ULTRAFRYER® SYSTEMS

TIL NUMBER:

98-102

REVISED DATE:

10/22/02

SUBJECT

UNITOP I FRYER
PARTLOW TEMPERATURE CONTROL CONVERSION

I PURPOSE: The Partlow Corporation no longer manufactures the 0 - 450°F Model LF4J560A Partlow Temperature Control used in Uni-top I Electric Fryers manufactured by Ultrafryer Systems from 1972 to 1986 and existing stock of replacement parts for this control has been depleted. Therefore, Uni-Top I fryers must be modified to operate with a separate **THERMOSTAT** and **HI-LIMIT SWITCH** upon **FAILURE** of a Partlow Temperature Control or Temperature Probe. A Partlow Temperature Control Conversion Kit, PN 12A143 can be obtained from Ultrafryer Systems by calling 1 (800) 545-9189 and installed according to procedures contained in this Technical Information Letter.

II PRECAUTIONS:

A. A Partlow Temperature Control Conversion **MUST** be accomplished by a qualified technician or service agent according to instructions contained herein.

B. Electric power, 120 volts and 208/240 volts to the fryer must be turned **OFF** prior to starting this conversion.

III PARTLOW CONTROL CONVERSION KIT & PARTS - The Partlow Temperature Control Conversion Kit, PN 12A143, to convert **ONE (1)** Uni-Top I fryer vat consists of the items listed below. In addition, a tube of Multi-Purpose Silicone PN 39-079 and the Element Head Mounting Hole Template, PN 12A183, will be required at each store converting a Partlow Temperature Control.

PARTLOW CONTROL CONVERSION KIT CONTENTS		
PN	**DESCRIPTION**	**QTY**
12A144	Adjustable #K-1058-4 Thermostat, PN 18-181, #LCH06030 Hi-Limit Switch, PN 22-543, Capillary Tube, Sensing Bulb Shields and mounting brackets/hardware.	1
12A145	Thermostat, Hi-Limit Switch and Safety Switch Wiring Sealtite Assembly with Mounting hardware	1
12A146	Front Panel Cover Plate with Terminal Block, SPDT Relay and Mounting hardware	1
30A033	TIL 98-102, Uni-Top I Fryer Partlow Temperature Control Conversion	1

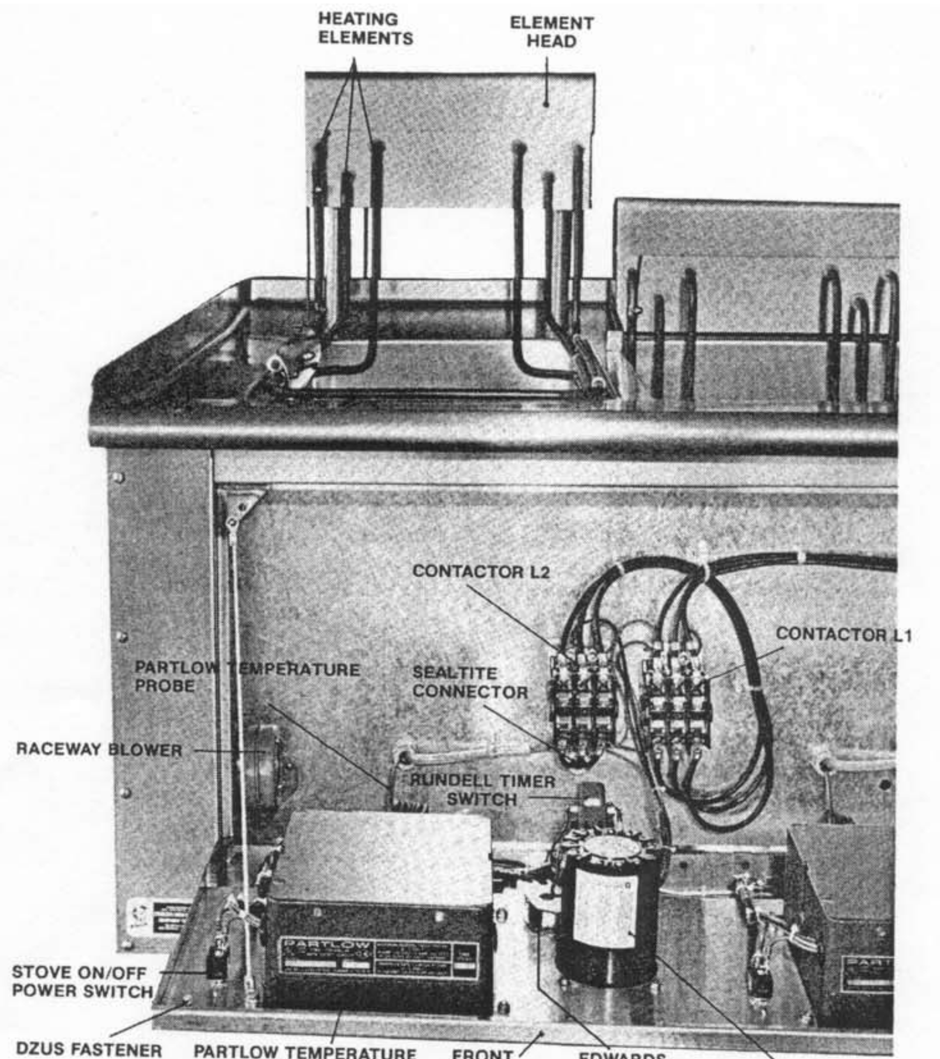


FIGURE 11: UNI-TOP FRYER STOVE (RH)
(FRONT VIEW)

IV. **CONVERSION KIT INSTALLATION:** It is **ESSENTIAL** that the Partlow Temperature Control Conversion Kit be installed by a qualified technician or service agent according to the following procedures:

TURN THE 120 VOLT AND 208/240 VOLT CIRCUIT BREAKERS FOR THE UNI-TOP I FRYER OFF PRIOR TO PROCEEDING.

A. TEMPERATURE PROBE REMOVAL

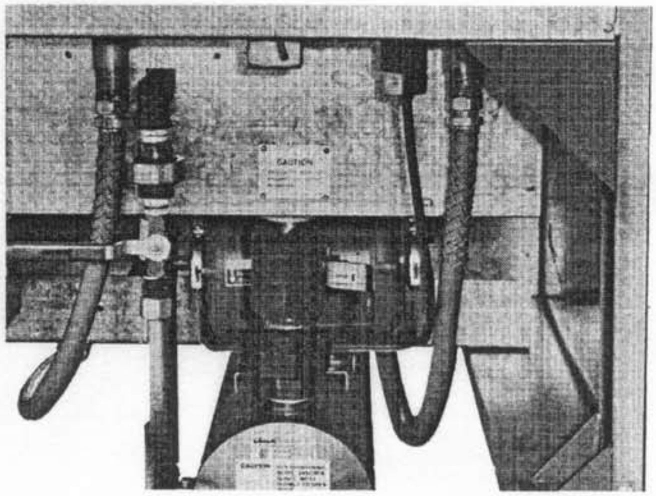
1. Drain shortening from the vat.

2. Lower the front panel by loosening the two (2) DZUS fasteners.

3. Remove the temperature probe piston pack from the base of the temperature control by removing the two (2) hex head bolts.

4. Loosen the **GRAY** plastic bushing and sealtite connector lock nut shown above from the connector in **FRONT** of the Partlow Temperature Control.

5. Remove the sealtite conduit from the **REAR RIGHT** hand element head pipe by loosening the 1-1/8" hex nut on the Kellem Grip sealtite connector as shown below.



6. Raise the element head, remove the element head cover; then disconnect the two (2) **BLUE** wires connected to the element head safety switch.

7. Remove the two (2) clips securing the temperature probe capillary tube to the heat element, remove the probe cover from the heat elements; then remove the probe sensing element from the two (2) eyelets of the heat element clips.

8. Pull the two (2) **BLUE** wires and **WHITE** plastic tube **DOWN** and out of the element head Pipe; then pull the temperature probe capillary tube and sensing element down and out of the element head pipe.

9. Place the sealtite conduit **PARALLEL** to the floor and straighten the probe capillary tube so it is also parallel to the floor.

10. Pull the **WHITE** plastic tube with two (2) **BLUE** wires out of the **LEFT** hand sealtite connector on the fryer bulkhead, then pull the probe capillary tube and sensing element out of this connector.

CAUTION: IF IT IS NECESSARY TO "CUT" THE CAPILLARY TUBE OF THE TEMPERATURE PROBE CONTAINING MERCURY TO REMOVE IT:

1 – CRIMP 1" OF THE CAPILLARY TUBE ABOUT 2" FROM THE SENSING BULB.

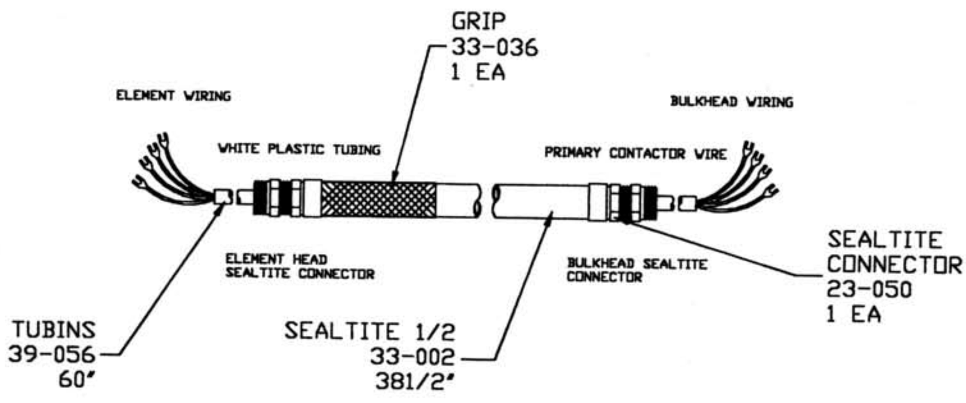
2 – HOLD THE SENSING BULB OVER A TRASH CONTAINER; THEN CUT THE TUBE IN THE MIDDLE OF THE CRIMPED AREA.

3 – THOROUGHLY WASH HANDS IMMEDIATELY AFTER HANDLING THE CUT CAPILLARY TUBE.

11. Cut the **BLUE** wire connected to the **PRIMARY** contractor solenoid terminal about 3" from the terminal; then discard the sealtite conduit with two (2) blue wires and temperature probe.

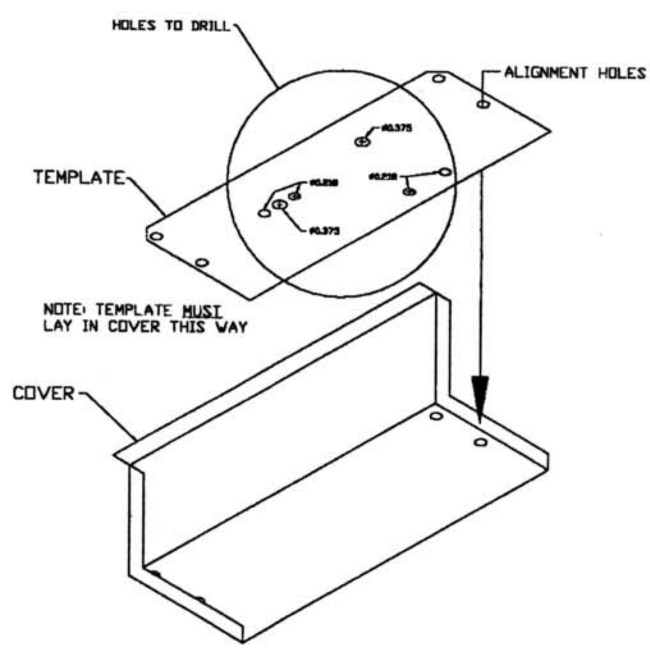
12. **THOROUGHLY** remove any grease build-up from the element head, element head cover and **RIGHT** hand element head pipe.

B. SEALTITE ASSEMBLY INSTALLATION – Install the Thermostat, Hi-Limit Switch and Safety Switch Wiring Sealtite Assembly PN 12A145 as follows:

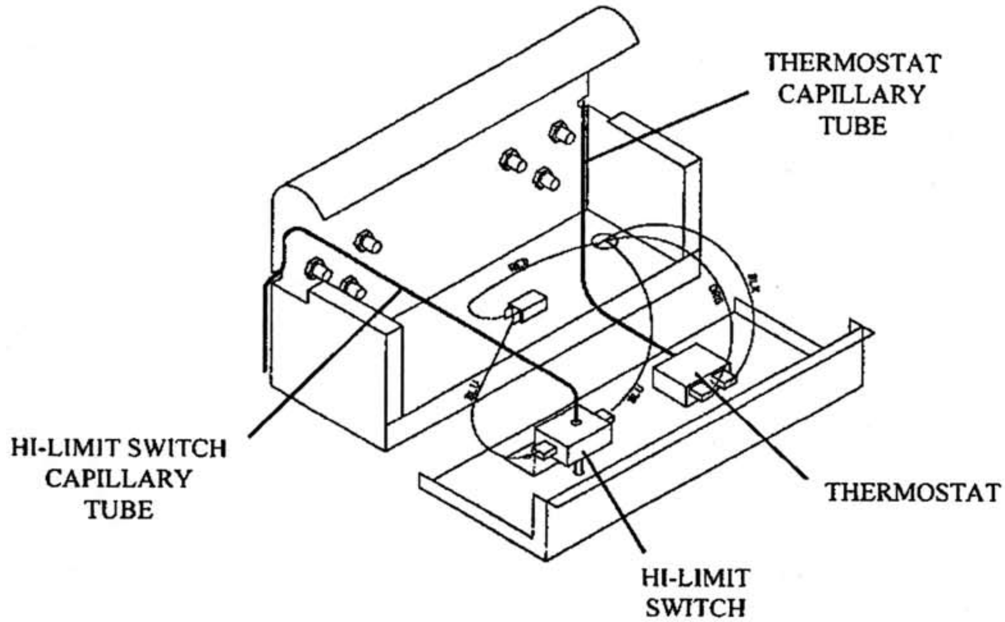


1. **CAREFULLY** insert the end of the sealtite assembly with four (4) wires labeled **BULKHEAD** into the hole on the bulkhead and secure the connector to the bulkhead using the locknut and **GRAY** bushing provided.

2. **CAREFULLY** insert the end of the sealtite assembly with four (4) wires labeled **ELEMENT HEAD** into the element head pipe and secure it to the pipe using the 1-1/8" hex nut on the Kellem Grip sealtite connector



3. Place the element Head Mounting Hole Template PN 12A183 on the element head cover, mark location of all holes on the cover; then drill each hole using the size of drill shown on the template. Debur these holes.
4. Secure the **THERMOSTAT** to the cover at the location shown below; then secure the **HI-LIMIT SWITCH** bracket and switch to the element head cover.



5. Place the element head cover near the element head; then connect wires in the sealtite assembly as follows;

   a. Connect the **BLACK, BLUE, ORANGE** and **RED** wires as follows:

      (1) **RED WIRE** to **SAFETY SWITCH**

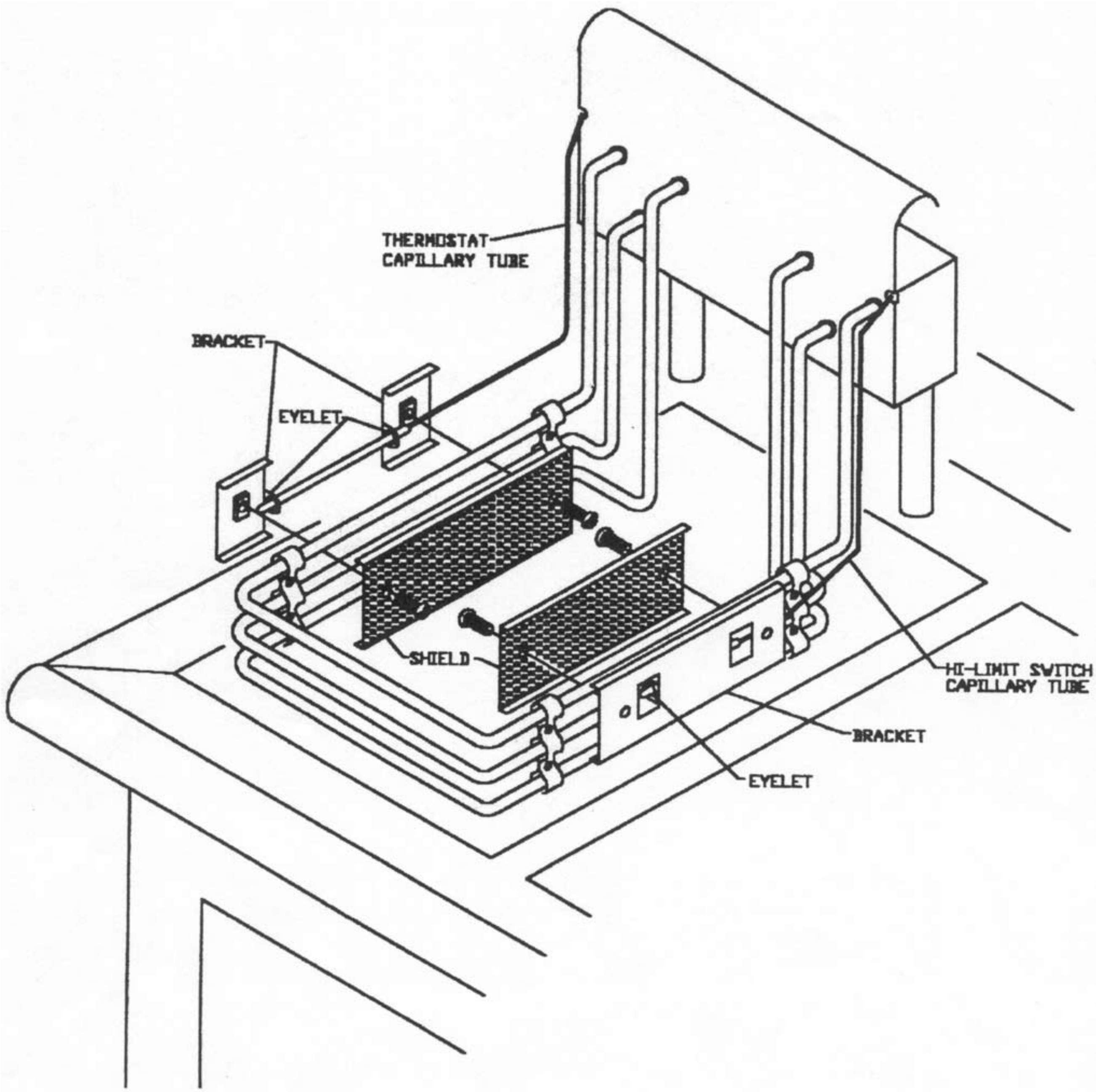
      (2) **BLUE WIRE** to **HI-LIMIT SWITCH** (Empty Terminal)

      (3) **BLACK AND ORANGE WIRES** to **THERMOSTAT** terminals.

   b. Connect the **BLUE** jumper wire on the Hi-Limit Switch to the empty terminal of the element head safety switch.

   c. **CAREFULLY** route the capillary tube and sensing element of the Hi-Limit Switch through the **NOTCH** on the **LEFT** side of the element head; then route the capillary tube and sensing element of the thermostat through the **NOTCH** on the **RIGHT** side of the element head.

   d. Place a bead of silicone around the flange of the element head. **CAREFULLY** replace and secure the element head cover on the element head; then fill the **NOTCH** on each side of the element head with silicone.



e. **CAREFULLY** install the perforated Hi-Limit Switch and Thermostat sensing bulbs shields, shown above, as follows:

   (1) **CAREFULLY** route the Hi-Limit Switch capillary tube and sensing bulb **DOWN** and along the elements as shown above, insert the sensing bulb into the **EYELETS** on the shield bracket until it is seated; then secure the shield and bracket to the heat elements using the two (2) 10-24 truss head screws provided.

(2) **CAREFULLY** route the Thermostat capillary tube and sensing bulb into the **EYELET** of the heat elements as shown above, insert the sensing bulb into the **EYELET** of the two (2) shield brackets until it is seated; then secure the shield and brackets to the elements using the two (2) 10-24 truss head screws provided.

(3) **CAREFULLY** secure the Hi-Limit Switch and Thermostat capillary tubes to the heat elements using the **CLIPS** provided.

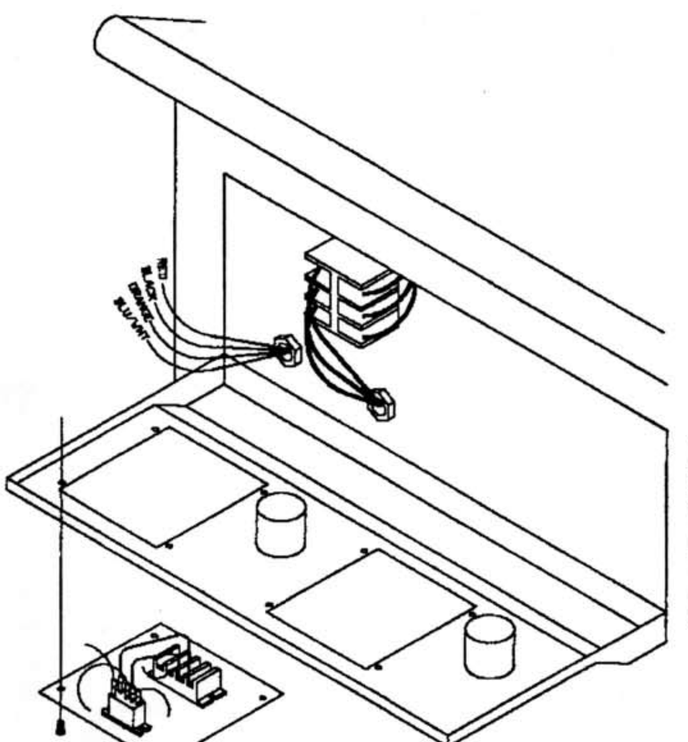
C. ELECTRICAL COMPONENT-Make the following electrical connection in the front of the fryer:

1. Remove the cover plate from the **TOP** of the Partlow Temperature Control loosen the terminal screws for terminals **1,H,C** and **L**; then remove the **RED, PURPLE, ORANGE** and **BLACK** wires from the Partlow Temperature Control.

   NOTE: Uni-Top 1 Fryers manufactured prior to 1977 were not wired with color coded electrical wires, therefore use tags to identify wires connected to terminals **1,H,C,** and **L.**

2. Remove the cover from the Partlow Temperature Control by removing the two (2) pan head screws; then remove the Partlow Temperature Control from the front panel by removing the four (4) countersunk screws and nylock nuts.

3. **THOROUGHLY** clean the front and rear sides of the panel then secure the stainless steel cover plate PN 12A146 to the front panel with the terminal block towards the fryer bulkhead using the hardware provided.



4. The DPDT Relay and Terminal Board are pre-wired as follows:

   a. Terminal Board

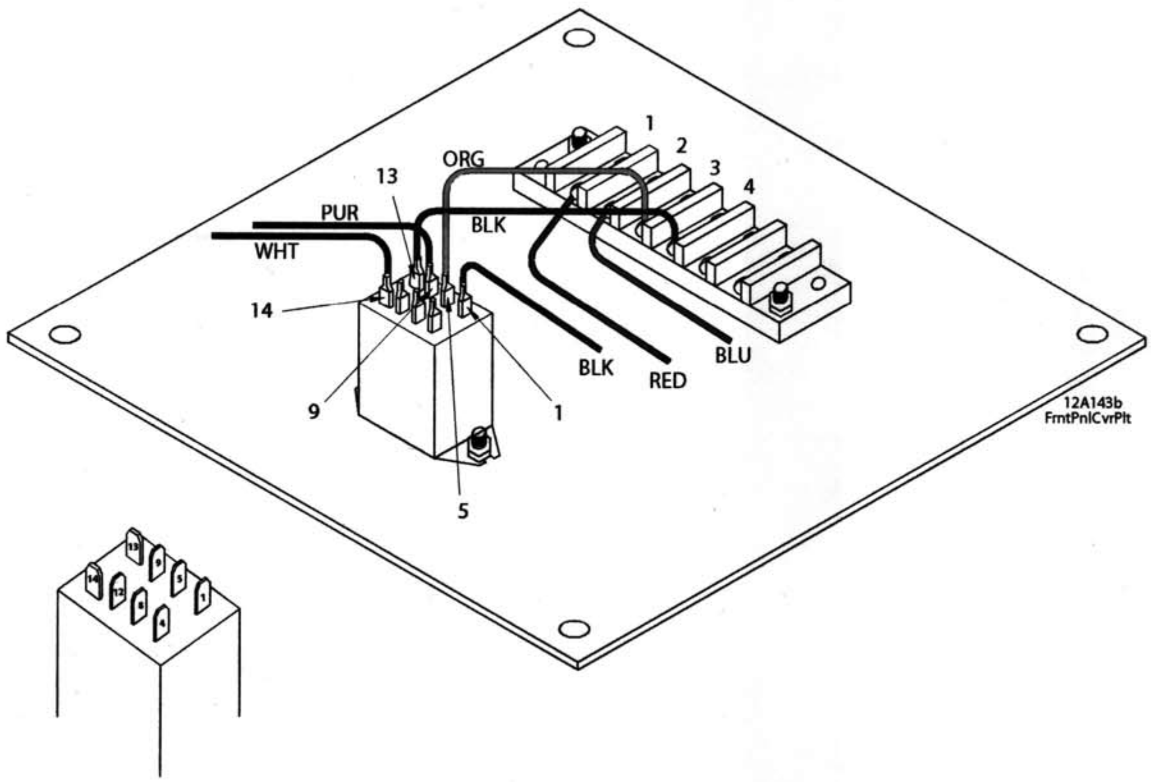
TERMINAL	WIRE COLOR	CONNECTION
2	Blue	(NOTE 1)
3	Orange	Relay Terminal 5
4	Black	Relay Terminal 13

   b. Relay

TERMINAL	WIRE COLOR	CONNECTION
14	White	(NOTE 2)

NOTES: 1) This **BLUE** wire is to be spliced to the **BLUE** wire on the primary contactor coil cut short in Step A 11 on page 3.

2) This **WHITE** wire is to be connected to the nearest **WHITE** neutral wire connection.



5. Connect the **BLACK, ORANGE, PURPLE,** and **RED** wire removed from the Partlow Control terminals **1, C, H** and **L** as follows:

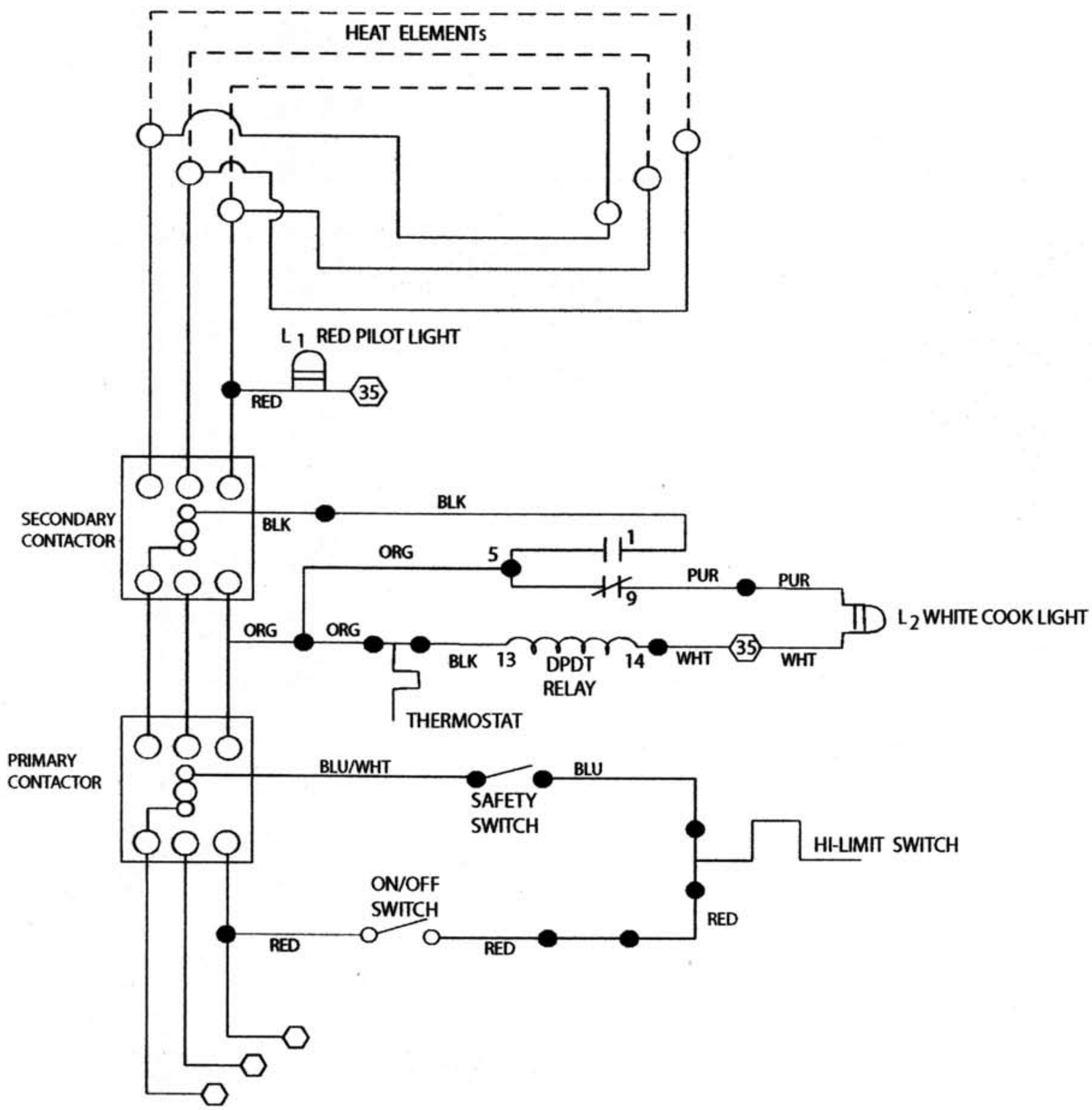
WIRE COLOR	TERMINAL BLOCK TERMINAL	RELAY TERMINAL
BLACK (L)		**1**
ORANGE (C)	**3**	
PURPLE (H)		**9**
RED (1)	**1**	

6. Splice the **BLUE** wire attached to terminal 2 of the terminal block to the **BLUE** wire on the primary contactor coil cut short in step A 11 on page 3. Connect / Splice the **WHITE** wire attached to terminal **14** of the relay to terminal 35 of the terminal block mounted on the fryer bulkhead and/or a nearby **GRAY** or **WHITE** neutral wire.

7. Connect the **RED, BLUE, ORANGE,** and **BLACK** wires in the white plastic tube to the terminal block on the Cover Plate as follows:

WIRE COLOR	TERMINAL
RED	**1**
BLUE	**2**
ORANGE	**3**
BLACK	**4**

8. When connections are made according to paragraph IV B5 and IV C4, 5, 6, and 7, the fryer will be wired as shown below:



9. Prior to proceeding double check all electrical connections to assure the fryer is wired as showh in the above sketch.

D. OPERATIONAL TEST

1. Fill the vat with shortening.

2. Raise and secure the front panel using the two (2) DZUS fasteners.

3. Lower the element head insuring the element head safety switch is fully **DEPRESSED.**

4. Turn the thermostat to the desired cooking temperature.

5. Turn the 120 volt and 208/240 volt circuit breakers to the fryer **ON.**

6. Turn the power ON/OFF switch to the **ON** position. At this instant the **PRIMARY** and **SECONDARY** contactors should energize, the **RED** pilot lamp should light, and electrical power should be applied to the heat elements.

7. **CAREFULLY** insert the probe of an accurate thermometer in the shortening adjacent to, but not touching the thermostat sensing element. As shortening is being heated, periodically stir the shortening in a counter-clockwise direction to assure shortening is being heated. Allow the **RED** pilot lamp to cycle (turn ON and OFF) several times to stabilize temperature.

8. When the **RED** pilot lamp has cycled at least three (3) times, record the temperature reading on the thermometer as the **RED** pilot lamp turns **OFF** and again when the lamp turns **ON,** then compute the **AVERAGE** of these two (2) temperature readings. If the **AVERAGE** temperature falls within a range of ± 10°F of the desired cooking temperature, the thermostat **DOES NOT** require calibration. If the **AVERAGE** temperature range is **MORE** than ± 10°F the thermostat should be calibrated according to procedures in paragraph E.

E. THERMOSTAT CALIBRATION STEPS- Use and **ACCURATE** thermometer to calibrate the thermostat as follows:

STEP 1- Turn the thermostat to 340°F and let the thermostat **CYCLE** (turn ON and OFF) at least three (3) times to stabilize the temperature.

NOTE: Failure to stabilize the temperature will result in an erroneous temperature reading due to thermostat overshoot/undershoot.

STEP 2- When the thermostat has cycled at least three (3) times, record the temperature of the **THERMOMETER** as the thermostat **TURNS OFF** and again as the thermostat **TURNS ON,** then compute the **AVERAGE** of these two (2) temperature readings. For example: **TURN OFF** temperature = 343°F; **TURN ON** temperature=339°F; **AVERAGE** temperature = 341°F;

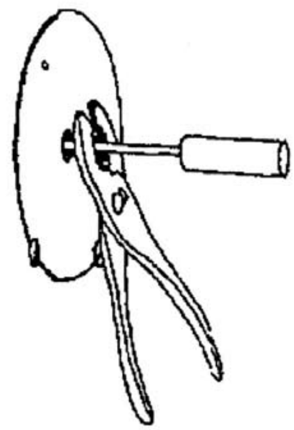
$$\frac{343^\circ F + 339^\circ F}{2}.$$

STEP 3- If the **AVERAGE** temperature falls within a range of 330°F to 350°F, the thermostat **DOES NOT** require calibration. If the **AVERAGE** temperature falls below 330°F or above 350°F, calibrate the thermostat according to step 4 through Step 7.

NOTE: ONLY CALIBRATE A THERMOSTAT WHEN THE AVERAGE TEMPERATURE IS GREATER THAN ± 10°F OF THE THERMOSTAT DIAL SETTING.

STEP 4- Set the thermostat to 340°F and let it **CYCLE** at least three (3) times.

STEP 5- When the thermostat has cycled at least three (3) times, **CAREFULLY** remove the **BLACK** plastic knob from the thermostat shaft to gain access to the **CALIBRATION SCREW** identified below.



CAUTION: DO NOT CHANGE THE THERMOSTAT SETTING WHILE REMOVING THE DIAL.

STEP 6- While holding the thermostat shaft stationary with a pair of pliers, use a small screwdriver to adjust the **CALIBRATION** screw as follows:

A. If the **AVERAGE** temperature is **HIGHER** than the thermostat dial setting, turn the **CALIBRATION SCREW** to the right (clockwise) to lower the average temperature.

NOTE: Each ¼ turn (90° rotation) of the Calibration Screw will change the **AVERAGE** temperature 18°F.

B. If the **AVERAGE** temperature is **LOWER** than the thermostat dial setting, turn the **CALIBRATION SCREW** to the left (counter-clockwise) to raise the average temperature.

STEP 7- Replace the plastic knob on the thermostat, let the fryer temperature stabilize for about 5 minutes, the recheck the calibration according to the above procedures. If necessary, recalibrate the thermostat until the average temperature is within $\pm$ 10°F of the thermostat dial setting.

NOTE: QUESTIONS TO CONTENTS OF THIS PUBLICATION SCHOULD BE REFERRED TO THE CUSTOMER SERVICE DEPARTMENT 1-800-525-8130.