H20.5 Series Electric Fryers

Installation, Operation & Parts Manual

Frymaster ®

24-Hour Service Hotline 1-800-551-8633   **JUNE 2003**

8195606

Please read all sections of this manual and retain for future reference.

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

NOTICE
This appliance is intended for professional use only and is to be operated by qualified personnel only. A Frymaster Dean Factory Authorized Service Center (FASC) or other qualified professional should perform installation, maintenance, and repairs. Installation, maintenance, or repairs by unqualified personnel may void the manufacturer's warranty. See Chapter 1 of this manual for definitions of qualified personnel.

NOTICE
All fryers shipped without factory supplied cords and plug assemblies must be hardwired using flexible conduit to the terminal block located on the rear of the fryer. These fryers should be wired to NEC specifications. Hardwired units must include installation of restraint devices.

NOTICE
This equipment must be installed in accordance with the appropriate national and local codes of the country and/or region in which the appliance is installed.

NOTICE
Drawings and photos used in this manual are intended to illustrate operational, cleaning and technical procedures and may not conform to onsite management operational procedures.

NOTICE TO OWNERS OF UNITS EQUIPPED WITH COMPUTERS

U.S.

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

CANADA

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

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

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

⚠ **DANGER**

Improper installation, adjustment, maintenance or service, and unauthorized alterations or modifications can cause property damage, injury, or death. Read the installation, operating and service instructions thoroughly before installing or servicing this equipment. See Chapter 1 of this manual for definition of qualified service personnel.

⚠ **DANGER**

Single fryers equipped with legs must be stabilized by installing anchor straps. All fryers equipped with casters must be stabilized by installing restraining chains

⚠ **DANGER**

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

⚠ **DANGER**

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

⚠ **WARNING**

No structural material on the fryer should be altered or removed to accommodate placement of the fryer under a hood. Questions? Call the Frymaster Dean Service Hotline at 1-800-551-8633.

⚠ **WARNING**

Do not bang fry baskets or other utensils on the fryer's joiner strip. The strip is present to seal the joint between the frypot. 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.

⚠ **DANGER**

Adequate means must be provided to limit the movement of this appliance without depending on or transmitting stress to the electrical conduit. A restraint kit is provided with the fryer. If the restraint kit is missing contact your local Frymaster Factory Authorized Service Center (FASC) for part number 826-0900.

⚠ **DANGER**

This fryer may have two power cords and prior to movement, testing, maintenance and any repair on your Frymaster fryer; disconnect BOTH electrical power cords from the electrical power supply.

⚠ **DANGER**

THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.
Operation, installation, and servicing of this product could expose you to airborne particles of glasswool or ceramic fibers, crystalline silica, and/or carbon monoxide. Inhalation of airborne particles of glasswool or ceramic fibers is known to the State of California to cause cancer. Inhalation of carbon monoxide is known to the State of California to cause birth defects or other reproductive harm.

Frymaster

H20.5 SERIES ELECTRIC FRYER

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H20.5 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 H20.5 Series electric fryers.

H20.5 Series electric fryers feature easy to clean, open frypots with tilt-up elements. The fryers are controlled by multi-product cooking computers and come in full-pot configurations.

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**

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

⚠ **WARNING**

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

⚠ **DANGER**

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

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. An inline circuit breaker shuts off power to the filter-pump motor (if equipped) if the motor clogs or overheats.

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 their 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 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.

    1. 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.

1.5 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 (1-800-551-8633). The following information will be needed in order to assist you efficiently:

Model Number _____

Serial Number _____

Voltage _____

Nature of the Problem _____

_____

_____

1.6 After Purchase

In order to improve service, have the following chart filled in by the Frymaster/Dean Authorized Service Technician who installed this equipment.

Authorized Service Technician/FASC	
Address	
Telephone/Fax	
Model Number	
Serial Number	
Gas Type	

1.7 SERVICE PERSONNEL

1.7.1 Definitions

A. Qualified and/or Authorized Operating Personnel

1. Qualified/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.

B. Qualified Installation Personnel

1. Qualified installation personnel are individuals, or firms, corporations, or companies that, either in person or through a representative, are engaged in and are responsible for the installation of electrical appliances. Qualified personnel must be experienced in such work, be familiar with all electrical precautions involved, and have complied with all requirements of applicable national and local codes.

C. Qualified Service Personnel

1. Qualified service personnel are those who are familiar with Frymaster/Dean equipment and have been authorized by Frymaster/Dean to perform service on Frymaster/Dean equipment. 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/Dean equipment. A list of Frymaster/Dean Factory Authorized Service Centers (FASCs) was included with the fryer when shipped from the factory. ***Failure to use qualified service personnel will void the Frymaster/Dean warranty on your equipment.***

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

2.1 General

Proper installation is essential for the safe, efficient, trouble-free operation of this appliance.

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

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

Where conflicts exist between instructions and information in this manual and local or national codes or regulations, installation and operation shall comply with the codes or regulations in force in the country in which the equipment is installed.

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

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

NOTICE
This equipment must be positioned so that the plug is accessible unless other means for disconnection from the power supply (e.g., a circuit breaker) is provided.

⚠ **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 diagram(s) 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 (15 cm) must be provided at both sides and back adjacent to combustible construction. A minimum of 24 inches (61 cm) 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 Fryer Installation

⚠ **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

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

5. When the fryer is leveled in its final position, install the restraints provided with the unit to limit its movement so that it does not depend on or transmit stress to the electrical conduit or connection. Install the restraints in accordance with the provided instructions (see illustration on the following page). If the restraints are disconnected for service or other reasons, they must be reconnected before the fryer is used.
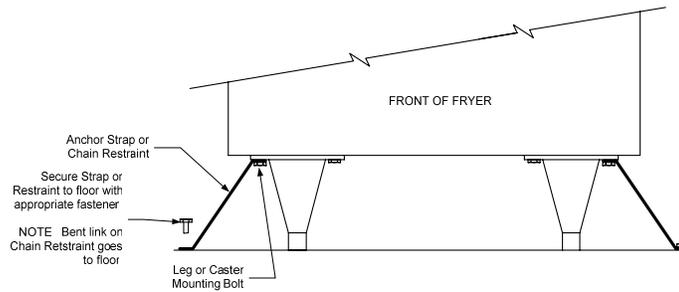
6. Close fryer drain-valve and fill frypot with water to the bottom OIL LEVEL line.

7. Boil out frypot prior to first use. See Frypot Boil-Out instructions on page **2.4**.

8. Drain, clean, and fill frypot(s) with cooking oil. See Section **2.5**, Equipment Setup and Shutdown Procedures.

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 (mm²)	AMPS PER LEG		
						L1	L2	L3
H20.5	208	3	3	4	(25)	57	57	57
H20.5	240	3	3	4	(25)	50	50	50

⚠ **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 specified on the rating and serial number plate located inside 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 inside 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 inside the frypot. This film should be periodically removed by following the boil-out procedure.

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 "ON", close the frypot drain valve, then fill the empty frypot with a mixture of cold water and detergent. Follow instructions on detergent bottle when mixing.

4. Press computer ON/OFF switch to "ON".

3. Program computer for Boil-out Operation as outlined in the computer manual that shipped with the fryer.

4. Simmer the solution for 45 minutes to 1 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. Press ON/OFF switch to the "OFF" position to control boil over.

⚠ 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 filtration system and all applicable warranties will be voided.

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

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

6. Refill the frypot(s) with clean water. Rinse the frypot(s) twice, drain and wipe down with a clean towel. Remove all traces of water prior to filling frypot with oil.

For computer/controller operational procedures, consult the manual that shipped with the computer/controller.

2.5 Equipment Setup and Shutdown Procedures

<u>Setup</u>

⚠ **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.

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4. Fill the frypot with vegetable oil to the <u>bottom</u> 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.

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5. 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.

6. 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.
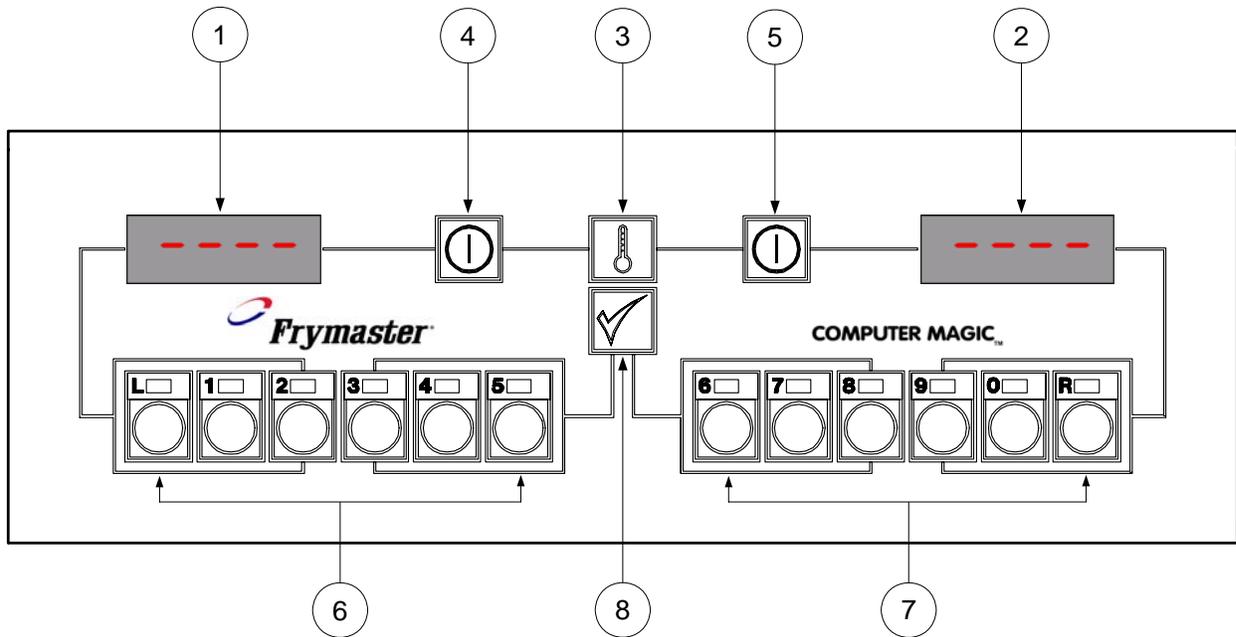
<u>Shutdown</u>

4. Press the ON/OFF switch ⏻ to the "OFF" position (the display will show "OFF").

2. Filter vegetable oil (if applicable) and clean fryers (See Chapter 3).

3. Place the frypot covers on frypots.

3.1 Operating Fryers with Computer Magic III.5 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.
4/5	Power Switches— either switch turns power "ON" or "OFF"
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 (if applicable).

3.1 Operating Fryers with Computer Magic III.5 Computers (cont.)

3.1.1 Equipment Setup and Shutdown Procedures

<u>Setup</u>

> ⚠ **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 <u>bottom</u> 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.

<u>Shutdown</u>

1. Press the ON/OFF switch ⓘ to the "OFF" position (the display will show "OFF").

2. Filter vegetable oil (if applicable) and clean fryers (See Chapter 4).

3. Place the frypot covers on frypots.

3.1.1 Equipment Setup and Shutdown Procedures (cont.)

<u>**Operating the Fryer**</u>

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 heating 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.

3.1.1 Equipment Setup and Shutdown Procedures (cont.)

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 $SH-$ and the product number selected. 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. $Hd-$ and the product number selected is displayed. 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.5

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.

3.2 Programming The Computer Magic III.5 (cont.)

4. "5 P - 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. "5 E L P" (Select Product) will appear in the left display. Press the product button to be programmed.

6. 5EΠ5 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. C O O C 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. 5 H - 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. 5 E L P 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.

3.2 Programming The Computer Magic III.5 (cont.)

3.2.1 Boil Feature

> ⚠️ **CAUTION**
> **Do not drain water or boil-out solution into the filtration system (if applicable). Irreparable damage will result and void the warranty.**

1. Before switching the fryer "ON", close the frypot drain valve. 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 ⓪ 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 ⓪ 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.

3.2.2 Fryer Recovery Time Check

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.

3.2.3 Temperature Selection—Fahrenheit to Celsius

1. To change the computer temperature from Fahrenheit to Celsius or Celsius to Fahrenheit, press either ⓪ 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.

### 3.2.4 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.

3.2.5 In-N-Out Burger CMIII.5 Programming Specifications

In-N-Out Burger H20.5 fryer computers should be programmed to the following specifications:
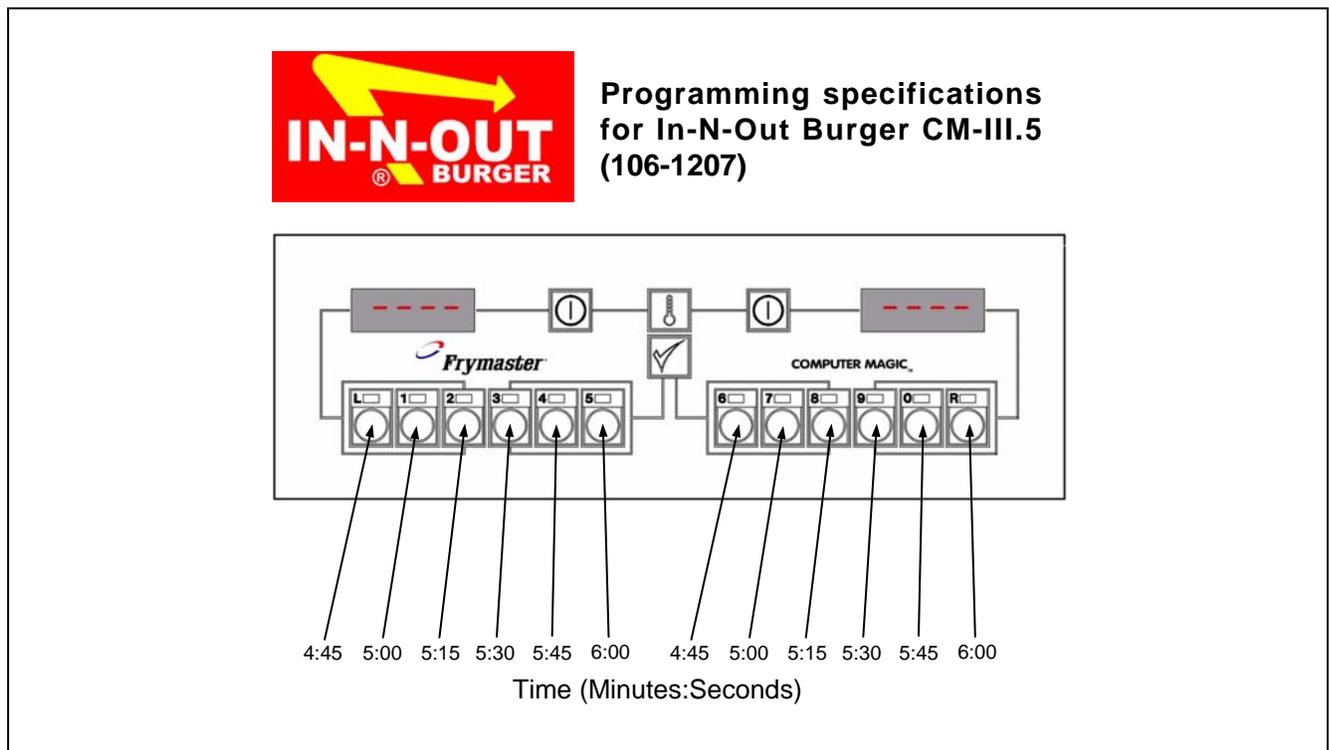
There is no "Shake" or "Hold" time programmed for any buttons. "Sensitivity" settings for all buttons should be "2".

3.3 Fallback Controller (Optional)

If the computer fails, place the fallback controller switch in the "up" ("ON") position (Figure 1). The fallback controller switch is located inside the fryer door, on the left-side panel, under the component box. The white light on the front of the control panel will illuminate and the fryer will operate at a fixed temperature (Figure 2). Have the computer repaired or replaced as soon as possible.
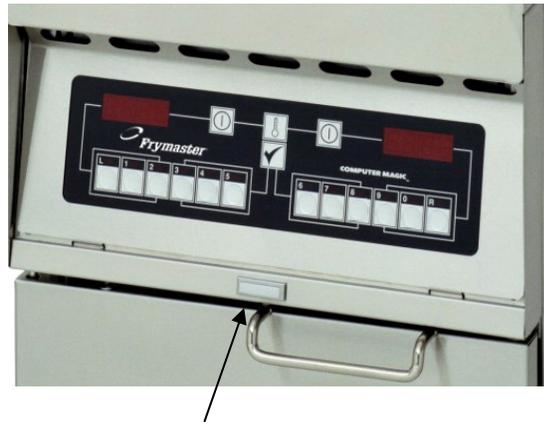

Figure 1: Fallback Controller Switch

Figure 2: Fallback Controller Indicator Light

H20.5 SERIES ELECTRIC FRYERS
CHAPTER 4: PREVENTATIVE MAINTENANCE

4.1 Cleaning Fryer

4.1.1   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.

4.1.2   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:

    See Section 2.4 for boil-out procedure, and Section 3.2.1 for programming the computer for boil-out.

⚠ **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.

⚠ **CAUTION**
**Do not run water or boil-out solution through the filtration system (if applicable).
Doing so will cause irreparable damage to the pump.**

4.1.3   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.

4.1.4 Draining and Manual Filtering: Non-Filtration Fryers

⚠ DANGER
Allow oil/shortening to cool to 100ºF (38ºC) 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.

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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.

H20.5 SERIES ELECTRIC FRYERS
CHAPTER 5: OPERATOR TROUBLESHOOTING

5.1 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.

5.2 Troubleshooting

5.2.1 Control and Heating Problems

Problem	Probable Causes	Corrective Action
Controller won't activate.	A. Power cord is not plugged in or circuit breaker is tripped.	A. Plug power cord in and verify that circuit breaker is not tripped.
	B. Controller has failed.	B. Call FASC.
	C. Power supply component or interface board has failed.	C. If any of the components in the power supply system (including the transformer and interface board) fail, power will not be supplied to the controller and it will not function. Determining which component has failed is beyond the scope of operator troubleshooting. Call FASC.
Fryer does not heat.	A. Drain valve is open.	A. This fryer is equipped with a drain safety switch that prevents the heating element from being energized if the drain valve is not fully closed. Verify that the drain valve is fully closed.
	B. Controller has failed.	B. Call FASC.
	C. One or more other components have failed.	C. If the circuitry in the fryer control system cannot determine the frypot temperature, the system will not allow the element to be energized or will de-energize the element if it is already energized. If the contactor, element, or associated wiring fails, the element will not energize. Determining which specific component is malfunctioning is beyond the scope of operator troubleshooting. Call FASC.

5.2.1 Control and Heating Problems (cont.)

Problem	Probable Causes	Corrective Action
Fryer repeatedly cycles on and off when first started.	Fryer is in melt-cycle mode.	This is normal for fryers equipped with *CM III.5 computers and Digital Controllers*. The default operational mode for these controllers is for the elements to cycle on and off until the temperature in the frypot reaches 180°F (82°C). In CM III.5 computers, **CYCL** will appear in the display when in the melt-cycle mode. The purpose of the melt-cycle is to allow controlled melting of solid shortening to prevent scorching and flash fires or damage to the element. If you are not using solid shortening, the melt-cycle can be cancelled or bypassed. Refer to the separate *Frymaster Fryer Controllers User's Manual* for the procedure for canceling the melt-cycle for the particular controller installed on your fryer. In fryers equipped with *Solid State (Analog)* controllers, the melt-cycle is controlled manually by means of the rocker switch to the right of the temperature control knob. *If not using solid shortening*, press the rocker switch to the OFF position to turn off the melt-cycle.
Fryer does not heat after filtering.	Drain valve is open.	This fryer is equipped with a drain safety switch that prevents the heating element from being energized if the drain valve is not fully closed. Verify that the drain valve is fully closed.
Fryer heats until high-limit trips with heat indicator ON.	Temperature probe or controller has failed.	Call FASC.

5.2.1 Control and Heating Problems (cont.)

| Problem	Probable Causes	Corrective Action
Fryer heats until high-limit trips without heat indicator ON.	Contactor or controller has failed.	Call FASC.
Fryer stops heating with heat indicator ON.	The high-limit thermostat or contactor has failed.	The fact that the heat indicator is ON indicates that the controller is functioning properly and is calling for heat. The high-limit thermostat functions as a normally closed switch. If the thermostat fails, the "switch" opens and power to the elements is shut off. If the contactor fails to close, no power is supplied to the elements. Determining which component has failed is beyond the scope of operator troubleshooting. Call FASC.

5.2.2 Error Messages and Display Problems

Problem	Probable Causes	Corrective Action
CM III.5 display is in wrong temperature scale (Fahrenheit or Celsius).	Incorrect display option programmed.	CM III.5 computers may be programmed to display in either Fahrenheit or Celsius. Refer to the separate *Frymaster Fryer Controllers User's Manual* for instructions on changing the display.
CM III.5 or Digital Controller display shows H E L P.	Open drain valve or problem with latching circuitry.	Verify that the drain valve is fully closed. The fryer will not function if the drain valve is not fully closed. If the drain valve is fully closed, the problem is within the latching circuitry and is beyond the scope of operator troubleshooting. Call FASC.

5.2.2 Error Messages and Display Problems (cont.)

| Problem	Probable Causes	Corrective Action
Display shows H I.	Fryer is more than 21°F (12°C) above setpoint.	This display is normal if the fryer setpoint has been changed to a lower temperature. The display should revert to the normal four dashes when the frypot temperature cools to the setpoint. If the setpoint has not been changed, this indicates a problem with the temperature control circuitry. Turn the fryer off and call FASC.
CM III.5 **or** **Digital Controller display shows** H O T.	Frypot temperature is more than 410°F (210°C) or, in CE countries, 395°F (202°C).	This in an indication of a malfunction in the temperature control circuitry, including a failure of the high-limit thermostat. Shut the fryer down immediately and call FASC.
CM III.5 **or** **Digital Controller display shows** Lo.	Frypot temperature is more than 21°F (12°C) below setpoint.	This display is normal when the fryer is first turned on and may appear for a short while if a large batch of frozen product is added to the frypot. If the display never goes out, the fryer is not heating. Look for a decimal in the LED display between digits 1 and 2. If the decimal is present, the computer is calling for heat and is functioning properly. See *Fryer Does Not Heat* in Control and Heating Problems (Section 5.2.1). If the decimal is not present, the computer is not calling for heat and may be malfunctioning. Shut the fryer down and call FASC.
CM III.5 **or** **Digital Controller display shows** P r o b.	Problem with the temperature measuring circuitry including the probe.	This indicates a problem within the temperature measuring circuitry that is beyond the scope of operator troubleshooting. Shut the fryer down and call FASC.
CM III.5 frypot temperature is displayed constantly.	Computer is programmed for constant temperature display.	The CM III.5 computer may be programmed for constant temperature display or countdown timer display. Refer to the separate *Frymaster Fryer Controllers User's Manual* for instructions on toggling between these display options.

5.3 Wiring Diagrams

5.3.1 Wiring Diagram, Contactor

ELEMENT WIRING

CONTROLS CIRCUIT
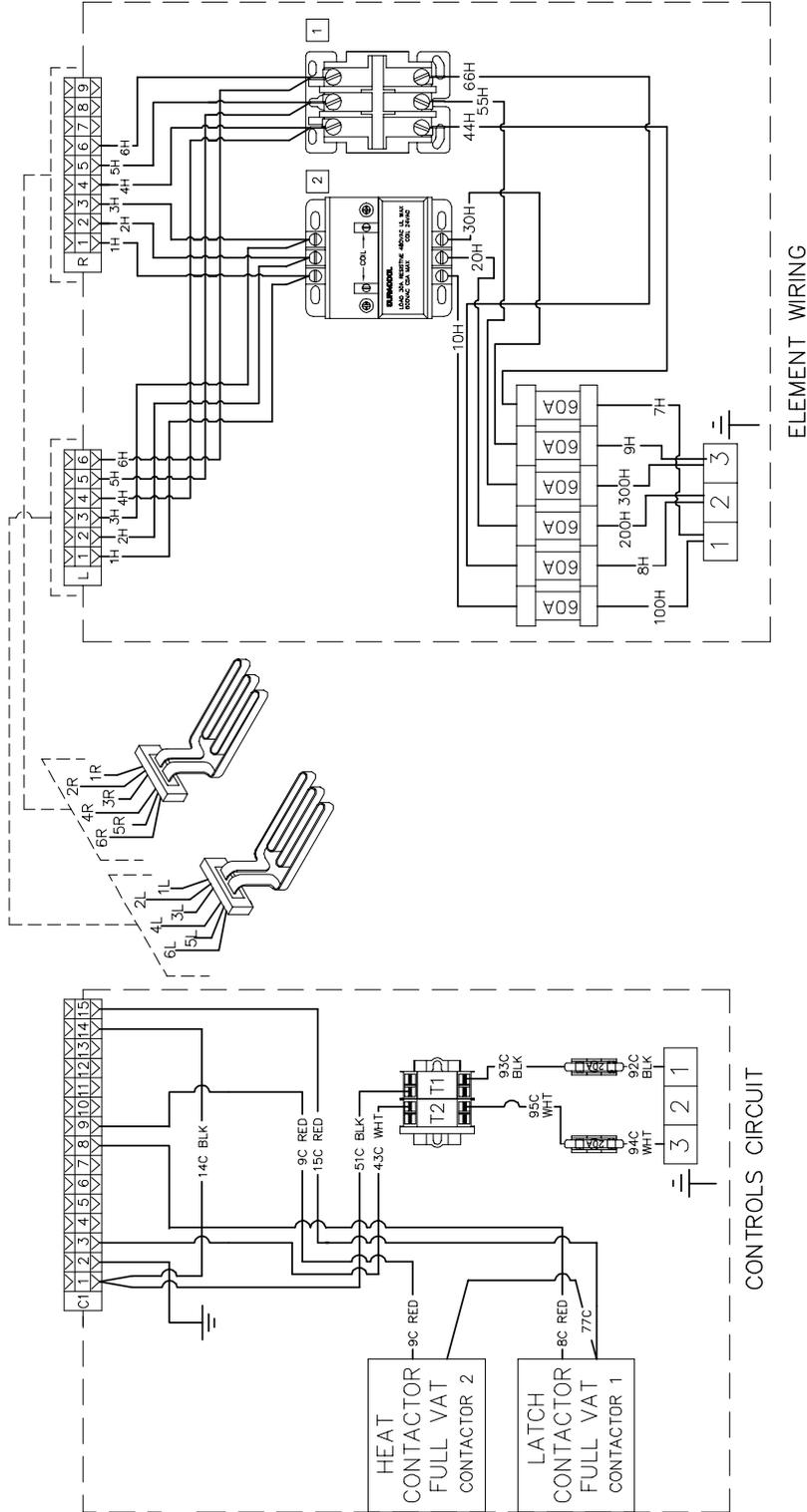
8050922A
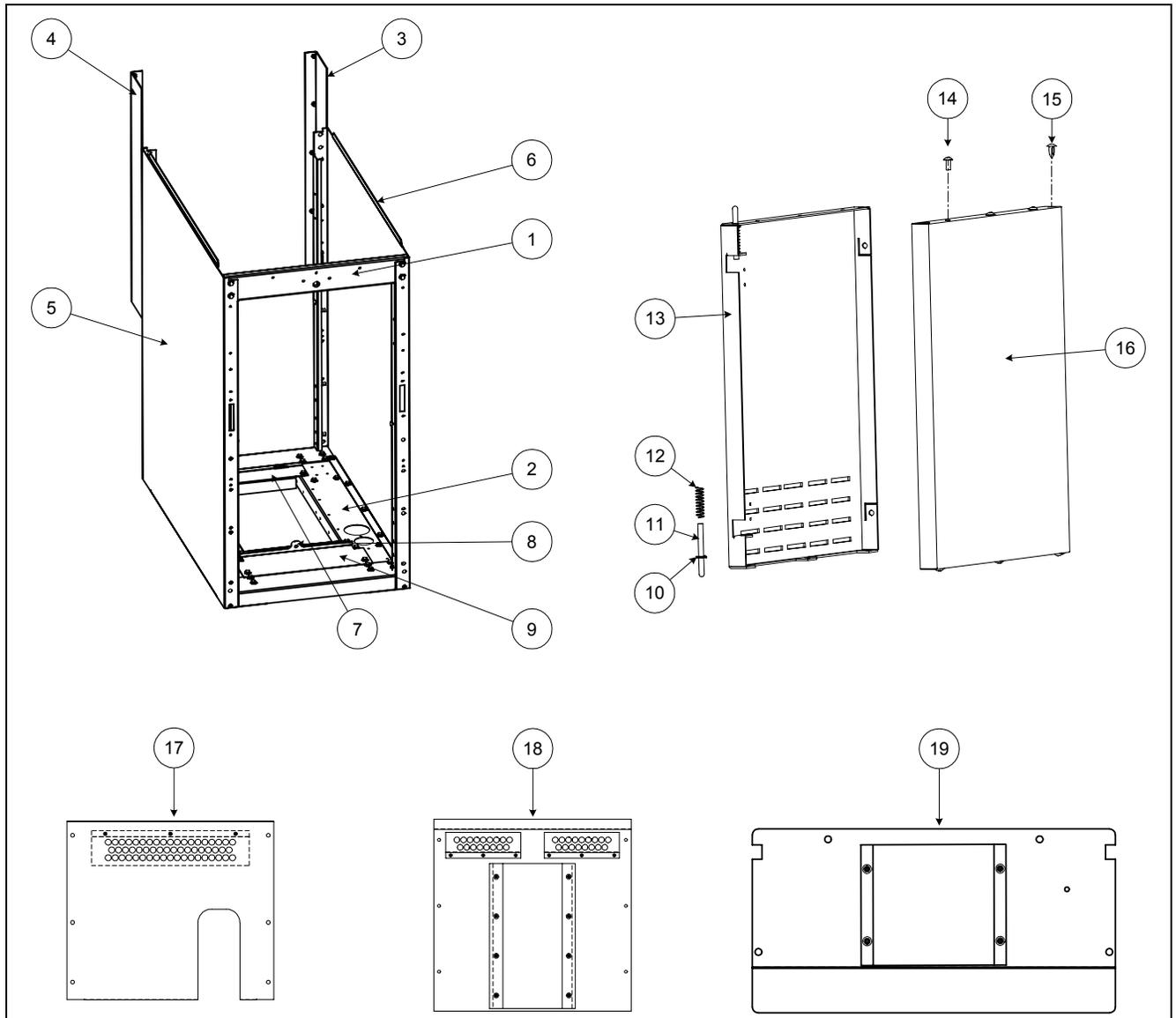
5.3.2 Wiring Diagram, Main
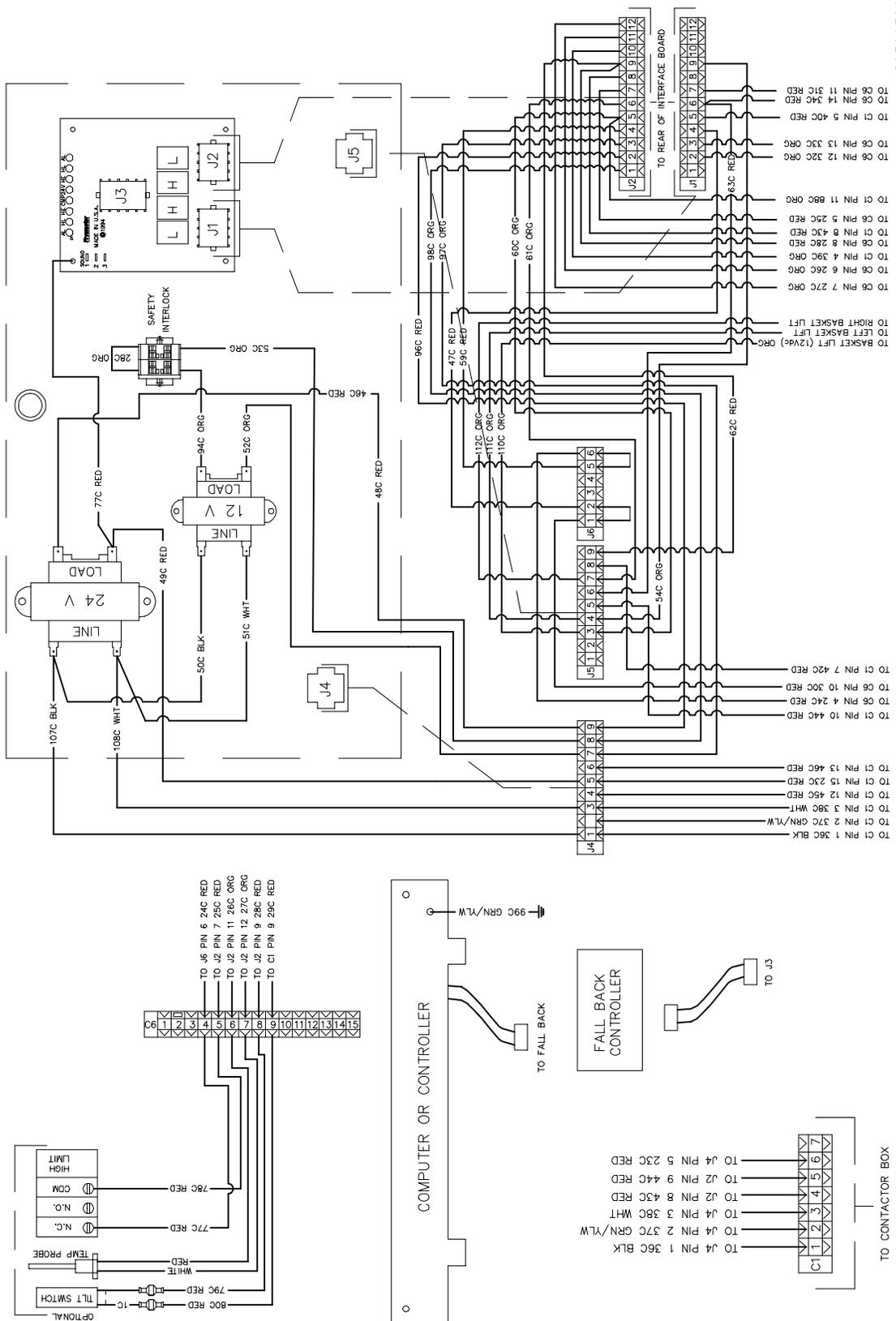
H20.5 SERIES ELECTRIC FRYERS
CHAPTER 6: PARTS LIST

6.1 Cabinet Assemblies and Related Components

6.1 Cabinet Assemblies and Component Parts (cont.)

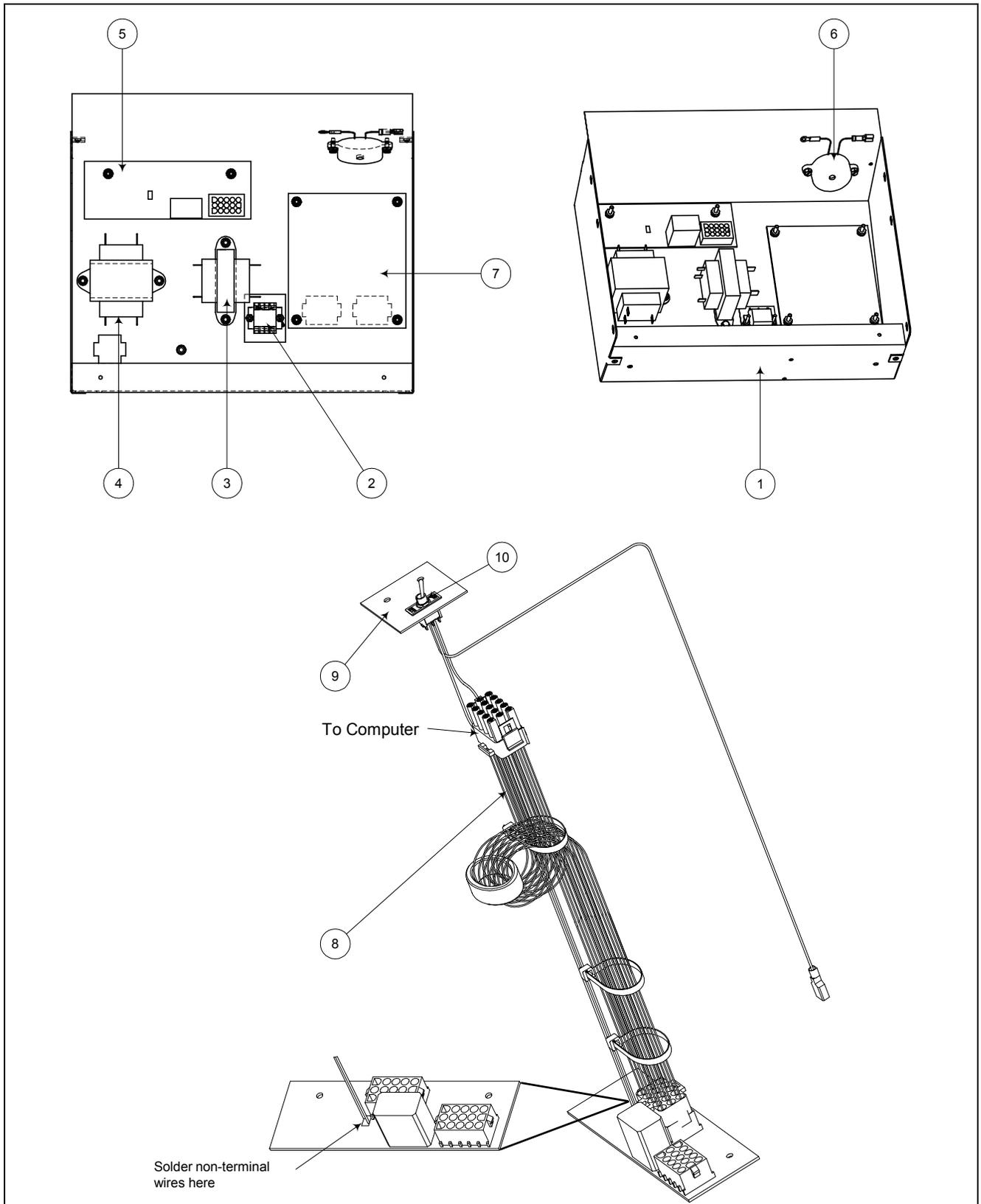| ITEM	PART #	COMPONENT
1	900-2981	Rail, Front Top
2	806-7714	Base Assembly, Single
3	806-8277	Upright and Nutsert Assembly, Left
4	806-8295	Upright and Nutsert Assembly, Right
5	806-8296	Side, Cabinet—Right
6	806-8297	Side, Cabinet—Left
7	900-2983	Support, Rear Contactor Box
8	900-2984	Support, Front Contactor Box
9	900-5020	Guard, Splash
10	810-0658	Ring, Retaining
11	809-0216	Pin, Hinge Cover and Door
12	810-0275	Spring, Door Hinge
*	809-0413	Spacer, Door Post
*	90007341	Hinge, Door
13	900-5457	Liner, Door
14	809-0449	Screw, #10 x ½ Phillips
15	809-0545	Clip, Nylon
16	824-0608	Panel, Door
*	810-1422	Handle, Door—Wireform
*	810-1105	Magnet, Door (Offset)
17	806-8298	Back, Lower (Vent Cover)
18	806-8288	Back, Center, Rubber Bumper & Holddown Bar
19	806-8287	Back, Upper, Rubber Bumper & Holddown Bar
* Not Illustrated		

6.2 Casters and Associated Hardware
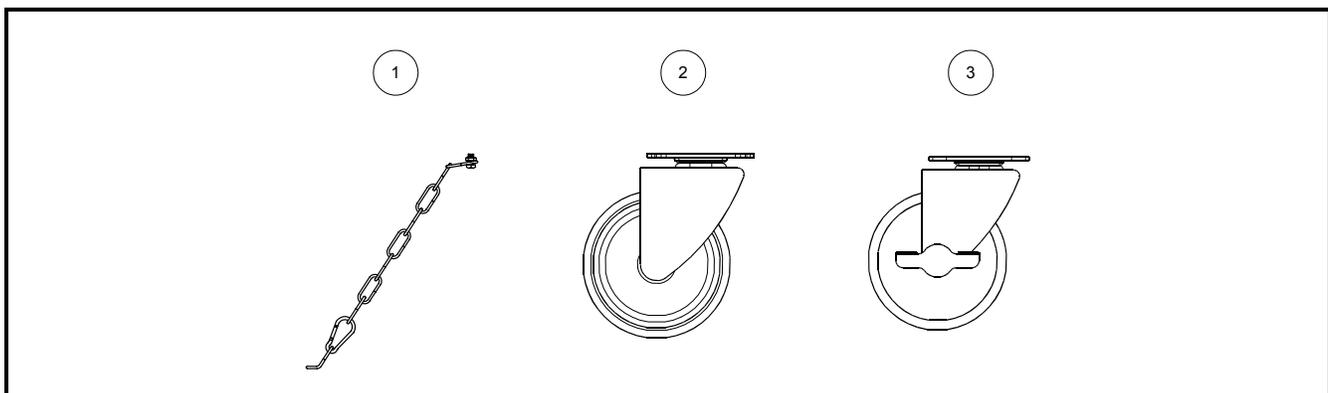
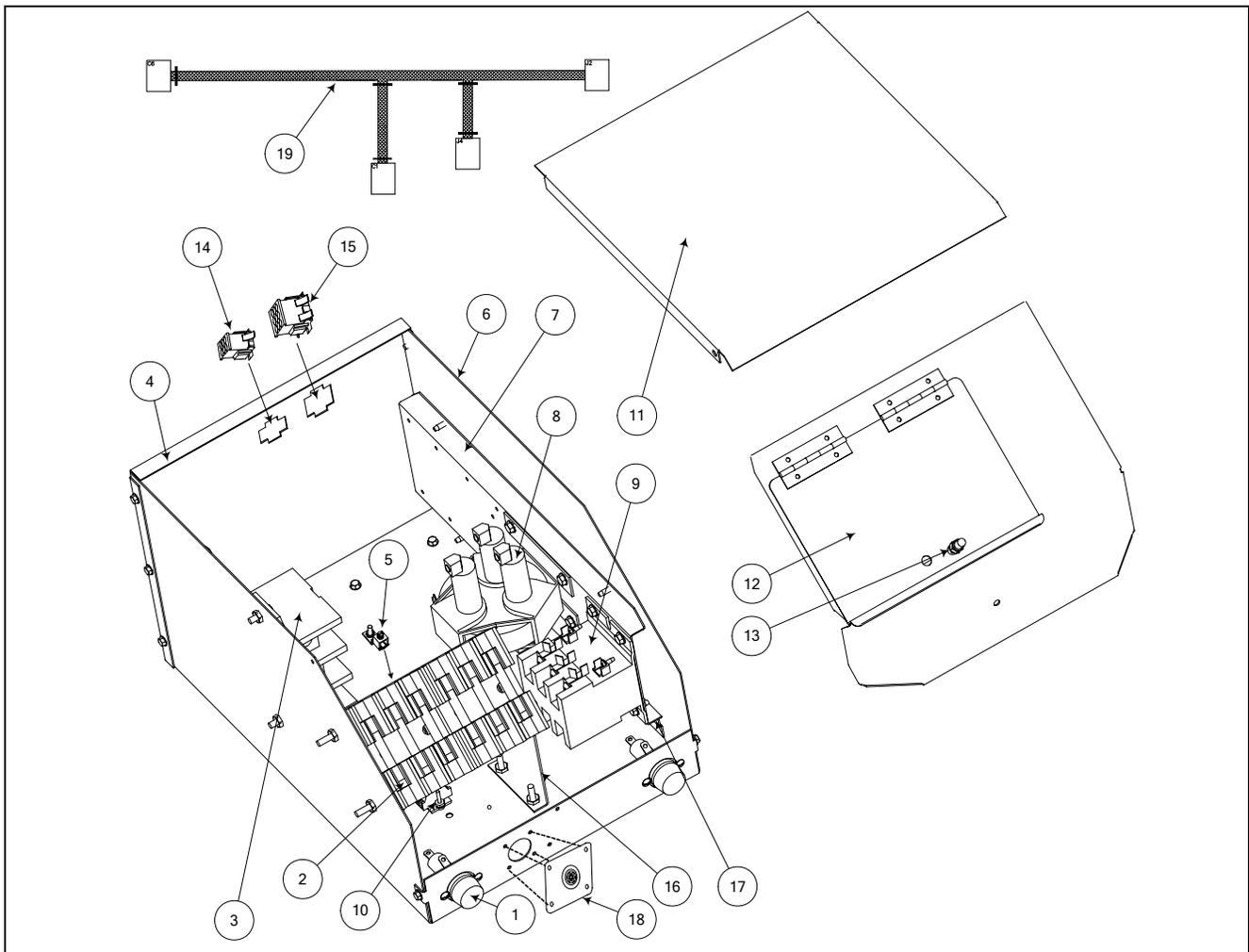| ITEM	PART #	COMPONENT
1	826-0900	Chain Restraint Kit
2	810-0356	Caster, 5-inch Wheel w/o Brake
3	810-0357	Caster, 5-inch Wheel w/Brake
* Not Illustrated		

6.3 Component Box Assembly and Associated Hardware

To Computer

Solder non-terminal
wires here

6.3 Component Box Assembly and Associated Hardware (cont.)

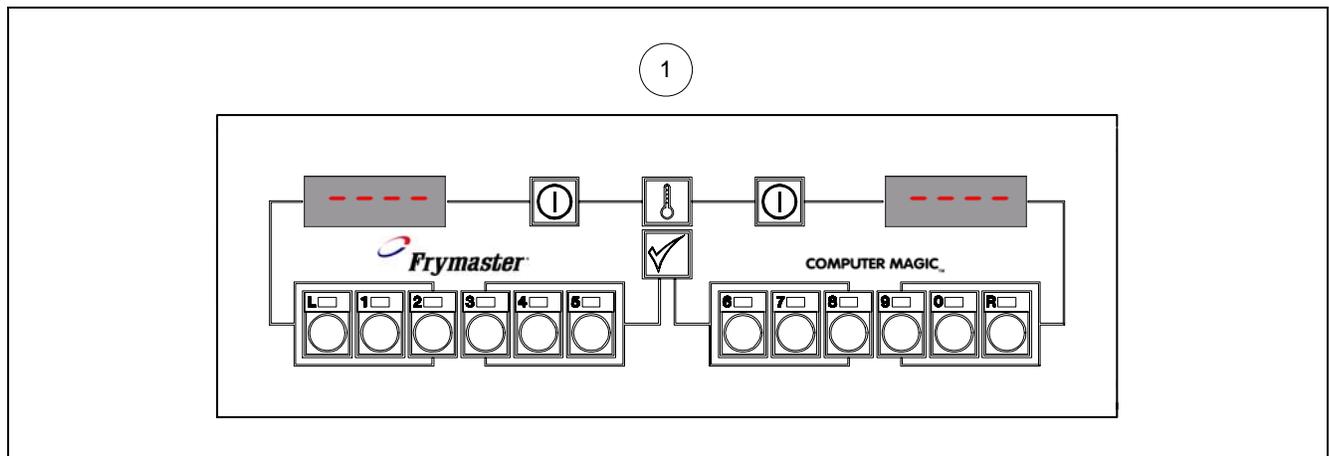| ITEM	PART #	COMPONENT
1	806-8303	Box, Component
2	806-9495	Terminal Block
*	816-0217	Insulating Paper, Terminal Block
3	807-0979	Transformer, 208/240/12 VAC 50/60 Hz. 43VA
4	807-0680	Transformer, 208/240/24 VAC 50/60 Hz. 43VA
5	806-8469	Interface Board, Fallback Controller (Optional and Older Units)
6	806-7179	Sound Device
7	806-7965	Interface Board, Full-vat
8	806-8294	Cable Assembly, Fallback Controller
9	910-1328	Mounting Plate, Switch—Fallback Controller (Optional and Older Units)
10	806-8524	Switch, Fallback Controller (Optional and Older Units)
* Not Illustrated		

6.4 Contactor Box and Related Components

6.4 Contactor Box and Related Components (cont.)

ITEM	PART #	COMPONENT
1	807-0922	Holder, Buss Fuse HPS
*	807-2278	Fuse, KTK-R-20 20 Amp
2	807-0501	Fuse Block, 3-Pole
3	807-2464	Power Block, Delta
*	807-2240	Fuse, Buss 60 Amp, 300 VAC
4	900-5572	Back, Contactor Box
5	807-0070	Terminal, Ground Lug
6	900-5573	Box, Contactor
7	900-5443	Rail, Contactor Box
8	807-0884	Contactor, Mercury 22 kW (Watlow or Durakool)
9	810-1202	Contactor, 3-Pole 600V 40 Amp
10	810-1164	Terminal Block, 1-Piece Screwless
*	816-0217	Insulating Paper, Terminal Block
11	900-5132	Cover, Upper—Contactor Box
12	823-2553	Cover, Swing—Contactor Box
13	810-1396	Compression Latch, Adjustable
14	806-7188	Wire Assembly, Left—HV Full-vat
15	806-7184	Wire Assembly, Right—HV Full-vat
*	806-8341SP	C1 Wiring Assembly – Contactor Box Wire Harness
*	WIR0192	Wire Assembly, Delta
16	900-2865	Support, Fuse Block
17	900-5555	Flange, Rail—Contactor Box
18	807-2596	7-Pin Receptacle
19	807-2592	Wire Harness-Main
* Not Illustrated		

6.5 Controller Assemblies
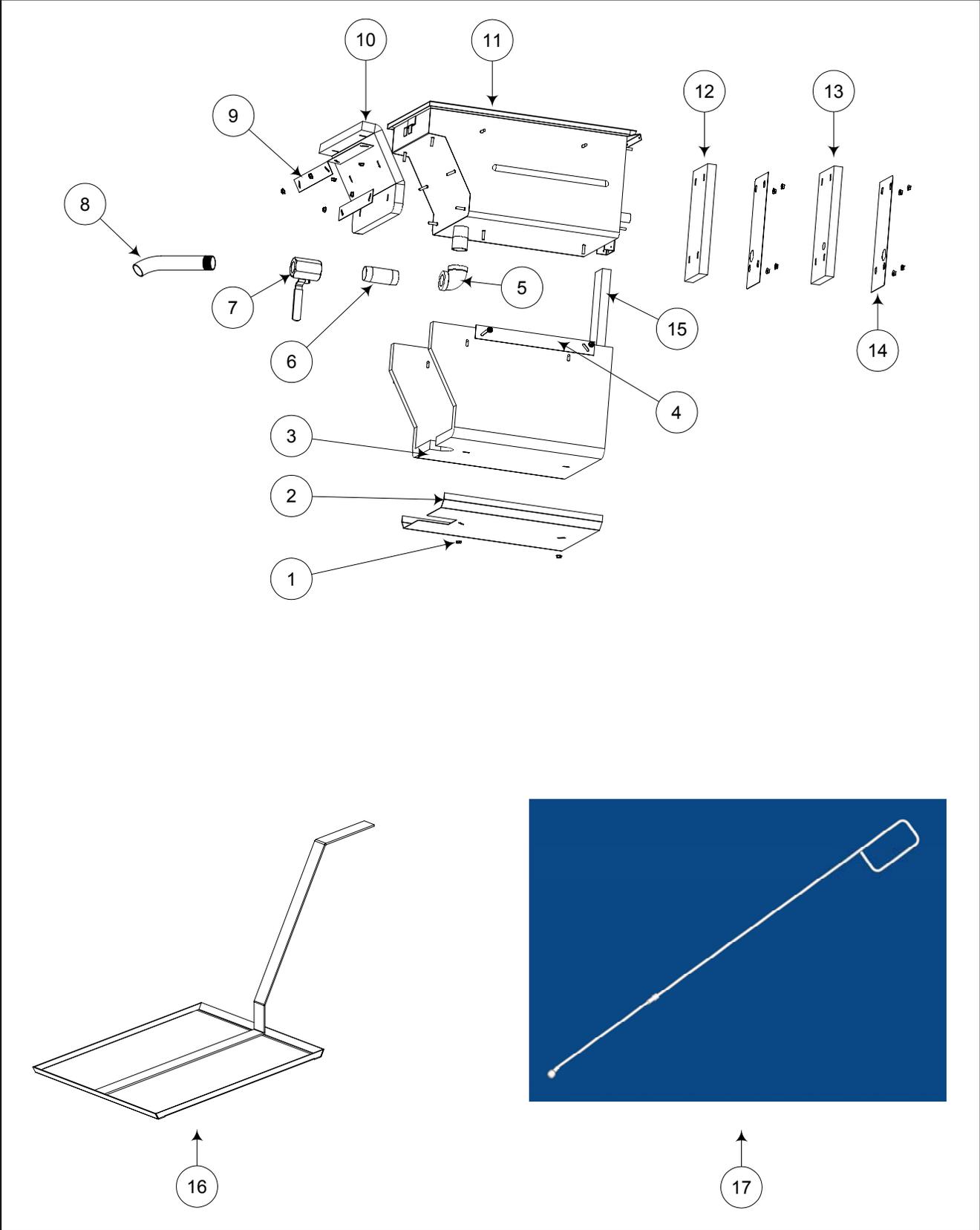

ITEM	PART #	COMPONENT
1	106-1207	**Computer Magic III.5- In-N-Out**

6.6 Control Panel Assemblies, Top Caps/Tilt Housings and Related Components
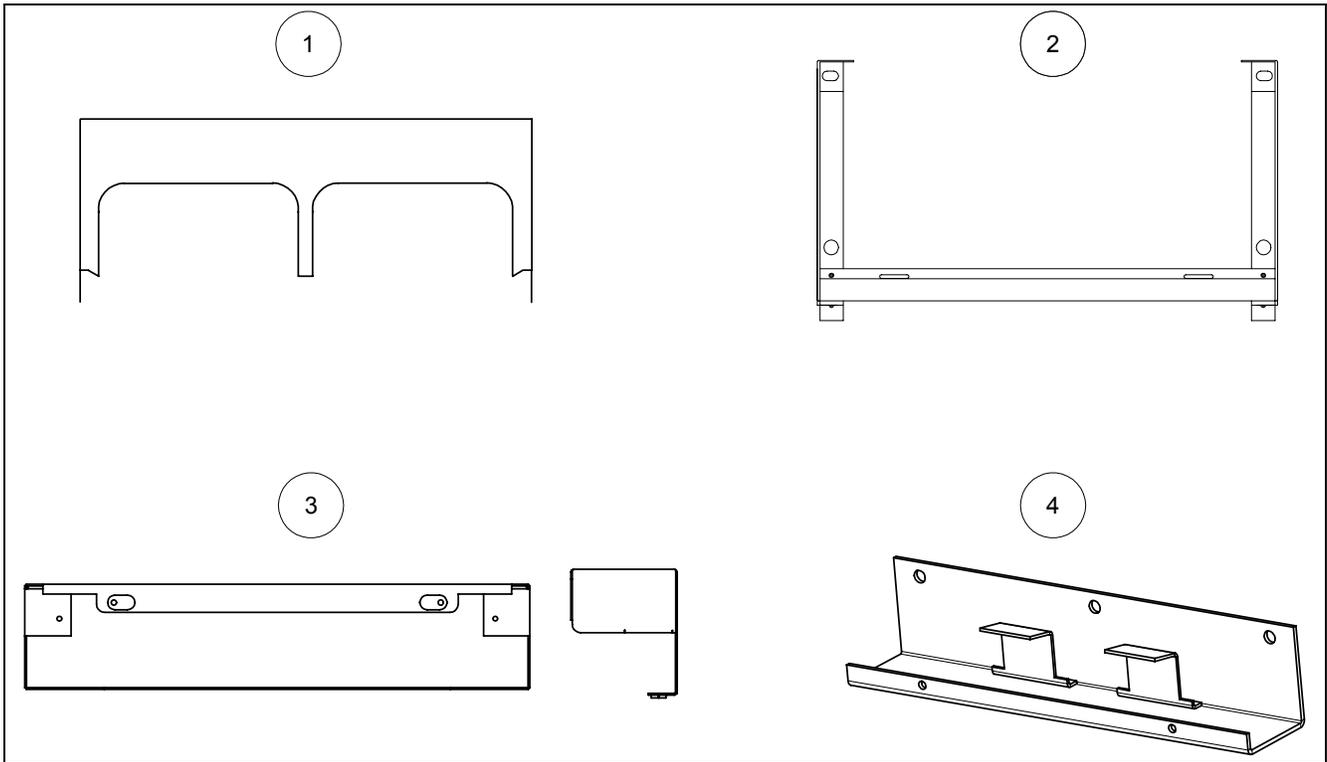
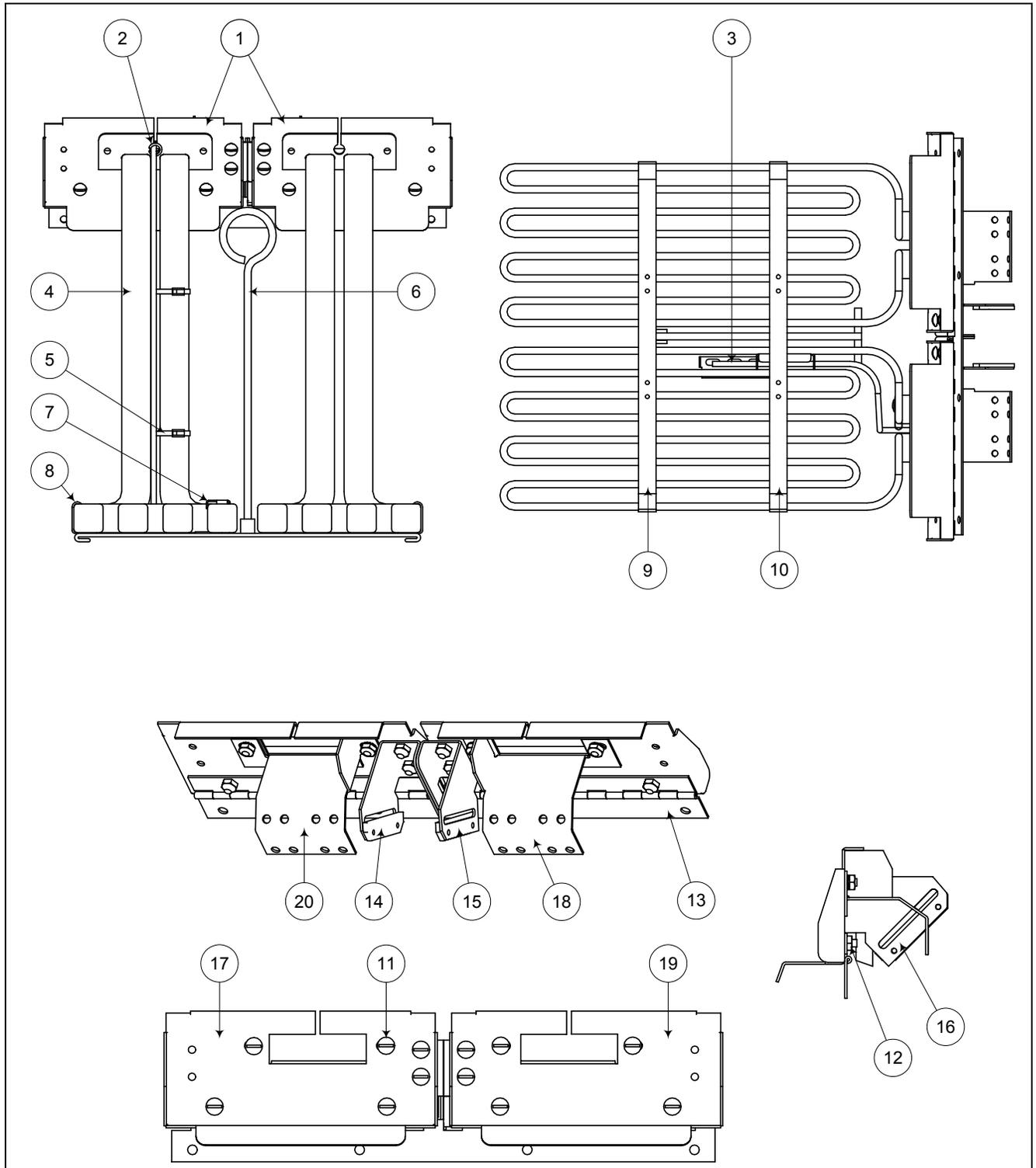| ITEM	PART #	COMPONENT
1	824-0594	Tilt Housing
2	806-7713	Control Panel Assembly
3	823-2555	Top Cap
4	823-2568	Support, Top Cap

6.7 Frypot Assembly and Related Components

6.7 Frypot Assembly and Related Components (cont.)

ITEM	PART #	COMPONENT
1	809-0417	Nut, ¼-20 Flange-Serrated
2	900-5851	Retainer, Insulation—Bottom
3	816-0275	Insulation, Side and Bottom
4	900-4100	Retainer, Insulation—Side
5	813-0070	Elbow, 90° 1-¼ NPT
6	813-0144	Nipple, 1-¼ x 2.5 NPT
7	810-1569	Valve, Drain—1.25 Gemini (Non-filter)
8	812-1226	Nipple, Drain-1-¼ Painted
9	900-4101	Retainer, Insulation—Front
10	816-0277	Insulation, Front
11	823-2441	Frypot Weld Assembly
12	816-0281	Insulation, Back—Right
13	816-0280	Insulation, Back—Left
14	900-5658	Retainer, Insulation—Back
15	816-0282	Insulation, Back Center
16	823-3403	Crumb Screen
17	823-2596	Clean-Out Rod, In-N-Out

## 6.8 Heating Elements and Related Components

6.8 Heating Elements and Related Components (cont.)

ITEM	PART #	COMPONENT
1	806-8306	Tilt-Plate Assembly
2	807-1025	Bushing, 3/8-Split
3	807-2534	Probe, Temperature
4	807-2557	Element, Heating 10.25 kW—208V
*	807-2637	Element, Heating 10.25 kW—240V
5	809-0567	Ty-wrap, metal
6	810-1233	Handle, Lift
7	910-5022	Bracket, Element Probe
8	910-2042	Clamp, Element
9	823-2534	Support, Element
10	910-5459	Support, Element
11	809-0117	Screw, 10-32 x 3/8 Slotted S/S
12	809-0256	Nut, 10-32 Hex
13	810-0035	Hinge, 14-inch Split S/S
14	816-0214	Bar, Spring Slot Bracket
15	901-5488	Bracket, Spring Slot- Left Side
16	902-5488	Bracket, Spring Slot- Right Side
17	911-5458	Plate, Tilt S/S- Left Side
18	911-5740	Bracket, Element Support- Left Side
19	912-5458	Plate, Tilt S/S- Right Side
20	912-5740	Bracket, Element Support- Right Side
*	809-0358	Turnbuckle, Element Spring
*	810-0297	Spring, Element Lift
*	900-5378	Bracket, Spring
* Not Illustrated		

6.9 Thermostats and Related Components
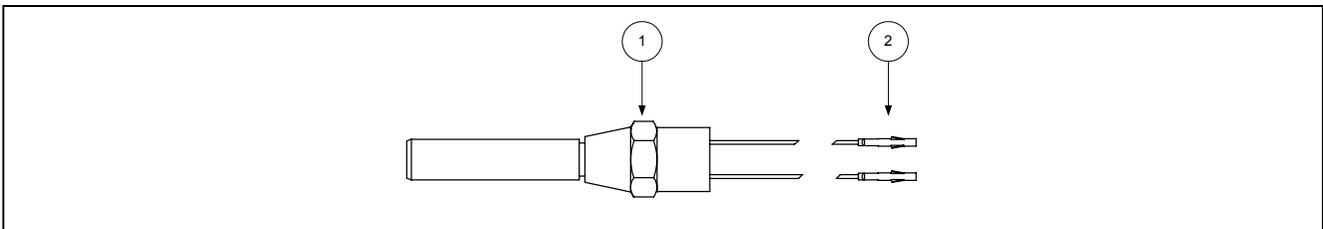
ITEM	PART #	COMPONENT
1	806-8035	High-Limit Thermostat, 435° F
2	826-1332	Terminal, Female Disconnect Pin (Qty: 25)
* Not Illustrated		

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