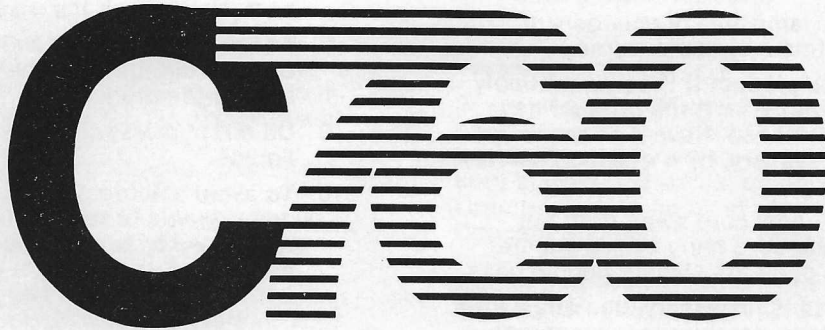


**Berkey
Omega**



Modular Dichroic & Diffusion Lamphouse Systems



Instruction Manual

Important Safeguards

When using your Omega Photographic product, basic safety precautions should always be taken, including the following:

1. Read and understand all instructions provided with this product.
2. Close supervision is necessary when this product is used by or near children. Do not leave it unattended while it is plugged into an outlet.
3. Avoid touching the lamp area of enlargers or other hot parts as this may cause burns.
4. Do not operate this product if the power supply cord has been damaged or if the product has been dropped or damaged. Have it checked out and repaired, if necessary, by a qualified service person before using.
5. Route the power supply cord away from hot areas. Do not let the cord hang over a counter edge or across an open area where people pass.
6. If an extension cord is necessary, use one with a suitable rating. Cords rated for less amperage than the product may overheat. Route the extension cord away from open areas where it may be tripped over or pulled.
7. Always unplug the product after use. Grasp the plug and firmly pull from the outlet to disconnect. Never yank the cord from the outlet.
8. Allow the product to cool to room temperature before storing. Wrap the power cord loosely around the product.
9. Do not immerse this product in water or other liquids.
10. To avoid electric shocks, do not attempt to disassemble or repair this product. Always have it serviced by a qualified service person when necessary.

These safeguards are prescribed by Underwriters Laboratories to be included in this instruction manual

for U.L. listed products. Some of these precautions may not apply to this product.

SAVE THESE INSTRUCTIONS

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Technical Specifications

Dichroic Lamphouse

Power	120VAC, 60 Hz.
Lamp	85W/82V, Pre-focused Quartz-Halogen (Cat. No. 471-400)
Dichroic Filtration Range	0-200CC, C,M,Y, Fade-free

Diffusion Lamphouse

Power	120VAC, 60 Hz.
Lamp	85W/82V, Pre-focused Quartz Halogen (Cat. No. 471-400)

Introduction

Your Super Chromega C760 Dichroic or C760 Diffusion Lamphouses provide features and advantages which make it superior to any similar unit now available. To help you take maximum advantage of these features, they are described briefly in this section. The numbers in parenthesis refer to pages in this Instruction Manual on which these features and their applications are discussed in detail.

Thank you for selecting the Omega C760 Lamphouse.

Your C760 Lamphouse provides an extremely versatile, high-output illumination system for your Omega medium-format enlarger. Its many advanced features give you the ability to produce finer prints in color and in black-and-white quickly, consistently and easily. You can even use your C760 Dichroic Lamphouse as a light box for duplicating color slides.

Like every Omega product your C760 Lamphouse is built to traditional Omega standards of quality and performance. This means the finest materials, meticulous workmanship and a design that is "human engineered" for efficient, comfortable operation. Your C760 Lamphouse should give you many years of trouble-free service.

In order to get the best results from your C760 Lamphouse, read through this Instruction Manual before using the lamphouse or installing it on your enlarger.

If you have any questions or problems with this, or with any Omega equipment, write to us for assistance. And, if you have any comments or suggestions, let us hear from you. You can write to Customer Service.

In U.S.A.:

Berkey Marketing Companies
P.O. Box 1102
Woodside, NY 11377

or

Berkey Marketing Companies
1011 Chestnut Street
Burbank, CA 91506

In Canada:

Berkey Photo (Canada) Ltd.
70 Floral Parkway
Toronto, Canada M6L2C1

In United Kingdom:

Berkey Colortran UK
P.O. Box S
Burrell Way Thetford
Norfolk, England IP243RB

In Denmark:

Berkey Technical A/S Denmark
160 Vangedevej
2860 Soeborg
Copenhagen, Denmark
(Copenhagen) 69 61 11

Finally, because Omega is dedicated to a policy of continuous product improvement and review, specifications may change without notice.

Good luck and good printing.

FEATURES OF THE OMEGA C760 DICHOIC AND DIFFUSION LAMPHOUSES

Versatile

In keeping with Omega's traditional policy of non-obsolescence, your C760 Lamphouse can be used on a wide range of medium-format Omega enlargers, both current and earlier models. Your C760 Lamphouse can be used with C760, C-700, B600, Concept Six, B66, B22 or C67 enlarger. The only requirement is suitable mounting hardware. This means that even if you change enlarger chassis later on, you can still use your C760 Lamphouse simply by getting the appropriate hardware (Page 5).

Expanded Filtration Range (Dichroic Lamphouse Only)

The filtration range of the C760 Dichroic Lamphouse is from 0 to 200CC, using special, non-fading dichroic glass filters which produce remarkably "pure" colors in cyan, magenta and yellow. Extremely accurate color settings are obtained permitting consistent and precisely repeatable color filtration. (Page 13)

Even Illumination

By using a specially designed, pre-focused 85-watt Quartz Halogen Lamp with integral reflector and a scientifically designed mixing chamber with interchangeable tapered diffusers, your C760 Lamphouse provides exceptionally even illumination on your baseboard. This means that print densities at the center of the image and at the corners will be almost the same. (Page 12)

High Light Output

The efficient design of your C760 Lamphouse means higher light output for shorter, more convenient printing times even at extreme magnifications. This high light output also permits exposures in the optimum ranges of times, from 5 to 40 seconds, to minimize the dangers of color shift resulting from unusually long exposures. The high light output in conjunction with our reversible girder makes possible floor projection for mural size prints.

White Light Control (Dichroic Lamphouse Only)

A special white light lever quickly removes the dichroic filters from the light path without disturbing the filter settings. This permits accurate focusing and baseboard composition by white light. An illuminated jewel indicates that dichroic filters are removed from the light path. (Page 12)

Special Light Attenuators

To provide more complete control over light output, interchangeable light attenuators are supplied and can be used to reduce the light by one, two or three f/stops. This permits using optimum aperture/exposure time combinations for convenient exposure or use of creative controls such as dodging and burning-in. (Page 12)

Attenuators supplied with dichroic lamphouse and available as an optional accessory (Cat. No. 429-330) for diffusion lamphouse.

Diffused Illumination for Black-and-White Printing

Many of today's outstanding photographers prefer to use diffused light for black-and-white enlargements rather than the conventional condenser illumination. One reason is that diffused light tends to produce a full range of subtle tones with great accuracy. In addition, diffused light serves to minimize graininess and "supress" minor imperfections, dust and scratches on the negative, greatly reducing the need for retouching. (Page 14)

Built-In Infra-Red and Ultra-Violet Filtration

Both IR and UV emissions can affect the color of your final print even though these rays are invisible. Your C760 Lamphouse filters out these emissions so that the desired filtered light reaches the paper, resulting in more accurate control of final print color.

Built-In Solid State Power Supply

Eliminates the need for external transformer or power supply. You can simply connect your C760 Lamphouse to an Omega enlarging timer or to any convenient standard 110V 60Hz AC outlet, or 240V 50Hz outlet depending on unit purchased.*

*Recommended Optional Accessory: For the most precise, consistent color printing regardless of power fluctuations, the use of the solid state Voltage

Stabilizer (Cat. No. 403-730) is strongly recommended for the 110V 60Hz only. The **240V 50Hz** units have the stabilizer built into the lamphouse.

Flow-Through Convection Cooling System

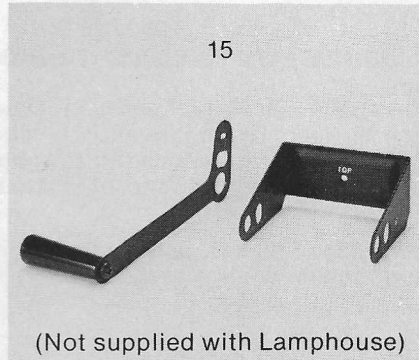
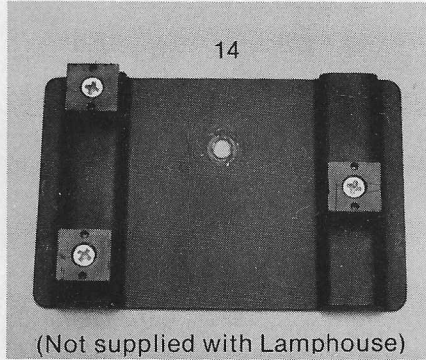
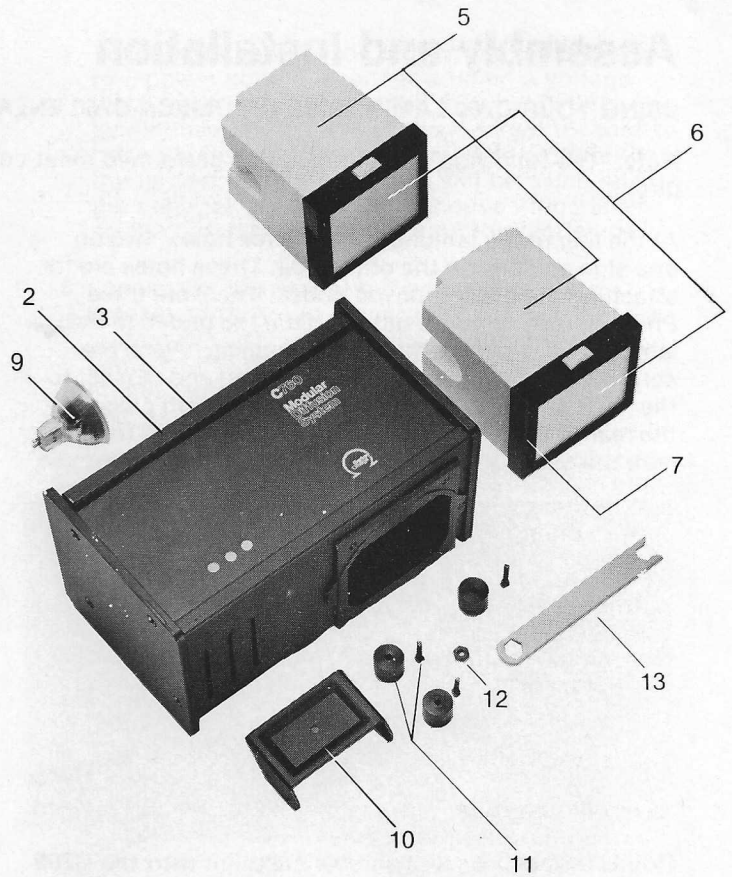
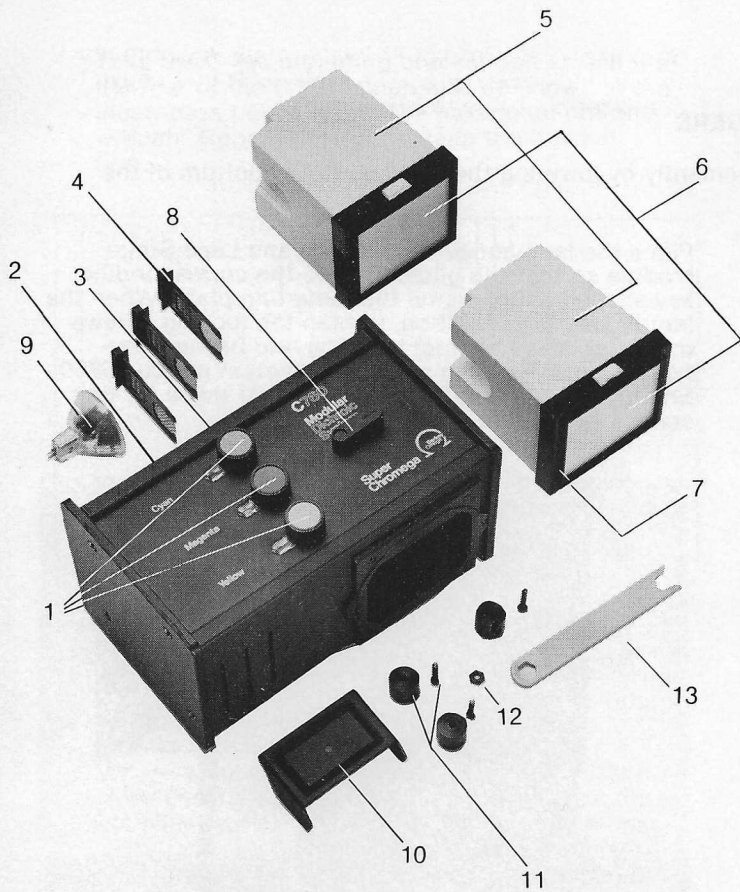
A combination of cooling fins and light-traps provides convection cooling for greater comfort and for reduction of heat on the negative, thus helping prevent negative buckling.

Convertible for Slide Duplication (Dichroic Lamphouse Only)

By simply inverting your C760 Dichroic Lamphouse on the baseboard, you have an ideal lightbox with complete color control for duplicating color slides. You can use the full range of CC settings for color correction or to create unusual effects. (Page 16)

Unpacking Your Lamphouse

1. Open the shipping container carefully and gently remove the contents. Check all items against the enclosed check list and do not discard any packing materials until you have accounted for all components and mounting hardware. Save the cartons for possible future use: they are designed to give your equipment maximum protection during storage and shipment.
2. As noted earlier, your C760 Lamphouse can be used with all current and recent medium-format Omega enlargers. The only difference is in the brackets that are used to attach the lamphouse to the enlarger chassis. Mounting hardware and brackets are included for C760, C-700, B600 and Concept Six enlargers. If you are adding a C760 Lamphouse to your present C67, B66 or B22 enlarger, use the appropriate Mounting Kit described on page 5.
3. If any parts are missing, contact your local dealer or: Consumer Service at the address closest to you listed on page 3.



Omega Super Chromega C760 Dichroic and C760 Diffusion Lamphouses

1. Filtration Control Knobs and Magnified Scales for Cyan, Magenta and Yellow Filtration
2. Lamphouse Access Cover with Cover Nut
3. Slot for Light Attenuator
4. Light Attenuator (Three are supplied with the C760 Dichroic Lamphouse Only. Available as optional accessory for diffusion lamphouse. Order Cat. No. 429-330)
5. Interchangeable Mixing Chambers

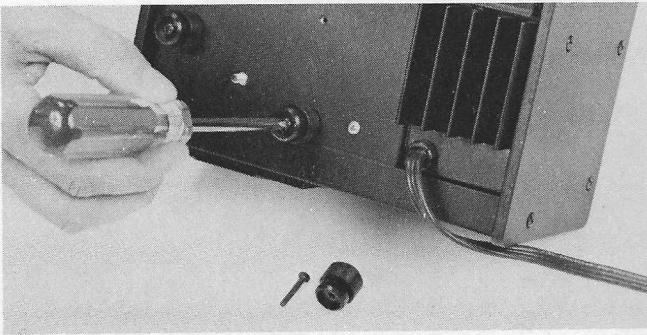
6. Interchangeable Tapered Diffusers
7. Diffuser Holders
8. White Light Lever and Illuminated Jewel Indicator Light
9. Quartz Halogen Lamp
10. Mounting Bracket for C 700, B 600 and Concept Six Enlargers
11. Glides and Mounting Screws for C760 Enlarger
12. Hexagonal Nut
13. Wrench
14. Adapter for C67 Enlarger. Not supplied with Lamphouse. Order Cat. No. 429-368
15. Adapter Kit for B66 and B22 Enlargers. Not supplied with Lamphouse. Order Cat. No. 429-366

Assembly and Installation

USING YOUR C760 LAMPHOUSE ON OMEGA C760 ENLARGERS

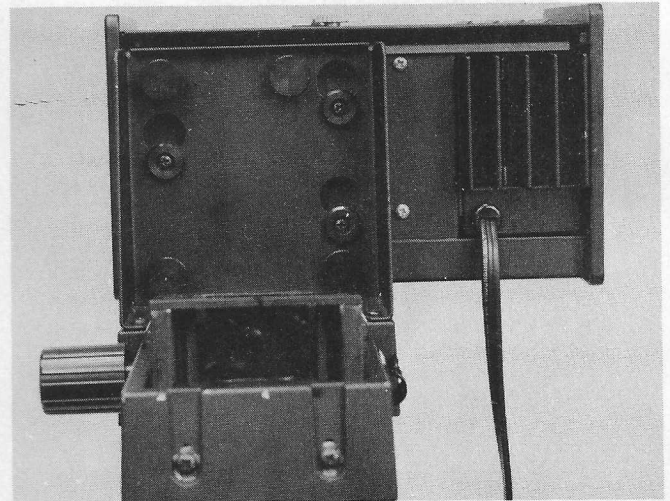
Note: The following operation can be performed most conveniently by lowering the carriage to the bottom of the girder.

At the rear of the lamphouse are three holes, two on one side and one on the other side. These holes are for attaching the black grooved glides. There are three Phillips head screws used to attach the glides to the lamphouse, using a Phillips screwdriver. Place the screws into the glides with the grooved end closest to the head of the screw. Screw each glide into place in the rear of the lamphouse. Tighten the screws to make sure the glides are securely fastened to the lamphouse.



Mount the four locking screws supplied with the C760 Chassis onto the lamphouse mounting plate from the rear, making sure not to extend them beyond the mounting plate.

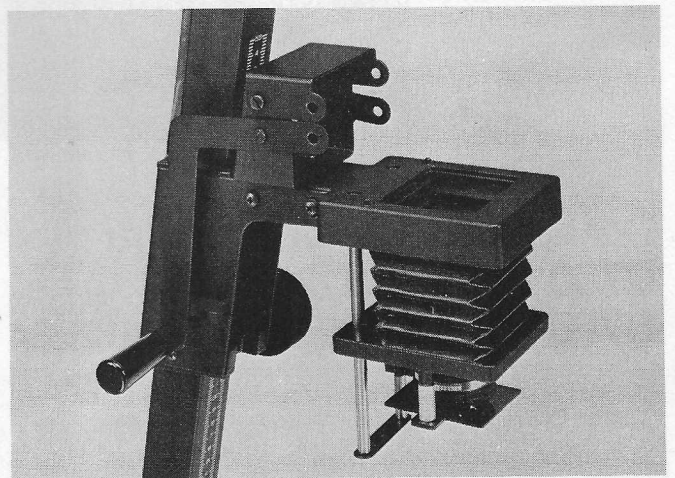
Place the lamphouse on the Film and Lens Stage Module so that the glides fit into the corresponding key-shaped openings on the mounting plate. When the lamphouse is in position, tighten the locking screws until they make contact with the rear of the lamphouse. **Note:** Refer to alignment section of your C760 Enlarger Instruction Manual for use of these locking screws for optical alignment.



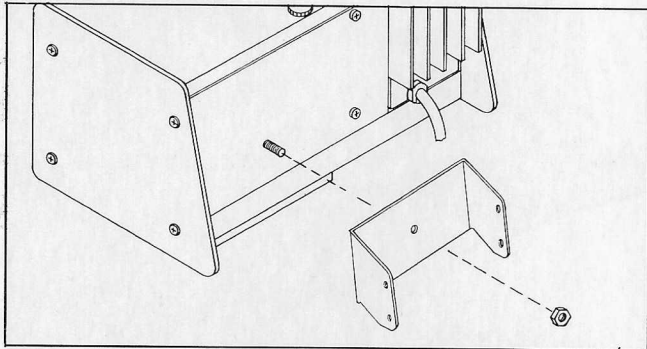
USING YOUR C760 LAMPHOUSE ON OMEGA C-700, B600, and CONCEPT SIX ENLARGERS

Note: The following operations can be performed most conveniently if you set your enlarger on the floor or on a low table so that the top of the girder is just about at chest level. When the enlarger carriage is at a convenient height, tighten the carriage lock knob to lock the carriage in position. (If you purchased your C760 Lamphouse as original equipment with enlarger, start at Step "4" instead of Step "1".)

1. Before starting, make sure that all power cords are unplugged from timers, voltage stabilizers or electric outlets.
2. To replace an existing condenser lamphouse, unscrew the four slotted screws which attach the lamphouse to the carriage and lifting lever. Carefully remove and store the lamphouse and all of its parts for possible future use. **KEEP THE FOUR SLOTTED SCREWS** as they will be needed to attach the C760 Dichroic Lamphouse.
3. To replace an older Dichroic Lamphouse, carefully remove the Phillips head screws and lamphouse retainers as they will be used again. When ready to mount the C760 Dichroic Lamphouse, the chassis should look as illustrated to the right.

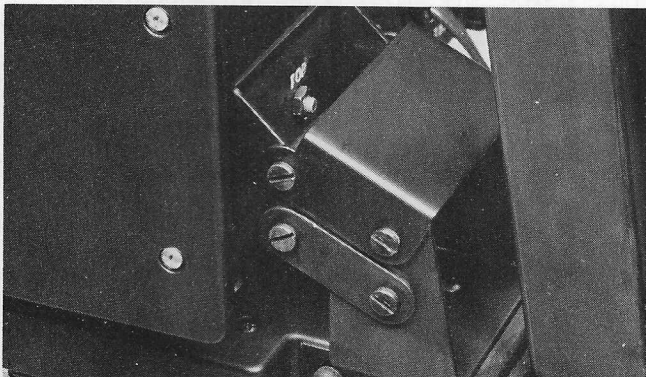


4. Take the C-700 mounting bracket and attach it to the rear of the C760 lamphouse as shown in the illustration below, using the hexagonal nut and wrench. Tighten enough to keep the bracket firm.



5. Position the C760 Dichroic Lamphouse (with the mounting bracket attached) on the film stage of the enlarger. Make sure the mounting bracket fits inside the bracket on the enlarger carriage. Line up the four screw holes and reinsert the slotted mounting screws.

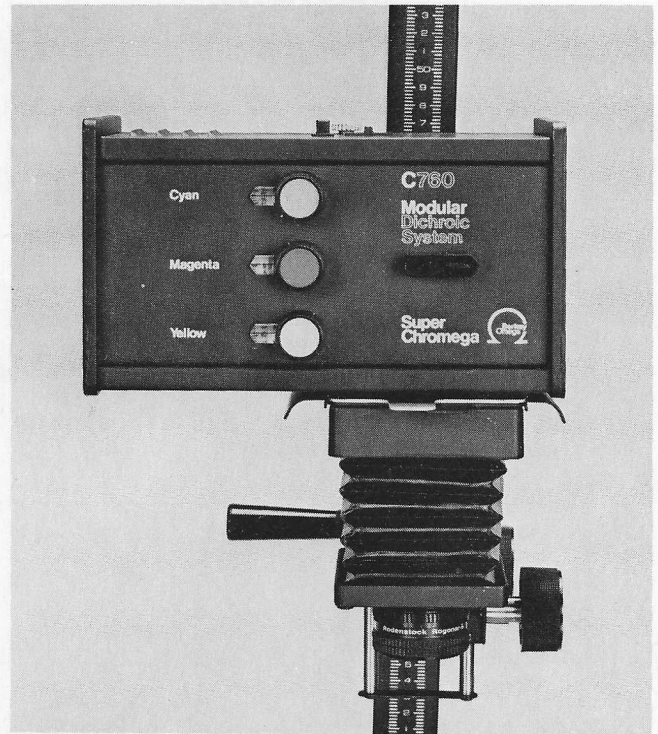
When correctly installed, the enlarger with the C760 Dichroic Lamphouse should look like the illustration below.



6. In order to provide even illumination over the entire negative area, and to minimize light leakage around the negative stage, you must align the lamphouse.

7. To align the lamphouse, attach the lamphouse to a power source — either a timer, a voltage stabilizer or directly into the AC line. Pull the lamphouse lifting lever of the enlarger forward to raise the lamphouse and insert a film carrier of the largest size negative you will be using into the enlarger. Lower the lamphouse lifting lever so that the lamphouse rests on the film stage.

8. Loosen the hexagonal nut on the mounting bracket slightly and adjust the C760 Lamphouse so that the light seals at the bottom make contact with the film carrier. The edges of the film carrier should be square within the light seal as shown in illustration below.

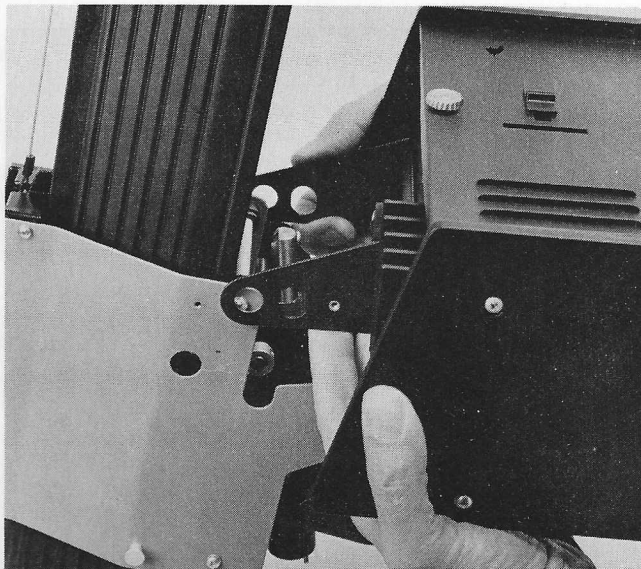
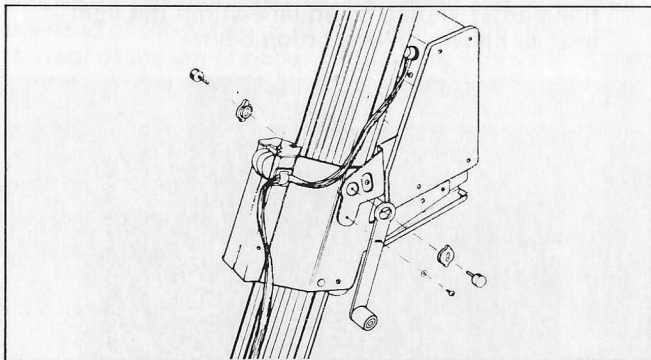


9. When the lamphouse is correctly aligned, you should not be able to see any significant light leakage between the lamphouse and the film carrier. At this point, tighten the hexagonal nut to secure the lamphouse. Switch off the power. Your C760 Lamphouse is ready for use.

USING YOUR C760 LAMPHOUSE WITH OMEGA B66 OR OMEGA B22 ENLARGERS

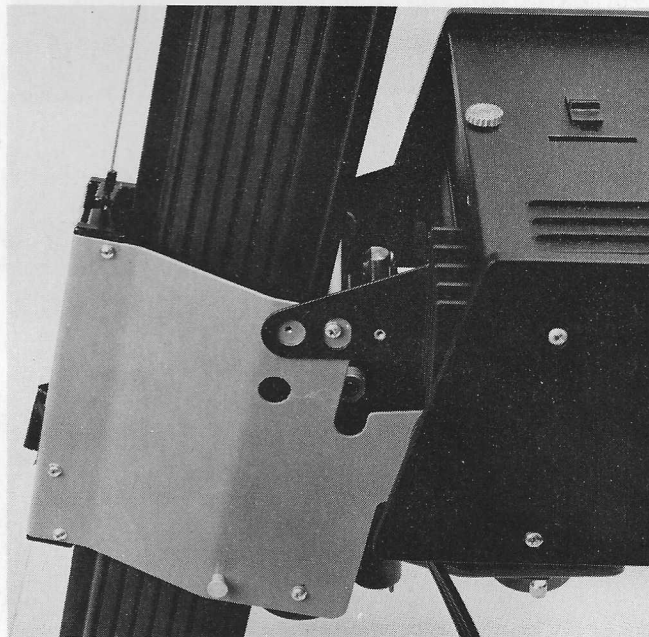
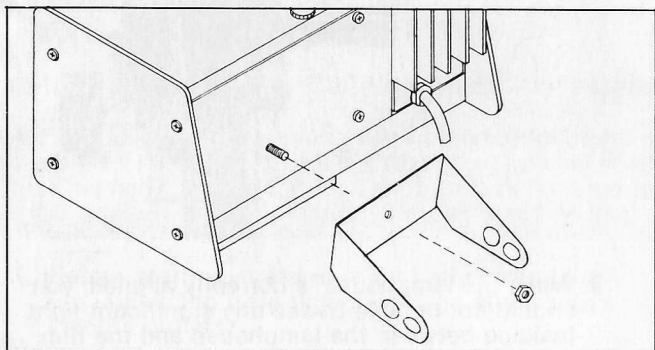
Note: The following operations can be performed most conveniently if you set your enlarger on the floor or on a low table so that the top of the girder is about chest level. When the enlarger carriage is at a convenient height, tighten the carriage locking knob to lock the carriage in position.

1. Disconnect all power cords before starting.
2. Remove the existing condenser lamphouse from your enlarger chassis following the instructions given in the instruction manual for your particular model. Be careful with condenser lenses and enlarging bulbs to avoid damage or breaking. Store all parts carefully for possible future use.



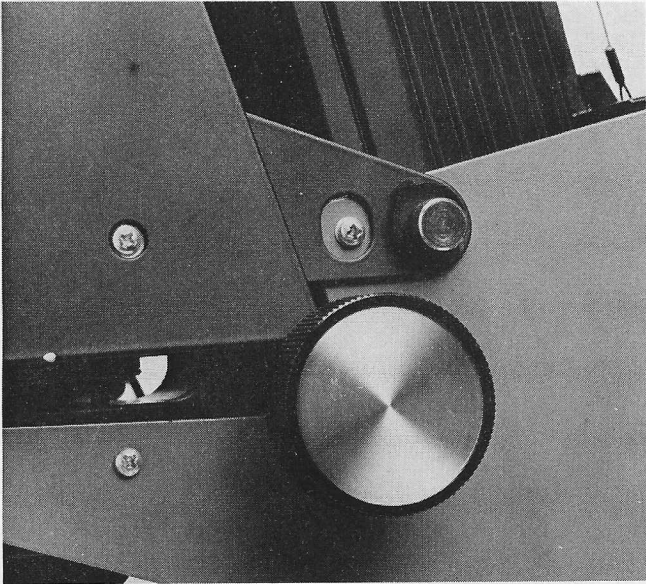
Press the C760 Lamphouse into position so that the mounting arms clear the Phillips head screws. When the lamphouse is correctly positioned, the screws should be within the oval cutouts of the mounting arm, as shown.

3. Attach the B66/B22 mounting bracket to the rear of the C760 Lamphouse as shown, using the hexagonal nut and wrench. Tighten enough to keep the bracket from moving.



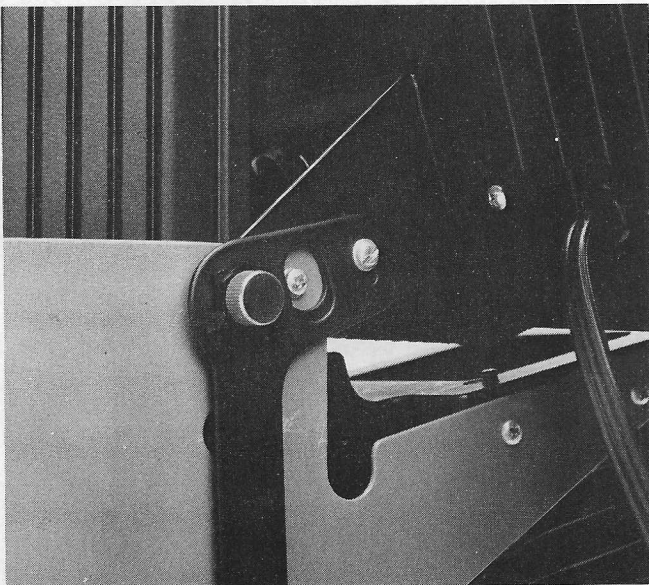
4. Position the C760 Lamphouse with the mounting bracket attached in the approximately correct position on the film stage of the enlarger. Then, spread the mounting arms slightly so that they slide over the Phillips head screws at the top of the carriage side plates. You will have to exert some force to spread the arms sufficiently to clear the heads of the screws.

5. Install the right side mounting hardware (right side when you are facing the enlarger) which consists of a knurled screw and a black plastic tab mounting bushing. Secure the hardware but **DO NOT TIGHTEN**.

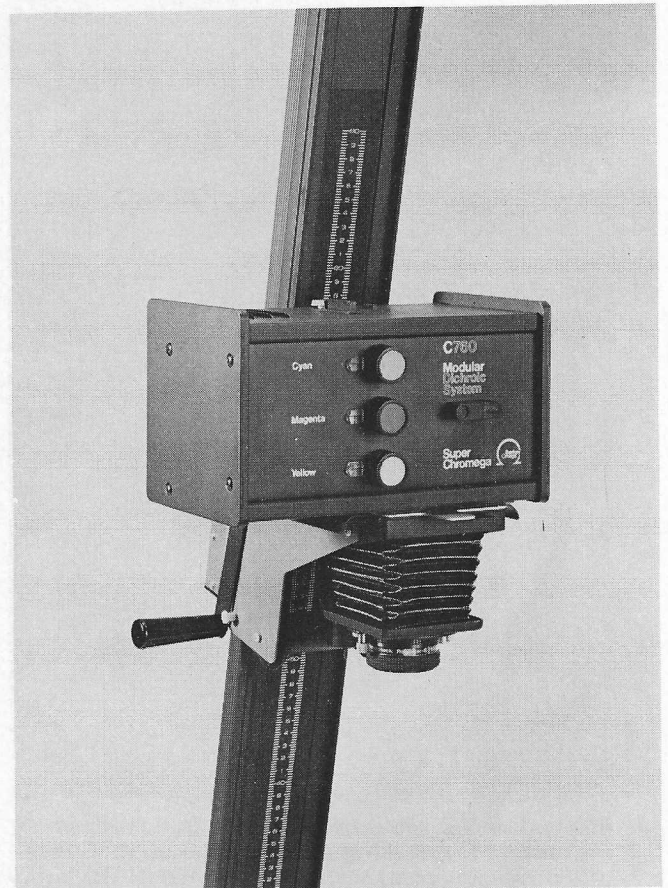


6. Position the enlarger lifting arm lever on the left side and use the slotted screw, star washer, and flat washer in combination to make up the lifting arm adjustment assembly. The star washer should go next to the arm, followed by the flat washer and then by the slotted screw.

Install the screws in the tapped hole at the front end of the lamphouse mounting arm. Secure but **DO NOT TIGHTEN**. Then move the lifting arm so that the lifting lever screw is approximately in the center of the oval cutout on the arm. Now tighten this screw. This adjustment controls the amount of lamphouse lift and can be changed later if desired.



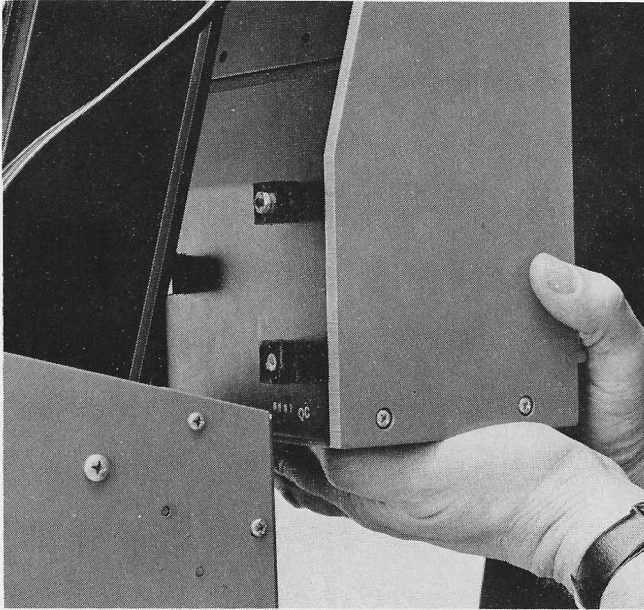
7. Repeat the operation described in Step "5" on the **LEFT** side of the lamphouse.
8. To align the lamphouse, place a film carrier for the largest size negative you will be using on the film stage of the enlarger. Proper alignment ensures even illumination.



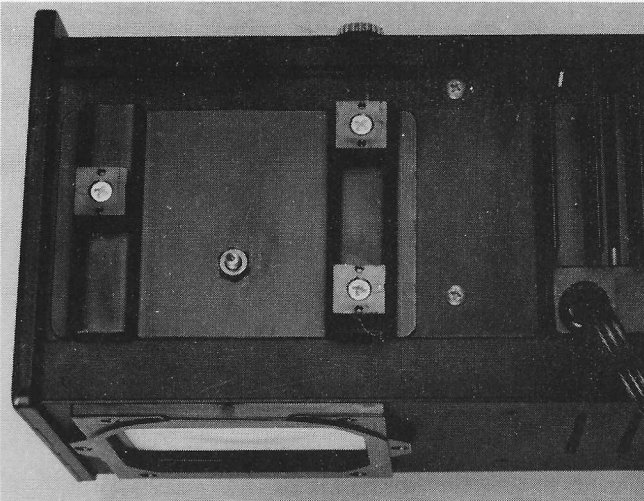
9. Attach the lamphouse power cord to an Omega timer or directly into a standard AC outlet. If the C760 Lamphouse is attached to a timer, turn on the switch. If the lamphouse is connected directly to an AC outlet, it will go on automatically.
10. Position your C760 Lamphouse so that the light seal at the bottom comes in contact with the film carrier squarely. Once the lamphouse is in its correct position, simply tighten the hexagonal nut and all of the positioning screws on the lifting lever arm. Turn off the power.
11. Finally, you might want to check the alignment of your enlarger's film carrier stage, lens stage and baseboard. All of these stages should be completely parallel. For precise determination of alignment, Omega provides a special *Enlarger Alignment Tool* (Cat. No. 479-027) which is both simple to use and precise. For more information, contact your local dealer or Consumer Service, Omega, Woodside, New York 11377.

USING YOUR C760 LAMPHOUSE ON OMEGA C67 ENLARGERS

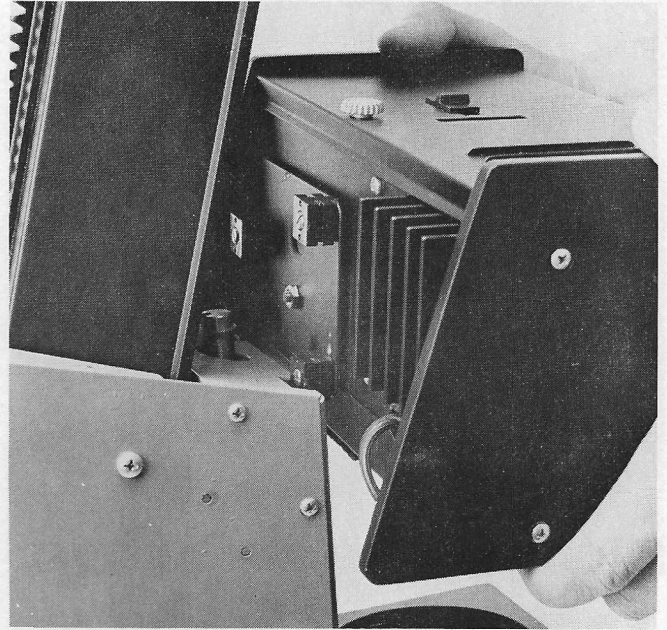
1. Disconnect all power cords.
2. Depress the enlarger lamphouse lifting lever until it locks into place, thus raising the lamphouse.
3. Remove the power cord from the clip at the rear of the enlarger carriage. Slide off the condenser lamphouse by lifting the entire unit until it clears the slots at the front of the enlarger carriage. Store the condenser lamphouse and all parts carefully for possible future use.



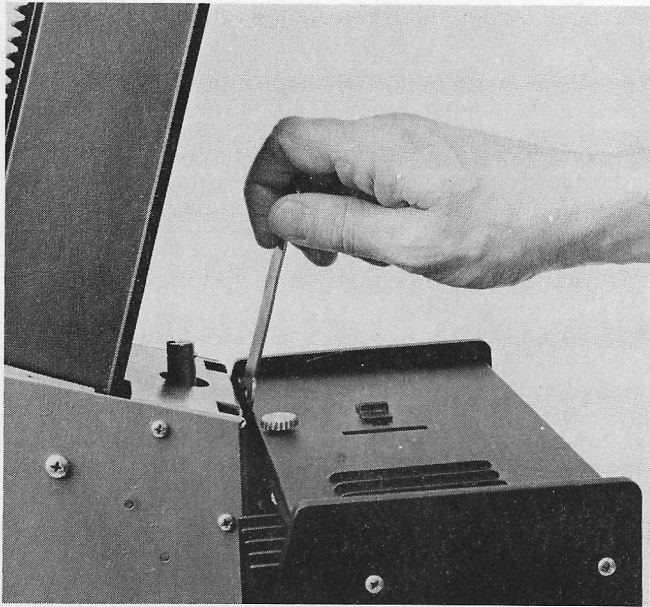
4. Attach the C67 mounting bracket to the rear of the lamphouse making sure that the bottom edge of the bracket contacts the bottom lip of the lamp house. Tighten securely using the hexagonal nut.



5. Holding the C760 Dichroic Lamphouse by the side plates, slide the grooved square guides into the slots at the front of the carriage, gently pushing the lamphouse down until it comes to a complete stop.



6. Raise the lamphouse lifting lever to lower the C760 Lamphouse so that it now rests on the negative stage. Slip the power cord from the lamphouse under the clip at the rear of the enlarger carriage.
7. Your C760 Lamphouse should now be in position for alignment. Take a film carrier of the largest size negative you will be using and slide it into the negative stage.
8. Connect the power cord of the C760 Lamphouse to an Omega Timer or directly into a standard AC outlet. If you are plugged into a timer, turn on the timer switch. If you are plugged into an outlet directly, the lamphouse will automatically go on.
9. In order to ensure even illumination you must align the lamphouse.
Position the lamphouse so that the light seals at the bottom are squarely in contact with the film carrier. When your C760 Lamphouse is correctly positioned, you should not be able to see any significant light leakage between the lamphouse and the film carrier.
Once the lamphouse is properly aligned, tighten the nut holding the mounting bracket (using the open-end wrench supplied for that purpose) to maintain the lamphouse in the correct position.



10. Finally, you might want to check the alignment of your enlarger's film carrier stage, lens stage, and baseboard. All of these stages should be completely parallel. For exact determination of alignment, Omega provides a special *Enlarger Alignment Tool* (Cat. No. 479-027) which is both simple to use and precise. For more information, contact your local dealer or Consumer Service, Omega, Woodside, New York 11377.

Electrical Connections

A. Timers

While your C760 Lamphouse can be plugged directly into a standard AC outlet because of its built-in solid state power supply, the use of an Omega timer is strongly recommended. A precision timer provides accurate exposure control and consistent timing, two essentials for producing high-quality prints in either color or black-and-white.

The enclosed literature will provide details on current Omega timers together with a guide for selecting the timer model which best fits your needs. If your C760 Lamphouse is used with a Concept Six CS-50 Enlarger, the timer and auto exposure controller are incorporated into the baseboard and there is no need for an auxiliary timer.

B. Voltage Stabilization

Shifting demands for energy can cause power line fluctuations. These fluctuations change the voltage delivered to your equipment, and can have serious adverse effects on your exposures and on the color of your prints. Such random variations make the production of good prints all but impossible.

To avoid the effects of fluctuating power, we strongly recommend the use of the Omega C760 Voltage Stabilizer (Cat. No. 403-730) for 110V, 60Hz lamphouses. The stabilizer automatically compensates for fluctuations in line voltage to ensure a constant and correct supply of power to your enlarger.



When using the voltage stabilizer, the power cord of your C760 Lamphouse must be plugged directly into the voltage stabilizer which is, in turn, connected either to a timer or to the AC outlet.

THE OMEGA C760 VOLTAGE STABILIZER IS THE ONLY STABILIZER RECOMMENDED FOR USE WITH THE C760 DICHOIC AND DIFFUSION LAMPHOUSES.

The use of other equipment may result in improper voltage being supplied to the lamphouse.

Interchangeable Mixing Chambers

The function of the mixing chamber of the C760 Dichroic Lamphouse is to combine the light from any combination of the three dichroic filters — Cyan, Magenta, and Yellow — to produce a uniform “mixed” light of the desired filtration. The mixing chambers for the diffusion lamphouse serve the same function when using the optional variable contrast filters designed for use in the attenuator slot. The light is then passed through the film (color negative or transparency or black and white negative) to produce the exposure on the paper.

Two mixing chambers are supplied with your C760 Dichroic and Diffusion Lamphouses. The first is a 35mm chamber used when printing 35mm and smaller negatives. The second is a 6x7cm chamber for printing medium-format negatives: 4.5x6cm (1-5/8"x2-1/4"); 6x6cm (2 1/4" square); 6x7cm (2 1/4"x2 3/4").

C760 Lamphouses use mixing chambers made of a special polystyrene material that has been found to provide optimum reflection and diffusion. In addition, special patented tapered diffusers are used to further increase the efficiency of the mixing chambers. As a result, the C760 Lamphouse provides unsurpassed evenness of illumination and high light output for conveniently short printing times.

The mixing chambers are somewhat delicate and should be handled with care, in particular, avoiding excess pressure on the sides of the chamber. The C760 Lamphouse comes with the 35mm mixing chamber and tapered diffuser pre-assembled and installed in the lamphouse. The 6x7cm chamber is pre-assembled but packed separately.

To change the mixing chamber, simply unscrew the metal knurled knob on the top of the lamphouse and remove the lamphouse cover. Make sure that the white light lever is in the “off” position and there is no attenuator in the attenuator slot. This is done by lifting from the back and tilting the cover plate slightly forward. The mixing chamber can then be lifted out and replaced by the alternative size. For easy insertion, tilt the mixing chamber until it slides easily into place. The chamber will automatically seat itself properly for correct alignment. Make sure, however, that the circular opening of the mixing chamber through which the light must pass is correctly positioned facing the quartz halogen lamp. If the chamber is reversed, the opening will be hidden and very little light will pass through. Be careful not to press on the chamber housing too strongly.



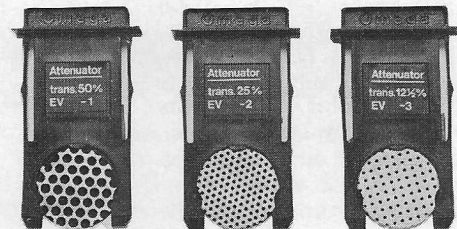
If desired, additional filters can be added to the inside of the mixing chamber for special effects.

To remove the tapered diffuser, simply depress the sides of the mixing chamber just above the diffuser holder and carefully remove the diffuser from the holder. When inserting filters, place the tapered diffuser in the holder upside down so that the filter rests on a flat surface.

Using the Light Attenuators

There are times when it might be necessary to reduce the amount of light being transmitted to the paper without either reducing the lens aperture or shortening exposure times. In such a case, the C760 Lamphouse utilizes light attenuators which physically reduce output.

Three different light attenuators are supplied with the C760 Dichroic Lamphouse. They are available as an optional accessory for the C760 Diffusion Lamphouse. The use of these attenuators does not measurably affect the filtration, only the amount of light.



The reducing power of the light attenuator is indicated by the number on the top edge of the unit. Strengths of the three attenuators are:

EV Indication	Transmitted Light
-1	50% (of normal)
-2	25%
-3	12 1/2%

White Light Control

For ease in focusing and composing your picture on the baseboard, the C760 Dichroic Lamphouse incorporates a *White Light Lever* which removes the filters from the light path so that only white light is transmitted.



When the white light is "on", a jewelled white light indicator will glow at the front of the lamphouse. When the white light is "off", the jewel will be covered by the handle of the white light lever.

The use of the white light control does not disturb any original filter settings in any way: once you have focused and composed your picture with white light, simply return the white light lever to the "off" position; this will automatically restore the original filtration for making the color print exposure.

The white light control can be used for printing black-and-white photographs if desired. Or, you can set all three color filters at "0". A detent ensures that the filters are kept securely out of the light path, with only white light being allowed to reach the black-and-white paper.

Color Printing

Making color prints from either color negatives or transparencies is relatively easy. The goal of color printing is to produce a good "balanced" print — that is, a print without any overall color cast and in which colors approximate those of the original image.

(There are, of course, cases when special effects are desired but even in these cases, the first step is to determine the filtration for a "normal" print, then make controlled changes to achieve the desired results.)

The steps required to make a good "balanced" print can vary greatly, due to such factors as type and processing of color film, brand of film and paper used, type of paper and surface finish, color chemistry, the type of enlarger, temperature, and accuracy of processing times, etc.

However, the basic procedure for making color prints remains the same. The printing light is filtered through subtractive primary colors — Cyan, Magenta and Yellow — using combinations of filters of varying densities.

The C760 Dichroic Lamphouse is designed to give you good prints easily, quickly and consistently by incorporating a high intensity light for short printing times plus the necessary filters, accurately calibrated and precisely controlled.

This section is designed to provide a brief introduction into color printing, not to provide specific instructions or to serve as a working manual. Several of the books listed under "Recommended Reading" will supply detailed information on the entire process of color printing.

SETTING FILTRATION

The C760 Dichroic Lamphouse incorporates three continuously variable dichroic filters — Cyan, Magenta and Yellow — ranging from 0 (no filtration) to 200CC (maximum filtration) in one CC increments. At the "0" setting, the filters are securely held in a retracted position by detents, permitting only white light to pass. (This setting can be used for printing black-and-white although it is recommended that the white light lever be used for this purpose).

To set the desired filtration, merely dial the required strength and color as indicated on the illuminated scales.



By using the proper combination of filters (usually two — magenta and yellow) when printing color negatives, the proper filtration may be secured to produce a "balanced" color print.

Under most conditions, only two color filters are used at one time since using all three colors will produce a neutral density (grey) effect which will cut down on the amount of light, prolonging exposure times unnecessarily. When using two filters for printing, the third filter (which is usually Cyan) should be set at "0".

COLOR CORRECTION CHART

If Your Print Is Too . . .	RECOMMENDED FILTRATION	
	Negatives	Transparencies
Red	Add Magenta & Yellow	Subtract Magenta & Yellow
Green	Subtract Magenta	Add Magenta
Blue	Subtract Yellow	Add Yellow
Cyan	Subtract Magenta & Yellow	Add Magenta & Yellow
Magenta	Add Magenta	Subtract Magenta
Yellow	Add Yellow	Subtract Yellow
Too Dark	Close Lens	Open Lens
Too Light	Open Lens	Close Lens

MAKING YOUR FIRST COLOR PRINT

Since so many different color printing materials are available, refer to specific instructions packed with those products for filter recommendations. However, to assist you in making your first color prints, these filtration settings and f/stops are suggested as approximate starting points in producing an 8x10 color print, using a standard negative — that is, a negative that has been correctly exposed and developed normally.

SUGGESTED SETTINGS FOR FIRST PRINT

Printing Paper	Chemistry	Film	Suggested Initial Filter Settings	Suggested f/Stop
Kodak Ektacolor	Kodak	Vericolor II	90 Y 45 M	f/8
Type 74 RC	EP2	Kodacolor II	75 Y 55 M	f/8
Kodak	Kodak	Kodachrome	20 C 20 M	f/8
Type RC2203	R1000	Ektachrome	32 C 20 M	f/8

USING A COLOR ANALYZER

At the beginning and for modest printing requirements, the "trial and error" method of determining exposure and filtration can be used. However, this method is wasteful of time and materials. The best way of producing consistently good color prints is to use an Omega Color Analyzer, several models of which are described in the enclosed literature.

The analyzer is, in essence, a mini-computer. Information is gathered by a probe placed on the baseboard of your Omega enlarger which "reads" the print as projected. By suitable adjustment, correct exposure times and filtration settings can be determined.

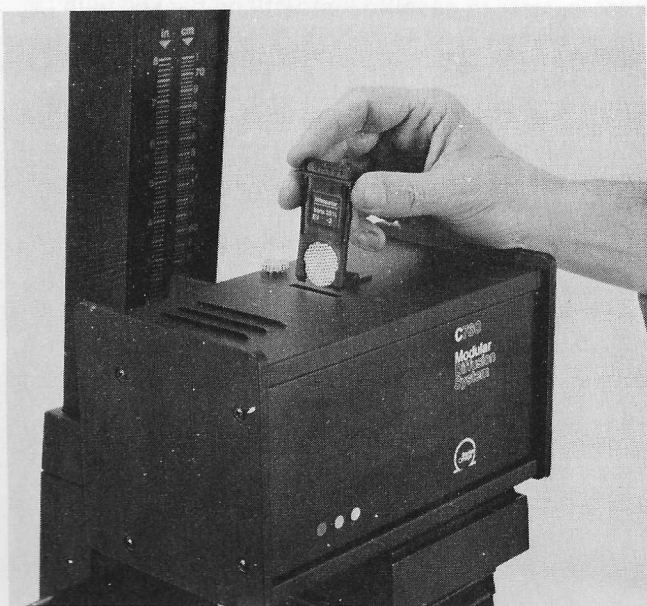
EXPOSURE COMPENSATION

Color papers have three emulsion layers, each sensitive to a different primary color. The red sensitive layer is at the top, the green sensitive layer in the middle, and the blue sensitive layer at the bottom. These emulsions have different sensitivities for long and short exposure times which means that when your exposures are either very long (over 40 seconds) or very short (under 5 seconds) you will get color shifts. This is an effect due to reciprocity failure which means that the colors you get on your print will not be the same colors you would get at a "normal" exposure time.

To avoid color shift, make your changes in exposure by opening or closing the lens aperture (f/stop) rather than by increasing or decreasing your exposure times. Generally speaking, your exposure times should be within the 10 to 30 second range for optimum results.

LIGHT ATTENUATOR

A third method of controlling exposure is to reduce the light reaching your paper through the use of light attenuators. These attenuators are simply slipped in or out of the slot at the top of the C760 Lamphouse. Each attenuator will produce a reduction in light equal to one, two, or three f/stops.



FILTRATION AND EXPOSURE TIME

Because printing filters reduce the amount of light reaching the paper, your exposures when printing with filters will be longer than they would be without filters. The higher the filter value, the longer the exposure required since the higher values represent greater densities.

For example, an increase in the density of the magenta filter by 10 CC, requires an increase in exposure of about 10 percent. However this increase is not constant for all three filters: a 10CC increase of yellow requires an increase of only about two percent.

In actual practice, when you are working with both yellow and magenta filters, a simultaneous increase in filter densities by 10 points (i.e., 20Y to 30Y and from 40 M to 50 M) requires a total increase in exposure time of about ten percent. This is because the effect of changes in yellow filtration alone are usually negligible.

In making exposure adjustments, it is usually preferable to adjust the lens aperture rather than exposure time. A useful approximation is to increase your lens aperture by about half a stop when the magenta filtration is increased by 45 points (for example, from 30 M to 75 M) and when there is a 35 point increase in both magenta and yellow filtration (for example, from 10 Y to 45 Y and from 50 M to 85 M). If you reduce your filtration, then make similar adjustments but in the opposite direction, decreasing your lens aperture or shortening your exposure times, thereby compensating for the increased light reaching your paper.

EXPOSURE TIME WITH THE CS-50 AUTO EXPOSURE CONTROLLER

The adjustments outlined above can be handled accurately and consistently by using the Omega CS-50 Timer with Automatic Exposure Control (Cat. No. 480-701). With the CS-50 unit, there is no need to calculate exposure adjustments when changing filtration, magnification, or lens aperture. The information on changes is collected using the spot reading probe and transmitted to the exposure control unit. The CS-50 unit, in turn, will automatically provide the correct exposure. It can also be used to determine proper grade of poly contrast paper. The unit can be programmed for repeat exposures for multiple prints and can be used for both color and black-and-white printing.

Black and White Printing

The C760 Dichroic and Diffusion Lamphouses supply diffused light for using either graded or variable contrast papers.

PRINTING BY DIFFUSED LIGHT

Because a black-and-white negative consists of minute silver particles embedded in a gelatin base, light passing through this material is not only absorbed in varying degrees, depending upon the densities of the negative, but "scattered" very much like light shining through a dense fog. Because of this "scatter" the contrast of a projected image will depend greatly upon the degree of diffusion of the light passing through the negative.

With condenser enlargers, where the light is largely uni-directional, there is relatively less "scatter" and, therefore, a projected image from a condenser illumination system will have a somewhat higher contrast. With diffusion enlargers, where the light tends to be "scattered" before it reaches the black-and-white negative, contrast of a projected image will be somewhat lower.

As a general rule, the difference in contrast between condenser and diffusion illumination, given the same negative, is equal to about one grade of paper. That is, the negative will enlarge satisfactorily on a grade 2 paper using a condenser enlarger, and a grade 3 paper when using a diffusion enlarger. This difference in contrast can be corrected for in the initial processing of the film.

The mixing chambers for the diffusion lamphouse serve the same function when using the optional variable contrast filters designed for use in the attenuator slot. The light is then passed through the film (color negative or transparency or black and white negative) to produce the exposure on paper.

There is NO difference in sharpness between the two forms of illumination because sharpness is a function of the enlarging lens used. The only difference is in contrast.

For the working photographer, the differences are somewhat greater in terms of the pictures produced. First, diffusion enlargers tend to suppress grain, scratches and dust in the negative, thus reducing the need for retouching. On the other hand, condenser systems emphasize any minor defect. Second, the print produced with a diffusion enlarger will show a softer, more subtle, long scale of tones. There may be a better balance of highlights and shadows, particularly with contrasty subjects. In most cases, pictorial and portrait photographers prefer the softer, more pleasing gradation which results from printing with diffusion enlargers.

(This difference in contrast does not apply to color negatives since in color negatives, the silver is replaced by dyes which absorb light instead of scattering light. Since it is this scattering which affects contrast, there is no difference in color between diffusion and condenser enlargers.)

USING VARIABLE CONTRAST PAPERS

Variable contrast papers such as Kodak Polycontrast® and Ilford Ilfospeed® Multigrade® can be printed using the C760 Dichroic Lamphouse using either the variable contrast filters recommended by the manufacturer of the paper, or by adjusting the dichroic filters built into the lamphouse. This latter procedure should be tested first to determine correct settings with various grades of paper. The following table can serve as a point of departure, providing preliminary settings subject to minor adjustments.

Kodak		Ilford	
Polycontrast® Filters	Equivalent Dichroic Filter Settings	Ilfospeed® Multigrade® Filters	Equivalent Dichroic Filter Settings
No. 1	0C/0M/24Y	No. 1	0C/0M/54Y
No. 1½	0C/9M/10Y	No. 2	0C/0M/29Y
No. 2	0C/25M/4Y	No. 3	0C/11M/10Y
No. 2½	0C/36M/8Y	No. 4	0C/35M/5Y
No. 3	0C/64M/12Y	No. 5	0C/74M/10Y
No. 3½	0C/138M/22Y	No. 6	0C/127M/14Y
No. 4	0C/199M/45Y	No. 7	0C/200M/10Y

Polycontrast® is a registered trademark of Eastman Kodak Company. Ilfospeed® and Multigrade® are registered trademarks of Ilford, Inc.

For printing with variable contrast papers with the C760 diffusion lamphouse you can use the optional accessory Variable Contrast Filter Kit (Catalog No. 429-376.)

YOUR FIRST BLACK AND WHITE PRINT

The basic variables of black and white printing are exposure and contrast. Exposure of your print must be correct, otherwise your picture will be too light or too dark. The contrast of your paper must match the contrast range of your negative. Too much contrast will result in a harsh, excessively contrasty print with a "soot-and-whitewash" appearance. Too little contrast will produce a print lacking "snap." Contrast is indicated by numbered designations, with 1 being least contrasty, 2 or 3 being considered "normal" and 5 being the most contrasty grade. When using variable contrast papers, such as Polycontrast, the printing filters used to provide the various contrasts have similar grade designations. And, with proper adjustment of the C760 Dichroic Lamphouse, you can produce variable contrast by varying the filtration, as shown in the chart on this page.

The best way to determine correct exposure and contrast, at least at the beginning, is to make a test strip.

1. Select your negative and dust carefully with a soft, camel hair brush to remove any dust or dirt. Place the negative into the film carrier of your Omega enlarger.
2. On the Dichroic Lamphouse engage the white light lever or place all the filter controls at "0" to remove any possibility of accidental filtration. Turn on the light in your C760 Lamphouse and raise the enlarger carriage so that you have an image of about 8"x10" on your easel. Now focus and compose your picture.
3. Set the aperture of your enlarging lens to f/8.
4. Take an 8"x10" piece of cardboard to use as a mask. Now turn off all light including your enlarger. The only light should come from your safelight. Place a sheet of 8"x10" enlarging paper (you should get No. 2 or 3 contrast) in your easel on the baseboard of your enlarger.
5. Place the cardboard mask over the enlarging paper in the easel and cover the entire sheet except for a strip about 1½" wide.
6. Turn on your enlarger. Set your timer or use a clock to time an 18-second exposure, moving the cardboard mask every three seconds to uncover an additional 1½-inch strip of paper.
7. At the end of your 18-second exposure, turn off your enlarger. Place the print in your developer and develop *fully*, following the recommendations for your particular developer. (With Kodak Dektol, for example, develop for two minutes at 70°F)

Important: If your print looks too dark, resist the temptation to remove it from the developer before the proper time is up. If your print is too light, remove it at the proper time.

Wash and fix your test print normally.

8. The test print will show a series of strips of varying density, from very light (3 second exposure) to very dark (18 second exposure). Somewhere between — i.e., at about 12 seconds — you will find a strip that has the desired density. This is your correct exposure.
9. You are now ready to make a picture. Use the correct exposure time as shown by your test print. Develop, wash and fix, then examine your print carefully.

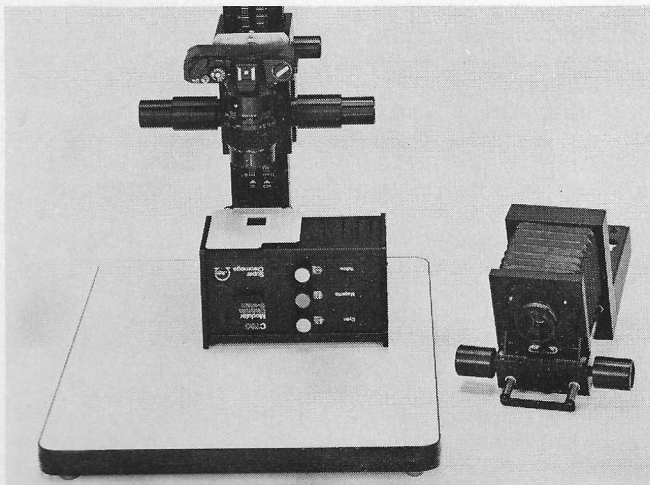
If there isn't enough contrast, if it seems too "flat", make another print but this time use the next higher contrast paper. If your original print was on No. 2 paper, go to a No. 3 paper. If you used variable contrast paper with a No. 2 filter, try your next exposure through a No. 3 filter.

Conversely, if your print seems too "harsh" with an absence of intermediate tones, lower your contrast, using a No. 2 paper if your original print was on No. 3, or No. 2 filter if your original print was made through a No. 3 filter.

10. Once you get the "feel" of your negatives and paper, you will be able to determine proper contrast and exposure without having to make test strips for each print. The best way to learn to print well is to print often. Don't try to "mass produce" prints: it is better to make ten good prints per session than thirty or forty mediocre ones.
11. A valuable aid in producing better prints more consistently and in less time is an Omega CS-50 Timer with Auto Exposure control. This instrument will determine proper paper contrast and correct exposure time, automatically compensating for changes in magnification, lens openings, and film density.

Copy Camera Attachment and Slide Copying

The C760 Dichroic Lamphouse with its built-in, continuously variable color filtration and its even "diffused" lighting is the ideal light box for copying slides. To use the C760 Dichroic Lamphouse for copying, remove it from the enlarger chassis and place it on the baseboard upside down. The top of the lamphouse has been carefully designed to lie absolutely flat.



Place the slide carrier for your enlarger with the slide you are copying directly over the diffuser of the lamphouse. (The power cord should be disconnected during this operation and reconnected when you are ready to begin copying your slide. If the enlarger is plugged into an Omega timer, simply flip the switch for power, otherwise plug the cord into any standard outlet.)

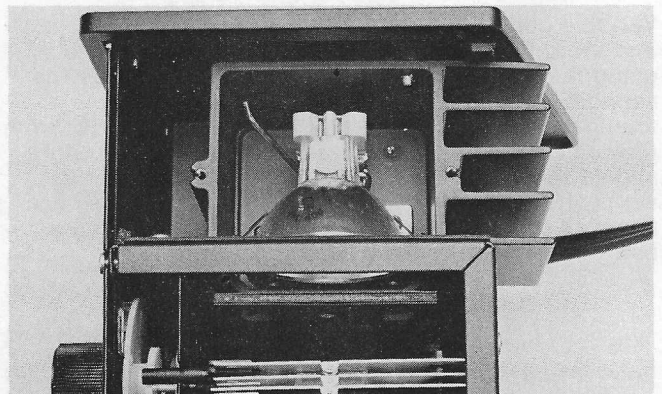
The Omega Copy Camera Attachment should be used to mount your camera directly to the enlarger chassis. Use Cat. No. 429-065 for C760 and Cat. No. 429-062 for C-700, B-600, B-66, B-22 and Concept Six models. Instructions for using the Copy Camera Attachment are provided with the unit.

In most cases, Kodak Ektachrome 35mm film Type 5071 will offer the best results since it is specifically designed for slide duplication and balanced for light with a color temperature of 3400° Kelvin, the rated temperature of the C760 Dichroic Lamphouse at the "0" filtration setting. Other slide films may be used for special effects: however, these films tend to produce a duplicate slide with higher contrast than the original slide.

Adjusting the filtration of the lamphouse can correct colors or produce dramatic changes in mood or emphasis. Sometimes this treatment can make an exciting picture from an otherwise unexciting slide. In addition to changes in color, you can enlarge and compose from sections of the original slide by raising or lowering the carriage of the enlarger or by varying the focal length of your lens. The possibilities for creative controls and special effects with the Copy Camera Attachment and the C760 Dichroic Lamphouse are almost limitless.

Lamp Replacement

Super Chromega C760 Dichroic and C760 Diffusion Lamphouses (both 120/60Hz and 240/50Hz units) use an 85-watt quartz halogen lamp, (Cat. No. 471-400). To replace this lamp, unplug the line cord and allow the lamphouse to cool. Remove the top cover by lifting up from the rear. Then remove the two knurled thumb screws which hold the top cover of the lamp housing and remove this cover. Push forward gently on the lamp release with your finger. The lamp should lift free of the socket.



Important: Handle the new lamp by the edge of the reflector ONLY, preferably with a tissue or soft handkerchief. This will avoid damage to the inside of the reflector as well as preventing your fingers from touching the glass lamp envelope. Moisture and oil from your fingers can etch the glass and lead to blackening and premature failure of the lamp.

Glossary of Printing Terms

Burning In

A method of allowing a portion of the image to receive more light than would be required for overall exposure of the whole image. This technique is usually used when printing from negatives to get detail in extremely overexposed highlights which are represented by very dense portions of the negative, passing very little light. When printing from slides the reverse holds true.

Condenser Enlarger

An enlarger that uses one to three condensing lenses to collect the light from a light source and direct the light rays through the negative. Light from a condenser system is uni-directional, going in one direction, rather than diffused. The result is that the image formed by a condensing system is more contrasty and more revealing of slight imperfections, dust and grain on a negative.

Contrast

The degree of difference between light and dark tones in a photograph. If there is considerable difference either because of lighting, subject matter, or the way the photograph was printed, the picture is said to be "contrasty." If the differences are relatively slight, the picture is said to be "soft."

Contrast Grade

An indication of printing paper's ability to record contrast. The greater the contrast between tones, the higher the contrast grade; the less the contrast, the lower the grade. In graded papers, contrast grades may range from "0" (softest and least contrasty) to "5" (hardest or most contrasty). The "2" grade is considered "normal". With variable contrast papers, filters having similar contrast designations are used to produce the different contrasts, with PC 1 producing "low" contrast and PC 3 and PC 4 being relatively "hard".

Dense

A negative which transmits very little light and which has an overall dark appearance. Density is a result of heavy silver deposits from either overexposure, overdevelopment or both. Density is not the same as contrast: a dense negative may not have very much contrast.

Dichroic Filter

A printing filter produced by placing a thin film coating on a transparent material. Dichroic filters have the ability to transmit certain colors while reflecting the other colors in the spectrum. The name "dichroic" (literally "two color") results because the filter appears to have one color when viewed by reflected light and another color when viewed by transmitted light. Highly resistant to heat and fading, with very closely controlled transmission characteristics, dichroic filters are used for color printing since they permit extremely precise and consistent color correction.

Diffusion

The random scattering of light rays, producing a soft, multi-directional illumination.

Diffusion Enlarger

An enlarger which uses a diffused light source to illuminate the negative, either from a special cold light head, a diffuser, or a dichroic filter lamphouse with its mixing chamber. The diffusion enlarger has the advantage of reducing contrast, producing more subtle gradations in the print and minimizing the effect of dust, scratches, and grain on the negative. Prints made with a diffusion enlarger have a softer, smoother appearance than prints made with a condenser enlarger. It is important to note that sharpness is not affected by this type of illumination, only contrast. Thus, prints made with a diffusion enlarger will be equally sharp but will exhibit a somewhat softer overall appearance.

Dodging

Shading a small area of a print to prevent it from receiving as much light as the overall image requires. The effect is the opposite of the effect produced by burning-in.

Flat

In printing, a photograph which does not have enough contrast and, in consequence, seems dull and lifeless . . . is called: "flat."

Gradation

Variation in tone from light to dark. Provides the viewer with an indication of the depth and form of the subject. Contrasty prints have less gradation and more separation between light and dark. Normal prints should have a complete range of greys including rich blacks and brilliant whites. A "soft" print has subtle tonal range and usually has an overall greyish appearance.

Grain

The so-called "pepper-and-salt" effect of silver halide crystals in a photographic emulsion that is visible when the negative is enlarged. Correct exposure and development can help to reduce this effect resulting in a "fine grain" negative. Grain becomes more noticeable as the enlarged image is magnified — yet the appearance of this grain can be reduced when using a diffusion -type enlarger as compared to a condenser-type.

Primary Color

In the additive color process, the three colors, red, green, and blue are mixed together to produce other colors. All three primaries together will result in black. In the subtractive system, which is used for most color printing, the three primary colors are cyan, magenta, and yellow. All three subtractive primaries together will produce white light. In practice, White light passes through selected subtractive primary colors to produce the colors seen in the resulting print.

Variable Contrast (VC) Paper

Printing papers coated with a mixture of two emulsions so that the contrast of the final print can be controlled by varying the color of the light reaching the paper. Usually one emulsion is sensitized to yellow light providing relatively low contrast and the other emulsion is sensitized to purple light to produce relatively high contrast. By varying the color of the light either with PC (Polycontrast, a Kodak trademark for its brand of variable contrast papers) filters or with a dichroic filter head such as the C760 Lamphouse, prints can be made which vary from soft (low contrast) to hard (high contrast) from a single negative on one single grade of paper.

Recommended Reading

Probably the best general introduction to good darkroom practice is the **Basic Darkroom Book, Special Edition, for Omega Owners by Tom Grimm**, a concise manual covering film developing, black and white and color printing and color film processing.

There are many other books that cover the art and technique of printing available. The following titles are suggested for more complete information. Books particularly designed for beginners are marked "B".

What is B/W Quality (G-4), Eastman Kodak Co.
Basic Developing, Printing, Enlarging in Color (AE-13) "B", Eastman Kodak Co.
Basic Developing, Printing, Enlarging in Black and White (AJ-2), Eastman Kodak Co.

Bigger and Better Enlarging (AG-19) "B", Eastman Kodak Co.
Printing Color Slides and Larger Transparencies (E-96), Eastman Kodak Co.
Kodak Darkroom Dataguide (R-20), Eastman Kodak Co.
The Print: Life Library of Photography "B", Time-Life Books
The Print (Ansel Adams), Morgan & Morgan
The Craft of Photography (David Vestal), Harper & Row
Color Printing (Engdahl), Amphoto
Basic Darkroom, Petersen Publishing
Guide to Creative Darkroom Techniques, Petersen Publishing

Omega C760 Lamphouse Accessories

Solid State Voltage Stabilizer

(Cat. No. 403-730)

For Super Chromega C760 and C-700 Dichroic and C760 Diffusion Lamphouses. Compact, solid state design plugs directly into timer and does not require counter space. Assures constant color temperature for consistent color print results at all times.

Technical Specifications

Input Voltage 120VAC, 60 Hz.
Output Voltage 84VDC, 1 Amp

C760 Attenuator Kit

(Cat. No. 429-330)

For C760 Diffusion Lamphouse. Set of three interchangeable light attenuators for controlling light output up to -1, -2, -3 EV for optimum f/stop and exposure time.

C760 Variable Contrast Filter Module

(Cat. No. 429-376)

For Super Chromega C760 and C-700 Dichroic and C760 Diffusion Lamphouses. Precalibrated filter system designed for use with Ilford Ilfospeed® Multigrade® and Kodak Polycontrast® Variable Contrast printing papers. Inserted between the light source and the mixing chamber to deliver better results.

Ilfospeed® and Multigrade® are registered trademarks of Ilford Limited.
Polycontrast® is registered trademark of Eastman Kodak Company.



C760 Modular Dichroic and Diffusion Lamphouse Systems

Instruction
Manual
Addendum

Please refer to the following pages:

Page 5 — Item 14

Page 7 — Paragraph 4

Page 8 — Paragraph 3

Page 10 — Paragraph 4

For your convenience, the gasket shown on the above pages is no longer supplied separately, but is **factory-installed** on the lamphouse.

Therefore, please disregard any instructions pertaining to the installation of the gasket.

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Specifications subject to change without notice.