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Omega[®] Concept Six

Print Machines

Instruction Manual



General Information

Thank you for selecting an Omega Concept Six enlarger. We are confident that it will serve you well. This enlarger, like all our products, has been carefully designed and manufactured with only the finest materials.

Please read this instruction manual before attempting to assemble and operate your enlarger. This will help avoid errors and possible damage.

Also, please keep in mind that as an Omega owner you are invited to call or write for darkroom service or assistance. Please direct such inquiries to the attention of our Customer Service Department. Thank you!

Introduction

The Omega Concept Six Print Machine launches a new era of darkroom products, designed to make it easier, faster and more convenient than ever to make prints.

The traditional Omega commitment to high quality products and innovative design led to another breakthrough in darkroom engineering. At the heart of the Omega Concept Six program is a totally new baseboard material, moulded of high strength structural foam. This material is so strong and lightweight, it has created a new generation of industrial and consumer products. New business machines, electronic consoles, copy machines, minicomputer terminals, are all employing foam moulding for the housings to protect sensitive circuits.

The manhole cover in your street may be made of foam moulded material, which can be 5 times *stronger* than an equal weight of steel. What makes foam moulding so strong? During fabrication, the moulder injects inert gases into the mould, forming a microscopic network of honey-comb bubbles inside the material. In addition, Omega engineers have designed a strengthening network of structural crossbraces and I-beam like segments. In the Concept Six baseboard, the result is a totally rigid product, many times stronger than conventional baseboards.

Because of the design freedom foam moulding techniques allow, Omega is now able to offer greater rigidity, as well as unique built-in features conventional baseboard enlargers cannot offer.

The Concept Six *Paperhandler* Print Machine offers multi-size paper storage capacity for 5''x7'', 8''x10'', 11''x14'' paper.

The Concept Six CS-25 Automatic Print Machine monitors the light reflected from the paper surface during the actual exposure, by means of an average reading probe, and automatically switches the lamp off when just the proper amount of light has reached the paper.

The Concept Six CS-50 Automatic Print Machine offers the convenience and accuracy of automatic print exposures, and in addition includes contrast measurement capability with its spot reading probe, for professional quality black and white printing.

Both Automatic Print Machines are ideal for use with all black and white and color printing materials.

All Omega Concept Six Print Machines incorporate a paper positioning system which allows convenient borderless printing on the base, with materials up to 11''x14'' in size. Twin positioners hold the paper flat along two sides. Two sliding stops control lateral paper positioning. The rails are fully adjustable to satisfy most creative printmaking requirements.

Omega Concept Six — the integrated "dry-side" darkroom system.

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Section 1: Unpacking and Assembly

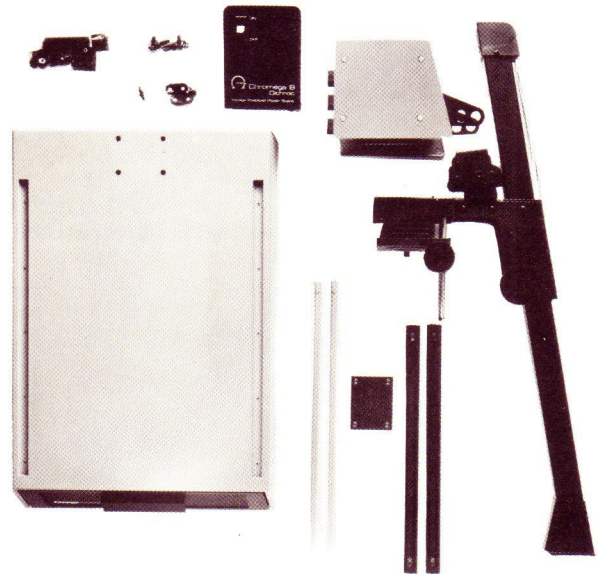
Before You Start: Please review this booklet first. You will need a small Phillips head screwdriver and a slotted screwdriver to complete the assembly and adjustment required before printing.

1. Carefully remove chassis, foam sections and base from carton and lay out all components on a clean, flat surface.



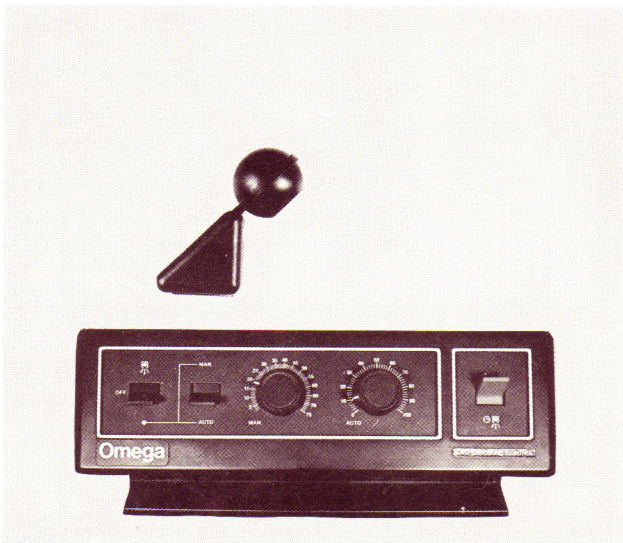
Condenser Print Machine

Lamphouse Assembly, Chassis Assembly, Baseboard Assembly, Condenser Assembly, Paper Rails.
 [Shown with Paperhandler Base]



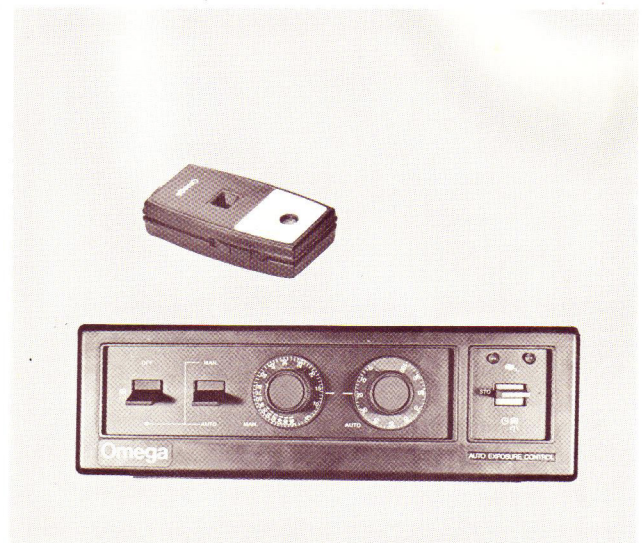
Dichroic Print Machine

Lamphouse Assembly, Power Supply, Chassis Assembly, Baseboard Assembly, Paper Rails.
 [Shown with Paperhandler Base]



Probe Assembly, Base Panel

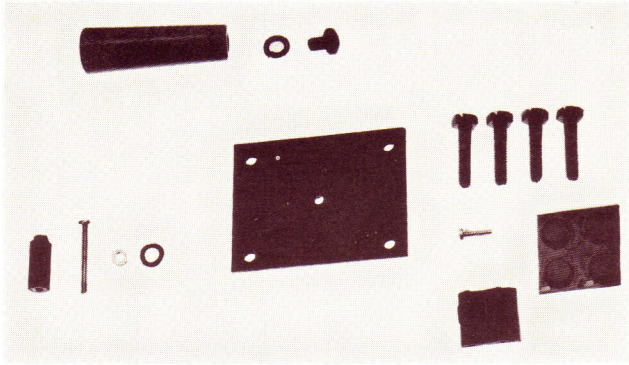
Applies only to CS-25 Automatic Print Machines.



Probe Assembly, Base Panel

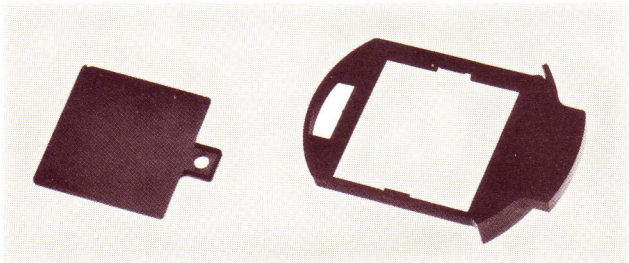
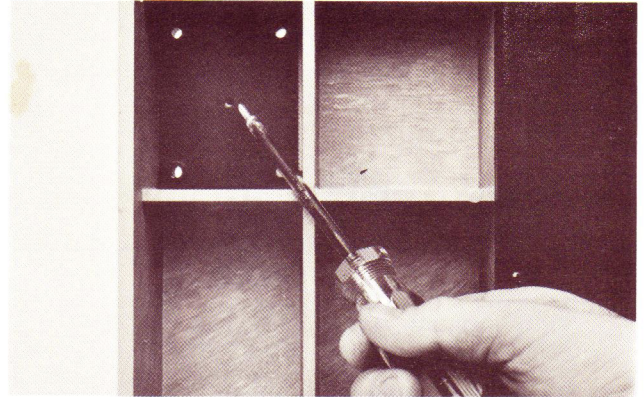
Applies only to CS-50 Automatic Print Machines.

2. Open the hardware bags and lay the contents out.



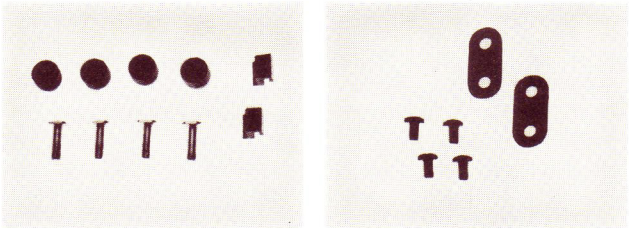
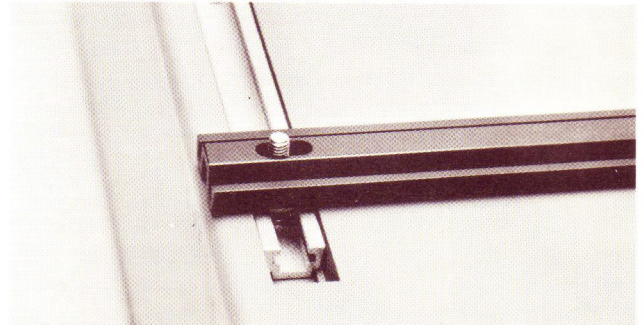
Plastic Bag with (4) Rubber Feet, (1) Clamp for Cable, (1) Spacer, (1) Screw 6-32x1/4, (1) Screw #6x1/2, (4) Hex bolts (1) Wash Flt #6, (1) Wash spr. 1/4, (1) Mtg. Plate Column, (1) Handle, (1) Screw 1/4-20x3/8 & Lock Wash # 1/4. **Supplied with all Concept Six Print Machines.**

5. Place the chassis base plate with the smooth side down into the middle chamber in the back of the base (this chamber has five holes). Then screw the #6x1/2" self-tapping screw into the center hole with your Phillips head screwdriver.



Plastic Bag with Red Filter and Filter Drawer Assembly. **Supplied with condenser print machines only.**

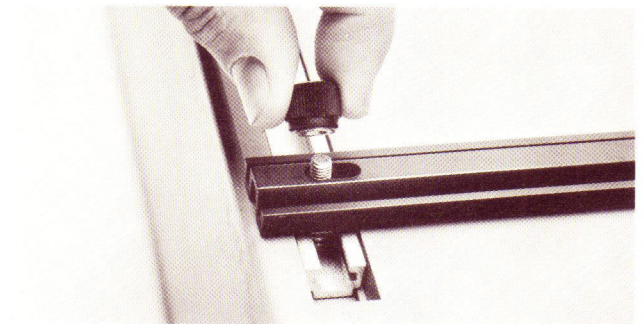
7. Place the paper positioner rails on the baseboard so the holes on each end fit over the T Studs installed in the tracks.



(A) Plastic Bag with (4) Lock Knobs, (4) T Studs, and (2) Stops, for use with Paper Rails on all Concept Six Print Machines.

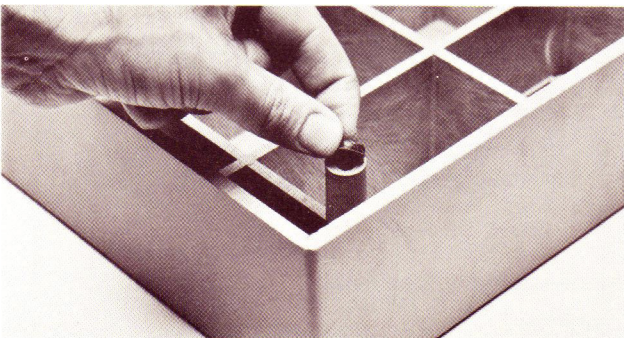
(B) Plastic Bag containing (2) Oval Plates, (4) Screws 10-32x5/16. **Supplied only with Dichroic Machines.**

8. Thread the knurled paper positioner lock knobs onto the T Studs.



3. Remove the plastic wrapper from the base and turn it upside down.

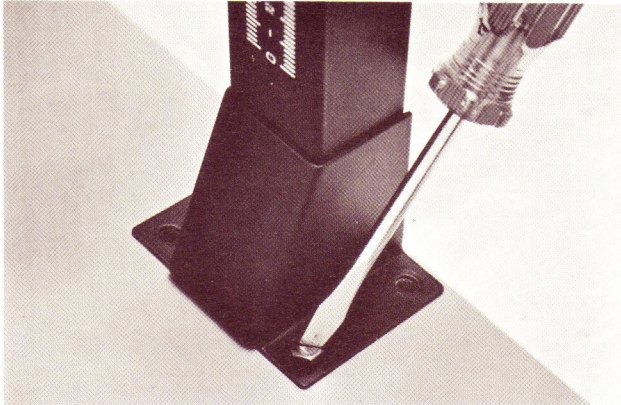
4. Remove the rubber leg tips (one at a time) from their backings and place on the four leg posts on the baseboard. Press firmly. They will remain fixed in position.



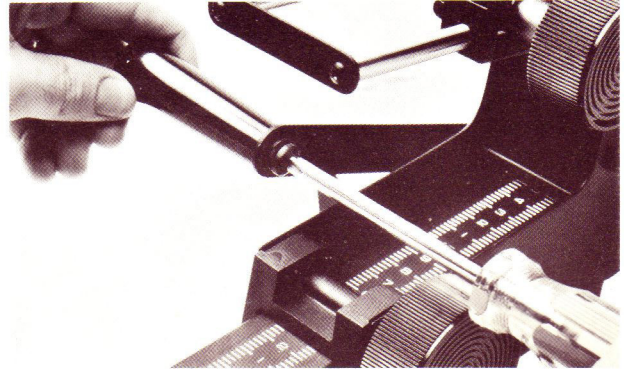
9. Slide a paper positioner stop onto each rail toward the center. Be sure that they face each other.



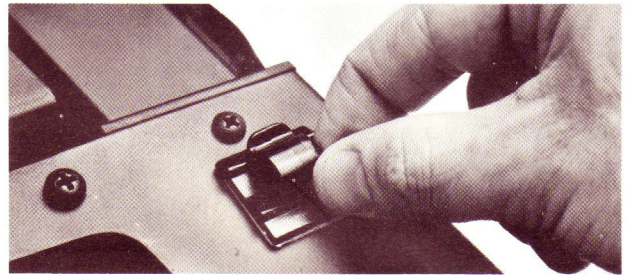
- Position the chassis on the baseboard. Be sure the four holes in the chassis baseplate align with those of the baseboard.
- Tighten with your slotted screwdriver or suitable wrench.



- Place the 1/4" washer on the 1/4-20x3/8" Phillips screw and insert the screw through the hole on the lamphouse elevation lever. Screw the handle on and tighten with Phillips head screwdriver.



- Remove the adhesive backing from the line cord retainer and attach to the right side of the carriage assembly.

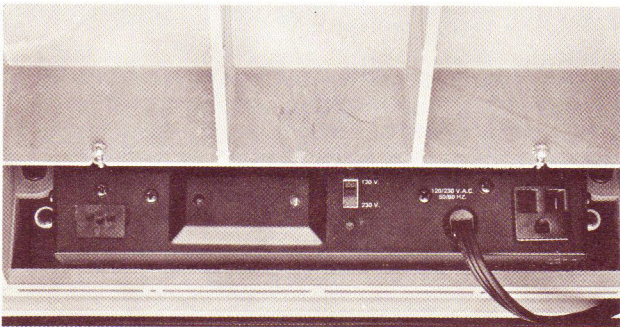


Electrical Connections: CS-25 and CS-50 Only

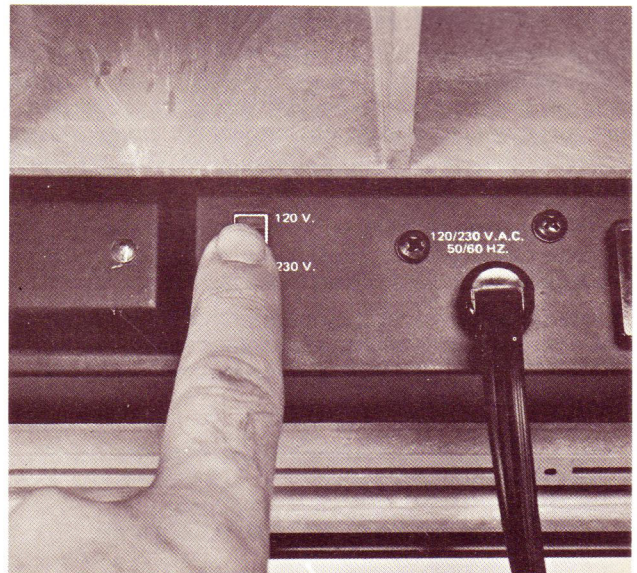
NOTE: If you have purchased your Concept Six Print Machine with a "Paperhandler" Baseboard, it is unnecessary to read this section. Turn to the instructions for mounting the Lamphouse, page 6.

The electrical connections for the CS-25 and CS-50 Print Machines are identical.

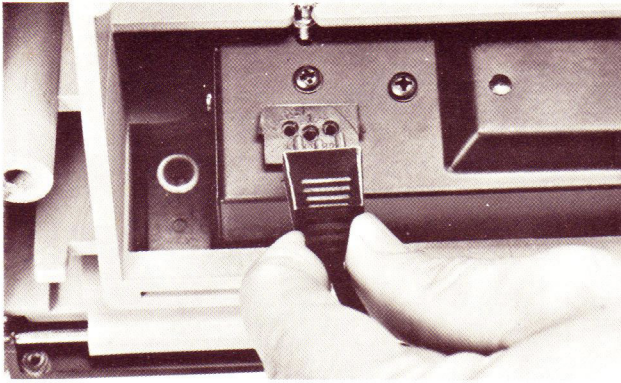
- Turn the enlarger on its side to gain access to the rear of the control unit.



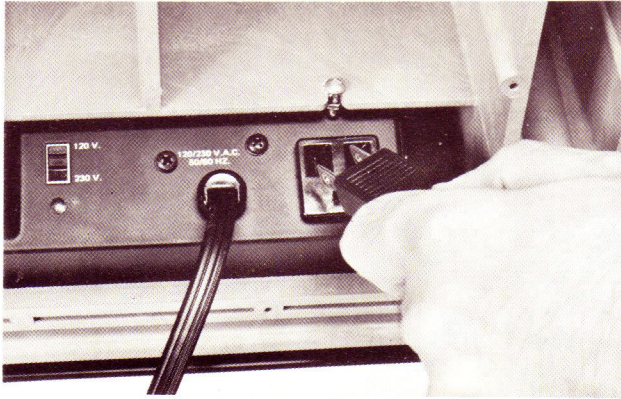
- Be sure that the voltage selector switch is in the 120V position (US and Canada) or 220V (most European countries.)



3. Plug the probe into its receptacle at rear of the control unit.



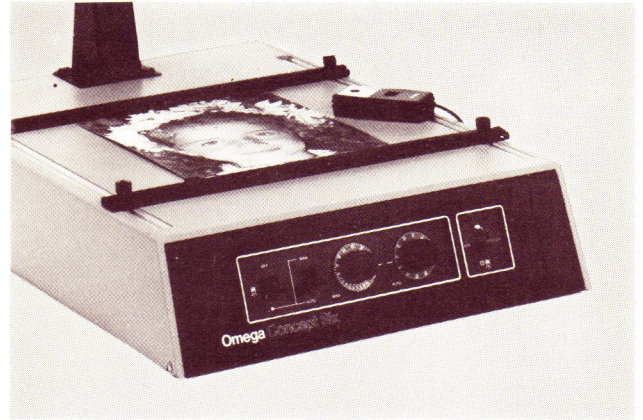
4. Plug lamphouse or dichroic power supply into receptacle on the control unit.



5. Plug the power cord into any 120V AC outlet. (USA and Canada); 220V (most other countries).

6. Place unit upright running all cords under and to the rear of the unit.

7. Place the probe on top of the baseboard.



You are now ready to assemble the lamphouse. The instructions below are for the condenser lamphouse. If you purchased your print machine with a dichroic lamphouse, please turn to page 8.

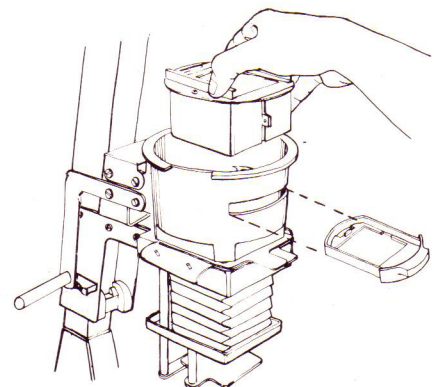
Lamphouse Assembly

Condenser Lamphouse

The Omega Concept Six Condenser Print Machine incorporates an advanced, double condenser optical system, in conjunction with the exclusive 75 Watt Omega "Teardrop" lamp. Condenser optical systems bring out all of the fine detail in your film, producing crisp, brilliant prints. This design yields optimum light output and contrast, for use with all focal length enlarging lenses of 50-80mm. With shorter focal length lenses, the accessory supplementary condenser (472-002) is recommended. Heavy duty components are used throughout, for long dependable service life. A filter drawer is provided for using color printing and variable contrast filters.

Examine the glass surfaces of the condenser module to make sure they are clean and dust free. If necessary, blow or wipe clean using a soft brush or lens tissue.

1. Grasp condenser module by the filter drawer guides and lower into the lower lamphouse, making sure the word *front* (stamped on the top plate) is positioned toward the front of the lamphouse.
2. Insert the filter drawer. Be sure it is fully inserted to prevent stray light leakage.
3. Check to see that the lamp is fully screwed into the upper lamphouse.



4. Position the upper lamphouse section on lower section so the left edge of the "Omega" label aligns with the mid point of the filter drawer handle. You will feel the upper lamphouse "drop" into place.

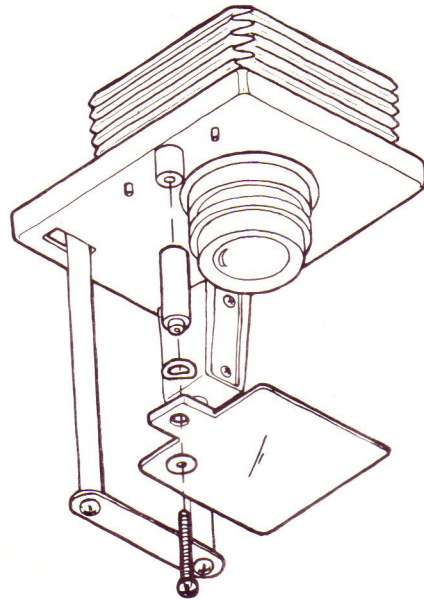


5. Twist the upper lamphouse clockwise to lock the two sections together.

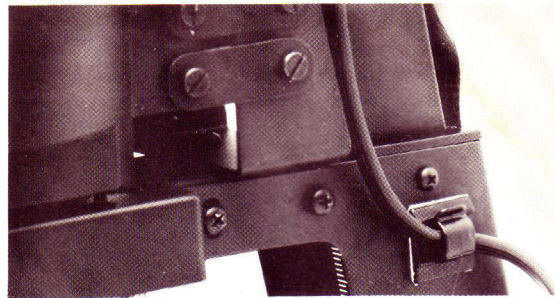
6. Your Omega Concept Six Print Machine accepts all standard 39mm (Leica thread) mount enlarging lenses. Simply screw your lens into the lens stage.



7. Install the red safety filter as illustrated. (The use of this filter is optional. If you do not intend to use it, skip this assembly step, but save the hardware for possible future use with other under-the-lens accessories.)



8. Be sure to insert the line cord into the line cord retainer. The cord may be connected either directly into a standard AC outlet or a timer. If using a timer, leave the on/off switch in the "ON" position.



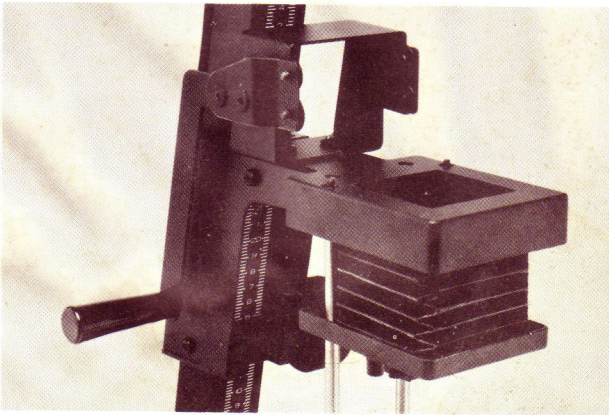
Your Print Machine is now completely assembled and ready to make prints.

Dichroic Lamphouse

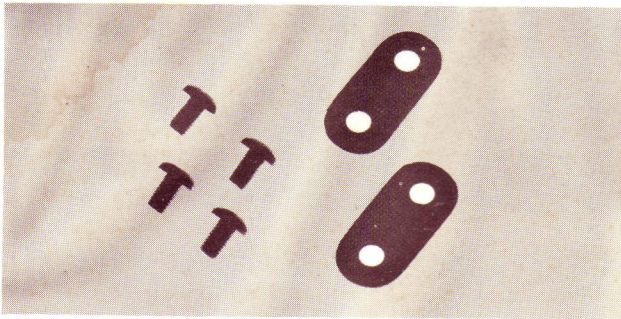
The Omega Concept Six Dichroic Print Machine features the Chromega B dichroic lamphouse, for use with all color negative, reversal and black and white materials. Its full diffusion design produces clean, blemish-free prints and offers unequalled evenness of illumination, and color fidelity. With 0-170cc dial-in dichroic filtration, calibrated in 1cc increments, the design also incorporates built-in infrared and ultraviolet filtration for optimum results.

NOTE: If you have purchased your Concept Six "Paperhandler" Print Machine with a condenser lamphouse, it is unnecessary to read this section. If you have purchased a print machine with a condenser lamphouse and wish to convert it to a dichroic lamphouse, be sure to also purchase the Dichroic Lamphouse Adapter Kit (Cat. No. 429-064).

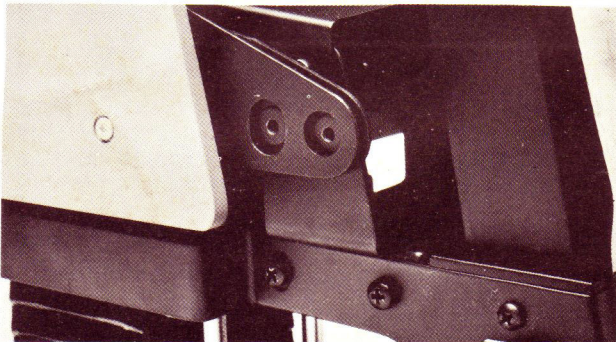
1. Notice that the set of adapter plates fitted to the enlarger chassis is loose. This is normal since they "float" until the lamphouse is installed. Do not try to tighten them further.



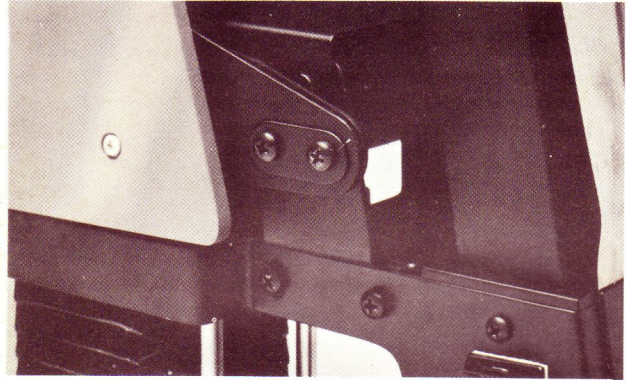
2. In your hardware envelope you will find two oval lamphouse plates and four black Phillips head screws.



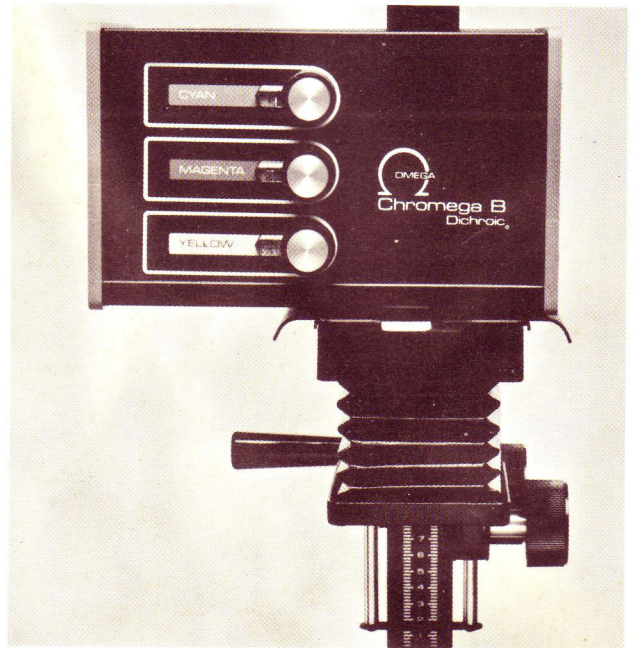
3. Position the dichroic lamphouse on the negative stage so that the holes in the lamphouse mounting bracket align with the tapped and embossed holes of the mounted adapter plates.



4. Holding the lamphouse steady, insert the Phillips head screws through the oval plates of the lamphouse retainers and tighten with your fingers until firm.



5. The lamphouse must now be aligned. Plug the lamphouse cord into the rear of the power supply and plug the power supply into a standard AC outlet or timer. Switch the unit on.



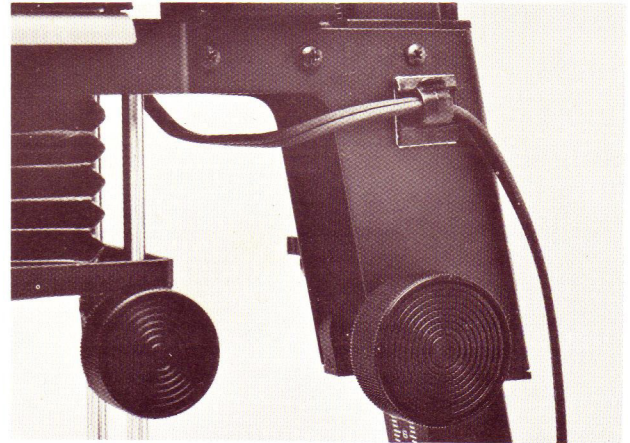
6. With a negative carrier in place, adjust the lamphouse so that the light seal at the bottom squarely contacts the top of the carrier. Check that the lamphouse appears level at the front and sides, then fully tighten the screws.

7. Your Omega Concept Six Print Machine accepts all enlarging lenses with a standard 39mm (Leica thread) mount. Simply screw the lens into the lens stage.



8. The lamphouse is supplied with an under-the-lens accessory post assembly. Save these parts should you wish to use any of the optional accessory attachments.

9. Loop the line cord connecting the lamphouse and power supply under the carriage (behind the bellows) and through the line cord retainer as illustrated. When using a timer, leave the ON/OFF switch on the power supply in the "ON" position.



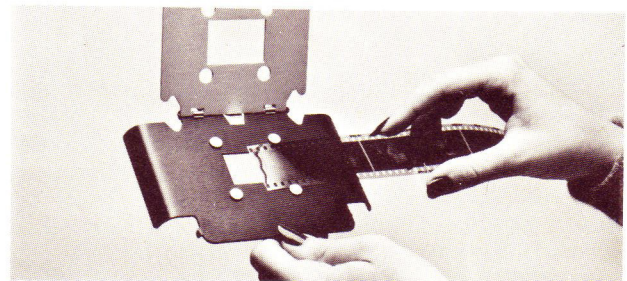
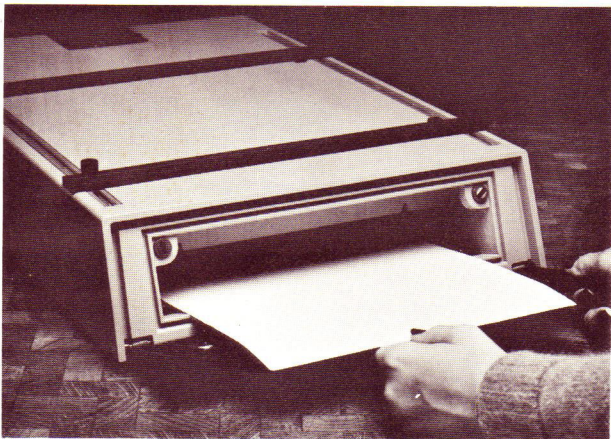
Your Print Machine is now completely assembled and ready to make prints.

Section 2: Operation

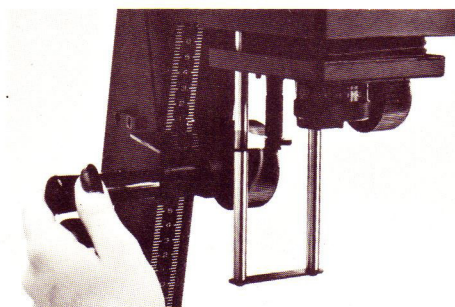
Operating Your Omega Concept Six Print Machine

Paperhandler Print Machine Only

1. The paper storage compartment will accommodate stacks of up to 40 sheets of 11"x14", 8"x10" or 5"x7" resin-coated paper without adjustments. USE ONLY ONE SIZE AT A TIME. The compartment door will close automatically and two magnetic latches keep it light-tight. (Remember to provide proper safelight conditions when loading or removing your paper.)



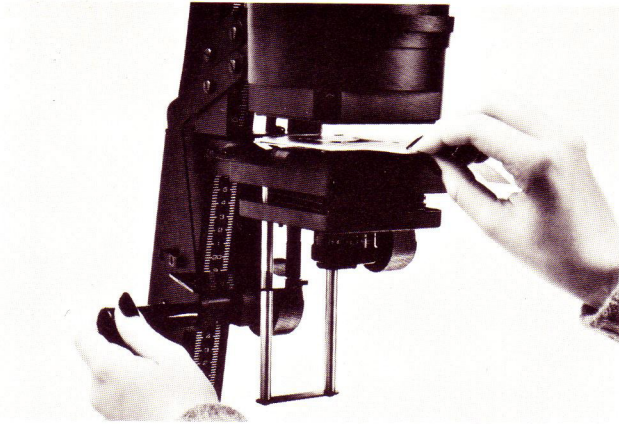
2. Pull lamphouse lifting handle forward to raise the lamphouse.



All Concept Six Print Machines

1. Insert film into the negative carrier emulsion (dull) side down. The pins on the back half of the carrier act as position guides to hold film in place.

3. Insert the negative carrier between the lamphouse and the film stage, so the pins at the rear of the film stage align with the carrier cutouts. Hold the carrier in place and lower the lamphouse. **TURN OUT ALL ROOM LIGHTS.**

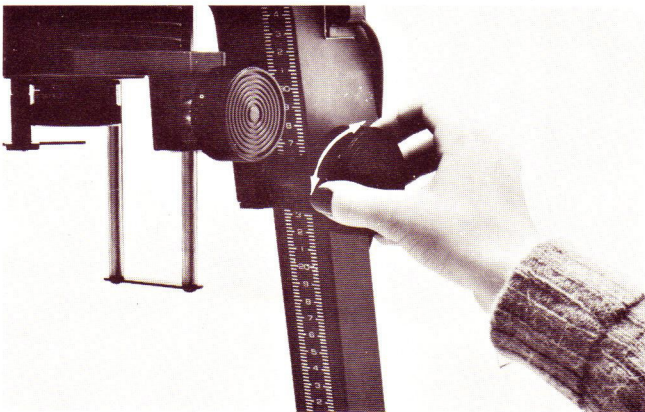


4. Turn the Print Machine on using the ON/OFF switch. When using a timer, leave the line switch in the "ON" position and turn the timer to "FOCUS" or "ON" position.

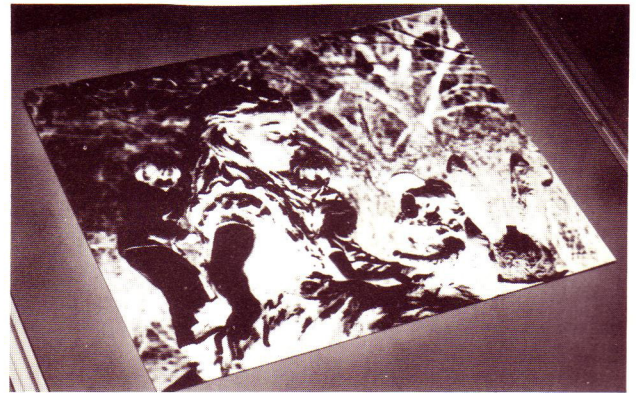
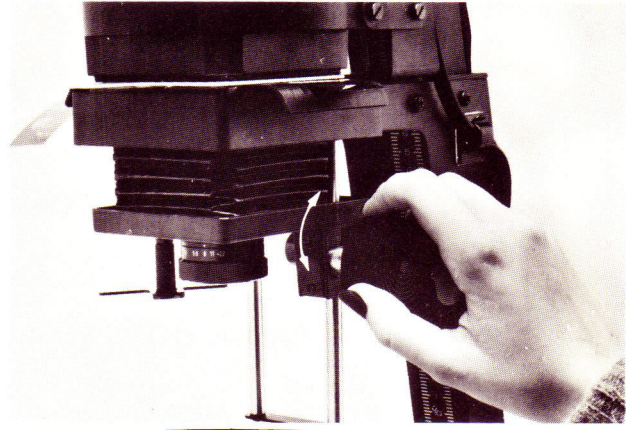
5. You will see a projected image on the baseboard. Place a test sheet (the size you wish to use) of exposed photographic paper in the center of this image.



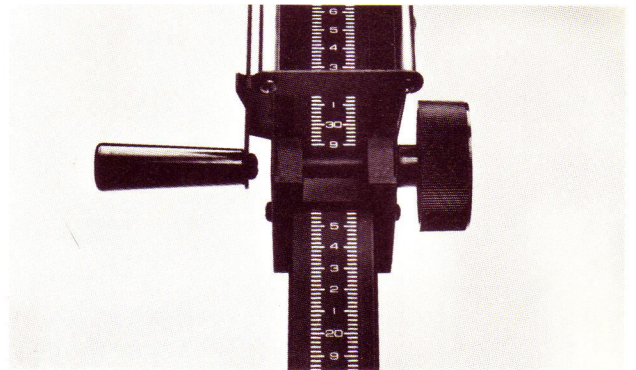
6. Adjust elevation of the carriage to fill the desired image area on the paper. Simply turn the elevation control counterclockwise to loosen, raise or lower the carriage to the desired position, and tighten by turning clockwise. The image may not be in focus at this point.



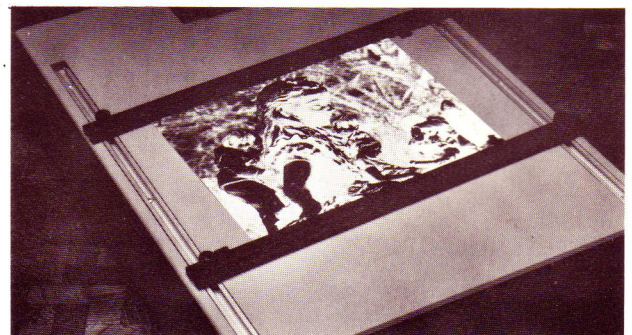
7. To focus, open the lens aperture fully and turn the focusing knob until a sharp image appears on the paper.



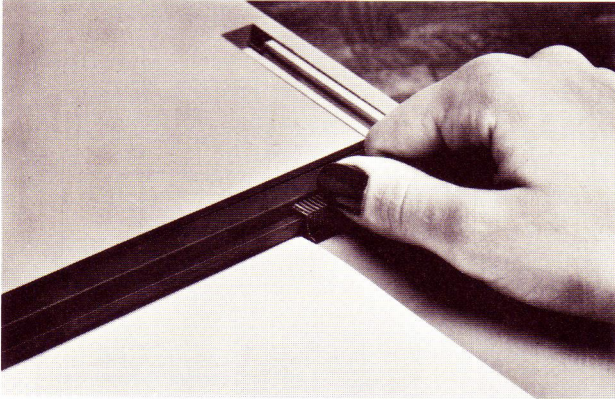
8. You may want to repeat the same image size later. It is helpful to note the lamphouse elevation as indicated on the girder's reference scale.



9. To position your paper, place it exactly in the area you desire. Then move the paper position rails to the edges of the paper. They can be angled to accommodate your creative needs.



- Slide the paper stops to the desired location on the rails so that they become reference positions for the corners of the paper. Due to the inherent flatness of resin coated materials, only one rail may be required. Tighten the knobs to secure the positioner rails. **DO NOT OVERTIGHTEN OR FORCE THE RAILS.**



- With the room lights out, replace the test sheet with an unexposed sheet of paper, emulsion side up. You are now ready to print your enlargement.
- For enlargements exceeding 11''x14'', you may reverse the chassis for floor projection. Remove the four T Studs at the base of the girder, turn the girder around, and replace the bolts. Counterbalance the chassis by placing a few heavy books on the baseboard. (Depending on the size of the print you wish to make,

you may want to use a longer-than-normal focal length enlarging lens for more convenience.)



If you purchased a Paperhandler Print Machine continue on Page 17: Glossary of Terms.

Operating Your Omega Concept Six CS-25 Automatic Print Machine

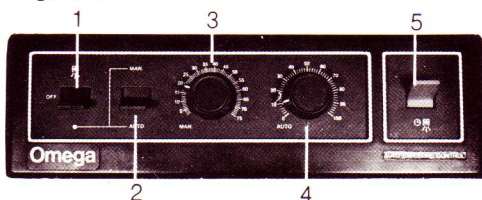
The Omega CS-25 Auto Exposure Control provides you with the convenience of fully automatic exposure. Once you have properly programmed your CS-25, you can obtain perfectly exposed prints in color or black and white.

You need no longer calculate or concern yourself with exposure adjustments that are required when changing images, adjusting magnification, lens aperture, or making filtration corrections in color or black and white and variable contrast materials.

The CS-25 monitors the light reflecting from the paper surface continuously **during actual exposure** and automatically switches the enlarger lamp off when just the right amount of light has exposed the paper to produce a perfect print each and every time.

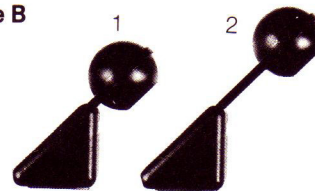
Operating Control

Figure A



- 1. Focus/Off/Operate Switch** (Figure A, #1)
 - **Upper position** turns enlarger on, for composing, focusing, etc.
 - **Middle position** shuts all power off.
 - **Lower position** allows timing operation in both Manual and Automatic Modes.

Figure B



- 2. Manual/Automatic Switch** (Figure A, #2)
 - **Upper position** for manual timing operation mode.
 - **Lower position** for automatic timing operation mode.
- 3. Manual Time Dial** (Figure A, #3)
 - Sets timer from 2-75 second for manual mode operation.

4. Automatic Reference Dial (Figure A, #4)

- Programs unit for automatic exposure operation. 0-100 settings are reference numbers for setting up for different paper types.

Note: These are reference numbers only.

5. Exposure Switch (Figure A, #5)

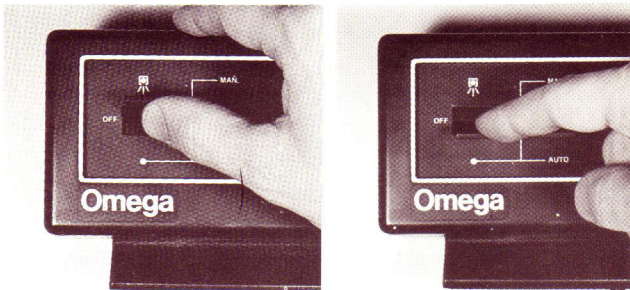
- Activates the enlarger lamp in either the Manual or Automatic mode.

6. Probe Assembly (Figure B, #1)

- Contains light sensing cell which reads an area of approximately 3 1/2" x 5" oval. Height of the probe is adjustable (Figure B, #2) for use with easels over 3/4" thick.

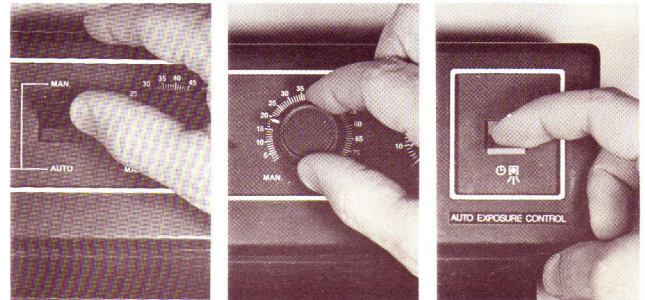
Manual Mode Operation

1. Set the FOCUS/OFF/OPERATE Switch to its Focus (upper) position. Compose and focus.



2. Set the FOCUS/OFF/OPERATE Switch to the operate (lower) position.

3. Set the MANUAL/AUTOMATIC Switch to the Manual (upper) position.



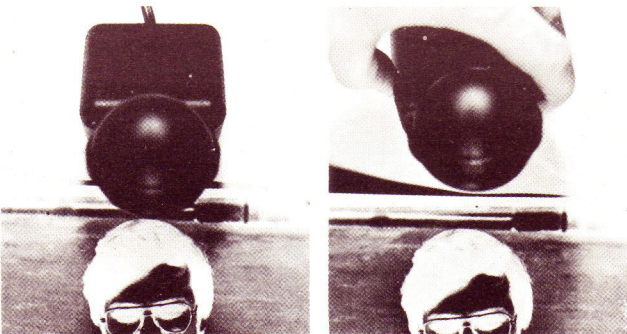
4. Set the desired printing time by adjusting the Manual Time Dial.

5. Depress the EXPOSURE Switch — after exposure process and dry the print.

Automatic Operation: Programming

Determine the proper exposure time for your print by the trial and error method, in the manual mode. After the test is completed do not remove the negative or disturb the enlarger settings (magnification, lens aperture, filtration, if any). Make note of the exposure time used for the test print.

1. Take one sheet of unprocessed paper of the same type to be used, and place it, emulsion side up on the easel or paper positioner as though it were to be used for an actual print.



2. Place the probe next to the paper, aimed at the most important area of the print. Make sure that the probe is not casting a shadow on the paper. If it does, move the probe back until the shadow just disappears.

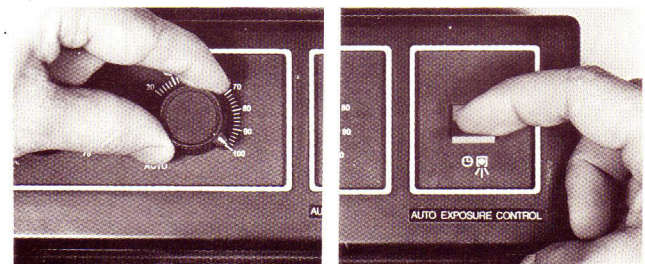
3. Set a timer, clock or watch that reads in seconds near the enlarger so that it can be easily read.

4. Set the MANUAL/AUTOMATIC Switch to the Automatic (lower) position.



5. Set the FOCUS/OFF/OPERATE Switch to the Operate (lower Position).

6. Turn the Automatic Reference Dial clockwise to read 100.



7. Start the timing sequence by depressing the Exposure Switch, while watching the timer, clock, or watch.

- When the predetermined time is reached (time that produced the reference print), turn the Automatic Reference Dial counterclockwise until the enlarger shuts off.
- Check the timing and, if necessary, adjust the Automatic Reference Dial slightly clockwise or counterclockwise to "fine tune" the setting.

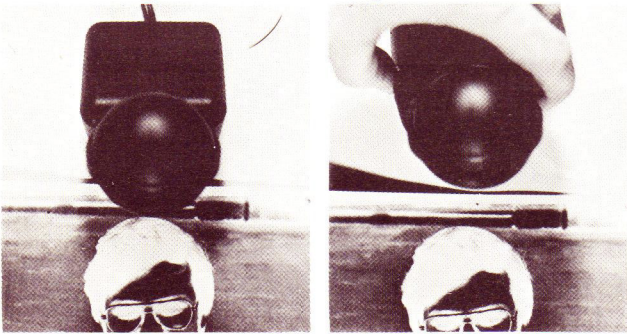
The CS-25 will now yield accurate exposure for the type of paper programmed regardless of changes in negative density, magnification, lens aperture or filtration.

REMEMBER to record all of your auto settings so that you can readily change from one type of paper to another.

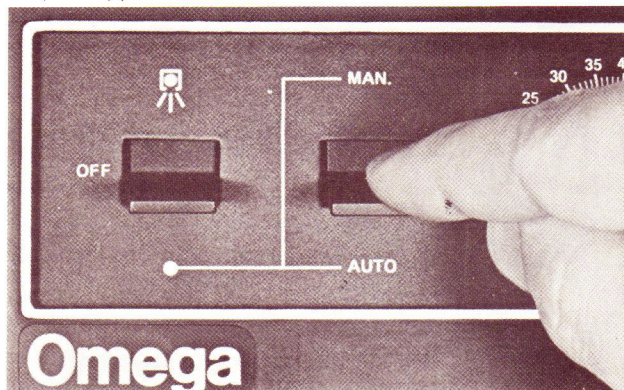
Automatic Operation: Printing a New Image

Leave Automatic Reference Dial set to the number determined in the section on Programming and proceed as follows:

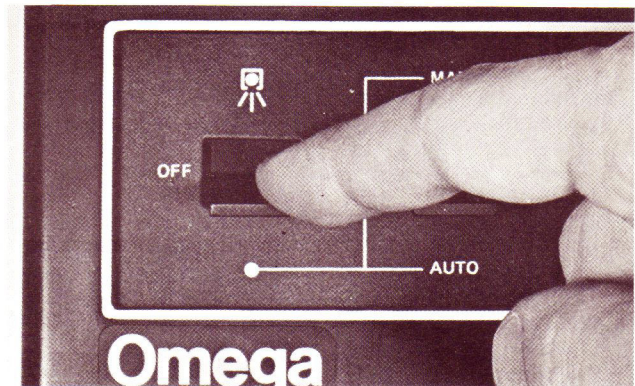
- Place a new film in the enlarger. Crop and focus the image.
- Place the probe next to the easel, aimed at the most important area of the print, making sure that the probe is not casting a shadow in the image area.



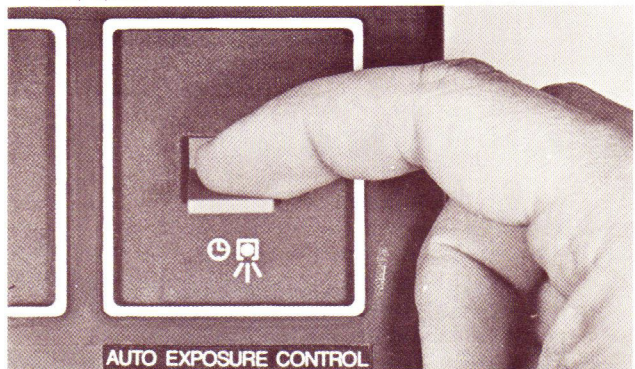
- Set the MANUAL / AUTOMATIC Switch to the Automatic (lower) position.



- Set the FOCUS / OFF / OPERATE Switch to the Operate (lower) position.



- Place a fresh sheet of enlarging paper on the easel.
- Start the timing sequence by depressing the Exposure Switch. The unit will automatically shut the enlarger off when the correct amount of exposure has reached the paper.



- Process and dry the print.

Dodging & Burning-In

Dodging must be done in the Manual Mode. In the Automatic mode, blocking the light will cause the timer to increase the overall exposure.

Burning In. After the basic (Automatic) exposure has been made simply switch to the Manual Mode and then burn-in as required.

Starting Points

The following are suggested starting points for some of the popular paper materials currently available. You may wish to make slight adjustments from these SUGGESTED settings to produce densities more to your liking.

Paper	Automatic Reference Scale
Kodak Ektacolor 74 RC	0-5
Kodak Ektacolor 37 RC	48-53
Kodak Ektacolor RC 1993	85-90
Kodak Ektachrome RC 2203	8-13
Cibachrome	0-5
Black and White (Variable Contrast)	30-35

General Notes

Note 1: Since the CS-25 actually measures light during exposure, using a safelight may affect exposure accuracy. If you encounter exposure error, try printing with the safelight off during exposure.

Note 2: The CS-25 measures light reflecting from the emulsion surface of the paper and therefore may not

function properly with combinations of dark surface papers, dense films, high magnifications, and/or small apertures. If you encounter this type of difficulty, open your lens aperture 1 or 2 f/stops or try using a smaller magnification or less dense material. Similarly, high speed papers with very light surfaces may cause difficulty at low magnifications and/or large lens apertures. In these cases, close the lens down to 1 or 2 f/stops.

Continue on Page 17: Glossary of Terms

Operating Your Omega Concept Six CS-50 Automatic Print Machine

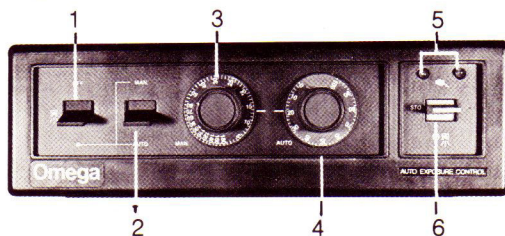
The Omega CS-50 Auto Exposure Control provides the convenience of fast, fully automatic exposure determination. Once you have programmed your CS-50, you can obtain perfectly exposed color or black and white prints.

You need no longer calculate exposure adjustments that are required when changing film frames, lens aperture, adjusting magnification, or making filtration corrections, and the CS-50 works equally well with virtually any print material.

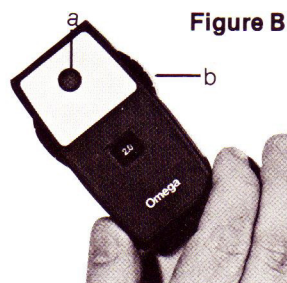
A flick of the CS-50 "Sample" switch locks the exposure information in its memory for the actual exposure. To start your exposure, simply press the exposure switch. The CS-50 will automatically switch the enlarger lamp off when the correct amount of light has reached the paper, producing perfect prints every time.

Operating Controls

Figure A



- Off/Focus/Operate** (Figure A, #1)
 - **Upper position** shuts all power off.
 - **Center position** turns enlarger on for composing, focusing, etc.
 - **Lower position** allows timing operation in both Manual and Automatic modes.
- Manual/Automatic Switch** (Figure A, #2)
 - **Upper position** for manual timing mode.
 - **Lower Position** for automatic timing mode.



- Manual Time Dial** (Figure A, #3)
 - 60 click-stop position for manual mode operation.
 - Sets timer from 1-30 seconds in 1 second intervals, 30-60 seconds in 2.5 second intervals, 60-120 seconds in 5 second intervals, 120-180 seconds in 10 second intervals.
- Automatic Reference Dial** (Figure A, #4)
 - Programs units for automatic operation. 0-100 index numbers are reference settings for recording program data for future use.
- Dual L.E.D.s** (Figure A, #5)
 - Indicate when unit is programmed.

- In operation, indicate if next print will receive more or less exposure time than originally programmed print.

6. Sample/Store/Exposure Switch (Figure A, #6)

- **Upper position** for programming and reading new image.
- **Center position** holds sample exposure information for 5 minutes.

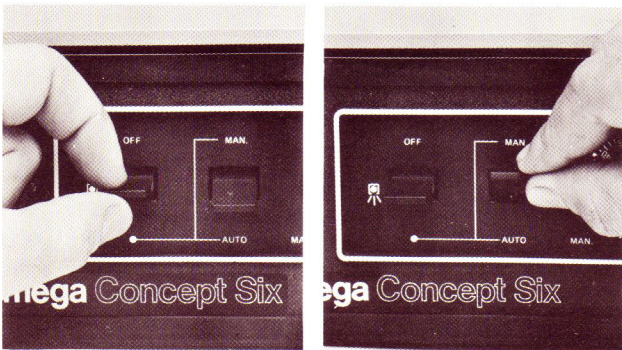
- **Lower position** provides a momentary contact which activates the enlarger lamp, in either the Manual or Automatic modes.

7. Probe (Figure B)

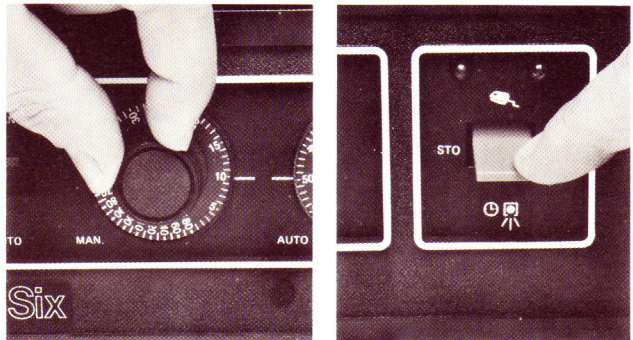
- Contains the light sensing cell.
- Contrast Range Dial — variable apertures in probe for contrast measurement allow paper grade determination when printing with black and white.

Manual Mode Exposure Time Operation

- Set the OFF / FOCUS / OPERATE Switch to its Focus (center) position. Compose and focus.



- Set the desired printing time by turning the Manual Time Dial. Set OFF / FOCUS / OPERATE Switch to OPERATE.



- Set the MANUAL / AUTOMATIC Switch to the Manual (upper) position. (Both LED's will light.)

- Depress the SAMPLE / STORE / EXPOSURE Switch to activate the enlarger. After the timed exposure, process and dry the print.

Automatic Exposure Operation

A. Programming:

Determine the proper exposure time for your print by making a "test print" in the Manual mode. After the test is completed and you have determined the correct exposure time, do not remove the negative or disturb the enlarger settings (magnification, lens aperture, filtration if any) used for the test print.

- The exposure time which produced the correct exposure on the test print **MUST** be set on the MANUAL TIME DIAL.
- Set the probe's contrast dial to read 2.0.



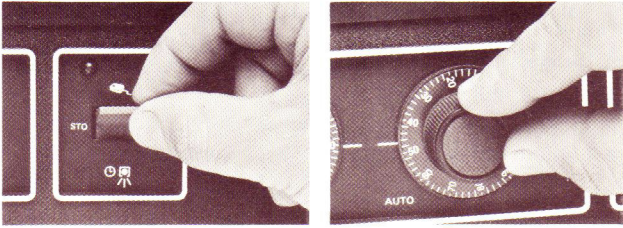
- Set the MANUAL / AUTOMATIC switch to the Automatic (lower) position.

- Set the OFF / FOCUS / OPERATE switch to the Focus (center) position.



- Place the probe on the easel with the sensing cell under the reference spot (see glossary, page 17)

- Set the SAMPLE / STORE / EXPOSURE switch to the Sample (upper) position for a moment, and then return to the Store (center) position.



- Adjust the AUTOMATIC REFERENCE DIAL until the two LED's are of equal brightness.
- Record the Manual Time setting and Automatic Reference setting for future reference. Both dials must be set to obtain proper results when reprogrammed.

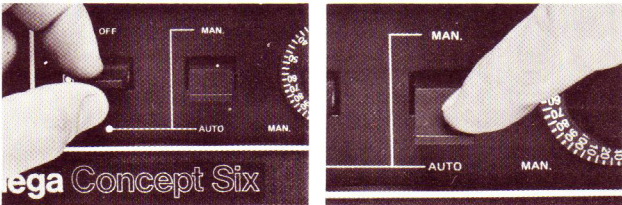
The CS-50 will now accurately and automatically expose for the type of paper programmed, regardless of changes in film density, magnification, lens aperture, or filtration.

Note: Changing to a new type of paper requires a new program. A new program may be required with color paper when changing emulsion batches of the same paper, because of differences in paper sensitivity.

B. Reading a New Image

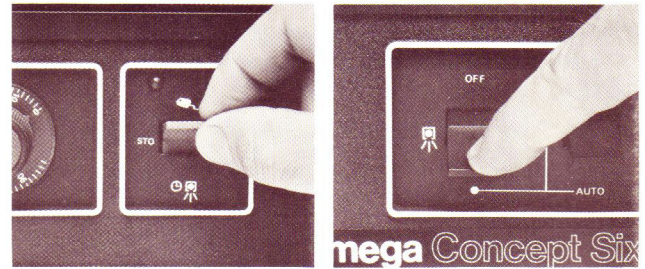
I. Automatic Time Adjustment Method

- Place a new image in the enlarger.
- Set the OFF / FOCUS / OPERATE switch to the Focus (center) position. Compose and focus.

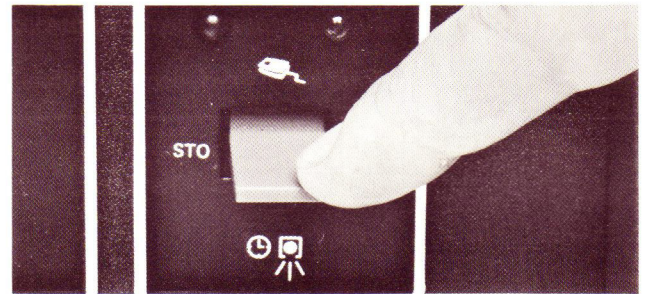


- Make sure the MANUAL / AUTOMATIC switch is in the Automatic (lower) position.
- Place the probe's cell under a reference spot similar to the one originally programmed.

- Flip the SAMPLE / STORE / EXPOSE switch to the Sample (upper) position momentarily and return to the Store (center) position.



- Remove the probe from the easel.
- Set the OFF / FOCUS / OPERATE switch to the Operate (lower) position.
- Place a fresh sheet of enlarging paper in the easel, and depress the SAMPLE / STORE / EXPOSURE switch. After exposure, process and dry the print.



II. Nulling Method

Should you wish to work at a constant exposure time when printing, proceed as follows:

- Perform Steps 1-4 as outlined above (Automatic Time Adjustment Method).
- Flip the SAMPLE / STORE / EXPOSURE switch to the Sample (upper) position.
- Adjust the enlarging lens aperture until the two L. E. D. 's are of equal brightness.
- Return the SAMPLE / STORE / EXPOSURE switch to the Store (center) position.
- Perform steps 6-8 as outlined above.

Determining Paper Grade for Black and White Printing

- Place any negative in the enlarger. Compose and focus.
- Set the probe to '0'.
- Set the SAMPLE / STORE / EXPOSURE switch to the Sample (upper) position.
- Place the probe's sensing cell under a shadow area (light on the easel) of the projected image — and bring the two L. E. D. 's to equal brightness by adjusting the enlarging lens aperture. (If L. E. D. 's will not null by adjusting the lens, note the Automatic Reference Dial setting and adjust until the L. E. D. 's come to equal brightness.)
- Place the probe's sensing cell under a highlight area dark on the easel) of the projected image — bring the two L. E. D. 's as close as possible to equal brightness by adjusting the contrast range dial on the probe.

Note:

- The contrast dial must be at one of its detent positions to be accurate.
 - When selecting a highlight, avoid reading specular highlights — eg. reflections from shiny metal, glass, etc.
- Read the number in the window of the probe and refer to the chart below. Find the corresponding number on the chart and read the required paper grade to print that particular negative.

Paper Grade Chart

Probe Reading	Recommended Paper Grade	Probe Reading	Recommended Paper Grade
.1 to .6	#5	.4 to .5	Ultra Hard
.6 to .8	#4	.6	Extra Hard
.8 to 1.0	#3	.7 to .9	Hard
1.0 to 1.2	#2	1.0 to 1.2	Medium
1.2 to 1.4	#1	1.3 to 1.4	Soft
1.4 to 2.0	#0		

Important: Be sure to return the probe's contrast dial to 2.0 before returning to normal printing operation.

Automatic Exposure Override

After processing a print you may decide that the overall exposure should be adjusted. In such cases, resetting the MANUAL TIME DIAL will adjust the exposure by the desired percentage. Do not change the Automatic Reference Setting.

Example:

Your MANUAL TIME DIAL is set for a basic 15 second exposure. You decide that the resultant print is too light,

and wish to increase exposure by 20%. Change the Manual Time Dial to read 18 seconds (120% of 15 seconds) and make the next print. The CS-50 will automatically increase the memorized exposure by 20% on all future prints.

REMEMBER: The Manual Time Dial must be reset to the original time setting before changing to other images if you want to reprogram to your original exposure reference.

Dodging and Burning-In

Dodging

For dodging use Automatic Operation and simply dodge as required during the exposure.

Burning In

Use the lens nulling method described in "READING NEW IMAGES" so you will be sure that you are using your basic

exposure time as a point of reference for determining the exposure time needed for burning-in. The Autoexposure system will provide you with an accurate exposure measurement, then use the technique outlined in "AUTO-EXPOSURE OVERRIDE" to make your secondary exposure.

Glossary of Terms

Reference Spot: For successful exposure determination, the reference area or spot to be evaluated must be basically of the same density in all of your films. A grey card in each scene, a fleshtone, or some other neutral area make good reference spots. It is also important that the reference spot be evenly illuminated. A medium density area is best suited for this purpose.

Contrast Range: Contrast Range is the difference in density between the lightest and darkest portions of the

film. Black and white print materials are available in various contrast grades to match the contrast range of your negatives.

Burning-In: Extra exposure given to selective area of a print, which would otherwise be too light with the basic overall exposure.

Dodging: Holding back exposure on selected areas of a print, which would otherwise be too dark with the basic overall exposure.

General Information

Black and White Printing Hints

Contrast Control

The simplest way to control the contrast of prints is by the use of different contrast grades of paper. For more accurate contrast control, variable contrast paper is

available from several manufacturers. With the use of filters of different colors, these papers will yield different degrees of contrast. For more detailed information, please see your dealer.

The ideal place to install the acetate filters used for these papers in the filter drawer of the lamphouse. In this location, the optical quality and cleanliness of the filters will have no effect upon the quality of the projected image. When using any filters, we recommend the incorporation of an accessory heat absorbing glass between the lamp and the filter to protect the filters. The Heat Absorbing Glass can be left in position at all times.

Alternately, variable contrast filters in plastic frames can be positioned just under the enlarging lens, in the optional swing away filter holder or by means of a holder attached directly to the enlarging lens. In this position, the filters must be kept clean and free of scratches, or the flaws and dirt will affect the quality of the finished print. Additionally, you must focus through the filter to be used, as most of these filters may cause a focus shift of the image.

Omega enlargers are ideally suited to variable contrast printing, as their high light output allows short exposure times, even when using the extremely dense high contrast filters.

Black and White Contrast Control Printing With the Chromega B Dichroic Lamphouse

A black and white negative consists of minute silver particles embedded in a base of gelatin. Light passing through this material is not merely absorbed in varying degrees but will be "scattered" (somewhat like light in a dense fog). The result is that the contrast of the projected image depends on the degree of diffusion of the light with which the negative is illuminated. The contrast obtained from completely diffused light, as used in the Chromega B dichroic, is less than that obtainable with only a semi-diffused system using condensers. In most instances this is very desirable, and portrait photographers in particular have always preferred the softer graduations of diffused systems. As an approximate measure this difference may be said to equal one-half to three-quarters of the difference between two consecutive grades of paper. Contrast, however, should not be confused with

sharpness. Using the same negative and enlarging lens, the resulting print sharpness is the same irrespective of whether a condenser or diffusion type light source is employed.

We emphasize that this contrast difference exists only for black and white negatives, and not for color negatives, where the silver particles have been replaced by dyes that absorb a certain amount of light but do not scatter it. The contrast of color prints is therefore the same whether produced with a diffused or condenser light source. It is therefore recommended that users of condenser type enlargers who wish to use the Chromega B Dichroic lamphouse for printing black and white negatives use the next higher contrast grade paper than used previously for existing negatives. New negatives can easily be treated in the same way, of course, but it is also very easy to develop them to a slightly higher degree of contrast by leaving them in the developer a little longer to compensate for the lower contrast of the light source.

Variable Contrast Papers

Variable contrast papers may be used either with filters recommended by the manufacturer of such papers or with the dichroic filtration incorporated into the lamphouse. The following filtration recommendations are approximate equivalents:

Polycontrast Filter	Filtration
No. 1	35M / 24Y
No. 1½	42M / 20Y
No. 2	50M / 16Y
No. 2½	100M / 8Y
No. 3	150M / 0Y

Color Printing Hints

FILTRATION CONTROL WITH CHROMEGA B-600

Color printing requires filtration corrections to properly balance the print color. Your Chromega B lamphouse provides stepless filtration from 0 to 170cc for Cyan, Magenta and Yellow. Merely dial filtration until the desired settings are indicated on the illuminated scales.

Color printing procedures and techniques depend entirely on the paper, chemicals and processing equipment you are using. Since many different color printing materials and kits are available, we refer to the specific instructions included with these products.

Your Omega dealer will be pleased to show you the coordinated Chromega accessories.

SETTING FILTRATION

The Chromega B is equipped with three continuously variable dichroic filters that will compensate or balance any color paper characteristics for any color slide or negative. The simultaneous use of all three introduces a

certain amount of neutral density, thereby extending exposure times unnecessarily.

When printing most papers, the cyan filter (with some exceptions, such as Type R reversal printing) should always be kept at "Zero".

NOTE:

All three color controls have a detent at the "zero" position for a positive indication when filters are completely retracted.

USING COLOR ANALYZER

Although for some users trial-and-error color printing may be acceptable because of modest color printing requirements, serious color printers should use a color analyzer. The use of a precision analyzer drastically cuts printing time, greatly reduces waste of paper and chemicals, and generally improves both the quality and quantity of print output.

EXPOSURE LIMITATIONS

Color papers have 3 emulsion layers for 3 different colors. These emulsion layers exhibit apparent sensitivities for short and long exposure times. Unfortunately, this phenomenon does not occur at precisely the same exposure times for all 3 emulsion layers and therefore color shifts are observed for very short and (to a lesser degree) very long exposure times. Thus, exposure shorter than 5 seconds and longer than 40 seconds, if at all possible, should be avoided. It is generally advisable to rely more on changes of f / stops when adjusting exposures and change exposure times as little as possible.

EXPOSURE COMPENSATION

More exposure is needed when more filters are used and vice versa. The necessary adjustment, however, is not the same for different colors. An increase of yellow by 10 points (for example, from 50 to 60) necessitates an increase of exposure time of only about 2% , but the same increase of magenta prolongs the exposure time by about 10% .

A simultaneous increase of both the yellow and the magenta filter by 10 points each causes an extension of approximately 10% of the original exposure time. (In practice, this means that the effect of any change in yellow

filtration alone is usually negligible!) If — as is preferable — the diaphragm (lens opening) is to be changed rather than the exposure time, a good approximation is to open the diaphragm by half a stop when the magenta is increased 45 points (for example from 50 to 95).

When both yellow and magenta filters are increased simultaneously, an approximate change of 35 points will equal 1 / 2 stop of the diaphragm.

REVERSAL TYPE PRINTS FROM TRANSPARENCIES DUPLICATE TRANSPARENCIES, TRANSPARENCIES FROM COLOR NEGATIVES

In addition to making color prints from color negatives, the Chromega Dichroic lamphouse is suitable for all other types of color printing such as:

1. Reversal type prints direct from any size transparencies (Minox to 2 ¼ ''x2 ¼ '') using Reversal Type Papers (Type "R").
2. Duplicate transparencies direct from original, using Duplicating Films (such as Kodak Ektachrome Duplicating Film).
3. Transparencies direct from Color Negatives using Print Films (such as Kodak Ektacolor Print Films).

Section 3: Maintenance

Basically, only two routine operations are required:

1. Cleaning:
 - a. Remove any foreign material from enlarging lenses and condensers with lens tissue.
 - b. Clean the lamp with a soft lint-free cloth. (Does not apply to Chromega B Dichroic). Do not attempt to clean or adjust the dichroic filters as this may result in permanent damage.
2. Lubrication and Tension Adjustment:

Apply a thin film of grease or silicon lubricant on the focus rails, counterbalance spring, and paper rail bolts. After removing any excess lubricant, adjust the tension of the focusing knob to your preference. This is done by tightening or loosening the small Phillips head screws at the front of the focus drive assembly. This could be done once or twice each year, or sooner if stiffness in operation is noticed. Check and tighten the lifting lever assembly and baseboard.

Lamp Replacement

Dichroic Lamphouse

Catalog Number 471-043 is the 75 watt quartz halogen lamp for the Chromega B Dichroic Lamphouse. To replace the lamp, unplug the line cord and allow the colorhead to cool. Remove the top cover by lifting up from the rear. Remove the two knurled thumb screws which hold the top cover of the lamp holder housing and remove the cover. Push down on the lamp release lever with your finger. The lamp should lift free of the socket.

Handle the new lamp by the edge of the reflector ONLY, to avoid damage to the inside of the reflector. Also, do not touch the glass lamp envelope, since moisture from your fingers can etch the glass and lead to blackening and premature failure of the lamp.

Condenser Lamphouse

The Catalog Number 471-038 lamp for the Omega Concept Six is a screw base lamp. To replace, simply twist off the upper lamphouse. Be sure to wipe the lamp with a lint-free cloth to remove fingerprints or moisture, as these can help to cause premature failure of the lamp. In an emergency, a standard 75W, No. 211 enlarging lamp can temporarily be used in place of the special Omega Lamp. For optimum illumination, use ONLY the recommended Omega lamp.

Note: For 230V operation, the condenser lamp replacement is Cat. No. 471-041.

Specifications

Concept Six Print Machines

NOTE: These specifications apply to all Concept Six Print Machines.

Maximum Film Format: 6x6cm (2¼" x 2¼")

Baseboard Dimensions: 54.0x36.8x10.2cm
(21¼" x 14½" x 4")

Lens Mount: Threaded, Leica type

On Baseboard Magnification Ranges:

Lens	Minimum	Maximum
50mm	.5x	13x
75mm	1x	8x

Lamp:

Condenser:	75W	Cat. No. 471-038
Condenser:	75W (230V)	Cat. No. 471-041
Dichroic Standard:	75W Quartz	Cat. No. 471-043
Dichroic Volt. Stab.	75W Quartz	Cat. No. 471-043

Power:

Condenser:	120 VAC, 50/60 Hz. or 230 VAC, 50/60 Hz.
Dichroic Standard:	120 VAC, 50/60 Hz. or 230 VAC, 50 Hz.
Dichroic V.S.:	120 VAC, 60 Hz. or 230 VAC, 50 Hz.

Maximum Height:

Condenser:	108cm (42½")
Dichroic Standard:	98cm (38¼")
Dichroic V.S.:	98cm (38¼")

Shipping Weight:

Condenser:	11.2 kg. (25 lbs.)
Dichroic Standard:	12.7 kg. (28 lbs.)
Dichroic V.S.:	14 kg. (30 lbs.)

Concept Six Paperhandler Print Machines

Maximum Paper Storage Capacity: 5" x 7" — 80 sheets;
8" x 10" — 40 sheets; 11" x 14" — 40 sheets.

Paper Access Opening: 29x6cm (11" x 2-3/8")

Features:

Light-tight storage compartment provides easy access to paper.

Accommodates 5" x 7", 8" x 10" or 11" x 14" paper. Self-closing door with magnetic latches.

Includes adjustable paper positioners for borderless prints to 11" x 14".

Prints from 110 to 6x6cm (2¼" x 2¼") film formats.

Choice of 8 film carriers, including 110, 35mm, and 6x6cm.

Accepts camera copy attachment (429-062).

Concept Six CS-25 Automatic Print Machines

Reflected Reading Area: Approximately 3½" x 5" oval

Timing Range: Manual: 2-75 seconds
Automatic: 2-100 seconds minimum

Accuracy: ± 6%

Repeatability: ± 2%

Power Requirements: 120/230 VAC, 50/60 Hz.

Maximum Switching Capacity: 150 Watts or
85 Watts Tungsten

Features:

Automatically controls enlarger exposures during printing, regardless of changes in aperture, magnification, filtration or film density.

Reflected light reading area integration probe and solid-state timer system built into base.

Measures light during actual exposures, for perfect prints with color and black and white print materials.

Probe height adjusts for easels with thickness of 3/4" or more.

Choice of manual or automatic timing modes.

Choice of condenser or Chromega Dichroic lamphouse models.

Includes adjustable paper positioners for full borderless prints to 11" x 14".

Concept Six CS-50 Automatic Print Machines

Spot Reading Aperture: 4.5mm

Timing Range: Manual: 1-180 seconds
Automatic: 1-180 seconds minimum

Density Measurement Range: 0.0-2.0 density, via 21-position click-stop dial.

Timing Accuracy: Manual: ± 2%
Automatic: ± 7%
Repeatability: ± 7%

Maximum Lamp Switching Capacity: 250 Watts or
85 Watts Tungsten

Features:

Incident light spot reading probe.

Provides fully automatic exposures regardless of changes in aperture, filtration, magnification or film density.

Choice of two automatic operation modes: Aperture preference with automatic exposure time adjustments; Exposure time preference with LED indication when correct aperture is set.

Memory circuit provides single or multiple exposures without need to re-analyze.

Determines contrast range for optimum black and white printing results, via 21-position click-stop dial in probe.

Ideal for use with all print materials.

Key Features

Chassis

The backbone of the enlarger, the chassis is designed for convenience and rigidity. All materials are heavy duty to withstand continuous use.

- Rigid steel girder with calibrated reference scale. Reversible for floor projection. Professional black finish.
- Counterbalanced carriage for smooth fingertip elevation control at all magnifications.
- High, parallel-lift action of lamphouse allows easy access to film stage for carrier insertion, film dusting and inspection.
- Precision aluminum die-cast film stage for added strength and rigidity. Built-in location pins for critical alignment and easy carrier registration.

- Die-cast aluminum lens stage, threaded to accept all Leica-type lenses.
- Rubberized cloth bellows for flare suppression, extended range magnifications and reductions.
- Dual friction drive, stainless steel focusing rods assure smooth precise focusing action without slip or backlash. Adjustable tension control is user serviceable.
- Oversized, easy access controls for smooth, fast operation.

Condenser Lamphouse

The Omega Condenser lamphouse provides superior print contrast and detail, high light output and short exposure times. Double glass condensers, ground from the finest optical glass and polished to high standards guarantee the highest professional quality prints, in both color and black and white. For use with System 600 / Concept Six enlargers.

- Die-cast aluminum optical chamber assures precise optical alignment.
- Clear optical glass condensers give high contrast and optimum illumination for all enlarging lenses 50-80mm.
- Special 75 watt "Teardrop" lamp with unique shape yields high light output and even illumination.

- Filter drawer accepts variable contrast, color printing and neutral density filters. Hold down tabs secure pack into position. Capacity: 12-75mm (3") square filters.
- Convection cooling prevents heat build-up, film buckling.
- Vented lampcap for safe operation temperatures and long life
- Cold-rolled steel upper lamp cone is strong, dent-resistant and designed to stand up to heavy use.
- Three-wire cord with in-line switch and moulded, grounded plug.
- UL listed for safety.

Dichroic Lamphouse

The Chromega Dichroic lamphouse design provides high light output and even illumination. Its diffusion design yields superior dust and scratch suppression for minimum print retouching in both color and black and white. For use with all B System enlargers.

- Continuously variable dichroic cyan, magenta, and yellow filters are fade-proof and individually calibrated for precise color control.
- Diffusion illumination system actually suppresses scratches and dust for blemish-free prints.
- Tapered transmission diffuser for even illumination center to corner, designed to compensate for light fall-off with all film formats.
- Calibrated, illuminated reference scales are magnified and color coded, scaled in 1cc (standard color correction unit) increments, 0-170cc range for easy resetting. Zero detent for white light printing.
- Infrared absorbing filter yields purer color rendition, better color saturation.

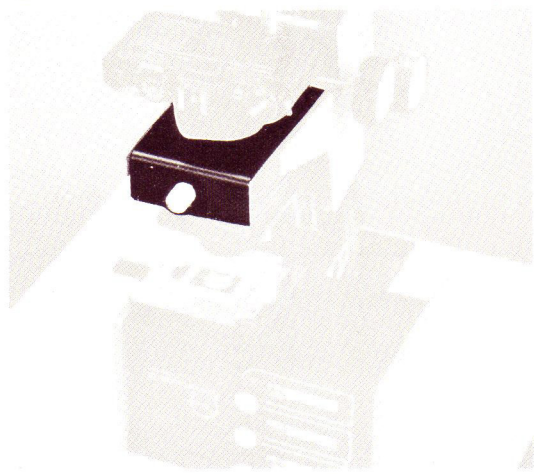
- Ultraviolet filtration prevents off color highlights and shadows.
- Variable contrast equivalencies with PC1 — PC3 range.
- Quartz halogen lamp operating at 75 watts, 27 volts for long life, consistent color temperature, optimum light output.
- Die-cast aluminum heat sink dissipates heat efficiently, keeping the film stage cool during use.
- Converts to slide duplicating light source with full color adjustment range for making internegatives, dupe slides and copying, with accessory camera copy attachment.
- Choice of standard or voltage stabilized power supplies. Standard power supply 120 VAC, 50 / 60 Hz. or 230 VAC, 50 Hz. Voltage Stabilized power supply 120 VAC, 60 Hz. with $\pm 1\%$ regulation from 95-130 volts or 230 VAC, 50 Hz. with $\pm 2\%$ regulation from 190-260 volts.
- UL listed for safety.

Optional Accessories for System 600 Enlargers

Omega Copy Camera Attachment

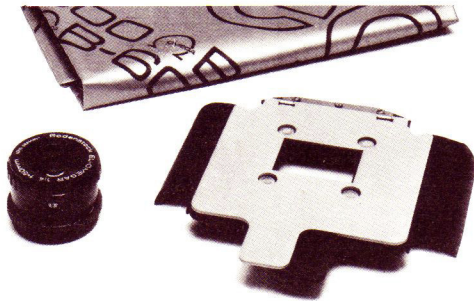
Cat. No. 429-062

For duplicating your own slides and making color or black and white copies. Accepts "T" mount adapters for mounting almost all SLR cameras directly to the enlarger/print machine chassis. Invert the dichroic lamphouse on the base for use as a continuously variable color balance light source. Also fits all Omega B-66 and B-22 models.



Omega Lens Kits

Special pre-packed one and two lens and film carrier kits are available with a choice of the finest quality enlarging lenses. Kits consists of the appropriate focal length lens in combination with a film carrier, and include a dust cover. Available in 50mm, 75mm and 50/75mm outfits.



Omega Dichroic Adapter Kit

Cat. No. 429-064

Required to install Chromega B Dichroic lamphouse onto System 600/Concept Six condenser chassis. Complete with mounting hardware (supplied with all chassis).

Omega Area Integrator For Color Analyzers

Cat. No. 429-158

The Omega Area Integrator is a unique optical device that permits integrated (average) readings with Omega and other color analyzers designed for spot measurement only.

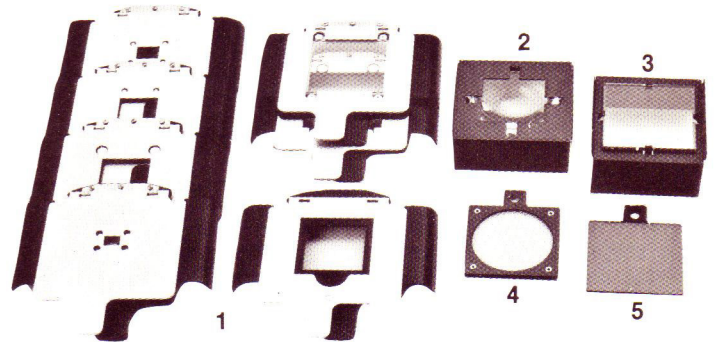


1. Omega Film Carriers

Special spring loaded, rapid-shift design with bright top surface and non-reflective bottom. Stainless steel film guide pins assure easy film advance, location and installation. Choice of 8 popular formats. Also fits all Omega B-66 and B-22 models.

Cat. No. Format

423-115	Minox
423-122	110
423-118	126
423-117	35mm Full Frame
423-123	Mounted 2"x2" Transparency
423-126	6.4cm (2-1/4"x1-5/8")
423-120	6x6cm (2 1/4 "x2 1/4 ")
423-129	Universal Glass, with Anti-Newton Glass



2. Omega Supplementary Condenser

Cat. No. 472-002

For use with condenser lamphouse to provide even illumination with short focal length lenses (25-35mm), when printing small film formats such as 110, 126, and Minox. Mounted in a metal frame.

3. Omega Heat Absorbing Glass

Cat. No. 473-121

Supplied in metal frame, provides infrared absorption and heat suppression when using the condenser lamphouse. Recommended for use with filters, and required for best results when color printing.

4. Omega Portrait Diffusion Grid

Cat. No. 429-015

Wire mesh grid provides "soft" portrait effects when printing.

5. Omega Under-The-Lens Filter Holder

Cat. No. 429-060

Swing-away holder for use with under-the-lens accessories such as red filter, portrait grid and variable contrast filters.

For further information we recommend the following reading material:

Kodak, **Basic Developing, Printing, Enlarging in Color**,
AE 13

Kodak, **Basic Developing, Printing, Enlarging in Black-
and-White**, AJ-2

Kodak **Color Dataguide**, R-19

Kodak **Darkroom Dataguide**, R-20

Kodak, **Creative Darkroom Techniques**, AG-18

Petersens **Guide to Creative Darkroom Techniques**

Petersens **Basic Darkroom**

U.L. Safeguards

When using your Omega Photographic products, 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 it 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 qualified service people 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 qualified servicemen when necessary. Incorrect reassembly can cause electric shock hazards.

These safeguards are prescribed by Underwriters Laboratories to be included in this instruction sheet for U.L. listed products. Some precautions may not apply to this product.



Specifications subject to change without notice.

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