

***INSTRUCTIONS:***

**PORTABLE ROLLER OVEN  
Part No. 174-00**

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## **Instructions For OFI Portable Roller Oven**

Sometimes the effect of temperature on mud circulating through the well bore is very important. With the OFI Roller Oven, thermal effects on viscosity are seen. Also the effects that various mud additives such as thinners or organic colloids have on mud at circulating temperature can be studied. The OFI Roller Oven is also a valuable aid in the investigation of mud on which a base exchange reaction occurs such as lime treated mud. Mud samples are first tested, then placed in sealed containers\* (No.175-series pressurized or non pressurized aging cells, or the high temperature, high pressure filter press cells) in the roller oven where they are subjected to moderate heat (thermostat controlled) and gently agitated on power driven rollers for a given period of time. The sample may be retested again, if necessary. These instruction apply to the following OFI Testing Equipment Roller Ovens:

<b><u>Part No.</u></b>	<b><u>Description</u></b>
174-00	OFI Portable Roller Oven, 3 Rolls, 4Cells (260ML), optional 120/240 VAC 50/60HZ

### **GENERAL APPLICATION**

OFI Roller Ovens are designed to provide the dual function of heating and rolling samples simultaneously or independently. The OFI Roller Oven can therefore be put to many practical uses, a few examples being:

#### ***1. HEATING MODE ONLY:***

- Drying Oven
- Aging Oven
- Baking Oven

#### ***2. ROLLING MODE ONLY:***

- Ball Mill Roller
- To make homogenous mixtures of liquids
- To make homogenous mixtures of powders
- To agitate chemicals into solutions
- To deaerate liquids

\* *Glass containers are not recommended because of the breakage problems.*

## **SET UP**

### ***OPERATION OF THE OVEN:***

- 1 Move the switch for the rollers to the “ON” position (unless agitation is not desired). The white indicator light above the switch should come on and rollers should start turning.
- 2 Move the switch for the heaters to the “ON” position (unless heat is not desired). The red indicator light should come *ON* when power is supplied to the heaters (the indicator light will pulsate on and off when the desired heat is approached and maintained). The temperature controller will display the temperature and supply power to the heaters (see page 5 for controller set point operation).
- 3 Set the temperature controller to the desired operating temperature (with standard heaters the temperature will rise at approximately 150<sup>0</sup>F per hour).
- 4 The oven can be preheated while the samples are being tested and prepared. It is recommended that the samples be placed in the 175-00 series of Aging Cells for the oven tests. However, the cells for the 170-00 and 171-00 series of the High Pressure, High Temperature Filter Press may also be used.

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**CAUTION:**

**IN FILLING THE TEST CELLS, DO NOT FILL TO GREATER THAN ¾ CAPACITY SINCE ROOM FOR EXPANSION OF THE TEST FLUIDS MUST BE PROVIDED TO PREVENT EXCESSIVE INTERNAL PRESSURE.**

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The test cells need to have O-rings installed on the outer perimeter, top and bottom. Teflon (175-46) or Buna-N (175-54) O-rings may be used on the 175-00 series Aging Cells but do not use the Buna above 300<sup>0</sup>F. **NOTE: IF FOR SOME REASON THE TEMPERATURE CONTROLLER FAILS TO CONTROL THE OVEN TEMPERATURE, A SAFETY THERMOSTAT WITH A MAXIMUM TEMPERATURE OF 450<sup>0</sup>F HAS BEEN INSTALLED TO CUT POWER TO THE HEATER.**

- 5 Allow the power switch to remain on until the oven and sample have cooled down to handling temperature. The Temperature Controller will indicate the oven temperature as long as the Heat switch is in the “ON” position. Faster cooling can be accomplished by opening the oven door (OFI Testing Equipment also manufactures ovens which have timers, forced air, and with 4 of 5 rollers per oven).
- 6 **CAUTION: BE CAREFUL IN HANDLING HOT AGING CELLS and DO NOT OPEN CELLS WHILE HOT OR UNDER PRESSURE. PROPERLY BLEED OFF PRESSURE and BE SURE THE VALVE STEM IS POINTED AWAY FROM YOURSELF OR ANY OTHER PERSON. ALWAYS WEAR PERSONAL SAFETY EQUIPMENT.** The use of a pressurized adapter with a hose (Part No. 170-20, 171-22 and 171-26 and FNPT to hose adapter) to direct any residual pressure to a sink is recommended.
- 7 To age without rolling a folded shelf is provided for the containers to rest on.

- 8 Because no timer is used, the heat switch must be turned “OFF” after the sample has been heated to the required temperature for the required time.

## **TIMER OPERATION**

1. Depress the “Up” or “Down” arrow and install the desired temperature set point.
2. Depress the “Page” button (left button) twice. “*SP*” should be displayed.
3. Depress the “Scroll” button (left center button). “*tm.OP*” is displayed.
4. Depress the “Up” arrow and select one of the five timer programs that you desire (see \* for description of timer programs OPT. 1 though OPT. 5).
5. Depress the “Scroll button”, “*tmr*” will display. Use the “Up” arrow to install the amount of minutes that you want the timer program to run.
6. Depress the “Page” button three times to return to the temperature display screen and the timer program will begin to run.
7. When the timer has timed out, the controller will switch to standby mode. The display will flash “*END*” and the “*MAN*” beacon light will turn on to indicate that the timer program is complete.
8. To reset the controller out of the timer program, depress the “Scroll” button three times. “*M-A*” will be displayed. Depress the “Up” arrow once and install “*AUTO*” in the display.
9. Depress the “Page” button once to return to the temperature display screen.
10. Depress the “Page” and “Scroll” buttons simultaneously. Hold the two buttons down for approximately four seconds. This will return the temperature controller back to the normal user mode.

### \*Timer Programs:

Opt. 1 – Oven will heat to the temperature set point. Once the temperature is achieved, the timer will begin to run. When the timer has timed out, the controller will stop sending power to the heaters and the oven will cool. The controller will flash “*END*” to signal that the timed program has completed.

Opt. 2 – Oven will heat to the temperature set point. Once the temperature is achieved, the timer will begin to run. The controller will maintain the temperature at the desired set point. When the timer times out, the controller will flash “*END*” and the controller will maintain the temperature set point indefinitely.

Opt. 3 – Oven will heat to the temperature set point while the timer is running. When the timer has timed out, the controller will stop sending power to the heaters and the oven will cool. The controller will flash “*END*” to signal that the timed program has completed.

Opt. 4 – Oven will heat to the temperature set point while the timer is running. The controller will maintain the temperature at the desired set point. When the timer times out, the controller will flash “*END*” and the controller will maintain the temperature set point indefinitely.

Opt. 5 – This mode applies a time delay before turning power on to the heaters. When the timer is started, the controller will not initially send power to the heaters, however once it has timed out, the controller will then activate the heaters. The temperature set point will be maintained indefinitely.

**Maintenance**

- 1 A small amount of grease should be put on the chain and sprockets each 90 days.
- 2 Do not lubricate the Teflon roller bearings.
- 3 To replace the pilot light bulb, unscrew the jewel and replace the bulb with a neon bulb (NE51)
- 4 Teflon bearing replacement (motor side).
  - a. Remove the case end cover (on the motor end of the Portable Oven).
  - b. Remove the motor.
  - c. Remove the gear reduction unit.
  - d. Remove sprockets from the roller shafts.
  - e. Remove the bearing rail.
  - f. Remove the three covers that retain the Teflon bearing in the bearing rail and replace the bearings
- 5 Teflon bearing replacement (roller side).
  - a. Remove the case end cover (on the roller side of the case).
  - b. Remove the bearing rail.
  - c. Remove the three covers that retain the Teflon bearing in the bearing rail and replace the bearings.

***LIST OF SPARE PARTS  
FOR PORTABLE ROLLER OVEN***

<b><u>PART NO.</u></b>	<b><u>DESCRIPTION</u></b>
170-05	Safety Thermostat (Upper Limit)
172-02	Chain for Roller Oven, (per foot)
172-03	Sprocket for Roller Oven
172-04	Connecting Link (for chain)
172-05	2 Amp Fuse (230 volt oven)
172-07	5 Amp Fuse (115 volt oven)
172-08	Teflon Bearing
172-12	Lamp Holder, for neon bulb
172-13	Fuse Holder

172-14	Switch, On/Off, DPST
172-24	Solid State Relay

***LIST OF SPARE PARTS  
FOR OFITE AGING CELLS***

175-25	Aging Cell, 260 ML, 303 Stainless Steel, with Valve
175-30	Aging Cell, 500ML, 303 Stainless Steel, with Valve
175-50	Aging Cell, 500 ML, 316 Stainless Steel, with Valve
175-40	Corrosion Test Cell, 303 Stainless Steel, with Valve
175-05	Washer, for Inner Cap
175-18	Inner Cap, 303 S.S., for pressurized Aging Cells
170-17	O-Ring, for valve stem, Viton
175-04	Gasket, Teflon, for Baroid style inner cap
175-09	O-Ring, for inside of OFITE Aging Cell, Viton
175-09-1	O-Ring, for inside of OFITE Aging Cell, Teflon
175-46	O-Ring, for outside of Aging Cell, Teflon
175-54	O-Ring, for outside of Aging Cell, Buna N
175-62	O-Ring, for Teflon Liner Plug, Viton
175-63	O-Ring, for Teflon Liner lid, Viton
175-05	Set screw, 5/8", for non-pressurized cells
175-06	Set screw, 3/8", for pressurized cells
175-07	Allen Wrench, for 5/8" set screw
175-08	Allen Wrench, for 3/8" set screw

175-16 Valve Stem, short, for Aging Cells  
175-60 Teflon Liner, for 500 ml Aging Cells

**SPECIAL ORDER PARTS:**

Gear - (for Roller Motor) #24AXL037

Gear - (for Gear Reduction Unit) #32AXL037

Roller Motor Belt - #170XL037

Neon Bulb - CML BIA LAMP NE-51

Red Jewel – DIA 95-0931

White Jewel – DIA 95-0937

Fan Blade (for Roller Motor) - #4C468 5 X ¼" 10W BLADE

Cabinet, Stainless Steel, 3 Roll – DRW 4174000

Frame, Rollers, End Caps, Shafts – DRW 4174000

Heating Element – OT-815 Heater, 120V, 150W

Motor Support Bracket - CWP

## **FRONT PANEL LAYOUT AND OPERATION**

### **OPERATION**

Switch on the controller. Following a 3 second self-test sequence you will see the display shown below. It is called the HOME display.



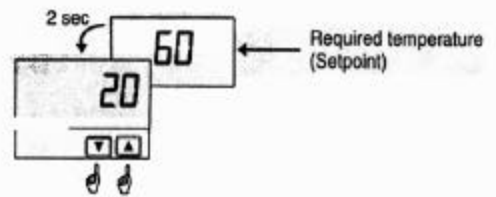
**OP1** illuminates when the logic output is ON (normally heating).  
**OP2** illuminates when the relay output is ON (normally cooling or alarm).

If **OP1** or **OP2** are configured as alarm outputs (instead of heating and cooling), they will flash when a new 'unacknowledged' alarm occurs and go steady when the alarm is acknowledged but still true.

**P** **G** Do not use the Page or Scroll buttons. These buttons are only used in the initial programming of the controller.

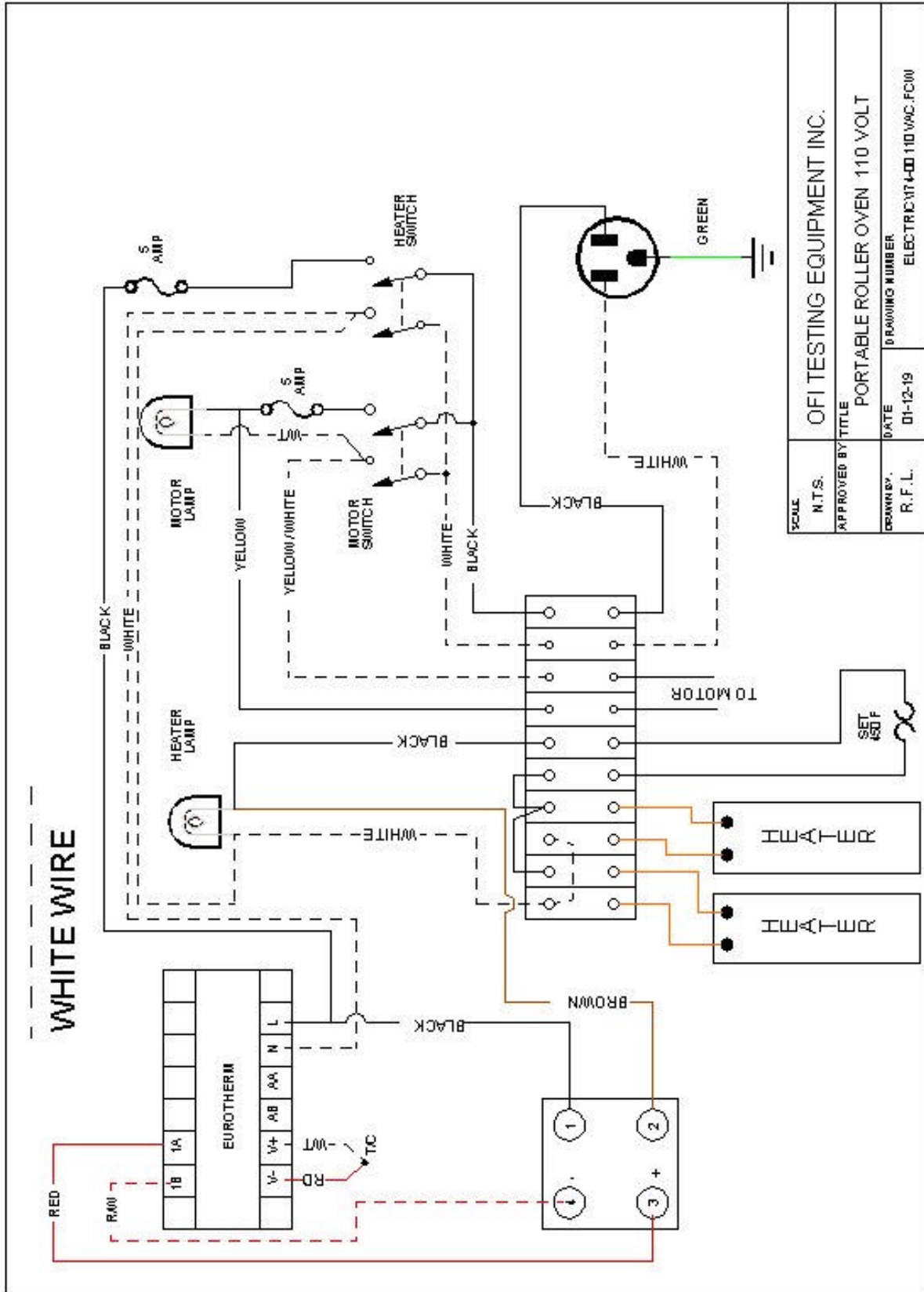
### **TO ADJUST (SETPOINT)**

Press and release quickly the **▼** or **▲** button. The setpoint will be displayed for 2 seconds.

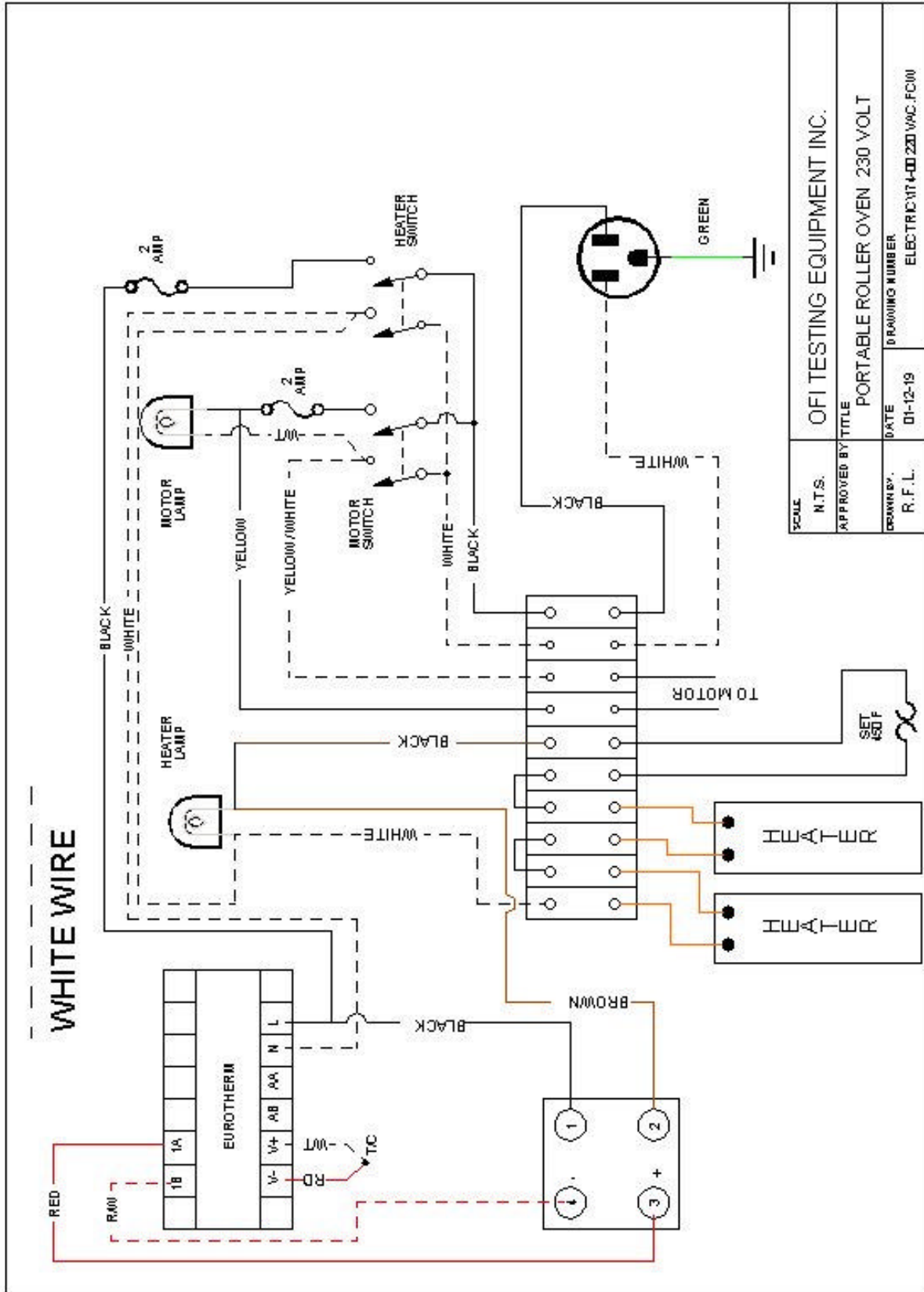


Press and hold **▲** to raise the setpoint  
Press and hold **▼** to lower the setpoint

The "Page" and "Scroll" buttons are used when using the timer. See page 4 for details on using the timer programs.



SCALE	OFI TESTING EQUIPMENT INC.		
N.T.S.	APPROVED BY TITLE		
PORTABLE ROLLER OVEN 110 VOLT		DRAWING NUMBER	
DATE	D1-12-19	ELECTRICIAN	R.F.L.



SCALE	OFI TESTING EQUIPMENT INC.		
N.T.S.	APPROVED BY TITLE		
PORTABLE ROLLER OVEN	230 VOLT		
DRAWN BY:	DATE	DRAWING NUMBER	ELECTRIC UNIT 4-00 230 VAC FC100
R. F. L.	01-12-19		

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