



# U.S. Navy Electric Fryers

Installation, Operation, Service and Parts Manual  
FPH17, H14/H17/H22, H14 Sub Series



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

**24-Hour Service Hotline 1-800-551-8633**  
\* 8195184\*

819-5184  
01-00

**FRYMASTER ELECTRIC FRYERS ARE MANUFACTURED FOR USE WITH THE TYPE VOLTAGE SPECIFIED ON THE FRYER RATING PLATE LOCATED ON THE FRYER DOOR. FOR PROPER INSTALLATION PROCEDURES IN THE UNITED STATES, REFER TO THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE ANSI/N.F.P.A. NO. 70; IN CANADA, CANADIAN ELECTRICAL CODE PART 1, CSA-22.1. INFORMATION ON THE CONSTRUCTION AND INSTALLATION OF VENTILATING HOODS MAY BE OBTAINED FROM THE LATEST EDITION OF THE "STANDARD FOR THE INSTALLATION OF EQUIPMENT FOR THE REMOVAL OF SMOKE AND GREASE LADEN VAPORS FROM COMMERCIAL COOKING EQUIPMENT, "N.F.P.A. NO. 96. COPIES OF THESE ELECTRICAL STANDARDS ARE AVAILABLE FOR THE NATIONAL FIRE PROTECTION ASSOCIATION, BATTERY MARCH PARK, QUINCY, MASS. 02269**

** WARNING**

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

** WARNING!**

**The front ledge of the fryer is not a step. Do not stand on the fryer. Serious injury can result from contact with hot oil, slips or falls.**

** WARNING!**

**The crumb tray must be emptied into a fireproof container at the end of each day. Some food particles can spontaneously combust if left in certain shortening.**

**THE FRYER(S) MUST BE INSTALLED WITH A SIX-INCH (15 cm) CLEARANCE AT BOTH SIDES AND ADJACENT TO COMBUSTIBLE CONSTRUCTION. A MINIMUM OF 24-INCHES (60 cm) SHOULD BE PROVIDED AT THE FRONT OF THE FRYER(S) DOOR.**

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

**THIS MANUAL SHOULD BE KEPT IN A CONVENIENT LOCATION AND REFERRED TO WHEN ANY PROBLEM OCCURS AND FOR FUTURE REFERENCE.**

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\*For FPH17 only

# CHAPTER 1: PARTS AND SERVICE INFORMATION

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Parts orders must be placed directly with your local Frymaster Parts Distributor. A list of Frymaster Parts Distributors was included with the fryers when shipped from the factory. If you do not have access to this list, please contact the Frymaster Technical Services Department at 1-800-551-8633 or 1-318-865-1711.

To help speed your order, the following information is required:

*Model Number:* \_\_\_\_\_

*Serial Number:* \_\_\_\_\_

*Type of Gas or Voltage:* \_\_\_\_\_

*Part Number:* \_\_\_\_\_

Service information may be obtained by calling your local Factory Authorized Service Center. A list of these agencies was packed with your fryer.

Service information may also be obtained by calling the Frymaster Technical Services Department. When calling, please have the following information available:

*Model Number:* \_\_\_\_\_

*Serial Number:* \_\_\_\_\_

*Type of Gas or Voltage:* \_\_\_\_\_

*Nature of Service Problem:* \_\_\_\_\_

And other information that may be helpful in solving your service problem.

**Note:** *Retain and store this manual in a safe place for future use. Additional copies may be obtained from the Frymaster Technical Services Department.*

# CHAPTER 2: IMPORTANT INFORMATION

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## 2.1. Introduction

The H14, H17, H22 Series are deep-well, single open-pot fryers. FPH14, FPH17, FPH22 filter models come in single, double, triple, and four-fryer configurations. The H14 for use in submarines is a single only. Read the instructions in this manual thoroughly before attempting to install, operate or service this equipment.

## 2.2. Operating, Installation, and Service Personnel

Operating information for FRYMASTER equipment has been prepared for use by qualified and/or authorized operating personnel only.

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.

## 2.3. Definitions

### Qualified and/or Authorized Operating Personnel

Qualified or authorized operating personnel are those who have carefully read the information in this manual and have familiarized themselves with the equipment functions or have had previous experience with the operation of equipment covered in this manual.

### Qualified Installation Personnel

Qualified installation personnel are: individuals, a firm, corporation, or a company which either in person or through a representative are engaged in, and are responsible for the installation of electrical wiring from the electric meter, main control box, or service outlet to the electrical appliance. Qualified installation personnel must be experienced in such work, be familiar with all electrical precautions required, and have complied with all requirements of applicable national, European Community and local codes.

### Qualified Service Personnel

Qualified service personnel are those familiar with FRYMASTER equipment and have been authorized by THE FRYMASTER CORPORATION. All authorized service personnel are required to be equipped with a complete set of service parts manuals and stock a minimum amount of parts for FRYMASTER equipment.

A list of Frymaster Factory Authorized Service Centers is included with the fryer when shipped from the factory. If you do not have access to this list, please contact the Frymaster Customer Service Department, using the number listed on the front of this manual. Failure to use qualified service personnel will void the Frymaster warranty.

## CHAPTER 2: IMPORTANT INFORMATION

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### 2.4. Shipping Damage Claim Procedure

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

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

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

<p><b>FRYMASTER DOES NOT ASSUME RESPONSIBILITY FOR DAMAGE OR LOSS INCURRED IN TRANSIT</b></p>
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## CHAPTER 3: INSTALLATION INSTRUCTIONS

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**PROPER INSTALLATION IS ESSENTIAL TO EFFICIENT TROUBLE-FREE OPERATION. ANY ALTERATION OF THE EQUIPMENT VOIDS THE FRYMASTER WARRANTY.**

Before installing the newly arrived equipment, inspect it carefully for visible and concealed damage. See *Shipping Damage Claim Procedure*, Section 2.4.

### 3.1 Fryer Leg Information

The following drawings give the leg patterns for the FPH17 in two, three and four- vat configurations, which are commonly placed on ships and the single-vat fryer, which is used on submarines. (See Page 3-3, Sub Fryer base).

 **CAUTION**

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.

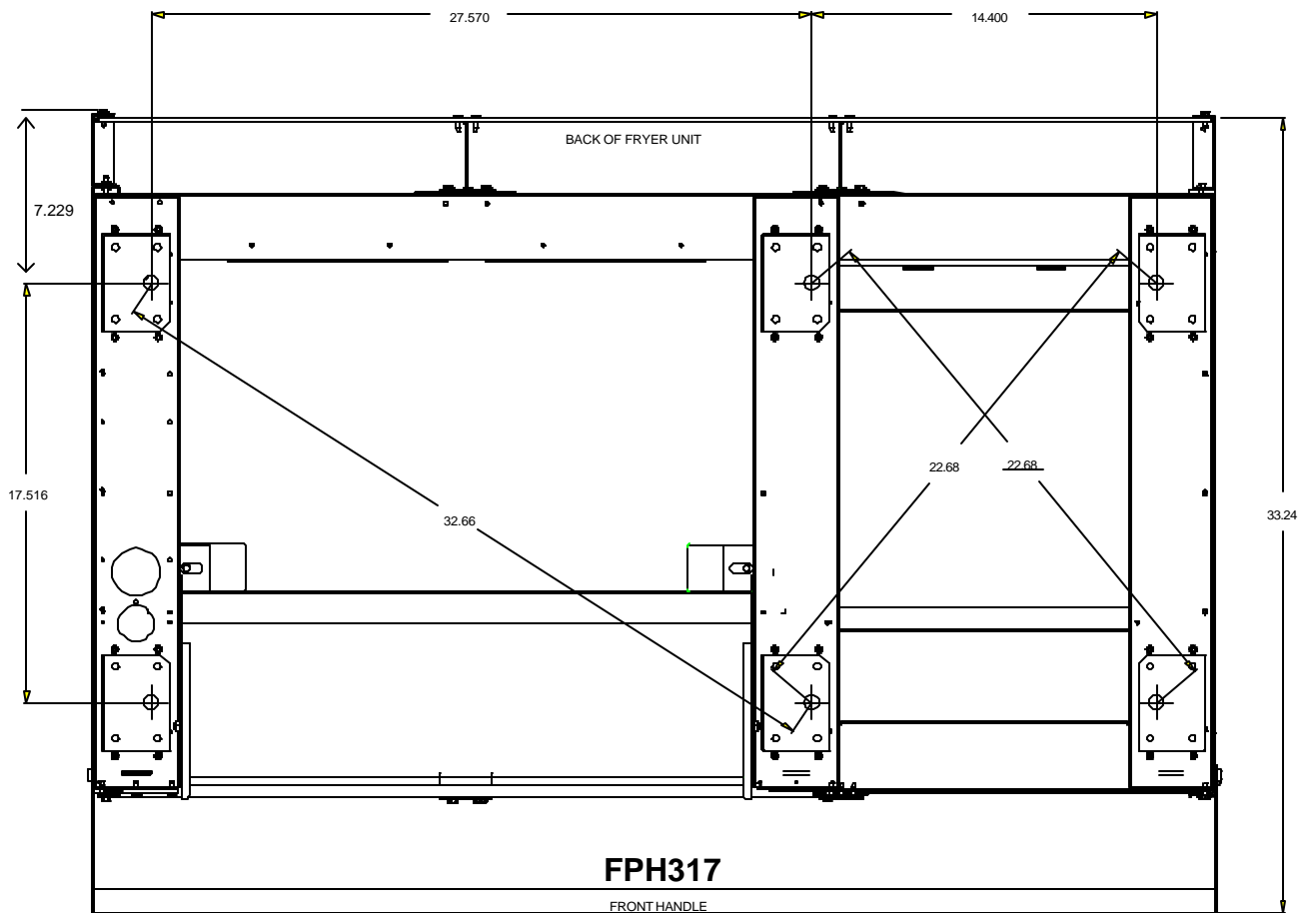
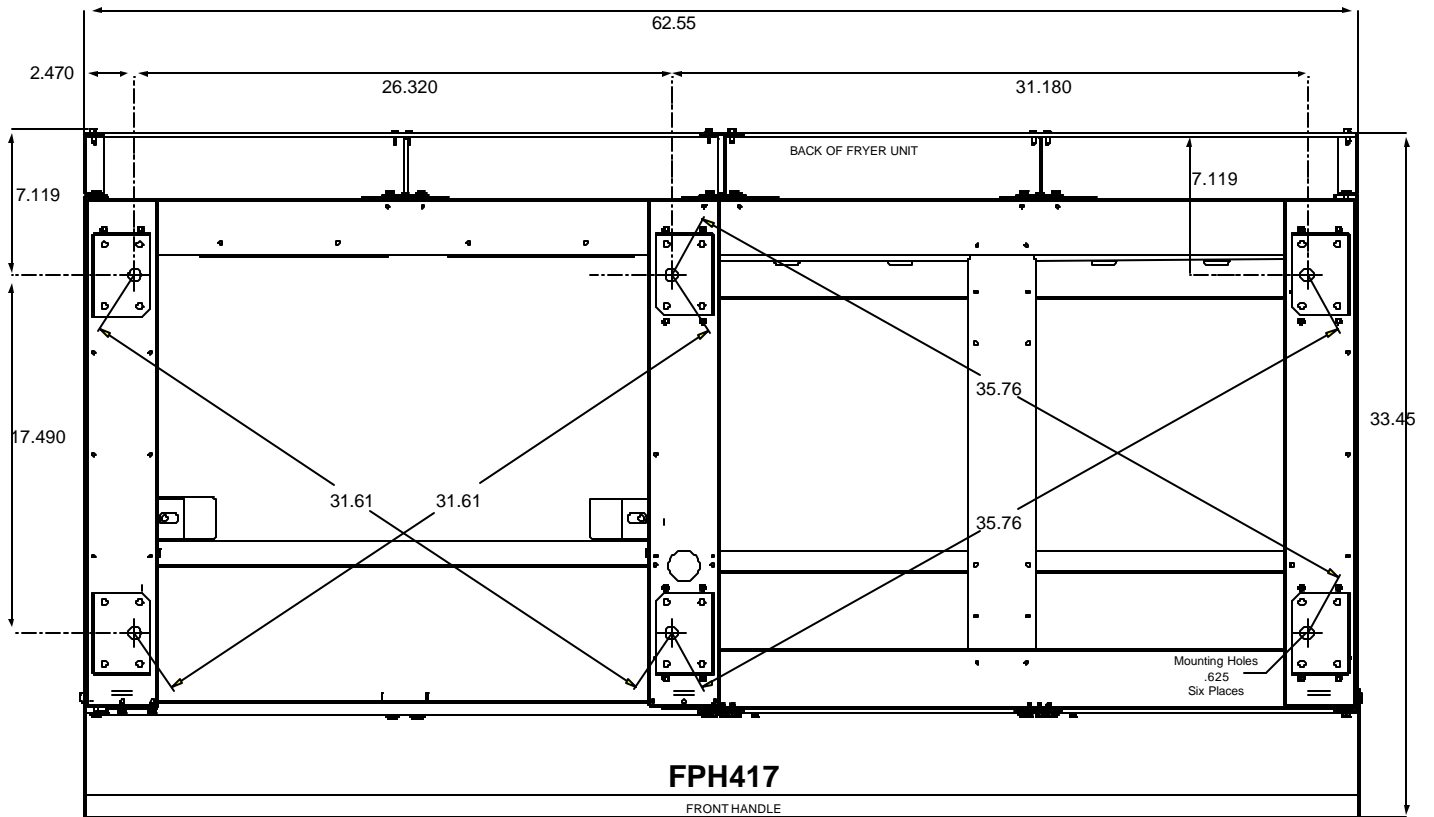
 **CAUTION**

Any flashing on or around the cap covering the top of the heating elements must be removable.

 **CAUTION**

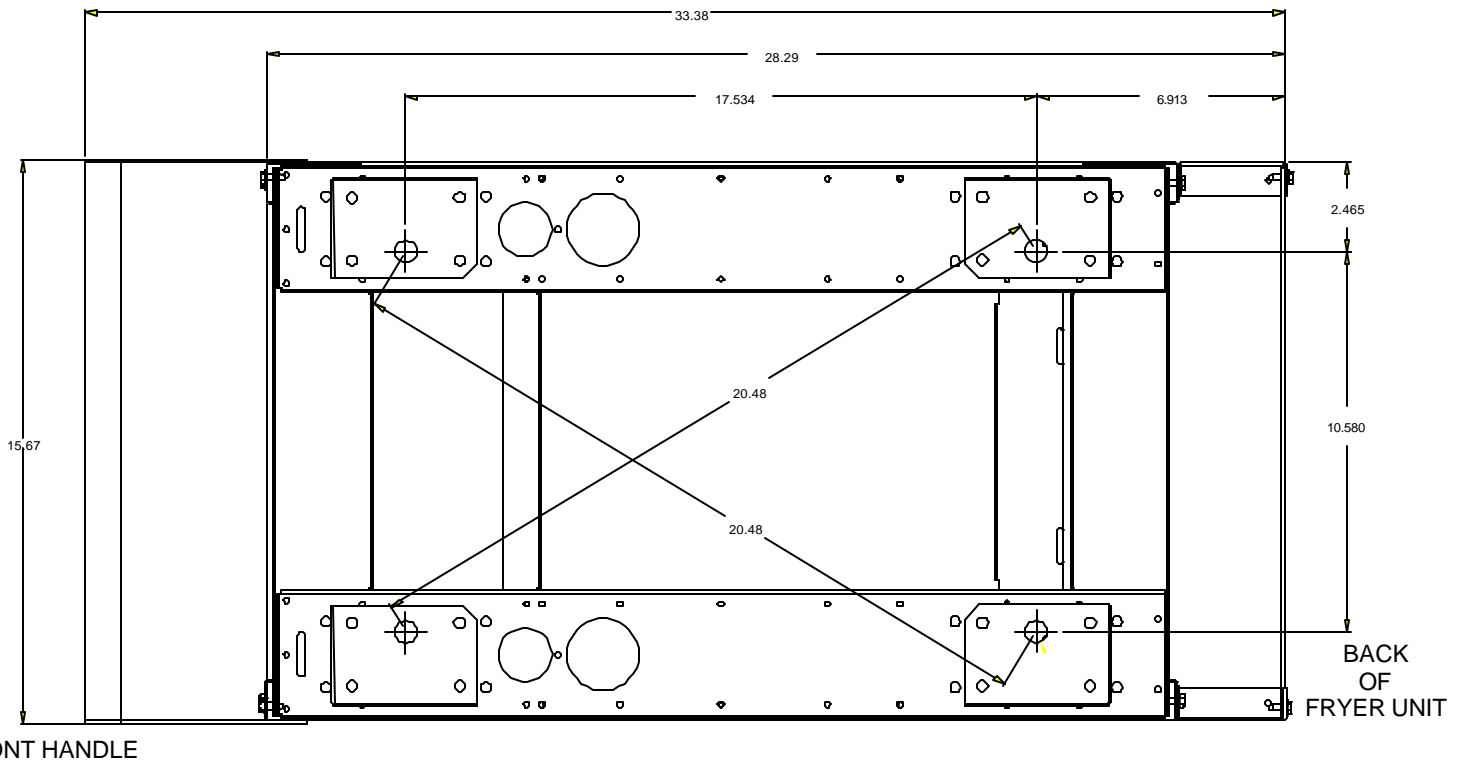
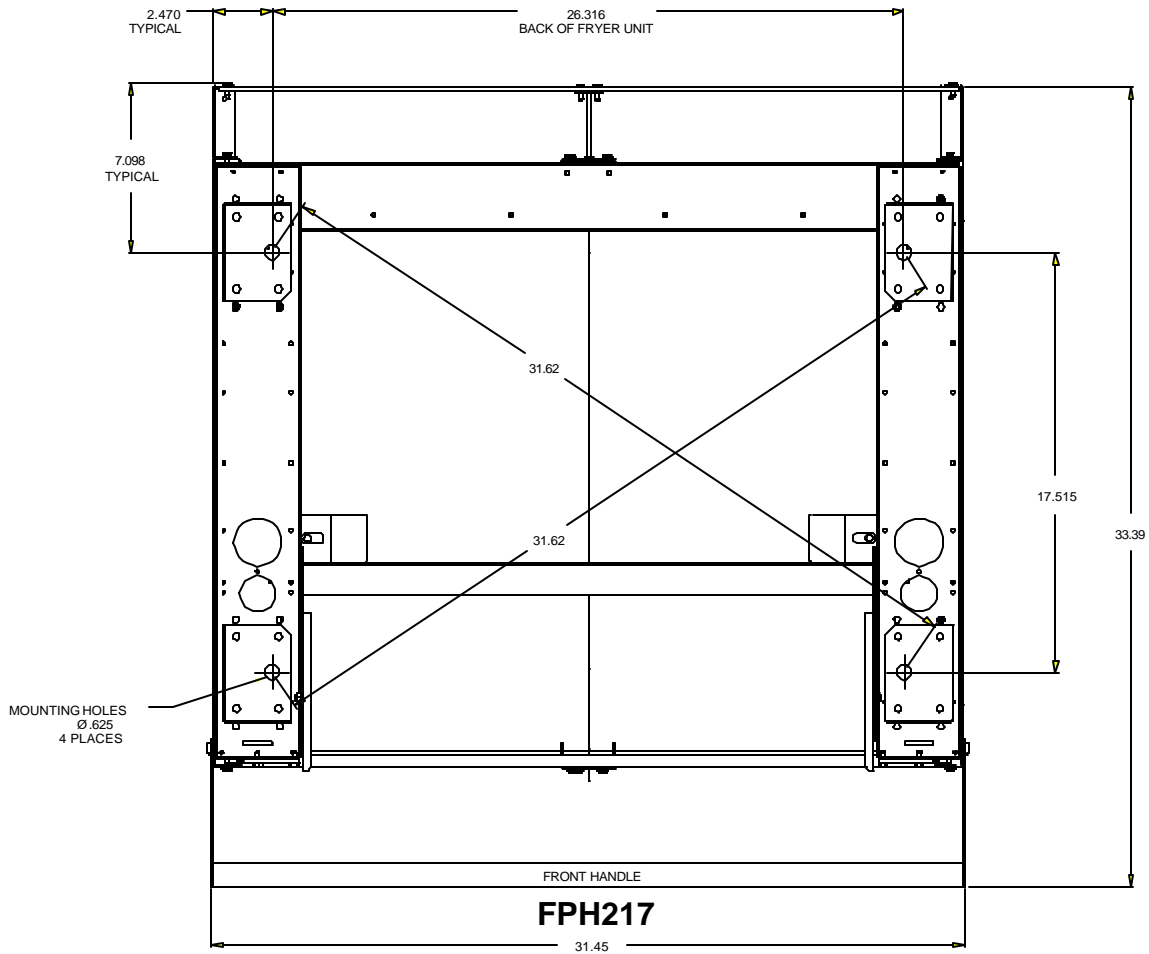
Prior to installation, make sure the foundation is adequate to secure the fryer front and rear. Depending on existing conditions, most foundations can be modified to suit the fryer's base plate.

# CHAPTER 3: INSTALLATION INSTRUCTIONS



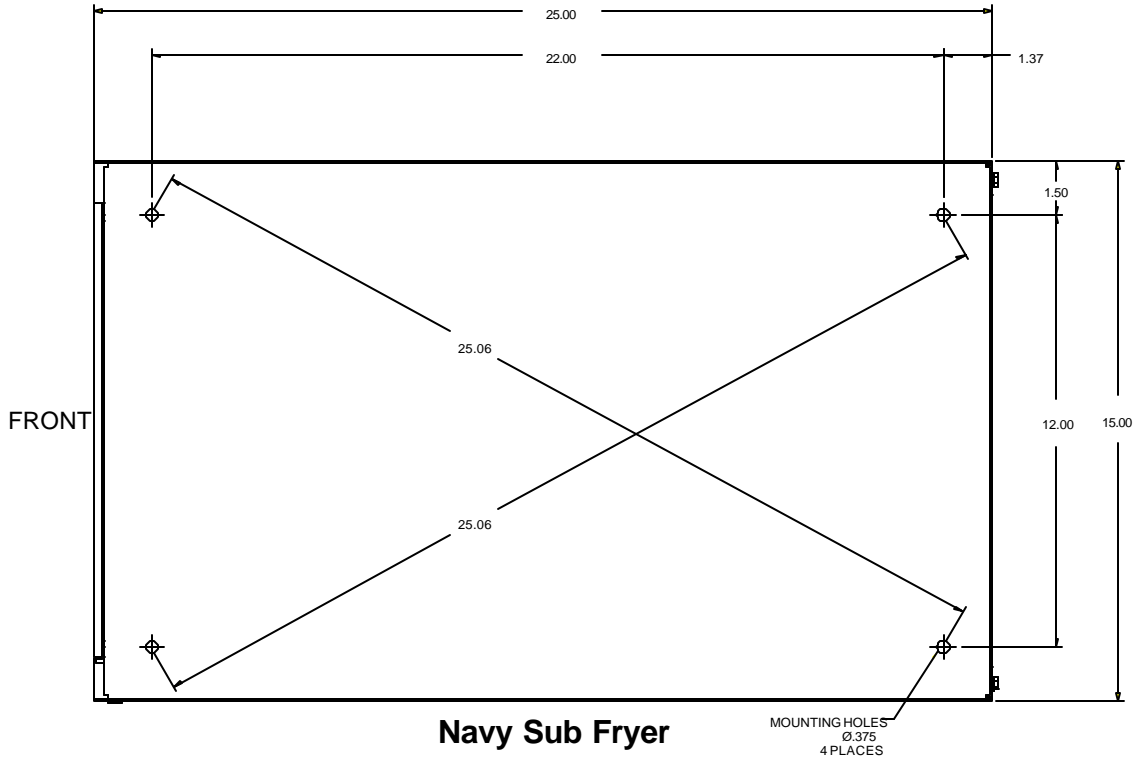


# CHAPTER 3: INSTALLATION INSTRUCTIONS



**H14/17 Single for Surface Ship**

# CHAPTER 3: INSTALLATION INSTRUCTIONS



**Note:** In most cases, the contactor box in a Sub Fryer will have to be removed to secure baseplate to existing foundation.

**Note:** If nut cannot be secured to bolt from deck, the hole will have to be drilled and tapped.

If it is necessary to install legs, use the instructions provided in the accessories package shipped with the fryer.

## **CHAPTER 4: ELECTRICAL SERVICE CONNECTIONS**

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Connections should be made by means of an approved, flexible-metallic or rubber-covered electrical cable and quick-disconnect plug. The fryers may be installed with “hard-wired” connections, but use of quick-disconnect plugs will facilitate service if required. This connection should be made to the fryer power input terminal block. The terminal block is located in the contactor box in the bottom of the fryer. **CONNECTIONS MUST BE MADE BY QUALIFIED PERSONNEL ONLY AND MEET NATIONAL AND LOCAL CODES**

 **CAUTION**

The fryer(s) **MUST** be connected to the voltage and phase as specified on the rating and serial number plate located on the fryer door. To determine the proper wire size and amperage service per fryer, use the chart on the next page.

 **CAUTION**

A ground wire **MUST** be connected to the **GROUND** terminal near the input power terminal block.

 **CAUTION**

Note the following before connecting the fryer to an emergency cutoff system:

- Be sure that each fryer is connected to a dedicated set of contacts in the emergency cutoff system.
- Do not attempt to connect the contacts in series.
- Do not connect more than one fryer to each set of contacts.
- The contacts **MUST BE** normally closed contacts that open during the emergency.
- The contacts **CANNOT** have an external voltage applied.

## CHAPTER 5: POWER REQUIREMENTS

### WARNING

For power supply connection, use copper wire only, suitable for at least 167°F(75° C).

MODEL	VOLTAGE	PHASE	WIRE SERVICE	MIN. SIZE	AWG (mm <sup>2</sup> )	AMPS PER LEG		
						L1	L2	L3
H14	440	3	3	8	(10)	19	19	19
H14 (Sub)	440	3	3	8	(10)	19	19	19
H14	480	3	3	8	(10)	17	17	17
H17	440	3	3	6	(16)	23	23	23
H17	480	3	3	6	(16)	21	21	21
H22	440	3	3	6	(16)	29	29	29
H22	480	3	3	6	(16)	27	27	27

The FPH17 fryer is equipped with a filter system, which requires 120VAC, 20 amp service. The filter-equipped fryer also has these power requirements per vat:

MODEL	VOLTAGE	PHASE	WIRE SERVICE	MIN. SIZE	AWG (mm <sup>2</sup> )	AMPS PER LEG		
						L1	L2	L3
FPH*17	480	3	3	6	(16)	21	21	21
Filter	120	1	3	Standard cord		20		

\* Denotes number of vats. For example, an FPH317 has three vats.

**The electrical power supply for the fryers MUST be the same as the voltage indicated on the rating and serial number plate located on the fryer door.**

## CHAPTER 6: OPERATING INSTRUCTIONS

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### 6.1. After Fryer(S) Have Been Installed At Frying Station:

**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.*

1. Close fryer drain valve(s) and fill frypot with water to the bottom oil level line on the rear wall of vessel.
2. Boil out frypot(s). See *Boil Out* instructions on this page.
3. Drain, clean, and fill frypot(s) with cooking oil. See **Section 6.3, *Filling With Shortening***.
4. Check thermostat calibration on fryers with solid-state controller.

### 6.2 Boiling Out The Frypot:

 **WARNING**

Never run water through built-in filtration system

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

1. Before switching the fryer(s) ON, close the frypot drain valve(s), fill empty frypot with mixture of cold water and Frymaster Fryer 'N' Griddle Cleaner. Other heavy-duty low sudsing degreaser compounds may also be used. Follow instructions on bottle when mixing.
2. Press fryer ON/OFF switch to the ON position.
3. Set thermostat knob to 200°F (93°C).
4. Allow the solution to simmer for 45 minutes to one hour. Do not permit the water level to drop below the bottom oil-level line in frypot during boil-out operation.
5. Carefully monitor the fryer during this time to prevent solution from boiling over.

 **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.

6. Turn the fryer ON/OFF switch(es) to the OFF position.

## CHAPTER 6: OPERATING INSTRUCTIONS

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7. Add sufficient cold water to lower temperature to a safe level. Drain out the solution and clean the frypot(s) thoroughly.
8. Refill the frypot(s) with clean water. Rinse the frypot(s) twice, drain and dry inside of pot thoroughly to remove all residual water.

 **CAUTION**

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

### 6.3 Filling With Cooking Oil

*Note: Cooking oil/shortening capacity of H14, H17, and H22 Series fryers is 50 lbs. (25 liters) at 70°F (21°C). The capacity of the H14 Submarine fryer is 47 pounds.*

#### **Before filling the frypot(s) with cooking oil/shortening:**

1. Close the frypot drain valve.
2. Place the power switch(es) to the OFF position.
3. Remove the basket support rack..
4. Fill the empty frypot(s) to the bottom oil-level line.
5. Replace the basket support rack on top of the heating element.
6. Place the ON/OFF switch to the ON position.
7. Set the controller for normal cooking temperature.

## CHAPTER 6: OPERATING INSTRUCTIONS

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### 6.4 Before Relocating Fryer for Service

 **WARNING**

**Moving a fryer filled with hot cooking oil may cause splattering. Extreme care must be exercised. It is recommended that the operator or servicer follow the draining instructions of this manual before attempting to relocate the fryer for service.**

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

1. Turn off fryer controller. Disconnect the electrical power from the source.
2. Relocate the fryer for service accessibility.
3. After servicing is complete, return the fryer to the operating position. Reconnect all electrical power into source. Secure fryers into position. Refill fryer and resume use.

### 6.5 Shutting Fryer(S) Off

1. Press fryer controller ON/OFF switch(es) to OFF position.
2. Put frypot cover(s) in place over frypot(s).

## CHAPTER 6: OPERATING INSTRUCTIONS

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### 6.6 Testing Dual Hi-Limit Controls

*Note: Perform this test before replacing old shortening. This high temperature test will greatly reduce life of new shortening. Start test with the fryer turned ON and with the oil at normal frying temperature. Stir the oil thoroughly to ensure even distribution and temperature and place a pyrometer sensing probe in center of frypot about one-inch deep. When verifying oil temperature, use a pyrometer indicating 0-600<sup>0</sup>F and a pyrometer sensor probe. A high temperature thermometer may be used instead of a pyrometer.*

 **CAUTION**

If the result listed for each step does not occur, turn off fryer at the main circuit breaker panel and do not use the fryer. Call service agency.

To test the high limit thermostats, proceed as follows:

- STEP 1:** Press the hi-limit test switch to the 1<sup>st</sup> hi-limit switch and hold in that position until the trouble light comes on. The trouble light should come in between 410°F + or - 3°F, and the heating elements must shut off. The HEAT light goes out and the TROUBLE light comes on. Release the test switch.
- STEP 2:** Press the hi-limit test switch to the 2<sup>nd</sup> hi-limit position and hold in that position until the 2<sup>nd</sup> hi-limit light comes on. It should illuminate between 430°F and 460°F, and the heating elements must shut off. Release the test switch. All fryers connected to the external shunt power supply will be shut off completely and all control panel lights will be extinguished. For fryers not connected to an external shunt power supply, the 2<sup>nd</sup> hi-limit light will come on and the fryer will shut off.
- STEP 3:** Turn power switch to the OFF position.
- STEP 3:** Allow the cooking oil to cool to below normal frying temperature. When the power switch is again turned ON, the heaters will turn on and the operating thermostat will resume control of the temperature. If the red trouble light remains on instead, allow the oil additional time to cool.



# CHAPTER 7: DRAINING AND MANUAL FILTERING

## WARNING

Use care when draining and filtering cooking oil/shortening to avoid serious burns.

## 7.1 Filtering

If you are using a filter other than a **FRYMASTER** built-in filter system, consult the filter unit manufacturer's operating instructions for the recommended procedures. Instructions for using the **FRYMASTER** Footprint systems are included in Chapter 16 of this manual.

### 7.1.a Manual Filtering

The following procedure is recommended to drain and filter your cooking oil/shortening when a filter machine is not available:

1. Turn the fryer controller power switch to the OFF position. Screw the drain extension pipe (provided with the fryer) tightly into the drain valve. Make sure the curved end of the tube is pointing down.
2. Position a metal container with sealable cover under the drain pipe. The metal container must be able to withstand the hot cooking oil and other hot liquids and be of sufficient capacity to hold the contents of the frypot. Frymaster recommends that a Frymaster filter cone holder and filter cone be used when a filter machine is not available. If you are using the Frymaster filter cone holder and cone, be sure the filter holder rests firmly on the metal container.
3. Open the drain valve slowly to avoid splattering. If splattering occurs, exercise extreme caution.
4. If the drain valve becomes clogged with food particles, use the Fryer's Friend (poker-like tool). **Use this tool from inside of the frypot ONLY.** Grip the tool on the handle as far as possible from the hot shortening in the frypot. **DO NOT HAMMER ON THE DRAIN VALVE**, as this will damage the drain valve ball.

## WARNING

Never run water through built-in filtration system.

## DANGER

**Do not insert the tool into the front of the drain valve to unclog the valve. Hot oil will rush out, creating an extreme burn hazard!**

## CAUTION

Allow the shortening to cool to 100°F (38°) or lower before transporting the container and removing the drain pipe. Exposure to oil at temperatures above 140°F (60°C) can result in severe burns.

5. After draining the oil/shortening, clean all food particles and residual oil/shortening from the frypot before refilling.
6. Close the drain valve and refill the frypot with clean (or filtered) oil/shortening.

## CHAPTER 8: NAVY SHIPBOARD CONTROLLER

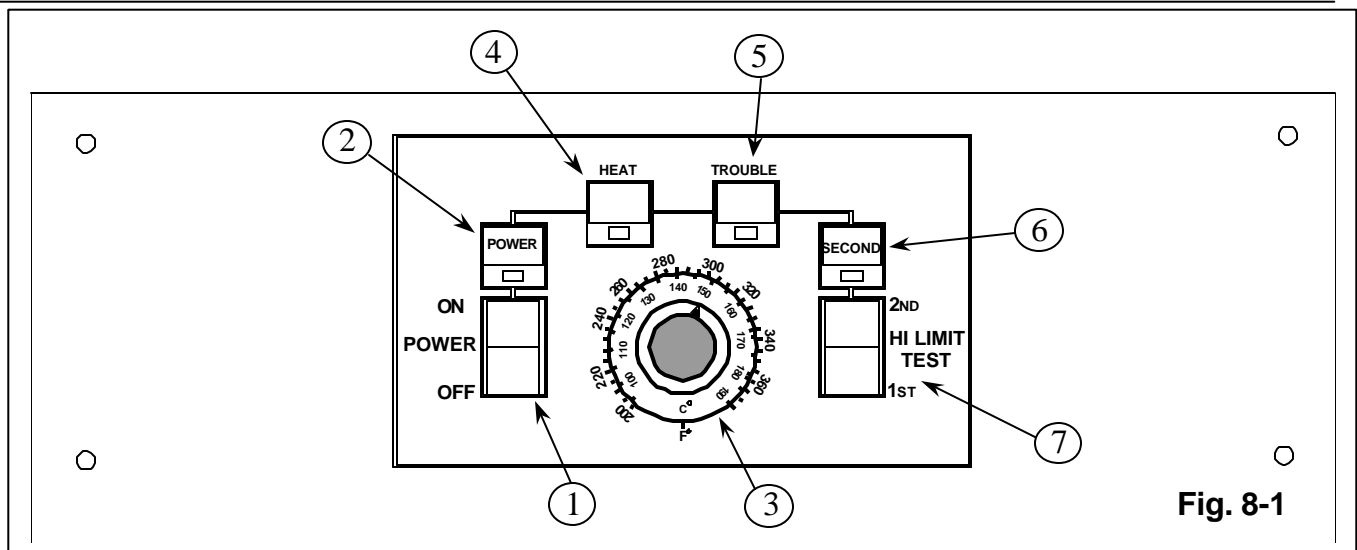


Fig. 8-1

### ITEM NO.

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. Second High-Limit Light – indicates fryer has overheated and the high limit has shut fryer off.
7. High-Limit Test Switch – Tests high-limit thermostats.

### CAUTION

Fryer must be filled with oil, shortening, or water before turning on controller.

### 8.1 Temperature Calibration

1. Insert a good grade thermometer or pyrometer probe into the cooking oil/shortening near the fryer temperature-sensing probe.
2. Turn thermostat knob to frying temperature.
3. Let elements cycle on and off automatically three times to allow the cooking oil temperature to be uniform.
4. When the elements start for the fourth time, the pyrometer reading should be within 5°F (2°C) of the thermostat knob setting. If it is not, calibrate as follows:
  - a. Loosen set screw in thermostat 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 set screw.

## CHAPTER 8: NAVY SHIPBOARD CONTROLLER

- d. Recheck the thermometer or pyrometer reading and the thermostat 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 for any reason, call a Factory Authorized Service Center.
5. Remove thermometer or pyrometer probe.

### 8.2Hi-Limit tests

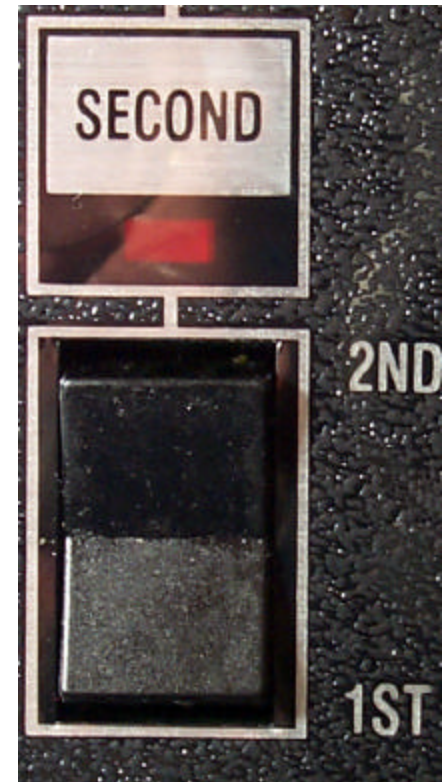
**Hi-limit 1** checks the ability of the fryer's controller to shut down the fryer.

The test is conducted with the oil at or near operating temperature. Hold the Hi-limit rocker switch in the 1st position.

The oil will heat to 410°F +- 3°F degrees before the controller stops calling for heat. The trouble light will illuminate just at the heat light goes out.

Reset the fryer by turning the unit off and back on at the control panel.

**Hi-Limit 2** checks the ability of the fryer's mechanical hi-limit probe to shut down the fryer. To run the test, hold the rocker switch in the 2nd position. With the rocker depressed, the oil will heat to 430-450°F degrees before the mechanical hi-limit probe opens, which shuts off power to the fryer.



**Fig. 8-2**

Press and hold rocker switch down for Hi-Limit 1 test. Hold the switch up for the second hi-limit test.

# CHAPTER 9: TROUBLESHOOTING GUIDE

## Directions for Troubleshooting Flow Chart

1. Always start at the first condition and follow each step in *sequence*.
2. Perform the test set-up at the beginning of each condition.
3. **Normal Operation** (“yes” after each decision block) flows down the page in sequence.
4. **Abnormal Operation** (a “no” answer) branches to the right side of the page where you will find the steps for problem resolution.



**Warning:**

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

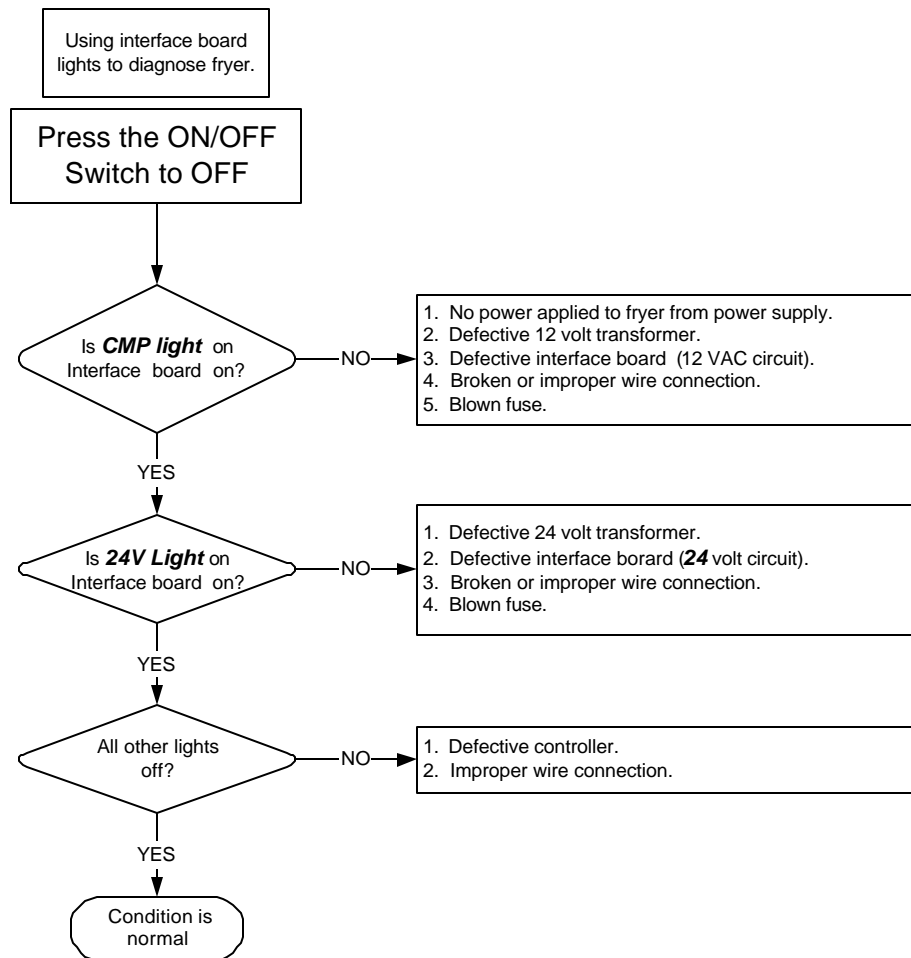


**DANGER**

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

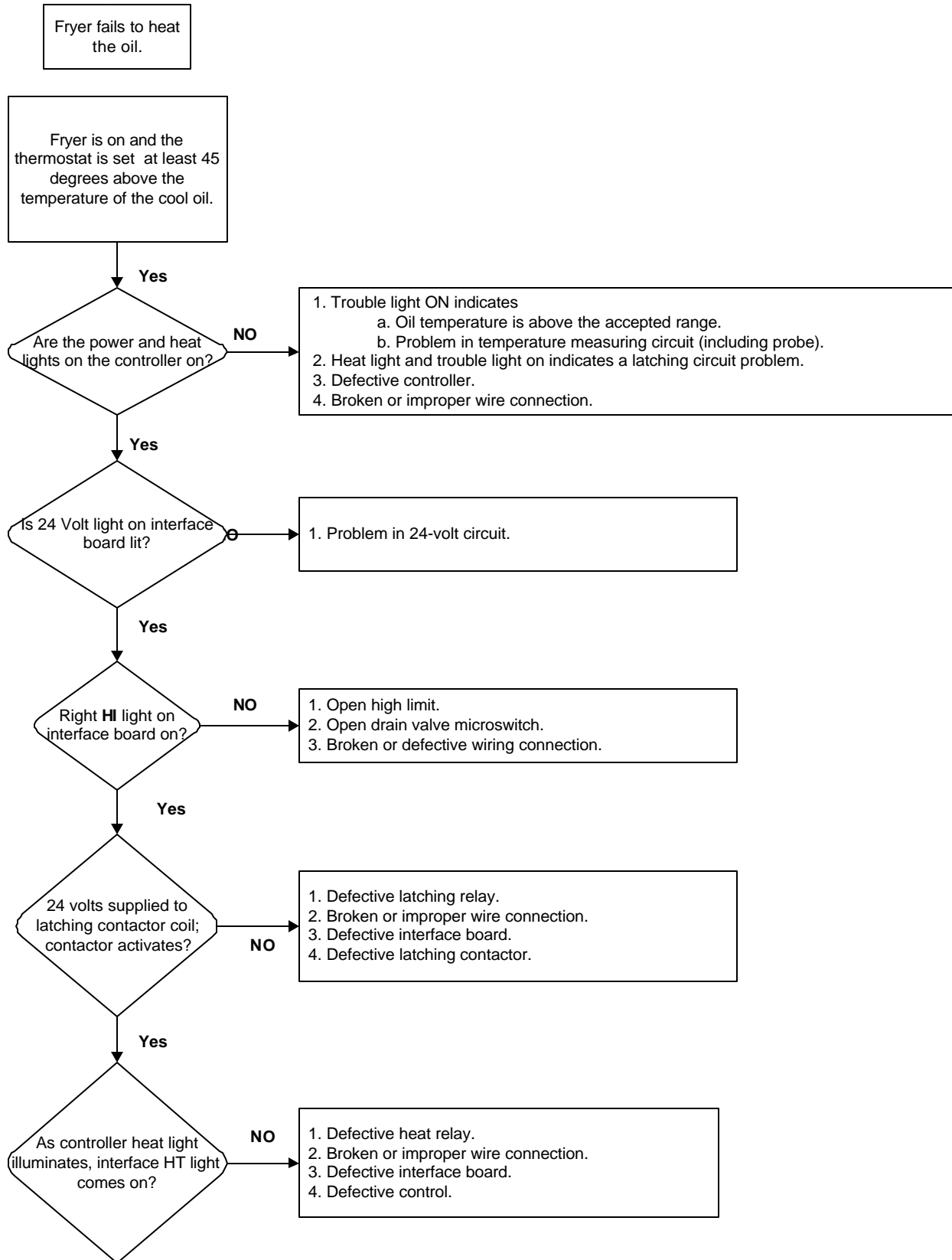
**Note:** Access to the interface board is required to perform troubleshooting. See Figures 10-6 and 10-7.

## Fryer is Off



# CHAPTER 9: TROUBLESHOOTING GUIDE

## Turning Fryer On

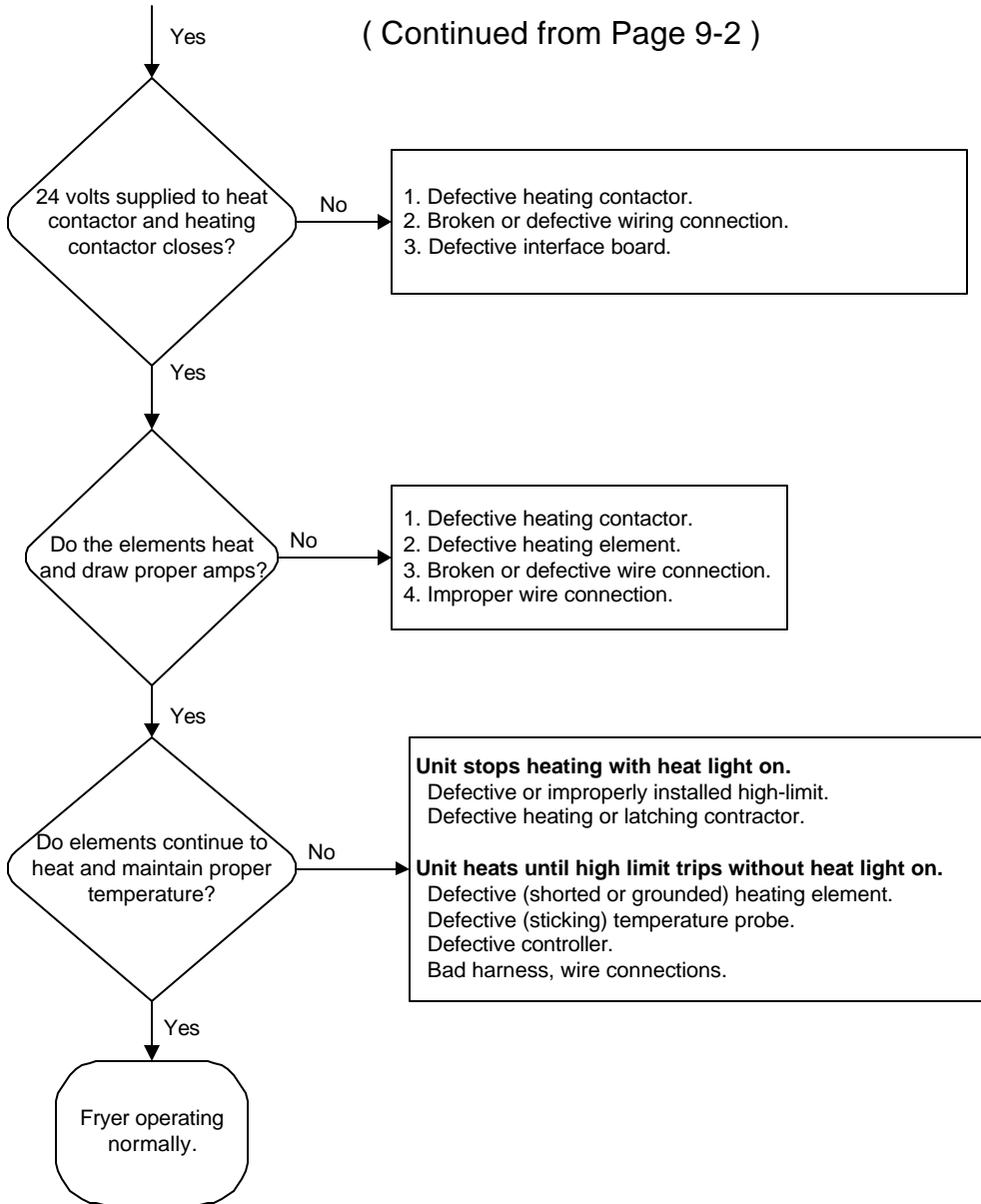


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# CHAPTER 9: TROUBLESHOOTING GUIDE

## Fryer Fails to Heat

( Continued from Page 9-2 )

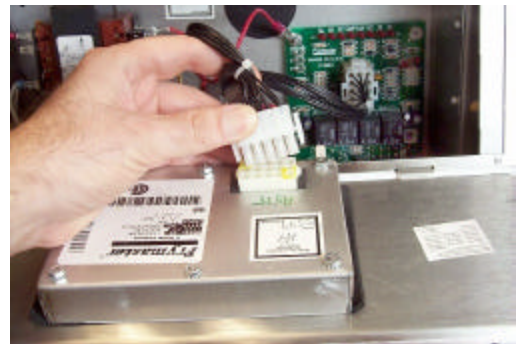


# CHAPTER 10: SERVICE PROCEDURES

## 10.1 Replace Controller

### 10.11 Shipboard fryer

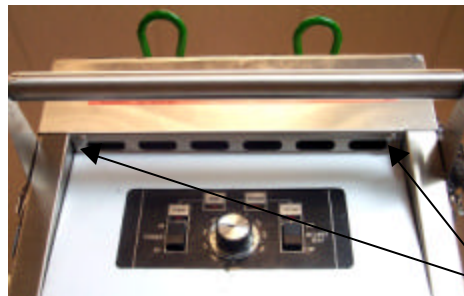
1. Disconnect the fryer from electrical power.
2. Turn controller off.
3. Remove the two screws securing the controller.
4. The controller is hinged at the bottom, and will swing open from the top.
5. Unplug the wiring harness from the back of the controller. **Fig: 10-1**
6. Remove the ground wire by unscrewing the securing nut or disconnecting the ground connector.
7. Remove the controller from the control panel.
8. Reverse the procedure to install a new controller.



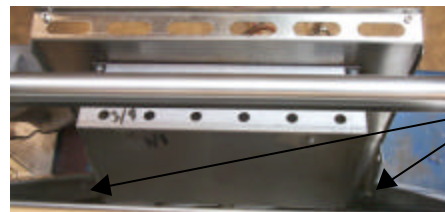
**Fig: 10-1**  
Unplug wiring harness from back of controller.

### 10.12 Submarine Fryers

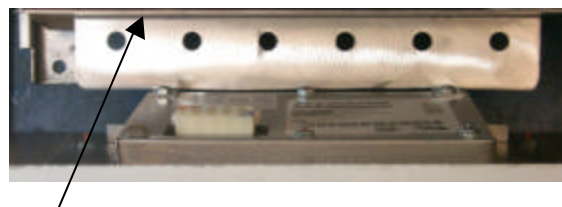
1. Disconnect the fryer from electrical power.
2. Turn the controller off.
3. Remove the two screws securing the controller bezel to the front of the fryer. **Fig 10-2.**
4. Pull the controller forward and under the grab bar.
5. Remove the two screws that secure the lower section of the bezel.
6. Unplug the controller from the 15-pin plug.
7. Push the controller forward and under the grab bar. **Fig 10-3**
8. Remove the heat shield from at the rear of the controller. **Fig: 10-4**
9. Remove controller from bezel.
10. Reverse procedure to install new controller.



**Fig: 10-2**  
Two screws secure the controller bezel to the fryer's front



**Fig: 10-3**  
Two screws hold the bezel inside the cabinet.



**Fig: 10-4**  
A shield, which must be removed, protects the controller from heat.



## 10.2 Replace Interface Board

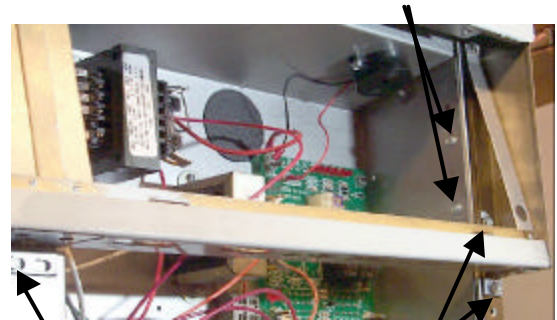
### 10.2.1 Surface Ship Fryers

1. Disconnect the fryer from electrical power.
2. For surface ship fryers perform **Section 10.1, Steps 1-6, Replace Controller.**
3. Unplug the wire harness from the interface board. **Fig 10-1.** Remove all wiring from the interface board, carefully marking wires for correct reattachment.

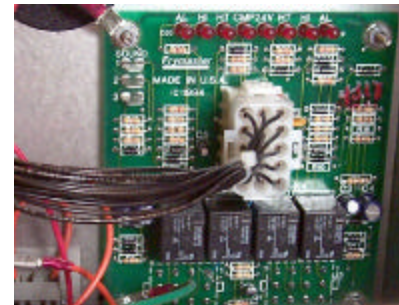
*NOTE: If fryer is part of a battery of two or more fryers, the control panel and top cap are one piece, and must be removed as one piece.*

4. Remove the screws securing the control panel.
5. Remove the screws securing the top cap, and set the top cap and screws aside.
6. Remove the screws securing the component box. Let the top of the box swing forward enough so that the wire harness can be unplugged from the back of the interface board. **Fig: 10-6**
7. Remove the nuts from each corner of the interface board and slide the board from the studs.
8. Install the new interface board by reversing the above procedures. Ensure the spacers are on the studs before installing the interface board. Make sure the wiring is reconnected to the proper terminals and the harnesses to the correct connectors.

Control box screws.



**Fig: 10-5**  
Control panel mounting screws.



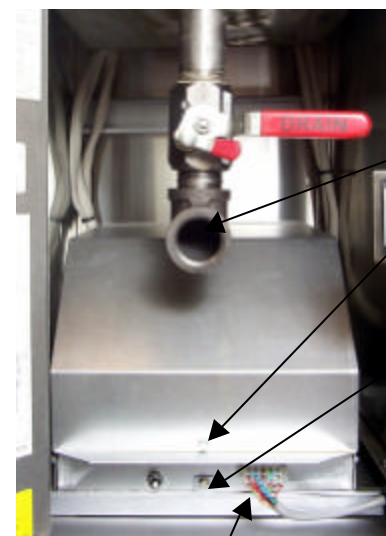
**Fig: 10-6**  
The interface board on the surface ship fryer is located in the controller box behind the controller.

### 10.2.2 Submarine Fryers

1. Disconnect the fryer from electrical power.
2. Open the front door of the fryer, and remove the screw holding the contactor box lid in place. **Fig: 10-8**
3. Slide lid from cabinet.
4. Unplug the wire harnesses from the front and back of the interface board.



**Fig: 10-7**  
The interface board is in the contactor box in the sub fryer.



Drain elbow

**Fig: 10-8**  
Hold-down screw for contactor box lid.

Screw that secures contactor box in cabinet.

15-pin plug for controller.



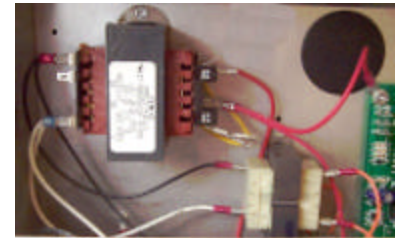
# CHAPTER 10: SERVICE PROCEDURES

5. Remove the nuts from each corner of the interface board and slide the board from the studs. **Fig: 10-7**
6. Install the new interface board by reversing the above procedures. Ensure the spacers are on the studs before installing the interface board. Make sure the wiring is reconnected to the proper terminals and the harnesses to the correct connectors.

## 10.3 Replace Transformer

### 10.3.1 Surface Ship Fryers

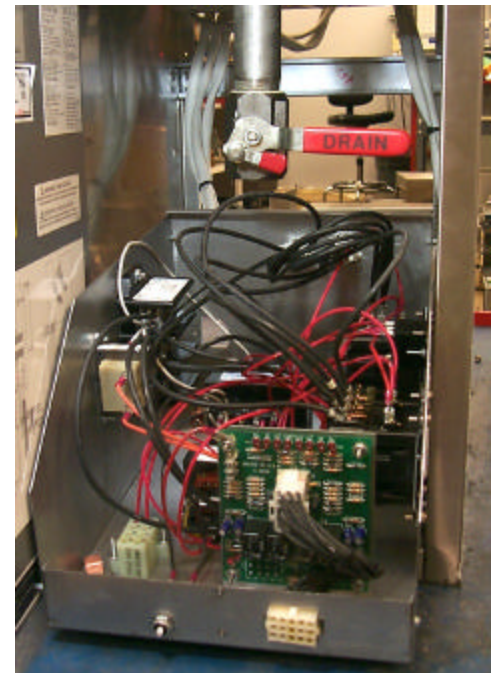
1. Disconnect the fryer from electrical power.
2. Perform **Section 10.1, Steps 1-6, Replace Controller.**
3. Remove all wiring from the terminals of the transformer to be replaced, carefully noting where the wires are attached. **Fig: 10-9**
4. Remove the transformer mounting nuts.
5. Install the new transformer by reversing the procedure. Make sure the wires are correctly connected to the proper terminals.



**Fig: 10-9**  
On the surface ship fryer, the transformer is in the controller box.

### 10.3.2 Submarine Fryers

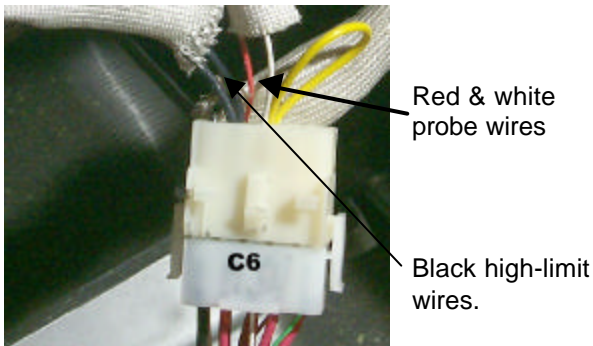
1. Drain frypot and close drain valve
2. Disconnect the fryer from electrical power.
3. Remove elbow from drain.
4. Open the front door of the fryer, and remove screw holding contactor box in place. **Fig: 10-8**
5. Remove door magnet to ensure space to pull contactor box forward.
6. Push contactor box toward the rear of the fryer and lift to release it from clips in the rear.
7. Lift the front of the contactor over the mounting hardware and pull forward out of the cabinet the distance the wiring harness will allow. **Fig: 10-10**
8. Remove screw holding the lid on the contactor box.
9. Remove all wiring from the terminals of the transformer to be replaced, carefully noting where the wires are attached.
10. Install the new transformer and attach wires.
11. Reverse steps to complete installation.



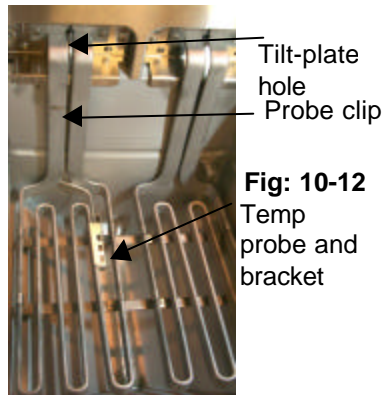
**Fig: 10-10**  
Contactor box partially removed from the

## 10.4 Replacing Temperature Probe

1. Disconnect electrical power to the fryer.
2. Drain the cooking oil from the frypot.
3. Remove cap over elements.
4. Disconnect the wiring harness, which is visible inside the cabinet, containing the red and white probe wiring. It may be necessary to remove the wire ties.



**Fig: 10-11**



**Fig: 10-13**  
Hardware on fixed elements in sub fryer.

5. Use a pin pusher (Frymaster Part Number 806-4855) to remove the probe wires from the connector. **Mark each wire for re-assembly. Fig: 10-11**
6. Remove the screw(s) securing the probe bracket to the element. **Fig: 10-12**
7. Thread the wires through the hole in the tilt plate assembly on the surface ship fryers and through the access hole near the fixed elements on the sub fryer. **Fig: 10-13.** Remove the probe and the securing components from the element.
8. Remove the probe from the probe bracket, and place the new probe into the bracket.
9. Place the new temperature probe assembly onto the element and secure with the screws. Clip the probe onto the rear of the element. The temperature probe assembly should be oriented in the same manner as the probe being replaced.
10. Thread the probe wires into the harness connector as removed in Steps 6 & 7.
11. Lower the element into the frypot. (**surface ship only**).
12. Place the housing cover over the element housing assembly and secure with screws.

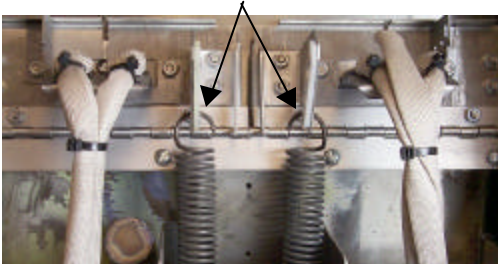
## 10.5 Replace Heating Element

### 10.51 Surface Ship

1. Remove temperature probe per **Section 10.4, Steps 1-5, and step 8.**
2. Unplug element wire plugs from rear of contactor box. It may be necessary to pull the contactor box forward to reach the connectors.
3. Remove the heating element wires from the connector. Press down on either side of the connector while pulling up on the top portion. The connector will open from the top, releasing the wires. Pull all wires from the connector, **noting wire locations in the connector for re-assembly.**
4. Remove the temperature probe clamp. Set temperature probe and bracket components aside.
5. Disconnect the element springs. **Fig: 10-14**

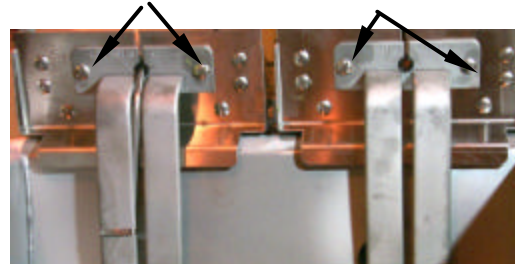
**Fig: 10-14**

Element springs on surface ship fryer.



**Fig: 10-15**

Element mounting screws on surface ship fryer.



6. Remove the element mounting screws and pull the element out of the frypot. **Fig: 10-15**
7. If present, remove the lift handle from the old element and install it on the new one.
8. Install the temperature probe and probe-securing components onto the replacement element.
9. Install the replacement element in the frypot and secure with mounting screws removed in Step 6.
10. Route the element leads (terminals) to the rear of the frypot.
11. When replacing the left element (as viewed from the front of the fryer) insert pin terminals into the correct holes in the 6-pin connector. When all pins are fully inserted, close the connector by sliding the halves together until the tabs snap back into place.
12. When replacing the right element (as viewed from the front of the fryer), use the 9-pin connector. Follow the steps outlined in Step 11.
13. Insert the connector(s) into the receptacle(s) in the rear of the contactor box. Be sure the latches lock the connectors in place.
14. Install the temperature probe wires into the corresponding pin locations.
15. Reconnect the element spring.
16. Install the tilt housing assembly.

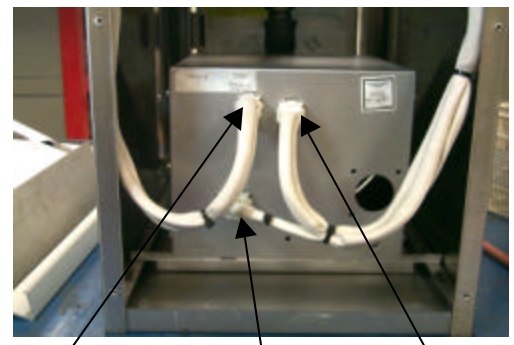
# CHAPTER 10: SERVICE PROCEDURES

## 17. 10.5.2 Submarine

1. Disconnect electrical power to the fryer.
2. Drain the cooking oil from the frypot.
3. Remove drain system elbow.
4. Remove screw holding contactor box in place. **Fig: 10-8**
5. Lift contactor box at rear and push backward slightly to disengage tabs which secure the rear of the box.
6. Lift front of contactor box and pull it forward to create working room at the rear of the box to remove element connectors.
7. Unplug two lower plugs. **Fig: 10-17**
8. Remove temperature probe per **Section 10.4, Steps 1-5, and step 8.**
9. Remove mounting hardware on heating elements and lift from unit. **Fig: 10-16**
10. Remove the heating element wires from the connector. Press down on either side of the connector while pulling up on the top portion. The connector will open from the top, releasing the wires. Pull all wires from the connector, **noting wire locations in the connector for re-assembly.**
11. Install the temperature probe and probe-securing components onto the replacement element.
12. Install the replacement element in the frypot and secure with mounting screws removed in Step 9.
13. Route the element leads (terminals) to the rear of the frypot.
14. When replacing the left element (as viewed from the front of the fryer) insert pin terminals into the correct holes in the 6-pin connector. When all pins are fully inserted, close the connector by sliding the halves together until the tabs snap back into place.
15. When replacing the right element (as viewed from the front of the fryer), use the 9-pin connector. Follow the steps outlined in Step 11.
16. Insert the connector(s) into the receptacle(s) in the rear of the contactor box. Be sure the latches lock the connectors in place.
17. Install the temperature probe wires into the corresponding pin locations.
18. Feed wires down back of fryer and plug into receptacles on rear of contactor box.
19. Restore contactor box to its original position, replace element cap and replace drain elbow.
20. Fill with oil and return fryer to operation.



**Fig: 10-16**  
Mounting hardware on fixed-element sub fryer.



**Fig: 10-17**  
Right element connector    Temp, hi-limit connector    Left element connector



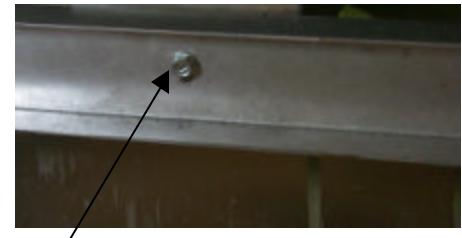
## 10.6 Replace High-Limit Thermostat

1. Drain frypot.
2. Remove drain elbow from drain assembly.
3. Remove screw securing contactor box in place. Lift the contactor box and push back slightly to release tabs holding the box in the rear of the cabinet. Lift and pull the box forward to allow access to the plugs at rear of unit. **Fig: 10-8**



**Fig: 10-18**  
Hi-limit probe

4. Unplug 15-pin plug from front of contactor box (sub fryer only).
5. Unplug the three plugs on the rear of the contactor box.
6. Remove the element cap.
7. Remove two screws securing controller bezel to fryer's frame and pull controller forward to access lower screws.
8. Remove lower bezel screws.
9. Remove controller.
10. Remove screw at front of fryer that holds frypot in place. **Fig: 10-19.**



**Fig: 10-19**  
The removal of one screw behind the controller allows the frypot to be lifted from the cabinet.

11. Lift frypot from cabinet.
12. Disconnect the wiring harness containing the high-limit wires.
13. Use a pin pusher (Frymaster Part Number 806-4855) to remove the two high-limit wires from wire harness connector C6. For split pot fryers, remove only the wires for the high-limit to be replaced. Mark each wire for re-assembly. **Fig: 10-11**
14. Use a 7/8" wrench to remove the high-limit thermostat from the frypot.
15. Apply Loctite PST 567 sealant (enclosed with replacement high -limit) to the threads of the new high-limit thermostat.
16. Screw the new high-limit into the frypot and tighten securely. **DO NOT OVERTIGHTEN!**
17. Rest frypot on cabinet sideways, allowing wires to hang near the back of unit.
18. Insert the replacement high-limit wires into the holes in the connector, making certain to insert the pins into the same two holes from which the old high -limit wires were removed.
19. Position frypot in cabinet
20. Reconnect element wire harnesses to contactor box.
21. Restore contactor box to original location.
22. Replace drain elbow.
23. Replace controller and plug into 15-pin socket on front of contactor box.
24. Install the rear flue covers.
25. Return to service

# CHAPTER 10: SERVICE PROCEDURES

## 10.7 Replace Frypot

1. If the fryer has a built-in oil filtration system, remove all the plumbing from the frypot. This includes both oil return and drain fittings.
2. Perform **Section 10.6** steps 1-11
3. Remove elements.
4. Remove hi-limit.
5. Apply LocTite PST 567 sealant to the threads of the existing or new high-limit thermostat.
6. Screw the high-limit into the frypot and tighten securely. **DO NOT OVERTIGHTEN!**
7. Install elements.
8. Rest frypot on cabinet sideways, allowing wires to hang near the back of unit.
9. Insert the high-limit wires into the holes in the connector, making certain to insert the pins into the same two holes from which the old high -limit wires were removed.
10. Position frypot in cabinet
11. Reconnect the wire harnesses to contactor box.
12. Restore contactor box to original location.
13. **NOTE:** *Apply LocTite PST 567 sealant to all pipe connections prior to assembly.*
14. Replace drain elbow.
15. Replace oil return lines on units with built-in filtration.
16. Replace controller and plug into 15-pin socket on front of contactor box.
17. Install the rear element cover.
18. Boil out new frypot as described on page 6.1
19. Return to service

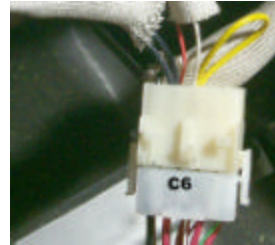


Fig: 10-20



Fig: 10-21

### 10.8 Replace Heating or Latching Contactor

1. Disconnect electrical power to the fryer.
2. Drain the cooking oil from the frypot.
3. Remove cap over elements.
4. If present, remove the wire harness connector covers on the front of the contactor box.
5. Disconnect the 15-pin controller plug from the front of the contactor box, Remove screw securing contactor box in place. Lift the contactor box (**Fig: 10-8**) and push back slightly to release tabs holding the box in the rear of the cabinet. Lift and pull the box forward to allow access to the plugs at rear of unit.
6. Remove the screws securing the contactor. (See drawing on page 16-3)
7. Remove wiring connected to the contactor terminals. Mark wires for re-assembly
8. Remove the contactor mounting screws and contactor.
9. Install new contactor and attach wiring.
10. Reverse **Steps 1-7** to complete job.

# CHAPTER 11: PREVENTIVE MAINTENANCE

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## 11.1 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 cooking oil and dust.

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

## 11.2 Once A Week - Clean Frypot And Heating Elements

 **WARNING**

NEVER operate the fryer(s) with an empty frypot.

***BOILING OUT THE FRYPOT:*** Clean frypot as follows before filling with cooking oil:

1. Before switching the fryer(s) ON, close the frypot drain valve(s), fill empty frypot to the normal level with a mixture of water and Frymaster Fryer 'N' Griddle Cleaner or other low sudsing degreasing compound. Follow instructions on bottle when mixing.
2. Press fryer ON/OFF switch to the ON position.
3. Set thermostat knob to 200°F (93°C).
4. Allow the solution to simmer 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. Turn controller OFF to control this condition.

5. Turn the fryer controller power switch to the OFF position.
6. Add enough cool water to permit draining without danger of burning. Drain out the solution and clean the frypot(s) thoroughly.

 **WARNING**

Do not run water/boil-out solution through filtration system.

7. Refill the frypot with clean water. Rinse the frypot twice, drain and wipe down with a clean, dish towel. Thoroughly remove all water from the frypot and elements before filling the frypot with cooking oil.

## 11.3 Once A Week - Clean Detachable Parts And Accessories

Wipe all detachable parts and accessories with a clean, dry cloth. Use a clean cloth saturated with Frymaster Fryer 'N' Griddle Cleaner to remove accumulated carbonized oil on detachable parts and accessories. Rinse the parts and accessories thoroughly with clean water and wipe dry before reinstalling.



## **CHAPTER 11: PREVENTIVE MAINTENANCE**

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### **11.4 Once A Month -**

#### **Check Calibration Of Controller**

1. After the cooking oil has reached operating temperature, let the heating elements cycle at least 4 times.
2. Insert a good thermometer or pyrometer near the temperature-sensing probe approximately 3 inches (7.5mm) deep into the cooking oil. When the heating elements just cycle on after the fourth time, the thermometer should be within  $\pm 5^{\circ}\text{F}$  ( $\pm 2^{\circ}\text{C}$ ) of the thermostat knob setting.
3. See the controller calibration section of the service manual.

## CHAPTER 12: OIL FILTRATION (Surface Ship Only)

### DANGER

Exercise extreme care when working with hot cooking oil. Allow the filter pan to completely cool before attempting to change the filter paper.

### WARNING

Never run water through built-in filtration system

### 12.1 Preparing The Filter Unit For Use

1. Turn the vat off you intend to filter.
2. Open cabinet and remove filter pan. It must be cleaned prior to filtering. **Fig: 12-1**
3. The filter pan holds a crumb screen, hold-down ring and filter paper or a filter pad. All must be removed and cleaned.
4. The crumb screen comes out first. This catches the large food particles in the filtering process. **Fig: 12-2**
5. Remove hold-down ring, which holds the filter paper or filter pad in place. **Fig: 12-3**
6. Remove filter paper or pad and discard.



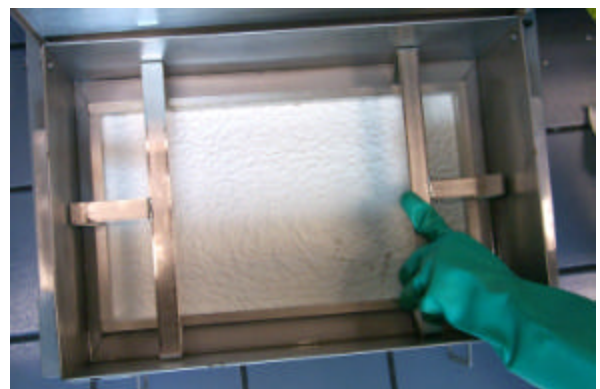
**Fig: 12-1**

Removing filter pan prior to cleaning.



**Fig: 12-2**

Removing crumb basket.

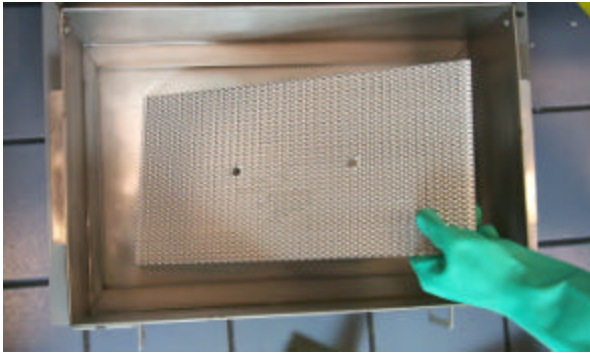


**Fig: 12-3**

Removing hold-down ring.

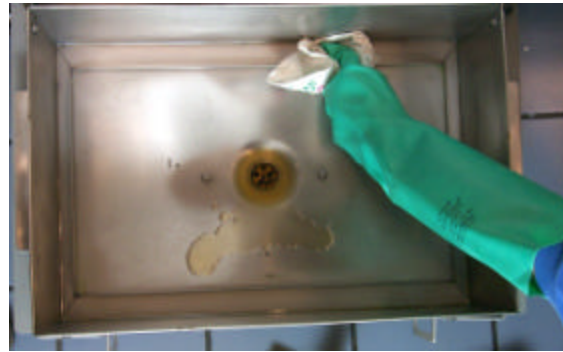
## CHAPTER 12: OIL FILTRATION (Surface Ship Only)

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**Fig: 12-4**

Remove screen from filter pan.



**Fig: 12-5**

Clean pan.

7. Remove screen from filter pan. **Fig: 12-4**
8. Clean filter pan. **Fig: 12-5**
9. Replace screen.
10. Replace filter pad or paper.
11. Replace hold-down ring.
12. Replace crumb screen. **Fig: 12-8**



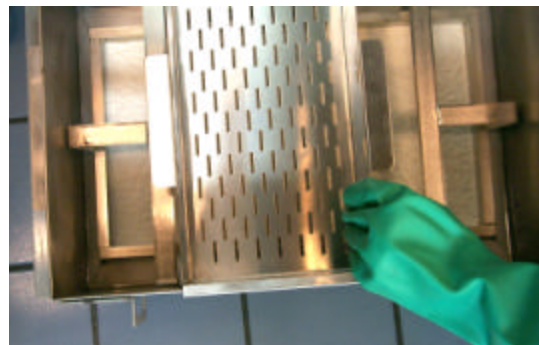
**Fig: 12-6**

Replace screen. It's imperative the screen goes in the pan first. It goes under the filter paper or pad. The filter paper or pad must go on top.



**Fig: 12-7**

The filter paper goes on top of the screen. Add 8-ounces of filter powder to the top of the filter paper. Do not use filter powder

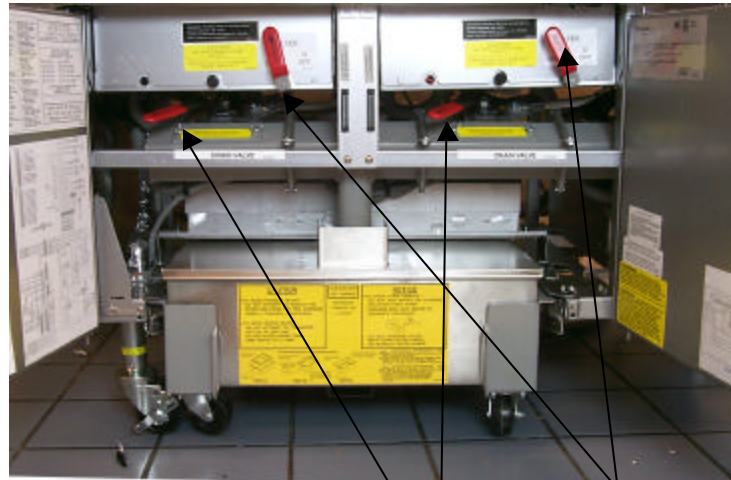


**Fig: 12-8**

The hold-down ring is placed on the filter paper and the crumb screen is put in place.

# CHAPTER 12: OIL FILTRATION (Surface Ship Only)

13. Return filter pan to cabinet.
14. Skim large particles from the vat to be filtered.
14. With the oil at operating temperature and the fryer off, open valve of vat to be drained. Caution: the oil is at or near operating temperature during filtering. **Fig: 12-14, 16**
16. Snap the power shower into the frypot connection. **Fig: 12-15**
17. For fryers with rear flush option, engage the control lever to select rear flush. This will wash sediment from the bottom of the frypot.
18. Turn the filter pump on. **Fig: 12-17**
19. The oil is pumped back into the frypot. If polishing of the oil is desired, allow pump to run with the drain valve open for no more than five minutes.
20. At the end of the filter process, close the drain and allow the pump to run as the oil fills up the frypot.
21. When the filter pan empties, air will be pumped into the frypot, causing the oil in the frypot to bubble. Allow bubbling to continue 15 to 20 seconds before shutting off filter pump. This action ensures the oil-return lines are clear of oil.
22. Remove Power Shower. Fig: 12-15



**Fig 12-14**  
**Handles used during filtering:** Drain valves  
 Filter pump handles



**Fig: 12:15**  
 A Power Shower is shown being placed in a frypot. Filtered oil returning to the frypot flows through the device and down the sides of the vessel, cleaning the pot walls.



**Fig: 12-16**

With the oil above 300 degrees, move the handle to the right to empty the frypot into the filter pan.



**Fig: 12-17**  
 The filter pump moves oil from the drain pan to the frypot.

## CHAPTER 12: OIL FILTRATION (Surface Ship Only)

### DANGER

Never attempt to remove a filter pan containing hot cooking oil/shortening. Hot oil/shortening will flow through the outlet in the bottom of the pan and cause severe burns to feet and legs.

### CAUTION

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

*NOTE: Exercise care when using the Fryer's Friend to prevent damage to the frypot and the drain valve. Do not drain more than one frypot at a time. To do so will cause overfilling of the filter pan.*

### DANGER

**Except when using the rear flush option, do not operate without power shower. Hot cooking oil/shortening can splash and cause injury.**

*NOTE: Filter motor is equipped with a manual reset switch in case the filter motor overheats or an electrical fault occurs.*

### CAUTION

Turn off power to the filter system and allow pump motor to cool 20-30 minutes before attempting to reset switch on the pump motor

### WARNING!

**The crumb tray must be emptied into a fireproof container at the end of each day. Some food particles can spontaneously combust if left in certain shortening.**



# CHAPTER 13

## CARE AND CLEANING OF THE FILTER SYSTEM

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**⚠ DANGER:**

**NEVER use the filter pan to dispose or transport old cooking oil/shortening to the disposal area.**

**⚠ WARNING:**

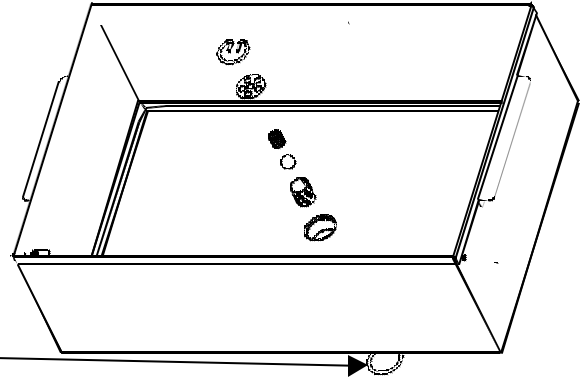
Never operate the filter system without cooking oil in the system.

Always allow cooking oil to cool below 100°F (38°C) before transporting to the disposal area. A Shortening Disposal Unit (SDU), available from your local distributor, is available and highly recommended for safety.

1. Do not drain water into the filter pan. Water will damage the filter pump. Perform the following to drain the frypot:

A. *Footprint III*

- 1) Pull the filter carriage forward.
- 2) Remove the empty filter pan assembly.
- 3) Push the filter carriage back into the fryer.
- 4) Place suitable container under the drain.
- 5) Open the drain valve.



- A. *Footprint III* - the o-ring is on the bottom of the filter pan.

3. Immediately after use, drain the power shower completely. If you suspect blockage, unscrew the plugs at each corner of the power shower frame. Use a long narrow bottle brush with hot water and detergent to clean the inside of the power shower. Rinse, dry thoroughly, and reinsert plugs before using.

# CHAPTER 13

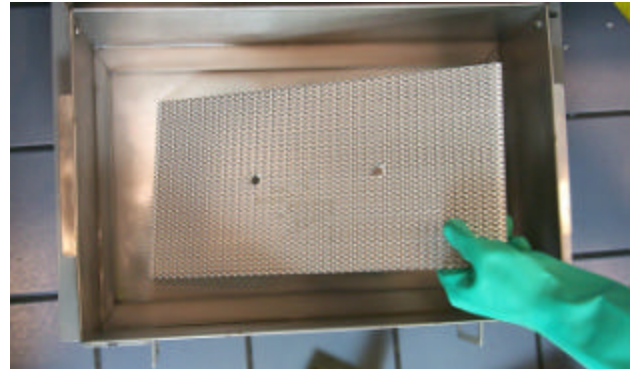
## CARE AND CLEANING OF THE FILTER SYSTEM

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### 13.1 Filtration Problems

One of the most common errors is placing the filter paper on the bottom of the filter pan rather than on top of the filter screen.

Whenever the complaint is “the pump is running, but no oil is returning,” check the installation of the filter paper, and ensure that the correct size paper is being used. While you are checking the filter paper, verify that the o-ring on the bottom of the filter pan (and on the suction tube if applicable) is present and in good condition. A missing or worn o-ring allows the pump to suck air and decrease its efficiency.



The filter screen must go in the bottom of the pan first. The filter paper goes on top of the screen.

For *Filter Magic Systems*, if the pump runs, but does not return oil, the most likely causes are that the filter carriage is not properly positioned all the way to the rear of the fryer or the suction tube o-rings are missing or worn.

If the pump motor overheats, the 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 end of the motor.



If the pump then starts, something caused the motor to overheat. If the motor runs for a prolonged period, it may overheat. Allow the motor to cool down for at least 30 minutes and press the reset button.

The pump may also overheat for one of the following reasons:

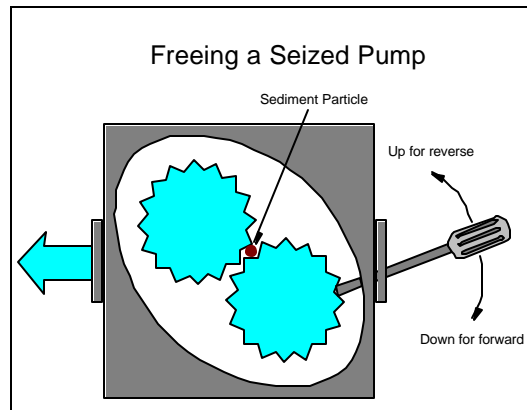
- Shortening solidified in the pan or filter lines.
- The operator attempted to filter oil or shortening that was not heated. Cold oil and shortening are thicker and cause the pump motor to work harder and overheat.

If the pump will not return oil and you hear a humming sound just before the overload trips, the pump is blocked. Paper which is incorrectly sized or installed will allow food particles and sediment to pass through the filter pan and into the pump. When sediment enters the pump, the gears may bind causing the motor to overload, tripping the reset circuit breaker. Solidified shortening in the pump may also prevent it from turning, with the same result.

# CHAPTER 13

## CARE AND CLEANING OF THE FILTER SYSTEM

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A pump seized by debris or hard shortening can usually be freed by manually moving the gears with a screwdriver or other instrument.

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 backward will release a hard particle.
  - 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.

A blockage can be removed by forcing the item out with a stiff wire 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, solidified shortening or debris 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.

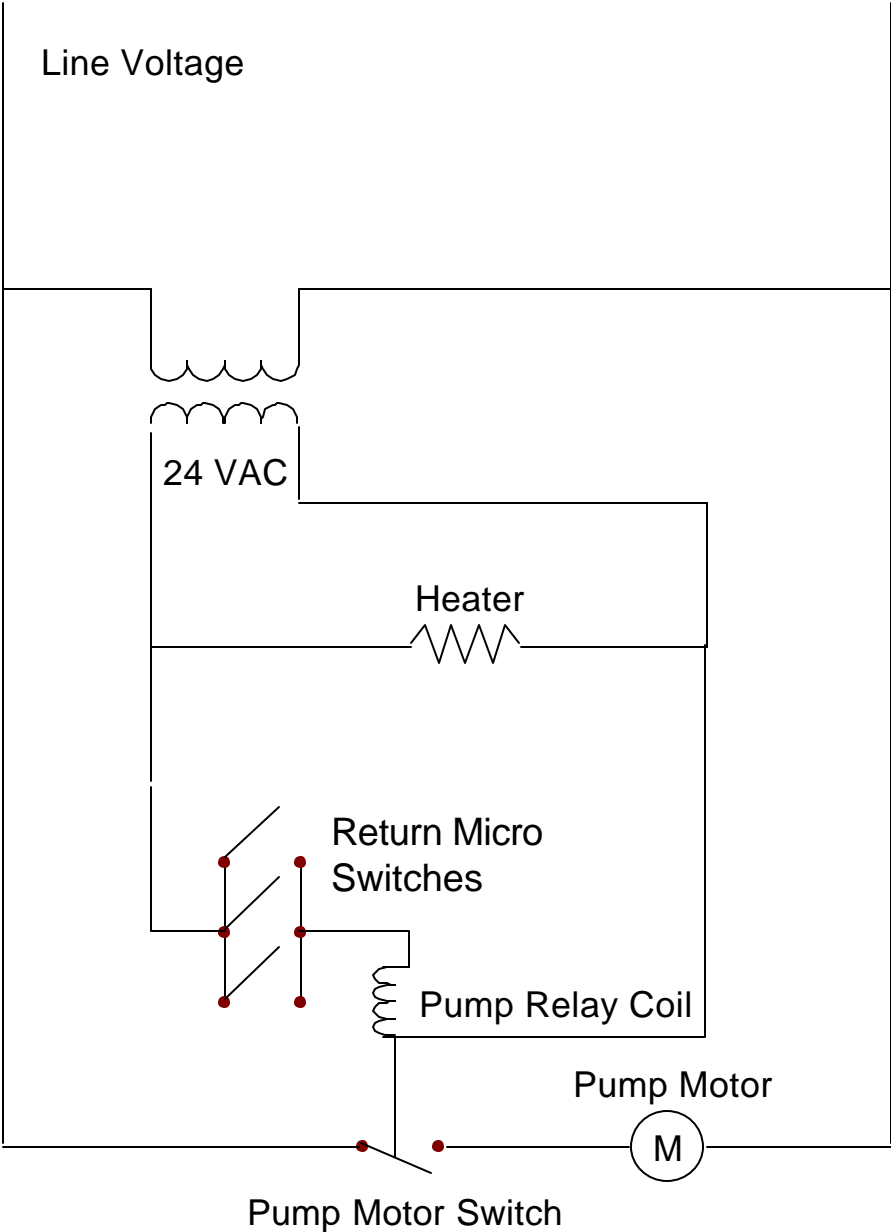
The electronics of the filter system are simple and straightforward. Micro-switches, attached to handles for each vat and wired in parallel, provide the 24 VAC required to energize the pump relay coil when the oil return handles are moved to the ON position. The energized pump relay supplies the power to the pump motor.

The suction tube heater and flexible hose heater are wired directly into the 24 VAC source. They remain energized as long as the unit is plugged into an outlet.



**CHAPTER 13**  
**CARE AND CLEANING OF THE FILTER SYSTEM**

---



FootPrint III Wiring

# CHAPTER 14 FILTER SYSTEM TROUBLESHOOTING

## Directions for Troubleshooting Flow Chart

1. Always start at the first condition and follow each step in *sequence*.
2. Perform the test set-up at the beginning of each condition.
3. **Normal Operation** (“yes” after each decision block) flows down the page in sequence.
4. **Abnormal Operation** (a “no” answer) branches to the right side of the page where you will find the steps for problem resolution.

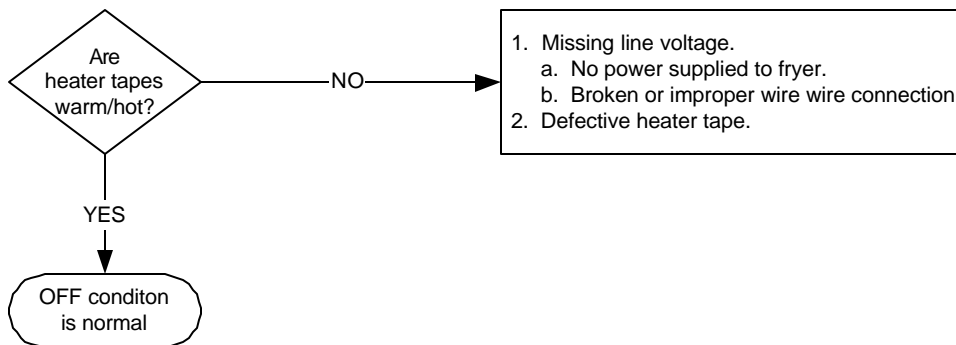
**⚠ Warning:**

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

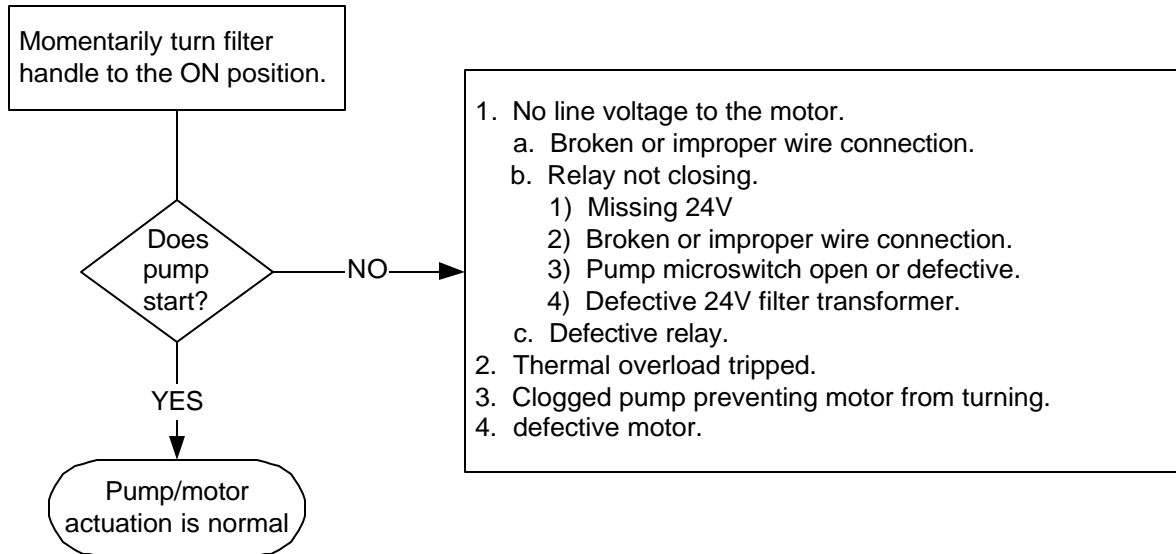
**⚠ DANGER**

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

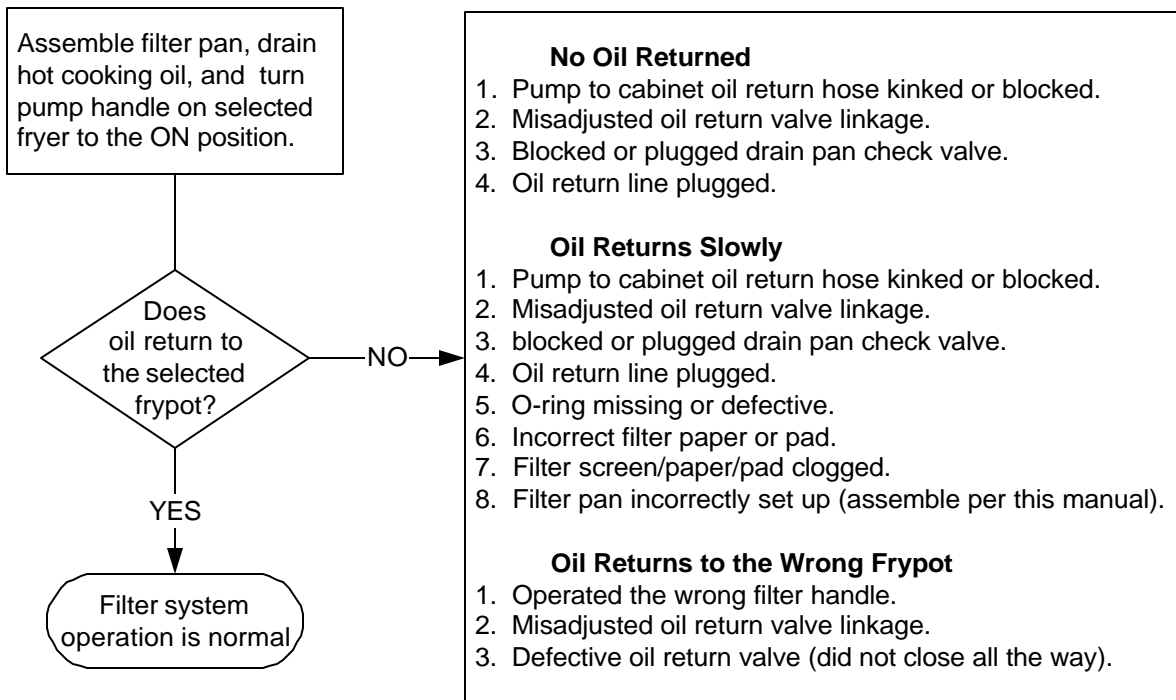
## OFF CONDITION



## Pump Motor Activation



## Filter System Operation

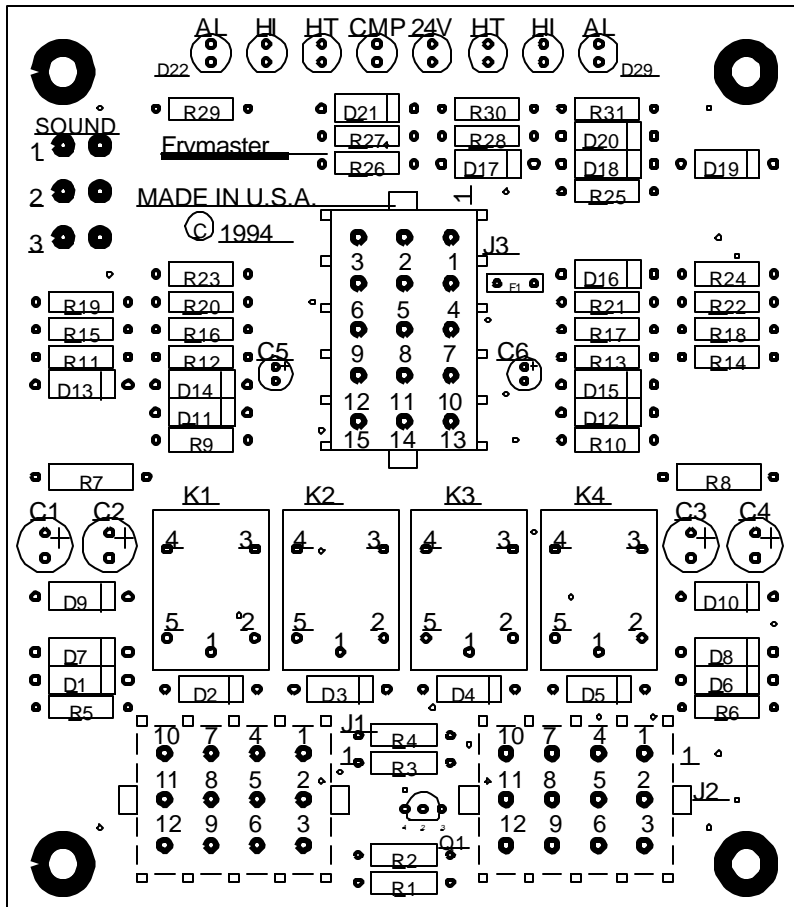


# CHAPTER 15      WIRING DIAGRAMS

## Electric Interface Board Diagnostic Chart

The following diagram and charts provide ten quick system checks that can be performed using only a multimeter.

**Note:** The sealed relays are not replaceable. If a relay fails the interface board must be replaced.

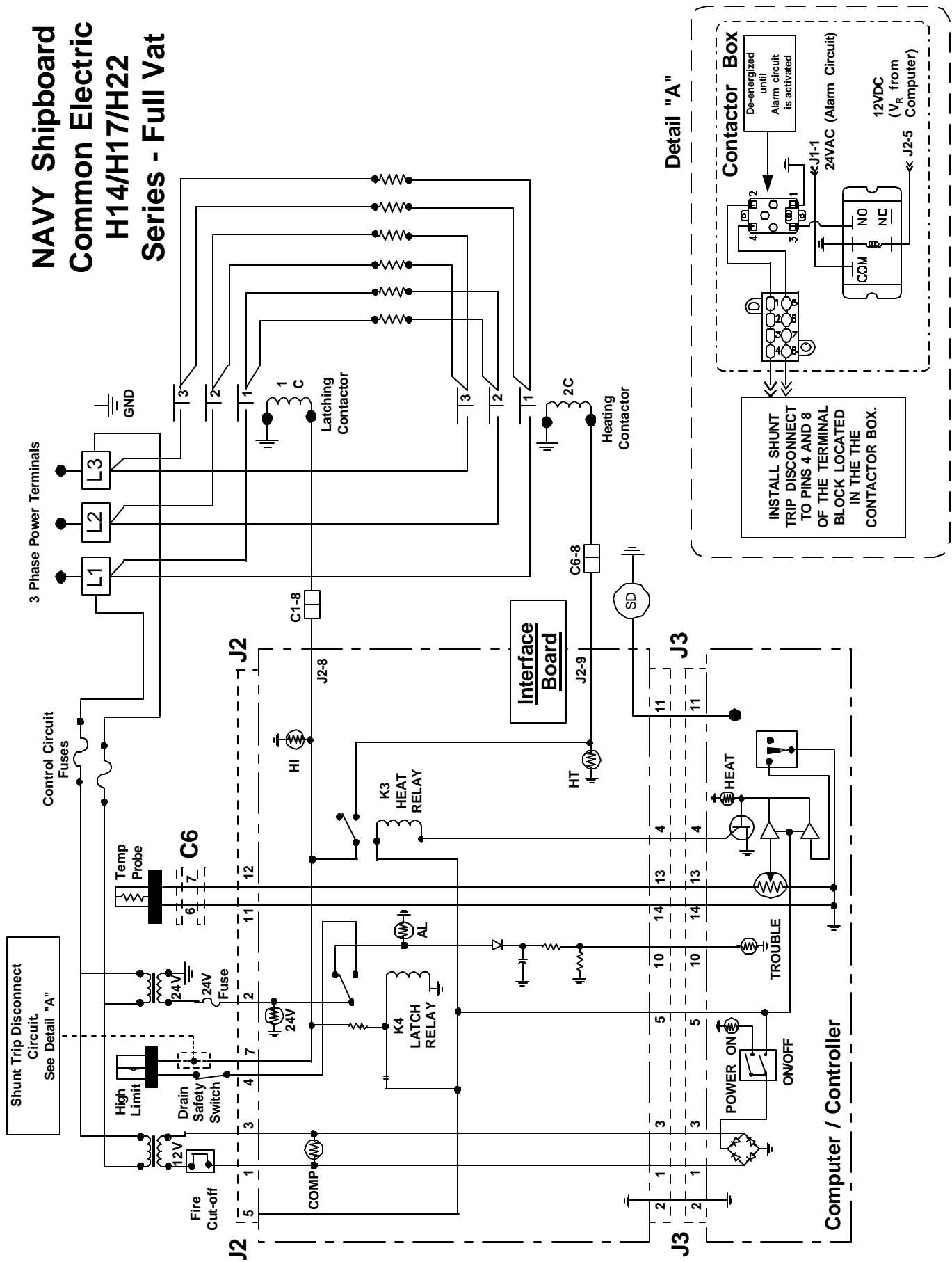


<u>Diagnostic LED Legend</u>	
CMP	indicates power from 12V transformer
24	indicates power from 24V transformer
HI (RH)	indicates output (closed) from right Latch relay
HI (LH)	indicates output (closed) from left Latch relay
HT (RH)	indicates output from right Heat relay
HT (LH)	indicates output from left Heat relay
AL (RH)	indicates output (open) from right Latch relay
AL (LH)	indicates output (open) from left Latch relay

Meter Setting	Test	Pin	Pin	Results
12 VAC Power	50 VAC Scale	1 of J2	3 of J2	12-16 VAC
24 VAC Power	50 VAC Scale	2 of J2	Chassis	24-30 VAC
*Probe Resistance (RH)	R X 1000 OHMS	11 of J2	12 of J2	See Chart
*Probe Resistance (LH)	R X 1000 OHMS	3 of J1	2 of J1	See Chart
Hi-Limit Continuity (RH)	R X 1 OHMS	7 of J2	4 of J2	0 - OHMS
Hi-Limit Continuity (LH)	R X 1 OHMS	4 of J1	7 of J1	0 - OHMS
Latch Contactor Coil (RH)	R X 1 OHMS	8 of J2	Chassis	3-10 OHMS
Latch Contactor Coil (LH)	R X 1 OHMS	5 of J1	Chassis	3-10 OHMS
Heat Contactor Coil (RH)	R X 1 OHMS	9 of J2	Chassis	18-25 OHMS
Heat Contactor Coil (LH)	R X 1 OHMS	6 of J1	Chassis	18-25 OHMS

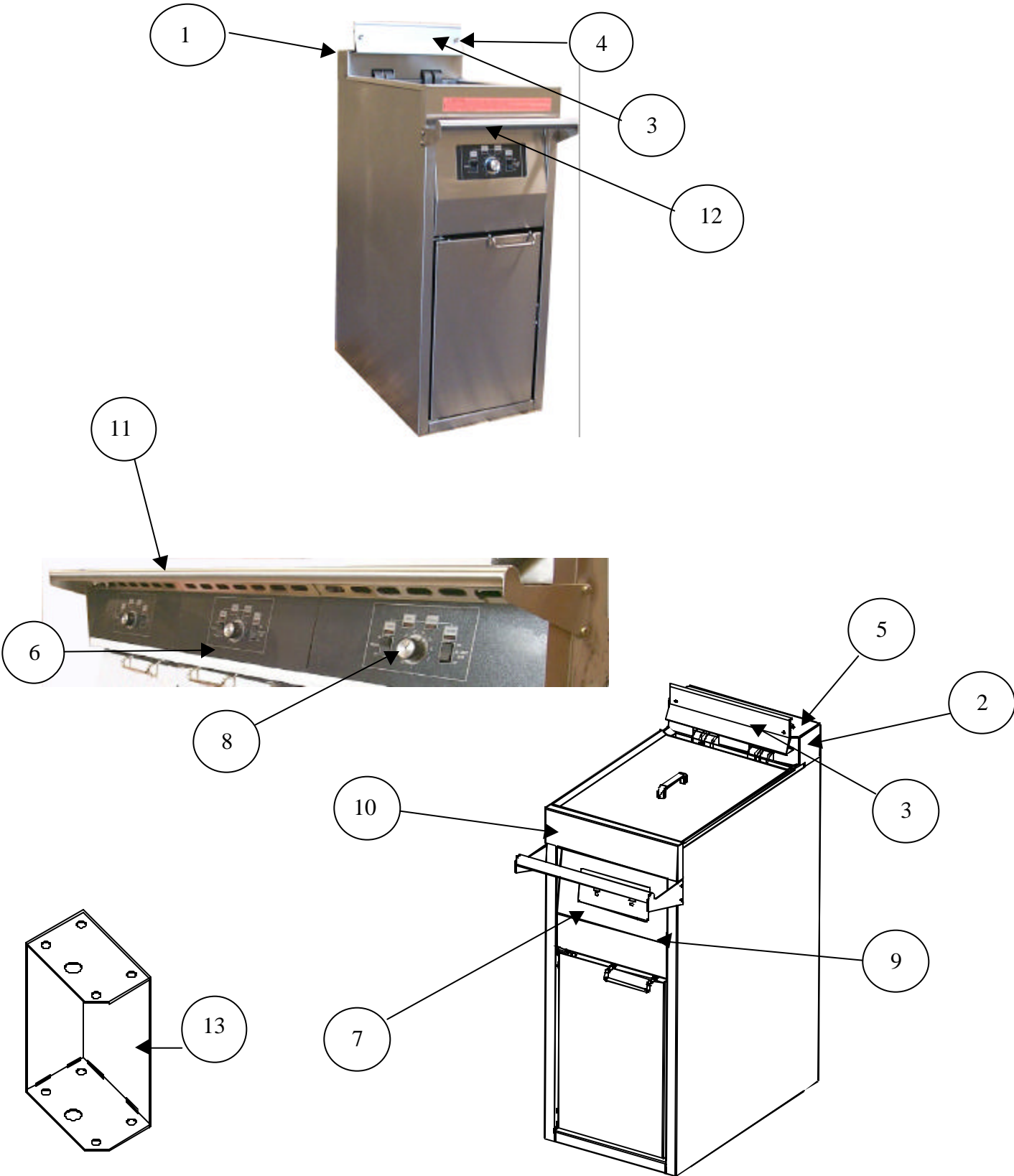
**\*Disconnect 15-Pin harness from the computer/controller before testing the probe circuit.**

**NAVY Shipboard  
Common Electric  
H14/H17/H22  
Series - Full Vat**



**CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14**

**Sub**



# CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14 Sub

## Cabinet and Controllers

(Refer to Figure 16-1)

ITEM NO.	PART NO.	DESCRIPTION
1	824-0532	Tilt Housing Cover, Single Unit, <b>SHIP</b>
*	824-0534	Tilt Housing Cover, Double Unit, <b>SHIP</b>
*	824-0535	Tilt Housing Cover, Triple Unit, <b>SHIP</b>
*	824-0536	Tilt Housing Cover, Quad Unit, <b>SHIP</b>
2	824-0638	Element Housing, ( <b>SUB ONLY</b> )
*	910-3122	Tilt Housing Cover Joining Strip (2, 3, or 4 fryers)
3	803-0028	Basket Hanger, all units
4	809-0171	Basket Hanger Screw
*	809-0015	Cage Nut
5	806-9166	Basket Hanger Bracket ( <b>SUB ONLY</b> )
*	809-0079	Nut-sert ( <b>Submarine Basket Hanger</b> )
6	806-3798	Analog Controller, ( <b>SURFACE SHIP</b> )
7	806-9215	Analog Controller ( <b>SUB ONLY</b> )
*	807-3308	Toggle Switch
8	810-0387	Thermostat Knob, (all analog controllers)
9	806-8991	Controller Mounting Frame ( <b>SUB ONLY</b> )
10	824-0697	Top Cap, Single ( <b>SUB</b> )
*	824-0572	Top Cap, Single ( <b>SURFACE SHIP</b> )
*	824-0571	Top Cap, Double ( <b>SURFACE SHIP</b> )
*	824-0573	Top Cap, Triple ( <b>SURFACE SHIP</b> )
*	824-0574	Top Cap, 4 fryers ( <b>SURFACE SHIP</b> )
11	823-2901	Handle, Front, Triple, 47" ( <b>SURFACE SHIP</b> )
*	823-2908	Handle, Front, Double, 31.4" ( <b>SURFACE SHIP</b> )
*	900-07431	Door Hinge, ( <b>SURFACE SHIP</b> )
12	823-2718	Handle, Front, single, 15.1" ( <b>SUB ONLY</b> )
*	806-7543	High limit Thermostat, <b>H14, H17</b>
*	806-8536	High limit Thermostat, <b>H22</b>
13	823-2353	Leg, ( <b>Surface Ship</b> )

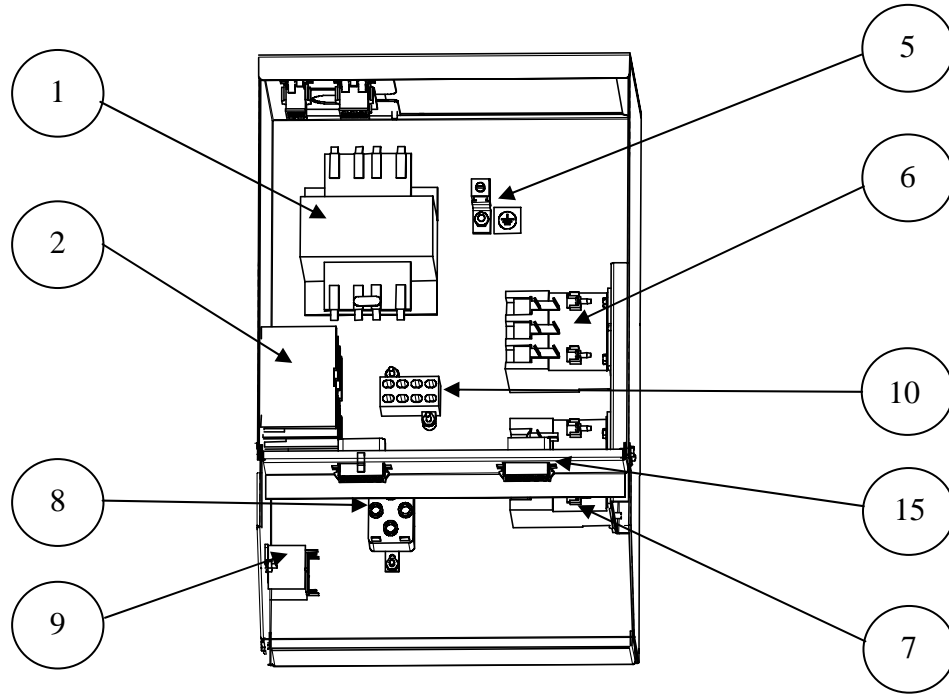
## FRYPOTS

Surface Ship Fryers	
	Part #
Without Built-in Filtration	823-2450
Built-in Filtration	823-2451

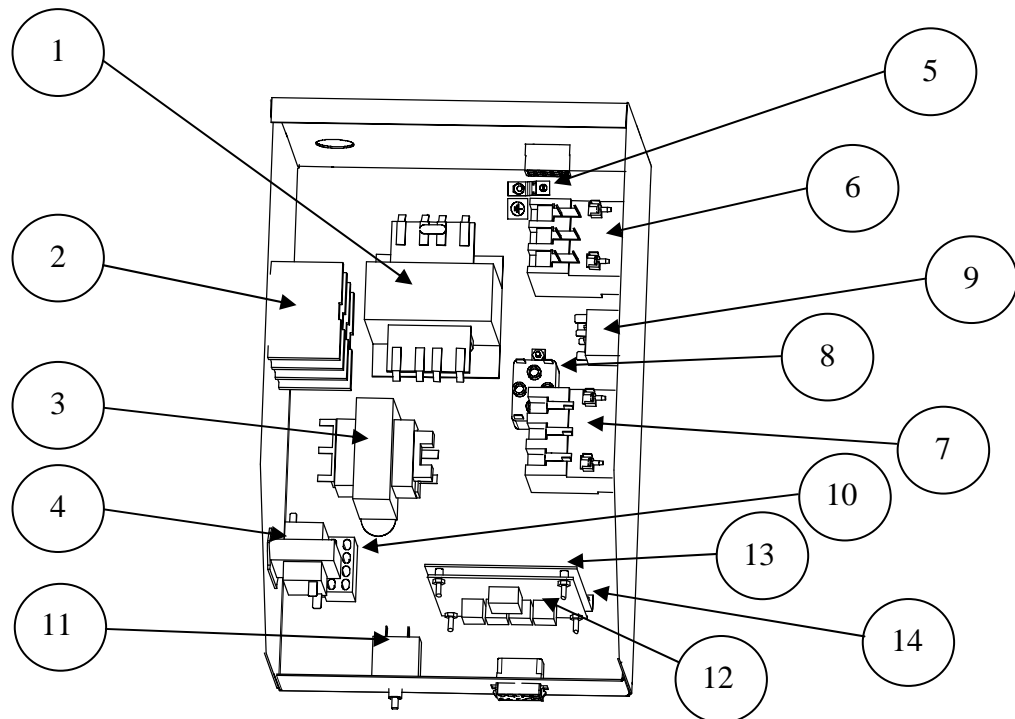
\*Not illustrated.

\*\*Submarine fryers made 6/99 and later have a 4" deeper frypot than earlier models.

**Contactor Boxes and Associated Components**



**Surface Ship Fryer Contactor Box**



**Submarine Fryer Contactor Box**



## CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14 Sub

---

### Contactor Boxes

(Refer to Figure 16-3)

ITEM #	PART NO.	DESCRIPTION	FRYER MODEL
1	807-0064	Transformer, <b>480,440/120V</b>	ALL
2	807-2464	3-Phase Power Input Terminal Block	ALL
3	807-2181	Transformer, <b>120/24V</b> for 440 or 480 fryers	ALL
4	807-0855	Transformer, <b>120/12V</b> for 440 or 480V fryers only	ALL
5	807-0070	Terminal Lug, Ground	ALL
6	810-2284	Contactor, Heating 3-pole, 50 Amp	ALL
7	810-1202	Contactor, Latching 3-pole, 40 Amp	ALL
8	807-0012	Relay, 18 Amp, 24 Volt coil	ALL
9	807-1683	Relay, 12 Volt Coil	ALL
10	807-0067	Terminal Block, 8 Pin	ALL
11	807-0069	Circuit Breaker for 440 or 480V fryers	ALL
12	806-7935	Interface Board	ALL
13	809-0349	Spacer, Interface Board	ALL
14	806-8364	Mounting Bracket, Interface Board	<b>Submarine</b>
15	807-0875	Connector, female 15-pin, Panel Mount	<b>Surface Ship</b>
*	806-2071	Wire Harness, (Control Panel to Interface Board)	<b>Surface Ship</b>
*	806-5095	Wire Harness, 5' (Controller to Contactor Box)	<b>Submarine</b>
*	806-8346	Wire Harness, (Interface board to 15-pin connector)	<b>Submarine</b>

\*Not illustrated.

# CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14 Sub

## Front Component Box (Surface Ship Fryers ONLY)

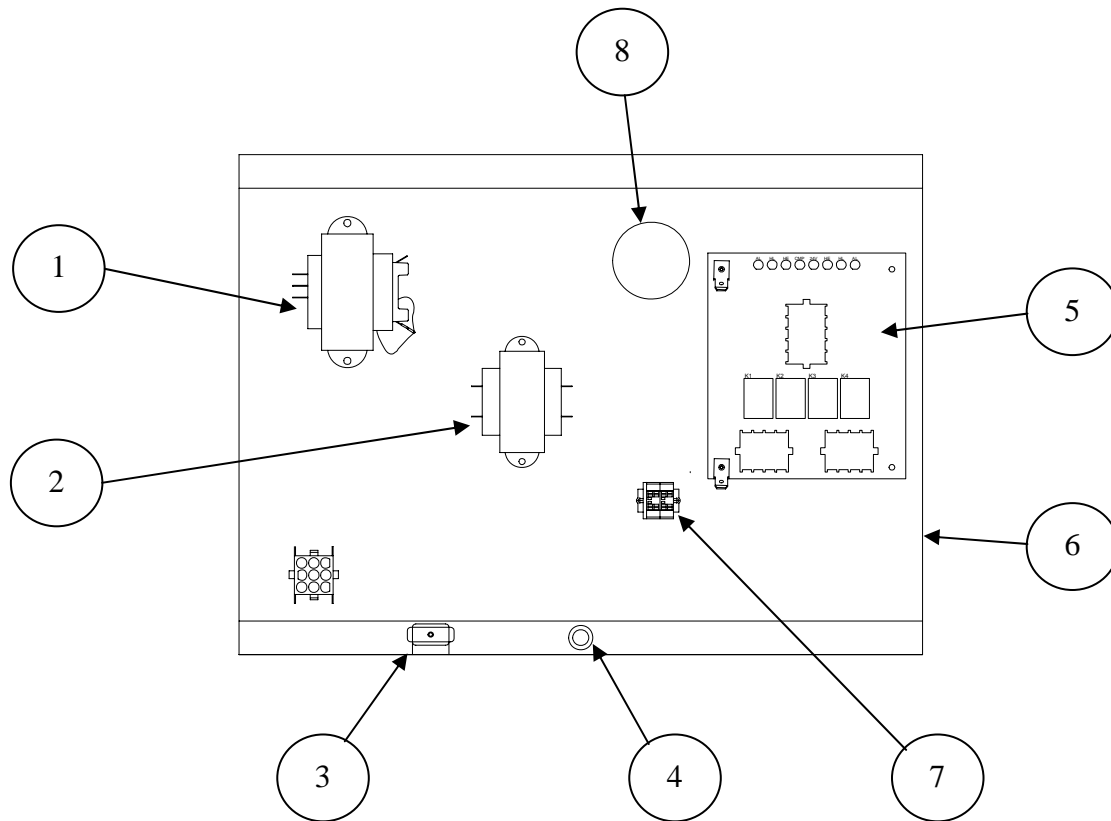


Figure 16-3

ITEM #	PART NO.	DESCRIPTION	FRYER MODEL
1	807-2181	Transformer, <b>120/24V</b> for 440 or 480 fryers	All
2	807-0855	Transformer, <b>120/12V</b> for 440 or 480V fryers only	All
3	807-0069	Circuit Breaker, 10A, 120V	All
4	807-1321	Fuse Holder	All
	807-1597	Fuse, 3A	All
5	806-7935	Interface Board	All
*	809-0349	Interface Board Spacers (behind interface board)	All
6	900-2462	Component Box	All
7	810-1164	Terminal Block	All
8	807-1084	Grommet	All

\*Not illustrated.

# CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14 Sub

## Heating Elements and Associated Components

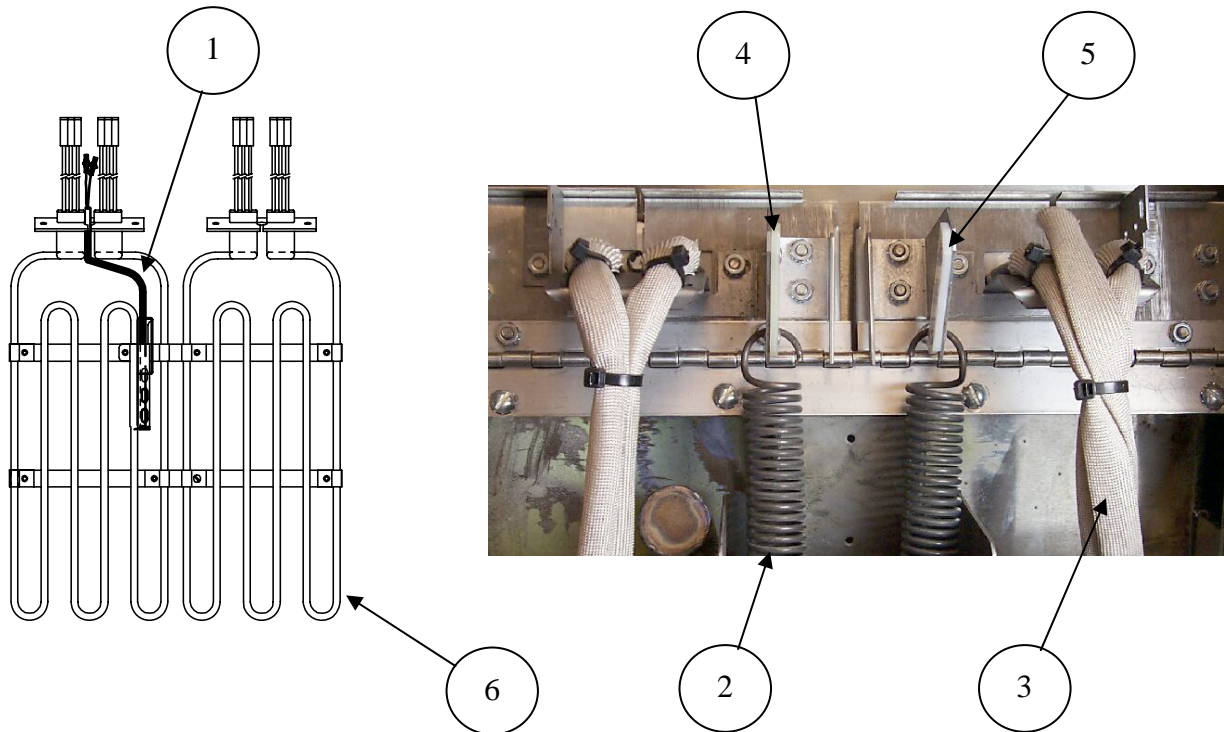


Figure 16-4

ITEM #	PART NO.	DESCRIPTION	FRYER MODEL
1	826-1526	Temperature Probe, ( <b>Ship and pre-6/99 submarine</b> )	
1	807 3269	Temperature Probe ( <b>Submarine only - After 6/99</b> ) **	<b>Submarine</b>
2	810-0297	Heating Element Tilt Spring	<b>(Ship Only)</b>
*	910-3177	Cabinet Rear Access Cover	ALL
*	810-1233	Heating Element Lift Handle	<b>(Ship Only)</b>
*	810-1212	Lift Handle Lock Pin	<b>(Ship Only)</b>
3	811-0208	Insulator Tubing Sleeve (by the foot)	ALL
4	806-8286	Upper Tilt Spring Bracket, Left (Viewed from back)	<b>(Ship Only)</b>
5	806-8285	Upper Tilt Spring Bracket, Right (Viewed from back)	<b>(Ship Only)</b>
6	807-3268	Element, ( <b>after 6/99</b> ) 440v, 7kW ( <b>pin</b> terminals) **	<b>Submarine only</b>
6	807-2649	Element, 440v, 7 kW (with <b>pin</b> terminals)	ALL
6	807-2650	Element, 440v, 8.5 kW (with <b>pin</b> terminals)	<b>Ship Only</b>
*	807-3100	Element, 440v, 8.5 kW (with <b>spade</b> terminals)	<b>Ship Only</b>
6	807-3176	Element, 440v, 11 kW (with <b>pin</b> terminals)	<b>Ship Only</b>
*	826-1459	Adapter kit—pin terminals to older-style fryers	H14 & H17
*	826-1289	Adapter kit—pin terminals to older-style fryers	H22

\* Not illustrated

\*\*Submarine fryers made 6/99 and later have a 4" deeper frypot than earlier models.

**Doors and Accessories**

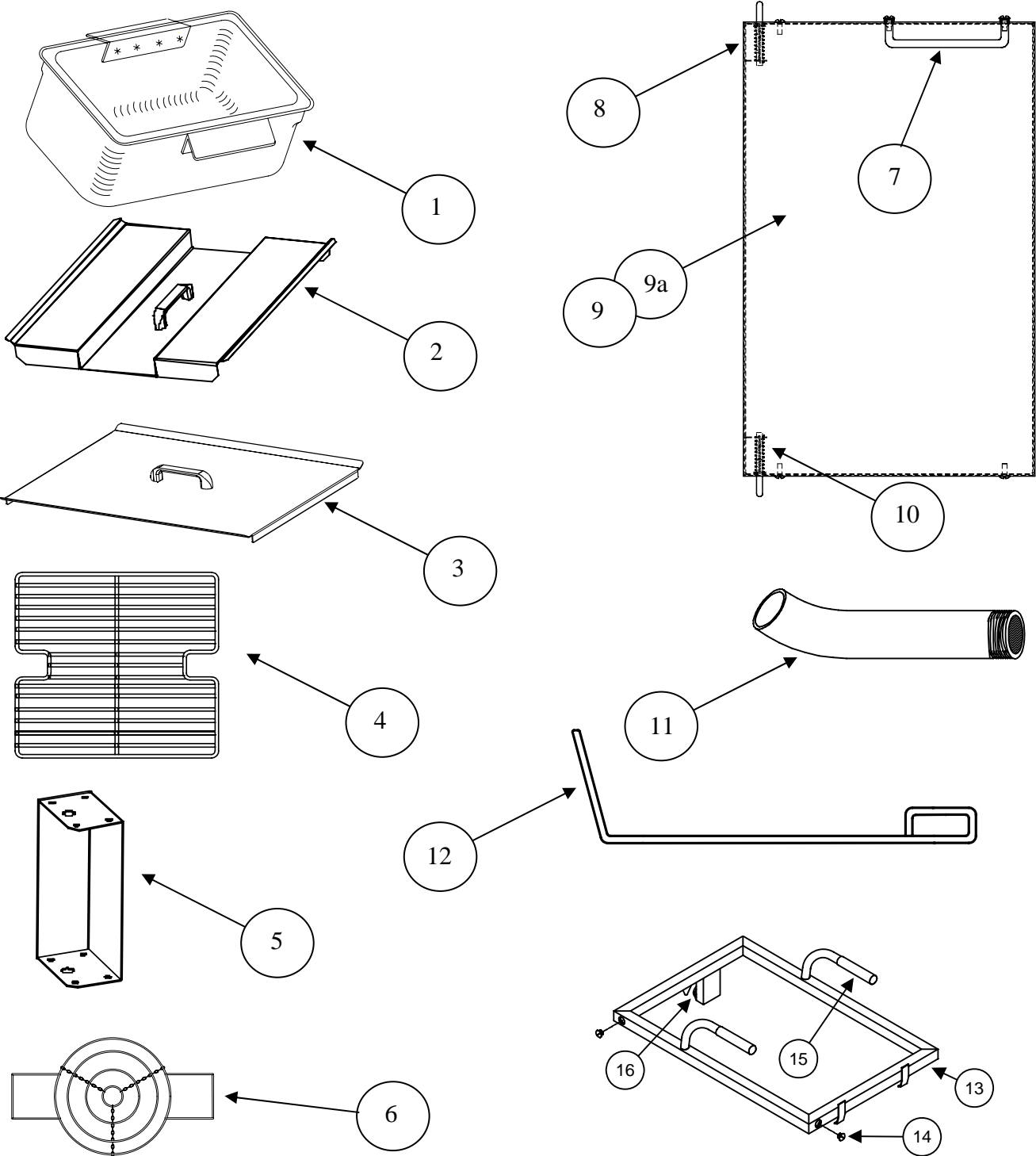


Figure 16-5

## CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14 Sub

### Doors and Accessories

(Refer to Figure 16-5)

ITEM #	PART NO.	DESCRIPTION	FRYER MODEL
1	823-2109	Military Drain Pan	ALL
2	806-3068	Cover, Frypot ( <b>Surface Ship</b> )	ALL
3	806-8558	Cover, Frypot ( <b>Submarine</b> )	SUB
4	803-0132	Basket Support Rack	ALL
5	823-2353	Leg	ALL
*	826-1113	Leg Mounting Hardware	ALL
6	803-0072	Filter Cone Holder (Top View)	ALL
*	803-0042	Filter Cone (Paper Filter Cones)	ALL
7	810-1422	Door Handle	ALL
8	806-4487	Door Pin Assembly	ALL
9	806-8470	Door Assembly, ( <b>Sub Only</b> )	SUB
9a	806-6545	Door, SS, Left or Right, ( <b>Surface Ship</b> )	ALL
10	810-0275	Door Pin Spring	ALL
*	810-0066	Magnetic Door Catch	ALL
*	806-4487SP	Door Hinge Pin	ALL
*	810-0658	Pin Retaining Ring	ALL
11	812-1226SP	Drain Nipple	ALL
12	803-0047	Clean-out Rod	ALL
*	803-0022	Twin Basket ( <b>Ship &amp; pre-6/99 sub fryers</b> )**	ALL
*	812-1386	Twin Basket	ALL
*	803-0099	Full Basket	ALL
13	806-4505	Power Shower ( <b>Surface Ship</b> )	ALL
14	809-0415	Clean-out Screw ( <b>Surface Ship</b> )	ALL
15	814-0001	Handle Grip ( <b>Surface Ship</b> )	ALL
16	816-0026	Power Shower Seal ( <b>Surface Ship</b> )	ALL

\* Not illustrated.

\*\* Submarine fryers made 6/99 and later have a 4" deeper frypot than earlier models.

**Footprint III Filter Pan**

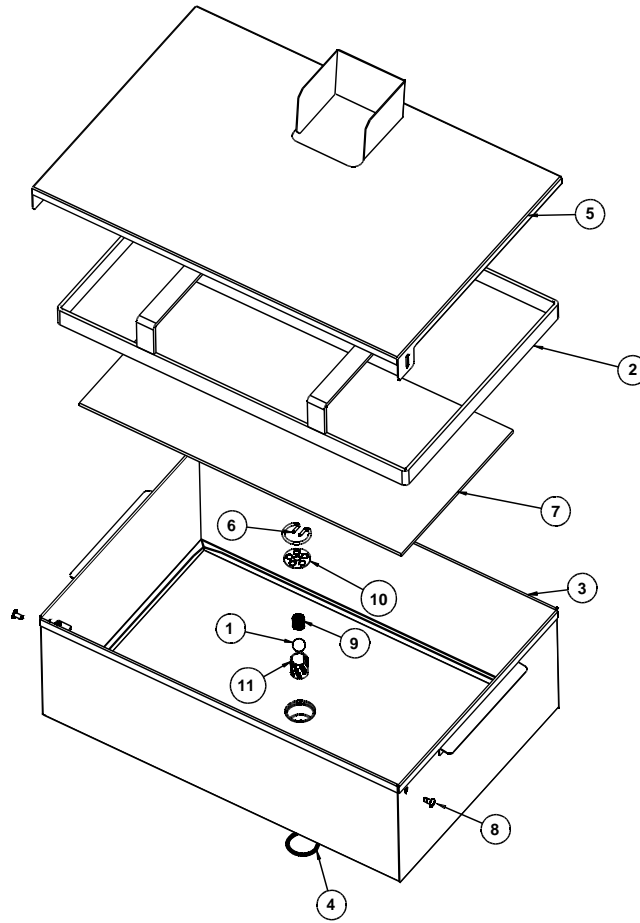


Figure 16-6

Item #	Part Number	Description
1	810-0948	Ball, Check Valve
2	810-1408	Hold-Down Ring
3	823-1979	Inner Filter Pan
4	816-0597	O-Ring
5	823-2027	Filter Pan Cover
6	810-1387	Retainer, Check Valve
7	900-8827	Filter Screen
8	809-0422	Cover Screw
9	810-0946	Spring, Check Valve
10	900-5448	Strainer, Check Valve
11	810-1388	Inner Tube, Check Valve

**Filter Magic II Filter Pan**

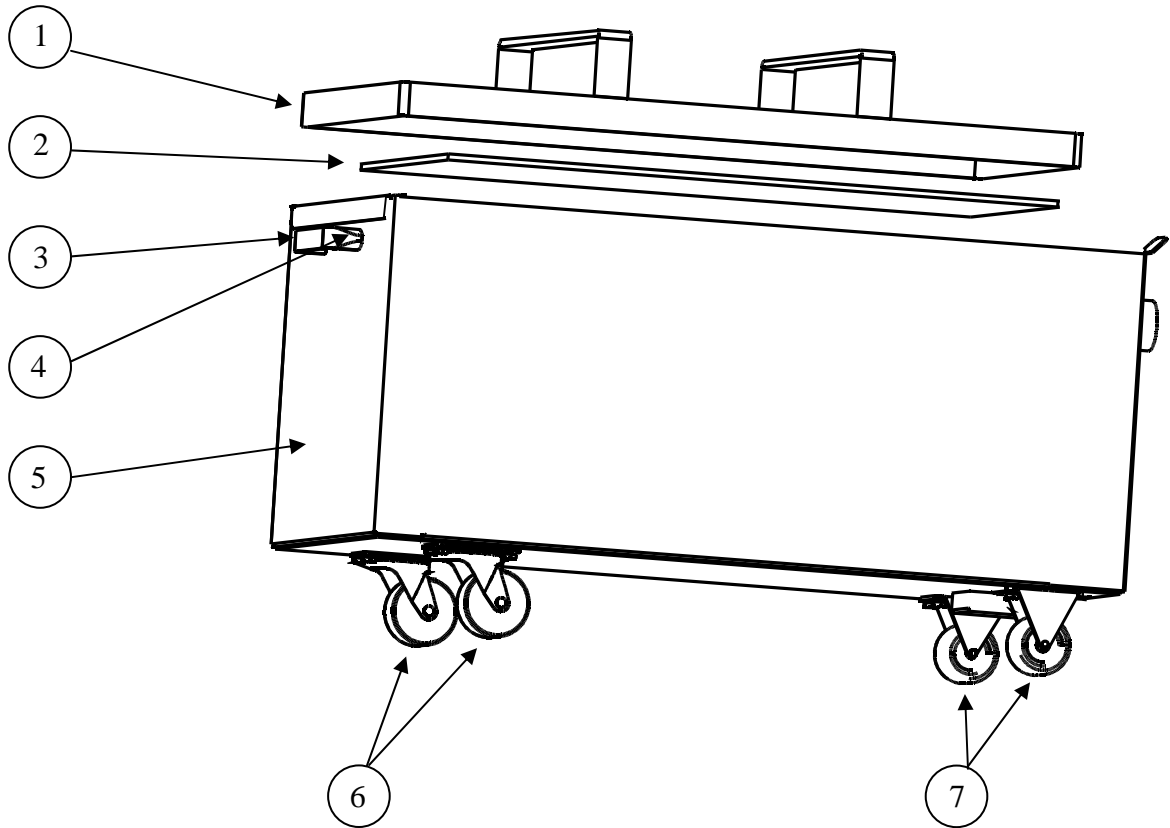


Figure 16-7

Item #	Part Number	Description
1	810-1406	Hold-down Ring
2	900-8827	Filter Screen
3	810-0181	Handle
4	809-0024	Screw, Handle
5	823-2751	Pan, Weld Assembly
6	810-0006	Caster, Swivel
7	810-0005	Caster, Non-swivel
*	809-0256	Nut (Caster mounting)

\* Not shown

# CHAPTER 16: PARTS LISTS - H14, H17, H22, FPH17, H14 Sub

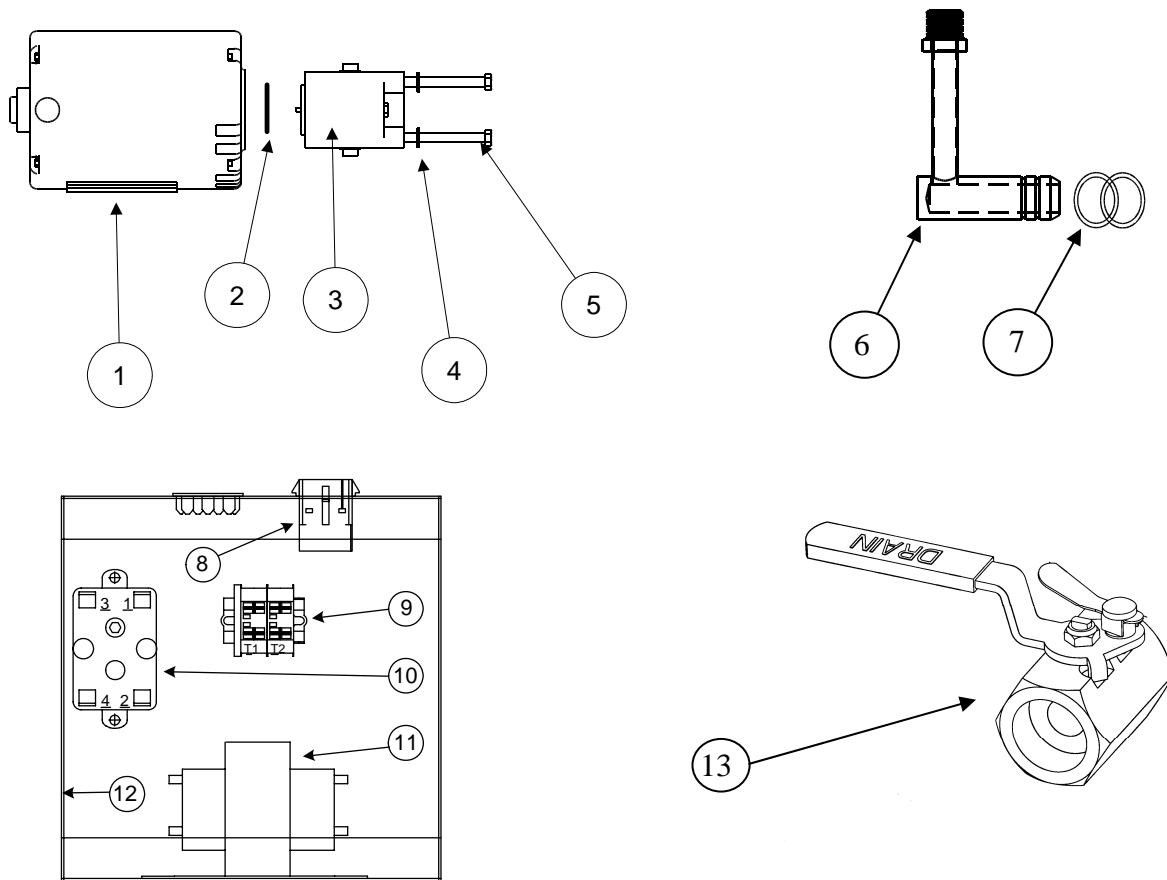


Figure 16-8

Item #	Part #	Description
1	826-1712	Motor (with gasket 816-0093)
2	816-0093	Gasket, Pump/Motor
3	826-1264	Pump (with gasket 816-0093)
4	809-0194	Washer
5	809-0514	Cap Screw, 5/16 – 18
6	823-1356	Disconnect, Filter magic
7	826-1392	O-ring (pkg. of 5)
8	807-0156	Connector, 9-Pin
9	810-1164	Terminal Block
10	807-2434	Relay, 18 Amp, 24V Coil
11	807-0800	Transformer, 120-24 AC
12	900-5250	Box, Filter Control
13	810-1569	Drain Valve, Non-Filtration System



**Drain Valve Assembly for Built-In Filtration Systems**

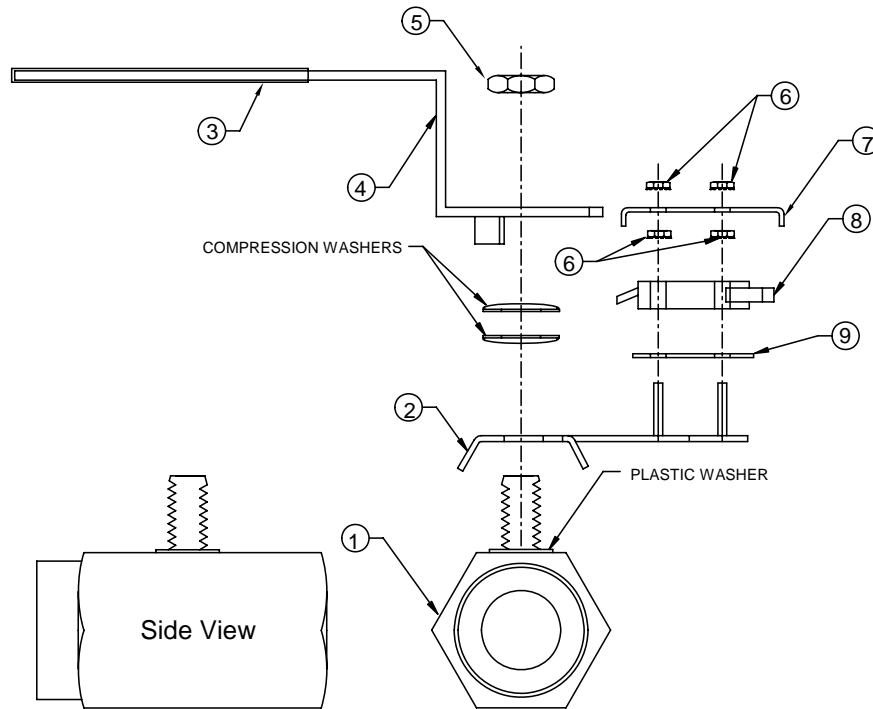


Figure 16-9

Item #	Part #	Description
1	810-1020	Drain Valve, 1-1/4" x 1"
2	823-8137	Bracket, Drain Switch
3	814-0047	Grip, Handle
4	900-2609	Handle, Drain Valve
5	809-0540	Nut, Lock
6	809-0237	Nut, Hex 4-40 (external tooth lock nuts)
7	900-2841	Cover, Drain Valve Switch
8	807-2103	Switch, Drain Safety
9	816-0220	Insulation, Micro switch



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