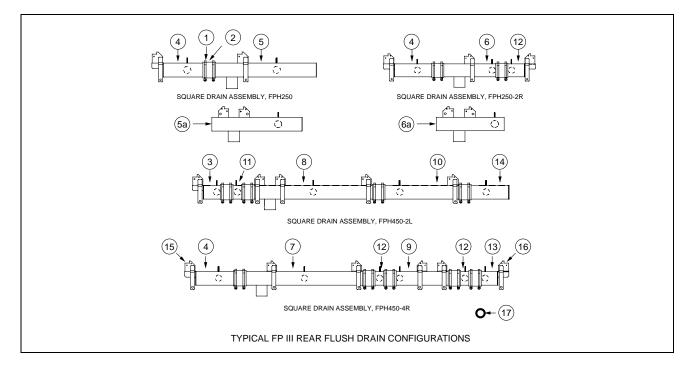


ITEM	PART #	COMPONENT
1	KIT-0257SP	Clamp Assembly and Boot Kit
*	806-6374	Clamp Assembly Only (without Boot)
2	816-0420	Boot (Connection Seal)
3	900-0758	Cover, Cleanout
4	816-0021	Gasket, Cleanout
5	826-1382	Wing Nut, Cleanout Cover Retaining
		Drain Sections
5	823-1697	Swivel Receiver, Left
6	823-1698	Swivel Receiver, Right
7	823-2128	Section, Open Both Ends, 8.3" Long
8	823-1701	Section, Open Both Ends, 15" Long
9	823-1702	Section, Left End Closed, 8.3" Long
10	KIT-0256	End Cap Kit (closes right end of 823-1701 in filter left/middle units)
11	823-1091	Drain Outlet, Swivel
12	816-0083	O-Ring, 2.5" ID
13	810-0388	Knob, Clamping
14	809-0115	Screw, 10–32
15	816-0092	Grommet, Drain Tube
16	826-1345	Washer, Drain Tube Retaining
17	809-0347	Nut, Drain Tube Retaining



# 8.11.3 FootPrint III Square Drain Components, Standard Configuration

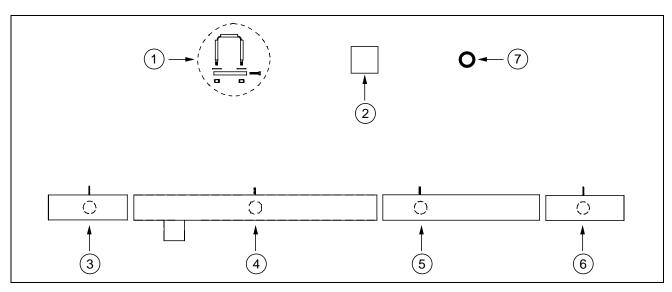
ITEM	PART #	COMPONENT
1	KIT-0257SP	Clamp Assembly and Seal Kit
2	816-0420	Boot (Connection Seal)
3	823-2444	Left End Section, Dual Vat, 4.06" Long
4	823-2445	Left End Section, Full Vat, 7.95" Long
5	823-2231	Drain Outlet Section, Closed, 15.86" Long
6	823-2294	Drain Outlet Section, Open, Dual Vat, 11.55" Long
7	823-2223	Drain Outlet Section, Open, Full Vat, 23.38" Long
8	823-2225	Drain Section, Dual Vat, 11.55" Long
9	823-2301	Drain Section, Full Vat, 15.39" Long
10	823-2193	Drain Section, Left End, Dual Vat, 3.57" Long (stud left of center)
11	823-2212	Drain Section, Right End, Dual Vat, 3.57" Long (stud right of center)
12	823-2221	Right End Section, Dual Vat, 4.06" Long
13	823-2198	Right End Section, Full Vat, 7.89" Long
14	816-0135	O-Ring
*	826-1382	Wingnut
*	811-0932	Vent Tube, Teflon, <sup>3</sup> / <sub>8</sub> " OD (FP III units manufactured after Sep 97)
*	810-1372	Fitting, 90°, Vent Tube (for use with Teflon vent tube 811-0932)



# 8.11.4 FootPrint III Square Drain Components, Rear Flush Configuration

ITEM	PART #	COMPONENT
1	KIT-0257SP	Clamp Assembly and Seal Kit
2	816-0420	Boot (Connection Seal)
3	823-2199	Left End Section, Dual Vat, 4.06" Long
4	823-2197	Left End Section, Full Vat, 7.95" Long
5	823-2201	Drain Outlet Section, Closed, Full Vat, 18.60" Long (one bracket)
5a	823-2210	Drain Outlet Section, Closed, Dual Vat, 15.86" Long (two brackets)
6	823-2204	Drain Outlet Section, Open, Dual Vat, 11.55" Long (one bracket
6a	823-2192	Drain Outlet Section, Open, Dual Vat, 11.55" Long (two brackets)
7	823-2200	Drain Outlet Section, Open, Full Vat, 23.38" Long (two brackets)
8	823-2207	Drain Outlet Section, Open, Full Vat, 23.38" Long (three brackets)
9	823-2202	Drain Section, Dual Vat, 11.55" Long (two brackets)
10	823-2233	Drain Section, Full Vat, 15.39" Long (one bracket)
11	823-2193	Drain Section, Left End, Dual Vat, 3.57" Long (stud left of center)
12	823-2212	Drain Section, Right End, Dual Vat, 3.57" Long (stud right of center)
13	823-2194	Right End Section, Dual Vat, 4.06" Long
14	823-2198	Right End Section, Full Vat, 7.89" Long
15	826-1212	Handle and Microswitch Kit, rotation left
16	826-1211	Handle and Microswitch Kit, rotation right
17	816-0135	O-Ring
*	826-1382	Wingnut

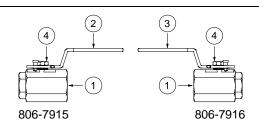
# 8.11.5 FootPrint III Square Drain Components, Foodmaker Configuration



ITEM	PART #	COMPONENT
1	KIT-0257SP	Clamp Assembly and Seal Kit
2	816-0420	Boot (Connection Seal)
3	823-2222	Left End Section, 7.89" Long
4	823-2223	Drain Outlet Section, Open 23.38" Long
5	823-2301	Drain Section, 15.39" Long
6	823-2198	Right End Section, 7.89" Long
7	816-0135	O-Ring
*	826-1382	Wingnut

#### 8.12 Drain Valve Assemblies

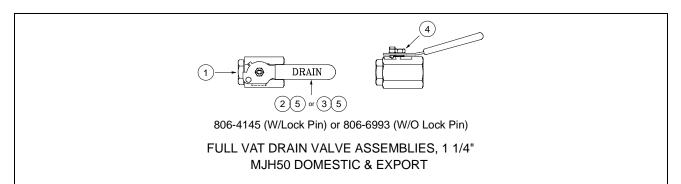
#### 8.12.1 MJH50 Dual Vat Valve Assemblies, 1", Domestic and Export Models



DUAL VAT DRAIN VALVE ASSEMBLIES, 1" MJH50 DOMESTIC & EXPORT

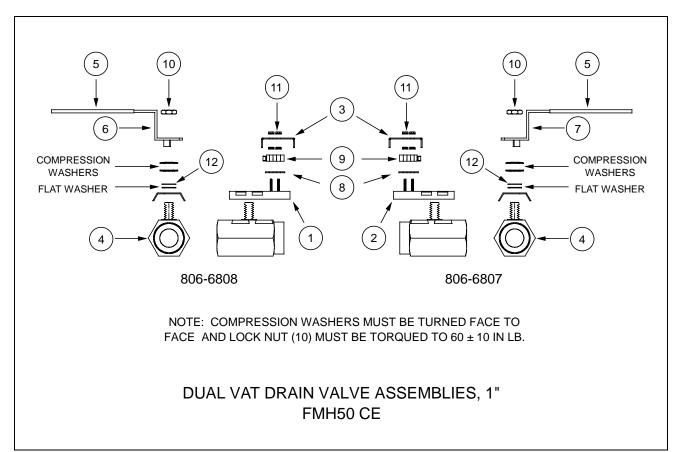
ITEM	PART #	COMPONENT
	806-7915	Complete Assembly, Left
	806-7916	Complete Assembly, Right
		Components
1	810-1338	Drain Valve, Universal, 1"
2	810-0664	Handle, Drain Valve, w/Lock Pin, Left
3	810-0663	Handle, Drain Valve, w/Lock Pin, Right
4	809-0589	Nut, 2-way Lock, <sup>1</sup> / <sub>2</sub> –13

#### 8.12.2 MJH50 Full Vat Valve Assemblies, 1 ¼", Domestic and Export Models



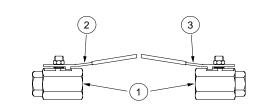
ITEM	PART #	COMPONENT
	806-6993SP	Complete Assembly, Domestic Units
	806-4145SP	Complete Assembly, Export Units (Including CE)
		Components
1	810-1017	Drain Valve, Gemini, 1 <sup>1</sup> / <sub>4</sub> "
2	810-0820	Handle, Drain Valve, w/o Lock Pin (used on domestic units)
3	810-0662	Handle, Drain Valve, w/Lock Pin (used on export units)
4	809-0507	Nut, <sup>1</sup> / <sub>2</sub> " w/Flexloc stem
5	816-0211	Sleeve, Valve Handle

#### 8.12.3 FMH50 (CE) Dual Vat Valve Assemblies, 1"



ITEM	PART #	COMPONENT
	806-6808	Complete Assembly, Left
	806-6807	Complete Assembly, Right
		Components
1	806-8194	Bracket, Drain Valve Microswitch, Left
2	806-8195	Bracket, Drain Valve Microswitch, Right
3	901-2348	Cover, Drain Safety Switch
4	810-1338	Drain Valve, Gemini, 1"
5	814-0047	Grip, Plastic Handle
6	900-2509	Handle, Drain Valve, Left
7	900-2503	Handle, Drain Valve, Right
8	816-0220	Insulation, RF Switch
9	807-2104	Microswitch, w/roller cam
10	809-0539	Nut, 2-way Lock, <sup>3</sup> / <sub>8</sub> -16
11	826-1366	Nut, Keps, 4–40, w/external teeth
12	810-1165	Washer, Teflon

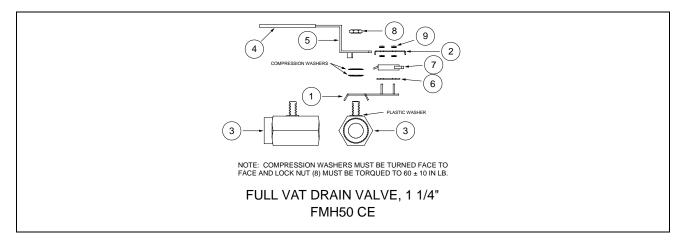
## 8.12.4 FMH50 Domestic and Non-CE Export Dual Vat Valve, 1"



DUAL VAT DRAIN VALVE, 1" FMH50 DOMESTIC AND NON-CE EXPORT

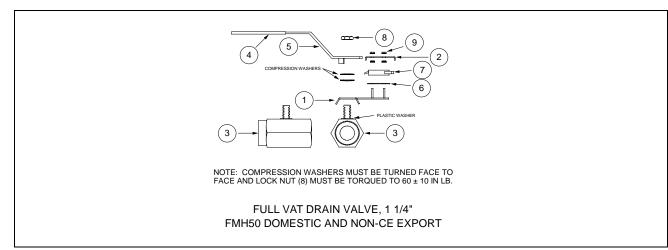
ITEM	PART #	COMPONENT
1	810-1338	Drain Valve, Gemini, 1"
2	810-1430	Handle, Drain Valve, Left
3	810-05821	Handle, Drain Valve, Right

# 8.12.5 FMH50 (CE) Full Vat Valve Assembly, 11/4"



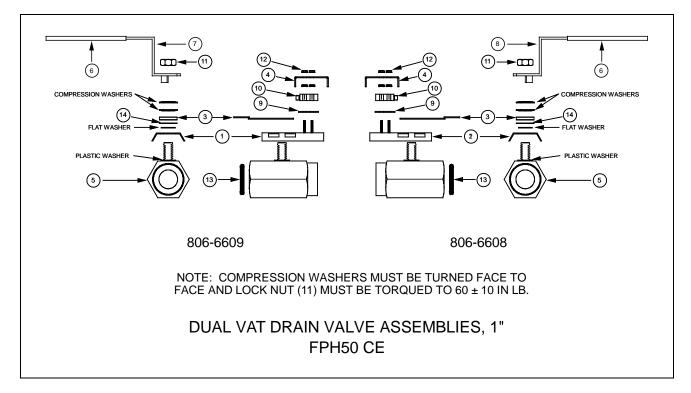
ITEM	PART #	COMPONENT
	806-6809SP	Complete Assembly
1	806-8137	Bracket, Drain Valve Microswitch
2	900-2841	Cover, Drain Safety Switch
3	810-1020	Drain Valve, Gemini, 1 <sup>1</sup> / <sub>4</sub> "
4	814-0047	Grip, Plastic Handle
5	900-2521	Handle, Drain Valve
6	816-0220	Insulation, RF Switch
7	807-2103	Microswitch
8	809-0540	Nut, 2-Way Lock, <sup>1</sup> / <sub>2</sub> –13
9	826-1366	Nut, Keps, 4–40, w/external teeth

#### 8.12.6 FMH50 Domestic and Non-CE Export Full Vat Valve Assembly, 11/4"



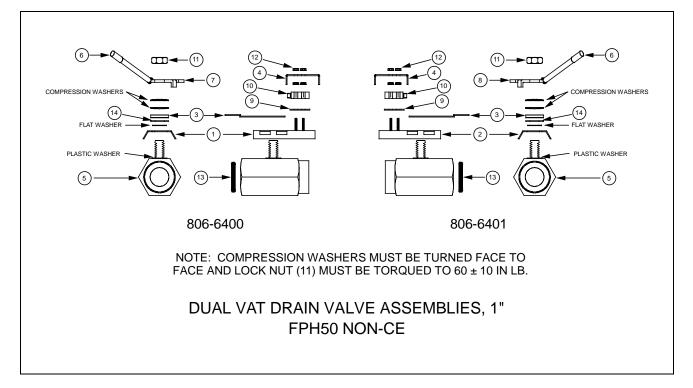
ITEM	PART #	COMPONENT
	806-8791	Complete Assembly
1	806-8194	Bracket, Drain Valve Microswitch
2	901-2348	Cover, Drain Safety Switch
3	810-1020	Drain Valve, Gemini, 1¼"
4	814-0047	Grip, Plastic Handle
5	900-2521	Handle, Drain Valve
6	816-0220	Insulation, RF Switch
7	807-2104	Microswitch
8	809-0540	Nut, 2-way Lock, <sup>1</sup> / <sub>2</sub> –13
9	826-1366	Nut, Keps, 4–40, w/external teeth

## 8.12.7 FPH50 (CE) Dual Vat Valve Assemblies, 1"

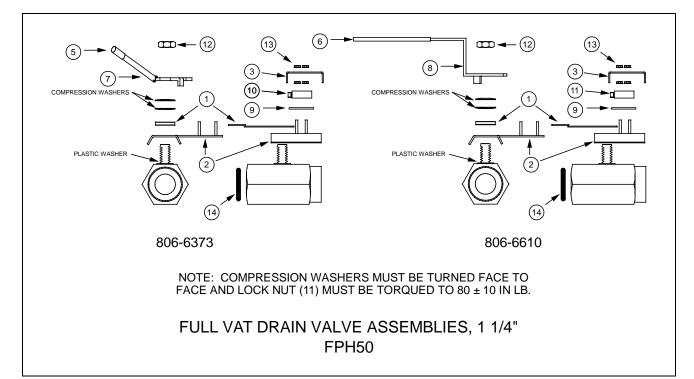


ITEM	PART #	COMPONENT
	806-6609	Complete Assembly, Left
	806-6608	Complete Assembly, Right
		Components
1	806-8194	Bracket, Drain Valve, Microswitch, Left
2	806-8195	Bracket, Drain Valve, Microswitch, Right
3	900-2355	Bracket, Drain Valve, 1"
4	901-2348	Cover, Drain Safety Switch
5	810-1114	Drain Valve, Gemini, 1"
6	814-0047	Grip, Plastic Handle
7	900-2509	Handle, Drain Valve, Left
8	900-2503	Handle, Drain Valve, Right
9	816-0220	Insulation, RF Switch
10	807-2104	Microswitch, w/roller cam
11	809-0539	Nut, 2-way Lock, <sup>3</sup> / <sub>8</sub> –16
12	826-1366	Nut, Keps, 4–40, w/external teeth
13	816-0135	O-Ring, Drain Valve, 1"
14	810-1165	Washer, Teflon

#### 8.12.8 FPH50 Domestic and Non-CE Export Dual Vat Valve Assemblies, 1"



ITEM	PART #	COMPONENT
	806-6400	Complete Assembly, Left
	806-6401	Complete Assembly, Right
		Components
1	806-8194	Bracket, Drain Valve, Microswitch, Left
2	806-8195	Bracket, Drain Valve, Microswitch, Right
3	900-2355	Bracket, Drain Valve, 1"
4	901-2348	Cover, Drain Safety Switch
5	810-1114	Drain Valve, Gemini, 1"
6	810-0677	Grip, Plastic Handle
7	823-2360	Handle, Drain Valve, Left
8	823-2361	Handle, Drain Valve, Right
9	816-0220	Insulation, RF Switch
10	807-2104	Microswitch, w/roller cam
11	809-0539	Nut, 2-way Lock, <sup>3</sup> / <sub>8</sub> –16
12	826-1366	Nut, Keps, 4–40, w/external teeth
13	816-0135	O-Ring, Drain Valve, 1"
14	810-1165	Washer, Teflon

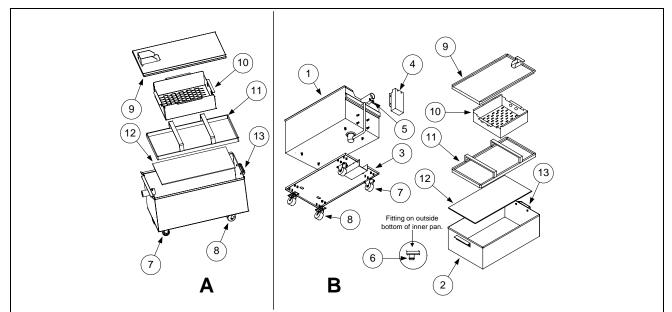


#### 8.12.9 FPH50 Domestic and Export Full Vat Valve Assemblies, 11/4"

ITEM	PART #	COMPONENT
	806-6373	Complete Assembly, Domestic and Non-CE Export
	806-6610	Complete Assembly, CE
		Components
1	900-2354	Bracket, Drain Valve, 1 <sup>1</sup> / <sub>4</sub> "
2	806-8137	Bracket, Drain Valve, Microswitch
3	900-2841	Cover, Drain Safety Switch
4	810-1018	Drain Valve, Gemini, 1¼ "
5	810-0677	Grip, Plastic Handle (used w/806-6373)
6	814-0047	Grip, Plastic Handle (used w/806-6610)
7	823-2371	Handle, Drain Valve (used w/806-6373)
8	900-2521	Handle, Drain Valve (used w/806-6610)
9	816-0220	Insulation, RF Switch
10	807-0027	Microswitch (used w/806-6373)
11	807-2103	Microswitch (used w/806-6610)
12	809-0540	Nut, 2-way Lock, <sup>1</sup> / <sub>2</sub> –13
13	826-1366	Nut, Keps, 4–40, w/external teeth
14	816-0135	O-Ring, Drain Valve, 1"

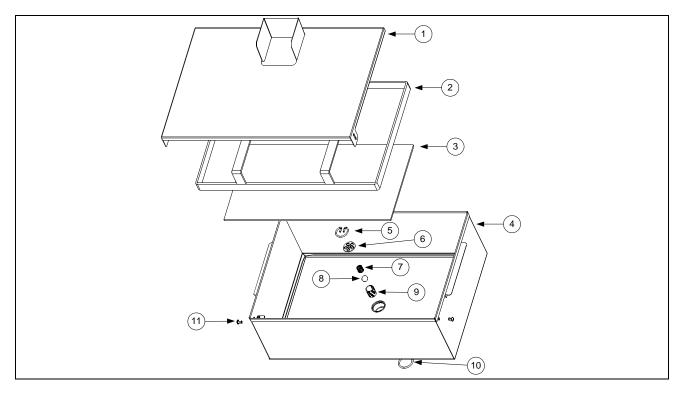
# 8.13 Filtration Systems and Component Parts (Other Than Drain Components)

# 8.13.1 Filter Magic II/Single FootPrint III Filter Pan Assembly



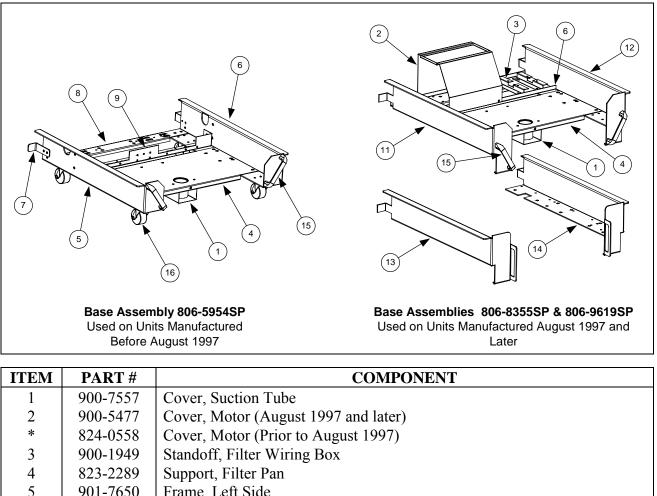
ITEM	PART #	COMPONENT
Α	806-9255SP	One-Piece Filter Pan Assembly, Complete
	823-2751SP	One-Piece Pan Only
В	806-6093SP	Two-Piece Pan Assembly, Complete (Unique components are listed below.)
1	823-1360SP	Outer Pan Assembly
2	823-1731SP	Inner Pan Assembly
3	823-1361	Base, Filter Pan Assembly
4	824-0291	Cover, Suction Tube
5	910-1350	Clamp, Suction Tube
6	816-0117	O-Ring, .609 OD
*	806-4373	Heater Strip Assembly
*	811-0861	Insulation, Foam #9812
*	811-0746	Tape, Aluminum (50-yard (46m) roll)
		Components Used on Both Designs
7	810-0005	Caster, Rigid
8	810-0006	Caster, Swivel
9	823-1930	Cover, Drain Pan
10	824-0416	Crumb Screen
11	810-1406	Hold Down Ring Assembly
12	900-8827	SanaGrid Filter Screen
13	810-0180	Handle, Filter Pan
*	803-0170	Paper, Filter (100 sheets)
*	803-0002	Powder, Filter (100 1-cup applications)

# 8.13.2 FootPrint III Filter Pan Assembly



ITEM	PART #	COMPONENT
	806-5618	Pan Assembly, Complete (less Crumb Screen)
1	823-2027	Cover
2	810-1408	Hold Down Ring
3	810-1223	SanaGrid Filter Screen
4	823-1979	Pan
5	810-1387	Retainer, Check Valve
6	900-5448	Strain Plate, Check Valve
7	810-0946	Spring, Check Valve
8	810-0948	Ball, Check Valve
9	810-1388	Tube, Check Valve
10	816-0181	O-Ring, Check Valve
11	809-0422	Screw, Shoulder
*	824-0430	Crumb Screen
*	803-0170	Paper, Filter (100 sheets)
*	803-0002	Powder, Filter (100 1-cup applications)

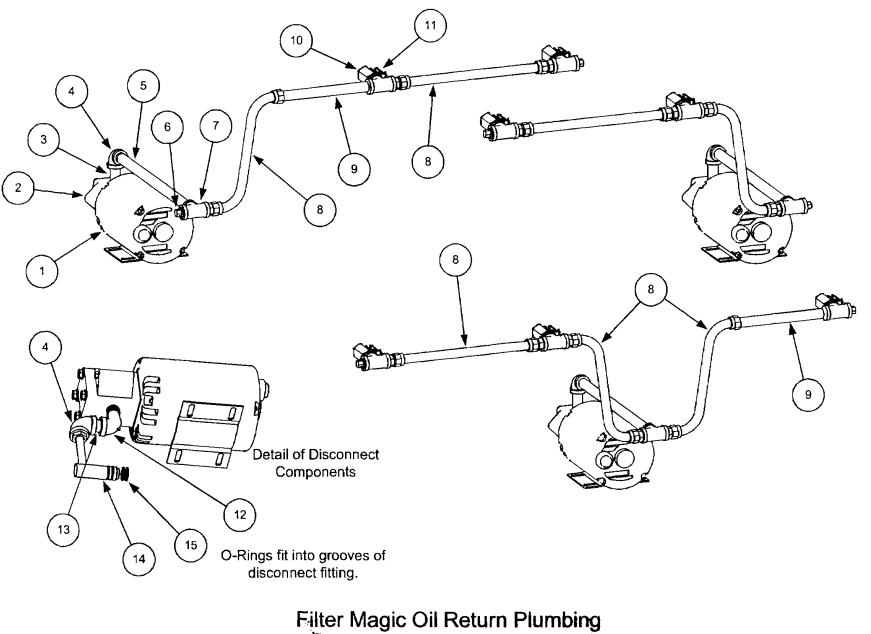
#### 8.13.3 FootPrint III Filter Base Assemblies



2	900-5477	Cover, Motor (August 1997 and later)
*	824-0558	Cover, Motor (Prior to August 1997)
3	900-1949	Standoff, Filter Wiring Box
4	823-2289	Support, Filter Pan
5	901-7650	Frame, Left Side
6	902-7650	Frame, Right Side
7	900-1953	Bracket, Filter Pan Lock
8	900-7469	Support, Filter Motor Rear
9	900-7470	Support, Filter Motor Front
10	900-5396	Support, Filter Motor
11	901-5291	Frame, Left Side (without built-in handles, used on 806-8355SP)
12	902-5291	Frame, Right Side (without built-in handles, used on 806-8355SP)
13	901-8543	Frame, Left Side (with built-in handles, used on 806-9619SP)
14	902-8543	Frame, Right Side (with built-in handles, used on 806-9619SP)
15	810-0180	Handle, Plated Diecast Metal (Screws for handle are 809-0024)
16	810-0006	Caster, Swivel
*	900-9634	Cover, Rear Plumbing (used on units built after August 1999)

\* Not illustrated.

**NOTE:** Base assemblies 806-5954SP, 806-8355SP, and 806-9619SP do not include Suction Tube Cover, Motor Cover, or Plumbing Cover. These components must be ordered separately.

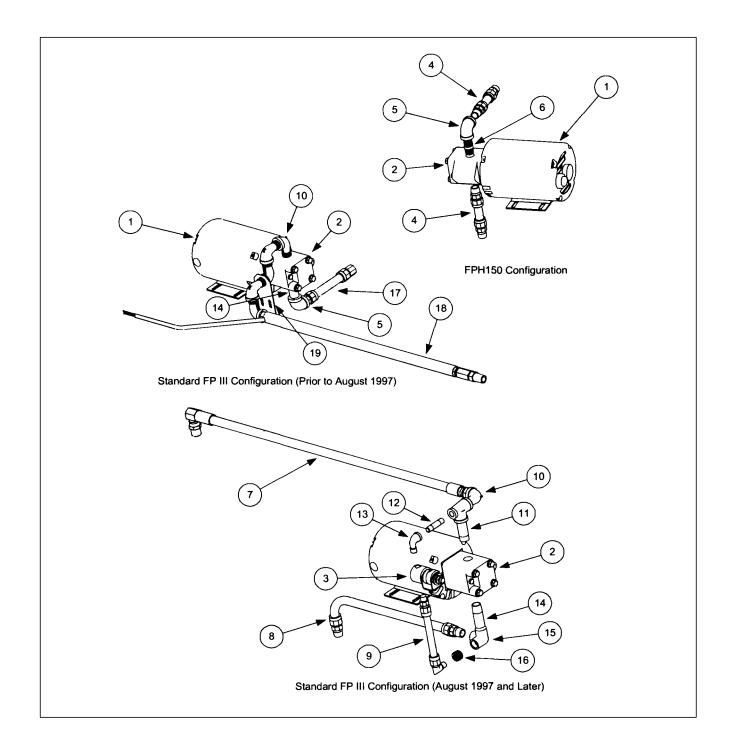


Typical Configurations

#### H50 SERIES GAS FRYERS PARTS LIST

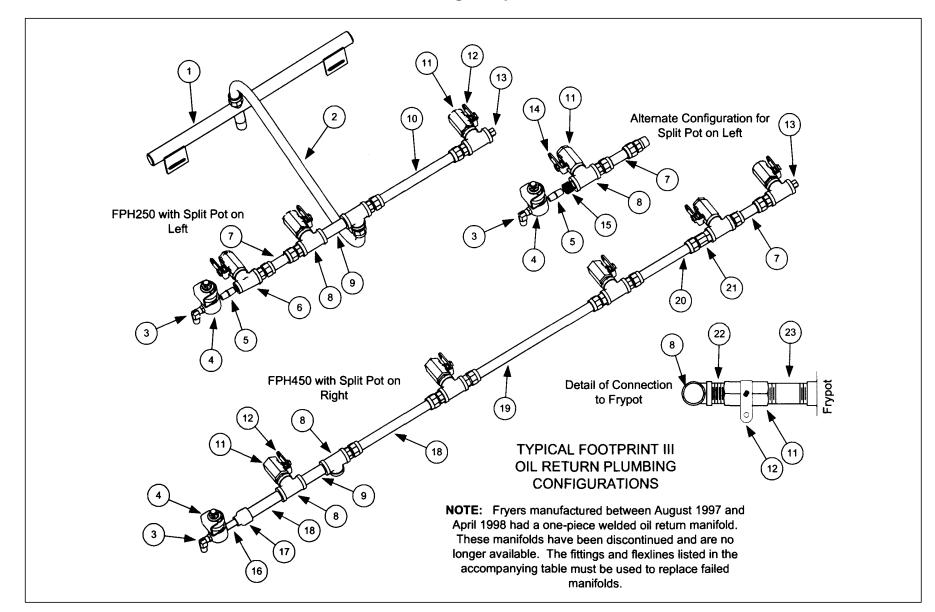
		NOTE: If the filter is to the left of a split vat unit, use the 3.5-inch nipple (813-0117) in place of the 9-inch nipple (Item 9). 10 10 10 10 10 10 10 10 10 10
		Configuration
ITEM	PART #	COMPONENT
1		Pump Motor
	826-1268	100 VAC (with gasket 816-0093)
	826-1263	115 VAC (with gasket 816-0093)
	826-1266	208VAC (with gasket 816-0093)
	826-1269	230 VAC (with gasket 816-0093)
*	826-1270	250 VAC (with gasket 816-0093)
	806-6728 826-1261	Pump Wiring Assembly (this component is furnished with above motors)
2		Pump, 4 GPM (15 LPM) (with gasket 816-0093)
3	813-0265	Nipple, $\frac{1}{2}$ -inch x 2 $\frac{1}{2}$ -inch
4	813-0062	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90°
5 6	813-0368 813-0156	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 16-inch
7	813-0130	Pipe Plug, <sup>1</sup> / <sub>2</sub> -inch Tee, <sup>1</sup> / <sub>2</sub> -inch
8	813-0003	Flexline, 15 <sup>1</sup> / <sub>2</sub> -inch (39.4 cm) Oil Return
8 9	810-1037 813-0275	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 9-inch
10	810-0278	Valve, ½-inch Ball
10	902-0883	Handle, Right Valve
12	813-0165	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90° Street
12	813-0022	Nipple, ½-inch Close
14	823-1356	Disconnect Fitting
15	816-0012	O-Ring (2 required)
16	901-0883	Handle, Left Valve
17	810-1488	Flexline, 7-inch (17.8 cm) Oil Return
18	810-1668	Adapter, <sup>1</sup> / <sub>2</sub> -inch, Female to Female (used with item 17 only)
19	810-1160	Flexline, 5 <sup>1</sup> / <sub>2</sub> -inch (14 cm) Oil Return
*	813-0117	Nipple, $\frac{1}{2}$ -inch x $\frac{3}{2}$ -inch
*	807-1600	Thermal Switch, Baldor Motors
*	807-1598	Thermal Switch, Magnatek Motors
*	810-1062	Wiring Harness, Controller to Filter
*	807-1408	Heater Strip, 120 VAC
*	807-8363	Heater Strip, 208-250 VAC
*	811-0746	Tape, Aluminum (50-yard (46m) roll)
* M.4 :1	lustrated	

#### 8.13.5 Footprint III Filter Motors and Pump Plumbing Components



ITEM	PART #	COMPONENT
1		Motor and Gasket Kits
	826-1268	100VAC
	826-1263	115VAC
	826-1266	208VAC
	826-1269	230VAC
	826-1270	250VAC
2	826-1261	Pump, 4GPM (15LPM) (includes gasket 816-0093)
3	807-2484	Valve, Solenoid Vent
4	810-1160	Flexline, 5 <sup>1</sup> / <sub>2</sub> -inch (14cm) Oil Return
5	813-0062	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90°
6	813-0022	Nipple, <sup>1</sup> / <sub>2</sub> -inch x close
7	810-1404	Flexline, Oil Return (pump to rear manifold)
8	810-1057	Flexline, 15 <sup>1</sup> / <sub>2</sub> -inch (39.5cm) Oil Return
9	810-1373	Flexline, Pump Bypass
10	813-0165	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90° Street
11	813-0265	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 2 <sup>1</sup> / <sub>2</sub> -inch
12	813-0537	Nipple, <sup>1</sup> / <sub>4</sub> -inch x 2-inch
13	813-0543	Elbow, <sup>1</sup> / <sub>4</sub> -inch x 90° Street
14	813-0460	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 3-inch
15	813-0331	Elbow, ½-inch 3-way
16	813-0304	Bushing, <sup>1</sup> / <sub>2</sub> -inch to <sup>1</sup> / <sub>4</sub> -inch Reducer
17	810-1159	Flexline, 7 <sup>1</sup> / <sub>2</sub> -inch (19cm) Oil Return
18		Hose, Heated Oil Return
	810-0945	120VAC
	810-1037	208-250VAC
19	900-1958	Support, Oil Return
*	816-0093	Gasket, Pump Motor
*	807-1600	Thermal Switch, Baldor Motors
*	807-1598	Thermal Switch, Magnatek Motors
*	806-6728	Pump Wiring Assembly, FPH150
*	810-1062	Wiring Harness, Controller to Filter

#### 8.13.6 FootPrint III with Power Shower Oil Return Plumbing Components

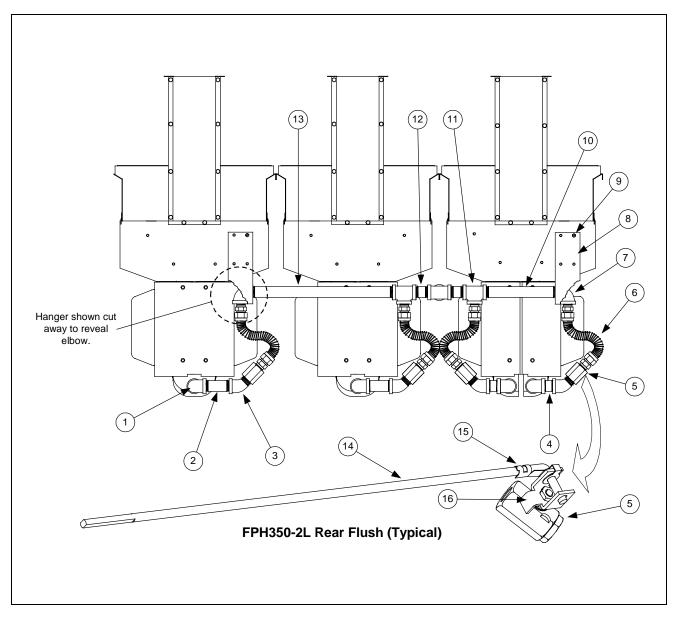


ITEM	PART #	COMPONENT
1	810-1381	Manifold, Rear Oil Return
2	810-1404	Hose, FP III Oil Return, 34-inch (86.4 cm)
3	810-1372	Fitting, <sup>1</sup> / <sub>4</sub> -inch NPT x 90°
4	807-2484	Valve, Solenoid Vent
5	813-0016	Nipple, <sup>1</sup> / <sub>4</sub> -inch NPT x Close
6	813-0530	Tee, <sup>1</sup> / <sub>2</sub> -inch x <sup>1</sup> / <sub>4</sub> -inch x <sup>1</sup> / <sub>2</sub> -inch NPT Reducing
7	810-1160	Flexline, Oil Return, 5.5-inch (14 cm)
8	813-0003	Tee, <sup>1</sup> / <sub>2</sub> -inch NPT
9	813-0247	Nipple, <sup>1</sup> / <sub>2</sub> -inch NPT x 3.5-inch (8.9 cm)
10	810-1067	Flexline, Oil Return, 11-inch (27.9 cm)
11	810-0278	Valve, <sup>1</sup> / <sub>2</sub> -inch NPT Ball
12	902-0883	Handle, Oil Return Valve (Right)
13	813-0156	Plug, <sup>1</sup> / <sub>2</sub> -inch NPT
14	901-0883	Handle, Oil Return Valve (Left)
15	813-0304	Reducer Bushing, <sup>1</sup> / <sub>2</sub> -inch to <sup>1</sup> / <sub>4</sub> -inch NPT
16	813-0537	Nipple, <sup>1</sup> / <sub>4</sub> -inch NPT x 2-inch
17	813-0555	Reducer, <sup>1</sup> / <sub>2</sub> -inch to <sup>1</sup> / <sub>4</sub> -inch NPT
18	813-0251	Nipple, <sup>1</sup> / <sub>2</sub> -inch NPT x 4.5-inch
19	510-1057	Flexline, Oil Return, 15.5-inch (39.4 cm)
20	810-1488	Flexline, Oil Return, 7-inch (17.8 cm)
21	810-1668	Adapter, <sup>1</sup> / <sub>2</sub> -inch NPT Male (converts female to male)
22	813-0022	Nipple, <sup>1</sup> / <sub>2</sub> -inch NPT x Close
23	813-0087	Nipple, <sup>1</sup> / <sub>2</sub> -inch NPT x 1.5-inch
*	811-0932	Vent Tube, Teflon, <sup>3</sup> / <sub>8</sub> -inch O.D. (sold by the foot (30.5 cm) length
*	816-0224	Insulation, Rubber

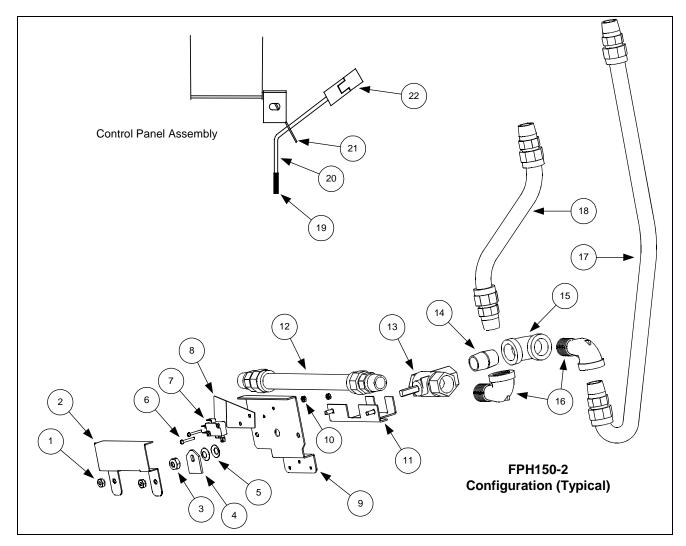
**NOTE:** The following Oil Return Flexlines may also be used in some specially configured units. When ordering a flexline, it is recommended that the line be measured to ensure the correct item is ordered.

*	810-1339	Flexline, Oil Return, 7-inch (17.8 cm) (male end fittings)
*	810-1159	Flexline, Oil Return, 7.5-inch (19 cm) (male and female end fittings)
*	810-1055	Flexline, Oil Return, 11.5-inch (29.2 cm) (female end fittings)
*	810-1043	Flexline, Oil Return, 12-inch (30.5 cm) (male and female end fittings)
*	810-1369	Flexline, Oil Return, 18.5-inch (47 cm) (male and female end fittings)
*	810-1068	Flexline, Oil Return, 24-inch (60.9 cm) (male end fittings)
*	810-1069	Flexline, Oil Return, 32-inch (81.2 cm) (male end fittings)
*	810-1056	Flexline, Oil Return, 56-inch (164.6 cm) (male end fittings)
*	810-1669	Adapter, <sup>1</sup> / <sub>2</sub> -inch NPT Female (converts male to female)



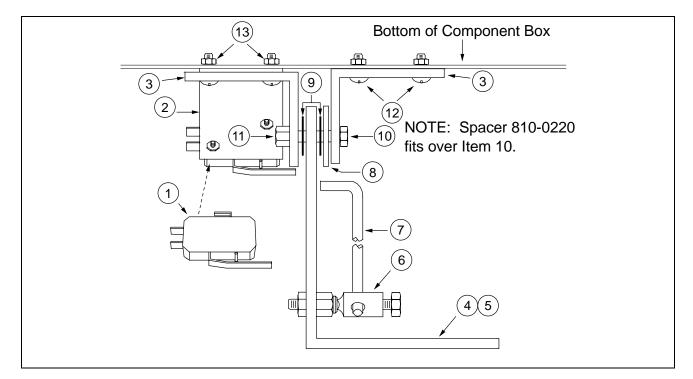


ITEM	PART #	COMPONENT
1	813-0165	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90° Street
2	813-0265	Nipple, $\frac{1}{2}$ -inch x $\frac{2}{2}$ -inch
$\begin{vmatrix} 2\\ 3 \end{vmatrix}$	813-0342	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 45° Street
4	813-0087	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 1 <sup>1</sup> / <sub>2</sub> -inch
5	810-0278	Valve, ½-inch Ball
6	810-1067	Flexline, 11-inch (28cm) Oil Return
7	813-0062	Elbow, $\frac{1}{2}$ -inch x 90°
8	900-2783	Hanger, Rear Flush
9	809-0417	Nut, <sup>1</sup> / <sub>4</sub> -20 Serrated Flange
10	813-0320	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 8-inch
11	813-0003	Tee, <sup>1</sup> / <sub>2</sub> -inch
12	813-0298	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 2-inch
13	813-0360	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 14-inch
14	810-1209	Shaft, Rear Flush Valve
15	809-0601	Clip, Rod End Clevis
16	901-2772	Handle, Left Rear Flush Valve
*	902-2722	Handle, Right Rear Flush Valve
*	810-1056	Flexline, 56-inch (142cm) Oil Return
*		Strip, Heater
	806-8065	100VAC, 18-inch (46cm)
	806-6730	100VAC, 36-inch (91cm)
	806-5933	120VAC, 18-inch (46cm)
	806-8004	120VAC, 36-inch (91cm)
	-806-5934	208-250VAC, 18-inch (46cm)
	806-6732	208-250VAC, 36-inch (91cm)
*	811-0746	Tape, Aluminum (50-yard (46m) roll)



# 8.13.8 FPH150 Oil Return Plumbing (Including Handle)

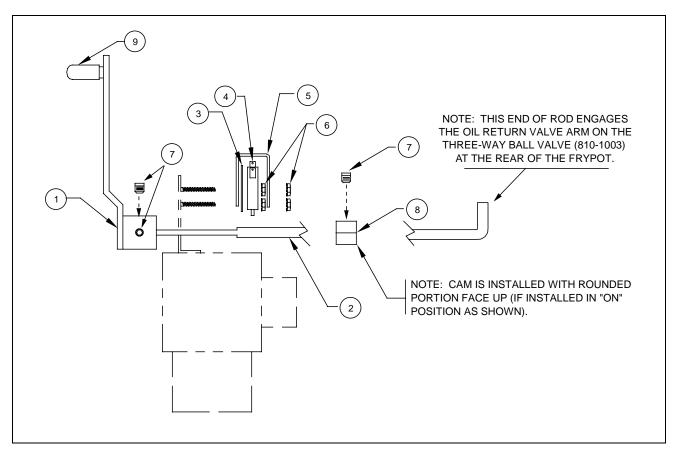
ITEM	PART #	COMPONENT
1	809-0256	Nut, 10-32 Keps
2	900-2110	Cover, Switch
3	809-0056	Locknut, 5/16-inch x 24 Nylon
4	910-2311	Switch, Actuator
5	809-0519	Washer, 5/16 Spring (2 each)
6	809-0354	Screw, 4-40 x <sup>3</sup> / <sub>4</sub> -inch
7	807-2104	Microswitch, Roller-activated
8	812-0442	Insulation, Microswitch
9	900-2268	Mount, Microswitch
10	809-0237	Nut, 4-40 Keps
11	806-8342	Bracket, Oil Return Valve
12	810-1057	Flexline, Oil Return, 15.5-inch (39.4 cm)
13	810-1003	Valve, <sup>1</sup> / <sub>2</sub> -inch NPT Ball
14	813-0022	Nipple, <sup>1</sup> / <sub>2</sub> -inch NPT x Close
15	813-0062	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90°
16	813-0165	Elbow, Street, <sup>1</sup> / <sub>2</sub> -inch x 90°
17	810-1068	Flexline, Oil Return, 24-inch (60.9 cm)
18	810-1067	Flexline, Oil Return, 11-inch (27.9 cm)
19	810-0677	Grip, Oil Return Handle
20	910-2312	Handle (Rod), Oil Return
21	900-2314	Bracket, Oil Return Handle
22	810-1115	U-Joint



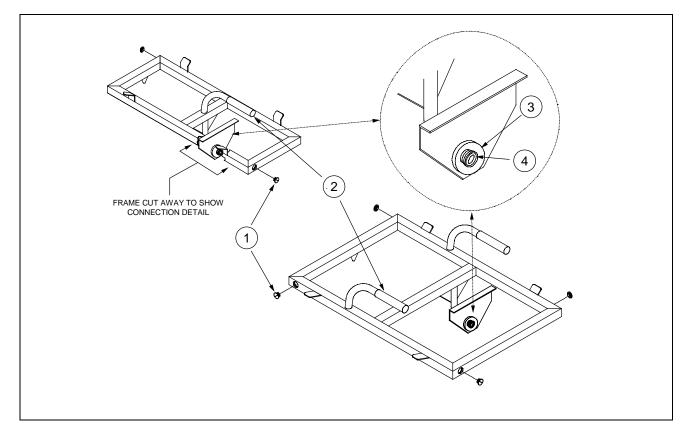
# 8.13.9 Oil Return Handle Assembly, Filter Magic & Standard FootPrint III

ITEM	PART #	COMPONENT
1	807-2103	Microswitch
2	930-0839	Bracket, Microswitch
3	920-0219	Bracket, Valve Handle
4	920-0831	Handle, Oil Return
5	814-0047	Sleeve, Handle
6	810-0285	Swivel Fitting, Oil Return Valve Linkage
7	910-0832	Linkage, Oil Return Valve
8	809-0200	Washer, Flat
9	826-1381	Washer, Nylatron
10	809-0142	Screw, $5/16 - 24 \times \frac{3}{4}$ " Hex Head
11	809-0056	Nut, 5/16 – 24, Hex Head, Nylon Lock
*	810-0220	Spacer, Tubular, .493 OD
12	826-1359	Screw, $4 - 40 \text{ x} \sqrt[3]{4}$ " Slot Head
13	826-1366	Nut, Keps, 4 – 40

#### 8.13.10 Oil Return Handle Assembly, Rear Flush Units



ITEM	PART #	COMPONENT
1	823-2295	Handle, Rear Flush
2	810-1209	Shaft, Rear Flush Linkage
3	816-0220	Insulation, RF Switch
4	807-2103	Microswitch
5	902-2214	Cover, Microswitch, Right
5	901-2214	Cover, Microswitch, Left
6	826-1366	Nut, Keps 4 – 40
7	826-1377	Set Screw, $10 - 32 \text{ x} \frac{1}{4}$ "
8	810-1186	Cam, Microswitch
9	812-1253	Cover, Rear Flush Handle

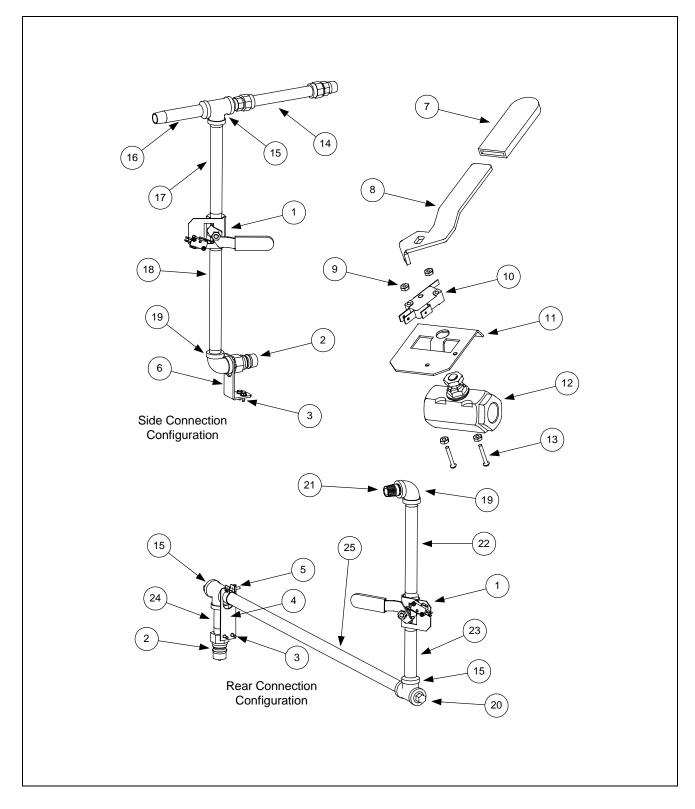


# 8.13.11 Power Shower Assemblies (All Systems)

ITEM	PART #	COMPONENT
	806-4476	Power Shower Assembly, Dual Vat, Complete
	806-4442	Power Shower Assembly, Full Vat, Complete
1	809-0415	Screw, Cleanout
2	814-0001	Grip, Handle
3	826-1390	Seal (Gasket)
4	826-1344	O-Ring

#### H50 SERIES GAS FRYERS PARTS LIST

### **Oil Disposal Systems Plumbing**



## H50 SERIES GAS FRYERS PARTS LIST

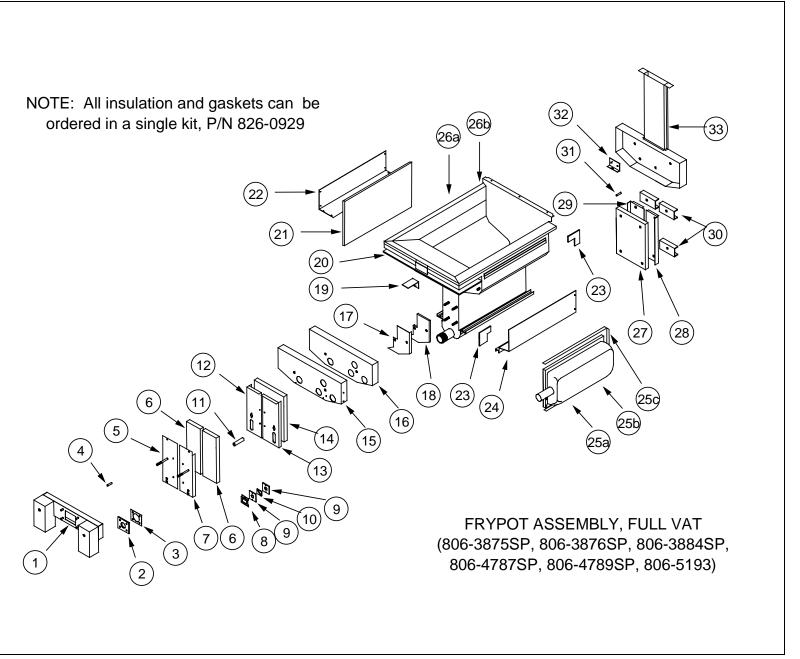
ITEM	PART #	COMPONENT
1	806-8762	Ball Valve with Microswitch Assembly
2	810-0487	Quick Disconnect, <sup>1</sup> / <sub>2</sub> -inch Male
*	809-0454	Nut, <sup>1</sup> / <sub>2</sub> -inch Conduit (mounts between Item 2 and Item 6)
3	826-1374	Screw, #10 x <sup>1</sup> / <sub>2</sub> -inch Hex Head (Pkg of 25)
4	910-8809	Bracket, Oil Disposal Mounting (rear connection configuration)
5	809-0951	Clamp, Hose (limits movement of plumbing through mounting bracket)
6	910-8085	Bracket, Oil Disposal Mounting (side connection configuration)
7	814-0047	Sleeve, Valve Handle
8	900-5953	Handle, Oil Disposal Valve
9	809-0237	Nut, 4-40 Hex Head Keps
10	807-2103	Microswitch, Roller Activated
11	900-8057	Bracket, Microswitch Mounting
12	810-0278	Valve, Gemini (without handle)
13	809-0354	Screw, 4-40 x <sup>3</sup> / <sub>4</sub> -inch Round Head
14	810-1370	Flexline, 9-inch (22.8cm) Oil Return
15	813-0003	Tee, $\frac{1}{2}$ -inch x $\frac{1}{2}$ -inch x $\frac{1}{2}$ -inch
16	813-0251	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 5-inch
17	813-0320	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 8-inch
18	813-0275	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 9-inch
19	813-0062	Elbow, <sup>1</sup> / <sub>2</sub> -inch x 90°
20	813-0156	Plug, <sup>1</sup> / <sub>2</sub> -inch Pipe
21	813-0087	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 1 <sup>1</sup> / <sub>2</sub> -inch
22	813-0320	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 8-inch
23	813-0281	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 5-inch
24	813-0265	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 2 <sup>1</sup> / <sub>2</sub> -inch
25	813-0562	Nipple, <sup>1</sup> / <sub>2</sub> -inch x 25 <sup>1</sup> / <sub>2</sub> -inch

### 8.14 Frypot Assemblies and Component Parts

## 8.14.1 Replacement Frypots and Frypot Insulation Kits

ITEM	PART #	COMPONENT
		Replacement Frypot Assemblies, Complete
	806-4787SP	Full Vat, Power Shower & Rear Flush Ready, Natural Gas
	806-4789SP	Full Vat, Power Shower & Rear Flush Ready, Propane Gas
	806-3876SP	Full Vat, Power Shower & Rear Flush Ready, Manufactured Gas
	806-3875SP	Full Vat, Power Shower Ready, Natural Gas
	806-3884SP	Full Vat, Power Shower Ready, w/Four Holes, Natural Gas
	806-5193SP	Full Vat, Power Shower Ready, w/Four Holes, Propane Gas
	806-4788SP	Dual Vat, Power Shower & Rear Flush Ready, Natural Gas
	806-4790SP	Dual Vat, Power Shower & Rear Flush Ready, Propane Gas
	806-3878SP	Dual Vat, Power Shower & Rear Flush Ready, Manufactured Gas
	806-3877SP	Dual Vat, Power Shower Ready, Natural Gas
	806-4247SP	Dual Vat, Power Shower Ready, Natural Gas, European
	806-5783SP	Dual Vat, Power Shower Ready, Manufactured Gas, European
		Replacement Insulation Kits
	826-0929	Full Vat, Complete
	826-0931	Full Vat, Burner Only
	826-0930	Dual Vat, Complete
	826-0932	Dual Vat, Burner Only

**NOTE:** See pages 8-53 and 8-55 for replacement burner kits and replacement burner rails.

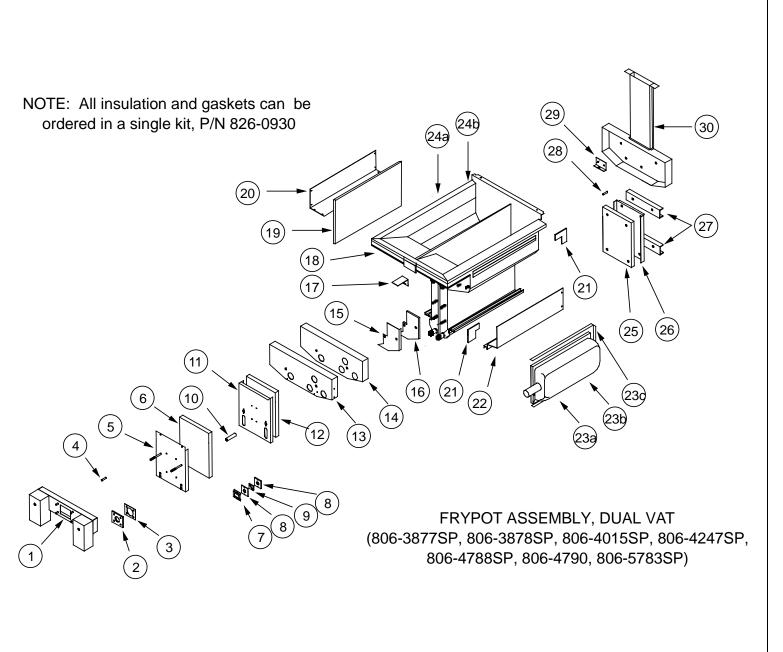


8.14.2 Full Vat Frypot Assembly, with Power Shower, Component Parts

H50 SERIES ( CHAPTER 8:

S GAS FRYERS 3: PARTS LIST

ITEM	PART #	COMPONENT
		Full Vat Frypot with Power Shower Component Parts
1	823-0969	Plenum, Full Vat (Non-CE units)
1	823-1048	Plenum, Full Vat (CE units)
2	816-0057	Gasket, Plenum Chamber
3	900-1049	Retainer, Plenum Chamber Gasket
4	810-0500	Spacer, 1/4" x 15/16" Long
5	823-11691	Combustion Chamber Outer Front, Left
6	812-0661	Insulation, Combustion Chamber, Outer
7	823-1169	Combustion Chamber Outer Front, Right
8	900-1031	Retainer, Sight Glass, <sup>3</sup> / <sub>4</sub> "
9	812-0356	Insulation, Sight Glass Gasket
10	814-0048	Sight Glass
11	826-1340	Spacer, 1/4" x 1 3/16" Long
12	900-1210	Retainer, Lower Front Insulation, Left
13	900-1211	Retainer, Lower Front Insulation, Right
14	812-0457	Insulation, Lower Front
15	900-3742	Retainer, Upper Front Insulation
16	812-0353	Insulation, Upper Front
*	824-0157	Retainer, Left Front Seal Insulation
17	824-0158	Retainer, Right Front Seal Insulation
18	812-0404	Insulation, Front Seal (for left and right)
19	900-1515	Brace, Upper Oil Zone Insulation
20	812-0993	Insulation, Upper Oil Zone
21	812-1029	Insulation, Combustion Chamber Side (for left and right)
22	900-4452	Retainer, Combustion Chamber Side Insulation (for left and right)
23	812-0706	Insulation, Upper Burner Rail (for left and right)
*	823-1777SP	Burner Rail, Left
24	823-17771SP	Burner Rail, Right
25a	826-1072	Burner, Natural or Propane Gas (for left or right)
25b	826-1073	Burner, Manufactured Gas (for left or right)
25c	812-0357	Insulation, Burner
26a		Frypot Assembly, Full Vat, with three holes (see page 8-51)
26b		Frypot Assembly, Full Vat, with four holes (see page 8-51)
27	812-0355	Insulation, Lower Rear
28	900-1223	Back, Combustion Chamber, Right
29	900-1222	Back, Combustion Chamber, Left
30	900-1221	Retainer, Rear Insulation and Combustion Chamber Back
31	810-0406	Spacer, 1/4" x 1.625" Long
32	930-0818	Bracket, Flue to Frypot Connection
33 * Not illu	806-5859SP	Flue Assembly, Full Vat





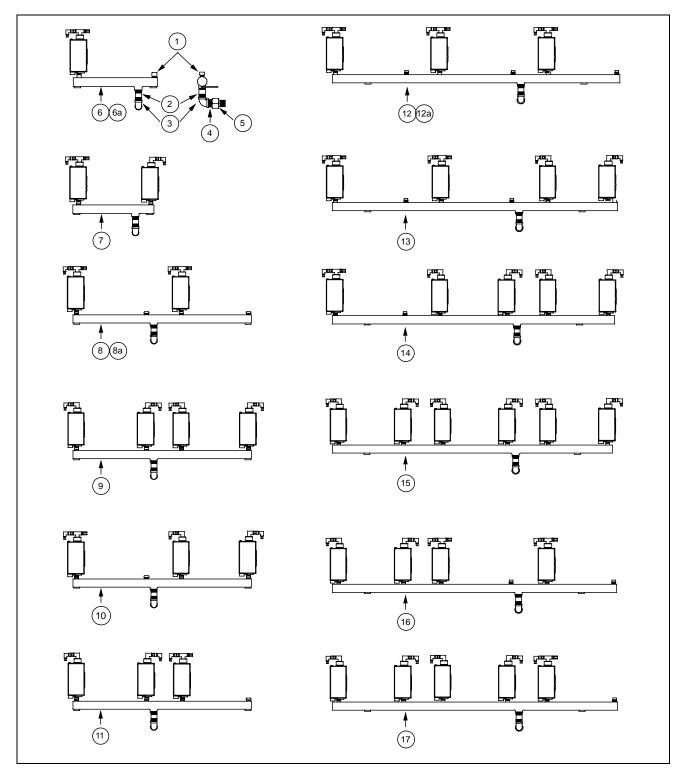
H50 SERIES ( CHAPTER 8:

S GAS FRYERS 3: PARTS LIST

ITEM	PART #	COMPONENT
		Dual Vat Frypot with Power Shower Component Parts
1	823-0970	Plenum, Dual Vat (Non-CE units)
1	823-2181	Plenum, Dual Vat (CE units)
2	816-0057	Gasket, Plenum Chamber
3	900-1049	Retainer, Plenum Chamber Gasket
4	810-0500	Spacer, 1/4" x 15/16" Long
5	823-0968	Combustion Chamber Outer Front
6	812-0456	Insulation, Combustion Chamber, Outer
7	900-1031	Retainer, Sight Glass, <sup>3</sup> / <sub>4</sub> "
8	812-0356	Insulation, Sight Glass Gasket
9	814-0048	Sight Glass
10	810-0476	Spacer, 1/4" x 1 3/16" Long
11	823-0983	Retainer, Lower Front Insulation
12	812-0456	Insulation, Lower Front
13	930-3628	Retainer, Upper Front Insulation
14	812-0352	Insulation, Upper Front
*	824-0159	Retainer, Left Front Seal Insulation
15	824-0160	Retainer, Right Front Seal Insulation
16	812-0404	Insulation, Front Seal (for left and right)
17	900-1515	Brace, Upper Oil Zone Insulation
18	812-0993	Insulation, Upper Oil Zone
19	812-1029	Insulation, Combustion Chamber Side (for left and right)
20	900-4452	Retainer, Combustion Chamber Side Insulation (for left and right)
21	812-0706	Insulation, Upper Burner Rail (for left and right)
*	823-2822SP	Burner Rail, Left
22	823-2823SP	Burner Rail, Right
23a	826-1072	Burner, Natural or Propane Gas (for left or right)
23b	826-1073	Burner, Manufactured Gas (for left or right)
23c	812-0357	Insulation, Burner
24a		Frypot Assembly, Dual Vat, with three holes (see page 8-51)
24b		Frypot Assembly, Dual Vat, with four holes (see page 8-51)
25	812-0354	Insulation, Lower Rear
26	930-0789	Back, Combustion Chamber
27	900-0914	Retainer, Rear Insulation and Combustion Chamber Back
28	810-0406	Spacer, 1/4" x 1.625" Long
29	930-0818	Bracket, Flue to Frypot Connection
30	806-5860SP	Flue Assembly, Dual Vat

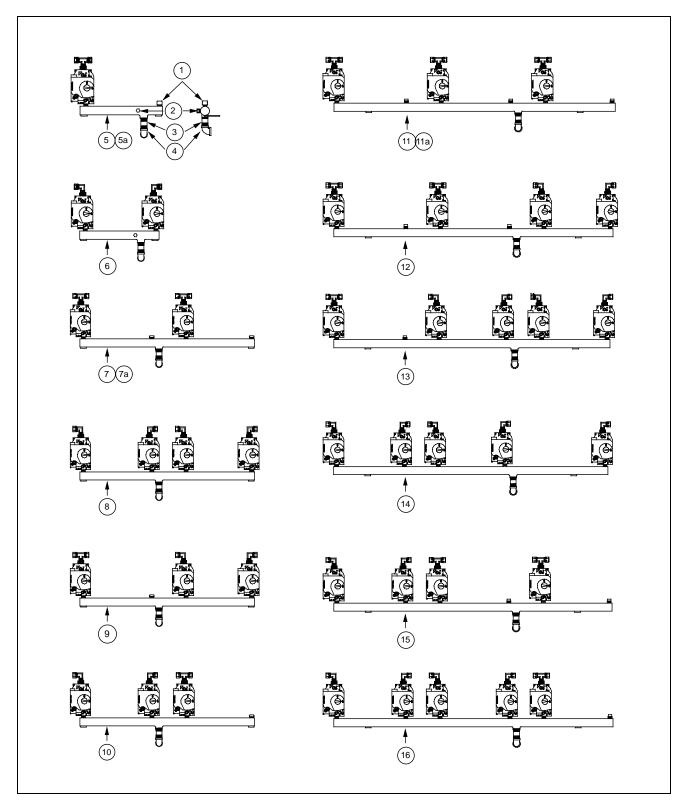
# 8.15 Gas Manifold Assemblies and Component Parts

# 8.15.1 CE Units



ITEM	PART #	COMPONENT
		Common Components, CE Units
1	813-0469	Cap, Pipe, <sup>1</sup> / <sub>2</sub> ", BM
2	813-0305	Elbow, 1" x $\frac{3}{4}$ ", BM
3	813-0111	Nipple, $\frac{3}{4}$ " x $1\frac{3}{4}$ ", BM
4	813-0138	Nipple, <sup>3</sup> / <sub>4</sub> " x Close, BM
5	813-0505	Adapter, 1" NPT x 1" BSPT
		Manifold Assemblies, Natural (G20, G25), Complete
6	806-6740	H150, Full Vat (H50)
7	806-6744	H150, Dual Vat (H50-2)
8	806-6739	H250, Two Full Vats (H250)
9	806-6747	H250, Two Dual Vats (H250-4)
10	806-6749	H250, Full Vat Left, Dual Vat Right (H250-2R)
11	806-6751	H250, Dual Vat Left, Full Vat Right (H250-2L)
12	806-6738	H350, Three Full Vats (H350)
13	806-6754	H350, Two Full Vats, Dual Vat Right (H350-2R)
14	806-6756	H350, Full Vat, Two Dual Vats Right (H350-4R)
15	806-6758	H350, Three Dual Vats (H350-6)
16	806-6770	H350, Dual Vat Left, Two Full Vats Right (H350-2L)
17	806-6772	H350, Two Dual Vats Left, Full Vat Right (H350-4L)
		Manifold Assemblies, Propane (G31)
6	806-6743	H150, Full Vat (H50)
7	806-6745	H150, Dual Vat (H50-2)
8	806-6746	H250, Two Full Vats (H250)
9	806-6748	H250, Two Dual Vats (H250-4)
10	806-6750	H250, Full Vat Left, Dual Vat Right (H250-2R)
11	806-6752	H250, Dual Vat Left, Full Vat Right (H250-2L)
12	806-6753	H350, Three Full Vats (H350)
13	806-6755	H350, Two Full Vats, Dual Vat Right (H350-2R)
14	806-6757	H350, Full Vat, Two Dual Vats Right (H350-4R)
15	806-6759	H350, Three Dual Vats (H350-6)
16	806-6761	H350, Dual Vat Left, Two Full Vats Right (H350-2L)
17	806-6763	H350, Two Dual Vats Left, Full Vat Right (H350-4L)
		<b>One-Piece Manifold (w/o valve or fittings)</b>
6a	810-0959	H150
8a	810-0661	H250
12a	810-0660	H350

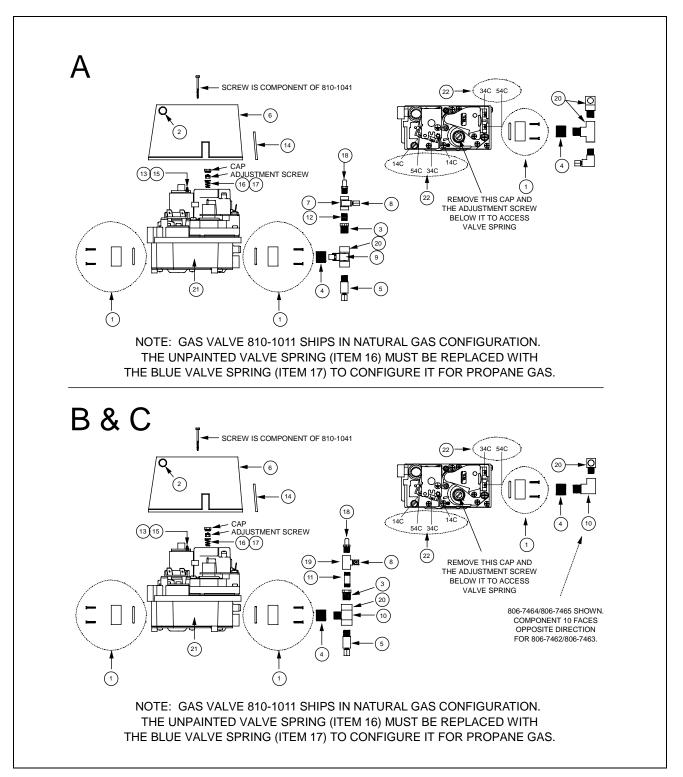
#### 8.15.2 Non-CE Units



ITEM	PART #	COMPONENT
		Common Components, Non-CE Units
1	813-0469	Cap, Pipe, <sup>1</sup> / <sub>2</sub> ", BM
2	813-0305	Elbow, 1" x <sup>3</sup> / <sub>4</sub> ", BM
3	813-0111	Nipple, $\frac{3}{4}$ " x 1 $\frac{3}{4}$ ", BM
4	813-0138	Nipple, <sup>3</sup> / <sub>4</sub> " x Close, BM
		Manifold Assemblies, Natural (G20, G25), Complete
5	806-4280	H150, Full Vat (H50)
6	806-4281	H150, Dual Vat (H50-2)
7	806-4284	H250, Two Full Vats (H250)
8	806-4285	H250, Two Dual Vats (H250-4)
9	806-4286	H250, Full Vat Left, Dual Vat Right (H250-2R)
10	806-4287	H250, Dual Vat Left, Full Vat Right (H250-2L)
11	806-4292	H350, Three Full Vats (H350)
12	806-4293	H350, Two Full Vats, Dual Vat Right (H350-2R)
13	806-4294	H350, Full Vat, Two Dual Vats Right (H350-4R)
14	806-4295	H350, Three Dual Vats (H350-6)
15	806-4296	H350, Dual Vat Left, Two Full Vats Right (H350-2L)
16	806-4297	H350, Two Dual Vats Left, Full Vat Right (H350-4L)
		Manifold Assemblies, Propane (G31)
5	806-4282	H150, Full Vat (H50)
6	806-4283	H150, Dual Vat (H50-2)
7	806-4288	H250, Two Full Vats (H250)
8	806-4289	H250, Two Dual Vats (H250-4)
9	806-4290	H250, Full Vat Left, Dual Vat Right (H250-2R)
10	806-4291	H250, Dual Vat Left, Full Vat Right (H250-2L)
11	806-4298	H350, Three Full Vats (H350)
12	806-4299	H350, Two Full Vats, Dual Vat Right (H350-2R)
13	806-4300	H350, Full Vat, Two Dual Vats Right (H350-4R)
14	806-4301	H350, Three Dual Vats (H350-6)
15	806-4302	H350, Dual Vat Left, Two Full Vats Right (H350-2L)
16	806-4303	H350, Two Dual Vats Left, Full Vat Right (H350-4L)
		<b>One-Piece Manifold (w/o valve or fittings)</b>
5a	810-0959	H150
7a	810-0661	H250
11a	810-0660	H350

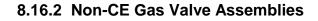
#### 8.16 Gas Valve Assemblies and Associated Parts

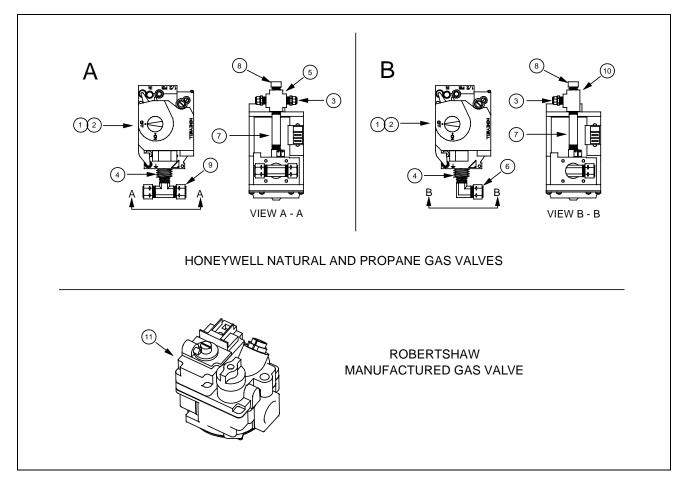
#### 8.16.1 CE Gas Valve Assemblies



D	NOTE: Use CE Vent Tube 810-1166 with this valve.
	with Typical Connection Fittings as listed in Common Components

ITEM	PART #	COMPONENT
А	806-7467	Valve Assembly, Natural Gas (G20, G25), Full Vat, Complete
Α	806-7466	Valve Assembly, Propane Gas (G31), Full Vat, Complete
В	806-7465	Valve Assembly, Natural Gas (G20, G25), Dual Vat Left, Complete
В	806-7464	Valve Assembly, Propane Gas (G31), Dual Vat Left, Complete
С	806-7463	Valve Assembly, Natural Gas (G20, G25), Dual Vat Right, Complete
С	806-7462	Valve Assembly, Propane Gas (G31), Dual Vat Right, Complete
D	810-1715	Valve, Natural (G20, G25) or Propane Gas (G31)
		Common Components, CE Units
1	810-1041	Accessory Kit, Honeywell CE Valve
2	810-0678	Bushing, BM, <sup>3</sup> / <sub>8</sub> " Snap-in
3	810-1006	Bushing, Brass, <sup>1</sup> / <sub>4</sub> " x <sup>1</sup> / <sub>8</sub> " NPT
4	813-0304	Bushing, Flush, BM <sup>1</sup> / <sub>2</sub> " x <sup>1</sup> / <sub>4</sub> " NPT
5	810-1025	Connector, <sup>1</sup> / <sub>4</sub> " NPT x δ" Male
6	812-1248	Cover, Gas Valve, CE
7	813-0378	Cross, Brass, <sup>1</sup> / <sub>8</sub> " NPT (used w/806-7466 & 67)
8	813-0354	Elbow, Brass, <sup>1</sup> / <sub>8</sub> " NPT x <sup>1</sup> / <sub>8</sub> " Tubing
9	813-0302	Elbow, Brass, <sup>1</sup> / <sub>4</sub> ' NPT x <sup>3</sup> / <sub>8</sub> " OD Tubing
10	813-0502	Elbow, Brass, Street, 1/4" NPT (used w/806-7462, 63, 64, & 65)
11	813-0315	Nipple, BM, <sup>1</sup> / <sub>8</sub> " x 1 <sup>1</sup> / <sub>2</sub> " NPT (used w/806-7462, 63, 64, & 65)
12	813-0016	Nipple, Brass, <sup>1</sup> / <sub>8</sub> " x 1 <sup>1</sup> / <sub>2</sub> " NPT (used w/806-7466 & 67)
13	826-1366	Nut, Hex, 4–40 w/External Teeth
14	900-2611	Plate, Conduit, H50 Gas Valve
15	809-0328	Screw, Zinc Plated, 4–40 x <sup>1</sup> / <sub>4</sub> " Pan-Head
16	810-1198	Spring, Valve, Natural Gas (G20, G25), Unpainted
17	810-1199	Spring, Valve, Propane Gas (G31), Blue
18	810-1176	Tap, Pressure Test, <sup>1</sup> / <sub>8</sub> " NPT
19	813-0377	Tee, Brass, <sup>1</sup> / <sub>8</sub> " NPT (used w/806-7462, 63, 64, & 65)
20	813-0495	Tee, Male Branch, Brass, <sup>1</sup> / <sub>4</sub> " NPT
21	810-1011	CE Gas Valve (Replaced by 810-1715 (Item D) and 806-9678 (Item 23))
22	WIR-0240	Wire Assembly (14C, 34C, 54C)
23	806-9678	Harness, Gas Valve Wiring (Used with 810-1715 only)





PART #	COMPONENT
	Common Components, Non-CE Units
826-1122	Valve, Natural Gas (G20, G25), Honeywell, Non-CE
826-1123	Valve, Propane Gas (G31), Honeywell, Non-CE
813-0340	Adapter, <sup>1</sup> / <sub>8</sub> " NPT x <sup>1</sup> / <sub>8</sub> " Tubing
813-0304	Bushing, Flush, <sup>1</sup> / <sub>2</sub> " x <sup>1</sup> / <sub>4</sub> "
813-0378	Cross, Pipe, Brass, <sup>1</sup> / <sub>8</sub> " NPT (used w/full vat units)
813-0302	Elbow, Male Branch, Brass, <sup>3</sup> / <sub>8</sub> " x <sup>1</sup> / <sub>4</sub> " (used w/dual vat units)
813-0405	Nipple, BM, <sup>1</sup> / <sub>8</sub> " x 2"
813-0154	Plug, Pipe, BM, <sup>1</sup> / <sub>8</sub> "
813-0301	Tee, Male Branch, Brass, <sup>3</sup> / <sub>8</sub> " x <sup>1</sup> / <sub>4</sub> " (used w/full vat units)
813-0377	Tee, Pipe, Brass, <sup>1</sup> / <sub>8</sub> " NPT (used w/dual vat units)
807-1229	Valve, Manufactured Gas, Robertshaw, Non-CE
	Valve Assembly, Full Vat, Complete (for illustration only)
	Valve Assembly, Dual Vat, Complete (for illustration only)
	826-1122 826-1123 813-0340 813-0304 813-0304 813-0302 813-0405 813-0405 813-0154 813-0301 813-0377

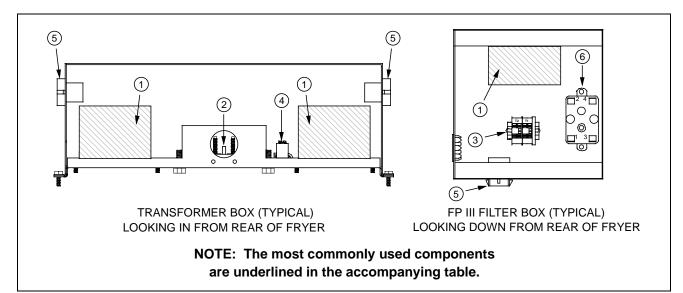
# 8.16.3 Gas Supply Lines and Enrichment Tubes

ITEM	PART #	COMPONENT
1	900-4560	Enrichment Tube, FPH50, <sup>1</sup> / <sub>8</sub> -inch x 8.50-inch x 2.00-inch CRS
2	901-1198	Enrichment Tube, Left, <sup>1</sup> / <sub>8</sub> -inch CRS
3	902-1198	Enrichment Tube, Right, <sup>1</sup> / <sub>8</sub> -inch CRS
*	811-0752	Enrichment Tube Blank (straight), <sup>1</sup> / <sub>8</sub> -inch x 5.5-inch
*	811-0756	Enrichment Tube Blank (straight), <sup>1</sup> / <sub>8</sub> -inch x 8.5-inch
*	811-0800	Enrichment Tube Blank (straight), <sup>1</sup> / <sub>8</sub> -inch x 12.5-inch
4	810-0502	Fitting, Enrichment Tube/Ignitor Connection, <sup>1</sup> / <sub>8</sub> "
5	810-1353	Gas Supply Flexline, <sup>3</sup> / <sub>8</sub> " x 9.00"
6	810-1354	Gas Supply Flexline, <sup>3</sup> / <sub>8</sub> "x 12.00"
7	810-1355	Gas Supply Flexline, <sup>3</sup> / <sub>8</sub> " x 15.00"
8	810-0494	Compression Fitting, <sup>3</sup> / <sub>8</sub> " (required for 810-1353, -1354, and -1355)
9	900-3693	Gas Supply Tube, Manufactured Gas, Full Vat, Left
10	900-3692	Gas Supply Tube, Manufactured Gas, Full Vat, Right
11	813-0043	Compression Fitting and Adapter, <sup>1</sup> / <sub>2</sub> " (required for 900-3692 and -3693)
12	810-0503	Ferrule Nut, <sup>1</sup> / <sub>2</sub> " (required for 900-3692 and -3693)
13	810-0691	Vent Tube, Gas Valve

#### 8.17 Thermostats, Temperature Probes, and Related Components

ITEM	PART #	COMPONENT
	826-1177	High Limit Thermostat (425° F/218° C)
	806-4206	Temperature Probe
	810-0625	Probe Guard

#### 8.18 Transformer Box and Filter Box Component Parts



ITEM	PART #	COMPONENT
1		Transformers
	807-0855	12V, 20VA, used in 100/120V H150 units
	807-0979	12V, 20VA, used in 208/240V Non-CE FPH150 units
	806-4000	12V, 40VA, used in German/Dutch export units
	807-2176	12/24V, 20/50VA, used in 100/120V units other than Non-CE H150
	807-1999	12/24V, 20/50VA, used in 208/220/230/240 units
	807-1238	24V, 50VA, used in 100V H150 units
	807-0800	24V, 50VA, used in 120V H150 units
	807-0680	24V, 20VA, used in 208/240V Non-CE H150 units
	806-4001	24V, 70VA, used in German/Dutch export units
		Power Cords
	806-5332	100/120V–15A w/grounded plug
	806-6229	100/208/240V–15A, w/o plug
	807-1685	100/208/240V-18A, w/o plug, used in German/Dutch export units
		Note: Cords must be locally terminalized for units in which used.
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### 8.18 Transformer Box and Filter Box Component Parts (Continued)

ITEM	PART #	COMPONENT
2		Terminal Blocks, Transformer Box
	807-0264	Terminal Block, 4-Pole, 2 Lug Screws per pole
	807-1973	Terminal Block, 4-Pole, 1 Binding Post per pole
	807-2608	Terminal Block, 4-Pole, 2 Binding Posts per pole
	807-0273	Terminal Block, 16-Pin, Male Spade Terminals
	807-1182	Terminal Block, 4-Pole, 4-Quick Connects and 1-Lug Screw per pole
	810-1163	Terminal Block, Screwless
3	810-1164	Terminal Block, Filter Box
4	807-0070	Grounding Lug, Transformer Box
		Connectors
	807-1063	3-Pin Female
	807-1813	6-Pin Female
5	807-0156	9-Pin Female
	807-0159	12-Pin Female
	807-1062	3-Pin Male
	807-1814	6-Pin Male
	807-0155	9-Pin Male
	807-0160	12-Pin Male
	826-1332	Pin, Contact (Disconnect), Female (Pin Terminal)
	807-2518	Plug, Mate-N-Lock (Dummy Pin)
6	807-0012	Relay, Pump Motor, 24V Coil, 18 Amp
	807-2434	Relay, Pump/Heater, 24V Coil, 18 Amp (5-Pin)
	807-1275	Heater Light, FM II/Single FPH50
	806-4358	Resistor, FM II/Single FPH50 Heater Light
		Transformer Box, Complete
	806-6227SP	H150, 100/120V
	806-6228	H150, 220/230/240V
	806-6643	H150, CE
	806-6150SP	H250, 100/120V
	8066151	H250, 220/230/240V
	806-6646	H250, CE
	806-6152SP	H350, 100/120V
	806-6153	H350, 220/230/240V
	806-6645	H350, CE
	806-6154	H450, 100/120V
	806-6155SP	H450, 220/230/240V
	806-6644	H450, CE
	806-4002	H150/H250/H350 German/Dutch (Two 24V and one 12V Xfmr)

#### 8.18 Transformer Box and Filter Box Component Parts (Continued)

ITEM	PART #	COMPONENT
		FP III Filter Box, Complete
	806-8581	100/120V, Generic (with dual voltage transformer 807-2176)
	806-8582	208/220/230/240, Generic (with dual voltage transformer 807-1999)

#### 8.19 Wiring Harnesses, Wiring Assemblies, and Plug Assemblies

#### 8.19.1 Filter Box Wiring

#### NOTE: Most commonly used components are underlined.

ITEM	PART #	COMPONENT
	806-6330SP	Harness, Filter Box, 120V (9-Pin Female, 6-Pin Male Connector)
	806-6631SP	Harness, Filter Box, 208-240V (9-Pin Female, 6 Pin Male Connector)
	806-6329SP	Plug Assembly, Filter Box (3-Pin Male Connector)
	806-6484SP	Plug Assembly, Filter Box (4-Pin Male Connector)
	806-6204SP	Plug Assembly, Filter Magic (6-Pin Female Connector)
	806-6203SP	Plug Assembly, Filter Magic (9-Pin Female Connector)
	806-6719SP	Plug Assembly, FP III Non-Reversing (9-Pin Female Connector, no dummy pin)
	806-6725SP	Plug Assembly, Heater, FP III Non-Reversing (9-Pin Female Connector, no dummy pin)
	806-7494SP	Plug Assembly, FP III Non-Reversing (9-Pin Female Connector w/dummy pin)
	806-8021	Plug Assembly, Heater, FP III Non-Reversing (9-Pin Female Connector w/dummy pin)

#### 8.19.2 Main Wiring Harnesses

#### NOTE: Most commonly used components are underlined.

ITEM	PART #	COMPONENT
	806-2079SP	Basket Lift Motor, Unitary (1 Female 6-Pin Connector)
	807-2033	Component Box to Basket Lift (1 Male 6-Pin, 1 Male 15-Pin Connector)
	810-1062	Component Box to FootPrint III Filter Box
	806-7019SP	Component Box to Non-Modular B/L (1 Male & 1 Female 6-Pin Connector)
	807-2000	Fryer-Fryer Connecting, Basket Lift (1 Female 15-Pin, 1 Blank Male 15-Pin Connector)
	807-2001	Fryer-Fryer Connecting, Non-B/L (1 Female 15-Pin, 1 Blank Male 15-Pin Connector)
	806-2076SP	Transformer to Component Box (1 Male 12-Pin Connector)
	807-1978	Transformer to Component Box (1 Male 9-Pin, 2 Male 12-Pin, 1 Female 2-Pin Connector)
	807-2168	Transformer to Component Box, CE (1 Male 9-Pin, 2 Male 12-Pin, 1 Fem 2-Pin Connector)
	WIR0355SP	Transformer to Component Box, FPH150 Domestic
	WIR0365SP	Transformer to Component Box, FPH150 CE and Non-CE Export
	807-0160	Connector, 12-Pin (for use with WIR0355SP and WIR0365SP)

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