FISHER Isotemp® Ovens

Catalog Numbers: 13-244-1 and 13-244-3

FISHER

Instruction Manual

Instrument Division

FISHER SCIENTIFIC

PITTSBURGH, PA.

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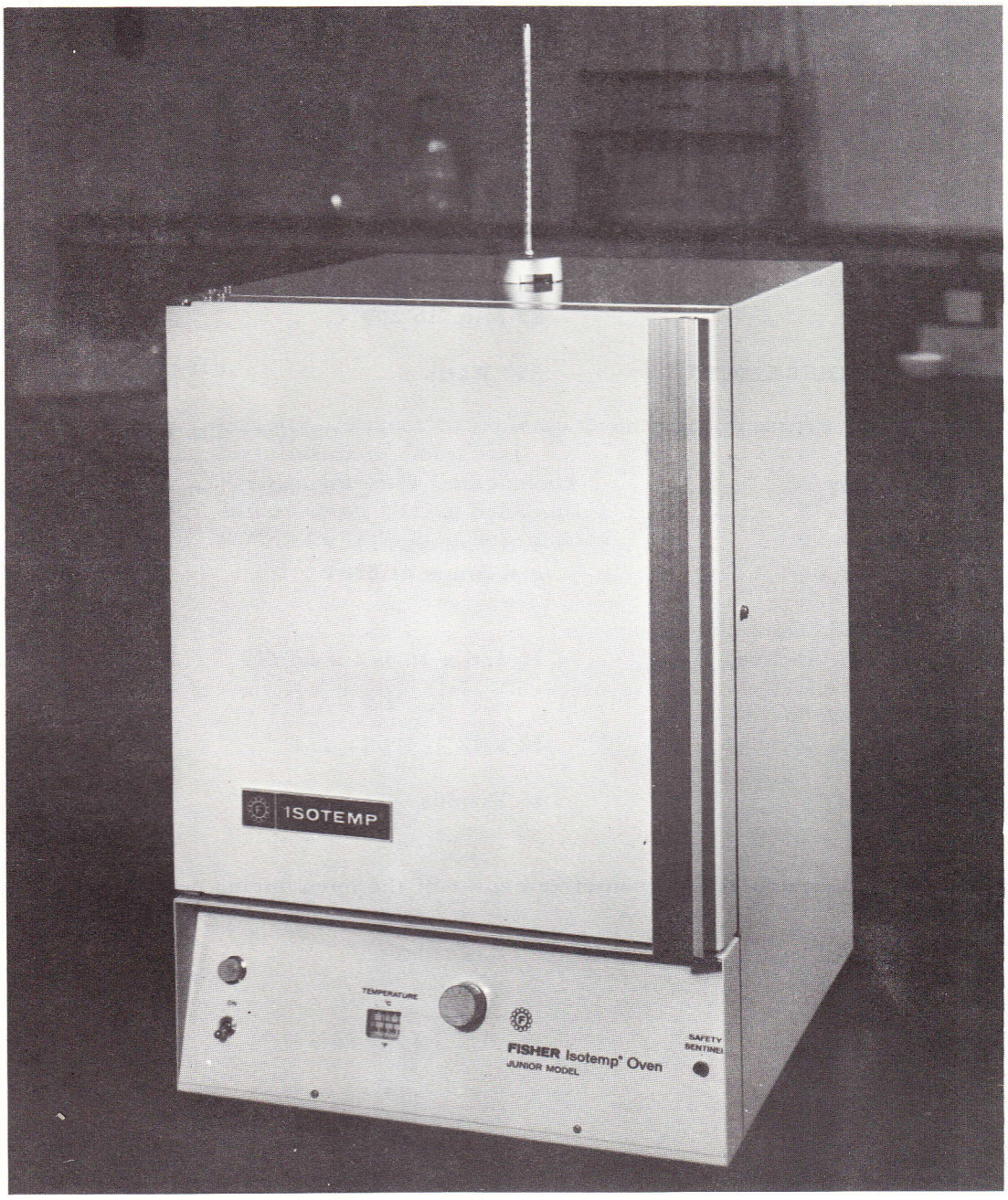
FISHER Isotemp® Ovens

Catalog Numbers: 13-244-1 and 13-244-3



SPECIFICATIONS

CATALOG NO.	13-244-1 (JUNIOR MODEL 201)	13-244-3 (SENIOR MODEL 203)
OPERATING METHOD	GRAVITY CONVECTION	
CAPACITY	1 cu ft	3 cu ft
TEMPERATURE RANGE	40° to 200°C	
TEMPERATURE UNIFORMITY (AVERAGE DEVIATION)	±0.5°C at 100°C ±1.4°C at 200°C	±1.0°C at 100°C ±1.9°C at 200°C
*MAXIMUM VARIATION (CONSTANCY)	±0.8°C at 100°C ±1.8°C at 200°C	±1.0°C at 100°C ±1.1°C at 200°C
HEATING RATE	54 Min. to 100°C 83 Min. to 200°C	120 Min. to 100°C 165 Min. to 200°C
POWER REQUIREMENT	550 Watts	1000 Watts
VOLTAGE REQUIREMENT	115 or 230 Volts a-c	
FREQUENCY	50/60 Cycle	
CURRENT	4.8 Amps at 115V 2.4 Amps at 230V	8.7 Amps at 115V 4.3 Amps at 230V
DIMENSIONS, Outside (W x D x H, Inches)	16 1/8 x 16 1/2 x 22 7/8	22 1/4 x 19 x 28 3/4
DIMENSIONS, Inside (W x D x H, Inches)	12 x 12 1/4 x 11 1/4	18 x 15 x 17 1/4
NET WEIGHT	66 Pounds	105 Pounds

*Maximum variation at the geometric center of the oven during continuous 22-hour operation.

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ILLUSTRATIONS

GENERAL DESCRIPTION

Available in three models (Junior, Senior, and Deluxe), the Fisher Isotemp Gravity-Convection Ovens have been designed to provide high performance temperature control over the range of 40 to 200°C. Because of this close temperature control, the ovens are suitable for a wide variety of general laboratory applications. Only the Junior and Senior models are discussed in this instruction manual.

In these models, the air chamber is heated by electrical heaters, and the temperature is controlled by dual thermostats. The primary thermostat provides all normal operation control; the second thermostat is preset to 5°C above the primary thermostat, and takes over only if the primary thermostat should fail. This provides protection against fire and insures against loss of test information.

A band-type Temperature Scale, operated by a single Temperature Control Dial, is calibrated in both Centigrade and Fahrenheit. The scale reads in increments of 10 degrees, and is accurate to ±2°C. Final temperature adjustment is made by placing the supplied mercury thermometer into an opening in the top of the oven and making small adjustments with the Temperature Control Dial until the thermometer indicates the desired temperature. This opening also serves as a vent and is covered by an adjustable cap that controls the air flow. In operation, fresh air enters through a port in the bottom of the oven and escapes through the vent in the top, carrying with it the vapors from drying or evaporating samples.

UNPACKING

The Isotemp Gravity-Convection Oven, Junior or Senior Model, and its accessory equipment are packed in a single carton. After having carefully opened the top of the carton, complete and return the warranty card. Then, perform the following:

1. Stand the carton on one end so that the oven is standing in a normal position on its base. Then, remove the top pad from the carton.

2. Carefully slide the oven out of the carton. This operation should be quite easy because of the waxed end panels on which the oven rests.

3. Open the oven door and remove the thermometer and tray assembly from inside the oven chamber.

4. Check all components against the packing list that follows. If any are damaged, notify the carrier and file claim; if any are missing, notify your nearest Fisher Branch.

Quantity	Item	Catalog No.
1	Isotemp Oven	*13-244
1	Thermometer, 35 to 200°C	13-246
**2	Tray Assembly:	
	Junior Model Only	13-244-1-0207
	Senior Model Only	13-244-3-0206
1	Warranty Card	Form 928
1 Set	Instruction Manual	----

*Basic No. – The numbers for the various models are as follows:

- 1 cu ft, 230-volt - No. 13-244-1W2
- 1 cu ft, 115-volt - No. 13-244-1V2
- 3 cu ft, 230-volt - No. 13-244-3W2
- 3 cu ft, 115-volt - No. 13-244-3V2

** The 1-cu ft model contains two removable shelves, while the 3-cu ft model has three removable shelves.

ASSEMBLY

Place the oven on the laboratory bench or table where it will be used, and level the oven by means of the adjustable feet. Allow about 1/2-inch clearance between the oven base and the bench top. No clearance is needed for the sides or back.

At this point, make certain that the Power Switch of the oven is off. Then, plug the line cord into a proper receptacle; ie., make certain that the circuit is capable of supplying the power requirements of the oven. If no 3-prong grounded outlet is available, use an adapter and ground the pigtail.

Finally, set the shelves in position and insert the thermometer into the opening on top of the oven. When inserting the thermometer, be sure not to obstruct the air vents in the adjustable cap around the opening.

TEMPERATURE ADJUSTMENT

To adjust the temperature of the oven, perform the following (see Figure 1):

1. Flip the Power Switch (B) to ON.

2. Slowly rotate the Temperature Control Dial (D) clockwise until the Pilot Lamp (A) is energized. The lamp should light initially at about room temperature. When the lamp does light, allow the oven to operate for several "on-off" cycles to stabilize the control system. If the Pilot Lamp should fail to light after 1-1/2 full turns of the Dial, check for possible lamp or power failure.

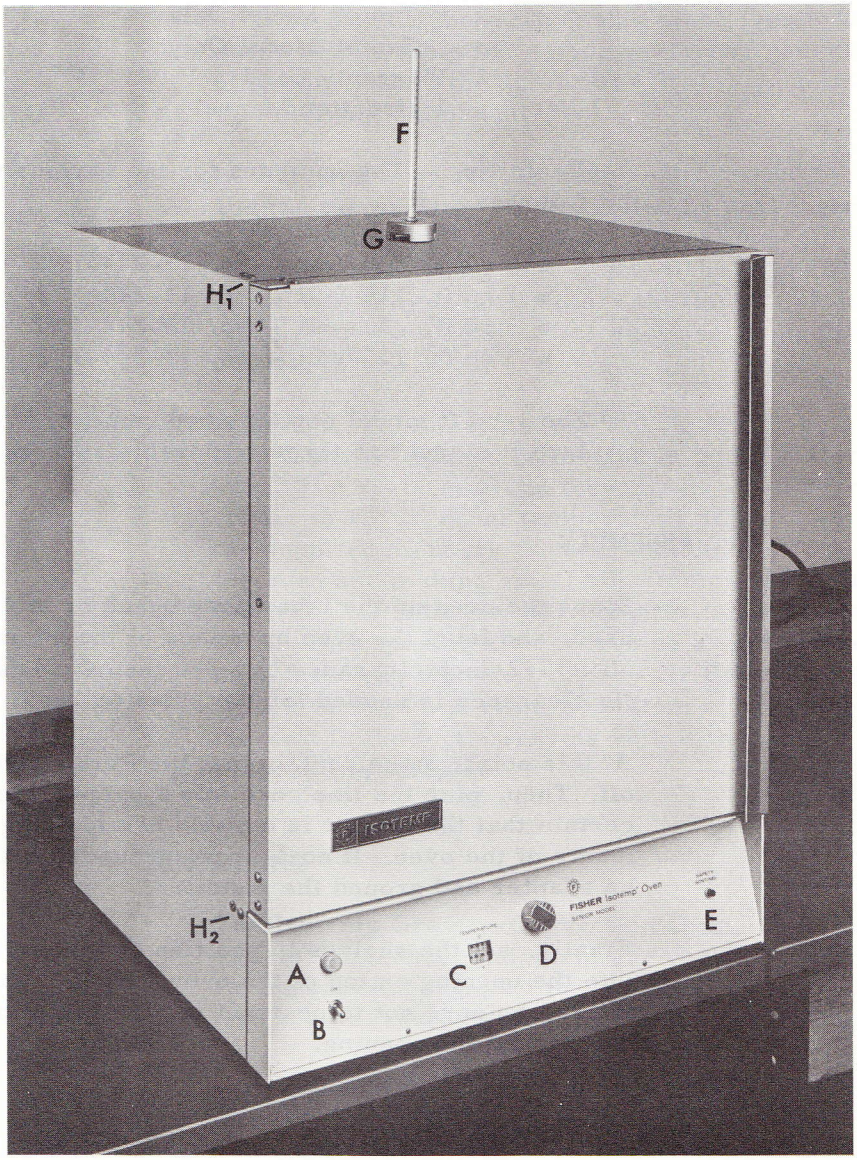


Figure 1 — GRAVITY-CONVECTION ISOTEMP OVEN

A - Pilot Lamp
B - Power Switch
C - Temperature Scale
D - Temperature Control Dial
E - Safety Sentinel Lamp
F - Thermometer
G - Vent, with Adjustable Cap
H_1, H_2 - Screws for Door Hinge

3. Set the thermostat by turning the Dial in the appropriate direction until the Temperature Scale indicates the desired temperature. Each full turn of the Dial changes the temperature about 66°C. Final temperature adjustment is made by turning the Dial until the thermometer indicates the desired temperature.

4. The thermostat may be adjusted by any increment to any higher temperature (not exceeding 200°C) during operation of the oven, with no chance of damage to either the oven or thermostat.

5. The Pilot Lamp will be on when the oven is heating, and off when the oven is at the temperature set on the thermostat.

6. If the primary thermostat should fail and the second thermostat takes over, the Safety Sentinel Lamp (E) will be energized. The oven temperature will then be approximately 5°C above the Temperature Scale setting.

7. For more precise temperature control during continuous operations at temperatures up to 80°C, reduce the input voltage to one-half the voltage rating of the oven. Either a step-down or a variable transformer may be used.

PRECAUTIONS

When using the oven, the following precautions must be observed at all times:

- Do not operate the oven at temperatures above 200°C.
- Do not attempt to turn the temperature scale beyond the minimum and maximum stops.
- When placing objects on the top shelf of the oven, be careful not to damage the mercury thermometer.

MAINTENANCE

Adjustments

1. Magnetic Door Latch: To adjust the magnetic door latch, loosen the screw on the side of the oven that locks the magnetic striker plate in place. Then, hold the oven door firmly against the striker plate and tighten the screw.

2. Door Hinges (see Figure 1): To adjust the door hinges on the oven, loosen the screws (H_1 & H_2) that respectively hold the top and bottom hinges in place. Once these screws have been loosened, the door can be moved in the slots as necessary for making adjustments in gasket pressure or fit. After the necessary adjustments have been made, retighten the screws.

If it is necessary to remove the door for any reason, remove the screws (H_1) that hold the top hinge in place and then remove the hinge. Now, lift the door off the pin on the bottom hinge.

Replacements

1. Scale Lamp: To replace a burned-out scale lamp, first disconnect the power line. Next, remove the perforated bottom panel from beneath the oven. The lamp can now be removed from its socket. The 115 volt models have bayonet-type bases, and the 230 volt models, screw-type bases.

2. Thermostat: During normal operation, the Safety Sentinel Pilot Lamp (E in Figure 1) will not be on. If this lamp should come on, it indicates failure of the primary thermostat and a shift in temperature control to the second thermostat. When this happens, contact the Technical Service Department of your nearest Fisher Branch for servicing. The oven may be used temporarily on the second thermostat, but the scale is no longer accurate and the safety feature is no longer operative.

3. Element Replacement: Replacing the heating elements requires complete disassembly of the oven panels and insulation, and should be done only by qualified personnel. If it should become necessary to replace the elements, contact the Technical Service Department of your nearest Fisher Branch.

4. Door Seal (see Figure 2): To remove the door seal, remove the door as described in the preceding paragraph. Then, loosen the 13 screws beneath the seal, and pull the used seal out.

   To install a new door seal, perform the following:

   a. Use a screwdriver and force the oven chamber away from the front panel about 1/16 inch.

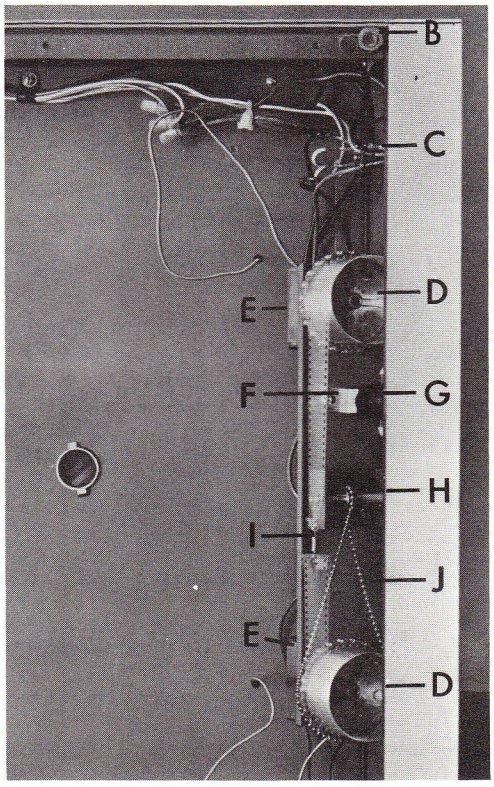
   b. Remove one of the screws at the center of the bottom edge and then starting with either end of the door seal, install the seal in the space and replace the screw. Do not tighten the screws completely until the seal is completely installed.

   c. Continue to install the entire seal around the door opening. Do not allow the seal to overlap in the oven chamber.

   d. When the seal has been completely installed, tighten all screws.

   e. Replace the door and readjust the magnetic door latch and door hinges as described in this section under Adjustments.

FIGURE 2-INSTALLATION OF DOOR SEAL



FUGURE 3-VIEW OF INTERNAL COMPONENTS

REPLACEMENT PARTS

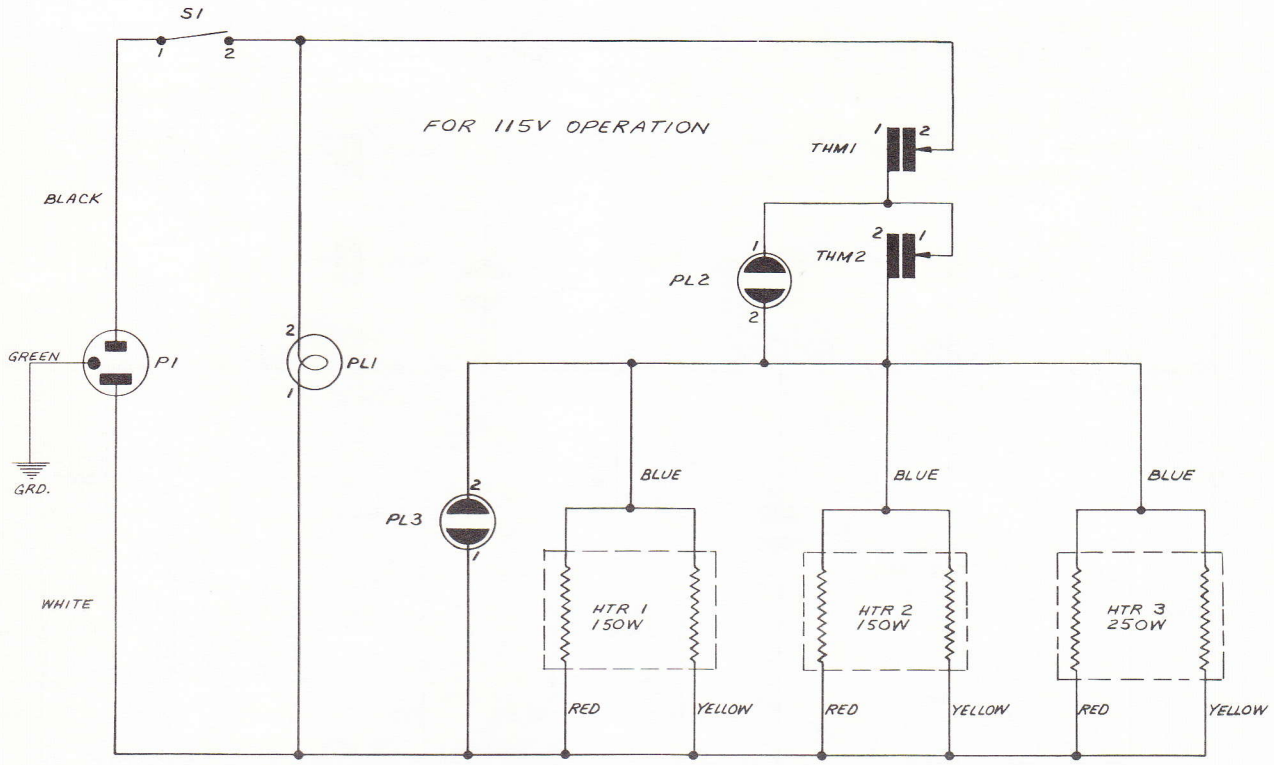
A list of replacement parts for both the Junior and Senior ovens is given below. Whenever possible, each item is identified with respectively the same code as that shown on the wiring schematics or on Figure 3, a view of the internal components. Unless otherwise indicated, the parts fit all models.

Callout (Figure 3)	Code (Schematic)	Part	Number OLD	Number NEW*
B		Leg	13-244-1-056	09748
C	S1	Toggle Switch	13-244-1-031	06676
D		Sprocket Assembly	13-244-1-0215	09816
E	THM1, 2	Thermostat	13-244-3-01	09821
F		Scale Assembly	13-244-1-0211	09812
H		Sprocket (Small)	13-244-1-052	09745
I		Spring	13-244-1-019	09731
J		Bead Chain	13-244-1-018	09730
	PL2	Safety Sentinel Lamp	PL-07-R	09712
	PL3	Pilot Lamp	PL-06-W	06654
		Thermometer	13-246	13-246
		Temp. Control Dial	KN-101-1	06289
		Door Seal***	13-244-3-044	09895
		Door Seal**	13-244-1-024	09735
	HTR1, 2	Strip Heaters		
		150 watts**	HTR-01-1	09706
		250 watts	HTR-01-2	09707
	HTR3	Strip Heater		
		500 watts***·	HTR-01-3	09708
		Heater Strap	13-244-1-087	09769
		Anticipator Clip	13-244-1-017	09729
		Anticipator Hood	13-244-1-057	09749
For 115V Models Only:				
G	PL1	Scale Lamp	13-244-1-029	09738
		Socket Base	13-244-1-0304	17249
	P1	Line Cord	LC-3	06643
For 230V Models Only:				
G	PL1	Scale Lamp	13-244-0316	17256
		Socket Base	13-244-1-0315	17250
	P1	Line Cord	LC-7	09172

*Use new number when ordering replacement parts.

**Junior Model 201 only (13-244-1).

***Senior Model 203 only (13-244-3).



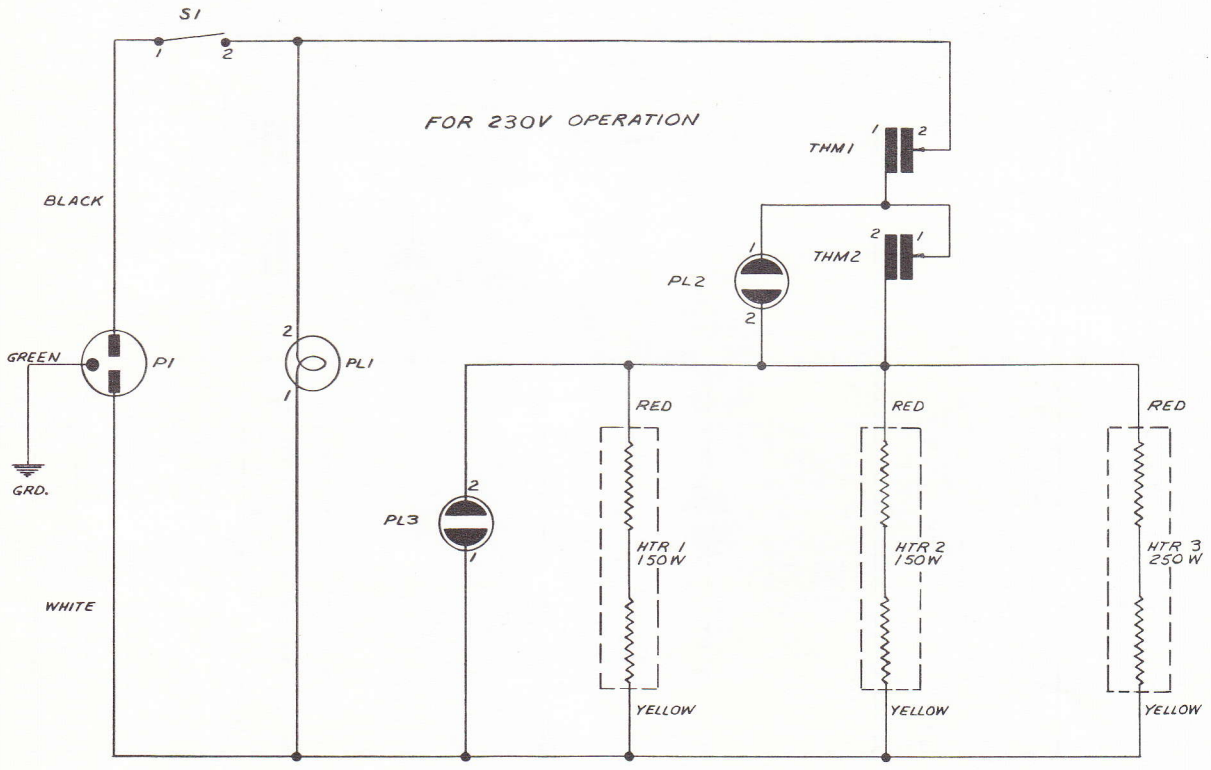


FIGURE 4-JUNIOR OVEN WIRING SCHEMATICS

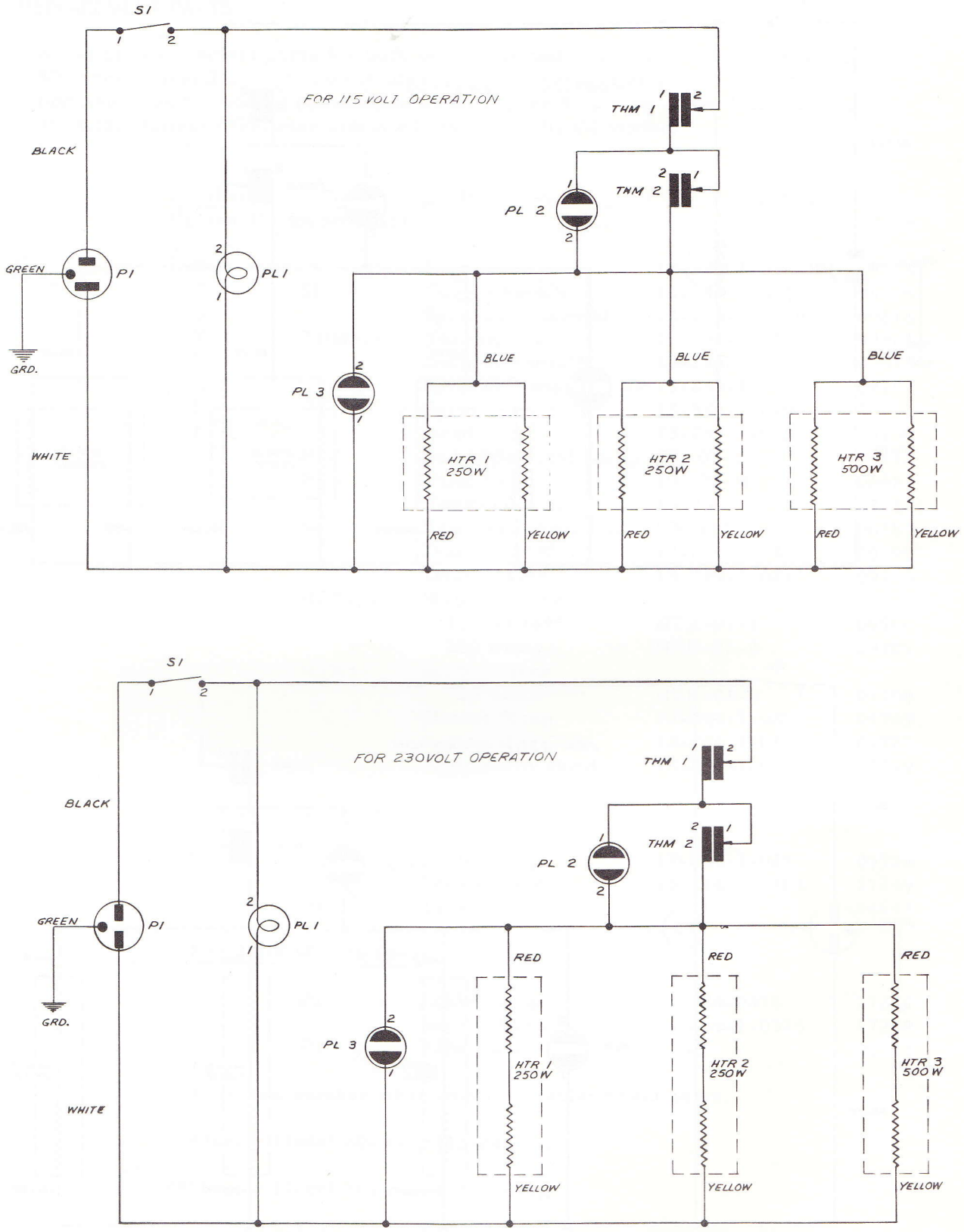


FIGURE 5-SENIOR OVEN WIRING SCHEMATICS

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