

BESLER

45V-XL

enlarger/instruction manual

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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 reassembly can cause electric shock hazard when the appliance is used subsequently.

SAVE THESE INSTRUCTIONS

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I. INTRODUCTION

Congratulations and thank you on your purchase of the Beseler 45V-XL enlarger. We have maintained the Beseler tradition by providing you with the most advanced design features, highest quality materials and superb precision that have been our hallmarks in the professional community for over 100 years.

The 45V-XL enlarger is designed to be used with all of the Beseler 45 series light sources including the 45 Condenser Lightsource, the Dichro 45S and Dichro 45 Computerized Colorheads as well as the unique Beseler/Minolta 45A Enlarger Lightsource. Eight by ten inch format enlarging is also possible with the 810 Conversion Kit with Cold Light Source.

A complete selection of Beseler accessories are available including negative carriers, lensboards and our high quality HD enlarging lenses. Your 45V-XL can be

mounted on either the optional Baseboard or the optional Wall/Table mount.

You may also use the Omega D series Condenser lamp-house, the Super Chromega Dichroic II Colorhead and a selection of D series sandwich type negative carriers with the adapters provided. An adapter is also included to permit the use of Omega oval lens mounting plates.

Designed with the professional in mind, your Beseler 45V-XL is manufactured to provide years of dependable and precise service. In order to obtain optimum satisfaction and performance from the 45V-XL, we suggest that you carefully read the contents of this manual and provide it to anyone who may use the enlarger. This manual will provide you with the necessary information to fully utilize its capabilities and the time taken to read it will be well spent.

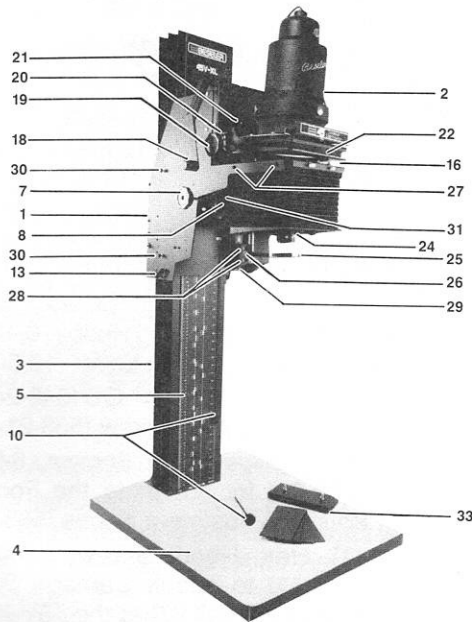


Figure 1

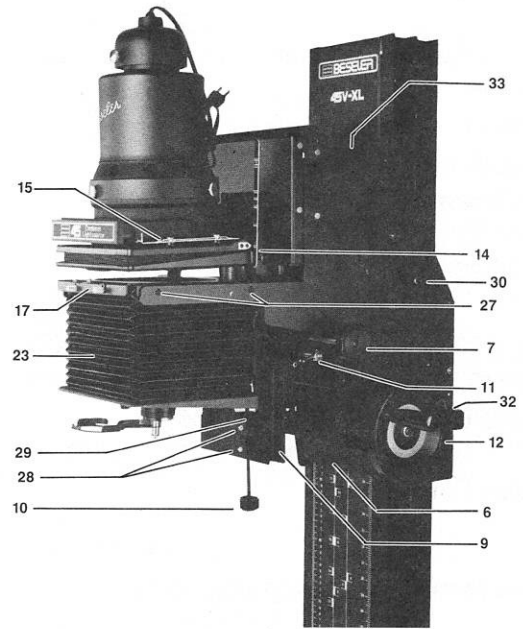


Figure 2

PARTS ILLUSTRATION

Enlarger shown with Beseler Condenser Lightsource and baseboard.

1. **CARRIAGE**
2. **45 CONDENSER LIGHTSOURCE (accessory)**
3. **COLUMN** Vertical, center braced dual E-channel construction. Provides maximum rigidity and constant image centering.
4. **BASEBOARD (accessory)** 1½" x 23¾" x 30" for large prints.
5. **ELEVATION SCALE** Reference scale for, repetitive printing, with english and metric unit markings, plus magnification marks for 50mm, 80mm, 105mm and 150mm lenses.
6. **ELEVATION SCALE INDEX** Adjustable reference mark for locating the carriage elevation on the Elevation Scale.
7. **FOCUS KNOBS** Permits left or right hand focusing for operator convenience.
8. **FOCUS BLOCK** Houses the focusing mechanism.
9. **FOCUS TRACK**
10. **FINE FOCUS EXTENSION — LONG AND SHORT** Allows precise focus control. The adjustable lengths permit convenient operation at any magnification and can be switched easily.
11. **FOCUS LOCK** Permits lens stage to be locked in place.
12. **CARRIAGE ELEVATION HAND WHEEL** Used to raise and lower the carriage on the column.

13. ELEVATION LOCK

14. **CONDENSER POSITION GUIDE (Part of the 45 Condenser Lightsource assembly)** For use with the Beseler 45 Condenser light source, it has graduations from 35mm to 4" x 5" to accurately position the Condenser Lightsource for each negative format. The Condenser Position Guide and its index pointer are packed as part of the 45 Condenser set.

15. **LIGHTSOURCE LATCHES** Secures Beseler lightsource systems firmly in place.

16. **NEGATIVE STAGE** Accommodates the wide selection of Beseler negative carriers, the Negatrans® and Negafat® as well as many Omega D series negative carriers.

17. **NEGATIVE CARRIER LOCATOR** Installed on the front of the negative stage, it is used to position the negative carrier handle consistently in one position.

18. **NEGATIVE STAGE OPENING LEVER** Opens and closes negative stage by raising and lowering the lightsource support bracket.

19. **CONDENSER STAGE ADJUSTMENT KNOB** Is used with Beseler Condenser Lightsource to raise or lower the height of illumination stage to match each negative format.

20. **LIGHTSOURCE STAGE LOCK** Secures stage at selected height.

21. **LIGHTSOURCE STAGE MOUNTING SCREWS**

22. **LIGHTSOURCE SUPPORT STAGE** Accepts any of the interchangeable Beseler 45 series illumination systems without the use of accessories or adapters.

23. **LOWER BELLOWS** Provides extra-long extension to allow reductions.

24. **LENS STAGE** Takes standard 4" x 4" lensboard adapter to accept 4" x 4" lensboards the Beseler three lens turret and the Omega lens plate adapter.

25. **ADJUSTABLE ACCESSORY FILTER HOLDER** Accommodates red safety, variable contrast, soft focus and other filters.

26. **FILTER HOLDER LOCK SCREW** Allows adjustable accessory filter holder to be locked in vertical position on its vertical adjustment post.

27. **NEGATIVE STAGE ADJUSTMENT SCREWS** Permits the alignment of the negative stage in both left/right and front/back movements.

28. **LENS STAGE ADJUSTMENT SCREWS — Permits Front/Back alignment of the lens stage.**

29. **LENS STAGE ADJUSTMENT SCREWS — Permits Side/Side alignment of the lens stage.**

30. **LATERAL CARRIAGE ADJUSTMENT SCREWS**

31. **FOCUS BLOCK — Bearing Adjustment Screw**

32. **PINION GEARS (Located on back of carriage)**

33. **COUNTERWEIGHTS (Located inside carriage)** Attaches to the inside of the carriage. It provides adjustable balance control of the enlarger to permit smooth carriage elevation control. **CAUTION Refer to Section III G before making adjustments to the weight system.**

45V-XL SPECIFICATIONS

Column Height 54" (137cm)

Optical center of lens
to column face 13.75" (35.6cm)

Maximum Height with:

*Beseler Condenser lamphouse 64" (163cm)

*Beseler 45 Colorheads 61" (155cm)

*Beseler 45 Colorheads
with condenser 66" (168cm)

*Beseler 45A 58½" (149cm)

*Beseler 810 61½" (156cm)

*Omega D Condenser 64" (163cm)

*Omega Super Chromega
Dichroic colorhead 58" (147cm)

Baseboard — Cat # 8561 (accessory)
. 1½" x 23¾" x 30"
. (3.8cm x 60cm x 76cm)

Magnification — 50mm lens on baseboard

*Maximum 25x

*Minimum 4.5x

Electrical Requirements:

(With Beseler 45 Condenser Lightsource)

Cat # 8121 120V, 150W, 2A

Cat # 8123 230V, 150W, 1A

Lamp:

Cat # 8100 PH212 — 150W, 120V

Cat # 8107 PH2120 — 150W, 230V

Shipping weight (chassis and column)
. Approx. 118 lb. (53.6 kg)

Shipping Dimensions
. 59" x 31" x 17½"
. (150cm x 79cm x 44.5cm)

Specifications subject to change without notice.

II. UNPACKING INSTRUCTIONS

(Two people are required for assembly.)

Carefully open the shipping carton and check all items against the packing slip. We suggest you retain the carton and the inserts in the event that the unit must be reshipped.

1. Lift out the enlarger chassis and set aside. **CAUTION:** Do not unlock the carriage lock until you have *fully* assembled the enlarger.
2. Carefully remove the box which contains the hardware and accessory components.

The Accessory Carton contains the following items (Beseler part numbers are in parentheses):

- a. One (1) Carriage Elevation Hand Wheel (568-07-07)
- b. One (1) Negative Stage Opening Lever (10-50359)
- c. Two (2) sets of Counterbalance Weights (10-50440)

- d. One (1) AC Line Cord Extension (605-78-16) for use with Beseler light sources.
- e. One (1) Adapter, Lens Board (10-49522) for use with Beseler lens boards.
- f. One (1) Adapter, Lens Board (10-50358) for use with Omega lens plate.
- g. One (1) Adapter, Negative Carrier (10-50422) for use with omega negative carriers.
- h. One (1) Adapter, Colorhead (10-50356) for use with Omega colorhead.
- i. One (1) Hardware Kit:
 - (1) One (1) Knob (10-42078) for Negative Stage Opening Lever.
 - (2) Three (3) Knobs (568-05-07), 2 for Focus Shaft and 1 for Light Source Adjustment
 - (3) One (1) Negative Carrier Locator (10-50391)
 - (4) One (1) Red Safety Filter (680-93-53) (cat. #8040)
 - (5) Two (2) AC Line Cord Retaining Clips (555-40-14)
 - (6) Four (4) Knurled Thumbscrews (540-43-51), 2 for Lens Board Adapter (10-50358) and 2 for Negative Carrier Locator (10-50391)
 - (7) Two (2) Phillips Head Screws, 10-32x3/8" (524-12-02-06) for attaching the Negative Stage Opening Lever (10-50359) to the 45V-XL
 - (8) One (1) Self Tapping Screw, 8Bx5/8" (538-21-20-2) for attaching Knob (10-42078) to Negative Stage Opening Lever (10-50359)
 - (9) One (1) Plain Washer, 3/4" OD (548-24-40) for use with Self Tapping Screw (538-21-20-02)
 - (10) Three (3) Phillips Head Screws, 8-32x1/2" (521-16-02-05) for attaching the Focus and Light Source Adjustment Knobs (568-05-07)
 - (11) One (1) Hex Head Screw, 1/4-20-1/2" (527-16-40-11) to attach Carriage Elevation Hand Wheel (568-07-07) to the 45V-XL
 - (12) One (1) #14 Plain Washer, 1/2" OD (548-32-08) for use with Hex Head Screw (527-16-40-11)
 - (13) One (1) Lock Washer (549-40-46) for use with Hex Head Screw (527-16-40-11)
 - (14) Fine Focus Extension — Long (10-50451)
 - (15) Fine Focus Extension — Short (10-50450)
 - (16) (2) Knobs, Fine Focus Extensions (568-01-97)
 - (17) One (1) Tool Kit:
 - (a) One (1) 3/32" Hex Wrench (700-01-05) for Focus Block Bearing Adjustment Screw
 - (b) One (1) 5/32" Hex Wrench (700-01-07) for Focus Block Eccentric Nut securing screws, Lens Stage front/back adjustment and light-source support stage bracket
 - (c) One (1) 3/16" Hex Wrench (700-01-02) for Focus Block securing screws
 - (d) One (1) 3/8" Open End Wrench for adjusting fit of Focus Block, Focus Block Bearing Adjustment screws, lateral Carriage Adjustment screws

III. ASSEMBLY INSTRUCTIONS

Tools Required:
 Phillips Head Screwdriver
 Slotted Screwdriver

A. MOUNTING THE ENLARGER

1. Baseboard

- a. Remove the Beseler baseboard (Cat. #8561) from its box. Prepare the baseboard by following the instructions included with the baseboard.
- b. Carefully position and support the column on top of the baseboard so that the securing holes are visible through the column baseplate.
- c. Attach the column to the baseboard using the screws supplied with the baseboard. Make certain that the column is securely fastened before moving the enlarger.

2. Wall/Table Mount

The Beseler Wall/Table Mount (Cat. #8562) is designed to provide a stationary wall mounted platform for the enlarger. The unit comes constructed expressly for use with the 45V-XL enlarger. Follow the instructions included with the mount.

It is strongly recommended that you choose one of the above Beseler mounts. They are specifically designed to work with your 45V-XL and provide a rigid support. Other possible methods for mounting your enlarger may exist, but care must be taken to provide a rigid and sturdy structure onto which the enlarger is placed.

B. CARRIAGE ELEVATION HAND WHEEL

Locate the Carriage Elevation Hand Wheel. Place the Hand Wheel onto the end of the shaft which extends out of the Carriage Elevation Assembly. Install the 1/2" OD — #14 flat washer followed by the lock washer over the hole on the end of the shaft. Use the 1/4-20 x 1/2" Hex head screw to secure the hand wheel to the shaft.

C. NEGATIVE STAGE ELEVATION LEVER

1. To assemble the negative Stage Elevation Lever, attach the small knob first. Place the 3/4" flat washer into the recessed area of the knob. Place the knob against the single hole on the lever. Use the 8B x 5/8" self tapping screw to secure the knob.
2. Position the lever to the left side and on top of the Lightsource Support Stage mounting plate assembly. Align the two mounting holes and secure with the two 10-32 x 3/8" Phillips head screws.

D. NEGATIVE CARRIER LOCATOR

The locator is installed on the front of the negative stage and is used to position the negative carrier handle consistently in one position.

1. Position the locator so that the mounting holes align flat against the front face of the negative stage with the locating tabs pointing up.
2. Secure with two thumbscrews.

E. FOCUSING AND LIGHTSOURCE ADJUSTMENT KNOBS

1. The focusing knobs (2) are fitted to the left and right ends of the shafts extending from the upper portion of the focusing block. Place the knobs on the ends of the shafts. Secure each with an 8-32 x 1/2" Phillips head screw.
2. The Lightsource Adjustment Knob is placed on the shaft on the left side of the Lightsource Support Stage. Secure with the 8-32 x 1/2" Phillips head screw.

F. FINE FOCUS EXTENSIONS

1. Locate the two short knobs. Press one onto each of the two extensions. The short extension can be used for most magnifications while the longer is suggested for greater magnifications.
2. After choosing an appropriate extension, insert the end into the universal coupling attached to the left side of the focus block. Secure by turning the thumb screws.

G. COUNTERBALANCE WEIGHT — INSTALLATION AND ADJUSTMENT

[NOTE: During shipping, the counterbalance weights are not installed in the carriage. Carefully read the following section before proceeding with installation.]

The 45V-XL has been designed to accommodate a wide range of lightsources. In order to insure a smooth carriage travel, regardless of the lightsource in use, a full set of interchangeable counterweights are provided to balance the system. The following chart indicates the counterbalance weight required for each lightsource. As some variations may occur, use this chart as a guide.

Source	Weight (lb.)
<i>Beseler Lightsources</i>	
*45 Condenser Head (8121)/(8123)	11
*Dichro 45S (8278)/(8279)	7
*Dichro 45 Computerized Colorhead (8282)/(8286)	6
*Beseler 45A (8289)/(8290)	12
*Beseler 810 (8265)	7
<i>Omega Lightsources</i>	
*D Series Condenser	13
*Super Chromega Dichroic II Colorhead	11

The adjustment should be such that the weight installed will allow the use of approximately equal force when raising or lowering the carriage with the light source mounted.

CAUTION: Be careful when making adjustments to the carriage weights. Sudden vertical movement of the carriage may result from the removal or addition of the weights causing damage to the enlarger and possible bodily injury. Always be certain that the carriage lock is activated and in good working condition.

1. Installation

- a. Unpack the two sets of nine 1 lb. weights. Remove the bolts and wing nuts from each group. The wing nuts will be used to fasten the weights to the carriage.

45
15

- b. Make sure that the carriage is locked. Viewing through the top of the carriage, locate the two mounting studs found on the right and left inner walls of the carriage.
- c. Following the preceding weight recommendations, slide the counterweights onto the studs. Distribute the weight as evenly as possible. Secure the weights in place with wing nuts.
- d. Refer to the Section III H to install your light source for the first time. Only after the enlarger is fully assembled should you release the carriage lock.

2. Changing light sources

When you change to a different light source, you must make an appropriate change in the counterbalance weight. To do this, repeat steps #2 and 3 above.

- a. If *adding* counterweight, first install the new weight then exchange light sources. If you are *removing* counterweight, first exchange light sources then remove the weight. In either case, keep the weights evenly distributed on both sides of the carriage.
- b. Carefully release the carriage lock and check for ease of operation. Read just if necessary.

H. LIGHT SOURCE INSTALLATION

1. Beseler Lightsources

Instructions for using most Beseler light sources are contained in their respective manuals. All Beseler lightsources (with the exception of the 810 conversion kit) attach to the enlarger in the same manner.

- a. Make sure the latches on the support stage are pulled forward (see fig. 2, item 15)
- b. Place the light source on the lightsource support stage making sure that the bottom of the unit slips into the opening of the stage.
- c. Push the latches back to secure the lamphouse assembly.
- d. Install the ac extension cord into the ac cord from the lightsource.

2. Omega Light Sources Installation

The Unique design of the Beseler 45V-XL permits mounting several Omega lamphouses. Two special mounting brackets are supplied with the enlarger for this purpose.

[Note: Some adjustments specific to Omega products may be necessary before or after installation to the 45V-XL. Please refer to your Omega instructions for these.]

- a. Raise the carriage to the top of the column to permit removal of the lightsource support stage. Lock the carriage into position.
- b. Raise the lamphouse by pulling the negative stage lever towards you. Remove any lamphouse that may be on the enlarger.
- c. Using the 5/32" hex wrench, reach behind and remove the four 10-32 x 1/2" screws that secure the bracket of the light source support stage to the elevation plate. Carefully remove the light-source support stage.

- d. There are six, oblong mounting holes on the light source support elevation plate (see fig. 1, item 21). The lower four holes are for mounting the Beseler support stage when mounting the adapter brackets for Omega light sources, use the four upper mounting holes.
- e. Two adapter brackets are provided. The larger is to be used with the Super Chromega Dichroic II (proceed to step f). The small adapter bracket is designed for use on the D series Condenser light sources (Proceed to step h).
- f. To install the Super chromega Dichroic II first mount the large bracket to the light source support elevation plate. With the four threaded holes located on the left of the bracket, line up with the upper four mounting holes on the support plate. The bracket support arms point forward. From behind the support elevation plate, hand tighten the four 10-32 x 1/2" cap screws.
- g. Remove the four knurled mounting screws from the Dichro II lamphouse Position the light source between the support arms. Line up the four mounting holes. Secure the head to the adapter bracket using the knurled mounting screws. Continue at step j.
- h. The Omega condenser head may also be used on the 45V-XL. The mounting procedure is similar to the above, but instead, the smaller mounting bracket is used. Position this bracket over the upper four mounting holes on the elevation plate so that the support arms are pointing forward with the four oblong adjustment holes, of the bracket, in the bottom position. From behind the support elevation plate, hand tighten the four 10-32 Allen cap screws.
- i. Remove the knurled mounting screws from the condenser head. Place the head between one of the two sets of mounting holes which positions it closer to the center of the negative stage. Secure the head in place with the knurled mounting screws.
- j. Adjust the lateral position of the head with the negative stage closed and 4" x 5" carrier installed. Shift the light source side-to-side until the desired position is achieved. Optical axis is centered over the carrier. Using the 5/32" hex wrench, tighten the four 10-32 Allen cap screws.
- k. Follow Omega instructions for front-to-rear centering.

IV. OPERATING INSTRUCTIONS

A. LENS SELECTION AND MOUNTING

The Beseler 45V-XL is designed to use both the standard Beseler 4" x 4" lensboard adapter, as well as the Beseler Lens Turret. The standard lensboard adapter is included with the enlarger and will accept all the Beseler 4" x 4" lensboards.

To install the standard lensboard adapter to the enlarger, orient the rear two mounting thumbscrews and the single front mounting thumbscrew on the adapter with their respective holes on the face of the lens stage. Tighten the thumb screws hand tight.

To install one of the optional lensboards to the standard adapter, tilt the lensboard so the back edge of the board can be inserted into the groove underneath the rear retaining strip of the lensboard adapter. Push the lensboard back into the groove and raise the front edge until the board is level. A leaf spring in the rear groove will push the lensboard 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.

As an alternate to the single lensboard, you may use the optional Beseler Lens Turret (Cat. #8225) which, once installed, offers the convenience of having any one of three lenses available simply by rotating the turret.

You must remove the 4" x 4" adapter plate before you can attach the turret. While holding the adapter plate unscrew the three thumbscrews to remove the adapter (the three thumbscrews are held captive and will not fall out).

Place the Lens turret into the lens stage opening with the pointed part of the plate facing towards you. While firmly holding the turret, press and turn each of the three thumbscrews until they are tightened.

Once the turret is installed, you will only have to change back to the standard adapter plate if you require a special lens which is mounted on a 4" x 4" Beseler board.

To choose one of the three lenses on the turret, gently pull down on the locking knob and rotate the plate either clockwise or counterclockwise. The lens in use is the one on the left side of the turret which corresponds to the optical center of the 45M system.

You will need to use a lens of the appropriate focal length for the negative format from which you will be printing.

Table 1 below indicates which lenses are required for various formats and the range of magnification which can be obtained with each.

Standard Lensboards

The standard 4x4 Beseler lensboard fits directly into the adapter which is normally supplied with the enlarger.

Most current enlarging lenses are designed with a 39mm (Leica) mounting thread. These fit through the standard Beseler lensboards and are secured with a jam nut which is either supplied by the lens manufacturer or available as catalog #8095.

Measure the mounting thread of the lens and refer to the first chart below for 39mm mount lenses and to the second chart for all others. As lens manufacturers occasionally make changes, it is essential that you measure the actual lens before using these charts as a guide.

	Focal Length	Lensboard
Standard 39mm Mount Lenses	28-40mm	8022
	50-60mm	8021
	63-90mm	8023
	105-135mm	8029

Lens	Lensboard
Schneider & Vivitar 100mm, 135mm & 150mm Lenses	8032 or 8037
Rodenstock 120 WA and 150mm Rodagon	8037
Other Lenses not listed, 50mm or shorter	8020
Other Lenses not listed, 50mm or longer	8016

TABLE 1
45V-XL OPERATION GUIDELINES DATA

NEGATIVE SIZE	NEGATIVE SIZE INDICATOR SETTING	RECOMMENDED LENS FOCAL LENGTHS	APPROXIMATE BASEBOARD MAGNIFICATION RANGE	
			MAXIMUM	MINIMUM*
Disc 16mm 110	35mm and smaller formats	28mm or 35mm	45.5	9.27
35mm	35mm and smaller formats	50mm	25	4.5
1 3/4" x 2 1/4" (6 x 4.5cm)	2 1/4 x 2 1/4	75mm or 80mm	16	1.9
2 1/4" x 2 1/4" (6 x 6cm)		90mm	12.5	1.4
2 1/4" x 2 3/4" (6 x 7cm)	2 1/4 x 2 3/4	105mm	12.3	.75
2 1/4" x 3 1/4" (6 x 9cm)	2 1/4 x 3 1/4	135mm	10.8	.62
3 1/4" x 4 1/4" (8 x 11cm)	3 1/4 x 4 1/4	135mm or 150mm	7.9	.97
4" x 5" (10 x 13cm)	4 x 5		7.8	.97
			6.7	1.23

*Smaller magnifications are possible by elevating easel and using accessory extension cone (Cat. #8038). The use of lenses on a turret will also affect the minimum magnification.

Omega Lens Plates

Another feature of the 45V-XL is that it will accept the Omega D series lens plates. An Omega to Beseler 4" x 4" lensboard adapter is included.

1. Assemble the two thumbscrews to the board. Do not tighten.
2. Position the Omega lensboard over the two thumbscrew posts and twist to engage.
3. Fasten the Omega lensboard in place by tightening the two thumbscrews.
4. Once mounted, the lensboard fits onto the lensboard adapter as any of our standard 4" x 4" lensboards.

Beseler Lens Turret

Most enlarging lenses are equipped with a 39mm (Leica) mounting thread which will screw directly into the three openings on the lensplate. If your lens does not have a 39mm thread or if the distance from the mounting to the rear of the lens is greater than 13mm, or the outer diameter of the lens is greater than 54mm, then an adapter or spacer is required.

Beseler has the following adapters available:

- Cat. #8370 39mmx6.5mm
- Cat. #8371 39mmx11.5mm
- Cat. #8372 42mmx12mm
- Cat. #8373 50mmx21mm

(Size is female thread x Length. All convert to 39mm male thread.)

Currently the following lenses require an adapter:

Beseler	
Beseler HD 80mm	8370
Beseler HD 135mm	8371
Beseler HD 150mm	8373
Nikon	
EI-Nikkor 40mm	8370
EI-Nikkor 63mm	8371
EI-Nikkor 135mm	8370
Rodenstock	
Rodagon-G 50mm	8370
Rodagon 80mm	8370
*Apo-Rodagon 90mm	8371
Rodagon 135mm	8371
Rodagon 150mm	8373
Schneider	
WA-Componon 40mm	8370
WA-Componon 60mm	8371
*WA-Componon 80mm	8370 & 8371
Apo-Componon HM 90mm	8371
Componon-S 100mm	8371
Componon-S 135mm	8373
Componon-S 150mm	8373

*Note: These lenses require removal of rear lens cell group before the adapter can be attached and because of their design do not permit illuminated lens aperture. Reassemble lens after mounting adapter. Contact the lens manufacturer if you have difficulty with this procedure.

Currently the following lenses in the 35mm to 150mm range cannot be mounted on the Turret and must be used with a flat lensboard.

Rodenstock	
Rodagon-WA 120mm	8037
Schneider	
Apo-Componon HM 150mm	8016
Fuji	
Fujinon - EX 35mm	8016

Certain older style lenses may require adapters which are not available from Beseler or may not be suitable for use on the Turret. Beseler will, whenever possible, try to accommodate future lens designs.

Additional adapters are available from your local distributor of Nikon and Schneider lenses and include: Nikon 15mm-EL Extension Ring (M39 to M39) Schneider "00" (M25) to Leica (M39) Schneider "0" (M32.5) to Leica (M39)

B. INSERTING THE NEGATIVE

1. Beseler Negative Carriers

The negative is placed in the Beseler negative carrier, with the emulsion side down. Open the stage by pulling the negative stage lever towards you. The stage will remain open as long as the lever is forward. Insert the negative carrier into the opening with the locating pins on the underside of the negative carrier. The locating pins place the negative carrier into the proper optical position on the negative stage and serve to guide the carrier as it is rotated to the desired point. A locator, which is provided, can be installed on the front of the negative stage and is used to position the negative carrier handle consistently in one position. It can be adjusted by the thumb screws to either engage the handle or be moved so that free rotation of the carrier can occur.

Once the carrier is positioned, carefully push the lever back to allow the illumination stage to close.

Caution: When opening or closing the negative stage, keep your hands clear of the rear most area of the negative stage.

2. Adapting Omega Negative Carriers

Beseler has a complete line of negative carriers as well as a selection of Beseler Negatrans and Negaflat carriers which will help expedite your work. However, if you have Omega D series sandwich carriers and would like to use these instead, a special adapter plate has been included for this purpose. To use, simply place the carrier into the adapter plate and insert into the negative stage as outlined above.

C. ILLUMINATION SYSTEM

Beseler makes interchangeable light sources for the 45V-XL which cover a wide range of darkroom applications and needs for both color and black and white work. With the exception of the 45 Condenser Light-source, which is covered in this manual, the operation of other Beseler light sources are fully explained in their respective instruction manuals packed with each unit. For more details, please contact your local authorized Beseler dealer.

45 Condenser Lamphouse

The 45 Condenser Lightsource includes the lamphouse and the condenser assembly with the integral filter compartment. The condenser assembly, which can be used with other light sources, 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, designed to hold 6" color printing (CP) filters, variable contrast or neutral density filters.

The position of the negative stage relative to the condenser lenses is important when using the condenser lightsource. The negative size indicator and light-source support stage lock can help you position and hold in place the setting to match your negative. Refer to Table 1 for selection of the proper setting.

Large format enlarging is also possible with the purchase of the Beseler 810 Adapter (Cat. #8265). It is suitable for black and white as well as color work using Beseler's color printing filters. The converted enlarger still accepts standard and adapted negative carriers and lens mounts.

D. ACCESSORY FILTER HOLDER

The accessory filter holder, attached below the lens stage, accommodates the standard red safety filter, optional variable contrast and special effect (e.g. soft focus) filters and light integrator. The red safety filter may be used when checking composition and position of the projected image while there is enlarging paper in the easel. (This filter should not be used when working with color or panchromatic black and white papers as these materials are sensitive to red light.) The filter holder can swing in and out of the optical path as well as slide up and down to move closer to a particular lens for optimum filter placement. The filter holder lock screw may be used to secure the filter holder at a certain height. The accessory holder must be positioned directly under the lens or fully swung to the left, to avoid partially blocking the projected image.

E. ELEVATION AND FOCUS

After the negative has been positioned in the enlarger, and an appropriate lens has been chosen and mounted, focus may be adjusted by turning focusing knob. Then, while viewing through a good focusing aid, adjust the fine focus extension to achieve critical sharpness. The focus lock can be tightened to hold the stage in a fixed position.

Turning the elevation hand wheel will raise or lower the carriage to the height that will provide you with the image size you desire.

An elevation scale and index is provided, as a guide, on the column of the enlarger. This will enable you to record the height and to repeat a magnification at a later date. It may be necessary to adjust the index mark to correspond to the lens/lensboard combinations you are using. To adjust, loosen the nuts which hold the index between the sides of the carriage. Position the index as needed. Tighten the nuts.

F. LARGE AND SMALL MAGNIFICATIONS

From time to time, your needs may be such that larger or smaller magnifications, beyond those listed in Table 1, are required. The following alternatives may help meet these requirements.

For enlargements exceeding the size possible on the baseboard, you may wish to consider the Beseler Wall/Table mount mentioned earlier (section III A, 2). If smaller magnifications are necessary, elevate the easel and use the Beseler accessory extension cone (cat. #8038). In either case, care must be taken to insure that the easel, lens plane and negative plane remain parallel to one another.

V. ADJUSTMENTS

Beseler enlargers are engineered to provide accurate, smooth and dependable performance, even under severe working conditions. One occasion, adverse conditions, handling, or a need for moving the enlarger may disturb the alignment of one of its working parts. The following hints for their correction will help the owner avoid loss of time.

Tools required

- Nos. #1 and #2 Phillips screwdrivers
- Screwdriver — 1/4" blade
- Large carpenter's square (approx. 24")
- Tool kit (supplied with 45V-XL)
- 7/16" Socket wrench
- Instruction book

It is important to understand that the optical alignment of the enlarger is based on a reference point which is integral with the enlarger. The baseboard is used as this reference point and the optical axis is aligned perpendicular to this point.

It is presumed that the enlarger column and baseboard are level and square so that they are perpendicular to each other. The flatness of the baseboard surface should also be checked.

A. LATERAL CARRIAGE ADJUSTMENT THUMBSCREWS

Four plastic thumbscrews are located on either side of the carriage assembly. Their function is to limit the amount of side-to-side movement of the carriage.

Start with the adjustment screws on the left side of the carriage. Loosen the jam nuts with the flat 3/8" wrench, while holding the thumbscrews. Turn the thumbscrews in until they just make contact with the column. Repeat this process with the right side. Once all screws are just touching, back each screw off by 1/8 turn. While holding the thumbscrews, retighten the jam nuts.

Note: Do not tighten these screws against the column.

B. CARRIAGE ELEVATION GEAR AND HAND WHEEL ADJUSTMENTS

The Carriage Elevation Gears move the carriage along the column when the Carriage Elevation Hand Wheel is turned. The gears are found on the rear side of the carriage assembly and are engaged with the column rack. If they shift out of adjustment they must be readjusted.

If you must adjust the Carriage Elevation Gears, perform steps 1 thru 9. If you are adjusting the Elevation Hand Wheel assembly only, perform steps 1, 2, and 8)

1. Lock the carriage lock
2. The carriage elevation hand wheel assembly adjustment screws are located on the outer surface of the hand wheel housing just to the rear of the wheel and behind the wheel housing on the inner wall of the carriage (fig. 2, item 12).
3. From the back, free the gear shaft and elevation gears by loosening the upper adjustment screws and their pivot screws.
4. Slide the elevation hand wheel housing rearward so that the gear shaft and elevation gears can be pivoted in and out from the rack.
5. Move the elevation gears away from contact with the rack. Insert a thin piece of plastic, similar to that of a plastic bag, in between each rack and elevation gear. With gentle force, push on the shaft to engage the gears and rack.
6. Carefully unlock the carriage lock while holding the carriage. Advance the carriage so that the gears are riding against the racks with the pieces of plastic between.
7. Tighten the pivot and adjustment screws securely.
8. Slide the elevation hand wheel housing forward and hold with moderate pressure to put tension on the belt. Tighten the adjustment screws.
9. Raise or lower the rail to permit removal of the shims. Check for smooth operation of the carriage.

C. CARRIAGE LOCK ADJUSTMENT

The Carriage Lock uses Two plastic blocks are used to lock the carriage in position.

1. Unlock the carriage lock by moving the knob counterclockwise.
2. Insert a small piece of typing paper between the front block of lock assembly and the center rib of the left side of the column.
3. Loosen the Phillips head screw for the block. Place the 3/8" wrench on the adjustment nut, which is found between the inner wall of the carriage and the plastic block. Turn the nut until the block makes contact with the paper and the center rib. Tighten the Phillips head screw.
4. Adjust the Carriage lock knob by loosening the pivot and the adjustment screws adjacent to the knob.
5. Turn the Carriage Lock knob clockwise, so its end is over the pivot screw.
6. Apply pressure to the rear block assembly so that block makes contact with the center rib. Tighten the adjustment screw and the pivot screw. Check for proper functioning of the lock.

D. FOCUS BLOCK ADJUSTMENTS

1. Focus Track — Vertical Adjustment

- a. Lower the lens stage and focus track by turning the focus adjustment knob.

- b. Using a carpenter square placed vertically on the baseboard, place it so that it touches the side of the focus track. Check to see that the track is vertical to the baseboard (fig. 2, item 9).
- c. If adjustment is required, locate the two 1/4-20 cap screws on the back of the focus block support plate on the inside of the carriage. The two cap screws are located one above the other. The upper screw is the pivot point the lower screw is the adjustment.
- d. Loosen, but do not remove, the two screws using the 3/16" hex wrench.
- e. With the square placed vertically on the baseboard, position it against the side of the focusing track. Turn the focusing block until the track is flush against the square (perpendicular to the baseboard).
- f. Without moving the rail, first tighten the lower cap screw, then the upper, cap screws.

2. Focusing Block Bearings

The focusing block (figs. 1 and 3, item 8) contains the mechanisms that support and move the focus rail. The rail rides on two plastic bearings on the front of the focusing rail and driving wheel in the rear. Bearing #1 is fixed. Bearing #2 is adjustable and provides for lateral alignment of the lens stage through an adjusting set screw and lock nut, located on the front left side of the block.

3. Focus Block — Lateral Adjustment

To laterally adjust the lens stage so that the optical center is centered with negative carrier; loosen the jam nut (fig. 3, items 5 and 6) that secures the bearing adjusting set screw with the thin 3/8" wrench. With the 3/32" hex wrench supplied, adjust the set screw until proper lateral alignment is made. This is achieved when the center of a lens is in line with the center of the negative stage. Tighten the jam nut.

4. Focus Block — Drive Friction Adjustment

The focus action is activated by a hardened friction driving wheel moving on a hardened friction bar. The pressure on these two members is adjusted by means of set screw which activates a pressure spring (fig. 3, item 7).

The pressure spring adjusting screw is adjusted inward until a smooth, firm action is obtained. Do not overtighten.

- a. Locate the support brace for the focusing block within the carriage. Locate the upper attaching cap screw on the back side of the brace. Directly above this is the access hole and set screw for the friction adjustment.
- b. With the 1/6" hex wrench supplied, turn the set screw to adjust the desired amount of friction.

E. PROJECTION ASSEMBLY ALIGNMENT

In order to insure sharp enlargements, the projecting assembly must be adjusted so that the optical axis is perpendicular to the baseboard.

1. Negative Stage Alignment

- a. Lower the enlarger until the negative stage is approximately 24 inches above the baseboard.
- b. Open the negative stage and insert a piece of glass or other absolutely flat material large enough to overhang the sides and front of the negative stage (10" x 10" is a good size).
- c. Loosen (do not remove) the two phillips head screws on each side of the negative stage (fig. 1 and 2, item 27). The entire negative stage may then be tilted from side to side and from front to back.
- d. Using a carpenters square measure from the baseboard to the edges of the glass. Adjust the negative stage until both sides and front and back are equally distant from the baseboard.
- e. Tighten the screws to square the assembly in this position. Recheck the measurements.

2. Lens Stage — Front to Rear Alignment

- a. Remove the lensboard adapter or turret. On the lens stage bracket, loosen the upper two cap screws (fig. 1 and 2, item 28) with the 3/32" hex wrench so that the lens stage may be pitched forward. Loosen the lower cap screws.
- b. Viewing from the front, place the large carpenter square vertically on the baseboard below the lens stage. Position the square underneath the left rear mounting hole for the lensboard adapter.
- c. Carefully lower the lens stage until it touches the top of the square.
- d. Move the square forward and position it below the front mounting hole for the lens stage adapter.
- e. Take hold of the front of the lens stage. Tilt the lens stage until the forward surface of the stage contacts the square.
- f. Repeat steps 2, 3 and 4 until the lens stage is the same height front to back. Tighten the adjustment screws.

3. Lens Stage — Side to Side Alignment

- a. Viewing from the front, loosen the lower adjusting bolt and the upper pivot bolt of the lens stage support bracket, where it attaches to the focus rail, with the 7/16" wrench (fig. 1 & 2, item 29).

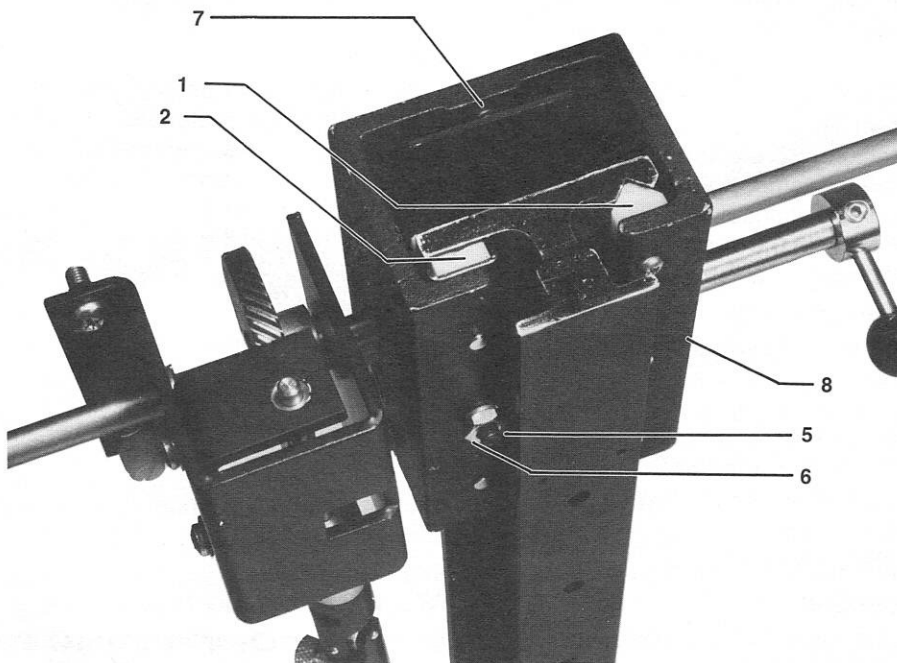


Figure 3

- b. Place the large carpenter square vertically on the baseboard, below the lens stage. Position it in line with the adjusting screws and adjacent to the forward mounting hole for the lens stage adapter.
- c. Carefully lower the lens stage until it touches the top of the square.
- d. Next, position the square below the back right mounting hole for the lensboard adapter.
- e. Take hold of the side of the lens stage. Tilt the lens stage until the right-hand surface of the lens stage makes contact with the square.
- f. Repeat steps 2, 3 and 4 until the lens stage is the same height at these two points, center to side.
- g. Tighten the pivot and the adjustment bolt.

VI. MAINTENANCE

The Beseler 45V-XL is designed to give years of trouble-free service; maintenance is minimal. The 45V-XL should be kept free of dust to ensure high quality, clean prints. Should any dust settle on the 45V-XL, wipe off with an anti-static cloth, such as the Color by Beseler Anti-Static Cloth (Cat. #8956).

A. Lamp Replacement

(Beseler 45 Condenser Lightsource only)

CAUTION: Be certain that the lamp has cooled sufficiently for handling before attempting to remove. Disconnect power cord from AC source.

When the lamp in your 45 Condenser Lightsource burns out, replace with a PH212 lamp, 150W, 117V (Beseler Cat #8100).

To change the lamp, first unplug the power cord and allow the lamp to cool down. Remove the Lamphouse Cap by loosening the Locking Screw and lifting the cap straight up. To remove the lamp, hold the Lamphouse and turn the lamp counterclockwise. To insert the new lamp, place the lamp in the socket and turn clockwise. Replace Lamphouse Cap.

B. Condenser Cleaning

Be sure the Condensers are free of dirt and dust. Clean regularly with a blower brush or filtered compressed air such as Beseler Dust Gun. If necessary, the condensers may be removed and cleaned with lens cleaning tissue or a soft cloth such as the Color By Beseler Anti-Static Cloth (Cat #8956). **Note:** The two condensers are not the same. The upper condenser is thinner than the lower condenser.

C. Elevation Gear Replacement

The gears in the 45V-XL Carriage Elevation Assembly should not need replacement under normal operating conditions. However, if the gears should become excessively worn, requiring replacement, order a gear replacement kit (Part No. 10-43751) from your authorized Beseler dealer. The replacement procedure is as follows:

Tools Required:

5/64" hex wrench
#2 Phillips head screwdriver
1/8" drift punch
hammer

1. Turn the Hand Wheel of the Elevation Assembly clockwise until the two set screws on the rear timing belt gear appear. With a 5/64" hex wrench, loosen the lower set screw. Continue turning the Hand Wheel until the second set screw appears and the roll pins of the Elevation Bears are positioned vertically. Lock the carriage and loosen the set screw.
2. Loosen the Carriage Hand Wheel Assembly (see Section 'V, ADJUSTMENTS' part B). Slide assembly back.
3. Remove the upper pivot and lower adjustment Phillips head screws of the Elevation Gear Shaft adjustment arm. Remove the Elevation Gear Shaft from the carriage.
4. Remove the Elevation Gear Shaft adjustment arms. Using a small drift punch and hammer, drive the roll pins out of the gears. Remove the gears.
5. Install the new gears in proper position on the shaft. Line up the holes of the gears and the shaft. Drive the new roll pins into the gears. Place the Elevation Gear Shaft adjustment arms on the shaft.
6. Insert the shaft into the timing belt gear. Secure the set screws of the timing belt gear. Secure the support arms in place with phillips head screws. Do not tighten.
7. Perform 'Carriage Elevation Gear and Hand Wheel Adjustment' (Section V. B., steps 5 thru 9).

D. Lubrication

Most moving surfaces in your enlarger are made of self lubricating materials. However, occasionally, it is advised to rub petroleum jelly (Vaseline) on the counterbalance springs located on the back of the enlarger column. Lower the carriage to expose the entire length of the springs. Clean the springs with a soft cloth. Apply a thin, even coating of petroleum jelly to the front.

VII. ACCESSORIES

45V-XL

8561 Baseboard Standard Baseboard for the 45V-XL enlarger. Predrilled and includes hardware.

8562 Wall/Table Mount Designed specifically for the 45V-XL where standard Baseboard is not required.

8566 Power Elevation Control Permits motorized vertical control of the 45V-XL carriage.

8289-02 The Beseler/Minolta 45A Enlarger Light Source is the revolutionary new addition to our high quality 4x5 system. Compact in size, the 45A is the first automatic self-setting light source of its type. Pulsed xenon flashtubes with selective narrow bandpass filters are operated by a user friendly microprocessor based controller. This controller also features a built-in automatic analyzer with five programmable memories, the ability to expose individual red, green and blue channels separately, and an automatic ring-around mode thus making the 45A a truly complete system. (230V Model 8290-02)

45A ACCESSORIES

8289 35mm Diffusion Chamber for use with Beseler/Minolta 45A Enlarger Light Source.

8278 The Dichro 45S Colorhead is designed for the advanced amateur or professional who wants versatility and performance at economical price. The Dichro 45S is an ideal lightsource for color, B&W and variable contrast papers with the 45V-XL as well as the Beseler 45M series and other professional enlargers. Filtration values are individually displayed on an illuminated Analog scale. Built-in power supply, voltage stabilizer and cooling system; also includes 4x5 diffusion chamber and 250W, 82V lamp. (230V Model 8279)

8282 The Dichro 45 Computerized Colorhead is the world's most advanced 4x5 dichroic light source. It combines all the features of the Dichro 45S plus a micro computer controlled electronic system to allow color repeatability and incremental filter accuracy never before possible. (230V Model 8286)

DICHO 45 ACCESSORIES

Dichro 45 Mixing Chambers

8293 4x5 Diffusion (replacement)

8296 6x7 Diffusion

8291 35mm Diffusion

8294 Condenser Chamber Requires use of condenser assembly from Condenser lightsource # 8121, available separately as #8115.

8265 810 Adapter kit, designed to fit all Beseler 45 series enlargers consists, of a coldlight source, negative stage/illumination housing, glass and glassless negative carriers, adapter for 45A or 45 Condenser lamphouses.

Negative Carriers (Glassless)

8304 for 35mm film (24 x 36mm)

— **8302** for 35mm film full format (25 x 37mm)

8305 for 35mm mounted slides (2" x 2")

8308 for 1-5/8" x 1-5/8" (127)

8334 for 1-5/8" x 2-1/4" (6 x 4.5cm)

— **8312** for 2-1/4" x 2-1/4" (6 x 6cm)

— **8328** for 2-1/4" x 2-3/4" (6 x 7cm)

8314 for 2-1/4" x 3-1/4" (6 x 9cm) Roll Film

8390 for 3-1/4" x 4" Polaroid Film Pack

8321 for 4" x 5" Film Pack

— **8322** for 4" x 5" Cut Film

Special Negative Carriers

— **8341** Universal Glass Carrier for all films up to 4" x 5"

Negatrans

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

8081 is available for handling 35mm film and is a glassless carrier.

8082 Handles 2-1/4" x 2-1/4" and 2-1/4" x 2-3/4" film and contains a single pressure glass for flattening the film.

8092 6x4.5cm pressure plate for 2 1/4" negatrans.

Negaflat®

The Beseler Negaflat carrier safely grips the edges of your negative, pulls it taut and holds it taut and flat under "controlled tension." The negative can't curl or buckle. No glass, no Newton's rings, no fingerprints.

— **8340 Negaflat** carrier for 4" x 5" negatives cut or film pack.

8226 Three Lens Turret Holds 3 lenses (from 35mm to 150mm) for easier, faster lens changing.

Lens Adapters for Turret

Converts 39 mm male thread to: (female thread by length)

8370 Lens Adapter 39mmx6.5mm

8371 Lens Adapter 39mmx11mm

8372 Lens Adapter 42mmx12mm

8373 Lens Adapter 50mmx21mm

Lensboards (for 39mm mount lenses)

8022 for lenses from 35mm-40mm

2 — **8021** for lenses from 50mm-60mm

8023 for lenses from 53mm-90mm

— **8029** for lenses from 100mm-105mm

Special Lensboards

8016 Center-drilled lensboards, pilot hole 1/4" diameter. Requires boring by customer.

8038 3-1/4" long extension cone for 39mm mount lenses. Used for image reduction, small print sizes.

Lamps

8100 150W, 117V lamp (PH212)

8107 150W, 230V lamp (PH2120)

8108 250W, 82V for Dichro 45 Colorheads (ANSI EVW)

8103 150W, 24V for Point Light Source (ANSI FCS)

8126 Extended Life Focus Flash Tube for 45A

8125 Extended Life Exposure Flash Tube for 45A

Accessories

8040 Red Safety Filter (replacement)

8177 Audible/Repeating Enlarging Timer

8077 Heat-Absorbing Glass (replacement)

8163 Light Integrator

8179 Footswitch to use with Beseler/Minolta 45A and Enlarger Timer.

8045 Beseler Polycontrast® Filter Kit (set of 7 filters to fit accessory filter holder).

JAM MIT 8095 39mm

REPLACEMENT PARTS LIST

DESCRIPTION	PART NO.
Adapter, D5 Colorhead	10-50356
Adapter, D5 Condensing Head	10-50357
Adapter, Lens Board	10-49522
Adapter, Lens Mount (for Omega Lens Plate)	10-50358
Adapter, Negative Carrier	10-50422
Belt, Timing (Elevation)	562-32-11
Clip, AC Line Cord Holder	555-40-14
Cord Set, Extension	605-78-16
Filter Holder	10-49520
Filter, Red Safety	cat. #8040
Gear, Carriage Elev. Replace. Kit	10-43751
Hand Wheel, Elevating	568-07-07
Knob, Focus (2), Light Source Adj. (1)	568-05-07
Knob, Light Source Adj.	568-20-06
Knob, Neg. Stage Opening Lever	10-42078
Latch, Light Source, Right Hand	10-04561-01
Latch, Light Source, Left Hand	10-04561-02
Lever, Negative Stage Opening	10-50359
Light Source Mount	10-50502
Locator, Negative Carrier	10-50391
Nut, Wing (Counterbalance)	546-20-08
Pulley, Timing, Elevation	562-22-28
Rack, Focus	10-50426
Retainer, Lens Board	10-44056
Roller, Carriage	10-07606
Screw, Cap 1/4-20x1/2	527-48-40-12
Screw, Hex 1/4-20x1-1/2	527-16-40-11
Screw, Knurled Thumb	540-43-51
Screw, Neg. Stage Opening Lever 10-32x3/8	538-21-20-02
Screw, Phillips Hd. 8-32x1/2	521-16-02-05
Screw, Phillips Hd. 10-32x5/8	524-12-02-06
Screw, Self Tap 8Bx5/8	538-21-20-02
Screw, Thumb, Black Nylon	540-43-50
Shaft, Elevation	10-50434
Shaft & Gear Assembly	10-50430
Spacer, Roller	557-21-39
Spring, Counterbalance	10-50390
Spring, Lens Board Retaining	10-04543
Stop, Carriage	10-50413
Tool Kit	10-50436
Washer, Lock	549-40-46
Washer, Plain 1/2" OD	548-32-08
Washer, Plain 3/4" OD	548-24-40
Weight, Counterbalance	10-50440
Filter Holder, Swinging	10-42020
Screw, Baseboard 1/4-20x1-1/4"	527-40-32-01
Nut, T Baseboard	546-40-15
Gear Helical	562-07-02
Gear Helical	562-07-03
Coupling, flexible	562-42-05

LIMITED ONE YEAR WARRANTY

(Applicable in U.S.A., outside U.S.A. see local distributor)

Charles Beseler Company 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.

The 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 of 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 Charles Beseler Company, 1600 Lower Road, Linden, N.J. 07036. 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:

(Applicable in U.S.A., Outside U.S.A. See Local Distributor)

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.
1600 Lower Road, Linden, N.J. 07036.

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 \$20.00 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 \$20.00 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.

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COMPANON S-5.6 100

BESELER

Charles Beseler Company
1600 Lower Road, Linden, N.J. 07036

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