

# **ORIEL**

**CORPORATION**

250 Long Beach Boulevard  
Stratford, CT 06497-0872  
Phone: (203) 377-8282  
Fax: (203) 378-2457

## **HOLLOW CATHODE LAMP POWER SUPPLY**

### **MODEL 6800**

Please read these instructions completely before  
operating this equipment.

If there are any questions or problems regarding  
the use of this equipment, please contact:

**ORIEL CORPORATION**

- or -

**L.O.T. - ORIEL**  
9 Avenue De Laponie  
Z.A. De Courtaboeuf  
91951 Les Ulis Cedex  
France  
Phone: 01-69-07-20-20  
Fax: 01-69-07-23-57

**L.O.T. - ORIEL**  
Im Tiefen See 58  
D-6100 Darmstadt  
Federal Republic of Germany  
Phone: (06151) 88060  
Fax: (06151) 84173  
Tlx: 2627 17 6151 999  
(Teletext)

**L.O.T. - ORIEL**  
1 Mole Business Park  
Leatherhead  
Surrey KT22 7AU  
England  
Phone: 0372-378822  
Fax: 0372-375-353

- or -

The representative from whom this equipment was purchased.

911014  
WPNO.13

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## **SECTION I. SAFETY**

The ORIEL Model 6800 Hollow Cathode Lamp Power Supply has internal voltages which, under certain conditions, could become lethal. It is therefore recommended that only experienced service personnel attempt to either remove the outside cover of the unit or make any internal circuit changes.

The sole exception to this rule is upon first receiving the equipment and adjusting the internal jumper connections for 220/230 volt operation. At that time, procedures outlined elsewhere in this manual should be followed to the letter and with all power removed from the unit.

**Important:** Be sure you connect and insulate all wires to the hollow cathode lamp as indicated for proper operation. When using an ORIEL 6800-204 connector and lamp socket, these connections are already made.

The ORIEL 6800 power supply is also equipped with a 3 wire line cord. When connected to either a 115V or 220/230 volt source, be certain that the ground wire is also connected to the earth ground of the system. The improper use of adapters to avoid using the ground wire is to be avoided.

## **SECTION II. INTRODUCTION**

The ORIEL Model 6800 Hollow Cathode Lamp Power Supply is a compact, fully solid-state unit designed to power all ORIEL hollow cathode discharge lamps as well as other similar lamps. This unit offers high regulation against line voltage changes and a variable lamp current adjustment feature which results in a stable, fully controllable, atomic absorption light source. Internal connections are available to enable the 6800 to be operated from any 115 volt or 220/230 volt AC power source of 50/60 Hz and lamp voltage and current voltage are monitored by a large front panel, easy to read, meter. An automatic starting feature is included.

## **SECTION III. OPERATING LOCATION**

Placement of the unit is not critical. However, care should be taken not to obstruct the rear panel ventilation holes. The unit may be conveniently tilted in an upright position by means of the snap-action stand along the bottom front edge of the cabinet.

## **SECTION IV. FRONT PANEL CONTROLS**

The function and operation of the controls on the front panel of the ORIEL 6800 Hollow Cathode Supply are as follows:

<b>POWER SWITCH</b>	turns unit on and off as desired.
<b>METER SWITCH</b>	selects either lamp current or lamp voltage to be displayed on the panel meter.
<b>CURRENT ADJUSTMENT</b>	controls the amount of current flowing through the lamp and consequently the brightness of the lamp. For longest lamp life, be sure to start lamp in area shown on this control (fully counter clockwise) and do not operate lamp at current levels exceeding the values indicated on the lamp. To do so will damage the lamp.
<b>LAMP SOCKET</b>	used to apply proper voltages to the lamp as per the next section.

## **SECTION V. CONNECTION OF LAMP**

Drawing No. 6800-200 shows the complete electrical hookup for connecting suitable hollow cathode lamps to the 6800 power supply. The ORIEL Model 6800-204 connector and lamp socket is wired according to this figure and completely interfaces with this power supply and to all ORIEL lamps. If other manufacturers lamps are to be used, be sure to check the connection to those lamps to be certain they are compatible with the connector.

## **SECTION VI. AC LINE CONSIDERATIONS**

The ORIEL Model 6800 Hollow Cathode Lamp Power Supply is shipped completely wired for operation from 115V AC 50/60 Hz line voltage. It is only necessary to plug into a suitable outlet and it is ready for immediate operation.

If 220/230 volt operation is desired, the following steps should be carried out in the order shown and exactly as stated \*\* with all power disconnected \*\*.

- a. Remove top cover by completely removing all retaining screws.
- b. Locate the 4 pin terminal block on the power transformer side of the unit.
- c. Remove the two jumper strips between pins 1 and 2, and between 3 and 4, on the block by completely removing the appropriate screws.
- d. Re-install the screws in pins 1 and 4.
- e. Connect one jumper strip between pins 2 and 3 and discard the other jumper strip.
- f. Cut off the 3 pin AC plug at the end of the line cord.
- g. Install a new 220/230 volt plug to match the AC line receptacle. Connect wires as follows:

GREEN -	earth ground
BLACK -	high side of AC line
WHITE -	low side of neutral side of AC line

- h. Replace cover being certain to replace and tighten all screws.
- i. The supply is now ready for operation at 220/230 volts 50/60 Hz.

## **SECTION VII. OPERATION OF UNIT**

Operating procedure is quite simple:

- a. Plug AC line cord into appropriate AC receptacle.
- b. Connect lamp to front panel connector as previously described.
- c. Turn meter switch to read current.
- d. Turn current adjust knob fully counter clockwise as shown on the front panel for starting.
- e. Turn on power switch; the lamp should automatically light within 1 - 5 seconds. If it does not, turn the current adjust knob clockwise 1 division at a time until the lamp does light.
- f. After the lamp lights the current may be set to the proper value as shown on the lamp. Do not exceed this value as the lamp will be damaged.

## **SECTION VIII. CIRCUIT DESCRIPTION**

Drawing No. 6800-203 is a simplified block diagram of the 6800 power supply while Drawing No. 6800-200 is a complete electrical schematic. As can be seen from the diagrams, the 6800 actually contains 3 power supplies; a high voltage ignition source, a medium voltage sustaining supply and a low voltage control circuit source. In operation, prior to lamp ignition, the high voltage source applies approximately 450 - 500 volts to the lamp.

As soon as ignition occurs the lamp is sustained by means of the medium voltage source. A transistorized constant current regulation keeps the pre-set current value stable with reference to line and lamp variations. During lamp operation, a meter, M101, is switch to either indicate lamp current or voltage. When reading voltage, R11 and R110 constitute a conventional voltage divider network. In the current mode, R114 acts as a series shunt.

## **SECTION IX.            TROUBLESHOOTING**

Repairs or internal adjustments to this equipment should only be attempted by an experienced electronic technician. Improper use of test equipment or tools can easily damage components within the unit or compound existing problems.

If trouble is encountered, the housing should be opened and a visual inspection made for shorts, broken wires, and obviously damaged or broken components. If none of these are found, proceed to the following chart of symptoms and causes. Please note that this chart only indicates the most likely problem for a particular symptom. Because of the interaction of most sections of the circuitry, it is possible that components other than those indicated are causing the problem.

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE OR CHECK</b>
No power, pilot lamp off	Fuse missing or defective, line cord defective or plug not making contact, internal jumper strips improperly connected, power switch defective.
Lamp does not ignite	High voltage power supply defective, lamp connections made improperly.
Lamp ignites but does not sustain	Medium voltage supply defective. Q103 defective.
Lamp lights, but is not regulated	Control circuit power supply defective, IC 102 defective, Q103 defective.
Current can not be adjusted	Q103 defective, A104 defective, IC 102 defective, R125 defective.
Fuse constantly blows	Wrong fuse rating, internal jumper strip set improperly.
Meter reads improperly or not at all	If on voltage; R110 set wrong, R111 defective. If on current, R114 defective, R117 set wrong.

For any problems not covered above nor repairable according to the above instructions, please contact ORIEL CORPORATION. When writing, please state serial number and date of purchase.



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## WARRANTY AND RETURNS

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### WARRANTY

Oriel Corporation warrants that all goods described in this manual (except consumables such as lamps, bulbs, filters, ellipses, etc.) shall be free from defects in material and workmanship. Such defects must become apparent within the following period:

1. All products described here, except spare parts: one (1) year or 3000 hours of operation, whichever comes first, after delivery of the goods to buyer.
2. Spare parts: ninety (90) days after delivery of goods to buyer.

Oriel Corporation's liability under this warranty is limited to the adjustment, repair and/or replacement of the defective part(s). During the above listed warranty period, Oriel Corporation shall provide all materials to accomplish the repaired adjustment, repair or replacement. Oriel Corporation shall provide the labor required during the above listed warranty period to adjust, repair and/or replace the defective goods at no cost to the buyer ONLY IF the defective goods are returned, freight prepaid, to an Oriel Corporation designated facility. If goods are not returned to Oriel Corporation, and user chooses to have repairs made at their premises, Oriel Corporation shall provide labor for field adjustment, repair and/or replacement at prevailing rates for field service, on a portal-to-portal basis.

Oriel Corporation shall be relieved of all obligations and liability under this warranty if:

1. The user operates the device with any accessory, equipment or part not specifically approved or manufactured or specified by Oriel Corporation unless buyer furnishes reasonable evidence that such installations were not a cause of the defect. This provision shall not apply to any accessory, equipment or part which does not affect the safe operation of the device.
2. The goods are not operated or maintained in accordance with Oriel's instructions and specifications.
3. The goods have been repaired, altered or modified by other than Oriel authorized personnel.
4. Buyer does not return the defective goods, freight prepaid, to Oriel repair facility within the applicable warranty period.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY SHALL REPLACE ALL WARRANTIES OF FITNESS AND MERCHANTABILITY. BUYER HEREBY WAIVES ALL OTHER WARRANTIES, GUARANTIES, CONDITIONS OR LIABILITIES, EXPRESSED OR IMPLIED, ARISING BY LAW OR OTHERWISE, WHETHER OR NOT OCCASIONED BY ORIEL'S NEGLIGENCE.

This warranty shall not be extended, altered or varied except by a written document signed by both parties. If any portion of this agreement is invalidated, the remainder of the agreement shall remain in full force and effect.

### CONSEQUENTIAL DAMAGES -

Oriel Corporation shall not be responsible for consequential damages resulting from misfunctions or malfunctions of the goods described in this manual. Oriel's total responsibility is limited to repairing or replacing the malfunctioning or malfunctioning goods under the terms and conditions of the above described warranty.

### INSURANCE -

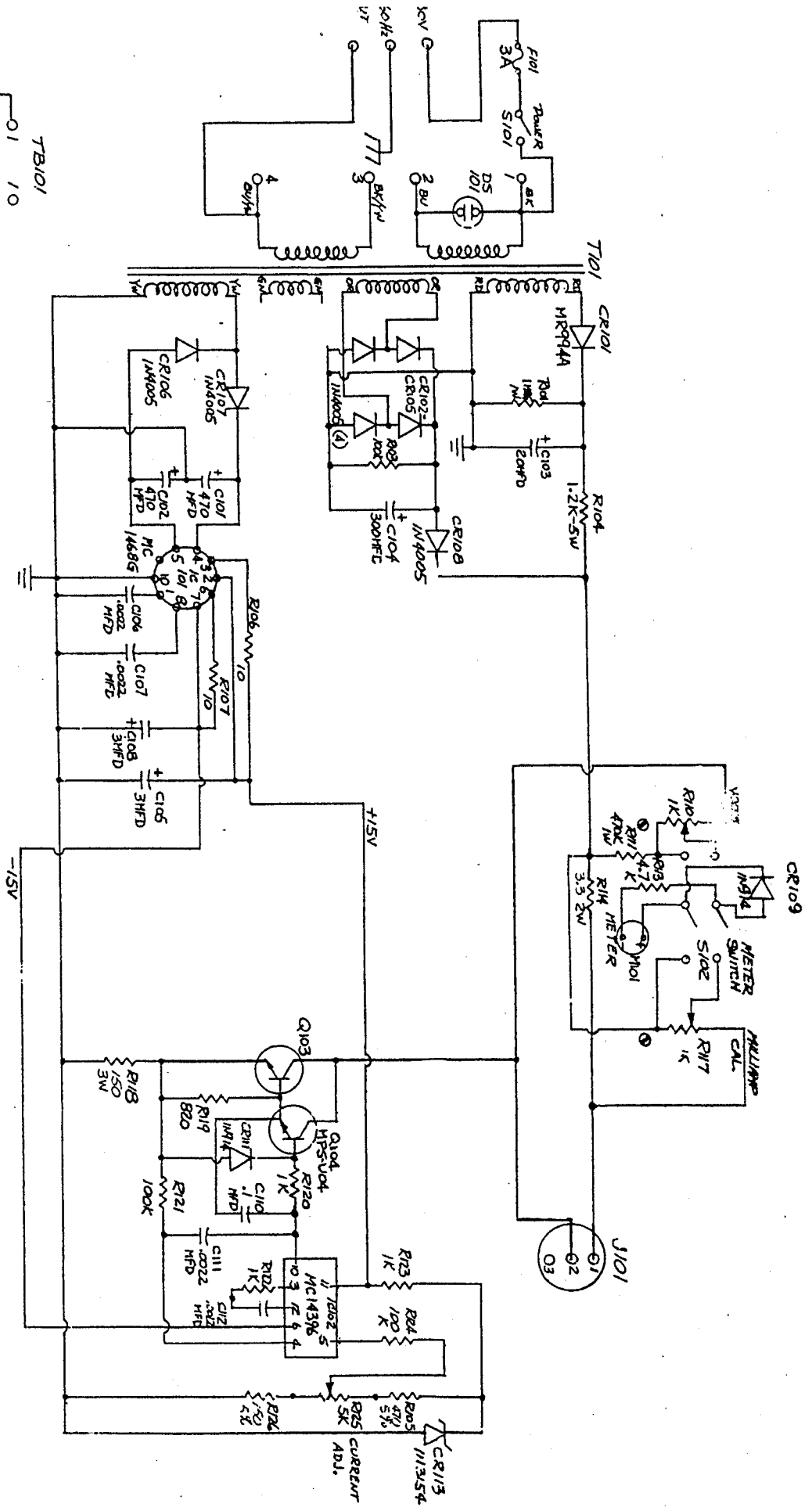
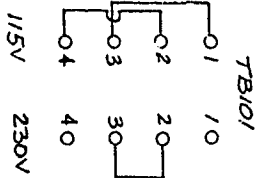
Persons receiving goods for demonstrations, demo loan, temporary use or in any manner in which title is not transferred from Oriel, shall assume full responsibility for any and all damage while in their care, custody and control. If damage occurs, unrelated to the proper and warranted use and performance of the goods, recipient of the goods accepts full responsibility for restoring the goods to their condition upon original delivery, and for assuming all costs and charges.

### RETURNS

Before returning equipment to Oriel for repair, please call the Customer Service Department at (203) 377-8282. Have your purchase order number available before calling Oriel. The Customer Service Representative will give you a Return Material Authorization number (RMA). Having an RMA will shorten the time required for the repair, because it ensures that your equipment will be properly processed. Write the RMA on the returned equipment's box. Equipment returned without a RMA may be rejected by the Oriel Receiving Department. Equipment returned under warranty will be returned with no charge for the repair or shipping. Oriel will notify you of repairs not covered by warranty, with the cost of the repair, before starting the work.

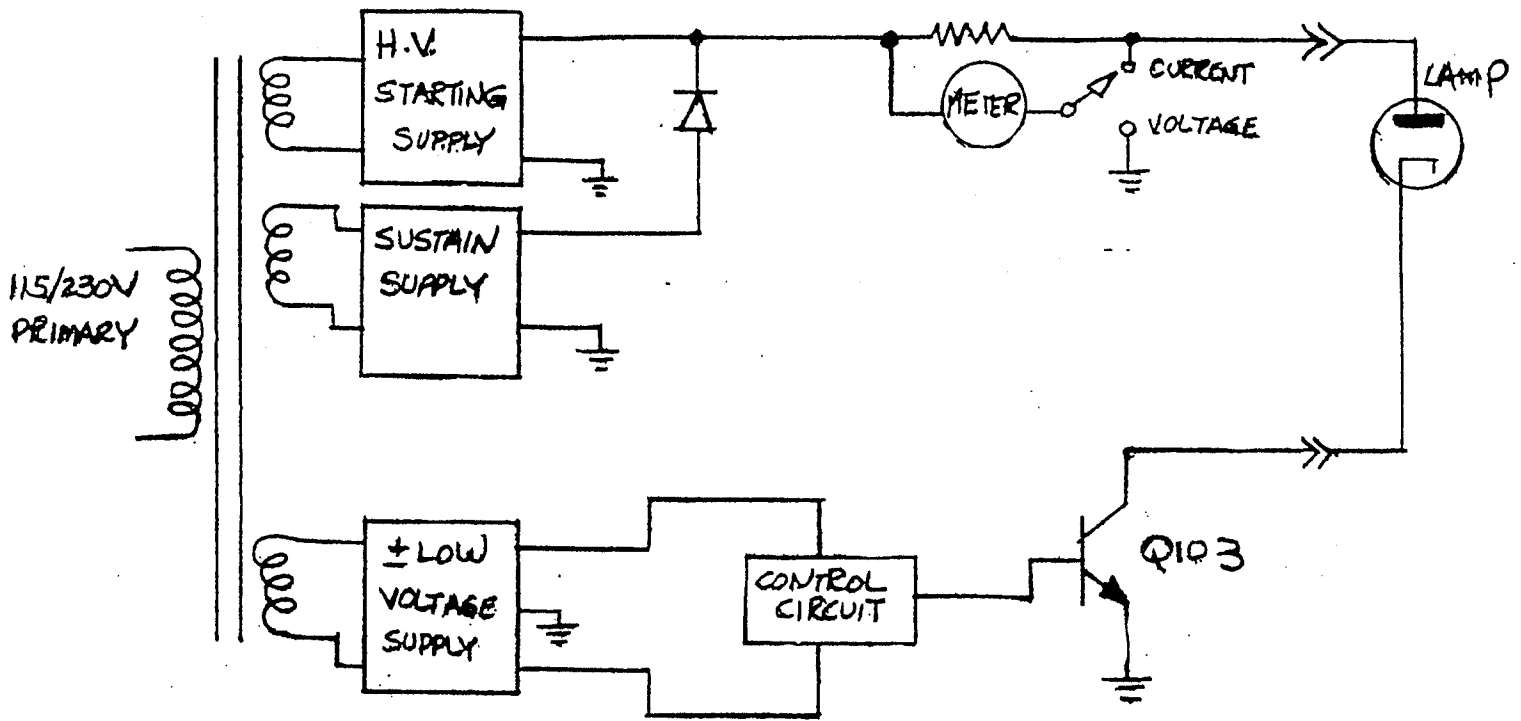
Please return equipment in the original (or equivalent) packaging. You will be responsible for damage incurred from inadequate packaging, if the original packaging is not used.


Include the cables, connector caps and antistatic materials sent and/or used with the equipment, so that Oriel can verify correct operation of these accessories.



RESISTANCE VALUES GIVEN IN OHMS

ORIEL CORPORATION  
 5440 11th Ave. S.E.  
 BELLEVUE, WASH. 98003  
 PHONE: (206) 835-5500  
 FAX: (206) 835-5501  
 TELEX: 5800-200  
 WWW: WWW.ORIEL.COM



MATERIAL	DATE DRAWN 8/12/74	<b>ORIEL CORPORATION</b> <small>OF AMERICA</small> STAMFORD, CONN. CONNECTICUT	
FINISH	DRAWN BY <i>[Signature]</i>		
<input checked="" type="checkbox"/> SURFACES TO BE _____ <input checked="" type="checkbox"/> RMS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS 2 PLACE 3 PLACE ANGLES		TITLE <i>DCK DIAGRAM (SIMPLIFIED)</i> <i>HOLLOW CATHODE LAMP</i> <i>POWER SUPPLY</i>	
± _____ ± _____ ± _____ ± _____ SHARP CORNERS TO BE .005" MAX. RADIUS CHAMFERED NOT DIMENSIONED TO BE .02X45° ANY 2 DIA. CONCENTRIC WITHIN .005" TYP	SCALE	DRAWING NO. <i>6800-203</i>	