BESELER

45MXT
enlarger/instruction manual

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

IMPORTANT SAFETY INSTRUCTIONS

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

1. Read and understand all instructions before using.

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. Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.

6. If an extension cord is necessary, a cord with a current rating at least equal to that of the appliance should be used. Cords rated for less amperage than the appliance may overheat.

7. Always unplug appliance from electrical outlet before cleaning and servicing and 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 reduce the risk of electric shock, 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 when the appliance is used subsequently.

11. The use of an accessory attachment not recommended by the manufacturer may cause a risk of fire, electric shock, or injury to persons.

12. Connect this appliance to a grounded outlet.

13. Disconnect this unit from its source of supply before replacing the projection lamp.

SAVE THESE INSTRUCTIONS

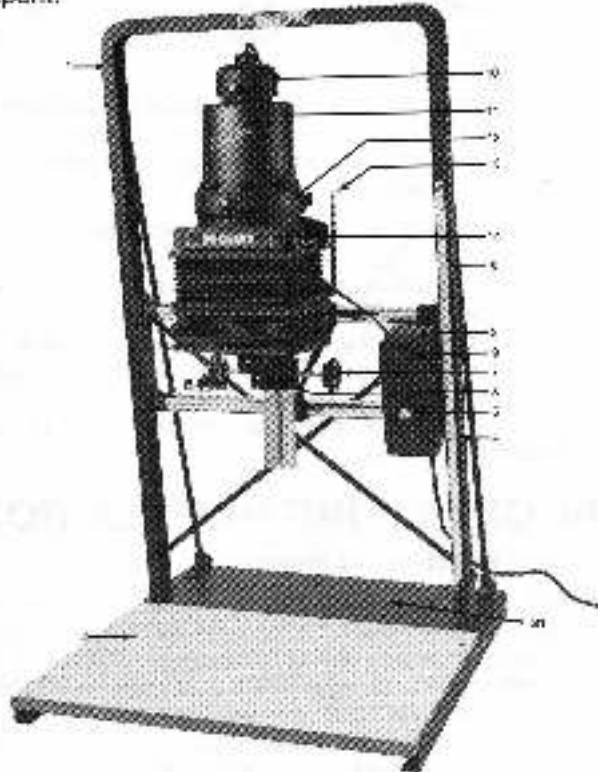© Copyrighted Underwriters Laboratories "Standard for Safety, UL 122, Photographic Equipment"

CONTENTS

I. INTRODUCTION

Congratulations. You have just purchased one of the finest enlargers available today. Your Beseler 45MXT is backed by over 100 years of Beseler experience and quality.

Your Beseler 45MXT is designed and constructed to provide years of dependable and precise service. We suggest that you carefully read the contents of this manual in order to obtain optimum satisfaction from your enlarger. This manual will provide you with the necessary information to fully utilize the capabilities of the 45MXT, and the time taken to read the manual will be well spent.

SPECIFICATIONS

Height (Fully Extended):

Condenser Lamphouse	57½"	(1461mm)
Colorhead	54½"	(1378mm)
Colorhead with Condenser	59½"	(1511mm)
45A Light Source	52"	(1321mm)

Base: 25¾" x 31⅛"   (654mm x 800mm)
Baseboard: 25½" x 20⅜"   (648mm x 518mm)
Lamp: PH 212, 150W, 117V (Cat. #8100)
Electrical Requirements:
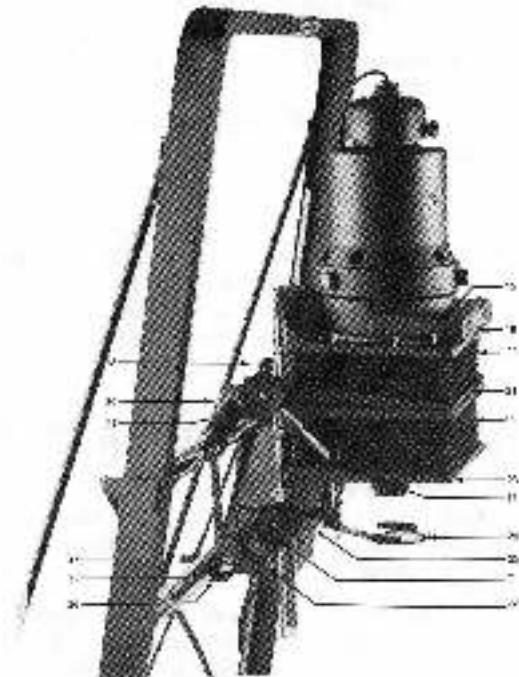   Cat. #8220, 117V, 60 Hz, 5A
   Cat. #8221, 220V, 50 Hz, 3A
Shipping Dimensions: 50" x 29" x 17"
   (1270mm x 737mm x 432mm)
Shipping Weight: #8227 - 56 lbs., #8232 - 21 lbs.
Specifications subject to change without notice.

PARTS ILLUSTRATION

1. **FRAME** Uses triangular truss construction to minimize vibration and provide sharp prints.
2. **BASEBOARD** 25½" x 20⅜" for large prints.
3. **MOTOR BOX** Moves enlarger head up or down for changes in elevation.
4. **ELEVATION SWITCH** Activates motor; also acts as reference indicator for elevation scale.
5. **MANUAL ELEVATION CONTROL** Permits precise control of elevation.
6. **ELEVATION SCALE** Reference scale for determining magnification in repetitive printing.
7. **FOCUS KNOBS** Permit left or right hand focusing for operator convenience.
8. **FOCUS LOCK** Permits lens stage to be locked in place.
9. **CONVENIENCE OUTLET** To provide current for Beseler 45 series illumination systems.
*10. **LAMPHOUSE CAP** Easily removable to quickly change lamps.
*11. **LAMPHOUSE ASSEMBLY** Contains reflector for standard PH212 or PH211 20 lamp.
*12. **CONDENSER ASSEMBLY** Includes two 6½" optical glass condensers and filter drawer.

*13. **NEGATIVE STAGE GUIDE** Has graduations from 35mm to 4" x 5" to accurately position the negative stage for each size negative when condenser illumination is used. The negative stage guide and the indicating pointer are packed as part of the 45M Condenser Lamphouse or Condenser Assembly.
*14. **FILTER DRAWER** Holds 6" x 6" color printing or variable contrast filters.
15. **LAMPHOUSE LATCHES** Secure illumination system firmly in place.
16. **NEGATIVE STAGE LEVER** Opens and closes negative stage.
17. **NEGATIVE STAGE ADJUSTMENT KNOB** Raises or lowers height of negative stage to match each size negative when used with condenser illumination.
18. **NEGATIVE STAGE LOCK** Secures stage at selected height.
19. **LAMPHOUSE SUPPORT STAGE** Accepts any of the interchangeable 45M series illumination systems without the use of accessories or adapters.
20. **UPPER BELLOWS** Allows negative stage to handle any size negative from disc to 4" x 5".
21. **NEGATIVE STAGE** Accommodates a wide selection of accessory negative carriers, the Negatrans® and the Negaflat®.
22. **LOWER BELLOWS** Provides extra-long extension to allow reductions.

23. **LENS STAGE** Takes standard 4" x 4" lens board adaptor to accept 4" x 4" lens boards as well as three lens turret.
24. **ADJUSTABLE ACCESSORY FILTER HOLDER** Accommodates red safety, variable contrast, soft focus and other filters.
25. **FILTER HOLDER LOCK SCREW** Allows adjustable accessory filter holder to be locked in vertical position on its vertical adjustment post.
26. **HORIZONTAL LOCKING BRACKET** Attached during enlarger assembly. Positions horizontal locking screw.
27. **HORIZONTAL LOCKING SCREW** Locks enlarger projection assembly in place at any desired position horizontally along the carriage.
28. **ADJUSTING SCREW** Allows enlarger projection assembly to be adjusted for front-to-rear alignment.
29. **PIVOT BOLT** In conjunction with locking bolt allows enlarger projection assembly to be adjusted for side-to-side alignment.
30. **LOCKING BOLT** In conjunction with pivot bolt, allows enlarger projection assembly to be adjusted for side-to-side alignment.
31. **BASEPAN** Holds frame in place. Baseboard and rails attach to it.

*Available complete as optional condenser lamphouse.

1

II. UNPACKING INSTRUCTIONS

Note: When removing the enlarger frame and chassis, do not cut the strap that holds the frame and chassis together. Only remove this after the enlarger is securely attached to the basepan.

Carefully remove all parts from the box and compare them against the component list:

1 Projection Assembly
1 Frame Assembly
1 Chassis Basepan
1 Frame Support Rod, chassis-right side*
1 Frame Support Rod, chassis-left side*
1 Hardware Kit includes:
    1 Bracket Assembly
    4 10-32 x $^3/_8$ Pan Head Screws
    12 10-32 x $^1/_2$ Pan Head Screws
    1 $^3/_8$-16 x 3" Hex Head Bolt
    2 10F x $^3/_8$ Self Tapping Pan Head Screws
    1 $^1/_4$-20 x $^3/_4$ Thumb Screw
    4 Lock Washer #10
    1 Red Safety Filter
    12 10-32 x $^1/_2$" Phillips Head Screws

A Phillips head screwdriver and an adjustable wrench are required for this assembly.

*Important: The left and right Frame Support Rods have been factory adjusted for this enlarger and must be used only on the chassis side indicated on the attached tag. Failure to follow these instructions may cause the enlarger frame to become twisted and the enlarger to be out of alignment.

III. ASSEMBLY INSTRUCTIONS

A. Place the frame assembly on the floor face down on the motor control. For ease of handling, keep the frame and chassis in this position throughout the assembly of the basepan to the frame.

B. Hold the basepan in such a way that the raised mounting pads are in the upper position and the frame mounting tabs are in the lower position. Slide the frame mounting tabs into the ends of the frame. Align the four holes and secure the frame to the tabs using the four 10-32 x $^1/_2$" screws. Do not tighten the screws at this time.

C. Secure the adjustment foot of the right Frame Support Rod to the raised mounting pad on the basepan right side (elevation motor side) using two 10-32 x $^1/_2$" screws. The foot has a long and short mounting tab. Place the long tab in the up position on the pad. Tighten these screws.

D. Four holes will be found in line on both the right and the left sides of the upper rear section of the enlarger frame. Secure the upper end of the right Frame Support Rod to the two mounting holes on the back of the enlarger frame using two 10-32 x $^1/_2$" screws. Be certain that the flattened surface of the rod is flat against the frame.

E. Repeat items 3 and 4 to secure the left Frame Support Rod to the basepan and the frame.

F. Raise the frame off the floor and rest the unit on the floor on the basepan. Tighten all mounting screws.

G. Assemble the baseboard (countersunk holes up) on the side arms so that it fits between the two raised edges. If using the baseboard, secure the Baseboard to the rails using the four $^1/_4$-20 x 1" flat head screws. Attach the

sidearms to the metal Basepan using the four $^1/_4$-20 x $^1/_2$" screws.

H. Insert the 3" long #$^3/_8$-16 hex head machine screw through hole in the enlarger head casting (see Fig. 2, item 30) and lift the projection assembly into position tightening the hex head screw enough to hold it in place.

I. Attach the Tilt bracket (#67, p9) to the bottom rear of the focus rail. Secure the four $^3/_8$" long #10-32 pan head machine screws through bracket and into the rail.

J. Using the self-tapping screws, secure the horizontal locking bracket to the bottom of enlarger head carriage oriented so that threaded hole in the bracket is positioned over the lower horizontal cross carriage tube. Insert the horizontal locking screw in the threaded hole and finger tighten until it touches the cross carriage tube (see Fig. 2, items 26 and 27).

K. Illumination System — Instructions for installing most Beseler Light Sources 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 (see Fig. 2, item 15).
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 convenience outlet on the enlarger motor box.

IV. OPERATING INSTRUCTIONS

A. Lens Selection and Mounting

The lens stage already has the 4" x 4" lensboard adapter installed which permits use of the standard Beseler lensboards. To attach one of the optional lensboards, tilt the board 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 attach 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 plate (the three thumbscrews are held captive in the plate 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 adapter plate if you require a special lens which is mounted on a 4x4 Beseler board.

To switch between 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 I below indicates which lenses are required for various formats and the range of magnification which can be obtained with each.

Standard Lensboards
The standard 4 x 4 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	8037
Rodenstock 120 WA and 150mm Rodagon	8037
Other Lenses not listed.	8016

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 face 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	Female thread
Cat. #8371	39mmx11.5mm	x length
Cat. #8372	42mmx12mm	
Cat. #8373	50mmx21mm	All convert to male 39mm thread

Currently, the following lenses require an adapter:

Beseler
  Beseler HD 80mm   8370
  Beseler HD 135mm   8371
  Beseler HD 150mm   8373
Nikon
  El-Nikkor 40mm   8370
  El-Nikkor 63mm   8371
  El-Nikkor 135mm   8370
Rodenstock
  Rodagon-G 50mm   8370
  Rodagon 80mm   8370
  * Apo-Rodagon 90mm   8371 (see note)
  Rodagon 135mm   8371
  Rodagon 150mm   8373
Schneider
  WA-Componon 40mm   8370
  WA-Componon 60mm   8371
  * WA-Componon 80mm   8370 plus 8371 (see note)
  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.

TABLE I
45MXT 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	30.4X 27X	8X 7.5X
35mm	35mm and smaller formats	60mm or 65mm	17X 13.1X	4.5X 3.5X
1³/₄" x 2¹/₄" (6 x 4.5cm) 2¹/₄" x 2¹/₄" (6 x 6cm)	2¹/₄ x 2¹/₄	75mm or 80mm	11.75X 11X	2.9X 2.6X
2¹/₄" x 2⁵/₄" (6 x 7cm)	2¹/₄ x 2⁵/₄	90mm	9.25X	2.25X
2¹/₄" x 3¹/₄" (6 x 9cm)	2¹/₄ x 3¹/₄	105mm	7.5X	1.5X
3¹/₄" x 4¹/₄" (8 x 11cm)	3¹/₄ x 4¹/₄	135mm	5.5X	0.75X
4" x 5" (10 x 13cm)	4 x 5	135mm or 150mm	6X 6X	0.56X 0.75X

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

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   8088
Fuji
  Fujinon EX 135mm   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

The negative is placed in the negative carrier, with the emulsion side down. When the negative stage is open, insert the negative carrier into it 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.

The negative stage is opened by pushing downward on the negative stage lever and will remain open as long as the lever is down. Pull the lever back to allow the negative stage to close.

C. Illumination System

Beseler makes interchangeable illumination sources for the 45MXT which cover a wide range of darkroom applications both for color and black and white work. With the exception of the Condenser Lamphouse which is covered in this manual, the other light sources are fully explained by individual instruction manuals packed with each unit. For more details please contact your local authorized Beseler dealer. The Condenser Lamphouse includes the lamphouse and the condenser assembly with integral filter compartment.

The condenser assembly, which can be used with other 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, designed to hold 6" color printing filters, variable contrast or neutral density filters.

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 position and hold in place the setting to match your negative. Refer to Table I for selection of the proper setting.

Large format (8 x 10) enlarging is also possible with the purchase of the Beseler 810 Adapter (Cat. #8350). The converted enlarger still accepts standard 45M negative carriers and lens mounts plus the condenser lamphouse and 45A for 4 x 5 and smaller formats. A special cold light source is suitable for black and white and color work via color printing filter set.

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 integrators. 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, the focus may be adjusted by turning the focusing knob. The focus lock can be tightened to hold the stage in a fixed position.

The elevator motor/control box affixed to the enlarger carriage can be used to raise or lower the enlarger head to the desired elevation which changes magnification. A three-position momentary switch is used to activate the motor; upper position to raise the head, lower 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 are desired.

An elevation scale is provided on the right side of the enlarger frame to enable you to record the height and to repeat that magnification at a later date. The motor switch acts as the scale indicator.

The grounded convenience outlet on the motor box provides electricity for a lamphouse or accessory, depending on the power hookup sequence being employed.

F. Oversize Prints

For enlargements exceeding the size possible on the baseboard, the 45MXT 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.

The optional Beseler Adjus-Table (Cat. #8540) is a sturdy "topless" enlarger table that makes oversize printing a simple procedure.

The Adjus-Table features slotted side rails that accept the enlarger's detached baseboard at 5 levels in addition to a bottom shelf and the standard baseboard position. It provides a method of conveniently increasing film-to-baseboard distance for larger print sizes. The benefits are obvious: in addition to saving time, the Adjus-Table

offers the convenience of working with an easel for display sized prints.

Made of the finest grades of heavy gauge steel throughout, the sturdy Adjus-Table is unwaveringly rigid, bolted and braced according to advanced engineering principles.

Beseler Adjus-Table
Approximate Maximum Magnifications
(Measured on bottom shelf)

FILM FORMAT LENS	MAXIMUM MAGNIFICATION (FULL FRAME)	MAXIMUM MAGNIFICATION (CONDENSER)	MAXIMUM MAGNIFICATION (COLORHEAD)
35mm/50mm	27X	28X	30X
6x6cm/80mm	11X	18X	19X
6x7cm/90mm	13X	16X	17X
4x5in/135mm	5X	11X	11X

V. ADJUSTMENTS

Beseler enlargers are engineered to provide accurate, smooth and dependable performance, even under severe working conditions. Occasionally, adverse conditions 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.

A. Carriage Alignment

Rough treatment while moving the 45MXT 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.
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. Reattach 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. Reinsert 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. Projection Assembly Alignment

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

Negative Stage
1. Open the negative stage and insert a piece of glass or other absolutely flat material large enough to overhand the sides and front of the negative stage. Close the negative stage.
2. Lower the enlarger until the negative stage is approximately 24 inches above the baseboard.

Side-to-Side Alignment
1. Using a 9/16" open end wrench, loosen the pivot bolt (Fig. 2, item 29) and with a 7/16" bolt loosen the locking bolt (Fig. 2, item 20) on the projection assembly.
2. Use a straightedge or carpenter's square at least 24" long to measure the distance of the left and right sides of the glass to the baseboard.
3. Pivot the projection assembly until the distance from the right side of the glass to the baseboard is the same as the left.
4. Tighten both bolts.

Front to Rear Alignment
1. Remove the horizontal locking bracket (Fig. 2, item 26) from the projection assembly.
2. Use a straightedge or carpenter's square at least 24" long to measure the distance from the rear of the glass and the front of the glass to the baseboard.
3. Using a 3/8" open end wrench turn the vertical adjusting screw (Fig. 2, item 28) until the distance from the rear of the glass to the baseboard is the same as the distance from the front of the glass to the baseboard.
4. Reattach the horizontal locking bracket and finger tighten the horizontal locking screw (Fig. 2, item 27).

C. 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, facing the enlarger.

1. Firmly grasp lower tube "A" (exploded view, item 61) in right hand and loosen screw (item 170) until tube "A" can be rotated.

NOTE: There will be considerable counterclockwise spring force on the tube.

2. If the enlarger runs upward too slowly, increase the counterbalance tension by rotating tube "A" counterclockwise at least two complete revolutions, and tighten screw 170 into the hole "B" in tube "A" (rock tube back and forth to locate hole "B").
3. If the enlarger runs down too slowly in the last four to five inches of travel, decrease the counterbalance tension by rotating tube "A" clockwise one revolution and tighten screw 170 into hole "B" in tube "A".
4. Made sure screw 170 is in place and tight before checking for proper motor and carriage operation.

NOTE: Never loosen screw (Pg. 9, item 169) on rear of tube "A" (lower cross tube).

VI. MAINTENANCE

The Beseler 45MXT is designed to give years of trouble-free service; maintenance is minimal. The 45MXT should be kept free of dust to ensure high quality, clean prints. A heavy Pliofilm, transparent dust cover (Cat. #8129) is available from your Beseler dealer. Should any dust settle on the 45MXT, wipe off with an anti-static cloth, such as the Color by Beseler Anti-Static Cloth (Cat. #8956).

A. Lamp Replacement

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 45MXT condenser head 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 (Fig. 1, item 10) 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). Refer to the exploded view for details fo the condenser chamber construction. (Note: The two condensers are not the same, the upper condenser is thinner than the lower condenser.)

C. Lubrication

Most moving surfaces in your enlarger are made of self-lubricating materials. However, it is advisable to lubricate moving parts with a small amount of Lubriplate or a medium weight oil every six months.

VII. ACCESSORIES

8289 The Beseler 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 flash tubes with selective narrow bandpass fibers 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. (230C Model 8290).

45A ACCESSORIES

8299 35mm Diffusion Chamber for use with Beseler 45A Enlarger Light Source.

The Universal 45 System transforms our 4x5 system into a high output, high performance Color of VC System. It incorporates closed loop control, additive technology and easy data input using the Dedicated Color of VC Controllers.

8570-71 Universal 45 Light Source and Power Supply.

8572 Universal 45 Color Controller.

8573 Universal 45 VC Controller.

8278 The Dichro 45S Colorhead is designed for the advanced amateur or professional who wants versatility and performance at an economical price. The Dichro 45S is an ideal lightsource for color, B&W and variable contrast papers with 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).

DICHRO 45 ACCESSORIES
Dichro 45 Mixing Chambers
8292 6 x 7 Diffusion
8291 35mm Diffusion
8294 Condenser Chamber - Requires use of condenser assembly from condenser lamphouse #8121.

8350 810 Adapter kit designed to fit all 45M series enlargers consists of cold light source, negative stage/illumination housing, glass and glassless negative carriers, adapter for 45A or 45M condenser lamphouses.

8540 Adjus-Table — Enlarging table with adjustable baseboard supports.

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")
8334 for 1⅝" x 2¼" (6 x 4.5cm)
8312 for 2¼" x 2¼" (6 x 6cm)
8328 for 2¼" x 2¾" (6 x 7cm)
8314 for 2¼" x 3¼" (6 x 9cm) Roll Film
8322 for 4" x 5" Cut Film

Special Negative Carriers
8342 Universal Glass Carrier for all films up to 4" x 5"
8343 Universal Anti-Newton Glass Carrier for all films up to 4" x 5"
8353 6x7 AN Glass
8354 35mm AN Glass
8348 4x5 AN Pin Registered
8349 Wess VR Punch

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.

One Negatrans® (8081) is available for handling 35mm film and is a glassless carrier. The other (8082) handles 2¼" x 2¼" and 2¼" x 2¾" film and contains a single pressure glass for flattening the film. Adapter (8092) for 6 x 4.5cm is available.

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

8225 Three Lens Turret
Holds 3 lenses (from 35mm to 150mm) for easier, faster lens changing.

Lens Adapters for Turret
Converts 39mm male thread to:
(female thread x length)

8370 Lens Adapter 39mm x 6.5mm
8371 Lens Adapter 39mm x 11mm
8372 Lens Adapter 42mm x 12mm
8373 Lens Adapter 50mm x 21mm

Lensboards (for 39mm mount lenses)
8022 for lenses from 35mm — 40mm
8021 for lenses from 50mm — 60mm
8023 for lenses from 63mm — 90mm
8029 for lenses from 100mm — 105mm

Special Lensboards
8016 Center-drilled lensboards, pilot hole 1/4" diameter. Requires boring by customer.
8038 3¼" long extension cone for 39mm mount lenses. Used for image reduction, small print sizes.

Lamps
8100 150W, 117V lamp (PH212)
8108 250W, 82V for Dichro 45 Colorheads, (ANSI EVW)
8126 Extended Life Focus Flash Tube for 45A.
8125 Extended Life Exposure Flash Tube for 45A.

Accessories
8129 Dust cover for 45 Series enlargers
8040 Red Safety Filter (replacement)
8177 Audible/Repeating Enlarging Timer
8187 Digi-Timer
8139 Bilateral Alignment Tool
8077 Heat-Absorbing Glass (replacement)
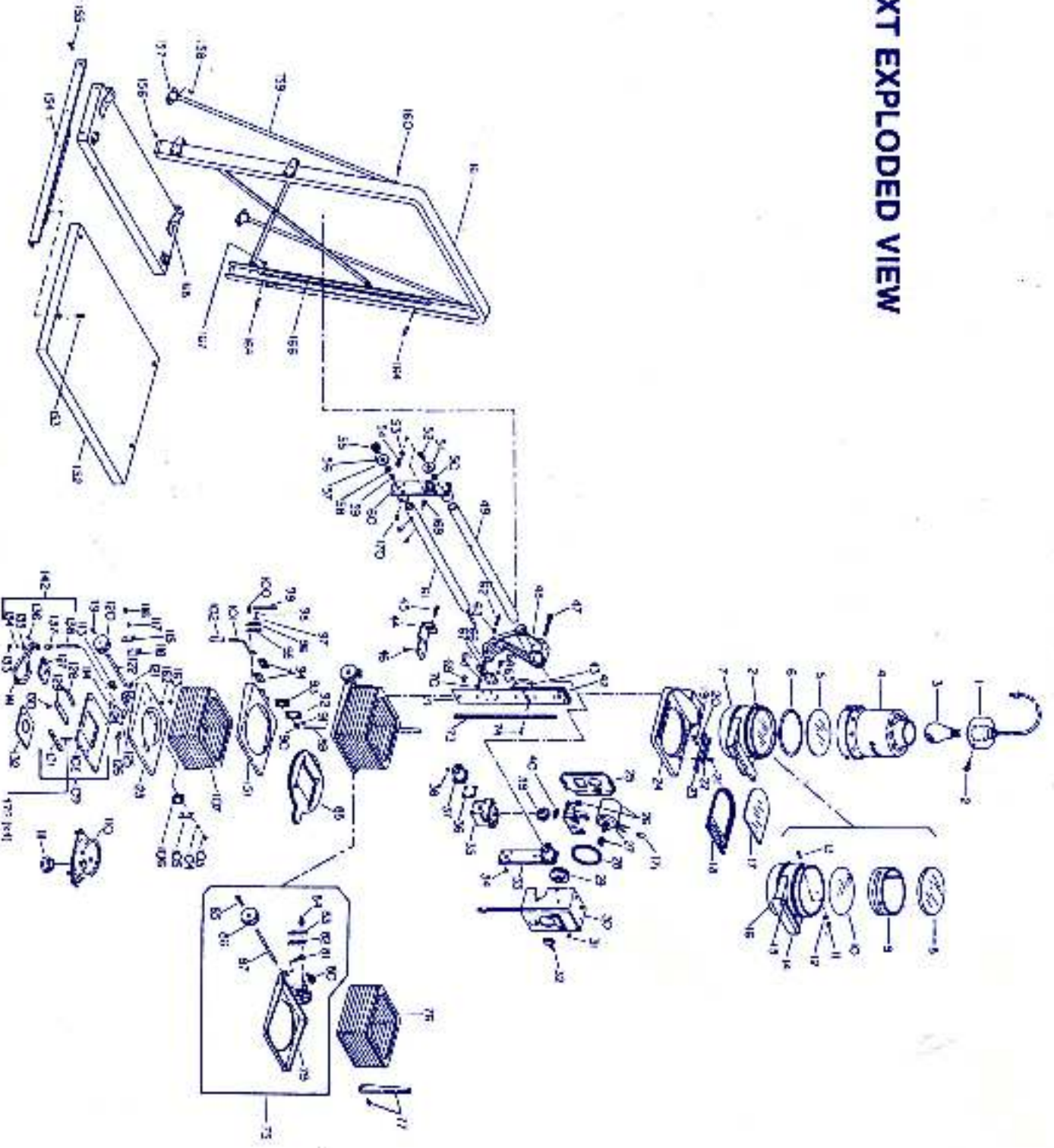8163 Light Integrator
8179 Footswitch to use with Beseler 45A and Enlarging Timer

Ref. No.	Description	Part/Cat. No.
1	Lamp Cap Assembly	10-04506
2	Thumb Screw	528-20-05
3	Lamp PH212	Cat. No. 8100
3A	Lamp PH212	Cat. No. 8100
	(150 watts 117V)	
	(150 watts 230V)	
4	Lamp Holder Assembly	10-04507
5	Heat Absorber Glass	655-22-8
6	Spacer-Ring	655-20-18
7	Condenser "Fusing Assembly"	Cat. No. 8115
8	Condenser - Top (T/V)	600-14-62
9	Separator - Condenser	10-04768
10	Condenser - Bottom (T/V)	600-14-63
11	Nut - Trimmer Kit	555-01-08
12	Rec. Condenser Retaining	10-04508
13	Screw, Tapp-PHB x 1/4	
14	Cover & Hinge Assembly	655-21-18-25
15	Screw, Tap - 6#B x 1/2"	10-04763
16	Long Pan Philips	528-19-08-37
17	Filter Support	640-80-34
17	Filter Holder	10-04775
19	Indexing Pointer	10-04660
20	Screw, Tapp-3#2 x 1/4	528-18-18-30
21	Long Pan Philips	540-30-12
22	Screw - Shoulder	10-04568
23	Latch (Specify R.H. or -H)	10-04561-01
	or -H)	10-04561-02
24	Condenser Support Stage	10-04565-01
2a	Motor Rear Cover	10-04569
26	Motor & Bracket Assy. 117V	10-31304-10
26A	Motor & Bracket Assy. 230V	10-31304-15
27	Small Pulley	10-04561
28	Belt	555-39-01
29	Large Pulley	10-15192
70	Motor Pulley	10-04560
30A	Motor Cover Assembly (230V)	10-49581-50
31	Screw, Machine - #8-32 x 3/8	
32	Motor Switch	610-10-62
33	Hammer Assembly - left	10-04580
34	Screw Machine - #8-32 x 3/8"	528-20-77-01
35	Long Flat Philips	10-04577
36	Gear Box	10-04594
37	Bushing Retainer	
38	Clamp Collar	10-04590-06
39	Screw, Machine - #8-32 x 3/8	528-2-22-01
	Long Pan Philips	

Ref. No.	Description	Part/Cat. No.
39	Worm Gear	562-11-63
40	Worm	562-11-25
41	Spacer - Bar	10-37360
42	Spacer - Pivot	10-37369
43	Locking Bracket	10-48967
44	Locking Screw	540-43-16
45	Screw, Tapp-#10F x 3/8	
46	Shaft	
47	Screw, Machine - V-5x1 6 x 3	528-20-10-10
48	Long Hex Cap	10-04536
49	Enlarger Head Carriage	10-04560
50	Upper Tube	10-04650
54	Washer - Air Nlm., 1/2" O.D. x 1/8"	548-34-10
55	Wheel	10-04590
51	Shoulder Screw	540-30-39
52	Screw Wheel	540-30-18
53	Spur Gear	540-30-1"
54	Shoulder Screw	10-04596
55	Washer 25/32" I.D.	545-27-24-01
56	Screw, Machine - #10-32 x 3/8	
57	Rol Bar	533-05-30
58	Wheel	10-04590
59	Bearing	555-40-14
60	Nut - 1/4 - 20 Hex	545-40-40-46
61	Lower Counterbalance Assembly - Right	10-04565
62	Screw, Machine - #1/4-20 x 1/4"	
63	Case & Bracket Assembly, Right	10-04565
64	Screw, Machine - #10-32 x 3/8	524-20-29-01
65	Long Pan Philips	548-40-15
66	Lockwasher - 3/4"	549-20-15
67	Washer - #14 ID, 7/6" O.D. x 1/8"	
68	Tilt Bracket	10-48968
69	Lockwasher - 1/4"	10-04572
74	Screw, Machine - 1/4-20 x 1 1/2"	
70	Lg. Flat Hd Slotted	527-40-7-01
75	Upper Negative Stage Assembly	10-04514
76	Upper Bellows Assembly	10-04565-10
77	Negative Size Indicator Kit	10-31382
79	Upper Negative Stage	10-04532
80	Gear	568-20-19
81	Knob - Locking	568-25-05
82	Belt No. 9106	7209
83	Plate, Spring Back-up	10-28116

Ref. No.	Description	Part/Cat. No.
84	Shaft	10-04518-02
85	Screw, Machine - #8-32 x 1/2	
	Long Pan Philips	528-16-32-01
86	Knob	568-02-07
87	Shaft	10-04560
85	Negative Carrier	See Catalog
89	Spring - Stage (Right)	562-70-21
90	Shaft	10-04613-02
90	Screw, Machine - #4-40 x 1/4"	
	Lg. Fil Hd Slotted	515-05-11-01
91	Plate, Sliding Back-up	10-28119
92	Bearing	Cat. No. 7036
94	Bracket - Lever Hinge	10-04610
95	Bearing	10-04610
96	Lower Bellows Assembly	10-04565-15
106	Lower Bellows	10-04610
105	Lensboard Plate	10-48231
109	Lensboard Adapter Assembly	10-48931
110	Screw, Machine - 10-32 x 1/2	
	Long Pan Philips	527-16-32-01
111	Lens Adapter Spacer	See Catalog
113	Glass	562-03-23
114	Roll Pin	562-03-62
115	Nut 1/4 x 20	7036
118	Screw, Machine - #4-40 x 1/4"	
	Lg. Fil Hd Slotted	515-05-1-01
117	Nut - #4-40 Hex	545-15-20-01
118	Bearing	7036
119	Screw, Machine - #8-32 x 1/2"	
	Long Pan Philips	521-16-32-01
120	Focusing Knob	569-06-30
121	Cartridge - Locking	10-04645
122	Focusing Shaft	10-04518
123	Lens Stage	10-04646
124	Spacer - Locking Lens Stage	10-04646
126	Knob	568-20-19
127	Fiber - Loc Safety	Cat. No. 8540
128	Spring	10-02402
129	Retainer Ret.	10-04542

Ref. No.	Description	Part/Cat. No.
130	Stud	10-04613-02
131	Retainer - Front	See Catalog
132	Lensboard - Blank	See Catalog
133	Retaining Ring E-Type Loc Shaft	See 26-15
134	Bow Washer 21/64" I.D.	
	1/2" O.D. x 1/8"	548-20-25
135	Eyelet	670-54-1
136	Thumbscrew	545-43-07
137	Turret Stop Assembly	10-15370
138	Center Support Rod	10-49583
139	Eyelet	670-54-1
140	Retaining Ring E-Type Loc Shaft	555-45-10
141	Filter Holder Rim	10-16373
142	Filter Holder Assembly	10-48920
5	Lower Negative Stage	10-04583
82	Headband	10-04740
93	Screw, Machine - #4-40 x 1/4"	
	Headband	527-40-72-10
152	Long Fan Philips	
154	Angle Assembly (Specify R.H. or L.H.)	10-04735-01
		10-04735-02
155	Screw, Machine - 1/4-20 x 1/2"	527-16-32-01
155	Screw, Machine - #10-32 x 3/8	528-16-32-01
157	Frame Support	10-04626
159	Rod - Frame Support	10-04761
160	Screw, Machine - 10-32 x 1/2	
161	Frame	624-15-62-01
162	Lockwasher For Train 1/4"	549-47-21
163	Screw, Machine - #10-32F x 1/2	528-27-20-01
164	Solo Pin	10-04828
184	Carriage Elevating Rack	10-48913
167	Screw, Machine - 6-#32 x 3/8"	519-12-32-01
65	Baseplan Assembly	10-04729
105	Screw, Machine - 8-#32 x 3/8	
169	Long Pan Philips	521-2-32-01
170	Screw, Machine - 10-32 x 1/2"	524-10-32-01
171	Wire Nut	620-20-02
177	Set Screw 10-32 x 3/8	540-22-10

*Accessories available to Your your Beseler Master ...
The additional Universal Enlarger, Cat. #821, 117V; or Cat. #8122 (230V) is available to assembly from your Beseler dealer. The components of this lamphouse are shown thru sections 1-3, 17, 18 and 77.

10

LIMITED ONE YEAR WARRANTY

(Applicable in U.S.A. Outside U.S.A. contact local distributor)

Charles Beseler Company, Linden, 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 the 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 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. contact 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 $25.00 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 $25.00 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.

☰ BESELER

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

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