Thermo
SCIENTIFIC

HOT PLATE

OPERATION MANUAL
AND PARTS LIST

MODELS

HPA1910M
HPA1910M-26
HPA1914B
HPA1915B
HPA1915B-13

LT64X2 • 10/29/09

Table of Contents

Safety Information

Alert Signals

Warning
Warnings alert you to a possibility of personal injury.

Caution
Cautions alert you to a possibility of damage to the equipment.

Note
Notes alert you to pertinent facts and conditions.

Hot Surface
Hot surfaces alert you to a possibility of personal injury if you come in contact with a surface during use or for a period of time after use.

This manual contains important operating and safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment.

Warning: These products should be used only under the operating conditions specified in the Operating Manual. Always use safe laboratory practices and do not leave the hotplate in operation while unattended as product funcionality or laboratory practice failures could occur that might lead to uncontrolled or excessive heating of the top surface. Safety procedures (including, but not limited to, unplugging when not in use) and response plans should be put in place to address the worst case possibility. If an over-temperature failure occurs, the top surface temperature could rise to the maximum temperature (300-540°C depending on your model's specification) and remain at that temperature indefinitely. Under these conditions, the material being heated on the surface of the hotplate could reach levels in excess of the maximum temperature.

Your Thermo Scientific Hot Plate has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

Warnings

Do not immerse unit for cleaning.

As with all laboratory equipment, appropriate safety clothing, glasses, gloves and coats should be worn when operating hot plates. Always use appropriate hand and eye protection when handling hazardous chemicals.

DO NOT remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard. Not rated for use in hazardous atmospheres.

Caution
This unit is not recommended for use in highly corrosive atmospheres. Corrosive spills and fumes may damage top and internal components. Space unit 12 inches away from combustible materials under any conditions. DO NOT use metal foil, metal vessels or other insulating material on top plate. The use of these materials will prevent the normal dissipation of heat from the plate and may cause damage to the top plate.

Do not use in the presence of flammable or combustible chemicals; top surface and element can reach the "Flash Point Temperature" of many chemicals. THESE HOT PLATES ARE NOT EXPLOSION PROOF. Fire or explosion may result. Unit contains components which may ignite such materials.

"Caution: Hot Surface. Avoid Contact." The hot plate will remain hot for some time after the power is turned off.

To avoid electrical shock:

Always use a properly grounded electrical outlet with correct voltage and current handling capacity.

Disconnect from the power supply prior to maintenance and servicing.

Refer to qualified personnel for service.

Intended Use

The Model HPA1900 hot plates are general purpose heating devices intended for laboratory procedures requiring temperatures from 38°C (100°F) to 371°C (700°F). The top plate is heated by a resistance heater embedded in a refractory material. The plate is made of cast aluminum to aid in uniform surface temperature. The temperature of the plate is controlled by a bimetallic thermostat. The case supports the top plate, and also serves to house the electrical connections and the temperature control.

General Specifications

		HPA1910M	HPA1910M-26*	HPA1914B	HPA1915B***	HPA1915B-13**
Overall Dimensions in. (cm)	**Width**	6-5/8 (16.8)	6-5/8 (16.8)	6-5/8 (16.8)	6-5/8 (16.8)	6-5/8 (16.8)
	Height	4-3/8 (11.1)	4-3/8 (11.1)	4-3/8 (11.1)	4-3/8 (11.1)	4-3/8 (11.1)
	Depth	7-5/8 (19.4)	7-5/8 (19.4)	7-5/8 (19.4)	7-5/8 (19.4)	7-5/8 (19.4)
Dimensions in. (cm)	**Top Plate**	6-1/4x6-1/4 (15.9x15.9)	6-1/4x6-1/4 (15.9x15.9)	6-1/4x6-1/4 (15.9x15.9)	6-1/4x6-1/4 (15.9x15.9)	6-1/4x6-1/4 (15.9x15.9)
	Weight	4-1/2 (2)	4-1/2 (2)	4-1/2 (2)	4-1/2 (2)	4-1/2 (2)
Electrical Ratings	**Volts**	240	240	100	120	120
	Amps	3.3	3.3	7.5	6.2	6.2
	Watts	750	750	750	750	750
	Freq.	50/60	50/60	50/60	50/60	50/60
	Phase	1	1	1	1	1
Operating Temperature	**Maximum °C (°F)**	371° (700°)	371° (700°)	371° (700°)	371° (700°)	371° (700°)

**(-26) model - supplied with European cord set.*
*** (-13) indicates CSA model.*
**** indicates U.L. model.*

Introduction

Warning
To avoid electrical shock, always use a properly grounded electrical outlet of correct voltage and current handling capacity “Caution: Hot Surface. Avoid Contact.” The hot plate will remain hot for some time after the power is turned off. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

The unit consists of 1) a heated plate, and 2) an adjustable temperature control. See Figure 1 for the overall shape and the general features of the unit.
Install hot plate on a sturdy surface and allow space for ventilation. The electrical specifications are listed on the specification plate on the back of the hot plate. Consult customer service if your electrical service is different than those listed on the specification plate. Prior to connecting your Type 1900 hot plate to your electrical supply, be sure the dial switch is in the OFF position.

The power is turned ON or OFF by means of the dial switch. The hot plate is ON when the pointer is at or beyond the OFF mark on the dial plate.

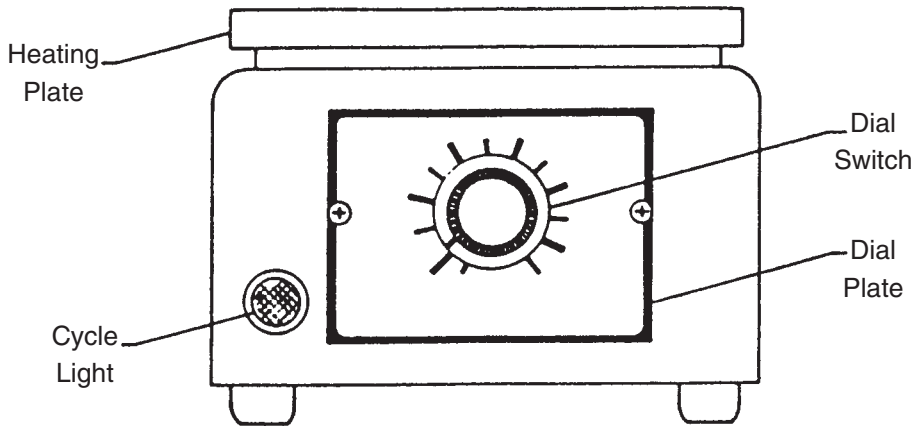


Figure 1

Operation

Turn dial clockwise to set desired temperature. Dial marks indicate approximate surface temperature in °C. The green cycle light will illuminate when the pointer on the dial passes the OFF mark on the dial plate. (If this does not occur, refer to recalibration on page 12.) When the temperature for a given dial setting has been reached, the light will cycle OFF and ON to hold that temperature. If the cycle light is off, hot plate may still be hot. To turn OFF hot plate, turn dial switch to the fully counterclockwise position.

Cleaning Bimetal Contact Points

Bimetal control contact points may need cleaning after severe or extended use. To clean:

a) Disconnect hot plate from power supply.

b) Turn hot plate upside down and remove perforated cover by removing four screws.

Maintenance and Servicing

Warning
Refer servicing to qualified personnel. “Caution: Hot Surface. Avoid Contact.” The hot plate will remain hot for some time after the power is turned off. Disconnect from the power supply prior to maintenance and servicing.

Note
Perform only maintenance described in this manual. Contact an authorized dealer or our factory for parts and assistance.

Note
Do not use emery paper to clean contact points.

c) The contact points are accessible now and may be cleaned with fine sandpaper or a contact file.

d) If contact points are severely pitted or burned, replacement is suggested at this time. (Refer to replacement of control unit.)

e) Replace bottom perforated cover and secure with four screws.

f) Turn hot plate upright and reconnect to power supply.

To Replace Control Unit

a) Disconnect hot plate from power supply.

b) Turn hot plate upside down and remove perforated cover. (Note placement and connection of wires to control unit.)

c) Remove stop collar by loosening set screw and remove the adjusting shaft from case.

d) Disconnect heater coil from control contact stud and disconnect white insulated wire from control unit.

e) Remove two screws holding control on top plate and remove control unit.

f) Install new control unit and secure with two screws.

g) Reinsert adjusting shaft and stop collar. (Recalibration is necessary— refer to recalibration instruction on page 12.)

h) Reconnect heater coil to control contact stud and reconnect white insulated wire to terminal post. Space heater coil approx. 1/8" from bimetal strip.

i) Replace perforated cover.

j) Turn hot plate upright and reconnect to power supply.

To Replace Heater Coil

a) Disconnect hot plate from power supply.

b) Turn hot plate upside down and remove perforated cover.

c) Remove nut and washer from contact stud, then remove one end of heater coil.

d) Remove remaining nut holding heater coil and remove heater coil.

e) Install new heater coil and secure with two nuts. Space approx. 1/8" from bimetal strip.

f) Replace perforated cover.

g) Turn hot plate upright and reconnect to power supply.

To Replace Insulator on Adjusting Shaft

a) Disconnect hot plate from power supply.

b) Turn hot plate upside down and remove perforated cover.

c) Loosen set screw on stop collar and screw adjusting shaft out to remove insulator.

d) Insert new insulator and screw the shaft in part way. (Recalibration is necessary—refer to recalibration instructions on page 12.)

e) Replace perforated cover.

f) Turn hot plate upright and reconnect to power supply.

To Replace Cycle Light

a) Disconnect hot plate from power supply.

b) Turn upside down and remove perforated cover. (Note placement and connection of wires from cycle light.)

c) Disconnect two leads from cycle light.

d) Push in two clips on cycle light and remove cycle light by pulling it out from the front.

e) Insert new cycle light through the front and reconnect leads to the proper terminals.

f) Replace perforated cover.

g) Turn hot plate upright and reconnect to power supply.

To Replace an Element

a) Disconnect hot plate from power supply.

b) Turn hot plate upside down and remove perforated cover.

c) Remove stop collar by loosening set screw and remove the adjusting shaft.

d) Disconnect the necessary wires to enable the case section to be removed. **Identify or mark wires disconnected to ensure proper placement and connection when reinstalling.**

e) Remove case section from heating plate.

f) Slide two metal plates off the element lead wires with the insulators.

g) Remove the control unit and the remaining plate covering element.

h) Remove the defective element and install the new element.

i) Thread the leads through the bottom metal plate and secure this plate by fastening control unit on top of it. (Refer to exploded view for placement of insulators, washers and nuts.)

j) Thread the leads through the middle plate and place over bottom plate.

k) Thread the leads through the remaining metal plate and place over middle plate.

l) Place case section over the metal plates and secure these plates with four screws.

m) Reconnect wires disconnected in Step d.

n) Reinsert adjusting shaft and stop collar. (Recalibration is necessary— refer to recalibration instructions.)

o) Replace perforated cover.

p) Turn hot plate upright and reconnect to power supply.

Recalibration

a) Disconnect hot plate from power supply.

b) Turn hot plate upside down and remove perforated cover.

c) Remove the knob from the adjusting shaft by removing set screw.

d) Turn the shaft until the contacts just close and slide knob over with the pointer in line with the FIRST mark on the dial plate.

e) Tighten the knob to the shaft with about 3/16" between skirt of the knob and the dial plate.

f) Turn the knob counterclockwise to the OFF mark on the dial and set the stop collar on the shaft with the set screw against the stop pin with about 1/4" between the collar and the control bracket.

Note
Recalibration may be needed for the control unit due to contact wear, or because of other repairs to the hot plate.

g) Tighten set screw on stop collar and check for free rotation of the control shaft between stops.

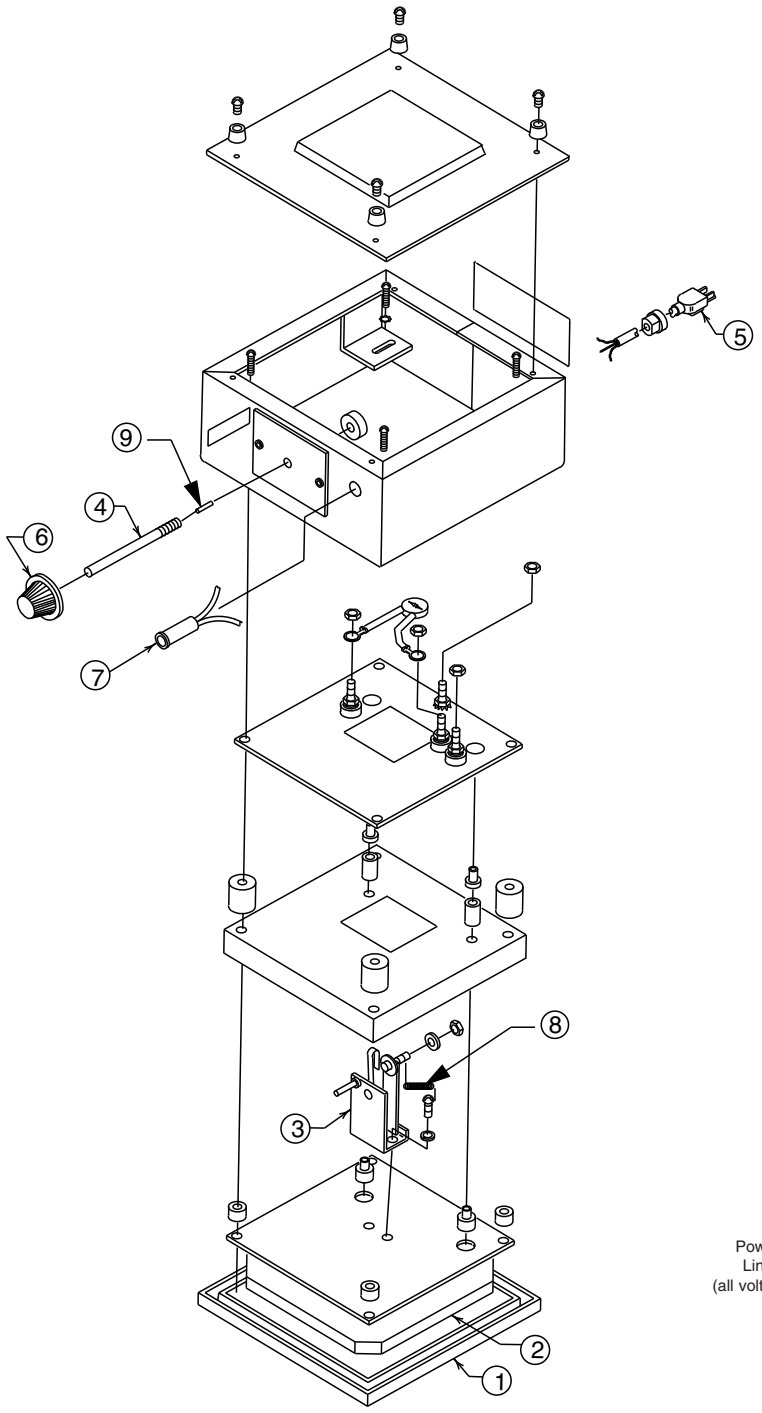
h) Replace bottom perforated cover.

i) Turn hot plate upright and reconnect to power supply.

Troubleshooting

The Troubleshooting Guide section is intended to aid in defining and correcting possible service problems. When using the chart, select the problem category that resembles the malfunction. Then proceed to the possible causes category and take necessary corrective action.

Problem	Possible Cause	Corrective Action
The cycle light does not illuminate.	Hot plate not connected to power supply.	Check hot plate connections to power source.
	Cycle light burned out.	Replace cycle light.
Hot plate does not heat.	No power.	Check power source and fuse.
	Defective electrical hookup.	Repair electrical hookup.
	Burned out heating element.	Replace defective element.
	Burned out heater coil on control unit.	Replace heater coil.
Hot plate does not hold temperature.	Control out of calibration.	Refer to calibration instructions on page 12.



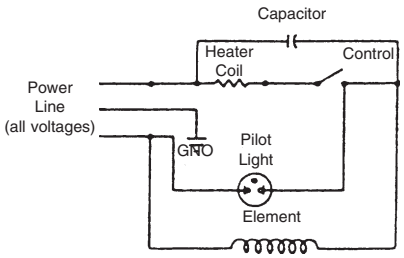


Figure 2: Exploded View and Schematics

Wiring Diagram (HPA1900's)

Replacement Parts List

Hot Plate, Series 64
Model Numbers: HPA1914B, HPA1915B, HPA1915B-13, HPA1910M, HPA1910M-26

Ref. No.	Part No.	Description
1	PT27X1	Plate, Aluminum top
2	EL27X1	Element for HPA1915B, 120V; HPA1915-13, 120V CSA
	EL27X2	Element for HPA1910M, 240V; HPA1910M-26, 240V
	EL64X1	Element for HPA1914B, 100V
3	CN19X3	Control
4	SF25X1	Shaft, Control Adjustment
5	CR226X1	Cord Set for HPA1915B, 120V; HPA1914B, 100V; HPA1915B-13, 120V CSA
	CR226X2	Cord Set for HPA1910M-26, 240V
	CR242X1	Cord Set for HPA1910M,240V
6	KBX29	Knob
7	PL64X1A	Pilot/Cycle Light for HPA1914B, 100V; HPA1915B, 120V; HPA1915B-13, 120V CSA
	PL64X2A	Pilot/Cycle Light for HPA1910M, 240V; HPA1910M-26, 240V
8	HT19X1	Heater Coil for HPA1914B, 100V; HPA1915B, 120 V; HPA1915B-13, 120V CSA
	HT19X2	Heater Coil for HPA1910M, 240V; HPA1910M-26, 240V
9	JSX8	Insulator for adjusting shaft

Warning
Refer servicing to qualified personnel.
Disconnect from the power supply prior to maintenance and servicing.

Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Thermo Scientific** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 563-556-2241 or 800-553-0039.

Prior to returning any materials, please contact our Customer Service Department for a “Return Materials Authorization” number (RMA). Material returned without an RMA number will be refused.

One Year Limited Warranty

This Thermo Scientific product is warranted to be free of defects in materials and workmanship for one (1) year from the first to occur of (i) the date the product is sold by the manufacturer or (ii) the date the product is purchased by the original retail customer (the “Commencement Date”). Except as expressly stated above, the MANUFACTURER MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of the manufacturer must perform all warranty inspections. In the event of a defect covered by the warranty, we shall, as our sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold within the continental United States or Canada, the manufacturer shall provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

The warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than the manufacturer or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of Thermo Scientific products.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, the manufacturer will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to the factory, it shall be sent prepaid and a prior written authorization from the manufacturer assigning a Return Materials Number to the product or part shall be obtained.

IN NO EVENT SHALL THE MANUFACTURER BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

For the name of the authorized Thermo Scientific product dealer nearest you or any additional information, contact us:

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