

1230 Power Supply

Setting the instrument power configuration

There are seven possible line voltage power configurations for the 6890 GC.

Table 1230-1 Voltage Configuration Information

Voltage (-10%, +5%)	Frequency (Hz)	Maximum power consumption (VA)	Power line requirement	Oven type
120 V	48-66	2,250	20-amp dedicated receptacle	Regular
200 V	48-66	2,950	15-amp dedicated receptacle	Fast-heating
208 V	48-66	2,950	15-amp dedicated receptacle	Fast-heating
220 V	48-66	2,950	15-amp dedicated receptacle	Fast-heating
230 V	48-66	2,250	10-amp dedicated receptacle	Regular
230 V	48-66	2,950	16-amp dedicated receptacle	Fast-heating
240 V	48-66	2,950	13- or 16-amp dedicated receptacle	Fast-heating

To change the power configuration for the instrument, you must install the appropriate types of the following components:

- Line voltage configuration plug
- Ceramic fuses on the AC power board
- Oven shroud assembly

These three components are explained in the following topics.

Line voltage configuration plug

There is a different line voltage configuration plug on the AC power board for each power configuration. Each configuration uses three or five jumper wires, each connecting to two different pins on the plug. The 120 VAC configuration uses five jumper wires and all other configurations use three jumper wires.

Table 1230-2 Line Voltage Configuration Plugs (P8 on AC board) by Power Option and Diagram of Pinouts from the Top of the Plug

Jumper locations for power configuration plug						
	120 VAC	200 VAC	208/220 VAC	230 VAC	240 VAC	
Transformer	3 ↔ 13 6 ↔ 15 9 ↔ 14	2 ↔ 13 6 ↔ 12	3 ↔ 13 6 ↔ 12	5 ↔ 13 6 ↔ 9	3 ↔ 13 6 ↔ 9	
Oven fan	1 ↔ 10 4 ↔ 8	1 ↔ 4	1 ↔ 4	1 ↔ 4	1 ↔ 4	

Ceramic fuses

The two ceramic oven heater fuses on the AC power board (F1, F2) will be one of two types, depending on the line voltage:

- One for the 120 V power option
- One for all other power options.

These fuses should always be **replaced as a pair**.

Power option	Fuse rating
120 V	20A/250 V (Type F)
200 V-240 V	15A/250 V (Type F)

Oven shroud

There are two different oven shrouds depending on the power option used. The oven shroud contains the oven heater and sensor as part of the assembly. If you need to replace the heater or sensor, you should replace the entire shroud assembly. See Replacing the oven shroud assembly in the Oven and Temperature Control chapter for more details.

Table 1230-3 Part Numbers for Oven Shrouds and Configuration Plugs

Regular oven shrouds		
Voltage	Shroud part no.	Configuration plug part no.
120 V	G1530-61610	G1530-60690
230 V	G1530-61670	G1530-60720
Fast ramping oven shrouds		
Voltage	Shroud part no.	Configuration plug part no.
200 V	G1530-61620	G1530-60700
208 V	G1530-61630	G1530-60710
220 V	G1530-61630	G1530-60710
230 V	G1530-61650	G1530-60720
240 V	G1530-61640	G1530-60730

Replaceable AC board fuses

There are four fuses on the AC power board.

- **The two glass fuses** are identical for all power options.
- **The two ceramic fuses** come in two types: one for the 120 V power option and another type for all other power options.

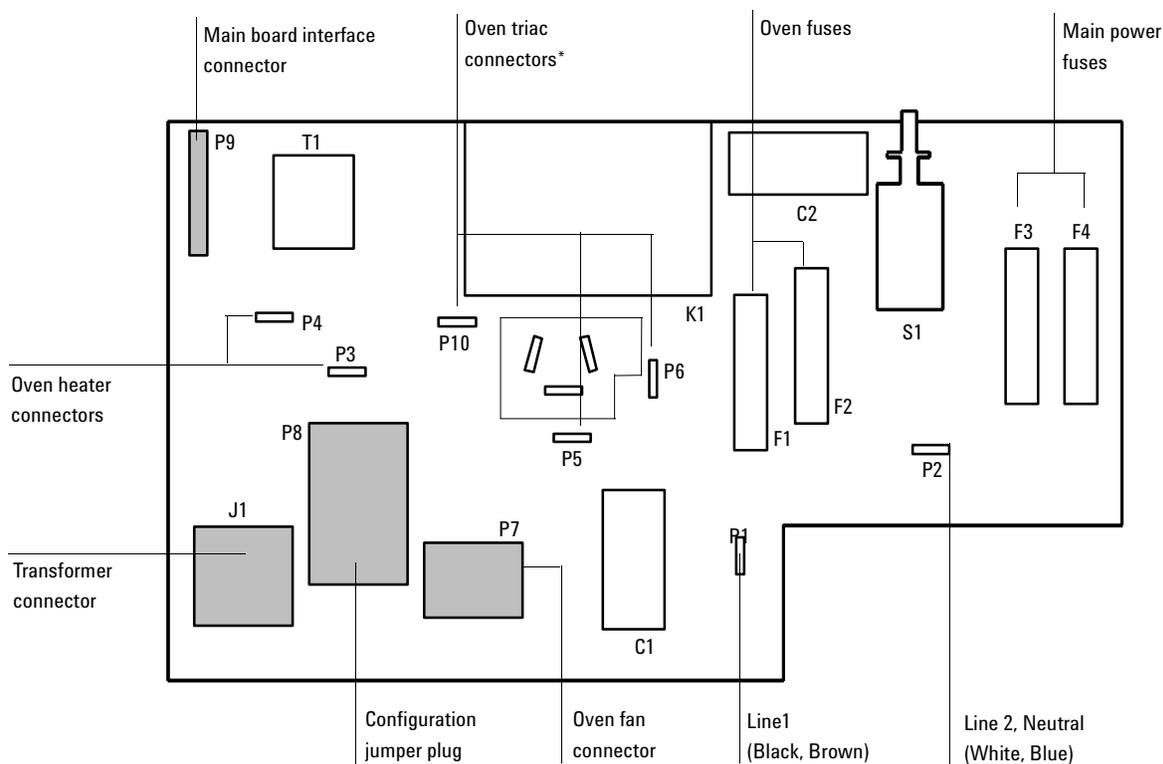
When replacing both the glass and ceramic fuse types, **always replace them in pairs.**

Table 1230-4 Replaceable Fuses on the AC Power Board

I.D.	Description	System	Power rating	Part no.
F1	Ceramic/Type F	Oven heater	120 V systems: 20A/250 V 200 V–240 V systems: 15A/250 V	2110-0098 2110-0054
F2	Ceramic/Type F	Oven heater	120 V systems: 20A/250 V 200 V–240V systems: 15A/250 V	2110-0098 2110-0054
F3	Glass/Type F	All other systems except heater	8A/250 V	2110-0036
F4	Glass/Type F	All other systems except heater	8A/250 V	2110-0036

AC power board connectors

The following tables are the pinouts for the internal connectors on the main circuit boards in the instrument. These connectors are used for communications within the instrument. All connector pinout drawings are viewed from the component side of the board.



*On some AC power boards, the oven triac is mounted directly onto the AC board while on others it mounts on the GC through a cutout in the AC board. Both configurations are the same electrically.

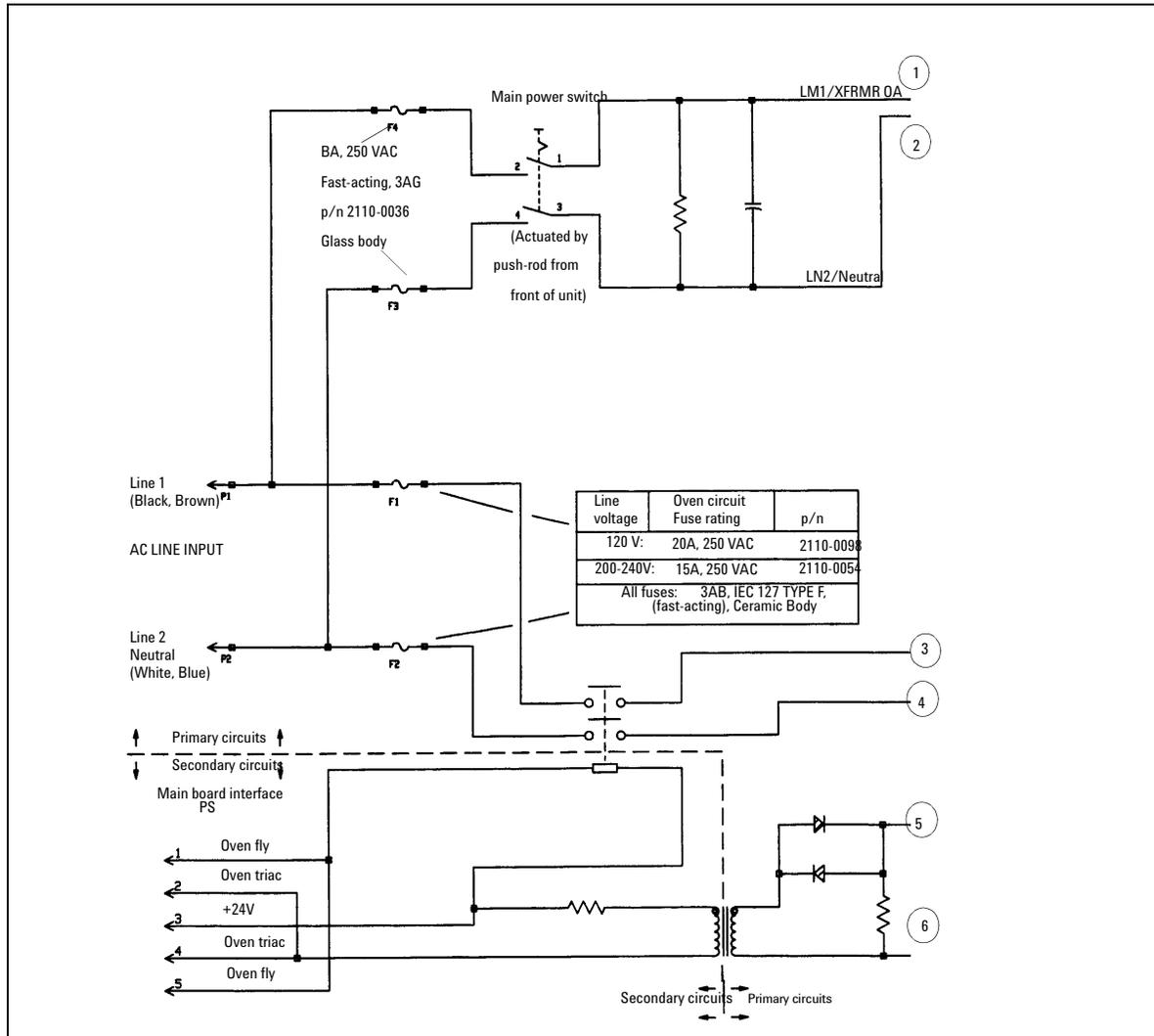
Figure 1230-1 AC power board overlay (part no. G1530-60050)

J1 Power transformer connector		Transformer assembly
Pin	Function	Wire color
1	NC	NC
2	Line 1/Transformer 0A	Black/Orange
3	Transformer 100A	Black/Yellow
4	Transformer 120A	Black
5	NC	NC
6	Transformer 0B	Black/Green
7	Transformer 100B	Black/Blue
8	Transformer 110B	Black/White
9	Transformer 120B	Black/Red

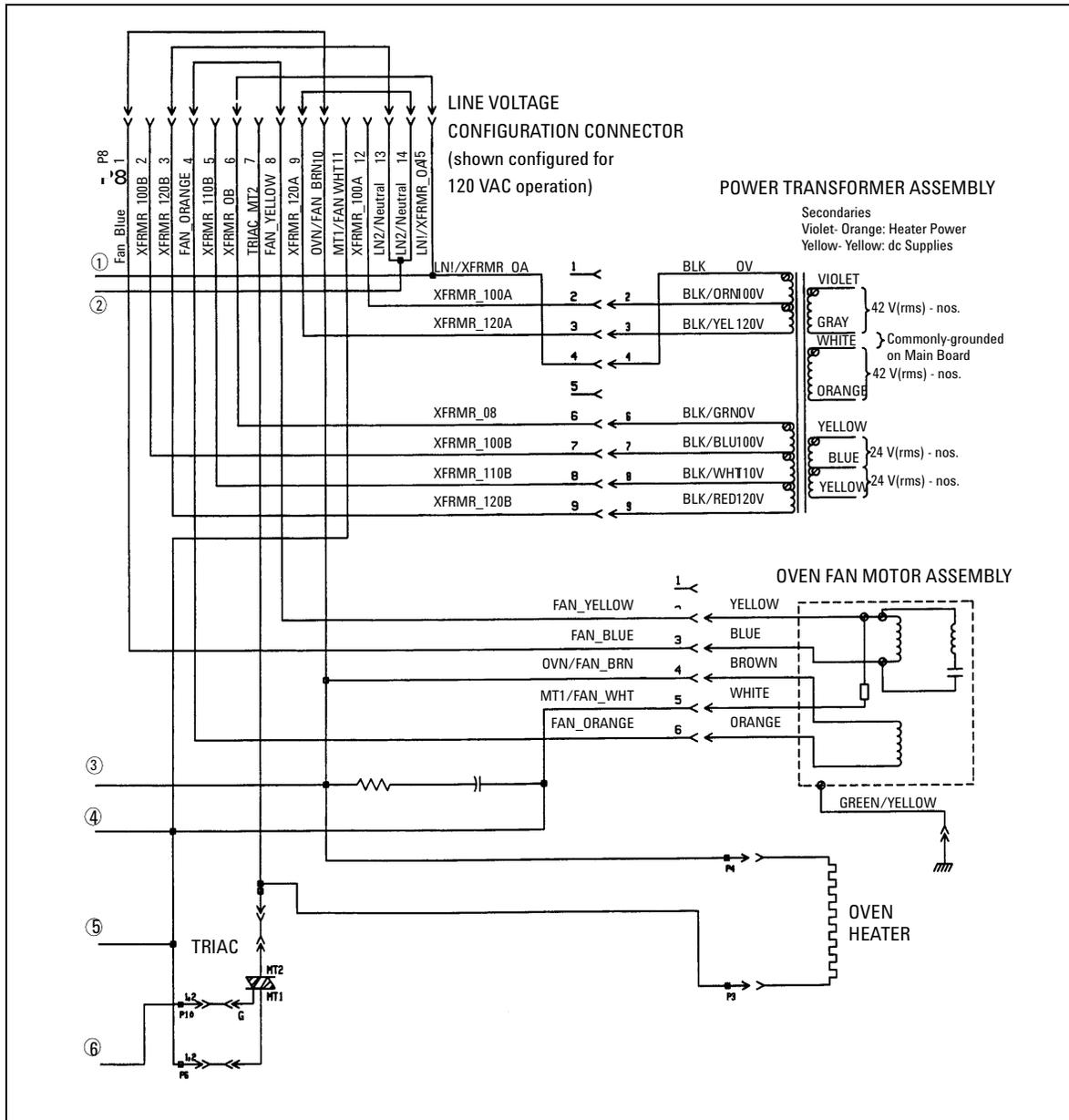
P7 Oven fan connector		Motor assembly
Pin	Function	Wire color
1	NC	NC
2	Fan	Yellow
3	Fan	Blue
4	Oven/Fan	Brown
5	MT1/Fan	White
6	Fan	Orange

P9 Main board interface connector	
Pin	Function
1	Oven relay
2	Oven triac
3	+24V
4	Oven triac
5	Oven relay

AC power board circuitry



AC power board circuitry (continued)



Testing resistance of the heater coil

If you believe that your heater coil is cracked or otherwise damaged and has caused an open circuit, you can check it by measuring its resistance.

To measure the resistance:

1. Turn the instrument power off.
2. Disconnect the oven heater leads (P3, P4) from the AC power board.
3. Use an ohmmeter to measure resistance at the **connectors**.

Acceptable resistance ranges (in ohms) are given below. Acceptable resistances range from the nominal value for a new, cold heater to +5% from the nominal value.

Note

Resistance goes up approximately +3% after heating the coil.

Table 1230-5 Resistances of the Heater Coil

	Nominal cold heater resistances	
	Standard oven (1600 VA)	Fast-ramp oven (2250 VA)
120 V	9.07 – 9.52 Ω	n/a
200 V	n/a	17.78 – 18.7 Ω
220 V	n/a	21.51 – 22.6 Ω
230 V	33.06 – 34.71 Ω	23.51 – 24.7 Ω
240 V	n/a	25.60 – 26.9 Ω

n/a = not available

