SECTION 2. MAINTENANCE

2-1. INTRODUCTION

This section provides procedures for checking and replacement of the various parts used within the unit. Before replacing any parts, refer to Section 1, Troubleshooting. It will aid you in determining the cause of a particular malfunction.

2-2. TEST INSTRUMENTS

You may use two test instruments to check the electric components.

- A continuity light.
- An ohmmeter.

When the manual refers to the circuit being closed, the continuity light will be illuminated or the ohmmeter should read zero (0) unless otherwise noted.

When the manual refers to the circuit being open, the continuity light will not illuminate or the ohmmeter will read one (1).

NOTE

A continuity light cannot be used to check coils or motors.

2-3. REMOVING THE CONTROL PANEL

To replace parts located inside the fryer, you will need to remove the control panel. The following steps provide the correct procedure.

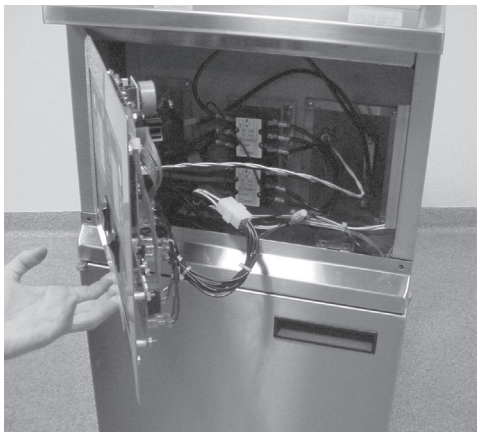
1. Place the power switch in the OFF position.

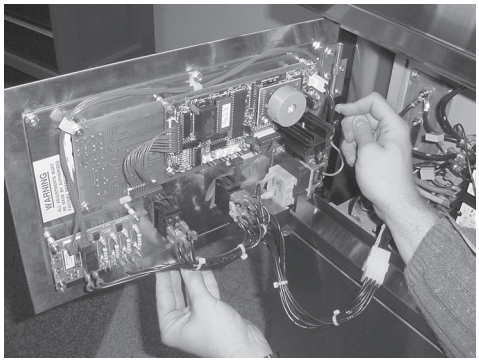
WARNING

Disconnect the power cord from the wall receptacle or power at the fuse or breaker box, or electrical shock could result.

2. Remove the decorative strip, one located on each side of the control panel, by removing the screw located on the bottom of the decorative strip.

2-3. REMOVING THE CONTROL PANEL (Continued)





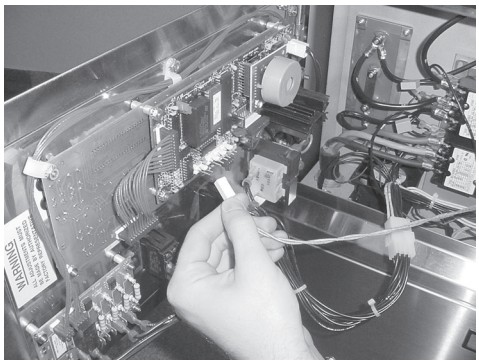
3. Panel will now swing out with hinge located on left side of panel.
4. Pulling down on the spring loaded hinge pin, pull control panel straight out to completely remove.

NOTE

When completely removing control panel, all wiring must be unplugged from control panel. Be sure to mark wires before removing.

5. Install panel board by reversing order.

2-4. THERMAL SENSOR



The thermal sensor determines the shortening temperature. If a malfunction does occur, an E6 will be displayed on the digital readout. Turn unit to OFF position, then back to COOK position. If E6 is still displayed, the thermal sensor must be replaced by following these steps:

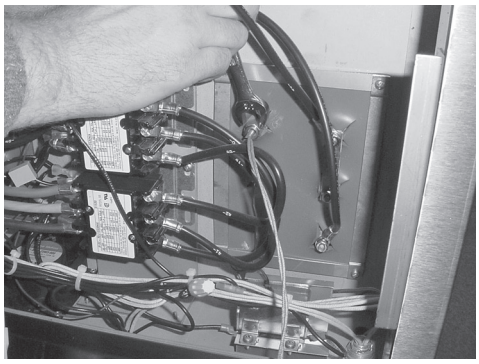
1. Remove electrical power supplied to fryer.

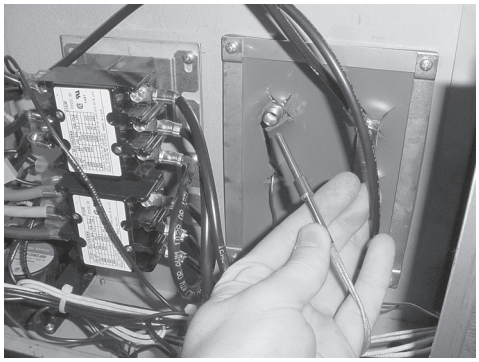
WARNING

Place POWER switch in the OFF position and unplug the power cord or remove power from the fuse or breaker box.

2. Drain the shortening from frypot.
3. Remove two decorative strips located on each side of control panel and let control panel swing out.

2-4. THERMAL SENSOR (Continued)





4. Unplug electrical wires from control panel board that are attached to thermal sensor.

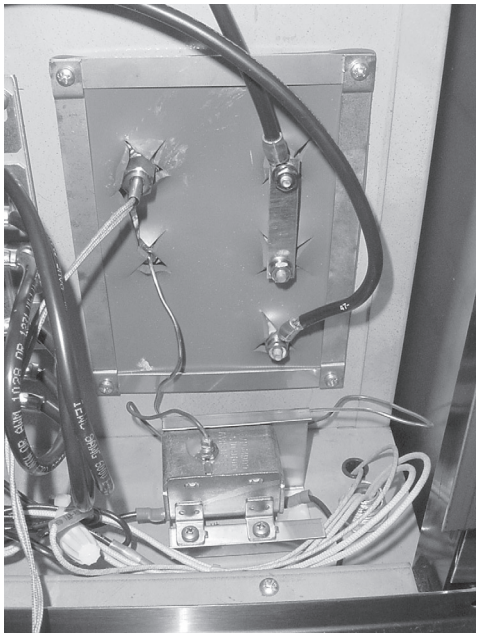
5. Using a 1/2" wrench, loosen screw nut from pot fitting and pull thermal sensor bulb straight out from pot fitting.

6. Install new thermal sensor, making sure the thermal sensor extends through pot wall, up to the outer diameter of the heating element.

CAUTION

Care must be taken not to extend the thermal sensor beyond this point or damage of sensor could result. Also, when installing new thermal sensor, you must use a new locking ferrule in screw nut. Do not overtighten screw nut. Snug screw nut up and tighten 1/4 turn past this point.

2-5. HIGH TEMPERATURE LIMIT CONTROL

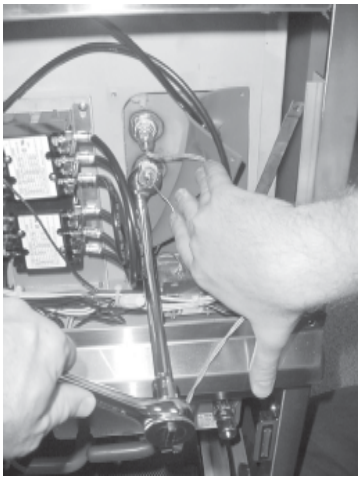


The high temperature limit control is a manual reset control which senses the temperature of the shortening. If the shortening temperature exceeds the safe operating limit, this control will open and shut off the heat to the frypot.

The high limit light will then illuminate and control must manually be reset.

Disconnect the two wires from the high limit temperature control. Check for continuity between the two terminals after resetting the control. If the circuit is open, replace the control following these procedures. If the circuit is closed, the high limit is not defective. Reconnect the two electrical wires.

2-5. HIGH TEMPERATURE LIMIT CONTROL (Continued)



Before following these steps, place POWER switch in the OFF position and unplug the power cord or open the wall circuit breaker.

1. If the tube is broken or cracked, the control will open, shutting off electrical power. The control cannot be reset.

   Use replacement high limit, part no. 16337, 420 degree.

2. Drain shortening from the frypot.
3. Remove control panel per Section 2-3.
4. Remove the retainer securing the silicone gasket.
5. Loosen small inside screw nut on capillary tube.
6. Remove capillary bulb from bulb holder inside the frypot.
7. Straighten the capillary tube.
8. Remove larger outside nut that threads into pot wall.
9. Remove the two nuts that hold the high limit bracket from control panel area.
10. Lift defective control from control panel area.
11. Insert new control and replace nuts to bracket.
12. Uncoil capillary line, starting at capillary tube, and insert through frypot wall.

To avoid electrical shock or other injury, the capillary line must run under and away from all electrical power wires and terminals. The tube must never be in such a position where it could accidentally touch the electrical power terminals.

13. Carefully bend the capillary bulb and tube toward bulb holder on heating elements.
14. Slip capillary bulb into bulb holder located on heating elements. Pull excess capillary line from pot and tighten nut into frypot wall.

2-5. HIGH TEMPERATURE LIMIT CONTROL (Continued)

15. With excess capillary line pulled out, tighten smaller nut.

NOTE

Tighten nut to snug only. Too tight will damage capillary line.

16. Replace front panel.

17. Refill with shortening.

2-6. HEATING ELEMENTS

NOTE

Heating elements are available for 208 and 480 voltage. Check the data plate to determine the correct voltage.

If the shortening's temperature recovery is very slow or at a slower rate than required, this may indicate defective heating element(s). An ohmmeter will quickly indicate if the elements are shorted or open.

1. Remove electrical power supplied to unit.

WARNING

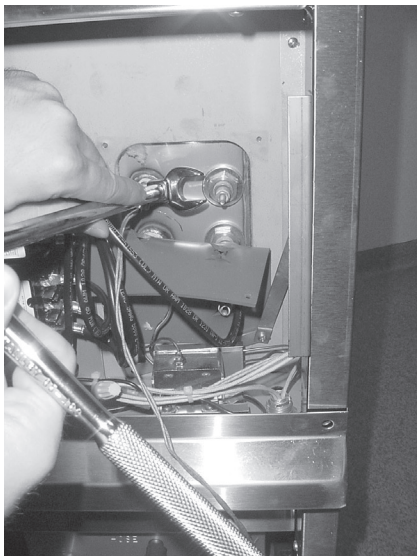
Place POWER switch in the OFF position and unplug the power cord or open the wall circuit breaker.

2. Remove the control panel. Refer to Section 2-3.

3. Perform an ohm check on one element at a time, with wires disconnected from element. If the resistance is not within tolerance, replace the element.

Voltage	Wattage	Resistance in Ohms (Cold)
480	7333	27.5
415	7333	6.9
380	7333	18.8
240	7333	6.9
208	7333	5.6
480	4500	51.2
415	4500	11.75
380	4500	N/A
240	4500	11.75
208	4500	9.61

2-6. HEATING ELEMENTS (Continued)



Replacement

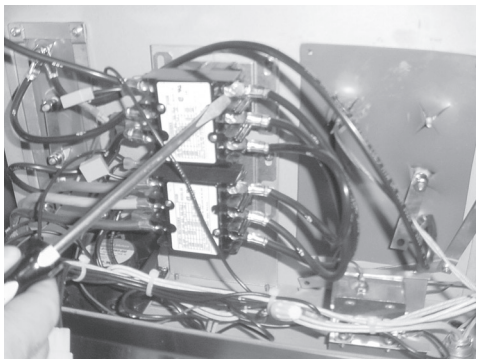
1. Drain the shortening from the frypot.
2. Remove the heating element wire from the terminals by removing the nuts and washer. Label each so it can be replaced in the same position on the new element.
3. Remove the retainer securing the silicone gasket.
4. Loosen the bolts on the four element spreaders.
5. Slide the element spreaders to the center of the heating element.
6. Remove the brass nuts (4) and washers (3) which secure the ends of the elements through the frypot wall.
7. Remove the heating elements from the frypot as a group by lifting the far end and sliding them up and out toward the rear of the frypot.
8. Install new heating elements with new "0" rings (2) mounted on terminal ends and spreaders loosely mounted in the center of the heating elements.
9. Replace the heating elements, terminal end first, at approximately 450 angle, slipping the terminal ends through the front end of the frypot.
10. Replace the brass nuts (4) and washers (3) on the heating element terminals. Tighten the brass nuts to 30 foot pounds of torque.
11. Move the element spreader from the center of the element into a position which will spread each element apart evenly on all four sides and tighten.
12. Reconnect the wires to the appropriate terminal as labeled when they were removed.
13. Replace the front control panel.
14. Connect the power cord to the wall receptacle or close wall circuit breaker.

CAUTION

Heating elements should never be energized without shortening in frypot.

15. Replace the shortening in the frypot.

2-7. CONTACTORS

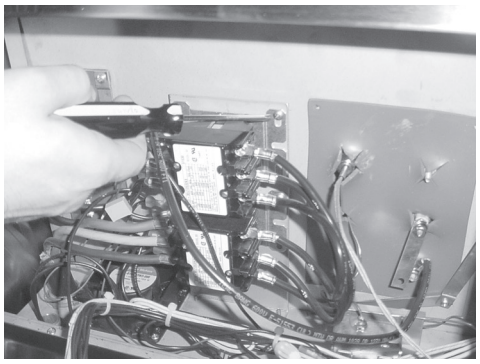


WARNING

The following checks are performed with the wall circuit breaker closed and the Power switch in the ON position. Extreme caution should be taken. Make connections before applying power, take reading, and Remove power before removing meter leads.

1. With power applied, increase setpoint temperature setting allowing heat contactor to activate.

Test Points	Results
Heat Contactor	The voltage
from terminal 34 to 35	should read the
from terminal 35 to 36	same at each
from terminal 34 to 36	terminal.



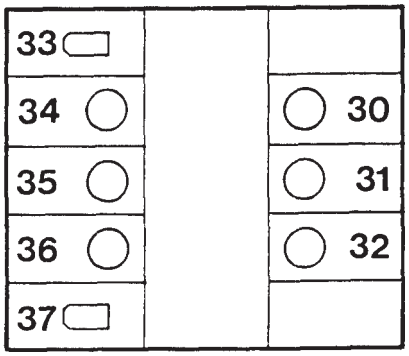
Test Points	Results
Primary Contactor	It should
from terminal 27 to 28	correspond to
from terminal 28 to 29	the voltage
from terminal 27 to 29	rating stated on
	the data plate.

If either contactor is defective, it must be replaced as follows:

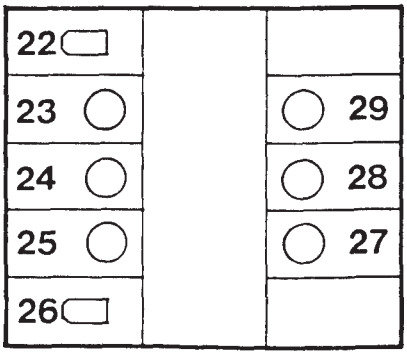
1. Remove electrical power supplied to the fryer by unplugging or opening the wall circuit breaker.
2. Remove only those wires directly connected to the contactor being replaced. Label the wires.
3. Remove the two mounting screws on the base plate and remove contactor.
4. Install the new contactor and tighten the two mounting screws.
5. Connect the labeled wires to their respective positions.
6. Install the control panel.
7. Reconnect power to the fryer and test the fryer for proper operation.

2-7. CONTACTORS (Continued)

HEAT CONTACTOR



PRIMARY CONTACTOR



The Henny Penny OE-100 requires two switching contactors. Located on the bottom is the primary contactor with the heat contactor stacked to the top of the primary. When closed, the primary contactor completes the heat circuit. It also supplies power to the heat contactor.

1. Remove electrical power supplied to the fryer.

WARNING

Place ON/OFF switch to the OFF position and unplug the power cord to open the wall circuit breaker.

2. Remove the control panel. Refer to Section 2-3.

3. Perform a check on the contactor as follows:

Test Points	Results
from 23 to 29	open circuit
from 24 to 28	open circuit
from 25 to 27	open circuit
from 30 to 34	open circuit
from 31 to 35	open circuit
from 32 to 36	open circuit
from 22 to 26	ohm reading 415
from 33 to 37	ohm reading 415

2-8. FAN

The Henny Penny OE-100 has a fan in the circuit which operates only when the power switch is in the COOK position. The fan helps keep the control panel cool by pulling out heat from between the control panel and frypot.

The replacement of a faulty fan is as follows:

WARNING

To avoid electrical shock or other injury, before starting this procedure, move power switch to OFF position. Disconnect main circuit breaker or unplug cord at receptacle.

1. Remove control panel per Section 2-3.

2-8. FAN (Continued)

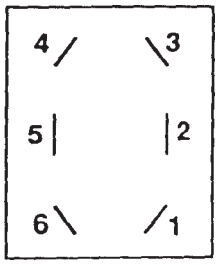
2. Label and disconnect fan motor wires.
3. Remove the four screws, washers, and nuts securing the fan to the heat shield.
4. Remove the fan from the heat shield.
5. Install the new fan on the heat shield and secure with the four screws, washers, and nuts.
6. Reconnect the fan motor wires.
7. Install control panel.

2-9. COOK/PUMP SWITCH

The Cook/Pump Switch is a three way rocker switch with a center "OFF" position. With the switch in the COOK position the fryer will operate. With the switch in the PUMP position the filter pump will operate, but the unit will not heat.

1. Remove Control Panel, but leave hinged on unit.

Checkout

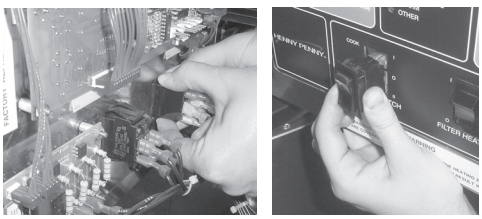


WARNING

Remove electrical power supplied to the fryer by unplugging the unit, or turning off the wall circuit breaker or electrical shock could result.

2. Remove and label wires from Cook/Pump Switch.
3. "OFF" Position - should be open circuit anywhere on the switch.
4. "COOK" Position
   Check from:
   #5 to #6 closed circuit
   #1 to #2 closed circuit
5. "PUMP" Position
   Check from:
   #4 to #5 closed circuit
   #3 to #2 closed circuit

Replacement



1. With control panel removed and wires off the switch, push in on tabs on the switch to remove from the panel.
2. Replace with new switch, and reconnect wires to switch following the wiring diagram.
3. Replace the control panel.

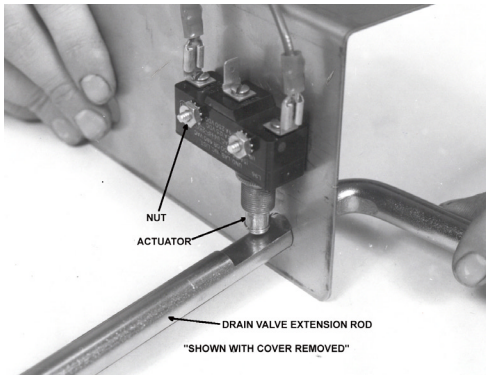
2-10. FUSES

WARNING

To avoid electrical shock or other injury, before starting this procedure, move power switch to the OFF position. Disconnect main circuit breaker at the circuit breaker box or unplug cord from wall receptacle.

Each unit is provided with two fuses to protect the internal circuitry. These fuses are rated 15 amps at 300 volts. Unthread screw cap to allow access to fuses located on panel behind door.

2-11. DRAIN SWITCH



WARNING

To avoid electrical shock or other injury, before starting this procedure, move power switch to the OFF position. Disconnect main circuit breaker at the circuit breaker box and/or unplug cord from wall receptacle.

1. A continuity check should be made to determine if the drain switch is defective. Check between the two outer terminals with actuator in groove of the drain valve extension rod. Circuit should be closed. If drain valve extension rod is turned, actuating drain switch, circuit should be open.

Replacement

1. To replace drain switch, remove two screws and nuts securing switch and switch cover.
2. Label and disconnect wires.
3. Connect wires to new drain switch.
4. Position actuator and attach drain switch and switch cover with the two screws and nuts.
5. Test to see if drain valve extension rod actuates the switch.

NOTE

Listen for click of switch while rotating drain valve extension rod.

2-12. FILTER HEATER SWITCH

The Filter Heater Switch is a rocker type switch. With the switch in the "ON" position, the filter heater will operate, melting any solidified shortening in the filter lines.

Checkout

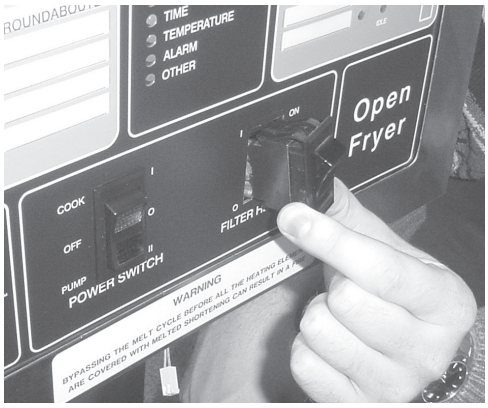
1. Remove electrical power supplied to unit.

WARNING

Remove electrical power supplied to the fryer by unplugging the unit, or turning off the wall circuit breaker, or electrical shock could result.

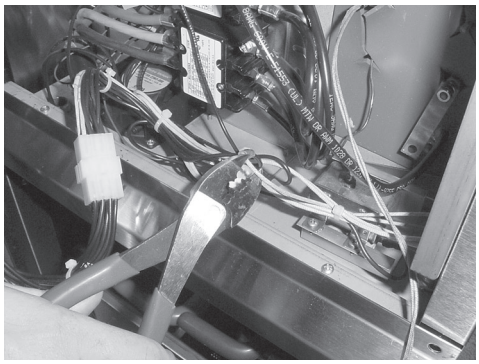
2. Remove Control Panel, but leave hinged on unit.
3. Remove and label wires from the switch and check across from top to bottom for continuity. With the switch in the "ON" position, the circuit should be closed. If the switch is defective, replace it by following the next step.

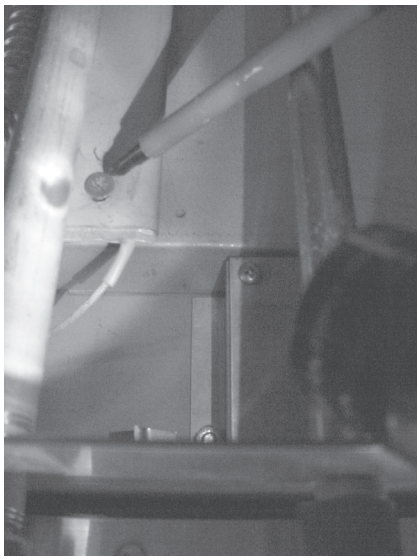
Replacement:



4. Push in on tabs on the ends of the switch and pull switch from the front of the control panel.
5. Replace new switch, replace wires, and install controlpanel.

2-13. FILTER HEATER





This unit is equipped with a strip heater in the event solidified shortening accumulates in the filter pump lines. If this heater becomes defective, replace by following these steps.

WARNING

Remove all power from unit. Failure to do so could result in electrical shock.

1. Open panel board and cut wires at the connectors which go to the heaters.
2. Remove two screws that mount the strip heater to insulation box and pull wires through heat shroud.
3. Install new strip heater in reverse order.

NOTE

When installing new heater wires into wire nut, be sure wires are secure. Use electrical tape to secure wire nut.

2-14. FILTERING SYSTEM

The filtering system consists of the filter valve, motor and filter pump assembly, filter screen assembly, and tubing.

WARNING

Shortening with temperature in excess of 200 OF flows through this filter rinse hose. Heat causes the rubber hose to age and deteriorate. The hose and fittings should be checked daily. If aging or discoloration is seen the hose should not be used. Severe burns may result if this rinse hose assembly leaks or ruptures.

1. Close the filter valve.
2. Turn the pump switch to the OFF position.
3. Detach the hose BEING CAREFUL, AS THE HOSE AND FITTINGS WILL BE HOT, USE A COLD WET CLOTH.

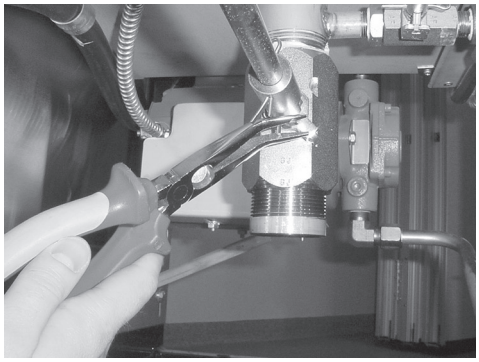
NOTE

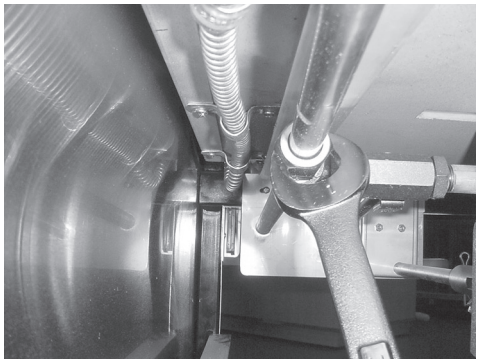
This hose is not connected to the fryer during normal operation.

Installation

1. Attach the filter rinse hose with its quick disconnect female fitting to the other half male fitting inside the door, next to the filter valve handle.
2. To do this slide back the spring ring on the female end of the quick disconnect fitting and let it snap into place over the other half male fitting.
3. With a quick tug on the hose, insure the quick disconnect is locked into position.

2-15. FILTER VALVE





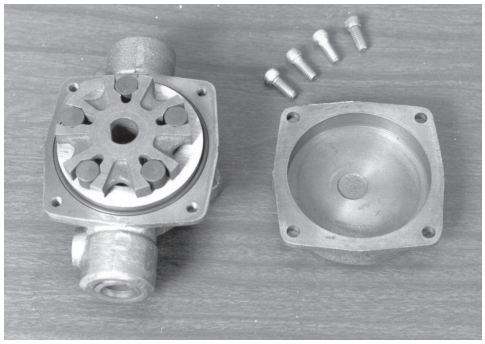
The filter valve is a 3/8 inch two-way stainless steel ball valve. If this valve should develop leaks the entire valve must be replaced.

WARNING

To avoid electrical shock or other injury before starting this procedure move COOK/PUMP SWITCH to OFF position. Disconnect main circuit breaker at the circuit breaker box and unplug service cord from wall receptacle.

1. Drain the shortening from the frypot.
2. Remove the filter drain pan from the fryer.
3. Remove the cotter pin, handle, and extension rod.
4. Remove the pipe from between the filter pump and valve.
5. Remove tee and nipple from valve.
6. Use an adjustable wrench and remove the valve.
7. Replace the valve and reassemble in reverse order.

2-16. FILTER PUMP REPAIR



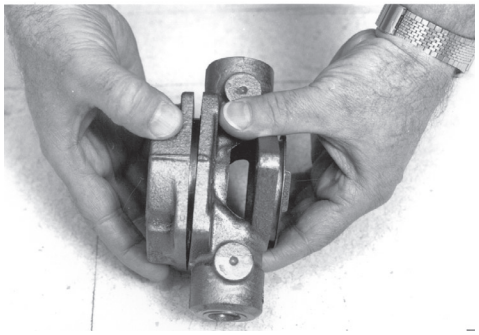
The two most common causes for a fryer's inability to pump shortening is that the pump is clogged with breading or solid shortening has cooled and solidified in the lines and pump. This then could cause the thermal reset to kick the motor out and the reset button on the back of the motor needs reset.

WARNING

To avoid electrical shock or other injury before starting this procedure move COOK/PUMP SWITCH to OFF position. Disconnect main circuit breaker at the circuit breaker box and unplug service cord from wall receptacle.

1. Loosen the four allen head screws on the end of the pump and remove the cover.
2. The inside is now exposed leaving a rotor and five teflon rollers. Clean the rotor and rollers.

2-16. FILTER PUMP REPAIR (Continued)

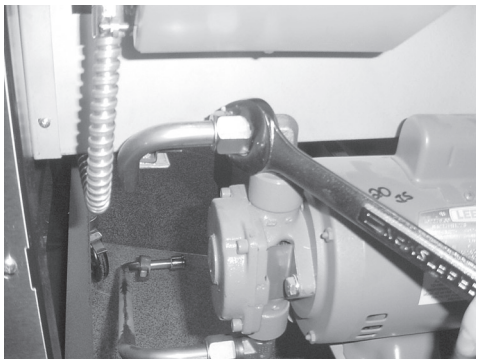


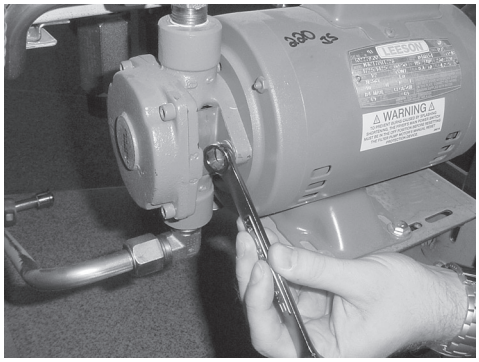
3. To reassemble, place rotor on drive shaft, and place rollers into rotor.

NOTE

A small amount of shortening might be needed to hold the bottom roller into place until cover plate is put on. Make sure O-ring is in proper position on plate.

2-17. PUMP REMOVAL





1. If the pump needs to be replaced, loosen one inch nuts from the outflow and inflow lines. Then remove the two bolts holding the pump to the motor with a 1/2 inch wrench.

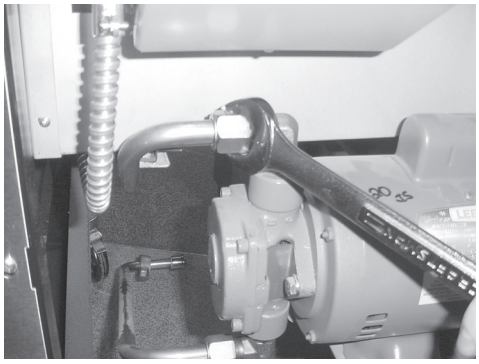
2. The shaft seal should remain on the motor shaft, or if leaking, should be replaced at this time.

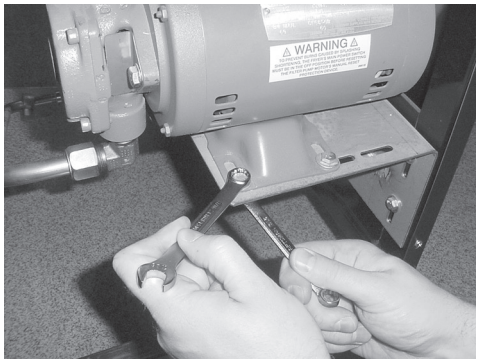
3. To replace the pump, remove the four allen screws, front plate, rotor, and rollers from pump (see Section 2-18). Place the pump onto shaft and against the shaft seal. Place the two 1/2 inch bolts through the pump and into the motor and tighten. Then replace the rotor, rollers, front plate and tighten the allen screws.

CAUTION

When removing a pump from a motor note the positions of the INLET and OUTLET parts. Installation of the pump on the motor in any other position could cause damage to the fryer. There is an indicator on the side of the two halves of the pump, this mark must be together and face to the front of the fryer.

2-18. PUMP AND MOTOR REPLACEMENT





1. To replace the pump and motor assembly, insure the main power has been removed from the fryer.

WARNING

To avoid electrical shock, injury or burns before starting this procedure move COOK/PUMP SWITCH to OFF position. Disconnect main circuit breaker at the main circuit breaker box and unplug service cord from wall receptacle.

2. Remove the cover from the junction box and remove the wire nuts attaching wires leading into the flexible conduit going to the motor.
3. Loosen the two screws securing the flexible conduit going to the motor.
4. Remove tubing to the pump.
5. Remove hardware attaching the motor to the motor hase bracket and remove motor and pump assembly.

2-19. COOLING FAN MAINTENANCE

The cooling fan on the OE-100A open fryer reduces the amount of heat behind the panel, and if the heat does become excessive, "E-4" will show on the display.

The PC boards on the control panels can be damaged by excessive amount of heat so it is important that the cooling fan is operating properly and has good air flow.

To prevent an "E-4" reading, which will shut the heat off to the fryer, follow the following steps.

ONCE A MONTH:

1. Turn power switch to the "OFF" position.
2. Open door to bottom of fryer.
3. Locate metal fan guard situated in the left front, under the control panel.
4. Clean any lint and dirt from fan guard.

2-19. COOLING FAN MAINTENANCE (Continued)

5. Close door and turn power switch on. Unit is now ready for operation.

If the fan needs a more thorough cleaning, or E-4 persists after cleaning the fan guard, follow the following steps.

1. With power on, open door to drain pan and look up at fan to make sure fan is operating.

2. If fan is not operating, it needs replaced; if fan is operating continue onto step 3.

3. Remove electrical power supplied to the unit.

WARNING

Place the power switch to the OFF position. Disconnect the power cord from the wall, or turn off wall circuit breaker or fuse, or electrical shock could result.

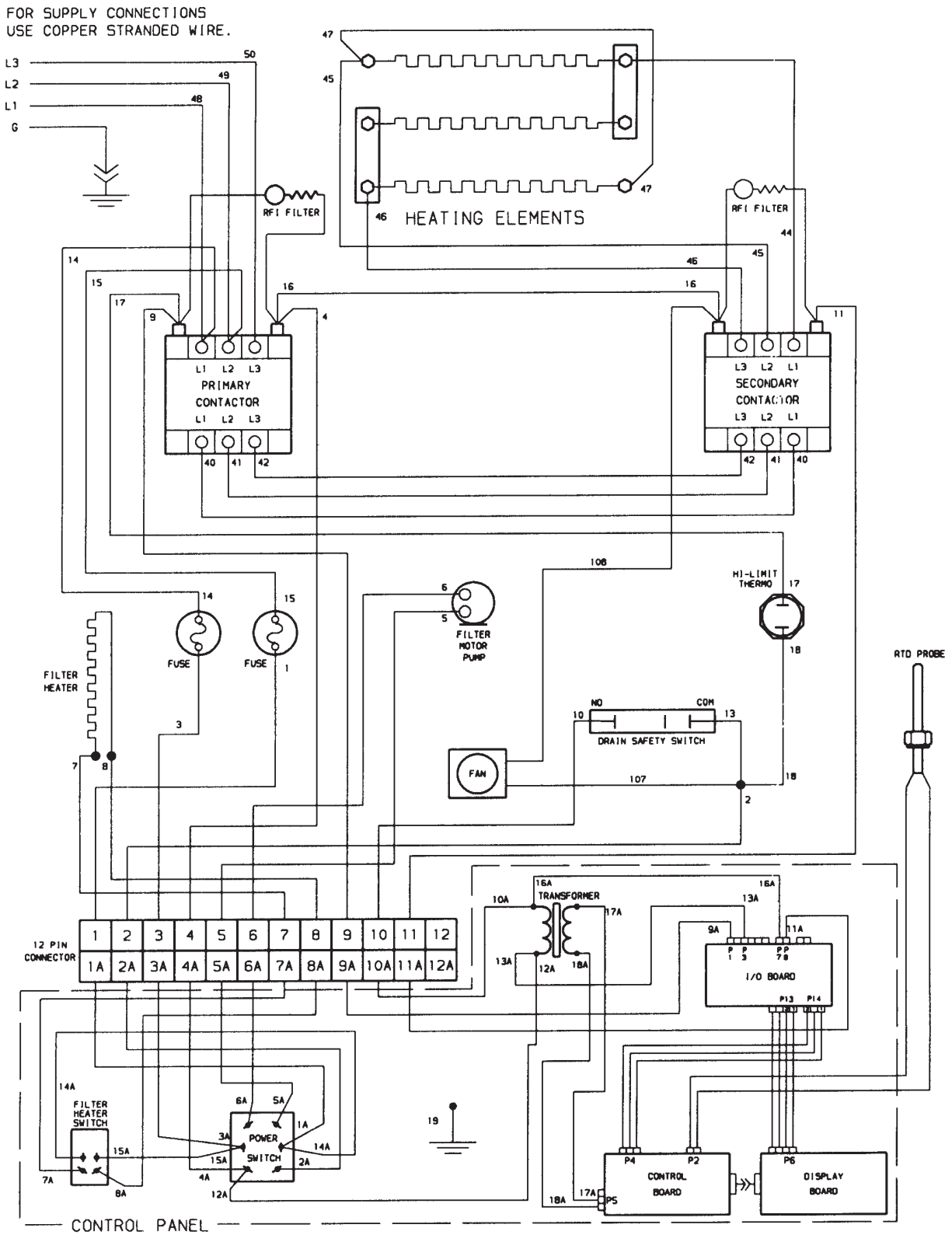
4. Remove the screws securing decorative strips on both sides of the control, and remove decorative strips.

5. Swing panel out to the left and locate fan on the left behind panel.

6. Thoroughly clean fan, plus check fan guard per above instructions.

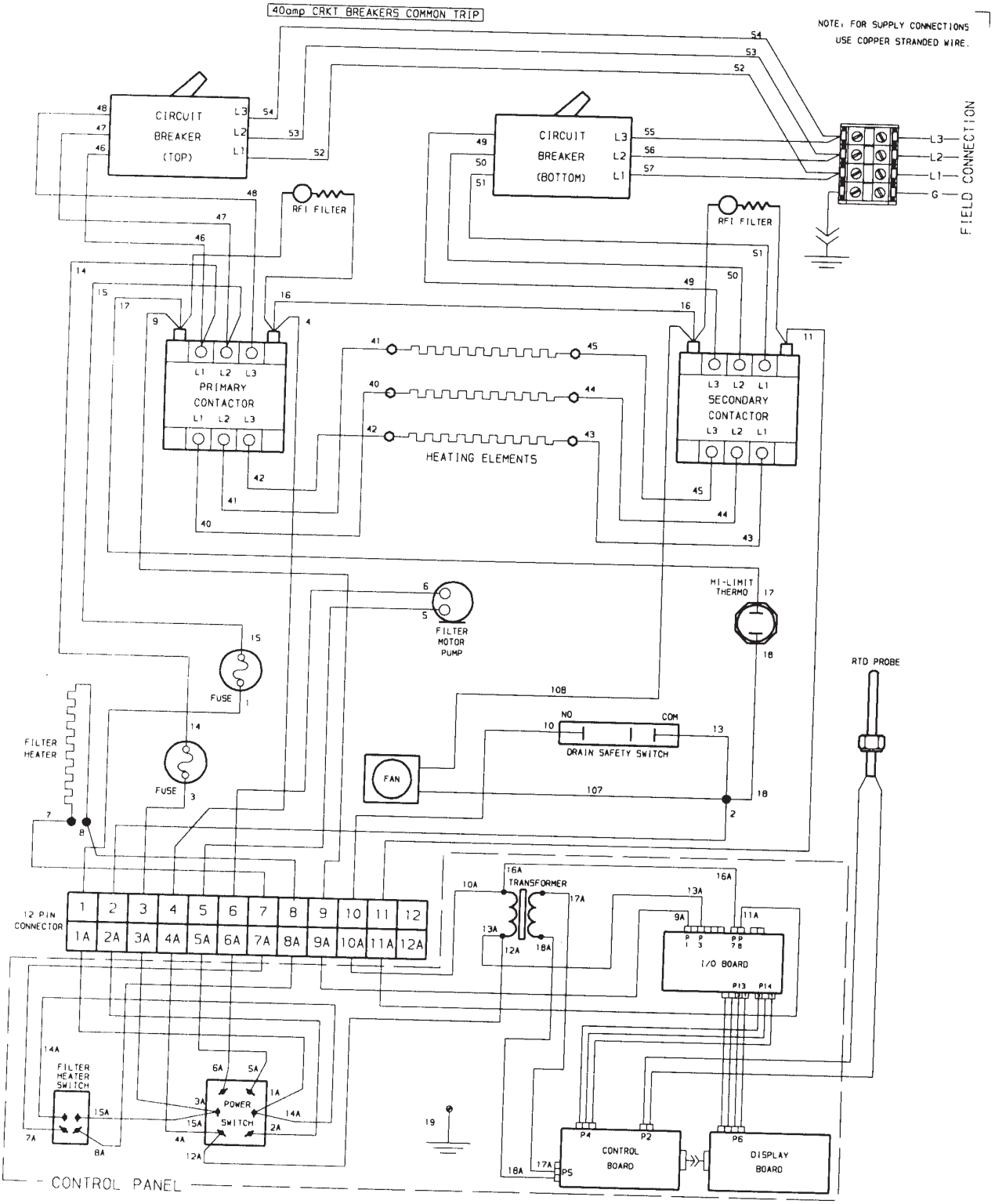
7. Replace panel and decorative panels.

8. Restore power to unit and unit is now ready for operation.



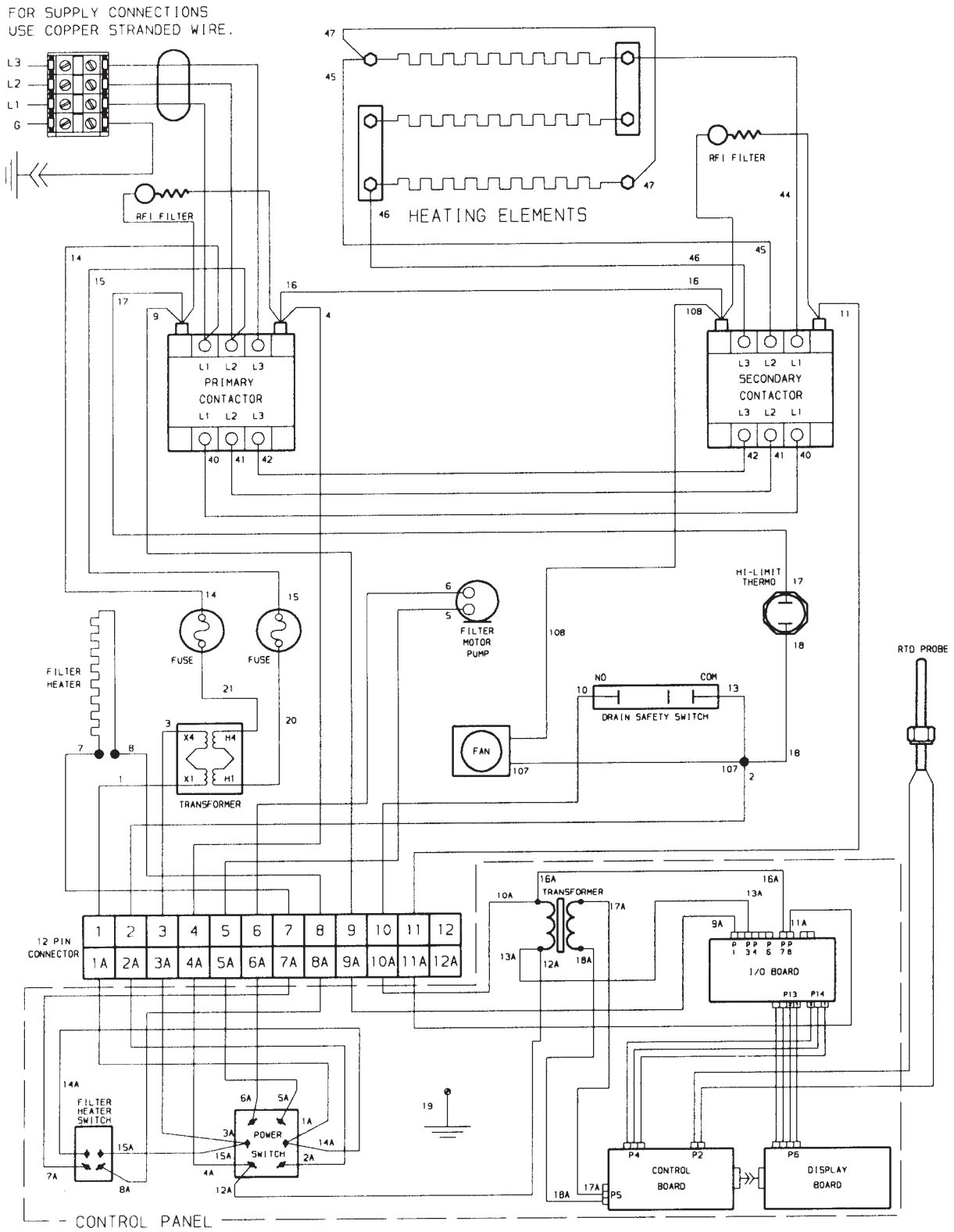
MODEL OE-100A
208/240V, 3PH, 50/60Hz
12.25/14.5KW 3W + GRND
HENNY PENNY CORP.
EATON OHIO 45320

41087



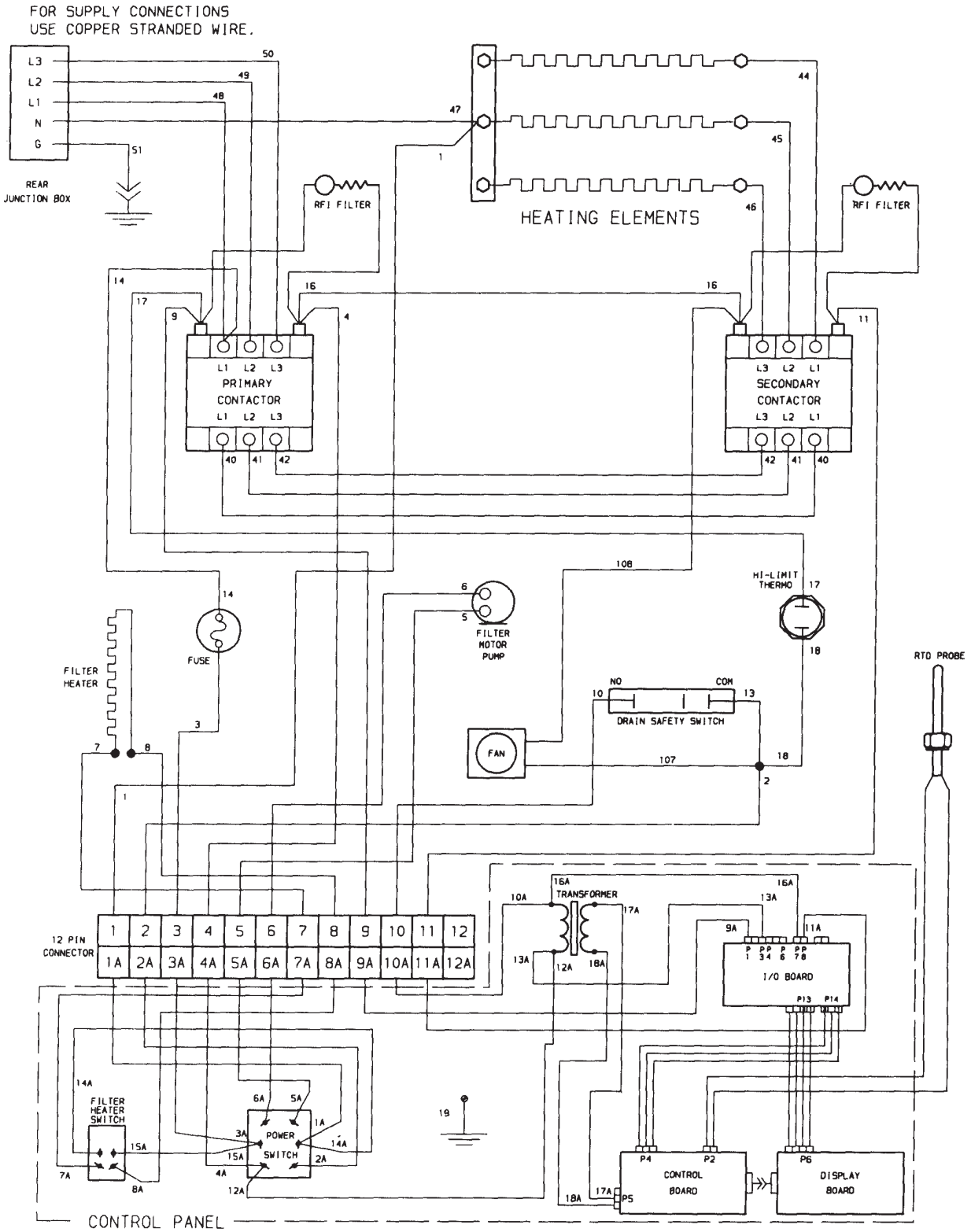
MODEL OE-100A
208/240V, 3PH, 50/60Hz
23KW, 3W + GRD
HENNY PENNY CORP.
EATON OHIO 45320

54171



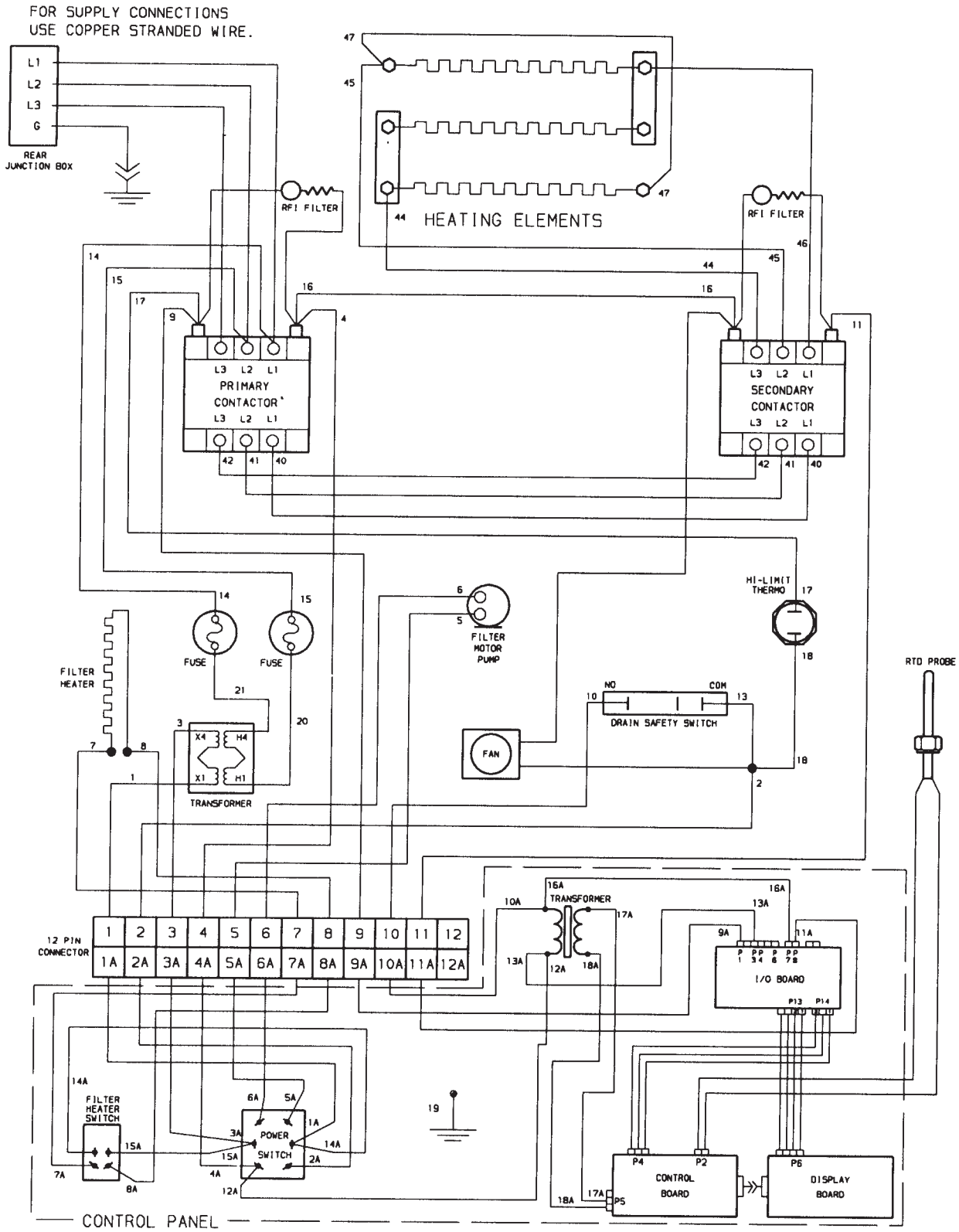
MODEL OE-100A
440/480V, 3PH, 50/60Hz
3W + GRND
HENNY PENNY CORP.
EATON OHIO 45320

54174



MODEL OE-100A
380/415V, 3PH, 50/60Hz
14.5/23KW 3W + GRND
HENNY PENNY CORP.
EATON OHIO 45320

41146



MODEL OE-100A
440/480V, 3PH, 50/60Hz
14.5/23KW 3W + GRND
HENNY PENNY CORP.
EATON OHIO 45320

41784