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66180-M

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QUARTZ TUNGSTEN HALOGEN LAMP HOUSINGS

MODELS 66180 THROUGH 66184

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WARRANTY

RETURNS

I

INTRODUCTION

This manual covers the following Oriel 10 to 250 W Quartz Tungsten Halogen Lamp Housings:

66180 Lamp Housing with no condenser
66181 Lamp Housing with F/0.85 condenser
66182 Lamp Housing with F/1.5 condenser
66183 Lamp Housing with glass/fused silica F/0.7 condenser
66184 Lamp Housing with F/1 condenser

The housings have the same basic design and differ in the condensing lens assembly. With the appropriate socket adapter you can interchange between 10, 20, 50, 100, and 250 W Quartz Tungsten Halogen Lamps. Table 1 lists the appropriate socket adapter, transformer, and power supply for the lamps.

Table 1 Appropriate Socket Adapter and Power Source for Oriel Lamp Housings

Lamp		Socket Adapter	Constant Voltage Transformer	DC Power Supplies	
Power (W)	Model No.			Stabilized DC Supply	Radiometric Supply
10	6318	66149	6394	68735	68830
20	6319	66149	6394	68735	68830
50 Short filament	6332	66156	6393	68735	68830
50 Long filament	6337	66156	6393	68735	68830
100	6333	66156	6393	68735	68830
250	6334	66156	6395		68830

II

SUMMARY OF HAZARDS

There are three major hazards in the operation of systems employing these lamp housings. They are:

Radiation
Electrical Shock
Heat

II.1 RADIATION

The UV radiation of these lamps can permanently damage the cornea, lens, and retina of the eye, even causing blindness. This damage may not be immediately apparent. Normal blink reaction to visible light may not be adequate protection, and a beam of invisible UV or NIR (produced by spectral filtering) can be most dangerous as the blink response is not induced.

Recommendations

1 Never look directly into the output beam of a housing when operating a lamp.
2 Never look at a specular (mirror) reflection of the beam, even for short periods of time.
3 Use the interlock system to prevent access to a working lamp.
4 Always wear UV safety eyewear or facemask, and protective clothing for exposed areas of skin.

II.2 ELECTRICAL SHOCK

Line voltage is supplied to the lamp housing to power the fan and elapsed time indicator. This line voltage will still be present even when the power supply is disconnected from the housing.

Recommendations

1 Keep personnel clear of all exposed terminals.
2 Before relamping or working on the system, disconnect the input power to the lamp housing.

II.3 HEAT

These lamps become very hot during operation, and remain very hot for up to 10 minutes after being shut off.

Recommendations

1 Do not touch the lamp with your bare hands for at least 10 minutes after being shut off.

III

GENERAL DESCRIPTION

These lamp housings hold our low to medium power QTH lamps. They have a built-in fan to keep the lamps at the proper operating temperature. The fan need not be operated for the low (10 and 20 W) power lamps.

III.1 LAMP AND REFLECTOR ADJUSTMENTS

These housings have external adjustment knobs to independently position the lamp and rear reflector. Horizontal and vertical lamp controls position the filament of a replacement lamp. Optical components outside the housing do not have to be repositioned. Reflector controls provide tilt and focus adjustment. See Fig. 1 on the following page for location.

III.2 LAMP COOLING

These housings use forced air cooling. A side mounted fan maintains the correct operating temperature for the QTH lamps in a normal laboratory environment. Overheating, due to blocking of the cooling vents or an inoperative fan, activates a thermostat interlock.

III.3 SAFETY FEATURES

These housings come equipped with safety interlocks. (See Fig. 2 on page 7.) When used with the 68830 Supply, the lamp power is automatically shut off if the housing door is opened or the housing overheats. If you use the 68735 DC Power Supply, or a Constant Voltage Transformer, we recommend you develop your own interlock system for your safety.

III.4 MOUNTING

These QTH Housings come with four leveling feet for use as free standing units. The feet provide 0.63 inch (16 mm) height adjustment. (See Fig. 3 on page 8.) For direct mounting to metric or inch optical tables, remove the feet and use the slots. The optical axis is then 4.0 inches (102 mm) above the table. The slots allow 1.0 inch (25 mm) horizontal adjustment.

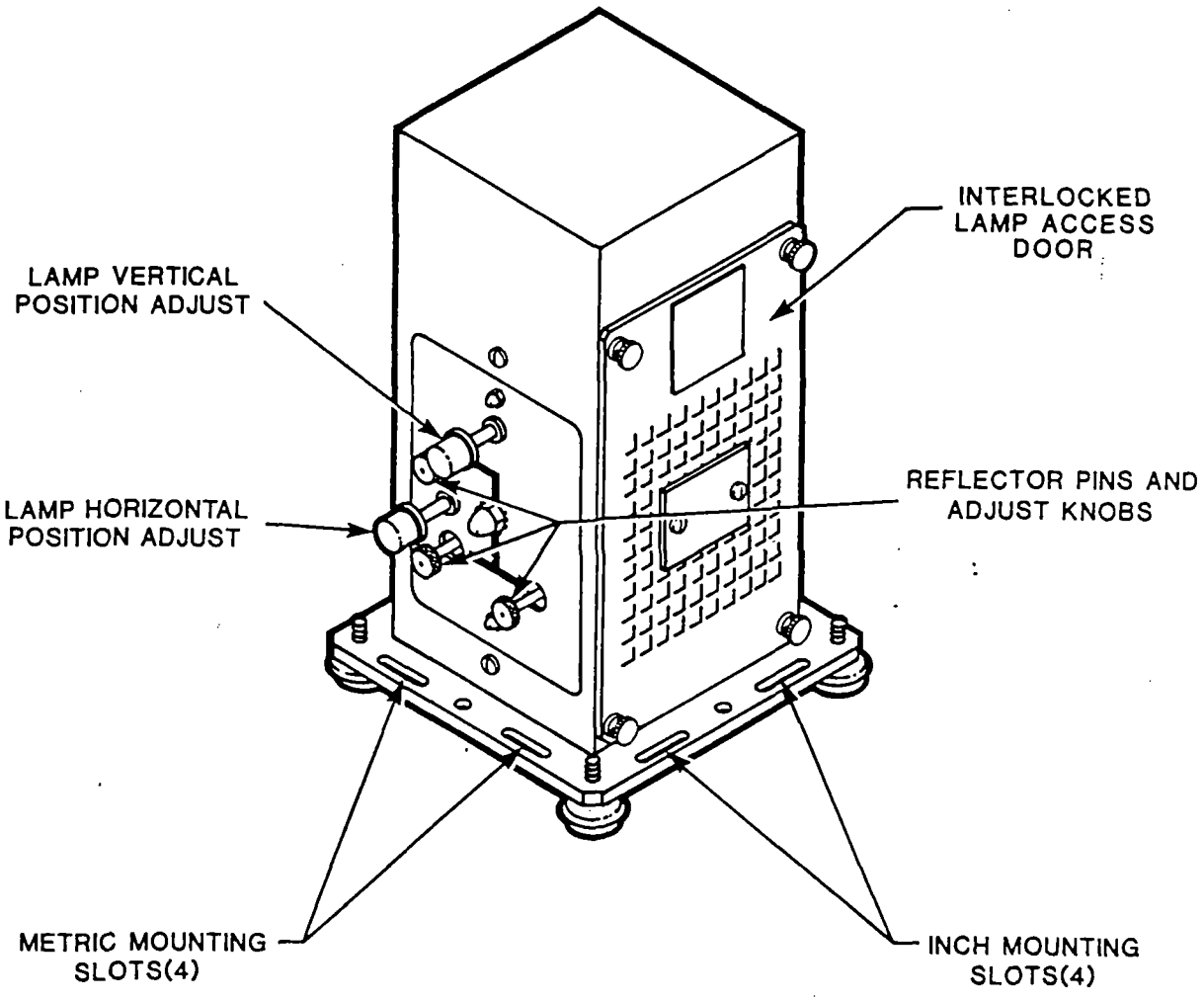


Fig. 1 Lamp and Reflector adjustments.

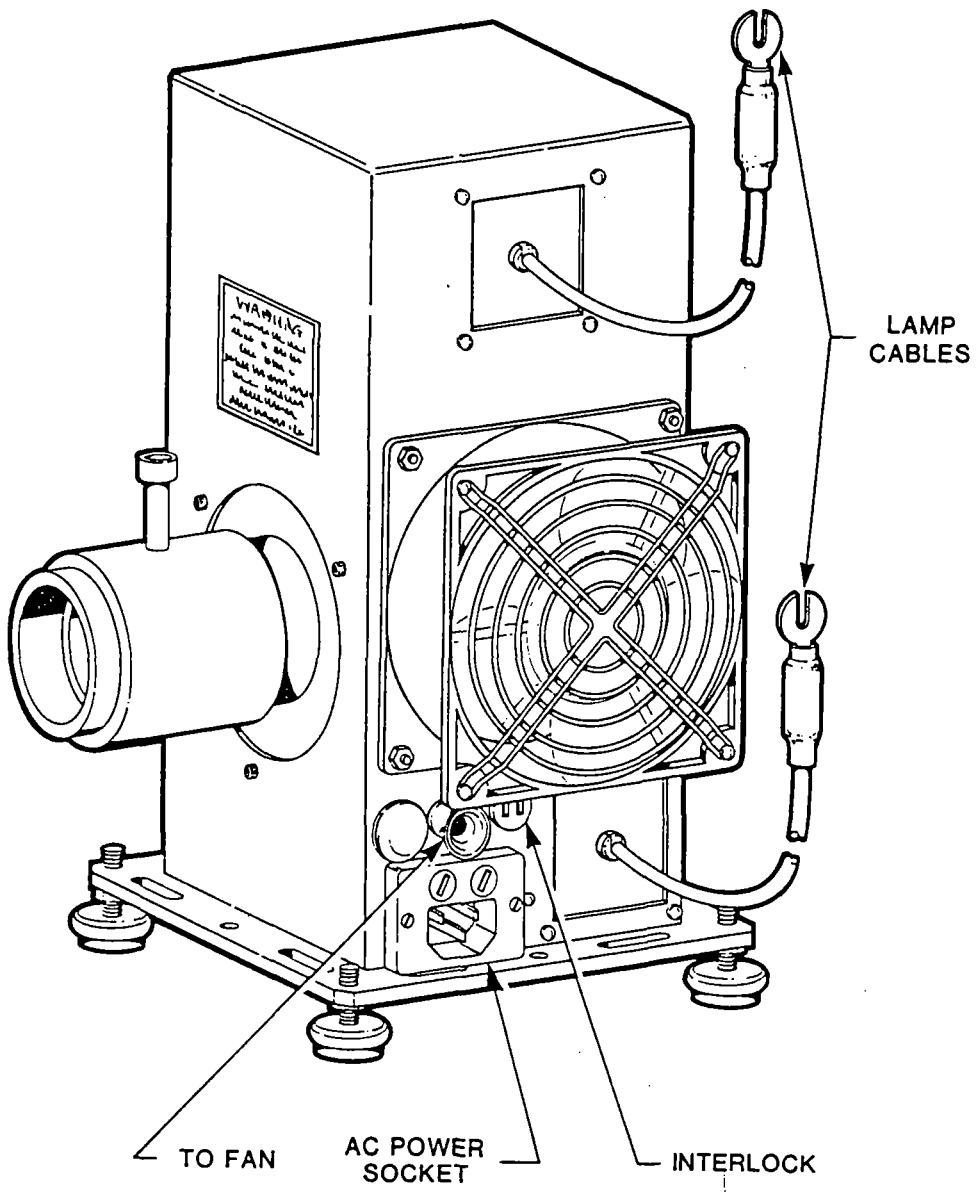


Fig. 2 Safety interlock and electrical sockets.

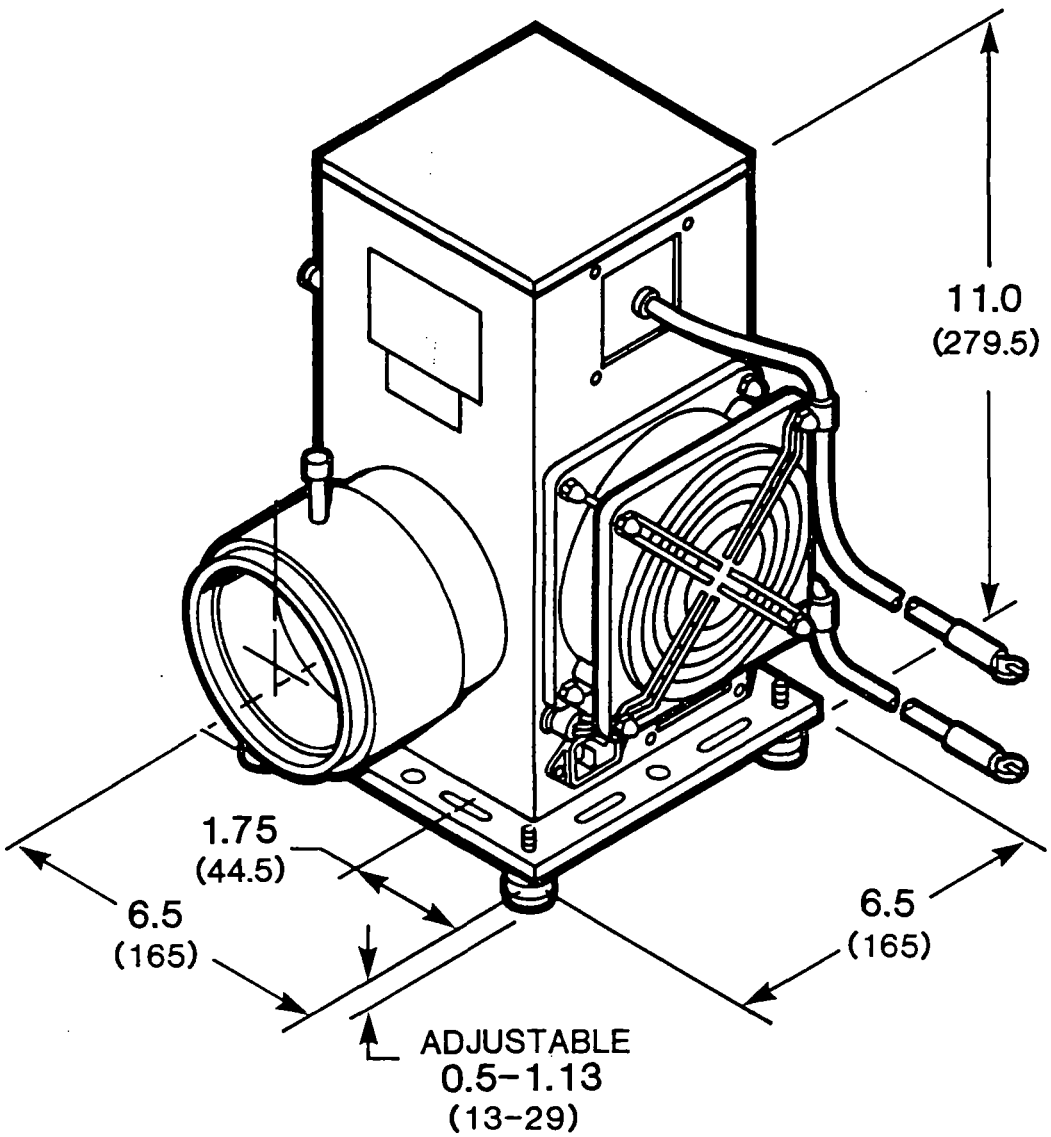


Fig. 3 Dimensional Diagram.

IV

OPERATING INSTRUCTIONS

IV.1 LAMP INSTALLATION AND INITIAL OPERATION

1 Unscrew the knurled thumb screws on the side of the housing to remove the access door.

2 Mount the lamp in the appropriate socket adapter (See Table 1 on page 3) by carefully lining up the two pins of the lamp with the socket and pushing in slowly without excessive rocking back and forth. **These lamps are very delicate; they should not be subjected to excessive strain or they may break.**

To change the orientation of the lamp from vertical to horizontal or vice-versa, remove the two socket retaining screws and move the socket to the other two holes on the plate. The socket can also be moved back and forth on the slots to compensate for the difference in lamp sizes. See Fig. 4 below.

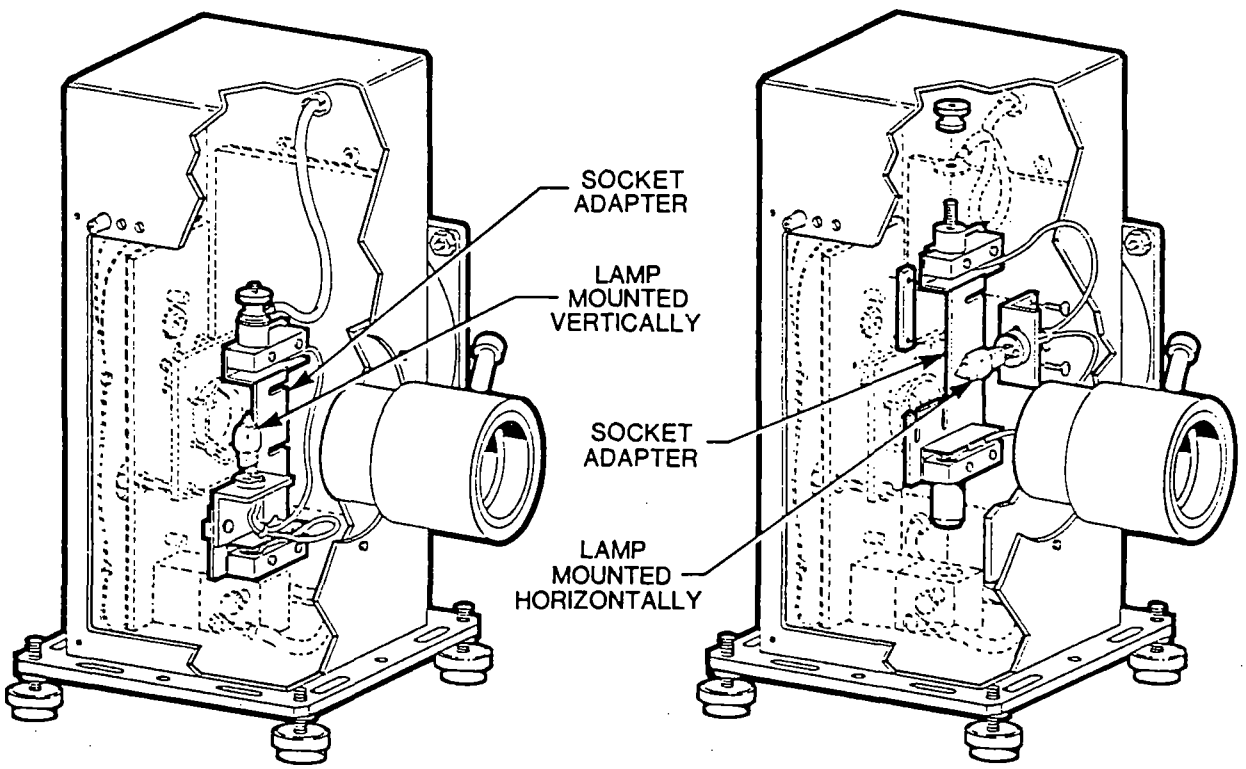


Fig. 4 Changing the orientation of a QTH lamp. The housing on the left shows the lamp mounted vertically; the housing on the right shows the lamp mounted horizontally.

3 Insert the lamp socket adapter into the bottom mounting block, and screw the dangling lamp lead to the top of the lamp socket adapter.

4 Slide the lamp up or down so the filament lies approximately in the center of the mirror. If necessary, remove and adjust socket as in Step 2.

5 Clean the envelope with alcohol and lint-free tissue after it is installed. **Fingerprints left on the lamp may cause it to break when lit.**

6 Replace the access door on the lamp housing.

7 Connect the blower line cord to a source of 110 V 50/60 Hz (220 V on export units).

8 Connect the lamp leads to the output terminals of the lamp power supply. Read the Power Supply Instruction Manual before operation.

9 Connect the safety interlock cable to the power supply.

IV.2 ADJUSTMENTS PRIOR TO OPERATION

1 Before turning the lamp on, roughly adjust its position with the horizontal and vertical adjustment screws. Adjust the lamp so the filament lies approximately in the center of the condensing lens. This can be seen through the lens if the focusing lever on the lens is full back.

2 Adjust the mirror image so it lies alongside the lamp as viewed from the front. (If the front view is blocked, tighten the horizontal mirror adjustment about 2 or 3 turns to assure that the filament is displaced to the side).

IV.3 ADJUSTMENTS DURING OPERATION

1 Focus with the condensing lens, so an image of the filament appears on a wall or screen.

2 Rotate the mirror thumbscrews until an image is in focus. Focus the mirror by rotating all three screws in the same direction concurrently (this translates the mirror back or forth).

3 Place the mirror image over the lamp or alongside as desired.

4 Adjust the lamp position to place images in the center of the illuminated field.

5 Focus the condensing lens as desired.

For Additional Range of Adjustment:

1 Remove the condensing lens assembly handle (take care to record the order of assembly of it's parts).

2 By hand, slide the inner lens barrel forward or backward until another tapped hole appears in the spiral slot.

3 Reassemble the handle into this new hole.

V

LAMP HOUSING OPTICS

Four types of condenser lenses are available on these Lamp Housings. You can check the lens type on your housing from the listing:

66180	No condenser
66181	F/0.85 condenser
66182	F/1.5 condenser
66183	F/0.7 glass/fused silica condenser
66184	F/1 condenser

The lenses were designed for efficient collection of light from the filament. In order to get the best performance from your Lamp Housing, we first review some aspects of light collection and then describe how to set the lens position.

By moving the focusing lever you can move the position of the condenser lenses to produce a diverging beam, "collimated beam" or to re-image the filament. The lenses in these housings are designed for collimation rather than imaging. The lens shape and orientation are selected to minimize lens induced distortions (aberration) when the lenses are close to the position which produces a collimated beam (the collimating position). When you use them for imaging, there are two penalties; lens aberrations increase* and light collection is reduced. For imaging, the lens is moved further from the filament, and so gathers less of the light emitted by the filament within its aperture. The lens operates at a higher F/#.

*See Volume III for a comprehensive discussion on aberrations.

If you need to image the filament close to the Lamp Housing, or equivalently, produce a small image of the filament, then it is more efficient to use the condenser in the collimating position and use a secondary focusing lens to create the image.

To simplify the discussion, we first describe the operation of an ideal lens and then some of the major results of aberrations.

V.1 COLLIMATED BEAMS

The usual concept of a collimated beam is a parallel cylinder of light. If the intensity is the same anywhere across a section of the cylinder, the beam is uniform. Unfortunately there is no source of a uniform, perfectly collimated beam.

Even expensive laser sources have some residual divergence, in the limit governed by the laws of diffraction, and they usually have non uniform though sometimes known intensity distributions.

QTH Sources with an ideal condenser lens in the collimating position produce beams which depend on the filament size and intensity distribution.

A pinhole source at the focus of an ideal lens produces a beam which is close to the ideal collimated beam. In Fig. 5 we show a second pinhole source a distance "d" from the first.

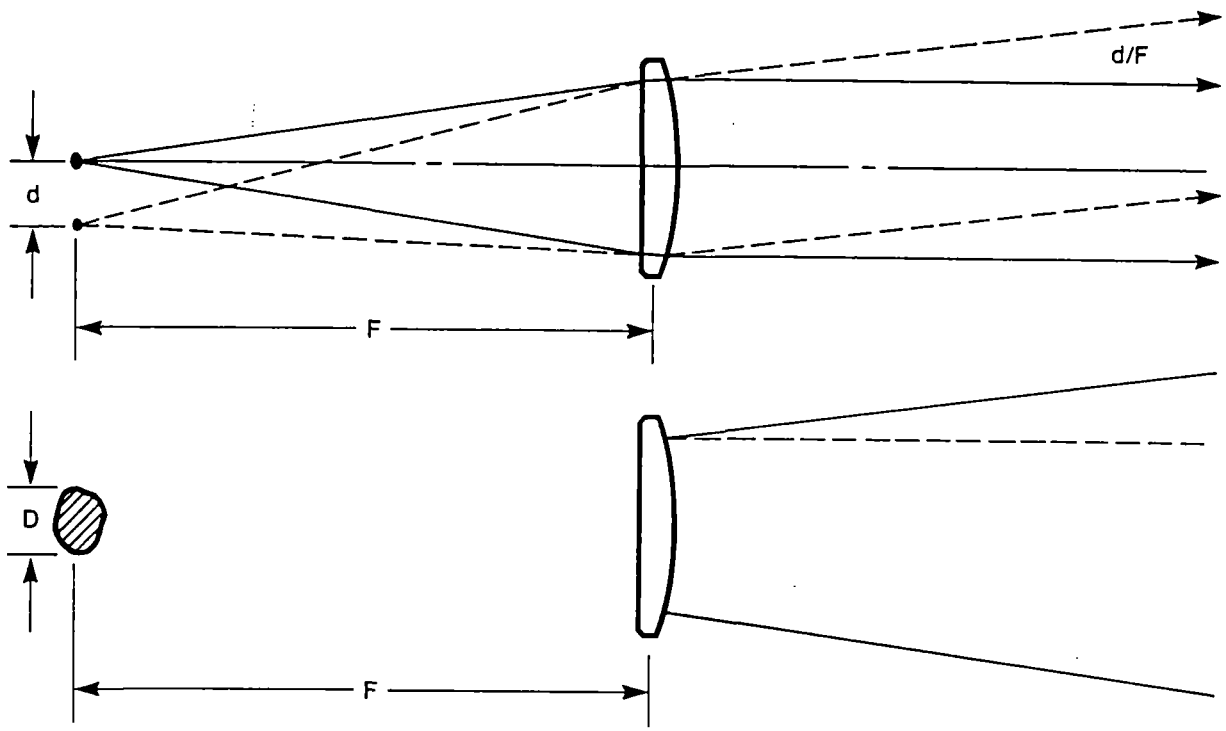


Fig. 5 For many sources, the divergence in one plane is not the same as that in the orthogonal plane.

The beam from the second pinhole will also be collimated but at an angle arctan (d/F) with the first. Any extended source can be thought of as a whole set of touching pinholes. The beam after the lens is the sum of all the beams from all the pinholes. It will contain rays with angles up to D/F where D is the largest dimension of the source. The beam will have a divergence which depends on the sum of the light from all the points on the source. Obviously this divergence will depend on the size of the source and the intensity of the various "pinholes" or points on the source.

V.2 IMAGING THE FILAMENT

You can reimage the filament by positioning the condenser further from the lamp, using the focusing lever. Volume III describes imaging and provides the formulae. As the condenser lens is moved out, the image moves in and becomes smaller. As already indicated, the lens collects less light as it is moved away from the filament. Additionally, the convergence angle of the beam goes up as the image becomes smaller. This is not usually important for irradiance of a surface, but can be significant if the image is on the slit of a monochromator, optical fiber, or other optical system with limited acceptance angle. We normally use a secondary focusing lens to maximize the light through a slit or into a fiber optic.

V.3 REAL LENSES

The condenser lenses are intended for efficient light collection. They operate at low F/#s. As a result the single element F/0.85 and F/1 lenses suffer from severe aberrations, particularly spherical aberration. The doublet F/1.5 lens is somewhat better, while the Aspherabs™ are almost free from spherical aberration. Note that all the lenses perform best while collimating the light from the source.

V.3a Spherical Aberration

This aberration results from the fact that the ideal lens, the aberration free lens, is not spherical in shape. With the exception of the aspheric (F/0.85) condenser, these condenser lenses, like most lenses, have spherical surface shapes for economic manufacturing. In general, spherical aberration is decreased by dividing the refraction (light bending), as equally as possible between as many surfaces as possible. The lens shapes (plano-convex for the fused silica singlets) of our condensers and orientations minimize spherical aberration for the type of condenser and at the collimating position. The F/0.7 Aspherab™ multi-element lens assembly practically eliminates this aberration by balancing the effects between lenses.

Consider the simple plano convex lens collimating light from an ideal point source. With the plano surface towards the point source and the point source at the (paraxial) focus the marginal rays converge while the paraxial rays are collimated. (Fig. 6) This is due to spherical aberration. For the ideal, non spherical lens shape, the paraxial and maginal rays are all collimated. If the source is located about 1/4 f inside the focus, the paraxial rays diverge slightly and the marginal rays are almost collimated. This is often the optimum compromise for a single element collimating lens (and has the added advantage of collecting more light from the source).

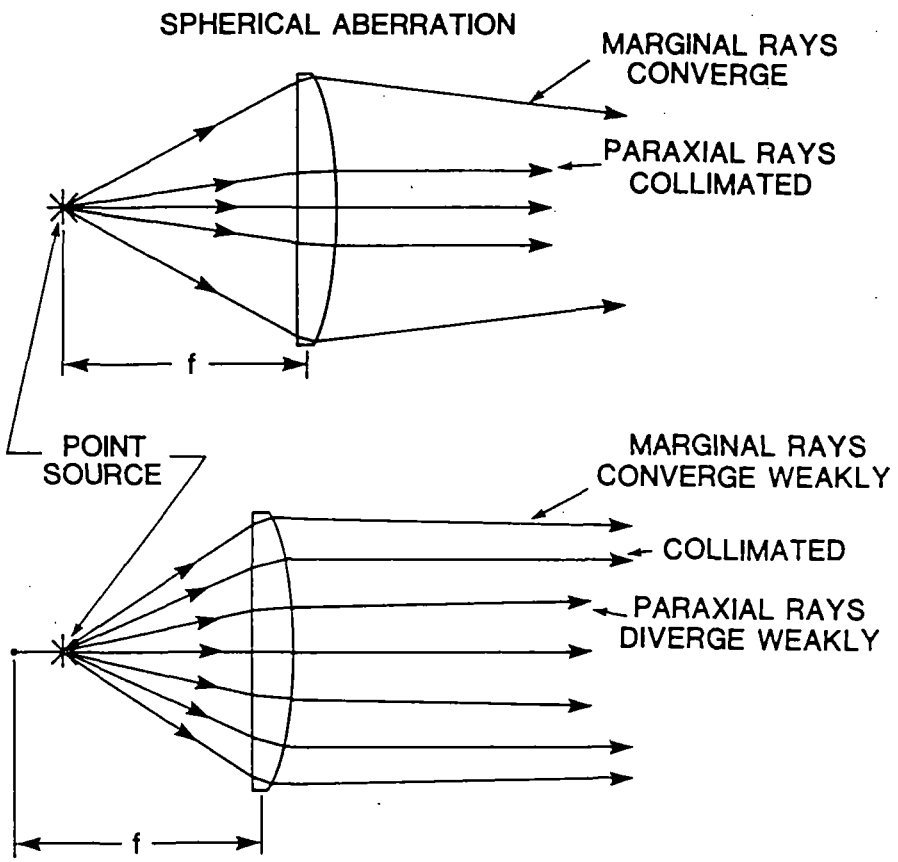


Fig. 6 The marginal rays and the paraxial rays are collimated when the point source is at the paraxial focus, and the plano surface of the lens faces the point source.

The lens adjustment on these lamp housings allows the lens to be moved closer to the source than the paraxial focus. You can empirically find the best position for your system.

The F/0.7 Aspherab™ condensing lenses combine negligible spherical aberration and low F/#, and should be used at focus for critical collimating applications.

V.3b

Chromatic Aberration

The term "chromatic aberration" describes the variation of lens focal length with color. (Fig. 7) This variation is due to the change in lens index of refraction (n) with wavelength. As the wavelength goes up, n goes down and the focal length increases.

This causes problems in producing multi-wavelength collimated beams, but is usually a second order effect compared with source and spherical aberration limitations. Chromatic aberration usually becomes more important when UV wavelengths are to be collimated. The reduction in focal length (f) for a fused silica lens from the visible value of f to 0.91 f at 250 nm may require a change of lens for optimum performance. Contact Oriel for details.

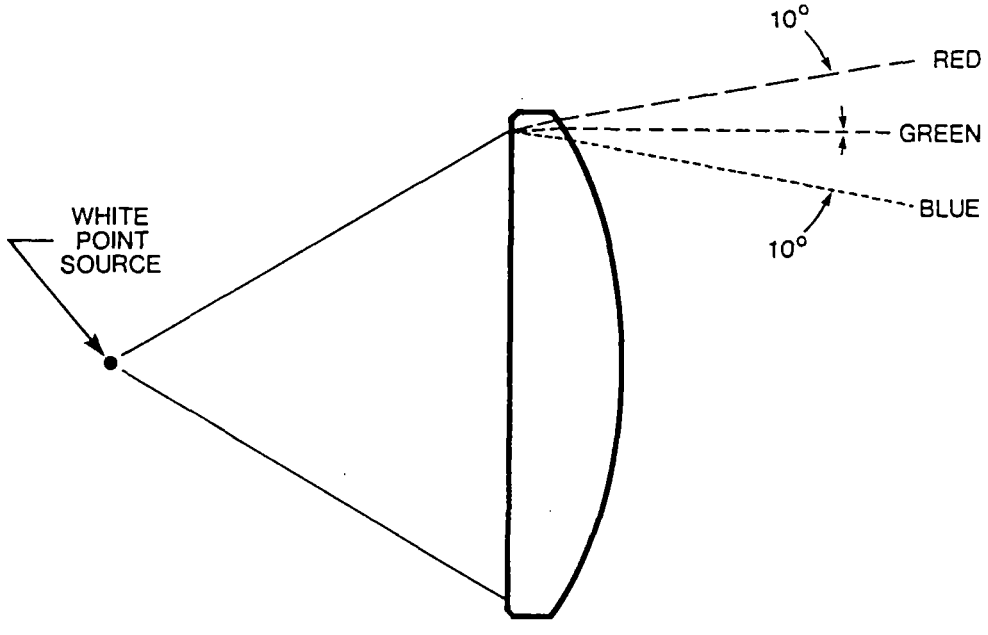
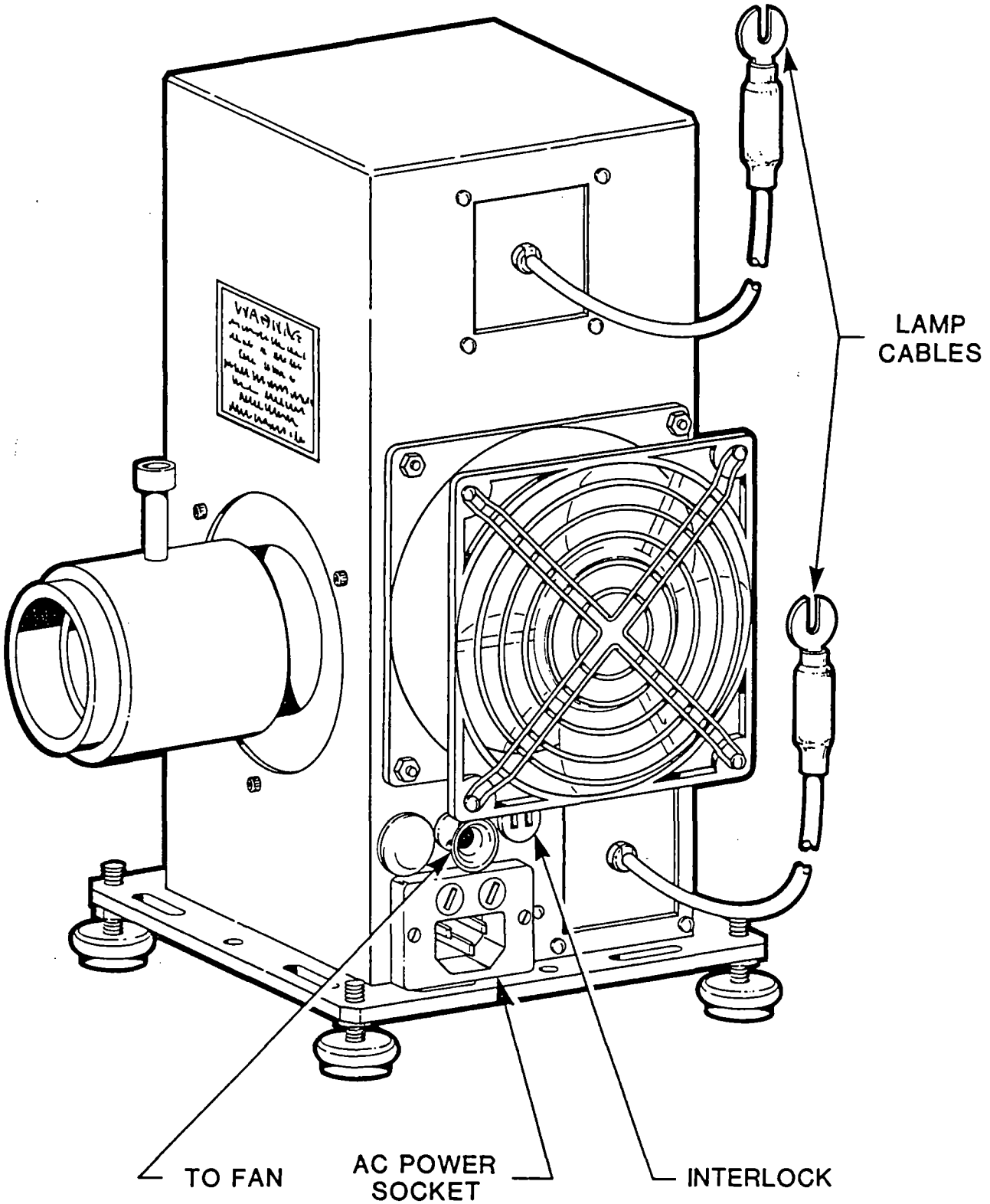


Fig. 7 Chromatic aberration: different wavelengths are focused at different points.

V.4 HOW DO YOU POSITION THE CONDENSER TO GET A COLLIMATED BEAM?

You should image the filament on the most distant wall in your laboratory (remembering appropriate safety measures) to get close to the collimation position. You can then move the lens barrel in a small amount for best collimation. If your wall is 2 meters away, a 1.3 mm adjustment is required. For 3 m and 4 m, the corresponding numbers are 0.8 and 0.6 mm.


LAMP
CABLES
TO FAN
AC POWER
SOCKET
INTERLOCK

WARRANTY AND RETURNS

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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.

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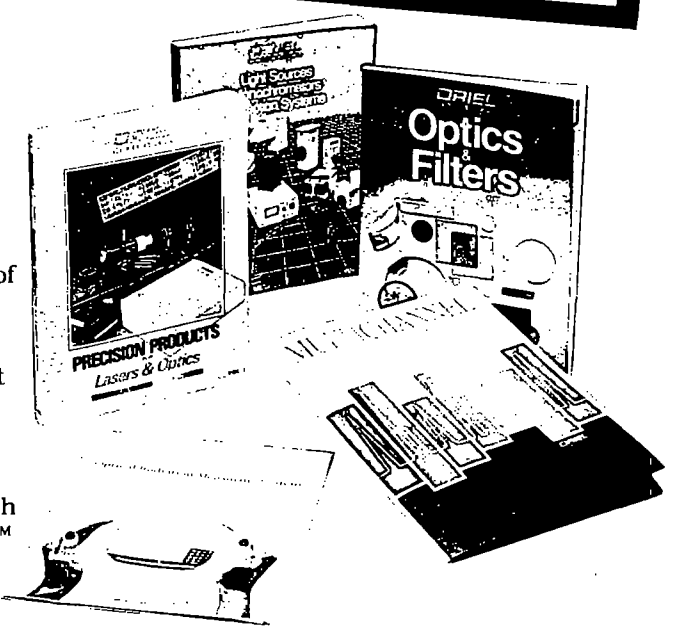
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Fax: (203) 378-2457

QUARTZ HALOGEN LAMP SOCKET ADAPTER

MODEL 66156

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 - the representative from whom this equipment was purchased.

L.O.T. - ORIEL S.A.
9 Avenue De Laponie
Z.A. De Courtaboeuf
91951 Les Ulis Cedex
France
Phone: 1-69-07-20-20
Fax: 1-69-07-23-57

L.O.T. - ORIEL GmbH
Im Tiefen See 58
D-6100 Darmstadt
Germany

Phone: (06151) 88060
Fax: (06151) 84173
Tlx: 419602 LOT D

L.O.T. - ORIEL Ltd.
1 Mole Business Park
Leatherhead
Surrey KT22 7AU
England
Phone: 0372-378822
Fax: 0372-375353
Tlx: 883361

L.O.T. - ORIEL ITALIA
Via Novara 62/64
20020 Robecchetto, MI
Italy

Phone: 331-876-262
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P.O. Box 81037
3009 GA Rotterdam
Netherlands
Phone: 010-4206444
Fax: 010-4206511
Tlx: 21252 FAIRL NL

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ORIEL
CORPORATION

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Company Name: _____ Oriel Reference No. _____

Telephone No.: _____ Product Model No.: _____

Fax No.: _____ Product Name: _____

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How long have you been using the product?
Is this the first time you've experienced this problem?

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PLEASE RESPOND TO FAX NO. 203-378-2457

If you need an immediate response, call us at 203-377-8282 with the above information.

PLEASE RESPOND TO FAX NO. 203-378-2457

INSTALLATION

The following procedure should be followed to install the Model 66156 Adapter in Oriel lamp housing for lamps up to 250 watts (Models 66055 thru 66060).

1. Disconnect power.

2. Remove access cover by unscrewing four (4) panel fasteners.

3. Place the Quartz Halogen Lamp Adapter onto lamp plate assembly holder. Align adapter parallel with the lamp plate assembly. Secure adapter with #8-32 thumb screw. Install upper lead wire onto stud and secure with # 10-32 thumb nut as shown in Fig. 1.

4. Replace access cover by pushing and turning panel fastener in a clockwise direction.

*****CAUTION*****

Due to the constant changing of lamps, the lamp socket will begin to wear. There is also the possibility of arcing. Therefore, we recommend changing the lamp socket after 500 hour of use.

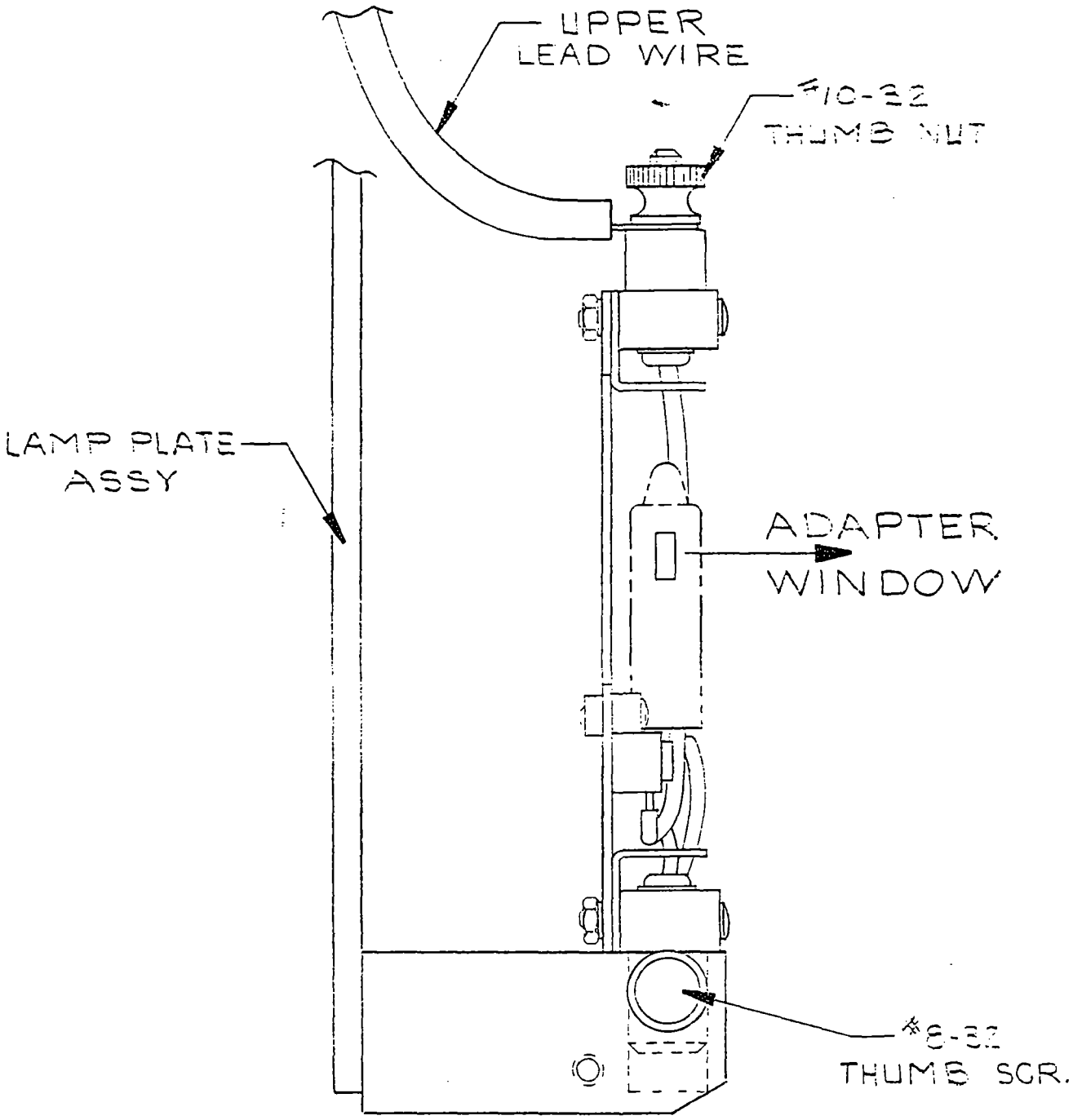
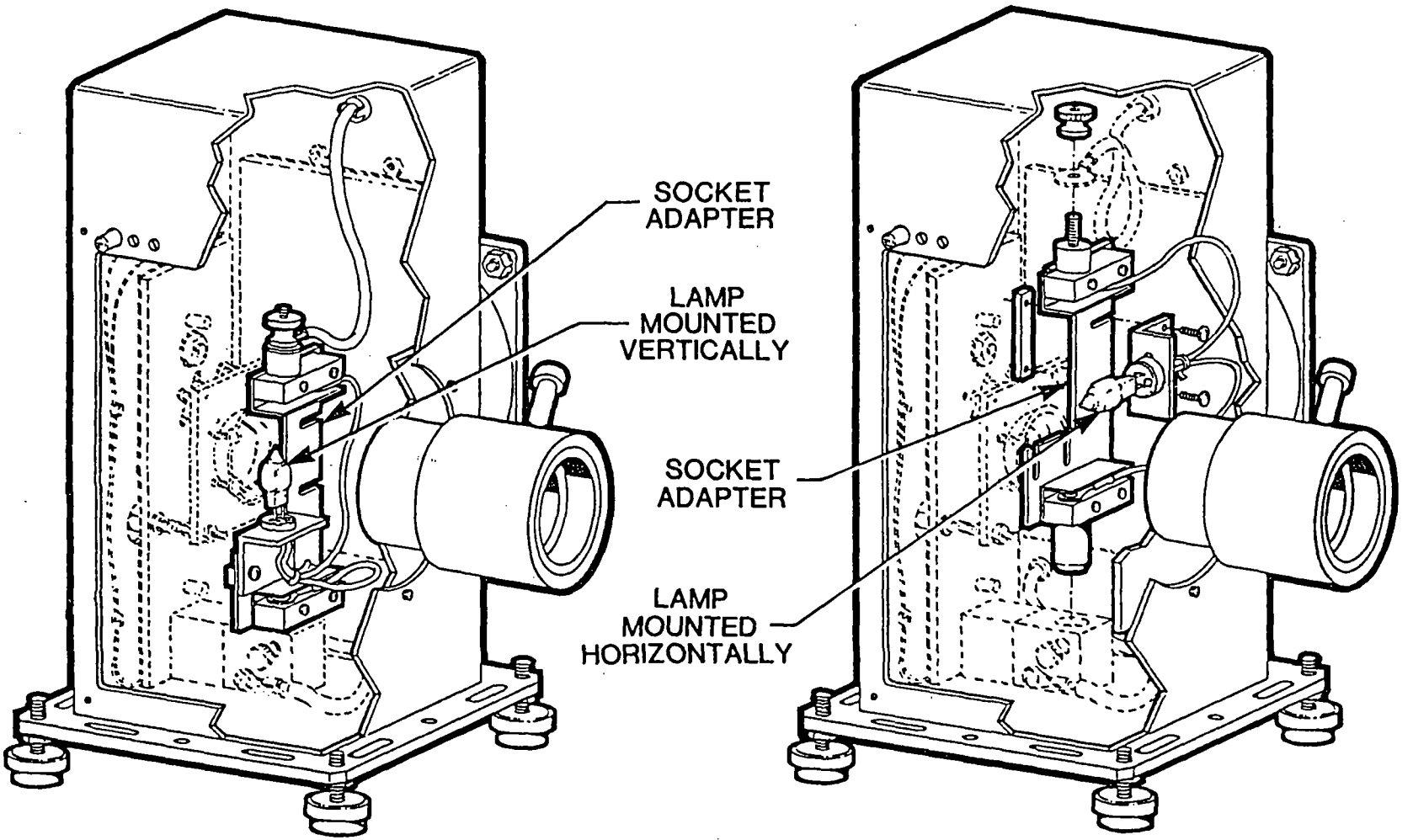

UPPER
LEAD WIRE
#10-32
THUMB NUT
LAMP PLATE
ASSY
ADAPTER
WINDOW
#8-32
THUMB SCR.

FIG. 1


SOCKET ADAPTER
LAMP MOUNTED VERTICALLY
SOCKET ADAPTER
LAMP MOUNTED HORIZONTALLY

WARRANTY AND RETURNS

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 misfunctioning 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.

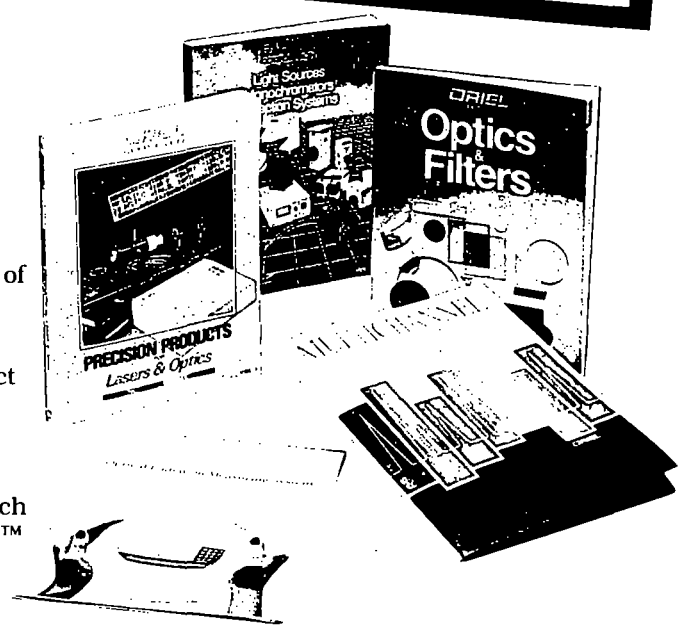
Include the cables, connector caps and antistatic materials sent and/or used with the equipment, so that Oriel can verify correct operation of these accessories.

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This 460 page book spotlights UV-iR light sources, monochromators and spectrographs, detection systems and computer controlled data acquisition systems.

VOLUME III - Optical Components, Filters and Fiber Optics

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- C ☐ Volume III
- D ☐ 3 Volume Set
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- F ☐ Merlin™ Optical Radiometer

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- C ☐ Quality Assurance
- D ☐ University

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- C ☐ 320-400 nm
- D ☐ 400-700 nm
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- G ☐ 3-15 μm
- H ☐ Over 15 μm

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- D ☐ Solar Simulation
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- F ☐ UV Curing
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- H ☐ Material or Chemical Analysis
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- K ☐ Imaging Systems
- L ☐ Microscopes
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ORIEL

Universal Arc Lamp Housing

Models 66055 thru 66060

Models 66065 thru 66068

Models 66047 & 66048

INSTRUCTION MANUAL

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

- or -

ORIEL S.A.R.L.
9 Avenue De Laponie
Z.A. De Courtaboeuf
91940 Les Ulis
France
Phone: 01-69-07-20-20
Fax: 01-69-07-23-57

ORIEL SCIENTIFIC, LTD.
1 Mole Business Park
P.O. Box 31
Leatherhead
Surrey KT22 7AU
England
Phone: 0372-378822
Fax: 0372-375-353

- or -

The representative from whom this equipment was purchased.

TABLE OF CONTENTS

SECTION	I	INTRODUCTION
SECTION	II	SAFETY CONSIDERATIONS
SECTION	III	SPECIFICATIONS
SECTION	IV	SET-UP AND USE
SECTION	V	WARRANTY
SECTION	VI	DRAWINGS/SCHEMATICS

SECTION I - INTROUDCTION

The ORIEL Models 66055 thru 66060, 66065 thru 66068, 66047 and 66048 are lamp housings intended for use with the following arc lamps:

Model 66055 thru 66060	-	all xenon, mercury and mercury (xenon) lamps thru 200 watts.
Model 66065 thru 66068, 66047 and 66048	-	all xenon, mercury and mercury (xenon) lamps thru 500 watts.

*See Section III, Specifications, for specific model numbers.

These lamp housings do not contain a built-in ignitor, and may therefore be used with virtually any arc lamp power supply with an integral or separate ignitor.

SECTION II - SAFETY CONSIDERATIONS

SUMMARY OF HAZARDS

There are four major hazards in the operation of systems employing these lamp housings. They are:

LIGHT or RADIATION

LAMP EXPLOSION

OZONE

ELECTRICAL SHOCK

A. HAZARDS DUE TO LIGHT OR RADIATION

Do not look directly into the output beam of a housing when employing an arc lamp, or a specular (mirror) reflection of the beam, even for short periods of time. The high degree of UV radiation present can permanently damage the retina of the eye and subsequent blindness can result.

B. HAZARDS DUE TO LAMP EXPLOSION

1) When cold, Xenon and Mercury-Xenon arc lamps are under several atmospheres of pressure and are subject to explosion due to internal strains or to physical abuse. When hot, lamps are under a pressure of close to 100 atmospheres and subject to severe explosion.

2) Do not handle a bare Xenon or Mercury-Xenon lamp without safety goggles and adequate protection for exposed areas of skin.

3) Do not apply torque to the quartz envelope of the lamp during installation or removal.

4) Fingerprints and other contaminations left on the lamp cause a deterioration of the quartz envelope during operation and may lead to lamp explosion.

5) Thoroughly clean the entire quartz envelope after installation in the housing with alcohol or a dilute solution of detergent and water.

C. OZONE HAZARDS

If an "ozone free" lamp is not used, do not operate the system in a small enclosed room without proper ventilation.

D. ELECTRICAL SHOCK HAZARD

1) Keep personnel clear of all exposed terminals.

2) Before relamping or working on the system, disconnect input power and check the power supply voltmeter for zero voltage to be sure that internal capacitors are fully discharged.

3) Do not handle lamp leads during lamp ignition.

SECTION III - SPECIFICATIONS

A. Models 66055 thru 66060

Lamps:	Model 6251	75 Watts Xenon Lamp
	Model 6281	100 Watts Mercury Lamp
	Model 6253/A	150 Watts Xenon Lamp
	Model 6256	150 Watts Xenon Lamp
	Model 6283	200 Watts Mercury Lamp
	Model 6291	200 Watts Mercury (Xenon) Lamp

Cooling Fan Power: 95-130/190-260 Volts, 50/60 Hz, 16 Watts

B. Model 66065 thru 66068, 66047 and 66048

Lamps:	Model 6259	300 Watts Xenon Lamp
	Model 6286	350 Watts Mercury Lamp
	Model 6285	500 Watts Mercury Lamp

Cooling Fan Power: 95-130/190-260 Volts, 50/60 Hz, 23 Watts

NOTE: The only difference between the two lamp housings is the capacity of the cooling fans.

SECTION IV - SET-UP AND USE

A. Cooling Fan

The cooling fan may be operated on either 110 or 220 volts AC line. The housing has an AC connector which is designed to accept different power cords. The housing may have been outfitted with a power cord which satisfies the requirements in the country of use. If not, replace the plug at the end of the power cord. Check that the line select switch (below the fan) is in appropriate 110/220 position prior to plugging the line cord into the nearest available AC outlet.

B. Lamp Installation and Operation

1) Put on safety goggles and gloves.

2) Unscrew the four captive thumb screws on the side of the housing and remove the access door.

3) Install the appropriate adaptor(s) on the lamp terminal(s). Depending on the lamp type, these socket adaptors are fastened to the lamp terminals by set screws or by a threaded connection.

   - See Table IV-1 to determine which adaptors are used with which lamps.

   If the lamp is supplied with knurled nuts, remove the "bottom" nut and discard before installing the socket adaptor. One of the knurled nuts will be used to secure the wire lug to the top terminal.

4) Connect the top hanging lead to the top terminal, using either the knurled nut supplied with the lamp (see table), or the knurled set screw supplied with the top adaptor.

5) Place the bottom terminal (with adaptor) into the bottom mounting block. Adjust the lamp vertically so that the arc gap lies approximately in the center of the mirror, then tighten the knurled set screw.

TABLE IV-1

LAMP MODEL NO.	ADAPTOR NO.
6251, 75W Xe	66150
6253, 150W Xe	66152
6254. UV 150W Xe	66152
6256, 150W Xe	66151
6259, 300W Xe	66160
6281, 100W Hg	66150
6283, 200W Hg	66153
6285, 500W Hg	66162
6286, 350W Hg	66161
6291, 200W Hg (Xe)	66151

6) After the lamp is in position, clean the ENVELOPE WITH ALCOHOL AND LINT FREE TISSUE. FINGERPRINTS LEFT ON THE LAMP MAY CAUSE THE LAMP TO EXPLODE WWHEN LIT.

7) Replace the side access door and tighten the knurled thumb screws.

8) Connect the lamp cables between the lamp housing and rear of the power supply, or to the ignitor if a stand-alone ignitor is used.

9) Connect the interlock cable between the lamp housing and the rear of the power supply.

CAUTION: BE SURE THAT THE LAMP IS POSITIONED WITH THE PROPER ELECTRODE ON THE TOP AND THAT THE LEADS ARE CONNECTED TO THE POWER OUTPUT CONNECTORS OF THE POWER SUPPLY. OPERATION WITH THE WRONG POLARITY WILL IMMEDIATELY DESTROY THE LAMP ELECTRODES.

C. Adjustment of Lamp, Mirror, and Lens

1. General

In this housing the spherical mirror behind the lamp creates an inverted image of the arc which can be placed onto or near the lamp arc to increase the output beam intensity. The condensing lens collects radiation from both the arc and the mirror image of the arc.

The mirror is adjusted with respect to the lamp by three knobs (smaller) located directly behind the mirror on the back of the housing. The lamp and mirror

in unison are adjusted by a Vertical and Horizontal adjust knob (larger) in the same area.

CAUTION: DO NOT LET THE MIRROR IMAGE OF THE ARC FALL ONTO EITHER ELECTRODE FOR MORE THEN TEN SECONDS. OVERHEATING OF THE LAMP SEALS AND SUBSEQUENT LAMP EXPLOSION MAY RESULT.

2. Adjustments prior to operation

a) Before ignition, roughly adjust the lamp position with the Horizontal and Vertical adjustment knobs. Adjust the lamp so that the arc gap lies approximately in the center of the condensing lens. This can be seen through the lens if the focussing lever on the lens is full back.

b) Adjust the mirror image so that it lies along side of the lamp as viewed from the front.

c) TO PREVENT POSSIBLE ARC OVER DURING THE LAMP IGNITION, DO NOT PLACE LENS BARREL IN INNERMOST POSITION DURING LAMP STARTING.

d) Ignite and warm up the arc lamp per the instructions in the power supply owner's manual.

3. Adjustments during operation

a) By adjusting the condensing lens, focus the output beam so that an image of the arc appears on a wall or screen.

b) Rotate the mirror knobs until an inverted image of the arc appears along side of the arc (see figure 1). When the real image is in focus, focus the mirror image by rotating all three screws in the same direction concurrently (this translates the mirror back or forth).

c) Place the mirror image over the lamp image (as in figure 2) or along side as desired.

NOTE: Do not superimpose the two hot spots, as this will place too much of the reflected arc onto the cathode (smaller electrode) and may cause overheating.

d) Adjust lamp position to place images in the center of the illuminated field.

e) Focus condensing lens as desired.

NOTES: If additional range of adjustment of the condensing lens is desired:

1) Remove the condensing lens assembly handle (take care to record the orderly assembly of its parts).

2) By hand, slide the inner lens barrel forward or back until another tapped hole appears in the spiral slot.

3) Reassemble the handle into this new hole.



Figure 1.

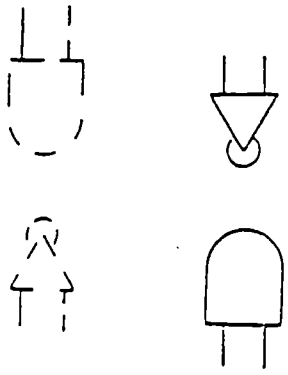


Figure 2.

SECTION V - WARRANTY

Oriel Corporation warrants that all goods listed in this acknowledgement (except consumables such as lamps, bulbs, filters, etc.) shall be free from defects in materials and workmanship. In cases of defects in materials and/or workmanship, such defects must become apparent within the following period:

a. All covered products, except spare parts...one (1) year or 3000 hours of operation, whichever comes first, after delivery of the goods to buyer.

b. Spare parts...ninety (90) days after delivery of goods to buyer.

The extent of 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 on condition that the defective goods are returned freight prepaid to an Oriel Corporation designated facility. Oriel Corporation shall provide labor for field adjustment, repair and/or replacement at prevailing rates for such field service.

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

1. The goods are operated 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, provided that this provision shall not apply to any accessory, equipment or part, the use of which does not affect the safety of the machine.

2. The goods are not to be operated or maintained in accordance with Oriel's instructions and specifications.

3. The goods shall 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.

WARRANTY (continued)

IT IS EXPRESSLY AGREED THAT THIS WARRANTY SHALL BE IN LIEU OF ALL WARRANTIES OF FITNESS OR MERCHANTIBILITY, AND BUYER HEREBY WAIVES ALL OTHER WARRANTIES, GUARANTEES, CONDITIONS OR LIABILITIES, EXPRESS OR IMPLIED ARISING BY LAW OR OTHERWISE AND WHETHER OR NOT OCCASIONED BY ORIEL'S NEGLIGENCE. This warranty shall not be extended, altered or varied except by a written instrument signed by both parties; provided, that in the event the provision relieving Oriel from liability for its negligence should for any reason be held ineffective the remainder of the paragraph shall remain in full force and effect.

CONSEQUENTIAL DAMAGES

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INSURANCE

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SECTION VI - DRAWINGS/SCHEMATICS

The following drawings and parts lists should be supplied with this manual:

A. Schematics -

66055-2-1001 Top Assembly

B. Parts Lists -

66055/66065 Top Assembly

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ASSEMBLY PART NO. / NAME	DWG / SCHEM. NO.	P / L REV.	REV. DATE	REL. FOR PROD.	IPO NUMBER
66055-66065 LAMP HOUSING, 250W (-1)/500W (-2)		A	9-1-87		

ITEM NO.	SCHEM. DES.	DWG. SZ	ORIEL PART NO. OR DWG. NO.	DESCRIPTION	QTY/ASS'Y ·1	·2	·3	VENDOR	P. O. NO.	VENDOR / UNIT COST	MAT'L. + MACHIN COST/ ASSY	UNIT COST
49			75-10-002	LINE CORD USA	1	1						
*			75-10-005	" " EUROPE								
*			75-10-006	" " UK								
*			75-10-007	" " AUSTRALIA								
*			75-10-008	" " SWITZERLAND								
				* USE IN PLACE OF ITEM #10 FOR EXPORTS								

BRUNING 40-22 46387

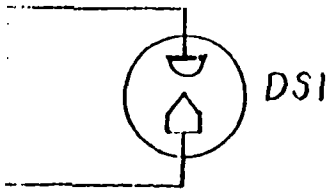
ORIEL CORPORATION ASSEMBLY PARTS LIST

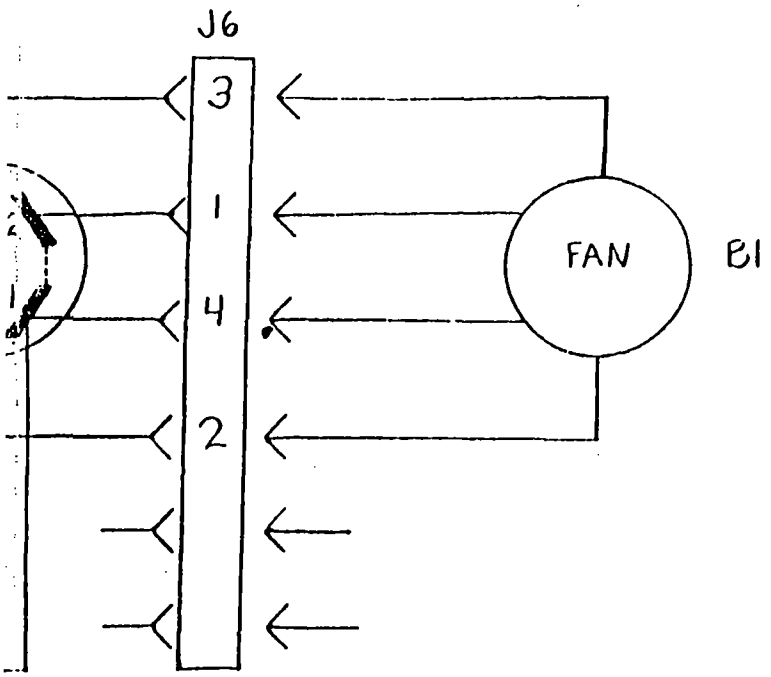
ASSEMBLY PART NO. 66055/66065 NAME LAMP HOUSING, 250W (-1)/500W (-2)	DWG / SCHEM. NO.	P / L REV. A	REV. DATE 9-11-84	REL. FOR PROD.	IPO NUMBER

ITEM NO.	SCHEM. DES.	DWG. SZ	ORIEL PART NO. OR DWG. NO.	DESCRIPTION	QTY/ASS'Y				VENDOR	P. O. NO.	VENDOR / MAT'L. UNIT COST	+ MACHINE UNIT COST/ ASSY	UNIT COST
						-1	-2	-3					
17			10-50-120	CONNECTOR, 6 PIN FEMALE		1	1						
18				SCREW PH 4-40x3/8		4	4						
19			6136-534	BASE		1	1						
20			20-22-005	LEVELER		4	4						
21		A	8009-525	POST		2	2						
22				ACORN NUT 6-32		6	6						
23				ACORN NUT 1/4-20		1	1						
24				VIOLET DECAL-WARNING ULTRA LIGHT		1	1						
25			91-10-001	SPRING-LAMP ADJ-SIDE		1	1						
26			91-10-002	SPRING-LAMP ADJ-TOP		1	1						
27			20-45-502	KNOB		2	2						
28		B	6135-555	SHAFT		2	2						
29				#6-32 x 1/2 P.H. SCREW		9	9						
30				#6 FLAT WASHER		2	2						
31				#10-32 x 1/4 LG P.H. SCREW		3	3						
32				#6-32 x 1/4 F.H. 82°		2	2						

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REV	DESCRIPTION	DATE	BY





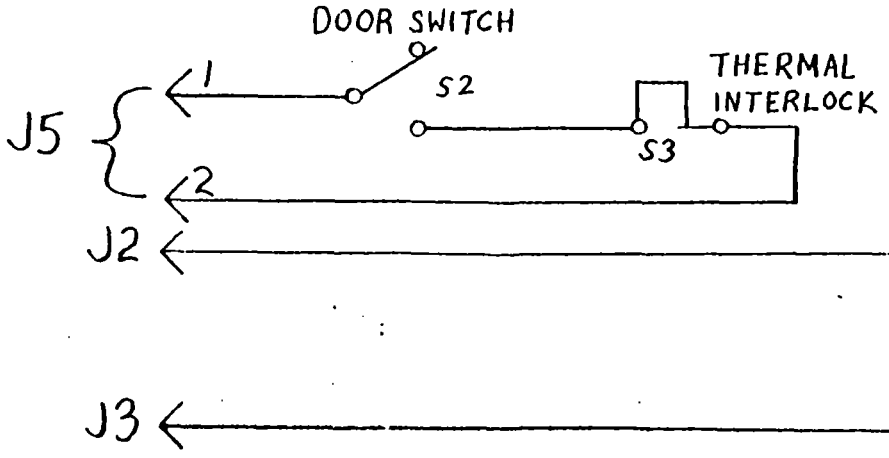
CIFIED, THIS PART
Y MACHINING AND
GES, NICKS AND
CORNERS AND RE-
MUST BE CLEANED.
SE, OIL, ETC.

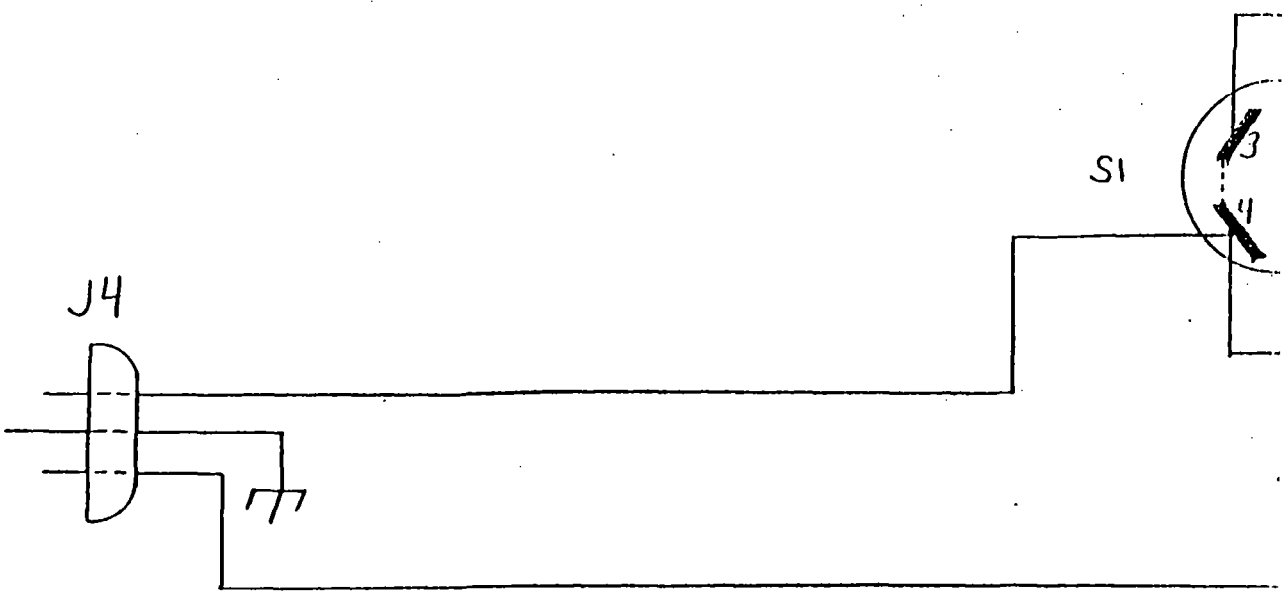
MATERIAL	DATE DRAWN 3-6-84
FINISH	DRAWN BY al. B.
DO NOT SCALE DRAWING	CHECKED
✓ SURFACES TO BE _____ ✓ RMS	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS 2 PLACE 3 PLACE ANGLES ± _____ ± _____ ± _____ ± _____	
SHARP CORNERS TO BE .005" MAX RADIUS CHAMFERS NOT DIMENSIONED TO BE .02X45° ANY 2 DIAS. CONCENTRIC WITHIN .006 TIR	SCALE —

ORIEL CORPORATION
STRATFORD, CONNECTICUT

TITLE
SCHEMATIC
250/500-1KW LAMP HOUSING

DRAWING NO 66055-2-1001





UNLESS OTHERWISE SP
MUST BE FREE OF HEA
EXTRUSION MARKS, GC
DENTS. BREAK ALL SHAR
MOVE ALL BURRS. PARTS
FREE OF CHIPS, GRIT, GRE

ORIEL CORPORATION ASSEMBLY PARTS LIST

ASSEMBLY PART NO. NAME	DWG / SCHEM. NO.	P / L REV.	REV. DATE	REL. FOR PROD.	IPO NUMBER
66055/66065 LAMP HOUSING, 250W (-1)/500W (-2)		A	9-11-94		

ITEM NO.	SCHEM. DES.	DWG. SZ	ORIEL PART NO. OR DWG. NO.	DESCRIPTION	QTY/ASS'Y				VENDOR	P. O. NO.	VENDOR / MAT'L. UNIT COST	+ MACHINE COST/ ASSY	+ MACHINE UNIT COST
						-1	-2	-3					
33													
34		B	8071-554	COVER (PHOTO FEEDBACK)		1	1						
35				SCREW #6-32 x 1/4 P.H.		10	10						
36				SCREW #4-40 x 1/4 P.H.		2	2						
37													
38	P/L	B	66055-2-1400	CABLE ASSY LAMP POWER (+)		1	1						
39	P/L	B	66055-2-1500	CABLE ASSY LAMP POWER (-)		1	1						
40	P/L	B	66000-2-1600	CABLE ASSY INTERLOCK		1	1						
41				KEPNUT #4-40		6	6						
42				NUT HEX 1/4-20		4	4						
43				LOCK WASHER #6 EXT TOOTH		2	2						
44				LOCK WASHER 1/4 EXT TOOTH		1	1						
45				FLAT WASHER #8		2	2						
46				FLAT WASHER #8 NYLON		2	2						
47				LOCKWASHER #6 INT TOOTH		4	4						
48													

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ORIEL CORPORATION ASSEMBLY PARTS LIST

ASSEMBLY PART NO. / NAME	DWG / SCHEM. NO.	P / L REV.	REV. DATE	REL. FOR PROD.	IPO NUMBER
66055/66065 LAMP HOUSING, 250W (-1)/500W (-2)		EFF. A 3655	9-11-34		

ITEM NO.	SCHEM. DES.	DWG. SZ	ORIEL PART NO. OR DWG. NO.	DESCRIPTION	QTY/ASS'Y -1	QTY/ASS'Y -2	QTY/ASS'Y -3	VENDOR	P. O. NO.	VENDOR / MAT'L. UNIT COST	+ MAT'L. COST/ ASSY	+ MACHIN UNIT COST
(A) 1			66055-4-1004	HOUSING	1	1						
2												
3		B	66000-3-1005	COVER	1	1						
4	P/L	A	66000-1-1200	FAN ASSY	1	0						
5	P/L	A	66010-1-1200	FAN ASSY	0	1						
6			55-15-015	SWITCH INTERLOCK	1	1						
7			55-20-025	SWITCH 110/220	1	1						
8			10-50-055	AC POWER SOCKET	1	1						
9			10-50-017	CONNECTOR, 2 PINS, FEMALE	1	1						
10		B	66055-2-1006	CONNECTOR PLATE	2	2						
11				SCREW 6-32x1/2 P.H. NYLON	1	1						
12												
13	P/L	B	66000-2-1020	BAFFLE, COVER ASSY	1	1						
14		B	66055-2-1005	BAFFLE, FAN	1	1						
15	P/L	C	66000-3-1300	LAMP PLATE ASSY	1	1						
16			93-17-022	CLIP, 5/8"	2	2						

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