

BESSELER

45MX II

enlarger / instruction manual

The "Safeguards" statement reproduced below is in accordance with Underwriters Laboratories "Standard for Safety, UL 122, Photographic Equipment."

IMPORTANT SAFEGUARDS ©

When using your photographic equipment, basic safety precautions should always be followed, including the following:

1. Read and understand all instructions.
2. Close supervision is necessary when any appliance is used by or near children. Do not leave appliance unattended while in use.
3. Care must be taken as burns can occur from touching hot parts.
4. Do not operate appliance with a damaged cord or if the appliance has been dropped or damaged — until it has been examined by a qualified serviceman.
5. Do not let cord hang over edge of table or counter or touch hot surfaces.
6. If an extension cord is necessary, a cord with a suitable

- current rating should be used. Cords rated for less amperage than the appliance may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
7. Always unplug appliance from electrical outlet when not in use. Never yank cord to pull plug from outlet. Grasp plug and pull to disconnect.
8. Let appliance cool completely before putting away. Loop cord loosely around appliance when storing.
9. To protect against electrical shock hazards, do not immerse this appliance in water or other liquids.
10. To avoid electric shock hazard, do not disassemble this appliance, but take it to a qualified serviceman when some service or repair work is required. Incorrect re-assembly can cause electric shock hazard when the appliance is used subsequently.

SAVE THESE INSTRUCTIONS

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SPECIFICATIONS

Height (Fully extended):

- Condenser Lamphouse — 57½" (146cm)
- Colorhead — 54¼" (138cm)
- Colorhead with Condenser — 59½" (151cm)

Baseboard: 25½" (65cm) x 20⅝" (52cm)

Lamp: PH212, 150W, 115V

Shipping Dimensions: 49½" (126cm) x 26¼" (68cm)
x 16½" (42cm)

Shipping Weight: 80 lbs. (36.3 kg)

INTRODUCTION

Congratulations on your purchase of one of the most prestigious enlargers available today, the Beseler 45MX II. Designed around a bridge-like girder framework, this enlarger can provide quality enlargements, even at maximum magnifications. Your 45MX II offers many outstanding, useful features, each fully described in this instruction manual. These features will enable you to pursue nearly any printmaking process or innovative technique imaginable.

Optically and mechanically, the Beseler 45MX II is the proper companion to your fine photographic and darkroom equipment. You can be assured that your 45MX II enlarger will provide years of dependable service when properly operated.

In order to gain the full advantage of the many characteristics incorporated into the 45MX II enlarger, please carefully read this instruction manual. It is also suggested that the manual be made available to all persons using the enlarger.

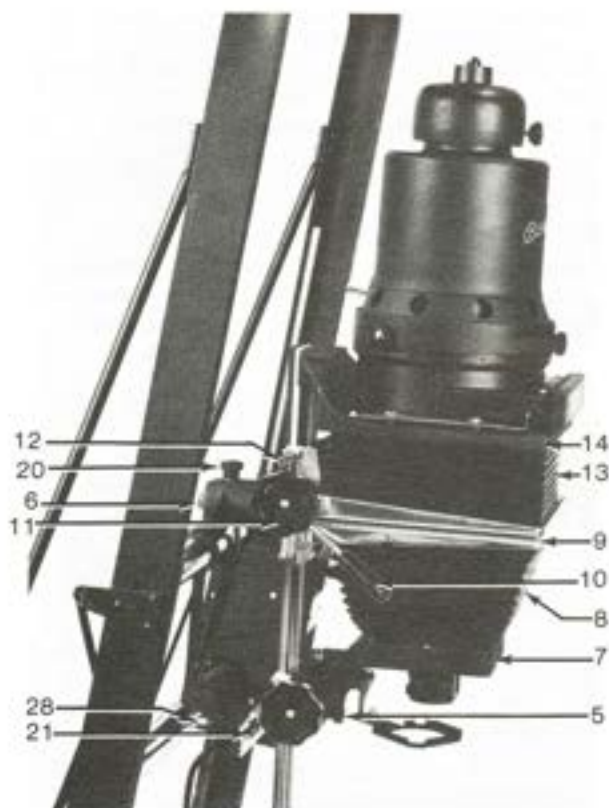


Figure 1

- 12. **NEGATIVE STAGE LOCK** Secures stage at selected height.
- 13. **UPPER BELLOWS** Allows negative stage to handle any size negative from 8mm to 4" x 5".
- 14. **LAMPHOUSE SUPPORT STAGE** Accepts any of the interchangeable 45M series illumination systems, without the use of accessories or adapters.
- 15. **LAMPHOUSE LATCHES** Secure illumination system firmly in place.
- *16. **CONDENSER ASSEMBLY** Includes two 6 1/2" optical glass condensers and color filter drawer.
- *17. **FILTER DRAWER** Holds Beseler 8" x 6" color printing filters.
- *18. **LAMPHOUSE ASSEMBLY** Contains socket and PH212, 150W lamp.
- *19. **LAMPHOUSE CAP** Easily removable to quickly change lamps.
- 20. **LATERAL ADJUSTMENT SCREW** Locks enlarger head in place at any desired position along the carriage.
- 21. **PIVOT BOLT** In conjunction with locking bolt, allows enlarger head to pivot 15° in either direction to control distortion.
- 22. **MAGNIFICATION SCALE** Reference scale for determining magnification in repetitive printing.
- 23. **MOTOR BOX** Moves enlarger head up or down for changes in magnification.
- 24. **CONVENIENCE OUTLET** To provide current for any Beseler 45 series illumination system.
- 25. **MANUAL ELEVATION CONTROL** Permits precise control of magnification.
- 26. **ELEVATION SWITCH** Activates motor; also acts as reference indicator for magnification scale.
- 27. **NEGATIVE STAGE GUIDE** Has graduations from 35mm to 4" x 5" to accurately position the negative stage for each size negative.
- 28. **VERTICAL STOP/ALIGNMENT ADJUSTMENT NUT** Acts as enlarger head stop when pivoting from shipping to operational position; helps adjust for perpendicularity of enlarger head to baseboard.

*Available as optional condenser lamp-house.

I. 45MX II ENLARGER COMPONENTS AND CONTROLS

- 1. **FRAME** Uses triangular truss construction to minimize vibration and provide sharp prints.
- 2. **BASEBOARD** 25 1/2" x 30 3/8" for large prints.
- 3. **ACCESSORY FILTER HOLDER** Accommodates red safe, variable contrast, soft focus and other filters.
- 4. **FOCUSING KNOB** Permits left or right hand focusing for operator convenience.
- 5. **FOCUSING BRAKE** Permits lens stage to be locked in place for accurate focusing.
- 6. **LOCKING BOLT** In conjunction with pivot bolt, allows enlarger head to pivot 15° in either direction to control distortion.
- 7. **LENS STAGE** Takes standard 4" x 4" lens board; pivots 15° in either direction to help control distortion.
- 8. **LOWER BELLOWS** Provides extra-long extension to allow reductions to 1.75.
- 9. **NEGATIVE STAGE** Accommodates a wide selection of accessory negative carriers, the Negatrans® and the Negafiat.
- 10. **NEGATIVE STAGE LEVER** Opens and closes negative stage.
- 11. **NEGATIVE STAGE ADJUSTMENT KNOB** Raises or lowers height of negative stage to match each size negative used.

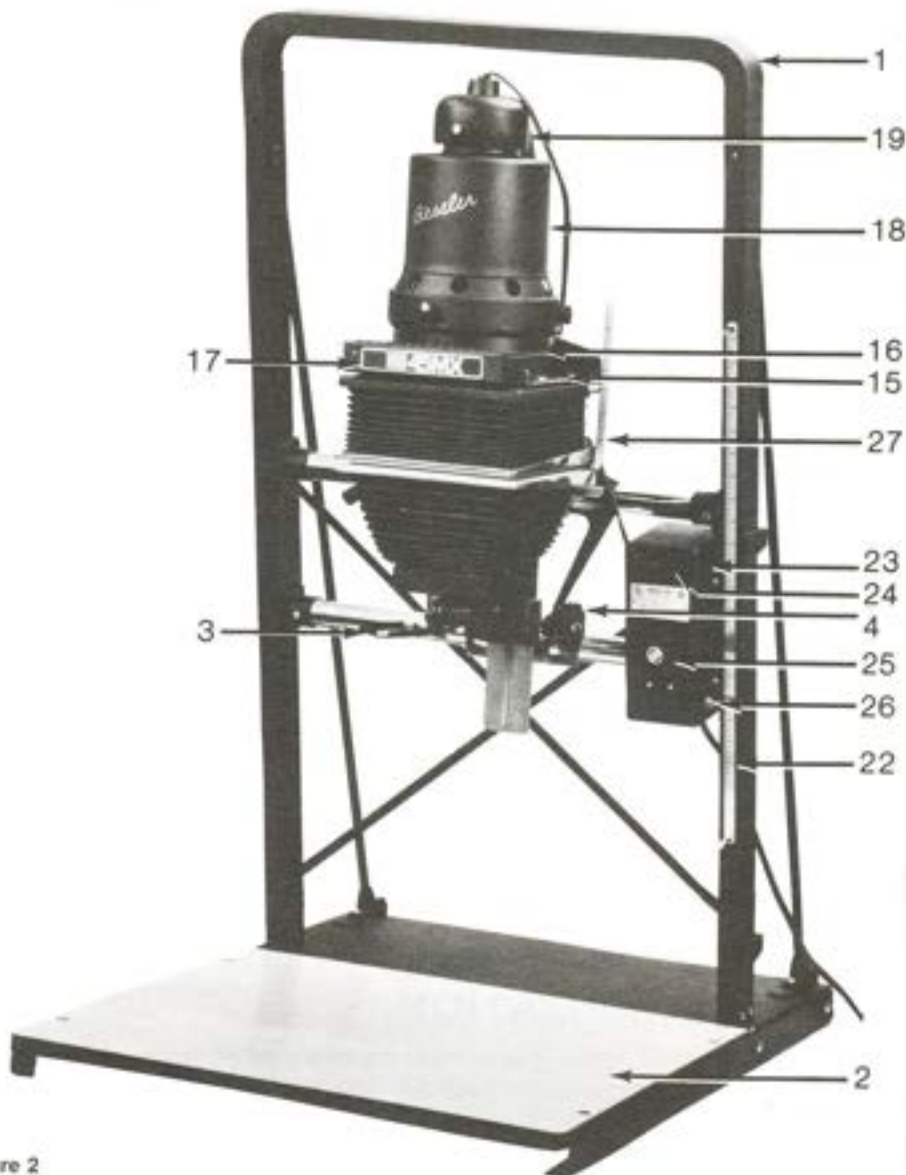


Figure 2

II. 45MX II ASSEMBLY INSTRUCTIONS

Your Beseler 45MX II enlarger requires very little assembly, so it should only take a few minutes to get set up to make large, sharp prints. You will need wire cutters to aid in unpacking the enlarger and a #2 or #3 Phillips head screwdriver to assemble it. The parts bag fastened to the enlarger head contains the following items:

- 4 pan head machine screws
- 4 flat head machine screws
- 1 red safety filter

Assemble the enlarger as follows:

A. Remove the enlarger from the packing carton. You will find that the enlarger head is in an inverted (shipping) position and secured in place with straps. *Do not remove* the straps until you have fully assembled the enlarger.

B. Place the enlarger on its back on a suitable flat surface.

C. Using two pan head screws, attach the right baseboard angle to the enlarger base (see Fig. 3). Insert screws hand tight. Repeat the procedure on the left side.

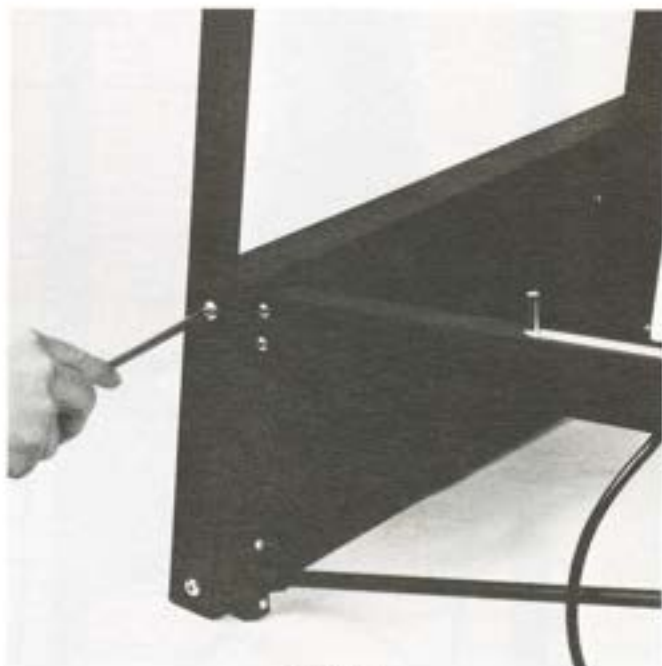


Figure 3

D. Carefully lift up enlarger to upright position.

E. Remove baseboard from liner and place on baseboard angles. Make sure the countersunk holes in the baseboard face up.

F. Insert the four flat head screws into the baseboard and hand tighten. After all angle and baseboard screws are in place, tighten firmly with screwdriver.

G. Use the wire cutters to remove the straps from the enlarger head. Slowly pivot the head to its operational position.

H. Illumination System — Instructions for installing the Dichro 45 Color Computer and the Point Light Source are contained in their respective manuals. The procedure for installing the Condenser Lamphouse is as follows:

1. Make sure the latches on the support stage are pulled forward (Fig. 4).
2. Remove condenser lamphouse from carton and place on support stage, making sure the bottom of the condenser slips into the opening of the support stage.
3. Push back latches to secure the condenser lamphouse assembly.
4. Insert lamphouse plug into "enlarger" outlet on your timer.

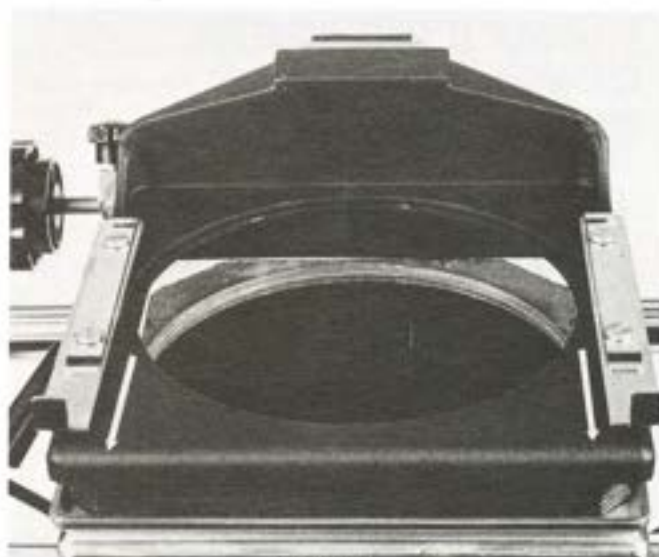


Figure 4

III. OPERATIONAL FAMILIARIZATION

The Beseler 45MX II is composed of six basic systems — illumination system, elevation control assembly, negative stage assembly, lens stage assembly, distortion tilt assembly and chassis — each of which is described below.

A. Illumination System

Beseler makes three interchangeable illumination systems for the 45MX II.

1. *Condenser Lamphouse System* includes the

lamphouse and the condenser assembly with integral filter compartment.

2. *Dichro 45 Color Computer*, a solid-state, microprocessor-based dichroic filter colorhead, incorporating self-contained, stabilized power supply and cooling system. Can be used with or without condenser assembly. Details fully explained in separate manual.
3. *Point Light Source System* (lamphouse and transformer), for extremely brilliant illumination at high contrast. Requires condenser assembly. Details fully explained in separate manual.

The condenser assembly, which is used with all three illumination systems, houses the heat absorbing glass and the lenses which focus the light rays to produce Beseler's exclusive "Cone-of-Light" illumination. Also incorporated in this assembly is the color filter compartment and its filter holder, for supporting color printing filters and variable contrast filters.

The lamphouse support stage readily accommodates the condenser assembly or the colorhead. The condenser or colorhead is securely fastened to the support stage by the support stage latches.

B. Elevation Control Assembly

The elevator motor/control box affixed to the enlarger carriage can be used to raise or lower the enlarger head to the desired magnification level. A three-position momentary switch is used to activate the motor; top position to raise the head; bottom position to lower; and middle position is off. Stop pins at the upper and lower ends of the carriage's vertical travel automatically throw the motor switch into the off position. The manual elevation knob on the motor box provides fine elevation control when extremely small changes in magnification are desired.

The elevation scale, on the right side of the enlarger frame, aids in determining the enlarger head height when additional enlargements of the same size are desired at a later date. The motor switch acts as the scale indicator.

The grounded convenience outlet on the motor box provides electricity for the lamphouse, color head, Resistrol or timer, depending on the power hookup sequence being employed.

C. Negative Stage Assembly

The Negative Stage Assembly accommodates the optional negative carrier, Negatrans or Negafat. The negative stage is opened by pushing downward on the negative stage lever. Locating pins on

the under side of the negative carrier, Negatrans or Negafat aid in positioning on the negative stage.

The position of the negative stage relative to the condenser lenses is important when using the condenser lamphouse. The negative size indicator and negative stage lock can help you determine and hold in place the setting to match your negative.

D. Lens Stage

The lensboard with lens attached (both available separately from your Beseler dealer) is held in place by the lens stage. Note that the bottom of the lens stage has two retaining strips, at the front and the rear, which hold the lens board in place. With the back edge of the lens board tilted upward, insert the back edge of the board into the groove above the rear retaining strip. Push the lens board back into the groove and raise the front edge until the board is level. A leaf spring in the rear groove will push the lens board into the groove above the front retaining strip and hold it in position. Make sure that the board is securely held at both front and rear. To remove the board, reverse the procedure.

The lens stage can be raised or lowered on the focusing rack by turning the left or right focusing knob. The lens stage brake can be tightened to hold the stage in the focused position.

The lens stage pivots 15° to the left or right to aid in correcting distortion in a negative or to create interesting effects. The pivoting action is used in conjunction with the distortion tilt assembly, explained in paragraph (F) of this section.

The accessory filter holder is affixed below the lens stage, and accommodates red safety, variable contrast, soft focus and other filters up to 2 $\frac{3}{8}$ " square. Remember to swing filter holder out of the light path when filtration is not required.

E. Chassis Assembly

This assembly consists of the baseboard, triangular truss frame and the carriage, on which the enlarger head is mounted. The triangular truss construction helps provide sharp prints by virtually eliminating vibration from the enlarger structure. The carriage moves laterally, which: permits the simultaneous use of two 8"x10" easels; allows only part of an image to be shown on an easel fixed in place; or assists in locating the image on the easel when using the distortion control feature.

F. Distortion Tilt Assembly

The entire enlarger head may be tilted up to 15° left or right when it is desired to correct or alleviate distortion in the negative. The distortion tilt may also be used to create distortion for unusual effects.

IV. OPERATION GUIDELINES

The correct size negative carrier, appropriate lens and negative stage position must be selected to match the negative size from which you wish to print. Table I shows which lens and which negative

size indicator settings go with each size negative. Your Beseler dealer offers a complete line of lenses, negative carriers, Negatrans and Negafat for your Beseler 45MX II enlarger.

TABLE I
45MX II OPERATION GUIDELINES DATA

NEGATIVE SIZE	NEGATIVE SIZE INDICATOR SETTING	RECOMMENDED LENS FOCAL LENGTHS	APPROXIMATE BASEBOARD MAGNIFICATION RANGE	
			MAXIMUM	MINIMUM*
8mm 16mm 110 format	35mm	25mm	34X	12X
		or 35mm	27X	10X
35mm 126 format	35mm	50mm	17X	6X
1¾" x 2¼" (6x6cm)	2¼ x 2¼	75mm	11.75X	3.75X
		or 80mm	11X	3.5X
2¼" x 2¼" (6x4.5cm)		90mm	9.25X	3X
2¼" x 2¾" (6x7cm)	2¼ x 3¼	105mm	7.5X	2X
2¼" x 3¼" (6x9cm)	2¼ x 3¼	135mm	5.5X	1X
3¼" x 4¼" (8x11cm) 9 x 12cm	3¼ x 4¼	135mm or 150mm	6X	.75X
			5X	1X

*When using diffusion colorheads, the upper bellows must remain fully compressed (4" x 5" position). Therefore, the magnifications obtainable for formats smaller than 4" x 5" will be altered, allowing for greater magnifications than when used in condenser configuration. If it is desired to make smaller size prints, simply elevate the easel above the baseboard or use longer focal length lens.

A. Negative Stage Setting

Before printing, you must set the negative stage to the proper height to provide even illumination for the negative you are using. This is accomplished by turning the negative stage adjustment knob (Figure 1, item 11) until the correct position is shown on the negative stage guide (Figure 2, item 27). The negative stage lock (Figure 1, item 12) should be tightened so that no movement of the stage occurs while you are making other adjustments. Five positions are inscribed on the negative stage guide. Table I indicates which settings cover which size negatives.

B. Lens Selection

The Beseler 45MX II accommodates most any brand of enlarging lens having a focal length from 50mm to 150mm. Your Beseler dealer can show you which Beseler accessory lensboard will match your selected lens. Some short focal length lenses require special recessed lens boards in order to focus properly.

The correct focal length depends on the size of the negative. Use of the wrong focal length may cause vignetting at the corners of the projected image or inability to focus the image at the desired magnification.

C. Magnification (Reduction)

The size of the projected image is determined principally by the distance between the negative and the easel. An increase in the distance yields an

enlargement of increased dimensions. A decrease in distance results in an enlargement of smaller dimensions, and then a reduction (depending on lens).

Approximate magnification ranges on the baseboard for different size negatives are given in Table I. The data correspond to the recommended lens focal lengths for the negative sizes indicated, but you may find it is possible to obtain magnification ranges outside those shown by experimenting with other negative stage positions, lens focal lengths and raising the easel off the baseboard.

Projecting an image having the identical dimensions of the negative (1:1) requires careful manipulation of the elevation control (Figure 1, item 26) and the focusing knob (Figure 1, item 4). It is suggested that you first adjust the height of the enlarger head so that the negative stage to easel surface distance is approximately four times the focal length of the lens (example: if using a 150mm lens, the distance should be 600mm). Next, focus the image on the easel. If the projected dimensions are close to those of the negative, but the image cannot be focused, raise the enlarger head slightly, and refocus the image.

Reductions are similarly attained, but may require lenses of longer focal lengths or elevating the easel from the baseboard.

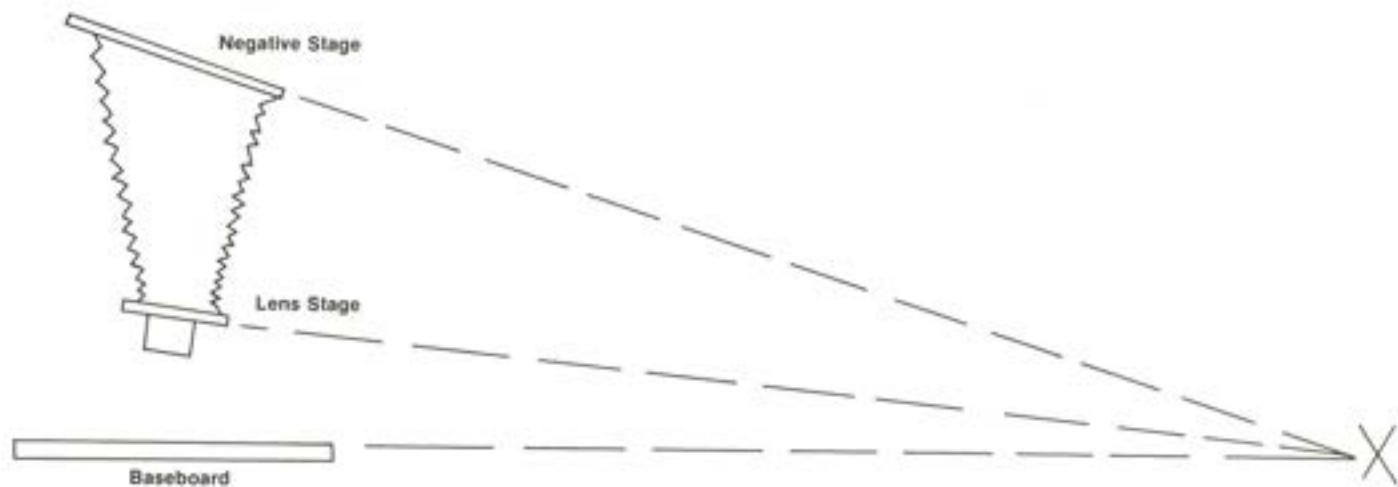


Figure 5

V. ADDITIONAL APPLICATIONS

A. Color Enlargements

Your Beseler 45MX II can help you make beautiful color enlargements, using either the Dichro 45 Color Computer (catalog #8282) or the Color by Beseler Color Printing Filters (catalog #8933). Instructions for using either of these color printing methods are packed in their respective cartons.

B. Repetitive Printing

The 45MX II enlarger offers a host of features that makes repetitive printmaking, either during a single session or at a later date, much easier. When making several consecutive copies of a print, it is suggested that you set the focus lock (Figure 1, item 5) to ensure sharp print after print.

The magnification scale (Figure 2, item 22) on the enlarger frame can help you duplicate your results at a later session. After you create a print with which you are satisfied, you should not only record the f-stop and exposure time, but the reading behind the motor switch on the magnification scale. (The increments on the scale are for reference only, and do not indicate actual magnifications.) The next time you wish to duplicate this print, simply raise or lower the enlarger head to the same reference point and focus the image. Of course the negative stage setting and the lens size must be the same as originally used.

C. Distortion Control

Distortion corrections, such as converging parallel lines in architectural photographs, can be readily made *on the baseboard* with the 45MX II enlarger. You can get a sharply focused image throughout the picture area or create special distorted effects by using the distortion control adjustment, in conjunction with the pivoting lens stage.

In order to control (or create) the distortion and achieve overall image focus, the negative stage, the lens stage and the easel must be arranged in such a way that their surface planes cast imaginary lines that would converge at a common point. Figure 5



Figure 6

illustrates this principle. You could use three very long straightedges to adjust the angles so that the lines from the three planes converge, but the method outlined below is probably most practical.

1. Set the magnification and roughly focus the projected image.
2. Use a box or open end wrench to loosen the pivoting ($\frac{9}{16}$ " head) and locking ($\frac{7}{16}$ "") bolts (items 47 and 70 on the exploded view).
3. Pivot the entire enlarger head (Figure 6) until the desired degree of distortion or control is achieved. Tighten both bolts to minimize vibration.
4. Simultaneously pivot the lens stage and adjust the focus knob to bring the corrected image into focus.¹

Once you have finished printing distortion controlled images, you should return the lens stage and the enlarger head to their original positions. The lens stage has a detent which will hold the stage perpendicular when you pivot back to the original position. To make sure the enlarger head is perpendicular to the baseboard, follow the alignment procedure in Section VI.

D. Oversize Prints

For enlargements exceeding the size possible on the baseboard, the 45MX II can be adapted for projection through the base frame. Simply remove the four Phillips screws holding the baseboard in place, remove the baseboard and place the enlarger on two tables, leaving an open space between the tables to allow the projected image to pass through the frame and to the floor. Clamp the enlarger to the tables to ensure optimal stability. Magnifications can be varied by using the elevation control or propping up your easel on a box or other suitable level surface.

E. Lateral Adjustment of the Enlarger Head

A unique feature of the 45MX II enlarger is an adjustment allowing side to side movement of the enlarger head on the carriage tubes (Figure 7). This lateral

Footnote 1: Remember that opposite ends of the image will be at different magnifications, and you will need to either burn in the area furthest from the lens or dodge the area closest to the lens.

movement is useful when it is desired to enlarge only a portion of a negative without disturbing the position of the easel. To operate the lateral adjustment, loosen the carriage lock knob (item 101 on the exploded view drawing) and move the enlarger head to the desired position. For most other printing operations, the carriage should be located at the center of the carriage tubes.

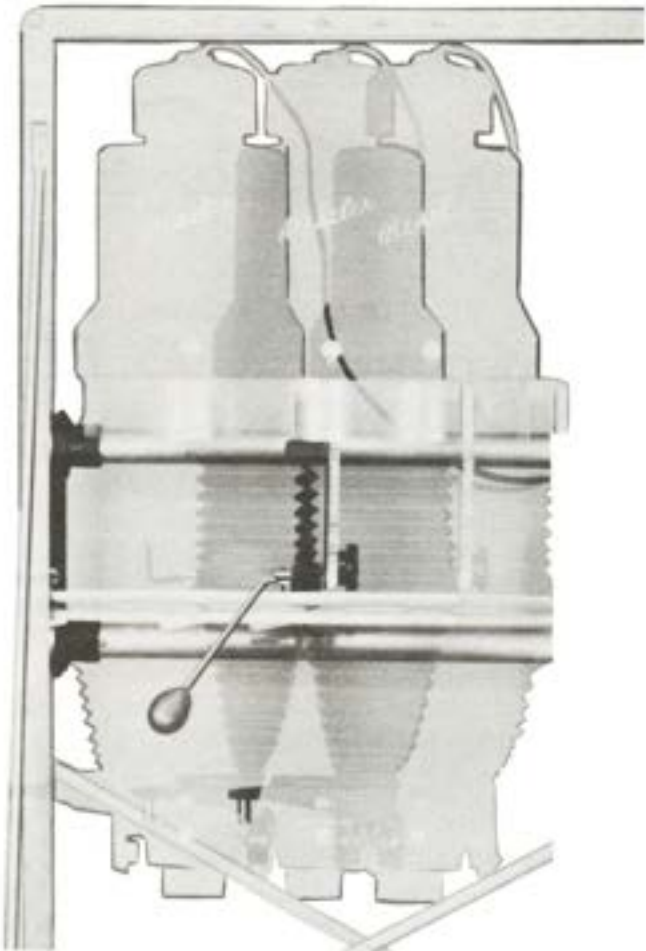


Figure 7

VI. ALIGNMENT PROCEDURES

Your Beseler 45MX II is inspected and completely aligned before it leaves the factory. However, improper handling and the use of the distortion control assembly may require realignment of certain components.

A. Carriage Alignment

Rough treatment while moving the 45MX II from one location to another might cause a carriage gear to jump a tooth on the elevation rack, knocking the carriage out of alignment. Correct as follows:

1. Remove illumination system and condenser assembly.
2. Remove the lower stop pin (item 164 on the exploded view) from the frame.
3. Slowly run the carriage assembly down the

elevation rack while firmly holding the lower counterbalance assembly (item 61) until the gears (item 55) disengage from the rack.

4. Hold the carriage in both hands and lift until the carriage rides the track evenly; that is, so the gears are evenly engaged on the racks.
5. Push up motor switch so carriage rides up.
6. Place a triangle or carpenter's square in contact with the baseboard and the left and right sides of the lower counterbalance assembly to make sure the counterbalance assembly is parallel to the baseboard.
7. Re-attach lower stop pin.

If the carriage appears to be parallel to the baseboard at low magnification and not at high, it may

be necessary to adjust the rear support struts. Facing the enlarger, if the right side of the carriage assembly is lower than the left, adjust the left strut as follows:

1. Remove the two screws from the foot of the strut (item 158) and turn the foot (item 157) clockwise at least one full turn.
2. Check the alignment. If additional adjustment is required, turn the foot once more.
3. Re-insert and tighten screws.

CAUTION: If the struts are adjusted unevenly, a "twisting" of the entire frame assembly may result. This will cause uneven operation of the carriage assembly in the elevation racks and this might eventually wear out the gear racks and/or the elevation motor.

If the left side of the carriage assembly is lower than the right, adjust the right strut in the same manner as described above.

B. Distortion Control Assembly Alignment

Each time you use the distortion control assembly and wish to return to perpendicular printing, the negative stage must be realigned:

1. Do not tighten the pivot and locking bolts after you have pivoted the enlarger head back to its vertical position.
2. Open the negative stage and insert a piece of glass or other absolutely flat material large enough to overhang the sides of the negative stage. Close the negative stage.
3. Lower the enlarger until the negative stage is approximately 24 inches above the baseboard.
4. Use a straightedge or carpenter's square at least 24 inches long to measure the distance of the left and right sides of the negative stage from the baseboard (Figure 8).
5. Pivot the enlarger head on the distortion control assembly until the distance from the right side of the negative stage to the baseboard is the same as the left.
6. Tighten the locking and pivot bolts.

C. Lens Stage Adjustment

When the lens stage is in the "zero" or centered position, the left and right sides should be an equal distance from the baseboard, as measured with a straightedge, carpenter's square or triangle. If they are not, follow the procedure below:

1. Loosen the two slotted lens stage screws and pivot the lens stage until the left and right sides are equal distances from the baseboard.
2. Tighten the screws.

D. Counterbalance Spring Adjustment

If the elevation motor stalls at the top or bottom of its travel, the counterbalance spring tension must be adjusted. **NOTE:** All adjustments are performed on the left side of the enlarger, facing the front.

1. Loosen, but *do not remove*, clamp screw (item 169) at rear of lower tube.

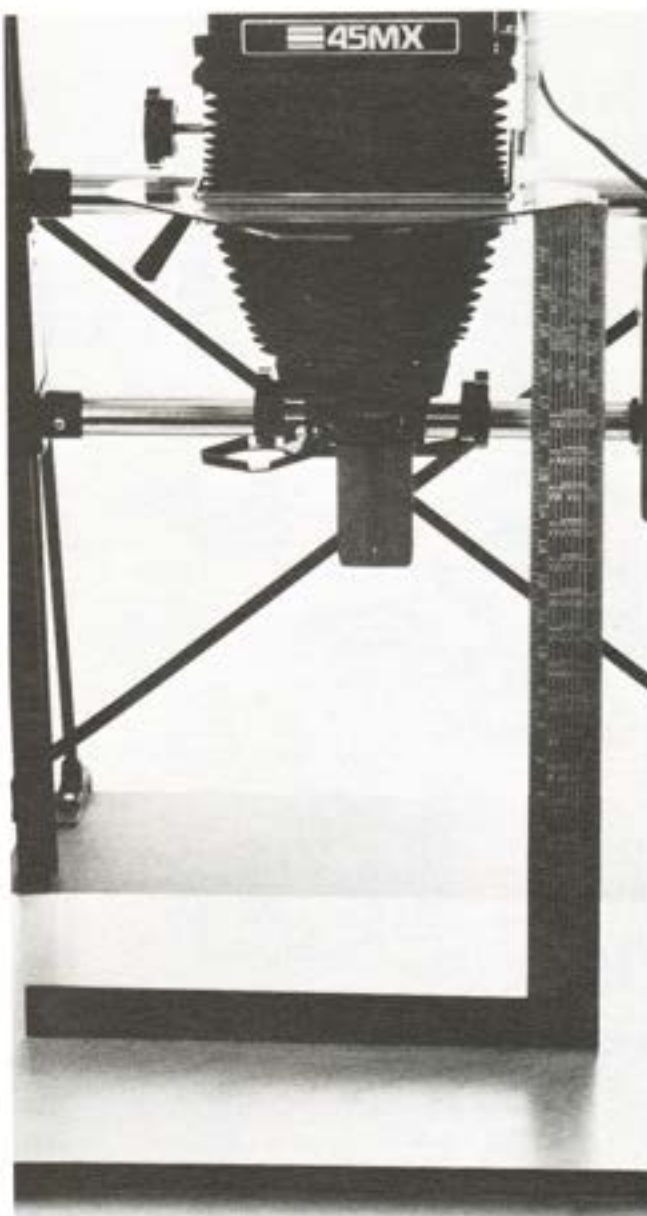


Figure 8

2. Firmly grasp lower tube in right hand and remove screw (item 170) from front of tube. **NOTE:** There will be considerable counterclockwise spring action in the tube.
3. If the enlarger runs upward too slowly, increase the counterbalance tension by rotating the lower tube counterclockwise at least two complete revolutions, and re-insert screw.
4. If the enlarger runs downward too slowly in the last four to five inches of travel, decrease counterbalance spring tension by rotating lower tube one revolution in a clockwise direction, and re-insert locking screw.
5. Make sure locking screw is in place and the tube clamping screw is tightened before checking for proper motor operation.

VII. MAINTENANCE

The Beseler 45MX II enlarger is designed for efficient, reliable operation with minimal maintenance. The only two regular maintenance operations that may need to be performed are changing lamps and keeping the optical elements free of dust.

A. Lamp Changing Procedure

1. Make sure lamphouse cord is disconnected from its power supply.
2. Allow the lamp cap and burned out lamp to cool before attempting to change lamp.
3. Loosen lamp cap knob and lift lamp cap assembly clear of lamphouse.
4. Unscrew lamp and replace with Beseler catalog #8100 (PH212).
5. Reinstall lamp cap, tighten knob and reconnect lamphouse cord to power supply.

B. Cleaning Optical Elements

The heavy-duty Pliofilm dust cover (catalog #8129) for the 45MX II will help keep your enlarger free of dust. Should the condenser lenses require cleaning, follow the procedure below:

1. First use a blower brush, filtered compressed air or a cloth such as the Color by Beseler Anti-Static Cloth (catalog #8956) to clean off any

surface dust.

2. If the lenses are still dirty, they should be removed and carefully cleaned. **NOTE:** The condenser lenses are delicate and should be removed only when absolutely necessary.
3. Loosen the three lamphouse screws (item 2 on exploded view) and remove lamphouse from condenser assembly.
4. Remove the three Phillips head screws (item 13) located around the top perimeter of the condenser. Place aside screws, spacers and nuts.
5. Hold the heat absorber glass in place and carefully turn the condenser assembly on its side, allowing the heat absorber to slowly slide from the casting.
6. Lift out the spacer ring and the upper condenser lens.
7. There is no need to remove the lower condenser, as all surfaces are now accessible for cleaning with lens tissue or anti-static cloth.
8. Reassemble by reversing the procedure.

NOTE: The upper and lower condensers are not interchangeable.

45MX II ACCESSORIES

DICHO 45 COLOR COMPUTER (Catalog #8282)

A truly versatile and unique colorhead. The Dichro 45 is a solid state, microprocessor-based, dichroic colorhead incorporating a self-contained stabilized power supply and cooling system. It represents the latest technology applied to color printing. With selected accessories, the Dichro 45 can be used for diffusion or condenser printing for formats ranging from sub-miniature to 4" x 5" negatives.

NEGATRANS®

The Beseler Negatrans is a patented carrier that effortlessly transports film in roll, strip or single frame format into and out of your 45MX II enlarger. Once the Negatrans is inserted into the negative stage, it need not be removed nor the stage opened to insert, advance or remove a negative.

Negatrans model 8332 accommodates 35mm negatives, and model 8333 handles 2 1/4 x 2 3/4 and 2 1/4 x 2 1/4 negatives.

COLOR PRINTING FILTER SET (Catalog #8933)

Color by Beseler six-inch square filters can be readily trimmed to easily slip into the filter holder of the 45MX II enlarger. The complete set of 24 filters covers filtration ranges of 2.5 to 157.5 in cyan, magenta and yellow. An ultra-violet filter and two 50 red filters are included. The filters are made of Mylar® and are highly resistant to heat, fading and scratches.

2-STEP COLOR CHEMISTRY (Catalog #8940)

Only two solutions — no pre-wet or intermediate

wash — enable you to make beautiful color prints in just two minutes. The 2-Step Chemistry can be used at any temperature from 66° to 107°, is reusable (up to four uses) and is very economical.

CN2 COLOR NEGATIVE CHEMISTRY

(Catalog #8994)

Specifically designed for home processing in conventional daylight tanks, CN2 chemistry can process your Kodacolor® II, Vericolor® II, Fujicolor® II, EK 5247 or other C-41 compatible films. It works at 75°, 85° or 100°F. in only three processing steps. One-half litre can handle six rolls of 36 exposure 35mm film.

3-STEP COLOR CHEMISTRY (Catalog #8990)

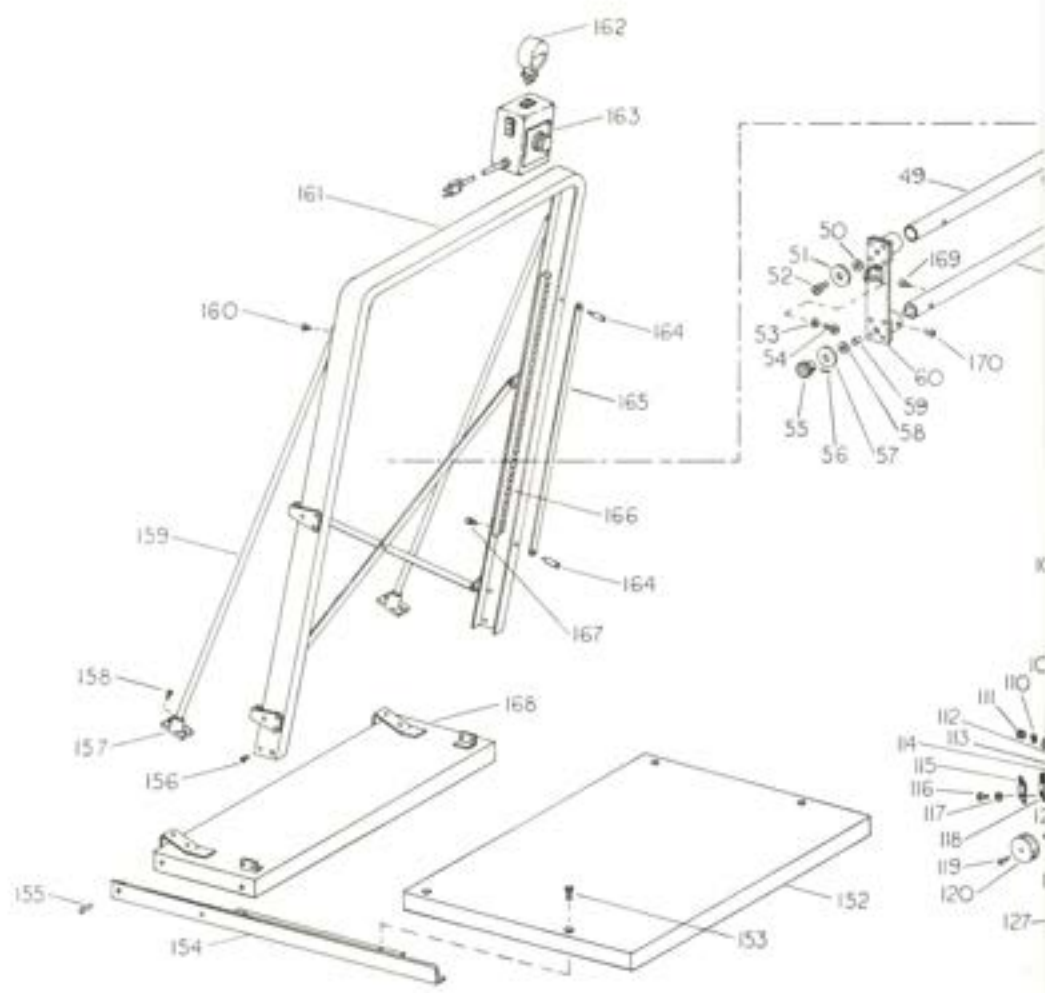
A new process, especially formulated for use with Kodak Ektachrome® 2203 RC color paper for making prints from color slides. 3-Step requires less stringent temperature control than other 2203 processes, and no internegatives.

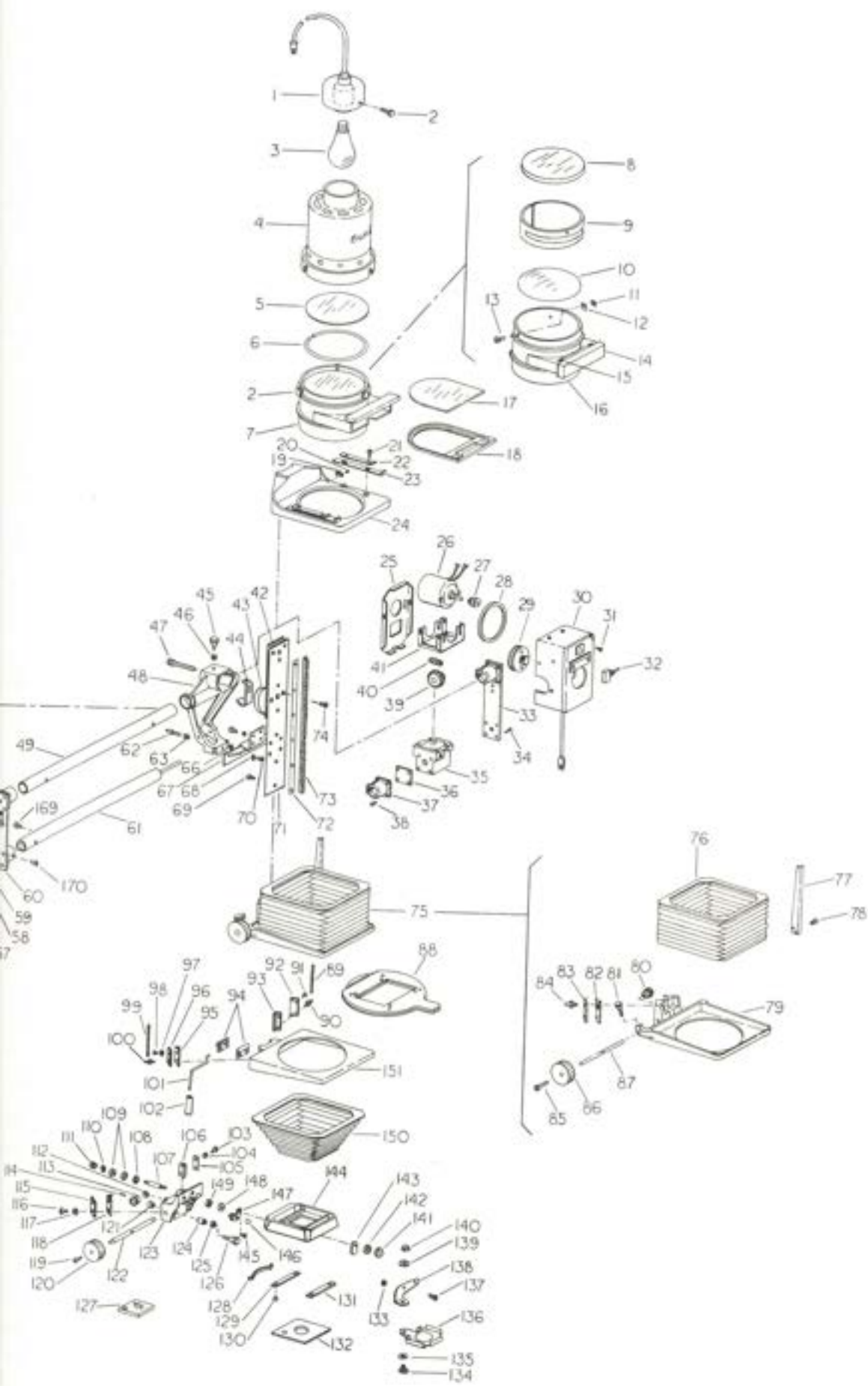
E6 COLOR SLIDE CHEMISTRY (Catalog #8997)

E6 is used to process all Ektachrome® E6 and similar color transparencies. The process includes a chemical reversal bath that eliminates the need to remove the film from the reel during processing. The E6 can do up to eight rolls of 36 exposure 35mm film.

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Fujicolor is a registered trademark of Fuji Photo Film Co., Inc.
Negatrans and Resistrol are registered trademarks of Beseler Photo Marketing Co., Inc.

EXPLODED VIEW 45MX II





PARTS LIST — 45MX II

Ref. No.	Description	Part No.	Ref. No.	Description	Part No.	Ref. No.	Description	Part No.
1	Lamp Cap Assembly	10-04506	61	Lower Counterbalance Assembly	10-04565	118	Bearing	10-11017
2	Thumb Screw	568-20-05	62	Adjusting Screw Assembly	10-04567	119	Screw, Machine — #8-32 x 1/2" Long Pan Phillips	
3	Lamp PH212 (150 watts)	Cat. No. 8100	63	Nut — 1/2-20 Hex		120	Focusing Knob	568-05-07
4	Lamphouse Assembly	10-04507	64	Screw, Machine — #10-32 x 1/2" Long Pan Phillips		121	Cartridge — Locking	10-04645
5	Heat Absorber Glass	Cat. No. 8077	65	Lockwasher — #10		122	Focusing Shaft	10-04551
6	Spacer Ring	555-20-16	66	Washer — #1/4" I.D., 1/2" O.D. x 1/16"		123	Lens Stage Carriage	10-04576-01
7	Condenser Housing Assembly	10-04760	67	Bracket — Interlock	10-31367	124	Spacer, Locking Lens Stage	10-04646
8	Condenser — Top	680-14-54	68	Lockwasher — 1/4"		125	Washer — #108, 1/2" O.D. x .032"	
9	Separator — Condenser	10-04769	69	Screw, Machine — #6-32 x 9/16" Long Pan Phillips		126	Knob	568-20-07
10	Condenser — Bottom	680-14-53	70	Screw, Machine — #1/2-20 x 1/2" Long Hex		127	Filter — Red Safety	Cat. No. 8040
11	Nut — Tinnerman #8	565-01-08	71	Stage Mounting Bar	10-31366	128	Spring	10-04543
12	Pad — Condenser Retaining	10-04536	72	Spacer — Rack	10-04668-01	129	Retainer — Rear	10-04542
13	Screw, Tapp — #68 x 1/2" Long Flat Head Phillips		73	Rack — Lens Focus	10-04572	130	Screw, Tapp — #48T x 1/4" Long Pan Phillips	
14	Cover & Hinge Assembly	10-04763	74	Screw, Machine — 1/2-20 x 1 1/2" Long Flat Hd. Slotted		131	Retainer — Front	10-44056
15	Screw, Tapp — #68 x 1/2" Long Pan Phillips		75	Upper Negative Stage Assembly	10-04514	*132	Lensboard — Blank	See Catalog
16	Housing — Condenser	10-04761	76	Upper Bellows Assembly	10-04655	133	Spacer — Filter Holder	10-43736
17	Filter Support	680-86-04	77	Negative Size Indicator	10-04564	134	Screw — Shoulder	540-30-55
18	Filter Holder	10-04775	78	Screw, Tapp — #48 x 1/2" Long Pan Phillips		135	Bow Washer — 17/64" I.D., 9/16" O.D. x 1/16"	
19	Indicating Pointer	10-04563	79	Upper Negative Stage	10-04532	136	Holder — Safe Filter	10-42040
20	Screw, Tapp — #48 x 3/16" Long Pan Phillips		80	Gear	562-03-05	137	Screw, Machine — #8-32 x 5/16" Long Pan Phillips	
21	Screw — Shoulder	540-30-12	81	Knob — Locking	568-20-06	138	Filter Holder Ass'y	10-43734
22	Latch Spring	10-04562	82	Bearing, Slide	10-11017	139	Lockwasher — #8 Lock Tooth	
23	Latch (Pair) — 10-04561-01 (R), -02 (L)		83	Plate, Spring Backup	10-08118	140	Cap Nut — #8-32	
24	Condenser Support Stage	10-04540-01	84	Stud	10-04613-02	141	Cap Nut — #1/2-20	
25	Motor Rear Cover	10-04599	85	Screw, Machine — #8-32 x 1/2" Long Pan Phillips		142	Lockwasher — #1/4"	
26	Motor & Terminals, 115 V.	10-04669-10	86	Knob	568-05-07	143	Ball Retaining Spring	10-04608
27	Small Pulley	10-04581	87	Shaft	10-04560	144	Lens Stage	10-44052
28	Belt	582-36-01	*88	Negative Carrier	See Catalog	145	Screw, Machine — #6-32 x 1/2" Long Pan Phillips	
29	Large Pulley	10-15192	89	Spring — Stags (Right)	562-70-20	146	Ball — 5/16" Dia.	562-80-02
30	Motor Cover Assembly (115 V.)	10-04745-50	90	Stud	10-04613-02	147	Wear Plate — Lens Tilt	10-04609
31	Screw, Machine — #6-32 x 1/4" Long Pan Phillips		91	Screw, Machine — #4-40 x 1/2" Lg. Fill. Slotted Hd.		148	Washer — #12A, 1/2" O.D. x 1/16"	
32	Motor Switch	610-10-14	92	Plate, Spring Backup	10-08118	149	Washer — Fiber 25/64" I.D., 1/2" O.D. x 1/16"	
33	Bracket Assembly — Left	10-04550	93	Bearing	10-11017	150	Lower Bellows Ass'y	10-04656
34	Screw, Machine — #8-32 x 1/2" Long Flat Phillips		94	Bracket — Lever Hinge	10-04610	151	Lower Negative Stage	10-04533
35	Gear Box	10-04577	95	Bearing	10-11017	152	Baseboard	10-04740
36	Bushing Retainer	10-04594	96	Plate — Spring Backup	10-08118	153	Screw, Machine — 1/2-20 x 1" Long Flat Phillips	
37	Clamp Collar	10-04590-03	97	Nut — #4-40 Hex		154	Angle Assembly (Specify R. H. or L. H.)	10-04735-01 (L) -02 (R)
38	Screw, Machine — #8-32 x 1/2" Long Pan Phillips		98	Screw, Machine — #4-40 x 1/2" Long Fillister Slot		155	Screw, Machine — 1/2-20 x 1/2" Long Truss Phillips	
39	Worm Gear	562-11-53	99	Spring — Stage (Left)	562-70-21	156	Screw, Machine — #10-32 x 1/2" Long Truss Phillips	
40	Worm	562-11-05	100	Stud	10-04613-02	157	Fool — Frame Support	10-04625
41	Motor Mounting Bracket	10-04559	101	Stage Opening Lever	10-04611	158	Screw, Machine — #10-32 x 5/16" Long Rnd. Phillips	
42	Spacer — Bar	10-31368	102	Knob	568-40-06	159	Rod — Frame Support	10-04741
43	Spacer — Pivot	10-31369	103	Screw, Machine — #4-40 x 1/2" Long Fillister Slot		160	Screw, Machine — 10-32 x 1/2" Long Truss Phillips	
44	Bracket	10-04579	104	Nut — #4-40 Hex		161	Frame	10-04734
45	Knob	568-20-06	105	Plate — Spring Backup	10-08118	*162	Voltmeter	Cat. No. 8111
46	Washer — #108, 7/16" O.D. x 1/32"		106	Bearing	10-11017	*163	Resistor	Cat. No. 8110
47	Screw, Machine — #3/8-16 x 3" Long Hex Cap		107	Shaft — Lens Tilt	10-04574	164	Stop Pin	10-04628
48	Enlarger Head Carriage	10-04535	108	Washer — 25/64" I.D., 1/2" O.D. x 1/16"		165	Elevating Scale	Cat. No. 8093
49	Upper Tube	10-04583	109	Bow Washer — 25/64" I.D., 1/2" O.D. x 3/32"		166	Carriage Elevating Rack	10-04624
50	Washer — 1/2" Nom., 1/2" O.D. x 1/16"		110	Lockwasher — 1/4"		167	Screw, Machine — 6-32 x 1/2" Long Truss Phillips	
51	Wheel	10-04582	111	Nut — 1/2-20 Hex		168	Base Assembly	10-04729
52	Shoulder Screw	540-30-30	112	Bow Washer — 21/64" I.D., 9/16" O.D. x 1/4"		169	Screw, Machine — 8-32 x 1/2" Long Pan Phillips	
53	Side Wheel	10-04566	113	Gear	562-03-05	170	Screw, Machine — 10-32 x 1/4" Long Pan Phillips	
54	Shoulder Screw	540-30-18	114	Roll Pin	553-09-62			
55	Spur Gear	562-03-11	115	Plate, Spring Backup	10-08118			
56	Roll Pin	553-09-30	116	Screw, Machine — #4-40 x 1/2" Lg. Fill. Hd. Slotted				
57	Wheel	10-04592	117	Nut — #4-40 Hex				
58	Washer — 25/64" I.D., 1/2" O.D. x .015"							
59	Bearing	560-40-14						
60	Collar & Bracket Assembly — Right	10-04556						

Items without part numbers are common hardware available locally.

*Accessories available from your Bessler dealer.

LIMITED ONE YEAR WARRANTY

Beseler Photo Marketing Company, Inc., Florham Park, New Jersey warrants its products (with the exception of lamps), to the original purchaser only, to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase.

This Warranty does not apply to our products which show evidence of accidental damage, misuse or abuse by you. The Warranty also does not apply to our products which are defective or damaged by tampering or attempted repair by an unauthorized Beseler agent.

Beseler exclusively limits this Warranty to repair or replace (at Beseler's option) the defective part of its product. If you decide to send our product to our authorized repair outlet, you must insure the product and prepay all transportation expenses. Beseler will not be liable for damages caused in the course of shipping the product to you. You must allow at least six (6) weeks for correction of the defect.

ANY IMPLIED WARRANTIES OF FITNESS FOR USE, OR MERCHANTABILITY, THAT MAY BE CREATED BY OPERATION OF LAW ARE LIMITED TO THE ONE (1) YEAR WARRANTY PERIOD.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

NO LIABILITY IS ASSUMED FOR EXPENSES OR

DAMAGES RESULTING FROM INTERRUPTION IN OPERATION OF EQUIPMENT, DAMAGE TO FILM OR PAPER, OR FOR INCIDENTAL, DIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

In the event there is any defect in materials and workmanship of our product you may contact our Customer Service Department at Beseler Photo Marketing Company, Inc., 8 Fernwood Road, Florham Park, New Jersey 07932. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. You may also have implied warranty rights. In the event of a problem with warranty service or performance, you may be able to go to a Small Claims Court, a State Court, or a Federal District Court.

IMPORTANT:

THIS WARRANTY SHALL NOT BE VALID AND BESELER SHALL NOT BE BOUND BY THIS WARRANTY IF OUR PRODUCT IS NOT OPERATED IN ACCORDANCE WITH BESELER'S WRITTEN INSTRUCTIONS.

You must prove the date of purchase by producing a sales receipt indicating that you are the original purchaser.

IMPORTANT! KEEP THIS INFORMATION HANDY FOR FUTURE REFERENCE KEEP YOUR SALES RECEIPT!

SERVICE INFORMATION:

Should you need service for your BESELER photographic equipment after the warranty has expired, please follow these steps:

PACK the product in the original packaging material to protect it in transit.

ENCLOSE complete information showing your name and address, what is wrong with the equipment, and the return shipping address. Tape the information to the equipment to be sure it does not get thrown out with the packing material.

ADDRESS the package to BESELER SERVICE MANAGER, 8 Fernwood Road, Florham Park, NJ 07932.

PREPAY FREIGHT CHARGE AND INSURE the package against damage or loss in transit.

ESTIMATES. We will gladly provide estimates upon request. There is a flat estimate charge of \$7.50 payable in advance. The estimate charge will be credited towards the cost of the repair. No work will be undertaken or billed until written approval of the

estimate is received.

CHARGES. Your local Beseler dealer has a list of current price ranges to service Beseler photographic equipment. Any repair likely to exceed the maximum recommended service price will be estimated and held for your approval before work is begun.

PAYMENT. Your check for \$7.50 must accompany your request for an estimate; alternatively, you may charge your VISA or MASTER CHARGE account. Repairs must be paid in full prior to return to owner. Personal checks or VISA/MASTER CHARGE accepted. (If you pay by VISA or MASTER CHARGE, please give the account number and expiration date.)

OBSOLETE EQUIPMENT. Beseler reserves the right to refuse to repair equipment that has been discontinued for five (5) years.

IN-WARRANTY SERVICE. There is no charge for service performed during the warranty period. **PROOF OF PURCHASE** is required for warranty service and must be enclosed with the return. Terms of the warranty are explained above.

BESELER

BESELER PHOTO MARKETING CO., INC.,
8 FERNWOOD RD., FLORHAM PARK, N.J. 07932