



H14/H17/H22 Series Electric Fryers

Installation & Operation Manual

Series Codes AN through AX

 **Frymaster®**

CFESA
Commercial Food Equipment Service Association

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

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

**819-5473
6-00**



H14/17/22 Series Electric Fryers

Installation and Operation

TABLE OF CONTENTS

	Page #
1. INTRODUCTION.....	1-1
2. INSTALLATION INSTRUCTIONS.....	2-1
3. OPERATING INSTRUCTIONS.....	3-1
4. FILTRATION INSTRUCTIONS.....	4-1
5. PREVENTIVE MAINTENANCE.....	5-1
6. OPERATOR TROUBLESHOOTING.....	6-1

H14/H17/H22 SERIES ELECTRIC FRYERS

CHAPTER 1: INTRODUCTION

1.1 General

Read the instructions in this manual thoroughly before attempting to operate this equipment. This manual covers all configurations of models H14/H17/H22, including filtration options and triac-equipped (solid-state relays) models. H14, H17 and H22 fryers have many parts in common, and when discussed as a group, will be referred to as “Common Electric” fryers.

Common Electric fryers feature deep cold-zones and easy to clean, open frypots with tilt-up elements. The fryers are controlled by multi-product cooking computers, optional digital or analog controllers. Fryers in this series come in full- or split-pot arrangements, and can be purchased as single units or grouped in batteries of up to six fryers.

1.2 Safety Information

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

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

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



CAUTION

Example of a CAUTION box.

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



WARNING

Example of a WARNING box.

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



DANGER

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

Fryers in this series are equipped with automatic safety features:

1. Two high-temperature detection features shut off power to the elements should the temperature controls fail.
2. A safety switch built into the drain valve prevents the elements from heating with the drain valve even partially open.

1.3 Computer Information

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

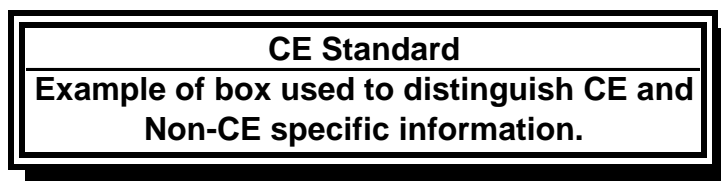
The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

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

1.4 European Community (CE) Specific Information

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



1.5 Shipping Damage Claim Procedure

What to do if your equipment arrives damaged:

Please note that this equipment was carefully inspected and packed by skilled personnel before leaving the factory. The freight company assumes full responsibility for safe delivery upon acceptance of the equipment.

1. File Claim for Damages Immediately—Regardless of extent of damage.
2. Visible Loss or Damage—Be sure this is noted on the freight bill or express receipt and is signed by the person making the delivery.
3. Concealed Loss or Damage—If damage is unnoticed until equipment is unpacked, notify the freight company or carrier immediately and file a concealed damage claim. This should be done within 15 days of date of delivery. Be sure to retain container for inspection.

1.6 Service Information

For non-routine maintenance or repairs, or for service information, contact your local Frymaster Authorized Service Center (FASC). Service information may also be obtained by calling the Frymaster Technical Services Department (1-800-24FRYER). The following information will be needed in order to assist you efficiently:

Model Number _____

Serial Number _____

Voltage _____

Nature of the Problem _____

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

H14/H17/H22 SERIES ELECTRIC FRYERS

CHAPTER 2: INSTALLATION INSTRUCTIONS

2.1 General

Proper installation is essential for the safe, efficient, trouble-free operation of this appliance. Any unauthorized alteration of this equipment will void the Frymaster warranty.

 **DANGER**

Copper wire suitable for at least 167°F (75°C) **MUST** be used for power connections.

 **DANGER**

The electrical power supply for this appliance **MUST** be the same as indicated on the rating and serial number plate located on the inside of the fryer door.

 **DANGER**

This appliance **MUST** be connected to the voltage and phase as specified on the rating and serial number plate located on the inside of the fryer door.

 **DANGER**

All wiring connections for this appliance **MUST** be made in accordance with the wiring diagrams furnished with the equipment. Wiring diagrams are located on the inside of the fryer door.

 **DANGER**

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

 **WARNING**

Do not attach accessories to this fryer unless fryer is secured from tipping. Personal injury may result.

All installation and service on FRYMASTER equipment must be performed by qualified, certified, licensed, and/or authorized installation or service personnel.

Service may be obtained by contacting your local Factory Authorized Service Center.

In the event of a power failure, the fryer(s) will automatically shut down. If this occurs, turn the power switch OFF. Do not attempt to start the fryer(s) until power is restored.

This appliance must be kept free and clear of combustible material, except that it may be installed on combustible floors.

A clearance of 6 inches (15cm) must be provided at both sides and back adjacent to combustible construction. A minimum of 24 inches (61cm) should be provided at the front of the equipment for servicing and proper operation.

 **WARNING**

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

2.2 After Fryers Are Installed At Fryer Station

 **WARNING**

Frymaster fryers equipped with legs are for permanent installations. Fryers fitted with legs must be lifted during movement to avoid damage and possible bodily injury. For a moveable or portable installation, Frymaster optional equipment casters must be used.

Questions? Call 1-800-551-8633

1. To level fryers equipped with legs, the bottom of the legs can be screwed out up to one inch for leveling. Legs should be adjusted so that the fryer(s) are at the proper height in the frying station. For fryers equipped with casters, there are no built-in leveling devices. The floor where the fryers are installed must be level.

NOTE: If you need to relocate a fryer installed with legs, remove all the weight from each leg before moving. If a leg becomes damaged, contact your service agent for immediate repair or replacement.

 **WARNING**

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

2. Close fryer drain-valve(s) and fill frypot with water to the bottom oil level line.
3. Boil out frypot(s). See *Boil-Out* instructions on page 2.4.
4. Drain, clean, and fill frypot(s) with cooking oil. See *Filling With Cooking Oil/Shortening* section.
5. Check temperature calibration on fryers with solid-state controller. See Section 3.5.1 on page 3-15.

2.3 Power Requirements



DANGER

Copper wire suitable for at least 167°F (75°C) MUST be used for power connections.

MODEL	VOLTAGE	PHASE	WIRE SERVICE	MIN. SIZE	AWG (mm ²)	AMPS PER LEG		
						L1	L2	L3
H14	208	3	3	6	(16)	39	39	39
H14	240	3	3	6	(16)	34	34	34
H14	480	3	3	8	(10)	17	17	17
H14	220/380	3	4	6	(16)	21	21	21
H14	240/415	3	4	6	(16)	20	20	21
H14	230/400	3	4	6	(16)	21	21	21
ALL EPH14 SERIES (SOLID STATE)	208	3	3	6	(16)	39	39	39
	240	3	3	6	(16)	34	34	34
	220/380	3	4	6	(16)	21	21	21
	240/415	3	4	6	(16)	20	20	20
H17	208	3	3	6	(16)	48	48	48
H17	240	3	3	6	(16)	41	41	41
H17	480	3	3	6	(16)	21	21	21
H17	220/380	3	4	6	(16)	26	26	26
H17	240/415	3	4	6	(16)	24	24	24
	230/400	3	4	6	(16)	25	25	25
ALL	208	3	3	6	(16)	48	48	48
EPH17 SERIES (SOLID STATE)	240	3	3	6	(16)	41	41	41
	220/380	3	4	6	(16)	26	26	26
	240/415	3	4	6	(16)	24	24	24
H22	208	3	3	4	(25)	61	61	61
H22	240	3	3	4	(25)	53	53	53
H22	480	3	3	6	(16)	27	27	27
H22	220/380	3	4	6	(16)	34	34	34
H22	240/415	3	4	6	(16)	31	31	31
H22	230/400	3	4	6	(16)	32	32	32



DANGER

The electrical power supply for this appliance MUST be the same as indicated on the rating and serial number plate located on the inside of the fryer door.

 **DANGER**

This appliance MUST be connected to the voltage and phase as specified on the rating and serial number plate located on the inside of the fryer door.

 **DANGER**

All wiring connections for this appliance MUST be made in accordance with the wiring diagrams furnished with the equipment. Wiring diagrams are located on the inside of the fryer door.

2.4 Frypot Boil-Out

Before the fryer is first used for cooking product, it should be boiled out to ensure that residue from the manufacturing process has been eliminated.

Also, after the fryer has been in use for a period of time, a hard film of caramelized vegetable oil will form on the inside of the frypot. This film should be periodically removed by following the boil-out procedure.

Clean frypot(s) as follows before filling with cooking oil/shortening for the first time and at least once a month thereafter:

1. Before switching the fryer(s) ON, close the frypot drain valve(s), then fill the empty frypot with a mixture of cold water and detergent. Follow instructions on detergent bottle when mixing.
2. Press fryer ON/OFF switch to the ON position. Set the melt switch to OFF if your fryer is equipped with an analog controller.
3. Set temperature knob or digital controller to 200° F (93° C) or program computer for Boil-out Operation as outlined in Programming Instructions.
4. Simmer the solution for 45 minutes to one hour. Do not allow water level to drop below the bottom oil-level line in frypot during boil-out operation.

 **CAUTION**

Do not leave fryer unattended. The boil-out solution may foam and overflow if fryer is left unattended. Press ON/OFF switch to the OFF position to control this condition.

 **CAUTION**

All drops of water MUST be removed from frypot before filling with cooking oil.

 **CAUTION**

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

5. Turn the fryer ON/OFF switch(s) to the OFF position.

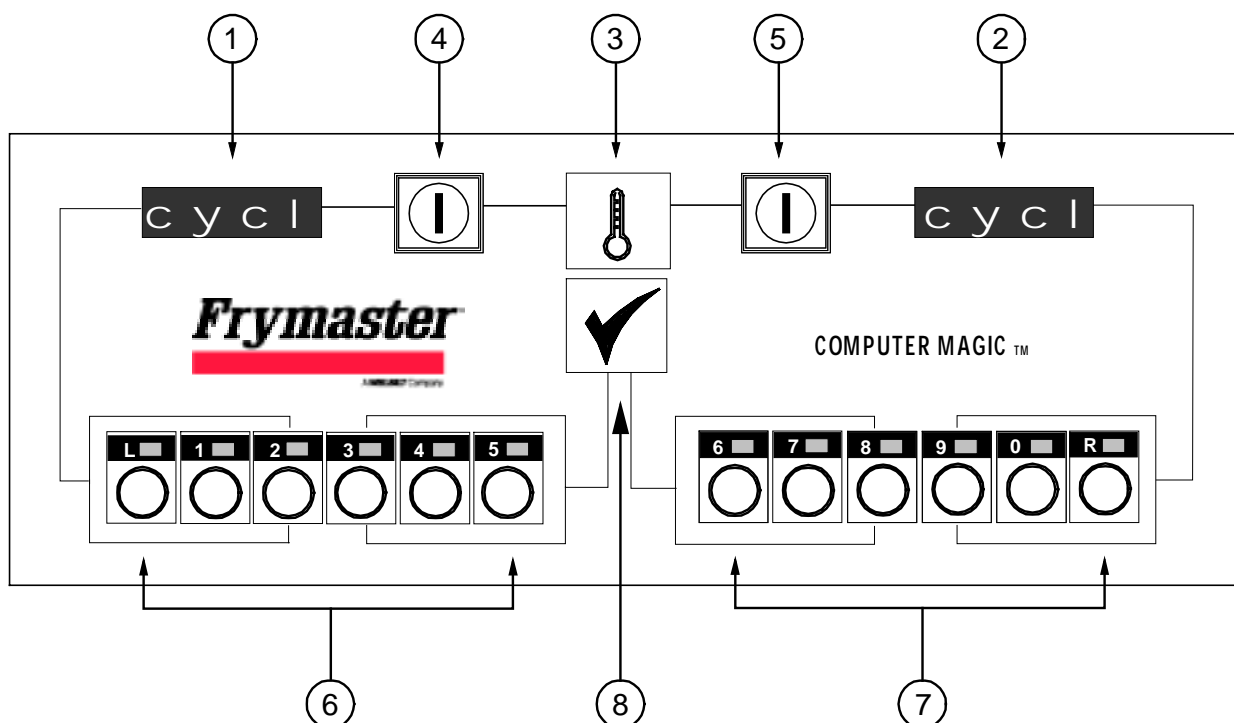
6. Add two gallons of water. Drain out the solution and clean the frypot(s) thoroughly.

Refill the frypot(s) with clean water. Rinse the frypot(s) twice, drain and wipe down with a clean, dish towel.

H14/H17/H22 SERIES ELECTRIC FRYERS

CHAPTER 3: OPERATING INSTRUCTIONS

3.1 Operating Fryers with Computer Magic III Computers



ITEM	DESCRIPTION
1	Lighted Display -- left display of various functions and operations.
2	Lighted Display -- right display of various functions and operations.
3	Program Lock and Temperature Check Switch -- locks program in computer and/or displays frypot temperature when depressed.
4	ON/OFF Switch -- controls on/off for left frypot.
5	ON/OFF Switch -- controls on/off for right frypot.
6/7	Product and Coding Switches -- provides access to computer and programming functions.
8	Programming Switch -- used when reprogramming the computer memory.


 **WARNING**

Before turning on computer, ensure the fryer is filled with cooking oil/shortening or water. NEVER allow water to enter the Filtration System.

3.1.1 Equipment Setup and Shutdown Procedures

Setup

 **WARNING**

Fill the frypot to the bottom oil level line with vegetable oil before pressing the ON/OFF switch  to the ON position. Failure to do so could damage the frypot.


1. Fill the frypot with vegetable oil to the bottom OIL LEVEL line located on the rear of the frypot. This will allow for oil expansion as heat is applied. Do not fill cold oil any higher than the bottom line; overflow may occur as heat expands the oil. If solid shortening is used, first raise the elements, then pack solid shortening into the bottom of the frypot. Lower the elements, and then pack solid shortening around and over the elements. Never insert a solid block of shortening into frypot on top of the elements. Hot spots and element damage will occur, and the potential for flash-fire increases.

 **WARNING**


NEVER set a complete block of solid shortening on top of heating elements. To do so will damage the elements and increase the potential for flash-point shortening temperatures and subsequent fire.

2. Ensure that the power cord(s) is/are plugged into the appropriate receptacle(s). Verify that the face of the plug is flush with the outlet plate, with no portion of the prongs visible.
3. Ensure that the vegetable oil level is at the *top* OIL LEVEL line when the vegetable oil *is at its programmed cooking temperature*. It may be necessary to add vegetable oil to bring the level up to the proper mark, *after the oil has reached the programmed cooking temperature*. If solid shortening is used, the MELT cycle **MUST** be used exclusively to melt the shortening. It may be necessary to add solid shortening to bring the level up to the proper mark after the packed shortening has melted. DO NOT DISABLE OR CANCEL THE MELT CYCLE UNTIL ALL SOLID SHORTENING HAS MELTED.

Shutdown

1. Press the ON/OFF switch  to the OFF position (the display will show OFF).
2. Filter vegetable oil and clean fryers (See Chapter 4).
3. Place the frypot covers on frypots.

Operating the Fryer

A. Turn the computer on by pressing the  switch.

1. One of the following displays will appear:
 - a. CYCL, indicating that the element is operating in the melt-cycle mode. Fryer will remain in the melt-cycle mode until it reaches 180° F (82° C) or is canceled manually.
 - b. HI, indicating that the pot temperature is 21° F (12° C) or higher than the setpoint.
 - c. LO, indicating that the pot temperature is 21° F (12° C) or lower than the setpoint.
 - d. "----" indicating that the fryer temperature is in the cooking range. NOTE: For best results, do not cook product until the display reads "----".
 - e. HELP, indicates a heating problem.
 - f. HOT, indicates that the pot temperature is more than 410° F (210° C) [395° F (202° C) for CE (European Community) fryers].
 - g. PROB, indicates that the computer has detected a problem in the temperature measuring circuits, including probe.

NOTE: "." decimal point between digits 1 and 2 in either display area indicates that the element is on.

B. Melt-Cycle Cancel Feature (built-in computers only).




CAUTION

Do not cancel the melt cycle mode if using solid shortening.



The computer will display CYCL during melt-cycle operation. To cancel melt cycle on a full pot, depress the "R" button. To cancel the melt cycle on a split pot, use "L" button for left side pot and "R" button for right side. CYCL will be replaced by LO. The decimal point between digits 1 and 2 will illuminate indicating that the elements are on.

C. Cook-cycle operation is initiated by pressing the product switch:

1. The basket lift (on fryers so equipped) will lower the product into the cooking oil/shortening.
2. The display will indicate the programmed cook time and begin countdown.

3. If shake time is programmed, you will be notified to shake the product "X" seconds after the cook cycle begins (X= amount of time programmed). An alarm will sound and the display will read SH_. The blank will be the switch number. If no shake time is programmed, SH_ will not appear during the cook cycle.
4. At the end of cooking cycle, an alarm will sound; COOC will be displayed and the associated product switch indicator will flash. To cancel the cook alarm, press the flashing product switch.
5. At this time, the hold time will be displayed (if programmed greater than 0) and countdown will begin. When the hold time counter reaches 0, an alarm will sound and Hd_ is displayed. The blank will be the switch number. The hold alarm is canceled by pushing the  switch. If display is in use, hold time will count down invisibly until display is free.




3.1.2 Checking Temperature

- A. Check the cooking oil/shortening temperature at any time by pressing the  switch once. Check the setpoint by pressing the  switch twice.
- B. During the idle periods, when the fryer is on but not in use, "----" should appear on both displays on a single frypot computer. "----" will appear on the display of the side that is turned on in a dual pot computer. If not, check actual temperature and setpoint.
- C. If you suspect a defective probe, check the cooking oil/shortening temperature with a thermometer. Verify that the computer readout is reasonably close to your measured reading.

NOTE: The electronic circuitry can be affected adversely by current fluctuations and electrical storms. If for no apparent reason the computer does not function or program properly, reset the computer by unplugging the power cord and plugging it back in.

3.2 Programming The Computer Magic III

3.2.1 Full-pot

1. Activate the computer by pressing either  switch.
2. To enter the program mode, first press the  switch. CODE will appear in the left display. If you have pressed this switch in error and do not wish to program, press the  switch again.
Note: The computer will flash BUSY if cooking is in progress.
3. Press 1,6,5,0 in that sequence to enter the program mode.

4. "SP-R" (Setpoint) will appear in the left display. This is for setting the cooking temperature. The temperature previously selected will be displayed in the right display. Enter new temperature. Press the ☒ switch to lock in temperature setting. If you do not wish to change the setting, press the ☒ switch.
5. "SELP" (Select Product) will appear in the left display. Press the product button to be programmed.
6. SENS will appear in the left display. The sensitivity number previously selected will be displayed in the right display. Enter the new desired sensitivity number, the range is 1 to 9. Enter "0" for no sensitivity. Press the ☒ switch to lock in the setting.

Sensitivity adjusts computer-cooking time to compensate for the drop in cooking oil/shortening temperature when a basket of product is placed into the fryer. Sensitivity decreases or increases cooking time to counterbalance variances in product density, basket-load size, and initial temperature. A proper sensitivity setting will ensure a high quality product. For example: 4 ounces of french fries can be programmed to cook to the same quality as 2 pounds. A good initial setting is 4 or 5. Some experimenting with the range of 1 to 9 may be required to achieve optimum quality.

7. COOC will now appear in the left display. A previously entered cook-time will appear in the right display. If that time is correct, press the ☒ switch. If you wish to change the time, enter the desired time in minutes and seconds. (The new time will be displayed in the left display.) Press the ☒ switch to lock in the setting.
8. SH- now appears in the left display. The previous shake time (if any) will appear in the right display. If a product requires shaking during the cooking process, set the shake time by pressing the number of minutes to cook before shaking. Press the ☒ switch to lock in the time. If no shake time is required, press "0" and press the ☒ switch. Example: Total cook time 3:00 minutes, shake after cooking 1:00 minute.

At the end of 1:00 minute, a beeper will sound and the product button indicator will flash for three seconds.








9. HD- will now appear in the left display. Set the time to hold the cooked product from 13 seconds to 60 minutes. Press the ☒ switch. If you do not wish to use the hold time, enter "0" and press the ☒ switch.
10. SELP will appear in the left display. If you desire to program more products, return to Step 5. If no more programming is required, lock in program by pressing the ☐ switch.

ADDITIONAL HOLD-TIME INSTRUCTIONS

If the same product is being cooked in more than one basket, another product button can be programmed to use the hold timer programmed for use with the original basket or product. Example: Program button "3" for 7:00 minutes hold-time. Then when programming button "R" for hold time, press Address Button "4". Both "3" and "R" will then have the same hold time of 7:00 minutes. See below for button numbers and their assigned access numbers. All other buttons can be programmed to use the same hold-time.

Button	L	1	2	3	4	5	6	7	8	9	0	R
Address	1	2	3	4	5	6	7	8	9	10	11	12

3.2.2 Split-pot

1. Activate the computer by pressing either  switch.
2. Enter the program mode by pressing the  switch. CODE will appear in the left display. If you have pressed this switch in error and do not wish to program, press the  switch again.
NOTE: You cannot program the computer while it is in the cook mode. The computer will flash busy if cooking is in process.
3. Enter 1,6,5,0 in that sequence.
4. "SP-r " (SETPOINT) will appear in the left display. This is for setting the cooking temperature for the right pot. The temperature previously selected will be displayed in the right display. Enter new temperature. Press the  switch to lock in temperature setting. If you do not wish to change the setting, press the  switch.
5. "SP-l " (SETPOINT) will appear in the left display. This is for setting the cooking temperature in the left pot. The temperature previously selected will be displayed in the right display. Enter new temperature. Press the  switch to lock in temperature setting. If you do not wish to change the setting, press the  switch.
6. "SELP" (SELECT PRODUCT) will appear in the left display. Select buttons "L" through "5" for programming the left pot; select buttons "6" through "R" for programming the right pot. Press the product switch to be programmed.
7. SENS will appear in the left display. Refer to "Full-pot Programming", Steps 6 - 10 to program individual product buttons.

3.2.3 Boil Feature






CAUTION

Do not drain water or boil-out solution into the filtration system. Irreparable damage will result and void the warranty.

1. Before switching the fryer(s) ON, close the frypot drain valve(s). Fill empty frypot with mixture of cold water and detergent. Follow detergent instructions when mixing.


NOTE: Boil Mode will not turn on both sides of computer. Each side will have to be turned on separately.

2. To program computer for Boil Feature, press either  switch.
3. Press the  switch. CODE will appear in the left display.
4. Enter 1, 6, 5, 3 in that sequence. 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 either  switch is pressed, which cancels the boil-out mode. In high-altitude locations, constantly monitor the fryer for over-boil conditions. If over-boil occurs, turn off fryer immediately, allow to cool, and re-enter boil-out mode to continue the boil-out operation.

3.2.4 Fryer Recovery Time Check

3.2.4.1 Fryers without Solid State Relays (No “T” in suffix)


Recovery Time - An acceptable recovery time is 100 seconds or less.

1. To check recovery time, press the  switch. CODE will appear in the left display.
2. Enter 1, 6, 5, 2 in that sequence. The recovery time will appear in both displays for 5 seconds.




3.2.4.2 Fryers with Solid State Relays (“T” in suffix)

Due to the energy saving feature on solid-state relay-equipped fryers (“T” suffix in the model number), the normal recovery check will provide invalid information and the fryer will appear not to be working properly. To perform a valid recovery test the energy saving feature must be by-passed. Recovery checks should be made monthly, or if the performance of the fryer is suspect.



1. Ensure the vat is properly filled with shortening to the appropriate oil-level line.
2. With the vat temperature above 200°F (95°C) and below 250°F (120°C) activate the R button for full-vat. (L for left split-vat and R for right split-vat).

3. The computer will call for heat constantly. The heat light will remain on until fryer is within 11°F (6°C) of setpoint.
4. Once the fryer is at setpoint, check recovery time by pressing the  switch. CODE will appear in the left display.
5. Enter 1, 6, 5, 2 in that sequence. The recovery time will appear in both displays for 5 seconds.

3.2.5 Temperature Selection—Fahrenheit to Celsius

1. To change the computer temperature from Fahrenheit to Celsius or Celsius to Fahrenheit, press either  switch.
2. Press the  switch. CODE will appear in the left display.
3. Enter 1, 6, 5, 8 in that sequence. The computer will automatically convert the temperature from Fahrenheit to Celsius or Celsius to Fahrenheit.
4. Press the  switch to display the temperature in the newly selected mode.

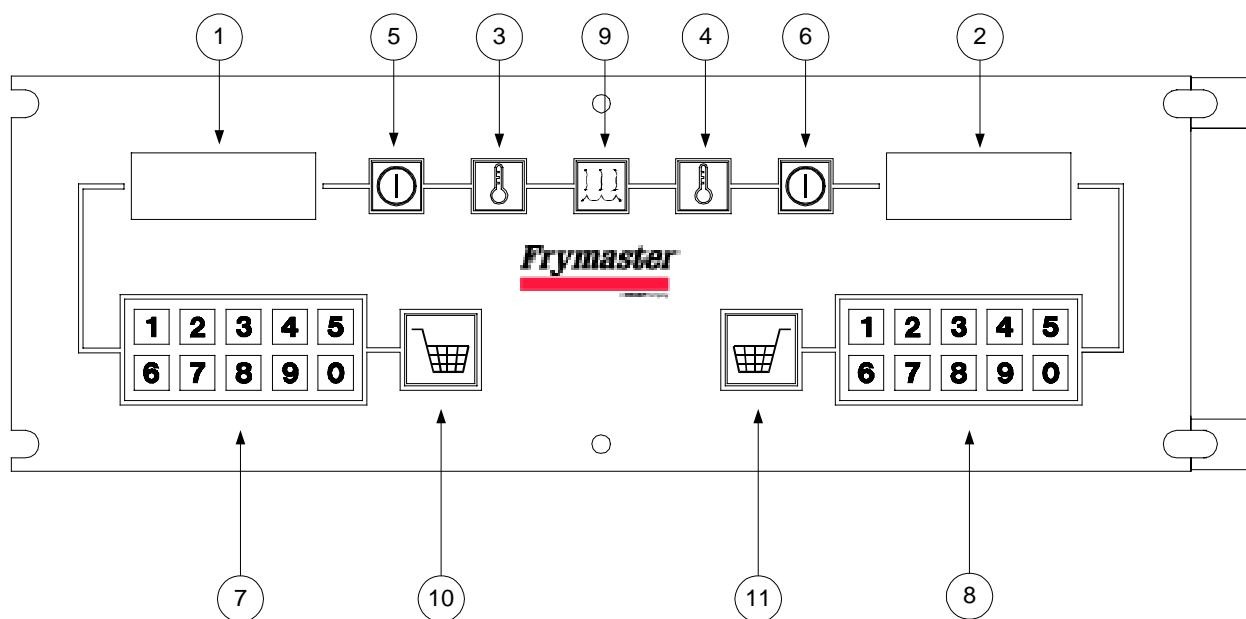
3.2.6 Constant Oil Temperature Display Mode

1. To program constant temperature display, press the  switch.
2. Press the  switch. CODE will appear in the left display.
3. Enter 1, 6, 5, L in that sequence. The cooking oil/shortening temperature will display constantly in the right display on a full-pot and in both displays on a split-pot.

NOTE: During the product cooking process, the cooking time will not be displayed but timing will be taking place.

4. To remove the constant oil-temperature display and display the cooking time, repeat Step 2 and Step 3.

3.3 Operating Fryers With Basket Lift Timers




ITEM	DESCRIPTION
1	Lighted Display - left side display of functions and operations.
2	Lighted Display - right side display of functions and operations.
3	Temperature Check Switch - controls left side of split-pot. Press once for setpoint. Press again to return to cook time. (full-pot will always display on right side display.)
4	Temperature Check Switch – controls right side of split pot. Press once for setpoint. Press again to return to cook time. (full-pot will always display on right side display.)
5	On/Off Switch - controls power supply for left side of split-pot, and for full-pot.
6	On/Off Switch - controls power supply for right side of split-pot and for full-pot.
7	Cook Time and Temperature Set Switches - controls left side of full- or split-pot.
8	Cook Time and Temperature Set Switches - controls right side of full- or split-pot.
9	Boil Mode Switch - controls boil mode.
10	Left Basket Lift Switch - controls left basket lift and cancels alarm.
11	Right Basket Lift Switch - controls right basket lift and cancels alarm.

3.3.1 Timer Controller Operating Instructions

1. Turning The Unit On

SPLIT-POT:

Left side press Left ON/OFF  switch.




Right side press Right ON/OFF  switch.


FULL-POT:

Press Left or Right ON/OFF  switch.




2. Adjusting the Temperature

SPLIT-POT:

Left side - press left Temperature Check Switch . Current setpoint is displayed in the left Lighted Display. To change setpoint, enter new temperature with the left Numbered Keys. Press left Temperature Check Switch  to lock in setpoint. If you do not need to change setting, return to cook time by pressing left Temperature Check Switch .

Right side - follow left side procedure using right Temperature Check Switch , right Lighted Display and right Numbered Keys.

FULL-POT:

Press left or right Temperature Check Switch . Current setpoint is displayed in the right Lighted Display. To change setpoint, enter new temperature with the right Numbered Keys. Press left or right Temperature Check Switch  to lock in setpoint. If you do not need to change setting, return to cook time by pressing right or left Temperature Check Switch .



3. Adjusting the Timers

The Electronic Timer Controller will time the cook operation for the time displayed in the right and left Lighted Display. You may change the time using the following procedure:

Left Basket Timer - enter new time with Left Numbered Keys.



Right Basket Timer - enter new time with Right Numbered Keys.

4. Cooking Instructions




Press left Basket Lift switch , or right Basket Lift switch  to initiate a timed cook-cycle. The corresponding displayed time now counts down. At time-out, the basket lift removes the product from the cooking oil/shortening. An audible alarm alerts the operator that cooking is completed, and the display area shows COOC.

Press the left Basket Lift switch , or right Basket Lift switch  to cancel the alarm.

5. Boil Mode Operation


Press Boil-Mode switch , to reset the timer to 195° F (91° C). The fryer will now maintain 195° F (91° C) until either  switch is pressed, at which time the controller will return to the previously set value.

6. Melt-Cycle Operation

The fryer automatically goes into melt cycle if cooking oil/shortening temperature is under 180° F (82° C). To override melt cycle, press right Basket Lift switch . For split-pot, press Basket Lift switch   corresponding to frypot in use.

7. Additional Instructions

The controller automatically selects Fahrenheit/Celsius temperature values. Temperature values less than 190° F are considered Celsius values.

The Electronic Timer Controller stores the current time and temperature settings when the unit is turned off with the On/Off switches . However, in the event of power failure, recheck time and temperature setting.

8. Fryer Alarms

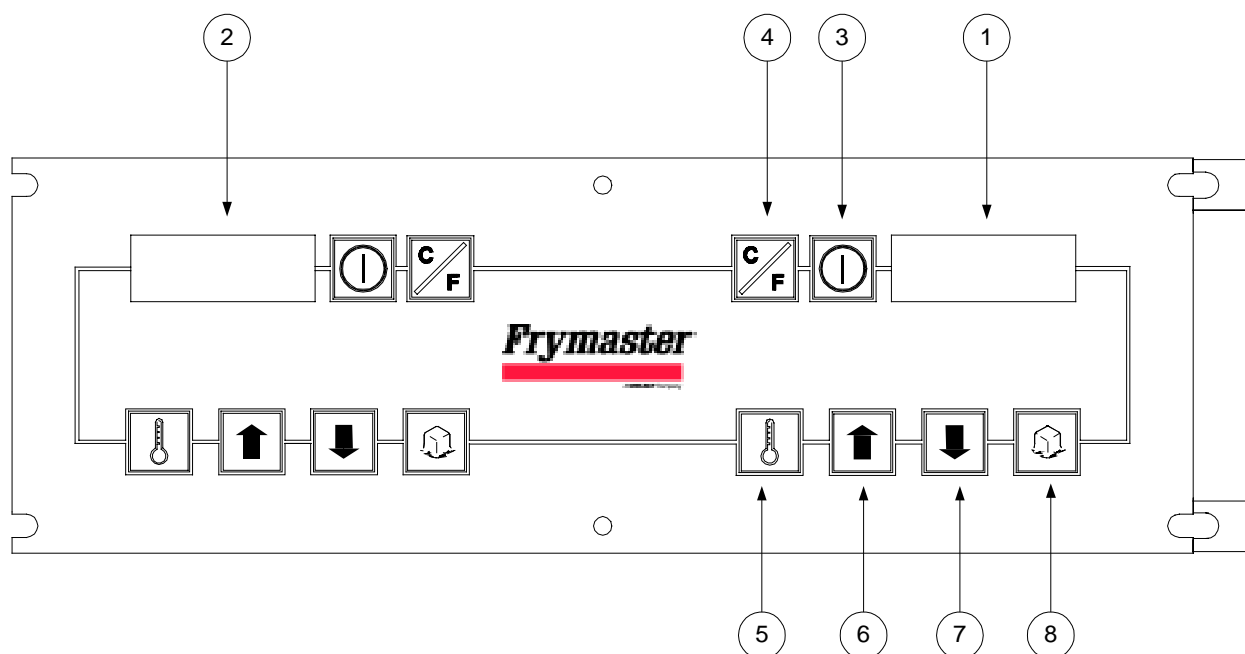
The Electronic Controller Timer will display the following:

Heat Failure Alarm: "HELP" displayed continuously indicates that there is heating failure.

High Temperature Alarm: "HOT" displays if the frypot temperature is above 385° F (196° C).

Defective Probe Alarm: "PROB " indicates that the probe is defective.


3.4 Operating Fryers With Digital Controllers




ITEM	DESCRIPTION
1	Lighted Display – right side display of various functions and operations.
2	Lighted Display – left side display of various functions and operations.
3	On/Off Switch - controls power supply.
4	C/F Switch - selects temperature display in Celsius or Fahrenheit.
5	Temperature/Setpoint Display Switch - selects cooking oil/shortening temperature or setpoint temperature.
6	Up Arrow Switch - raises setpoint temperature.
7	Down Arrow Switch - lowers setpoint temperature for left side of split-pot and for full-pot.
8	Melt-Cycle Switch - cancels melt-cycle mode.




1. Enable/Disable Melt Cycle Bypass

A. The controller can be programmed to enable/disable the melt cycle bypass.

1. With the controller in the OFF mode, press the Melt-Cycle Switch  (for a split-pot, press the right side switch). The display will read either a "0", meaning that the melt **can** be bypassed or a "1" meaning that the melt cycle **cannot** be bypassed.
2. To change the bypass configuration, press and hold the Melt-Cycle Switch for five to six seconds to toggle the "0" to "1" or "1" to "0". Release the Melt-Cycle Switch when the display shows the desired setting.



2. Operating Instructions– Full- and Split-Pot



A. Turn controller on by pressing ON/OFF Switch .

1. The controller software version number will display for four seconds then setpoint temperature will display constantly. To view actual cooking oil/shortening temperature, press the Temperature Switch . On export fryers, the shortening temperature will display constantly. To view the setpoint temperature, press the Temperature Switch .
2. The controller automatically enters melt-cycle mode if oil/shortening temperature is below 180° F (82° C).
3. To cancel melt-cycle mode, press the Melt Switch  (desired side on split-pot).

CAUTION

Do not cancel the melt cycle if solid shortening is used.

4. When the cooking oil/shortening temperature reaches 180° F (82° C) (on the side that has been turned on or both sides on split-pot), the controller exits the melt-cycle mode and shuts off.
- B. To set the setpoint temperature up or down (either side of controller on split-pot), press the Up Arrow Switch  to raise the setpoint temperature, and the Down Arrow Switch  to lower the setpoint temperature.
1. The display (left or right on split-pot) will change at the rate of approximately one-degree per second.
 2. After a change of about 12° F, the display will change to a faster rate, allowing large changes in setpoint temperature to be made quickly.

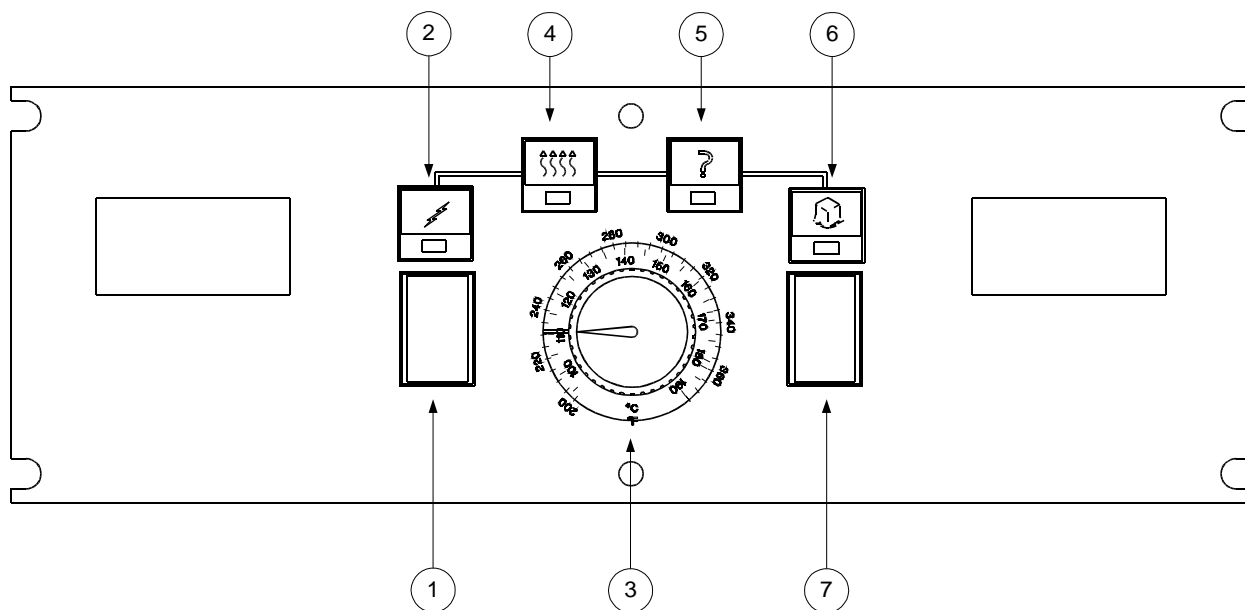
- C. To change from Fahrenheit to Celsius display (either side on split-pot), press the C/F Switch .
1. Display (both on split-pot) will change from "xxx°F" to "xxx°C".
 2. Display (both on split-pot) will change back to "xxx°F" by pressing the C/F Switch , again.
- D. When the controller (either side on split-pot) has reached the setpoint temperature, the heat indicator decimal point will go out, indicating the fryer is ready for cooking.

NOTE: The decimal point appearing between the first two numbers of the display indicates that the element is heating.

Other indications that could be displayed on the Lighted Display:

1. "**HOT**" and actual frypot temperature - shortening temperature is above 395°F (202°C) [or 410°F (210°C) for CE fryers], which is too hot for most fried products.
2. "**PROB**" - indicates the controller has detected a problem in the temperature measuring circuits, including probe.
3. "**hel p**" - indicating latching circuit did not lock in or an internal component failure.

3.5 Operating Fryers With Analog Controllers



ITEM	DESCRIPTION
1	Power Supply Switch - controls power supply.
2	Power On Light - indicates when electrical power is on.
3	Temperature Control Knob - sets desired frying temperature.
4	Heating Light - indicates element is on.
5	Trouble Light - indicates malfunction of fryer control circuit or overheat condition. Reset by turning the ON/OFF switch OFF for 30 seconds, then ON.
6	Melt Cycle Light - indicates unit is operating in melt cycle mode. Fryer will exit melt cycle mode when shortening reaches 180°F (82°C).
7	Melt Cycle Switch - controls melt cycle operation.

3.5.1 Temperature Calibration- Analog Controller

1. Insert a thermometer or pyrometer probe into the cooking oil/shortening near the fryer temperature-sensing probe.
2. Turn temperature control knob to frying temperature.
3. Let elements cycle on and off automatically three times to ensure the cooking oil/shortening temperature is uniform. Stir, if necessary, to get all cooking oil/shortening in bottom of frypot melted.
4. When the elements start for the fourth time, the pyrometer reading should be within 5° F (2° C) of the temperature control knob setting. If it is not, calibrate as follows:
 - a. Loosen setscrew in temperature control knob until outer shell of knob will rotate on insert inside knob.
 - b. Rotate outer shell of knob until index line on knob aligns with marking that corresponds to thermometer or pyrometer reading.
 - c. Hold knob and tighten setscrew.
 - d. Recheck the thermometer or pyrometer reading and the temperature control knob setting the next time the elements come on.
 - e. Repeat Steps 4-a through 4-d until thermometer or pyrometer reading and knob setting agree within 5° F (2° C).
 - f. If calibration cannot be obtained, call a Factory Authorized Service Center.
4. Remove thermometer or pyrometer probe.

H14/H17/H22 SERIES ELECTRIC FRYERS

CHAPTER 4: FILTRATION INSTRUCTIONS

4.1 Draining and Manual Filtering: Non-Filtration Fryers



DANGER

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

If your fryer is not equipped with 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 sealing 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.



DANGER

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



WARNING

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

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.

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 are caused by improper operation. Careful attention to the step-by-step instructions that follow will ensure that your system operates as intended.

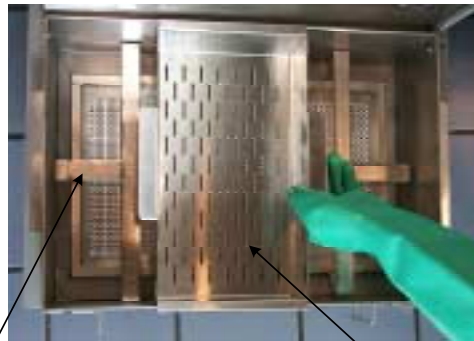
4.2.1 PREPARING THE FILTER UNIT FOR USE

1. Pull the filter unit from the cabinet, open the cover, remove the crumb tray, and remove the paper hold-down ring.



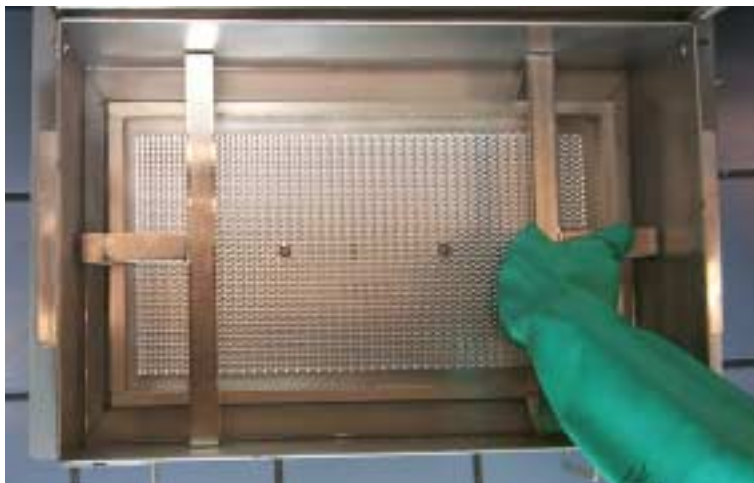
Handles

Slide Pan Assembly Out



Paper Hold-down Ring

Crumb Screen



Removing paper hold-down ring.

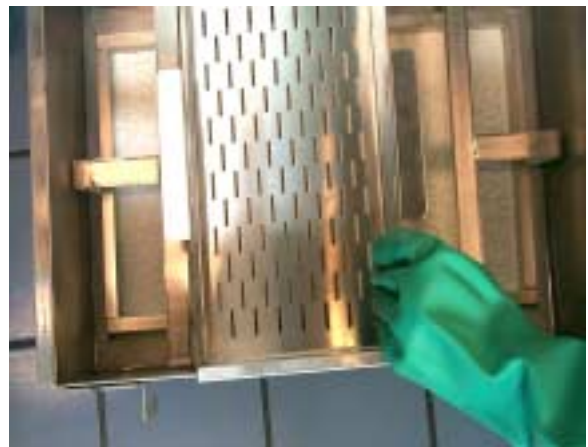
NOTE: If changing filter paper, remove the crumb tray and paper hold-down ring and clean with a solution of hot water and dishwashing detergent. Remove and discard the used filter paper. **Be careful, the oil-soaked paper may be very hot and may cause burns.** Remove the metal filter screen and pan and clean thoroughly using a solution of hot water and detergent, ensuring that all breeding and food particles are removed from the pan, ensuring the pan is dried completely. Allow the screen to dry completely before reinstalling.



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.



5. Push the filter pan back into the fryer, positioning it all the way to the back of the cabinet. (Older FM II and FP II filter systems have a green HEATER ON indicator, which will light when the assembly is properly positioned.)



4.1.2 OPERATION OF THE FILTER UNIT



CAUTION

Never operate the filter unit unless cooking oil is at operating temperature.

1. To filter the cooking oil, turn the fryer power OFF, then open the drain valve on the fryer you have selected to filter.



2. If necessary, use the *Fryer's Friend* steel rod to clear the drain from **inside** the frypot as necessary (see Warning And Danger Statements, page 4-1).



Frymaster P/N 803-0197

3. Snap the Power Shower into the frypot.-



⚠ DANGER

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.

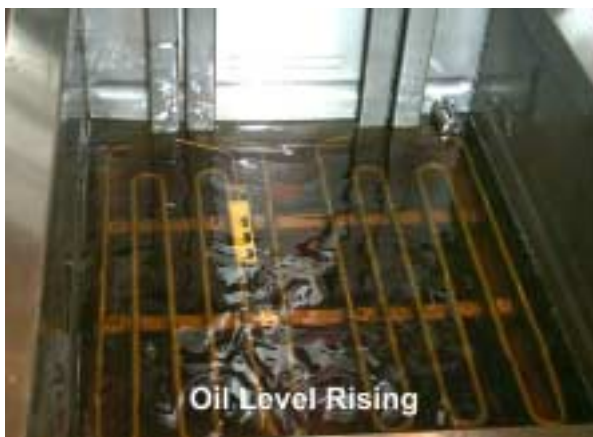
4. After all oil has drained from the pot, turn the filter handle to ON to start the pump and begin the filtering process. (For units equipped with a rear-flush option, position the control lever to either the Power Shower or Rear Flush position.) There may be a slight delay before the pump activates.



5. The oil moves through the filter, the frypot and out the open frypot-drain during a **five-minute** filtering process known as “polishing”. Polishing cleans the oil and washes small particles and sediment from the frypot.



6. 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.



⚠ CAUTION

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

⚠ CAUTION

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

⚠ WARNING

The filter pump is equipped with a manual reset switch in case the filter motor overheats or an electrical fault occurs. If this switch trips, turn off power to the filter system and allow the pump motor to cool 20 minutes before attempting to reset the switch (See illustrations, page 4-8).



Reset switch location: Old-style FPIII



Reset switch location: New-style FPIII

When the fryer is full, turn the filter handle 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. Ensure 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.



The drain handle must be closed completely to engage the safety microswitch. The fryer will not operate if the drain handle is not fully closed.

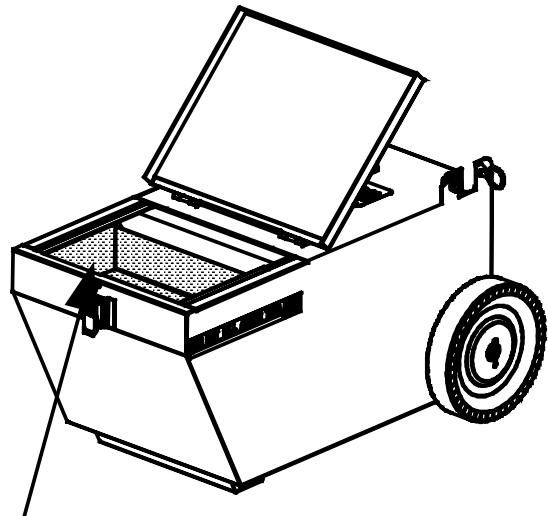
4.1.3 Shortening Disposal Unit

CAUTIONS AND WARNINGS (Read Before Using SDU)

- Do not turn fryer on with frypot empty.
- Exercise extreme caution when working with hot oil/shortening.
- Do not overfill tank past the capacity mark on tank.
- Do not tilt or move SDU unless the cover is closed and latched.
- Do not pump water or cleaning compounds through unit. Damage may occur.
- Do not allow shortening to solidify in the tank. Discard into an appropriate storage container immediately.

OPERATION

1. Turn fryer off.
2. Remove oil filter pan from filter base. Slide filter base back into fryer **without** filter pan installed. Ensure the disposal unit crumb screen is clean and properly installed.
3. Position the SDU in the filter base opening, under the fryer drain and open drain valve slowly to avoid splashing.



Clean crumb screen in place



SDU properly positioned in filter base opening



SDU properly positioned under fryer drain

4. When draining is finished, close fryer drain valve and close SDU cover securely. Transport spent oil/shortening to an appropriate storage container.
5. Position discharge pipe over the storage container.
6. Pump is self-priming and will start pumping in a few turns. Continue pumping until all oil/shortening is discharged.

H14/H17/H22 SERIES ELECTRIC FRYERS

CHAPTER 5: PREVENTATIVE MAINTENANCE

5.1 Cleaning Fryer

5.1.1 Clean Inside and Outside of Fryer Cabinet- Daily

Clean inside the fryer cabinet with a dry, clean cloth. Wipe all accessible metal surfaces and components to remove accumulated oil/shortening and dust.

Clean outside the fryer cabinet, with a clean, damp cloth soaked with dishwashing detergent. Wipe with a clean, damp cloth.

5.1.2 Clean Frypot and Heating Elements- Weekly



WARNING
NEVER operate the fryer(s) with an empty frypot. Irreparable damage to the heating elements will result.

Boiling Out The Frypot:

Clean frypot(s) as follows before filling with cooking oil/shortening:

1. Before switching the fryer(s) ON, close the frypot drain valve(s), fill empty frypot with mixture of cold water and detergent. Follow instructions on detergent when mixing.
2. Press fryer ON/OFF switch to the ON position, and melt switch to OFF on solid-state (analog) controller.
3. Set temperature control knob or digital controller to 200° F (93° C) or program computer for Boil Operation as outlined in Programming Instructions.
4. Simmer the solution for 45 minutes to one hour. Do not allow water level to drop below the bottom oil-level line in frypot during boil-out operation.



WARNING
DO NOT leave the fryer unattended during the boil-out process. If the solution foams excessively and overflows, press the ON/OFF switch to the OFF position immediately. Allow solution to settle, then continue with the boil-out process.

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

**CAUTION**

Do not run water or boil-out solution through the filtration system. Doing so will cause irreparable damage to the pump.

7. Refill the frypot(s) with clean water. Rinse the frypot(s) twice, drain and wipe with a clean towel. Thoroughly remove all water from the frypot and elements before filling the frypot with cooking oil/shortening.

5.1.3 Clean Detachable Parts And Accessories- Weekly

Wipe all detachable parts and accessories with a clean, dry cloth. Use a clean cloth saturated with detergent to remove accumulated carbonized oil/shortening on detachable parts and accessories. Rinse the parts and accessories thoroughly with clean water and wipe dry before reinstalling.

5.2 Check Calibration Of Fryer With Analog Controller- Monthly

1. After the cooking oil/shortening reaches operating temperature, let the heating elements cycle at least four times
2. Insert a thermometer or pyrometer near the temperature-sensing probe approximately three inches (7.5 mm) deep into the cooking oil/shortening. When the heating elements just cycle on after the fourth time, the thermometer should within $\pm 5^{\circ}\text{F}$ ($\pm 2^{\circ}\text{C}$) of the temperature control knob setting or computer programmed temperature.
3. To adjust, see the applicable calibration section for the controlling device installed on the fryer.

5.3 Built-in Filtration System Cleanup- Daily

**WARNING**

Never operate the filter system without cooking oil/shortening in the system.

**WARNING**

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

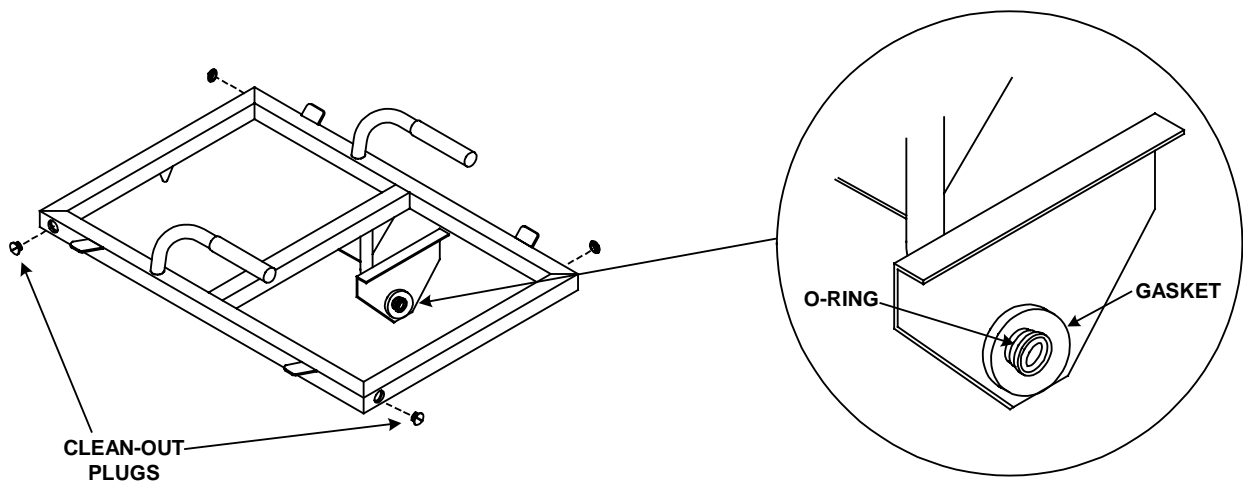
**WARNING**

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

There are no periodic preventive maintenance checks and services required for your FootPrint 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 one O-ring on the bottom of the pan, and two O-rings 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 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 solidified oil/shortening. Use a long, narrow bottlebrush, hot water and detergent to clean inside the flare. 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.



⚠ DANGER

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.

⚠ CAUTION

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

H14/H17/H22 SERIES ELECTRIC FRYERS

CHAPTER 6: OPERATOR TROUBLESHOOTING

6.1 Introduction

This section provides an easy reference guide to some of the common problems that may occur during the operation of this equipment. The troubleshooting guides that follow are intended to help correct, or at least accurately diagnose, problems with this 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 fail to close a valve completely. Most importantly, always try to establish a clear idea of why a problem has occurred. Part of any 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, too. 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.

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

- Verify that electrical cords are plugged in and that circuit breakers are on.
- Verify that frypot drain valves are fully closed.

 **WARNING**

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

 **DANGER**

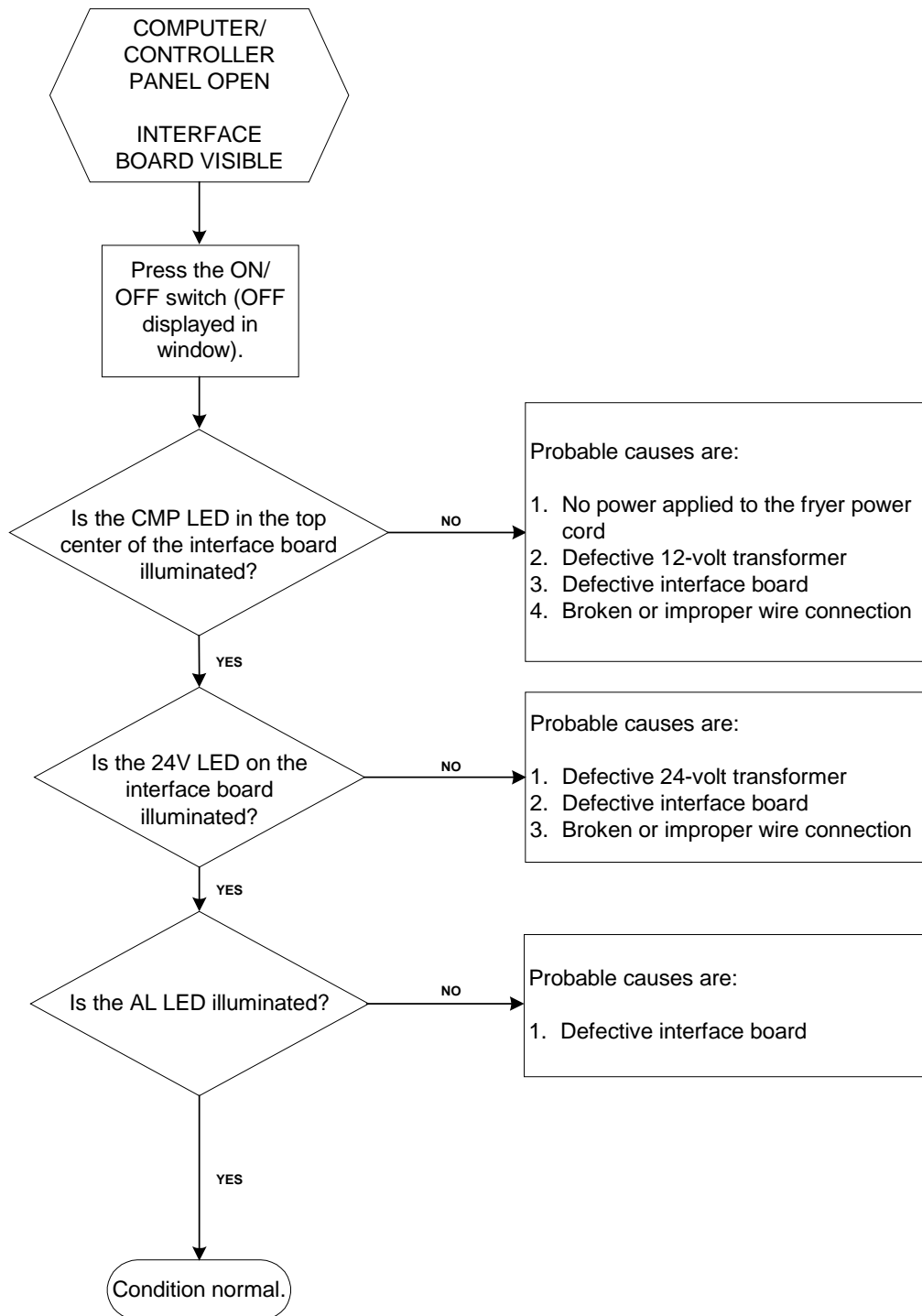
Use extreme care when testing electrical circuits. Live circuits will be exposed.

 **WARNING**

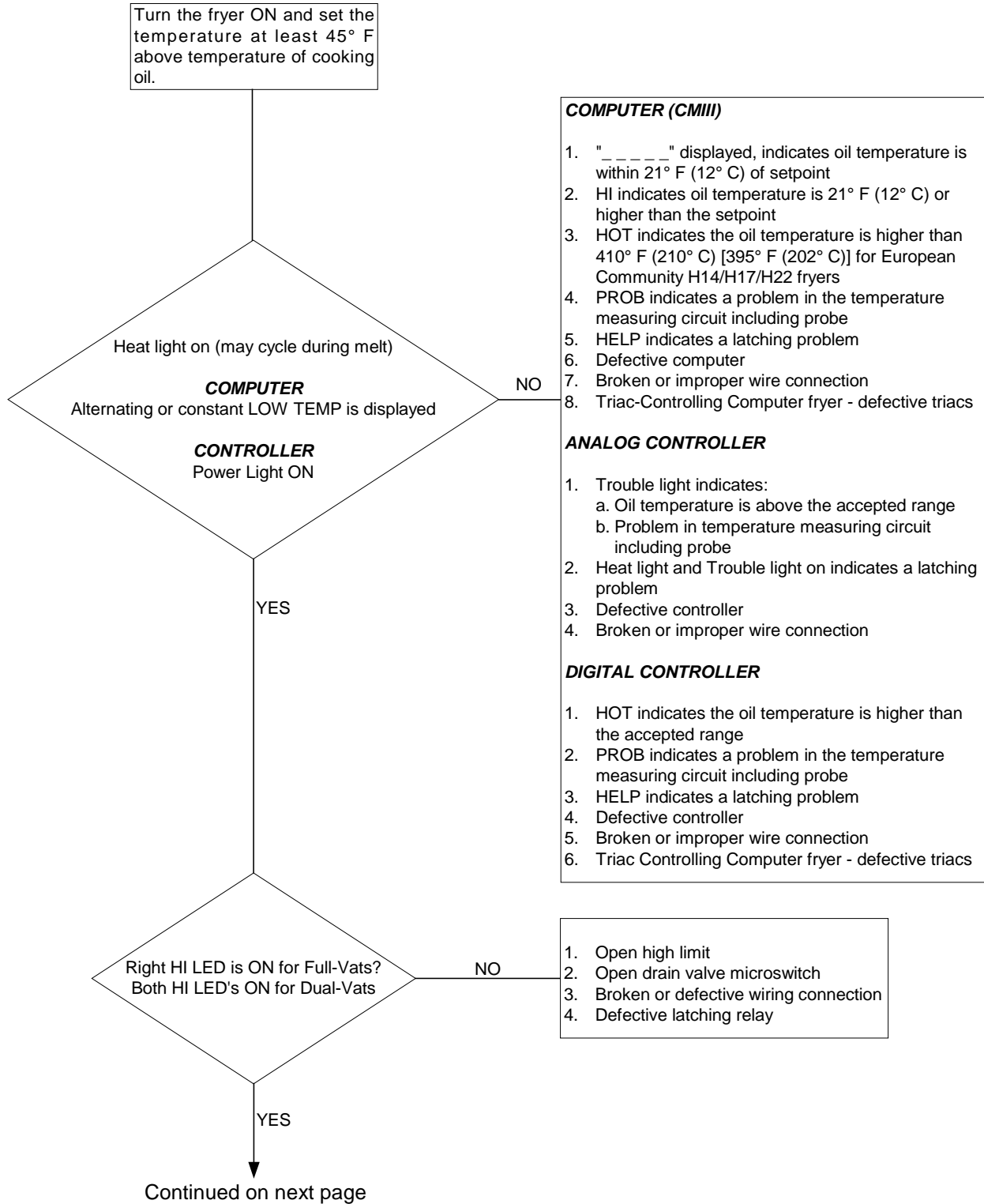
Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. The equipment should be unplugged when servicing, except when electrical tests are required.

6.2 Troubleshooting Fryers and Controllers

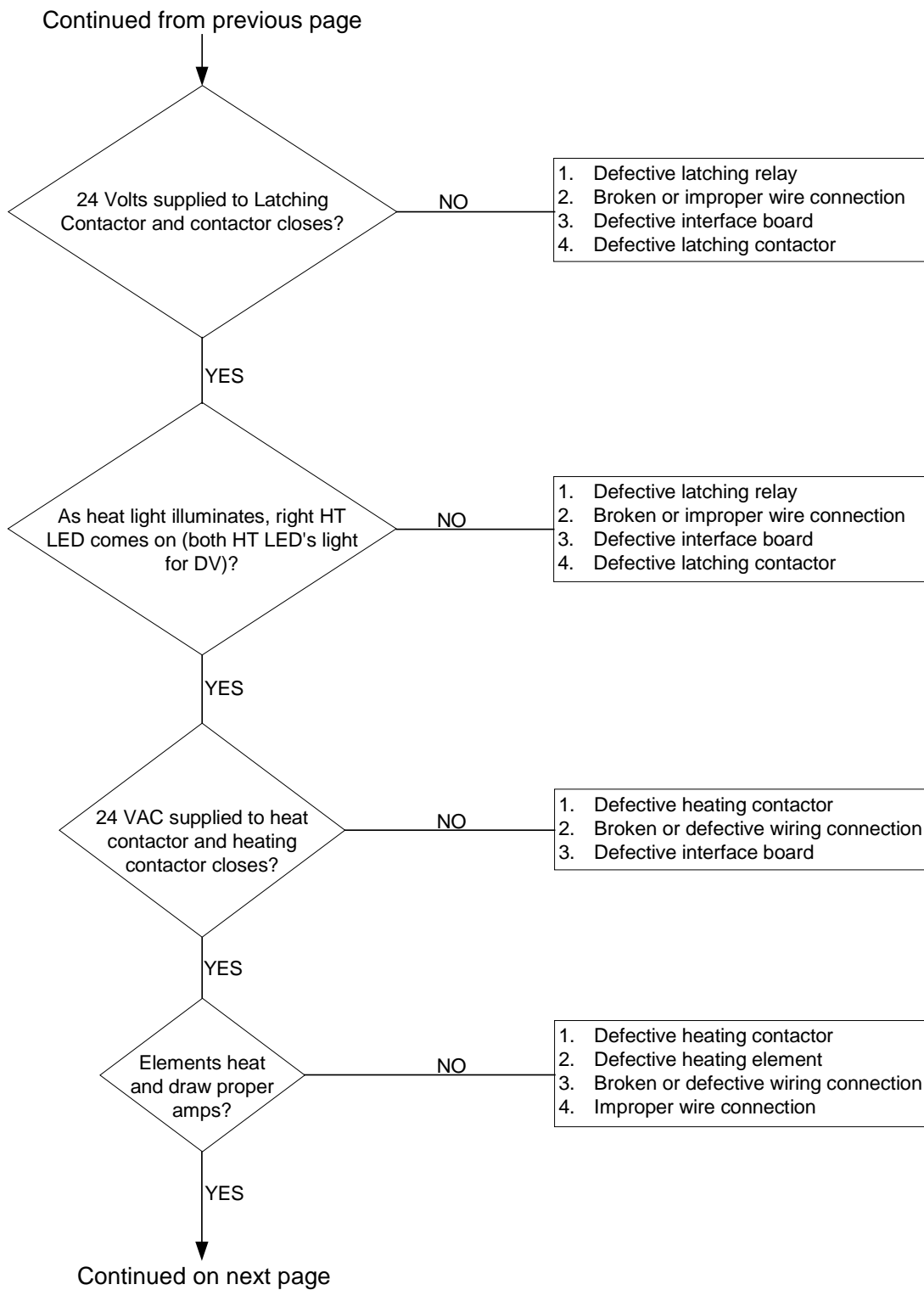
6.2.1 Fryer Off



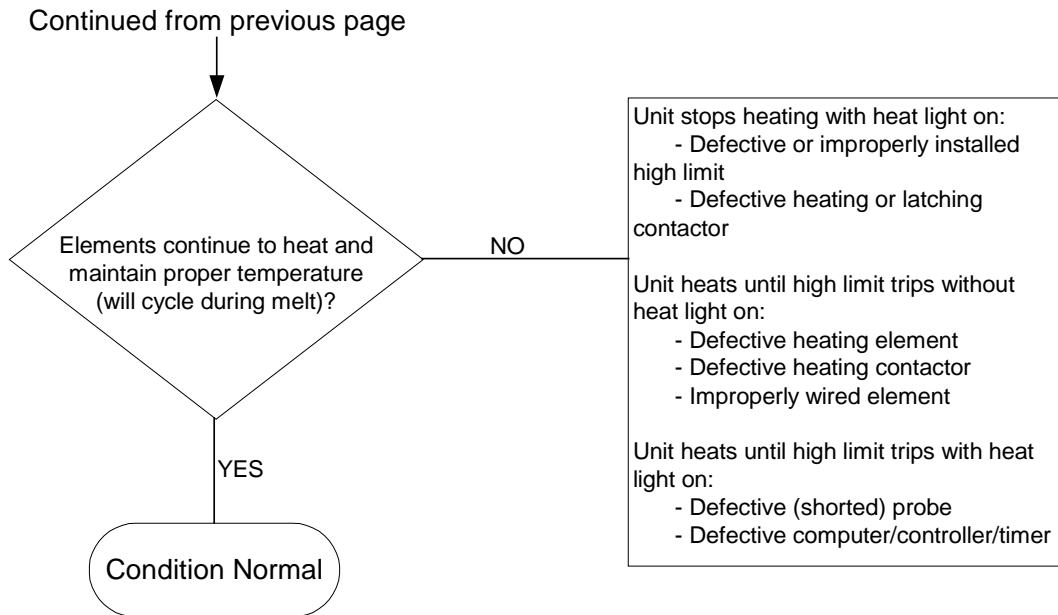
6.2.2 Fryer Heating Oil



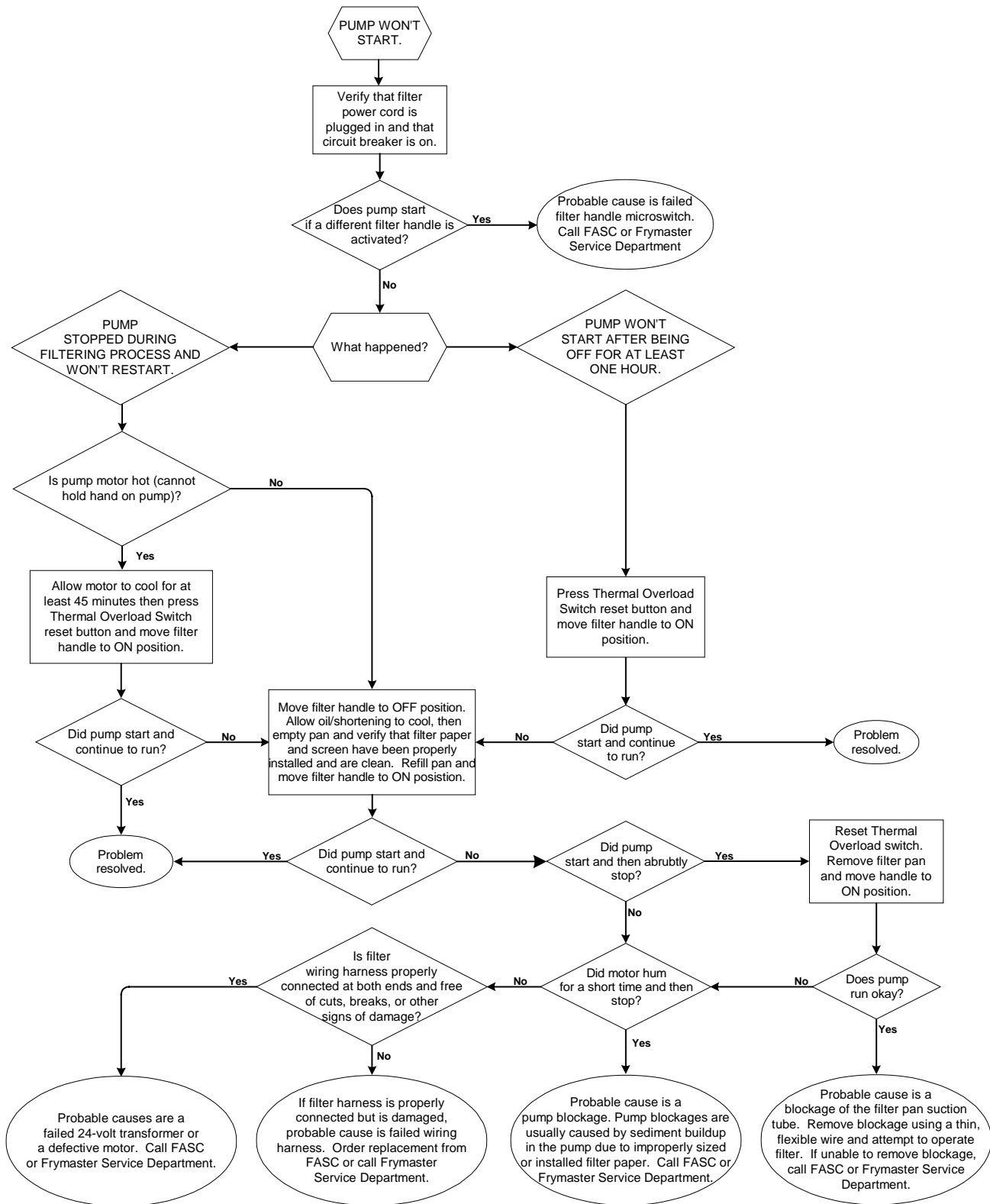
6.2.2 Fryer Heating Oil (cont.)



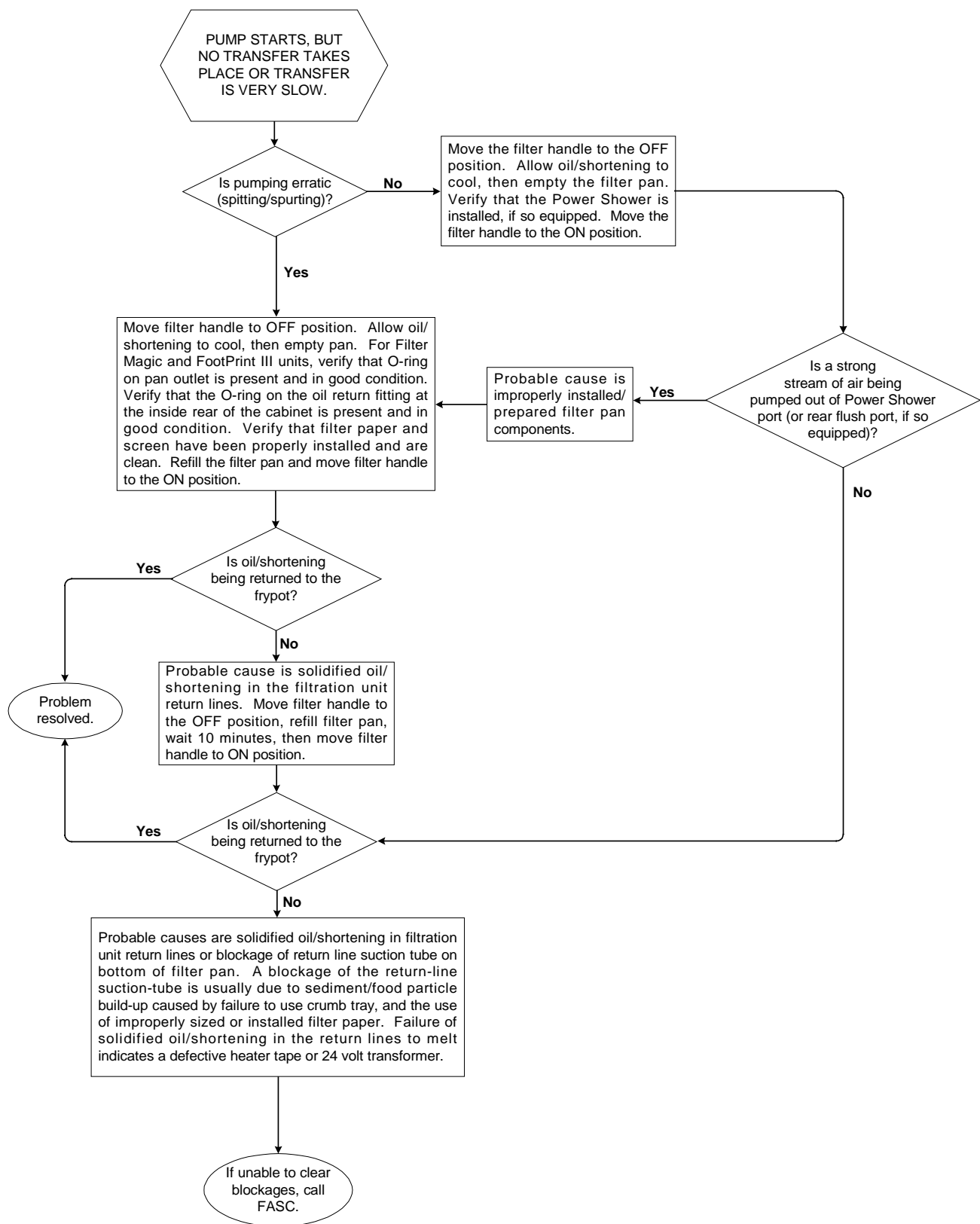
6.2.2 Fryer Heating Oil (cont.)



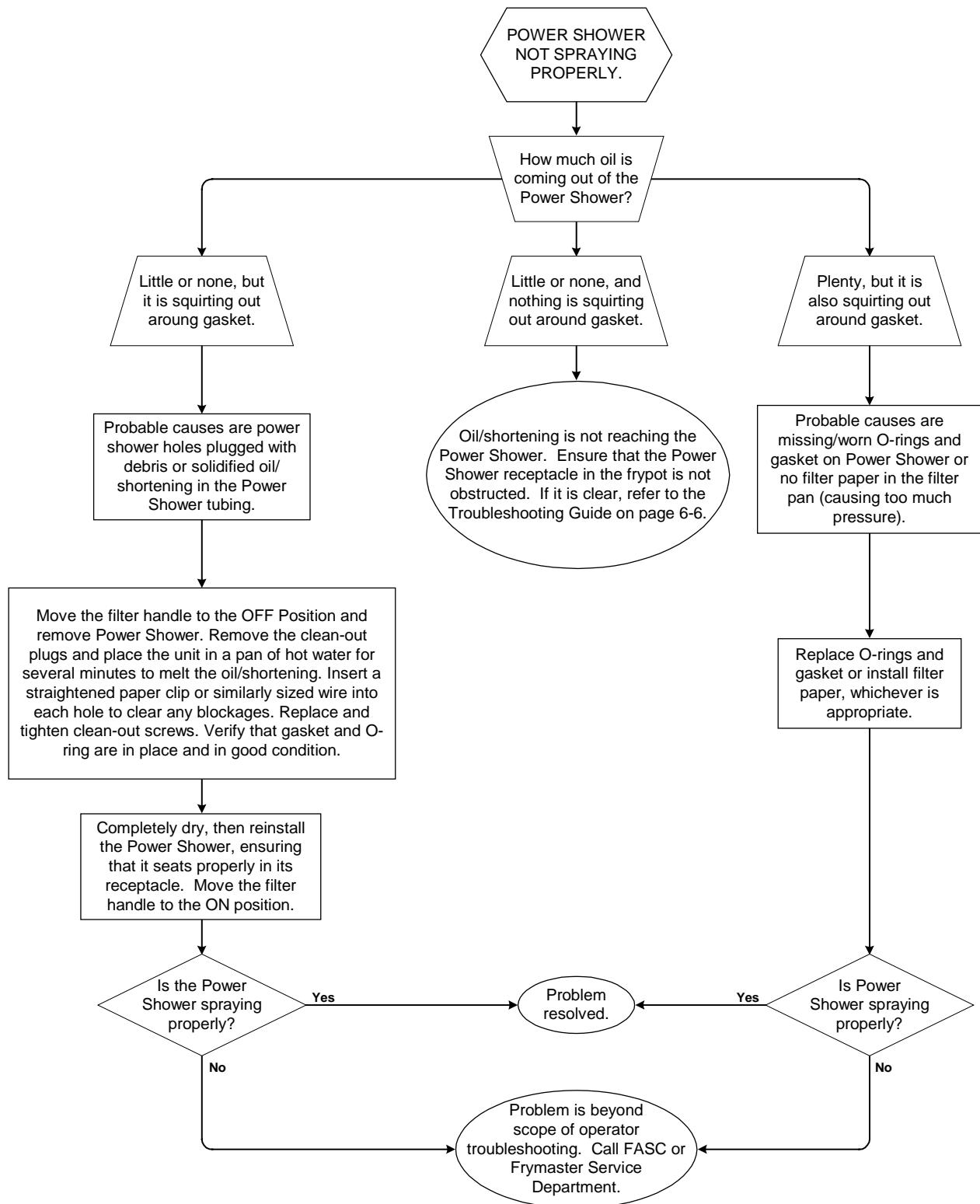
Troubleshooting The Built-in Filtration System



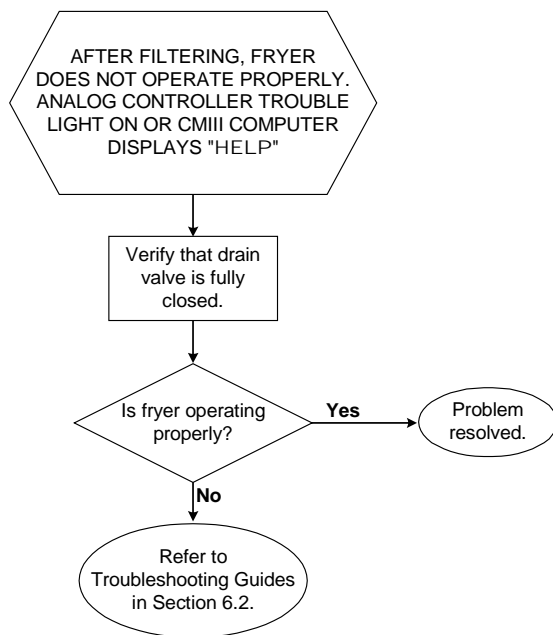
Troubleshooting The Built-in Filtration System (cont.)



Troubleshooting The Built-in Filtration System (cont.)



Troubleshooting The Built-in Filtration System (cont.)



H14/H17/H22 SERIES ELECTRIC FRYERS

APPENDIX A: SERIES CODE HISTORY

SERIES CODE*	DATE EFFECTIVE	DESCRIPTION
AN	3/21/96	Revert to previous code until high-limit is rectified (Special tilt housing/cab back for In-N-Out Burger.).
AO	11/5/95	CE approval modifications
AP	4/22/96	FPIII filter box relay change
AQ	8/27/96	MAC100B
AR	11/5/96	Probe, pot and element change for export.
AS	12/3/96	CE modifications
AT	10/1/98	Remove bracket
AU	5/27/98	Control cord change
AW	2/1/99	New Filter Magic pan
AX	8/23/99	New design oil return
* Codes may be different for some configurations. Contact Frymaster Service (800-551-8633) for the correct series codes.		