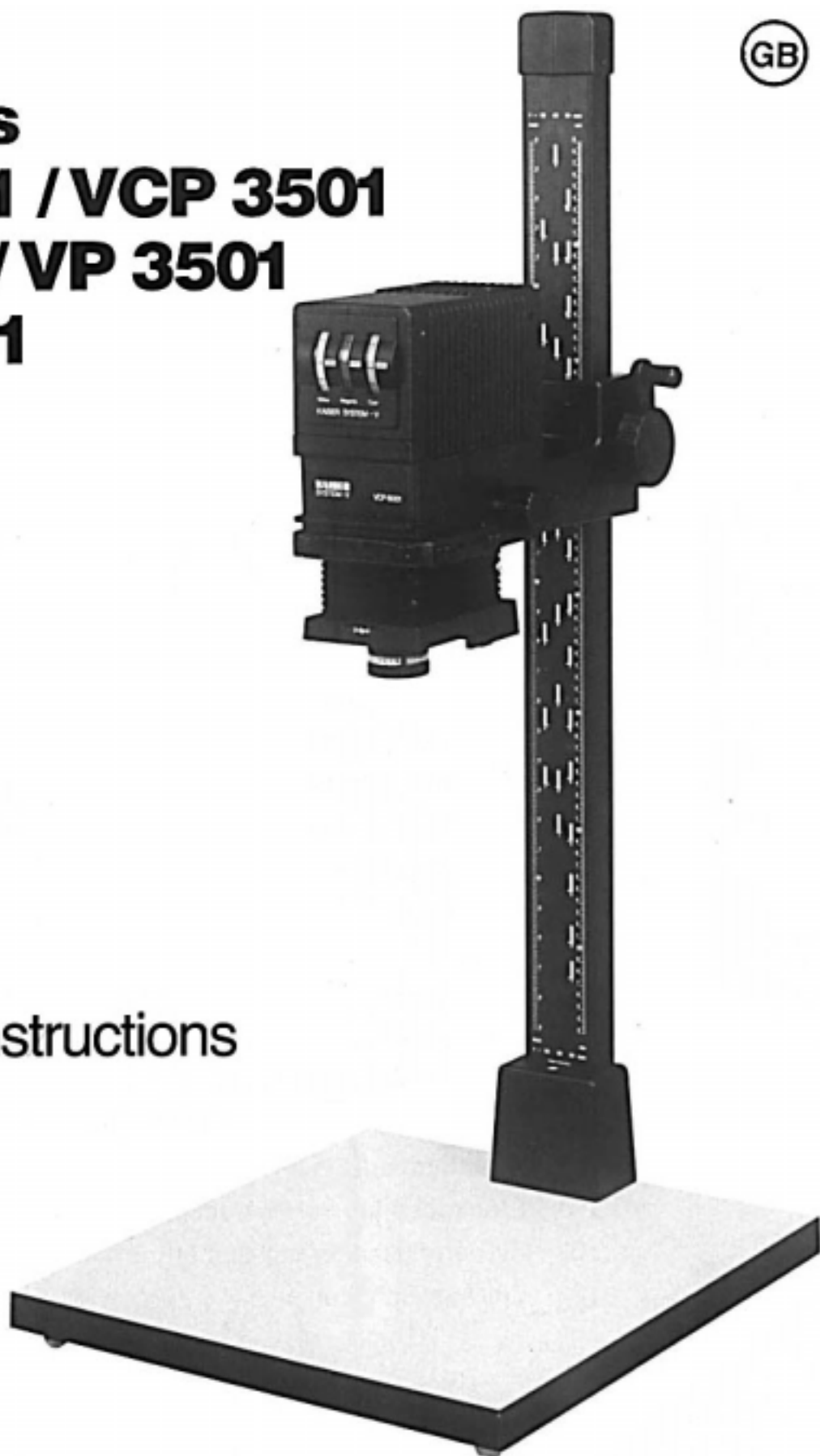


**Kaiser
Enlargers
VCP 6001 / VCP 3501
VP 6001 / VP 3501
VPM 3501**

GB

SYSTEM-V

Operating Instructions



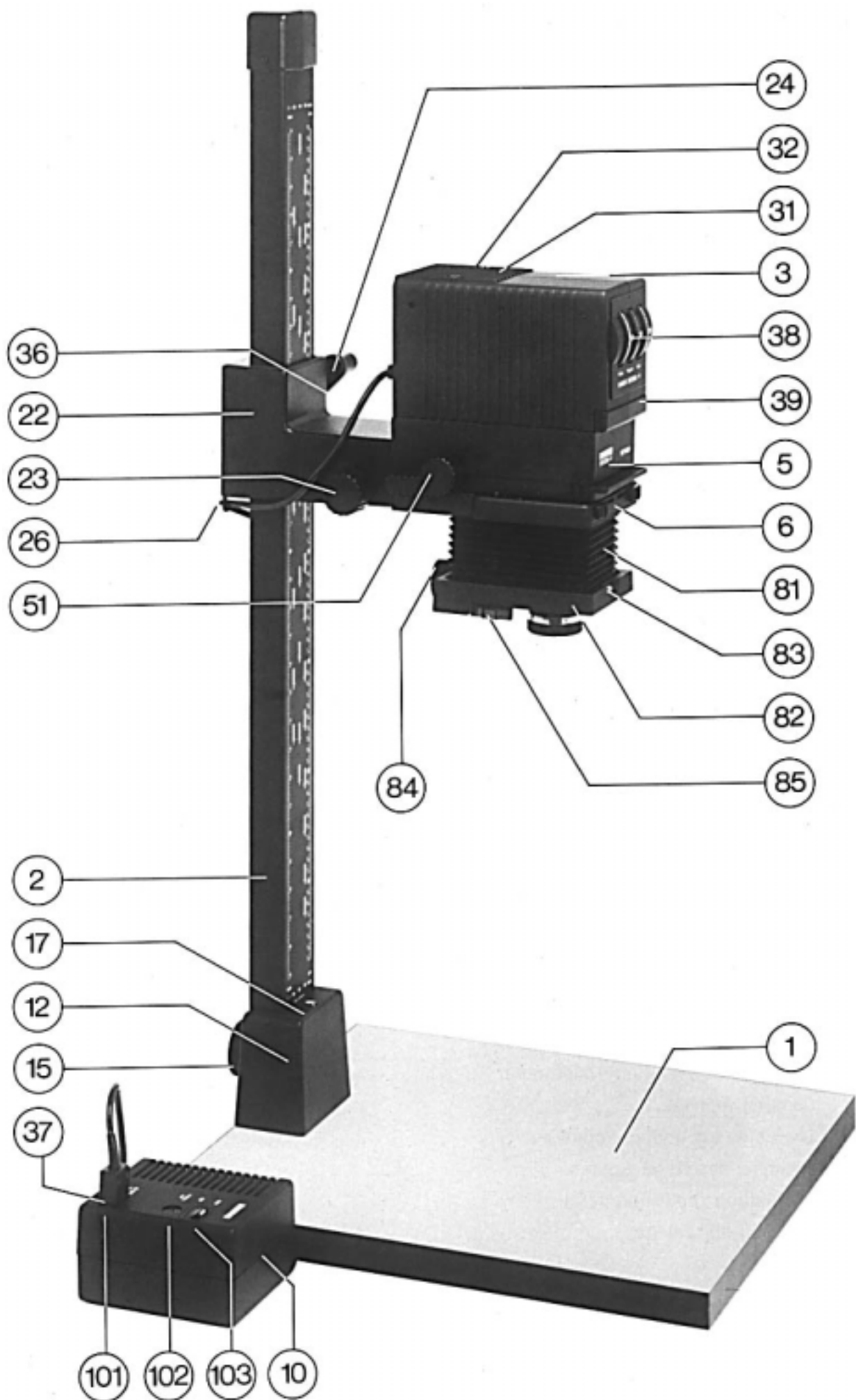
KAISER[®]
FOTOTECHNIK

These Operating Instructions are designed to familiarize you with your new enlarger in the most logical way and manner possible, yet it should be remembered that the details covered herein are of purely technical nature and not intended to serve as a general introduction to darkroom techniques and practices – the market offers a great many publications to take care of these aspects.

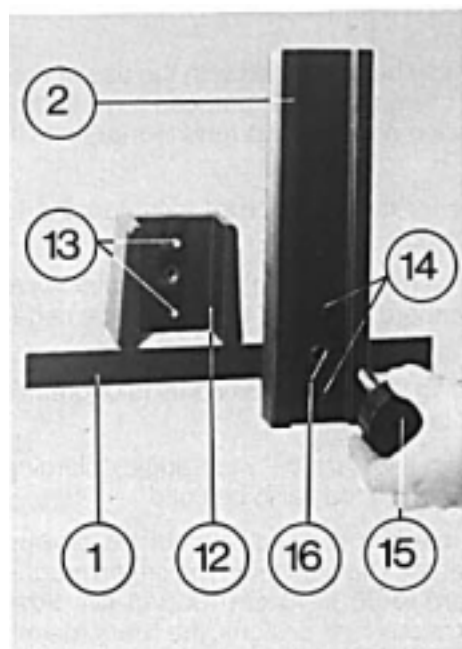
It is in your own interest to study these Operating Instructions very carefully, and make sure to keep them within easy for reference whenever required.

VCP 6001	4460	Colour Enlarger for all sizes up to 6 x 6 cm (2.4 x 2.4 in.)
VP 6001	4465	B & W Enlarger for all sizes up to 6 x 6 cm (2.4 x 2.4 in.)
VCP 3501	4420	Colour Enlarger for sizes up to 24 x 36 mm (.9 x 1.4 in.)
VP 3501	4425	B & W Enlarger for sizes up to 24 x 36 mm (.9 x 1.4 in.)
VPM 3501	4430	Multigrade-Enlarger for sizes up to 24 x 36 mm (.9 x 1.4 in.)

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- 1 Baseboard
- 12 Column Mount
- 15 Column Locking Screw
- 17 Circular Spirit Level
- 2 Column
- 22 Head Mounting Bracket
- 23 Head Locking Screw
- 24 Hand Crank – for Height Adjustments
- 26 Power Lead Support Bracket
- 3 Colour Mixing Head
- 31 Cover – Lamp Housing
- 32 Cover Attach Screws
- 36 Lamp Power Lead
- 37 Connector Plug
- 38 Filter Setting Wheels
- 39 Drawer for Extra Filters
- 5 Condenser Housing
- 51 Release Lever – Carrier
- 6 Film Carrier
- 81 Bellows
- 82 Lens Carrier
- 83 Spirit Level
- 84 Lens Carrier Locking Screw
- 85 Slide Lever – Red Filter
- 10 Mains Voltage Transformer
- 101 Socket for Connector Plug (37)
- 102 Fuse Holder + Fuse
- 103 ON/OFF Switch



②

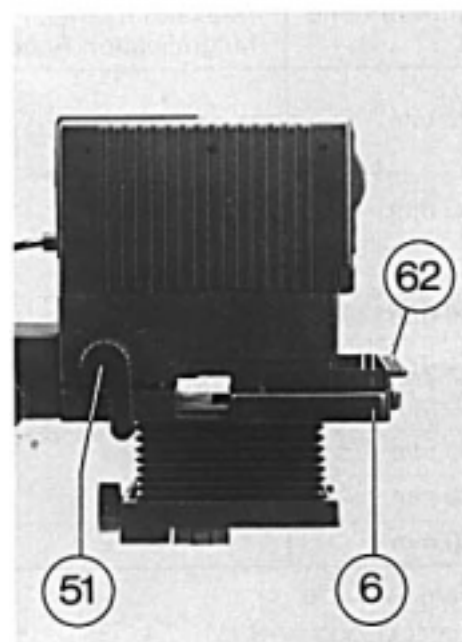
1. Assembly Instructions

All enlarger components are stowed in a crush-proof, reuseable Polystyrene container.

Open the outer wrap and start with removing the Baseboard (1) – with the Column Mount (12) already fitted – from the package and place the baseboard assembly on a suitable surface. Remove the top section of the Polystyrene container and remove the Column (2) along with the enlarger head and insert the column from behind in the Column Mount (12), making certain that the two Locating Pins (13) engage properly in the Locating Bores (14) provided in the column. Continue with holding the column upright, insert the Column Locking Screw (15) in the center Bore (16) and tighten the locking screw. Take care during the process that the column is properly seated and check the joint – between column and mount – for stability.

Place the enlarger on a level surface and check the Spirit Level (17) for proper positioning.

Check the Spirit Level (83) in the Lens Carrier (82) for exact orientation of the enlarger head.



③

Insert the Negative Carrier (6) whilst pushing the Mounting Lever (51) downwards. This action will raise the upper section of the enlarger head to provide ample space for easy insertion of the negative carrier. Make certain that the Handle (62) of the upper section of the negative carrier is located uppermost and points forward.

2. Connection of the Enlarger to the power supply unit and Preparation for Work

VCP/VPM-Models: The operation of the enlarger requires the use of a Kaiser Mains Voltage Transformer.

Route the Lamp Power Lead (36) through the Power Lead Support Bracket (26) attached to the Head Mounting Bracket (22) and insert the Connector Plug (37) in the Socket (101) of the Mains Voltage Transformer (10).

Check that the available Mains Voltage is identical with the Operating Voltage called out on the Type Plate of the transformer.

Connect the mains Power Lead (104) of the transformer to the mains power outlet – across an exposure timer if you have one available.

The enlarger is switched ON and OFF across the Transformer Power Control Switch (103).

Caution: Never operate the transformer in unloaded condition, i. e. without the enlarger connected.

VP-Enlargers: Connect the enlarger directly – or across a timer – to the mains.

Check that the available Mains Voltage is identical with the Operating Voltage called out on the Type Plate.

Available Kaiser Mains Voltage Transformers:

4451 Transformer, 220 Volts/12 Volts* with Electronic Voltage Stabilizer

4453 Transformer, 220 Volts/12 Volts* without Electronic Voltage Stabilizer

* Also Available as Export Models with ratings of 110 Volts/12 Volts and 240 Volts/12 Volts

3. Lens Requirements

All enlarging work should preferably be performed with the use of proper enlarging lenses specifically designed for this purpose so as to provide the balance between definition and contrast required for finite linear magnification ratios.

The following are general rules for the selection of focal lengths to match the negative formats involved:

- I: The focal length of the enlarging lens should at least be identical with the focal length of the standard lens used to produce the negative format concerned.
- II: The focal length of the enlarging lens should be equal to or greater than the diagonal of the negative format.

The only exception to the above rulings are the wide-angle enlarging lenses (identified by WW below), which may also be used.

Table 1 lists focal lengths which may be used and calls out the relevant maximum linear magnification ratios. The attainable maximum magnification format on the baseboard is 30 x 40 cm (pocket film size: 24 x 30 cm). Depending on the various lens designs, the linear magnification ratios may deviate slightly from the values called out in Table 1.

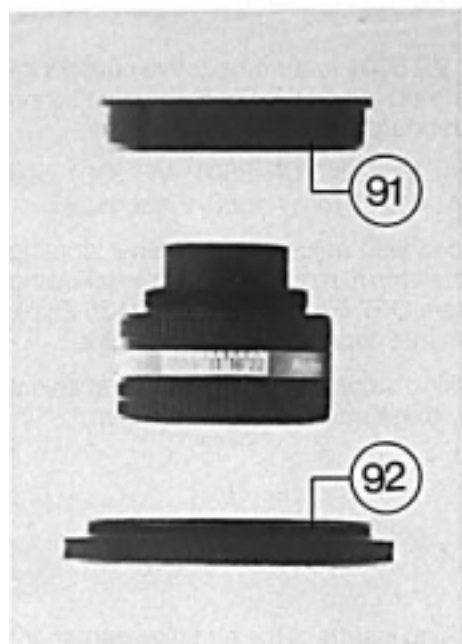
Table 1

Negative Format (in mm)	Focal Length of Lens	Maximum Linear Magnification Ratio
13 x 17 18 x 24 24 x 24	35 mm	21 x
28 x 28 24 x 36	50 mm	14 x
24 x 36	WW 40 mm	18,5 x
40 x 40	60 mm	12 x
45 x 60	75 mm	8,8 x
60 x 60	80 mm	8,2 x
60 x 60	WW 60 mm	11,2 x
60 x 70	90 mm	7,1 x ¹⁾
60 x 70	WW 80 mm	8,1 x ¹⁾

The following Enlarging Lenses are Available:

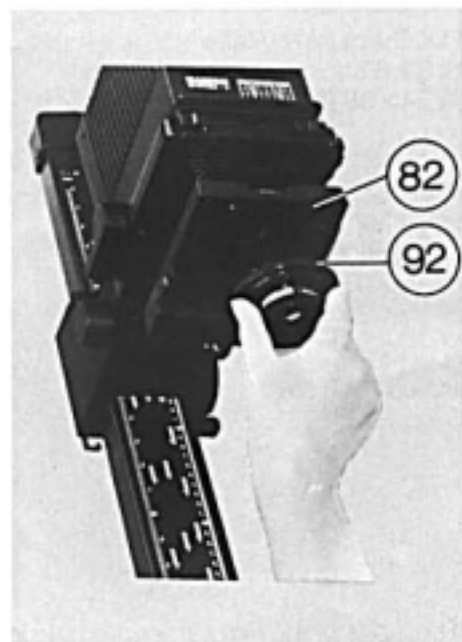
4368	Rodenstock Rogonar-S	4,0/35
4363	Rodenstock Rodagon WA	4,0/40 (WW)
4469	Rodenstock Apo-Rodagon	2,8/50
4355	Rodenstock Rogonar	2,8/50
4365	Rodenstock Rogonar-S	2,8/50
4367	Rodenstock Rodagon	2,8/50
4364	Rodenstock Trinar	3,5/50
4366	Rodenstock Rodagon	4,0/50
4359	Rodenstock Trinar	4,5/75
4360	Rodenstock Rogonar-S	4,5/75
4340	Rodenstock Apo-Rodagon	4,0/80
4341	Rodenstock Rodagon	4,0/80
4361	Rodenstock Rodagon	5,6/80
4357	Rodenstock Rogonar-S	4,5/90
4358	Rodenstock Rogonar-S	4,5/105
4336	Schneider Apo-Componon	4,0/45
4381	Schneider Componar-C	2,8/50
4382	Schneider Componon-S	2,8/50
4383	Schneider Componar-C	4,0/75
4384	Schneider Componon-S	4,0/80
4337	Schneider Apo-Componon	4,5/90
4338	Schneider Componon-S	5,6/100

¹⁾ After adapting to 6 x 7 cm



④

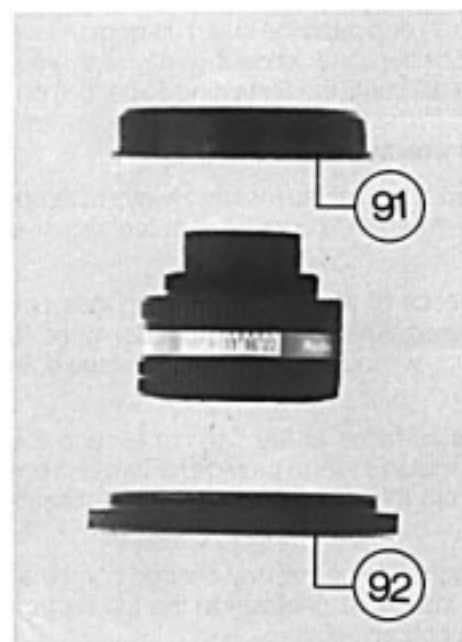
The lens is to be mounted with the aid of the two Adapter Rings (91) and (92) as follows: start with unscrewing Adapter Ring (92), which serves as a "centering" ring, from the Lens Carrier (82), and then unscrew the Adapter Ring (91), which serves as the „lens retaining" ring, from Adapter Ring (92). The lens retaining ring (91) is provided with an M 39x1 thread, i. e. Leica-thread. Screw this ring onto the lens with the flange facing away from the lens body (fig. 4).



⑤

Now insert the lens – together with the retaining ring – from above into Adapter Ring (92), i. e. the "centering" ring, which is to be finally screwed into the Lens Carrier (82) (Fig. 5). Ensure that the f-setting index is facing in the proper direction, i. e. forward.

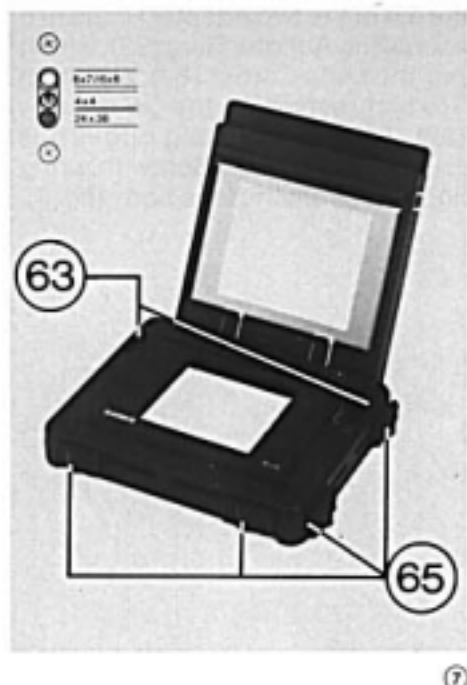
Lenses with an M 42 thread are to be mounted with the aid of an adapter ring, available as an Optional Equipment Item under Code No. 4464.



⑥

When using lenses with focal lengths of 40 mm or 50 mm, it may happen that enlargements in excess of approx. 24 x 30 cm are out of focus control, which is due to the design of the lens used. This condition can be rectified by way of changing the position of the lens retaining ring (91), i. e. the flange of the ring is now facing Towards the lens body (Fig. 6).

The aforesaid applies also to lenses with a focal length of 35 mm, which are to be mounted with the aid of a special adapter ring, available as an Optional Equipment Item under Code No. 4463.



⑦

4. Negative Carrier System

Enlarger Models VCP 6001 and VP 6001 feature negative carriers incorporating a glass pressure plate up top and a 6 x 6 negative sizing mask at the bottom (Fig. 7) as Standard equipment.

The negative carriers of Enlarger Models VCP 3501, VP 3501 and VPM 3501 are provided with glassless 35 mm negative inserts.

The film carrier (Fig. 7) is provided with adjustable negative locating pins (63) to properly accommodate strip film material with the following widths: 61.5 mm (120 Film), 41 mm (127 Film) and 35 mm (135 Film). To set up for the desired film size, just depress and shift the pins.

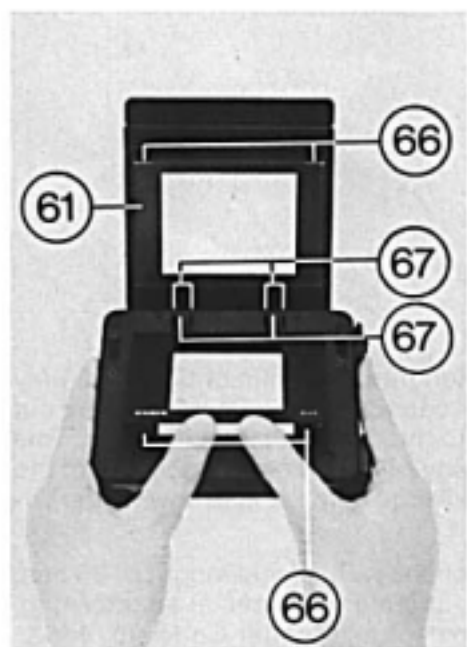
Four individually adjustable masking strips (65) are provided to select the desired negative section or to mask smaller negative sizes.

The glass and negative size masking inserts of the negative carrier are interchangeable and available – as Optional Equipment Items – as follows:

- 4485 Masks for 6 x 6 cm
- 4433 Combined Glass Inserts Flat Glass / AN Glass
- 4434 Flat Glass / Negative Mask 6 x 6 cm
- 4435 Flat Glass / Negative Mask 24 x 36 (b)
- 4486 Masks for 24 x 36 mm
- 4489 Insert for slides 5 x 5 cm
- 4488 Mask for 13 x 17 mm (Pocket)
(to be used in conjunction with Item 4489)
- 4487 Glass Inserts with Anti-Newton Ring Surface Finish
- 4490 Glass Inserts

Other System Components:

- 4483 Film Carrier without masks
- 4484 Slide Carrier for transparencies 7 x 7 cm



⑧

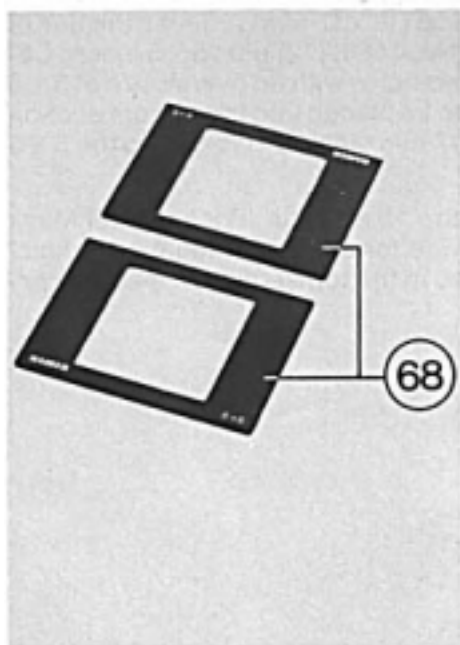
The inserts in the top and bottom sections of the film carrier are held in position by way of two Retaining tabs (66) and two elastic Plastic Lugs (67). When replacing an insert, hold the negative carrier with both hands – as shown in Fig. 8 – and use your thumbs to force the insert gently towards the Plastic Lugs (67) and push the insert up from below. Then place the new insert in position and force it gently with your thumbs towards the Plastic Lugs (67) until the Retaining Tabs (66) engage. The replacement of inserts in the top section (61) of the film carrier is accomplished in the same way and manner.

Caution: Ensure that the bevelled edges of the inserts always face upwards when the negative carrier is opened – or the negative when closed!

The film/negative-contacting surfaces of the Glass Inserts (Code No. 4487) have been subjected to special etching treatment designed to eliminate the risk of Newton's rings without any impairment of the optical image formation qualities.

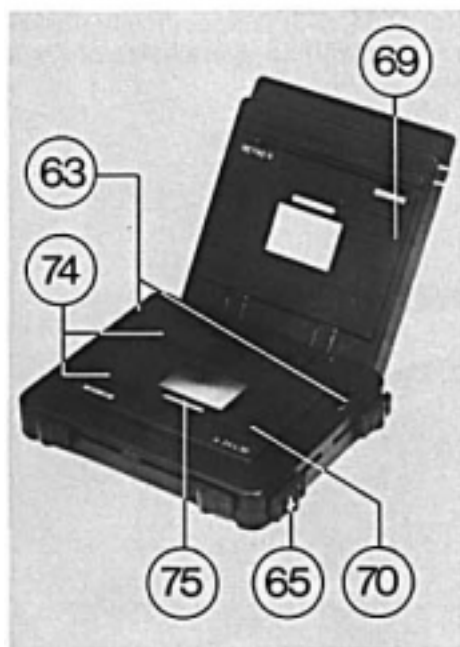
Important Note: Ensure that the surfaces of the film carrier and the glass inserts are always perfectly clean so as to provide for flawless enlargements without blemishes from the presence of dust, fluff, fingerprints, etc.

These negative carriers are designed to permit any desired combination of negative sizing masks or inserts respectively in the top section with any given glass insert in the bottom section.



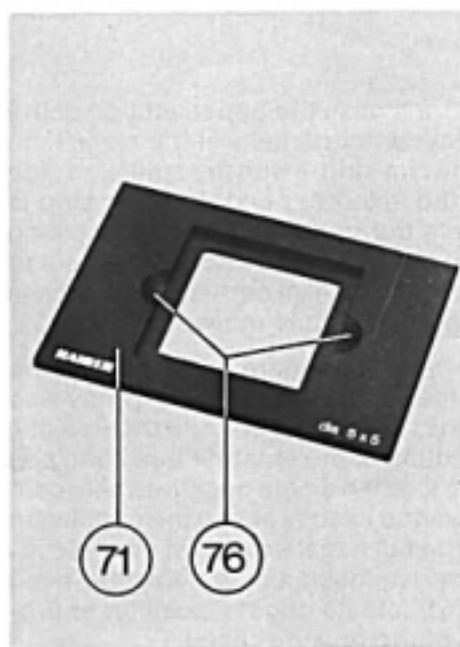
9

The Negative Sizing Masks 6 x 6 cm, Code No. 4485, (68) consist of identical elements for the top and bottom sections of the film carrier (Fig. 9). The masking element going into the top section may be replaced with a glass insert (as provided with the 6 x 6 models).



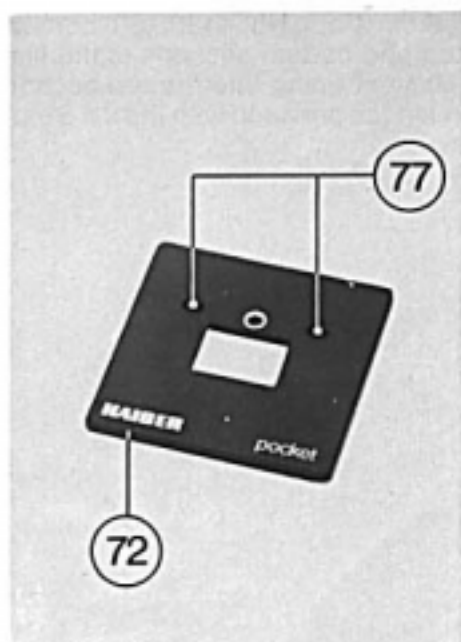
10

The Negative Sizing Masks 24 x 36 mm, Code No. 4486, consist of different elements for the top and bottom sections of the film carrier, i. e. Element "a" (70) is to be inserted in the bottom section of the film carrier and Element "b" (69) in the top section! Element "a" (70) is provided with Guide strips (74) for exact positioning of the film strip, and with a Window (75) to permit identification of the frame number on the baseboard — this window may be closed by the Adjustable Masking Strip (65) during exposure. If it is desired to work with a glass insert in the top section of the film carrier, Element "b" of the 24 x 36 mm sizing mask (69) is NOW to be used in the bottom section so as to provide for the required negative contact pressure, and the negative locating pins (63) must be shifted into the appropriate position to act as film guides (Fig. 10).



11

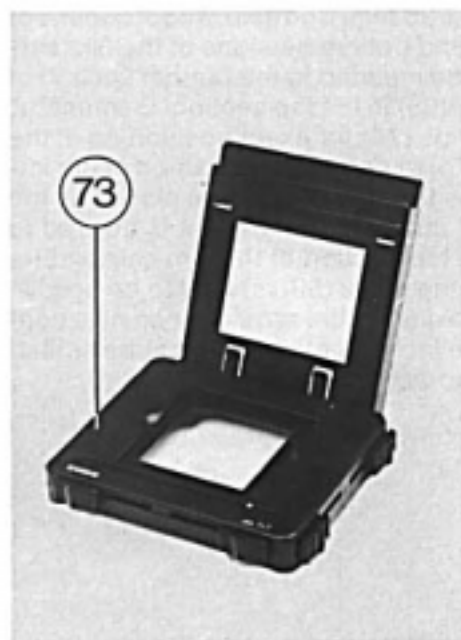
To facilitate enlarging of framed transparencies with an overall size of 5 x 5 cm, the appropriate insert, Code No. 4489, (71) is to be placed into the bottom section of the film carrier (Fig. 11). This insert is provided with fingertip recesses (76) for safe and easy handling of the framed transparencies.



12

Working with Pocket Film material (13 x 17 mm) requires the use of the Mask for 13 x 17 mm, Code No. 4488, (72) plus 5 x 5 Insert, Code No. 4489, for framed transparencies with an overall size of 5 x 5 cm (71). The 5 x 5 Insert (71) is to be placed into the bottom section of the film carrier, with the 13 x 17 mm Mask (72) to go into the 5 x 5 Insert (71).

The two Locating Pins (77) in the 13 x 17 mm (Pocket Size) Mask (72) are spring-loaded to provide for adequate negative contact pressure if a glass insert is used in the top section of the Film carrier (Fig. 12).



13

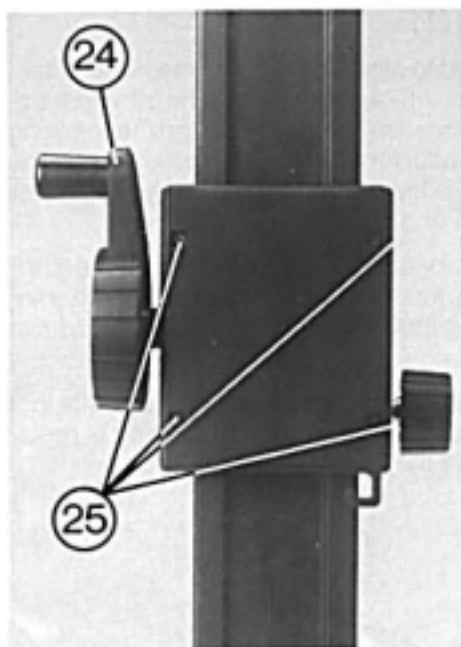
The 7 x 7 Slide Carrier, Code No. 4484, (73) is specifically designed to handle framed transparencies with an overall size of 7 x 7 cm (Fig. 13).



14

Operation of Release Lever (51) will raise the upper section of the enlarger head and open the film carrier partially at the same time (Fig. 14) to permit insertion of the film strip — with the emulsion side down — from the front end of the enlarger head. The film strip is exactly located once it contacts the properly adjusted Locating Pins (63). Return of the Release Lever (51) into its original position will lower the head section and close the film carrier. This process is to be repeated every time the film strip is moved on.

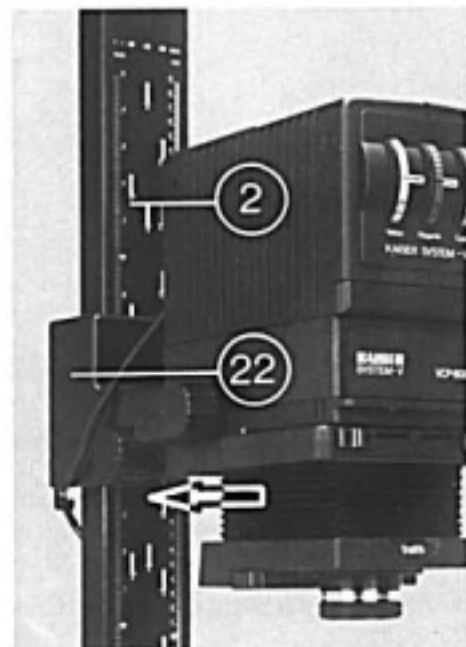
The insertion of single negatives and transparencies requires the removal of the film carrier from the enlarger head — which may also be done in the case of film strips. To do this, operate the Release Lever (51) to raise the upper section of the enlarger head and pull the negative towards you. When loading single negatives take care to ensure that the negative is located exactly above the opening in the sizing mask so as to have the full negative area at your disposal. This done, close the film carrier, insert it in the enlarger head and return the Release Lever (51) into its original position to properly lower the upper section of the enlarger head.



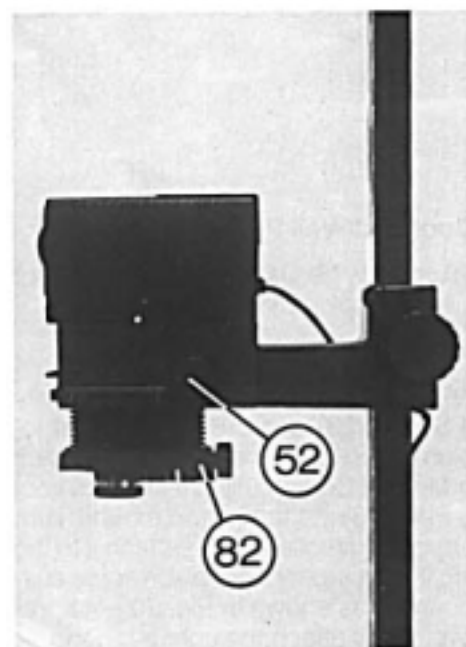
5. Height Adjustment and Setup of Magnification Scale

The scale of magnification, i. e. size of enlargement, is set up by way of adjusting the height of the enlarger head, i. e. the distance between the head and the baseboard.

A friction drive system, operated by the hand Crank (24), provides for the required up or down movement of the enlarger head. The back plate of the Head Mounting Bracket (22) is provided with four Adjusting Screws (25), which are to be uniformly tightened as soon as a decreased friction effect becomes apparent (Fig. 15).



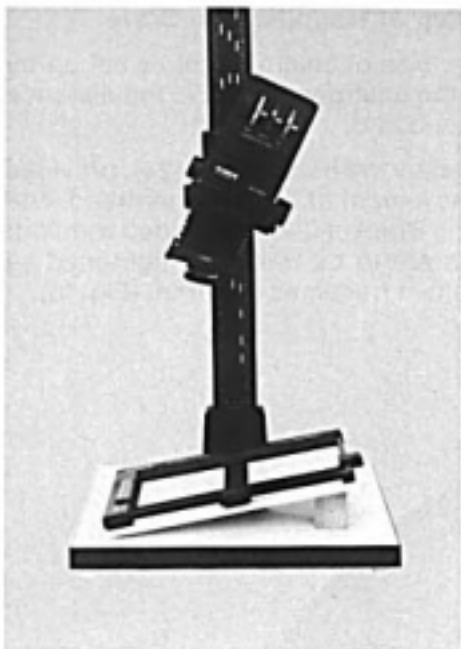
The Column (2) is provided with various scales – in cm and inches – also indicating the magnification factors for 90, 80 and 55 mm lenses. All dials and markings are referenced to the lower edge of the Head Mounting Bracket (22) (Fig. 16).



6. Focussing Procedure

Focussing is accomplished by way of moving the Lens Carrier (82) Up or Down across a friction drive system operated by the Focusing Control (52) (Fig. 17).

Focussing should always be performed with the lens aperture Full open, and with the focussing plane located at the level of the masking frame or easel – preferably loaded with a piece of paper for optimum results. If you cannot obtain a sharp image, check the lens and the adapter rings for proper assembly – refer to Section 3 "Lens Requirements" on Page 6 hereof.



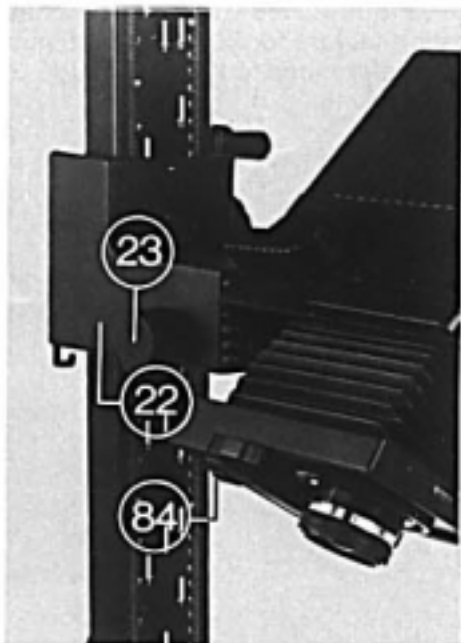
18

7. Rectification of Converging Lines

Rectification is frequently required to align converging lines in architectural photography, and to correct image distortions. The simplest approach is here to tilt the enlarger head in one direction and the masking frame or easel in the other. An additional means of rectification is the application of the "Scheimpflug"-principle, i. e. to set the Lens Carrier (82) to the desired angle (Fig. 18 and Fig. 19).

The "Scheimpflug"-principle provides for uniform image sharpness for as long as the negative plane, the lens plane and the image plane coincide in one common point. Failing this, the lens must be stopped down to increase the depth of field.

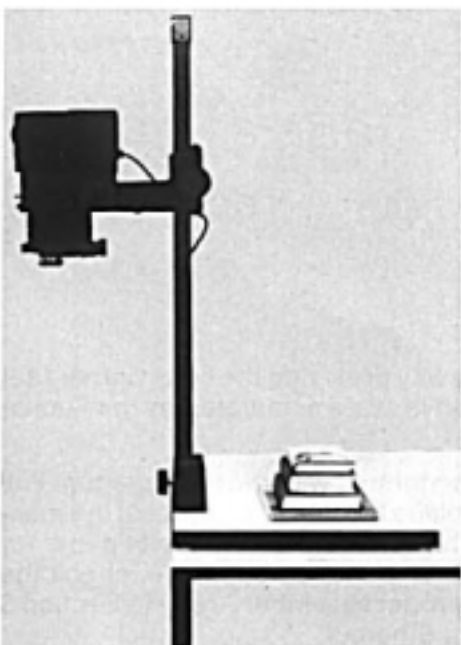
A point worth noting is, that the tilting of the enlarger head results in a non-uniform illumination effect at paper level so that dodging is required in the print zones subjected to the higher light input.



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To tilt the enlarger head, slacken the Head Locking Screw (23), set the head to the desired angle and retighten the Head Locking Screw (23). The front surface of the Head Mounting Bracket (22) is provided with calibration markings, which come into view when the enlarger head is tilted and indicate the tilt angle relative to the horizontal plane (Fig. 19).

Locking Screw (84) must be slackened to permit tilting of the Lens Carrier (82) – and be retightened afterwards.



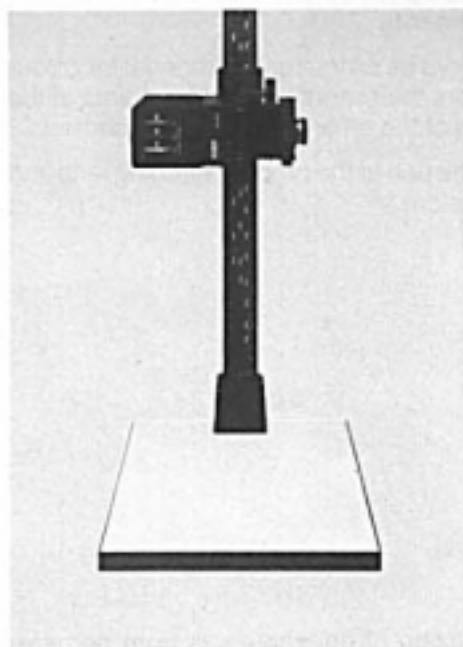
20

8. Oversize Enlargements – Floor and Wall Projection

Enlargements in excess of 30 x 40 cm may be made in two ways: either by floor projection or by wall, i. e. horizontal, projection.

To prepare the enlarger for Floor projection, proceed as follows:

Detach the enlarger head from the Head Mounting Bracket (22) by way of slackening the Head Locking Screw (23) and pulling the head towards you. Then remove the Column Locking Screw (15) and detach the Column (2) from the Column Mount (12) by pulling it towards you, and remember the two Locating Pins (13) in the column mount! Turn the column round to face in the opposite direction and reattach it to the column mount. Prior to reattaching the enlarger head, place some suitably heavy objects on the baseboard – as shown in Fig. 20 – to prevent the enlarger from toppling over! Now attach the enlarger head.

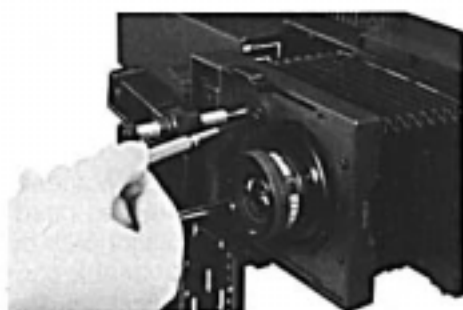


21

To prepare the enlarger for Wall (i. e. horizontal) projection, proceed as follows:

Slacken the Head Locking Screw (23) and rotate the enlarger head by 90 degrees in the desired direction, i. e. left-hand or right-hand. As soon as the proper 90 degrees position is reached, a centering pin in the head mounting bracket will engage in the locating bore of the Condenser Housing (5). Now retighten the Head Locking Screw (23).

The printing paper is to be attached to the wall by way of a suitable fixture. Ensure proper alignment between the enlarger and the projection surface! Changes in format size require alteration of the distance between the enlarger and the projection surface.



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9. Filter attachment

Some enlargers feature a filter attachment for positioning filters beneath the enlargement lens as standard equipment. The others are adjustable with it as an accessory (item no. 4495).

Mount the guide rods (155) of the filter holder (150) with the two screws on the bores (88) of the lens carrier (82).



23

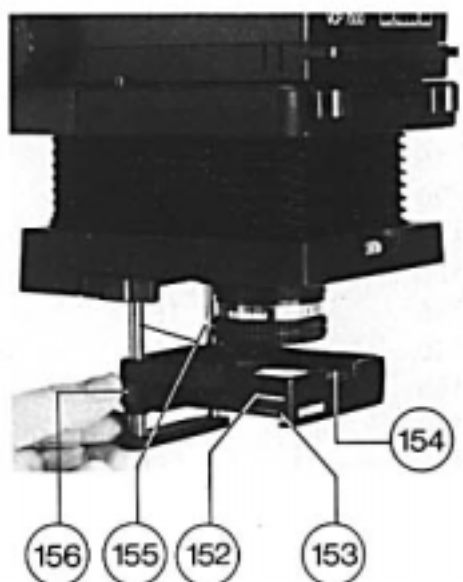
The filter attachment has two insertion slots (152) for square filters between 64 and 67 mm breadth and another (153) in the middle for masks up to 1 mm thickness. Framed filters for use with variable contrast printing papers (Ilford Multigrade® and Kodak Polycontrast Filter®) can be placed in a special holder (154) on the upper face of the filter support bracket.

The film carrier is guided by two parallel guide rods (155). It can be adjusted vertically by turning the knob (156). When not in use, the filter attachment can be swung sideways out of the light path. This is done by releasing the filter attachment from the right guide rod and turning it to the left.

In using round screw-in exposure filters with the filter attachment, special adapters are available as accessories.

- For screw-in filters \varnothing 49 mm: Adapter no. 4496
- For screw-in filters \varnothing 52 mm: Adapter no. 4497
- For screw-in filters \varnothing 55 mm: Adapter no. 4498
- For screw-in filters \varnothing 58 mm: Adapter no. 4499

The filter is screwed into the adapter and then inserted into one of the insertion slots (152).



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10. Colour and B & W Enlargements

This section is not intended to serve as an instruction manual for colour and B & W processing, but covers the essential handling points of the enlarger as far as the production of the enlargements is concerned.

It is important for you to ensure the use of the proper enlarging lens and of the appropriate condenser system.

10.1 Colour Enlargements

The enlarger permits the production of enlargements from negative material as well as directly from transparencies.

The Colour Mixing Head (3) of the VCP-models is equipped with dichroic interference filters which, depending of how far they extended into the light path, reflect the portion of the specified achromatic light which complements their inherent colour. This so-called subtractive filtering method provides therefore the chrominance of the light by way of deducting substance from the specified achromatic light.

The subtractive primary colours are referred to as Yellow (Y), Magenta (M) and Cyan (C) and identified as such at the colour mixing head. These dichroic interference filters are extended into the light path by way of the Filter Setting Wheels (38) providing an infinitely variable control effect. The illuminated dials of these control wheels indicate the values set up at the time.

The dial system is calibrated in densitometric values from 0 to 130. The equivalent values of the Kodak Colour Compensation Filters (CC) and the Agfacolor Copying Films (Agfa) are called out in Table 2 and shown against the densitometric values (D) for comparison. The standard ruling is:

1 D-Density = 1.5 CC-Densities = 2 Agfa-Densities.



Table 2

D-Value	CC-Values	Agfa-Values
0	0	0
10	15	20
20	30	40
30	45	60
40	60	80
50	75	100
60	90	120
70	105	140
80	120	160
90	135	180
100	150	200
110	165	220
120	180	240
130	195	260

Additional filters to obtain higher density values and other filters sized 8.5 x 8.5 cm may be placed into the Filter Drawer (39).

Filters increase the exposure time in relation to their chromatic density. This follows that a new exposure time must be calculated whenever a filter setting is changed, and to ensure that the basic density of the prints remains unaffected by such changes. Table 3 calls out the filter factors applicable to the filter system of the enlarger, and which are to be substituted into the following formula:

$$T_{\text{new}} = T_{\text{old}} \cdot \frac{(V_Y \cdot V_M \cdot V_C)_{\text{new}}}{(V_Y \cdot V_M \cdot V_C)_{\text{old}}}$$

Where

T_{new} : new Exposure Time

T_{old} : old Exposure Time

$(V_Y \cdot V_M \cdot V_C)_{\text{new}}$: Product of the new Filter Factors

$(V_Y \cdot V_M \cdot V_C)_{\text{old}}$: Product of the old Filter Factors

Table 3
Filter Factors
(Filter Values expressed in Densitometric Ratings)

Filter Value	Yellow (Y)	Magenta (M)	Cyan (C)
0	1.0	1.0	1.0
10	1.1	1.3	1.1
20	1.2	1.55	1.2
30	1.3	1.9	1.3
40	1.4	2.3	1.34
50	1.45	2.6	1.37
60	1.5	3.0	1.4
70	1.55	3.3	1.45
80	1.65	3.6	1.48
90	1.7	4.0	1.5
100	1.74	4.3	1.5
110	1.78	4.4	1.5
120	1.8	4.7	1.55
130	1.8	4.7	1.55

Application Example

	Y	M	C
New Filter Setting:	20	50	00
Old Filter Setting:	30	10	00

$T_{\text{old}} = 5 \text{ sec.}$

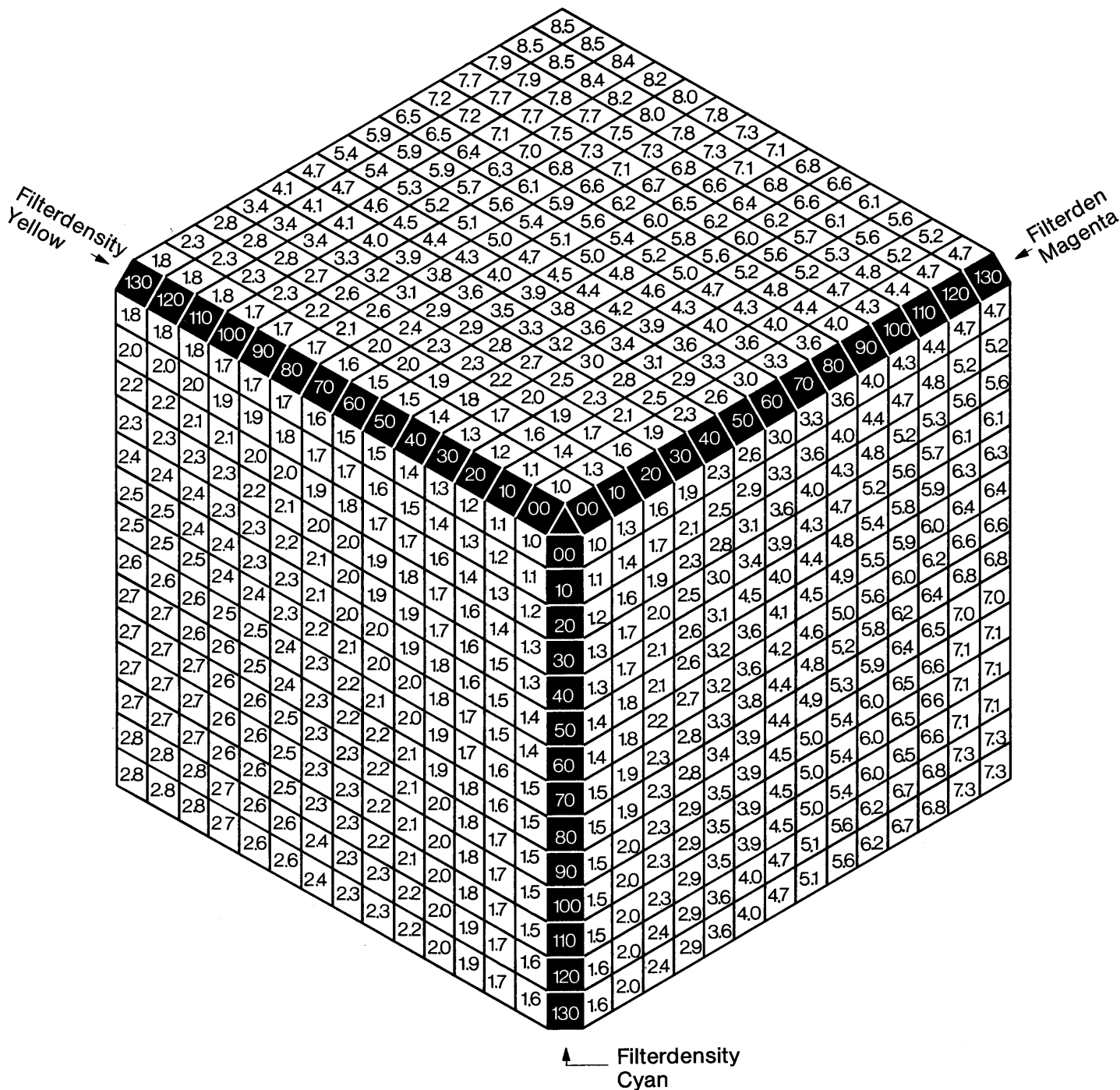
$$T_{\text{new}} = T_{\text{old}} \cdot \frac{(V_Y \cdot V_M \cdot V_C)_{\text{new}}}{(V_Y \cdot V_M \cdot V_C)_{\text{old}}}$$

$$= 5 \text{ sec.} \cdot \frac{1,2 \cdot 2,6 \cdot 1,0}{1,3 \cdot 1,3 \cdot 1,0} = 9,23 \text{ sec.}$$

Changes in filter density involve, as a rule, only a change in one or two filter colours so that the relevant filter factor may be readily established with the aid of the cube featured below. The filter factor appears at the point of intersection of the lines extending from two of the three black columns representing the filter density scales.

Intensified filtering requires multiplication of the exposure time by the filter factor obtained and reduced filtering requires dividing of the exposure time by the filter factor obtained.

If this arithmetical operation results in an unduly increased or reduced exposure time, it would be advisable to change the aperture setting instead of the exposure time.



The filter factors called out hereinabove are approximate values and may, depending on the scale of enlargement used at the time, require minor adjustments.

10.2 B & W Enlargements

The colour mixing head of the enlarger may, of course, also be used to produce B&W enlargements, for which purpose all Filter Setting Wheels (38) must be set to "0".

The built-in red filter permits viewing of the projected image with B&W printing paper in the easel. This red filter is accommodated within the Bellows System (81) for dust protection and extended into the light path by way of Slide Lever (85).

The colour mixing head may also be used in conjunction with variable-contrast papers, the emulsion of which is designed to produce varying gradation effects upon exposure to appropriately filtered enlarger projection light. The filter density ratings conforming to the gradation scale requirements of Ilfospeed Multigrade¹⁾ papers are called out in Table 4 and of Kodak Polycontrast²⁾ papers are called out in Table 5.

Please note that the use of the mixing head filters is accompanied by the requirement for increased exposure times!

The values called out in Table 4 and Table 5 are approximated.

Special attention should be given to the manufacturer's instructions for the papers you are using at the time. The availability of the infinitely variable filter density control feature provides for any desired gradation effect across the application of intermediate values.

Table 4
Recommended Filter Settings for Ilfospeed Multigrade II

Gradation	Y	M	Belichtungs- faktor
0	110	—	1,7
½	90	—	1,6
1	70	—	1,5
1½	30	—	1,3
2	—	—	1
2½	—	30	1,3
3	—	45	1,4
3½	—	55	1,5
4	—	95	2
4½	—	130	2,3

¹⁾ Ilfospeed Multigrade is a registered Trademark of Ilford LTD.

²⁾ Polycontrast is a registered Trademark of Eastman Kodak Co.

Table 5
Recommended Filter Settings for Kodak Polycontrast Paper

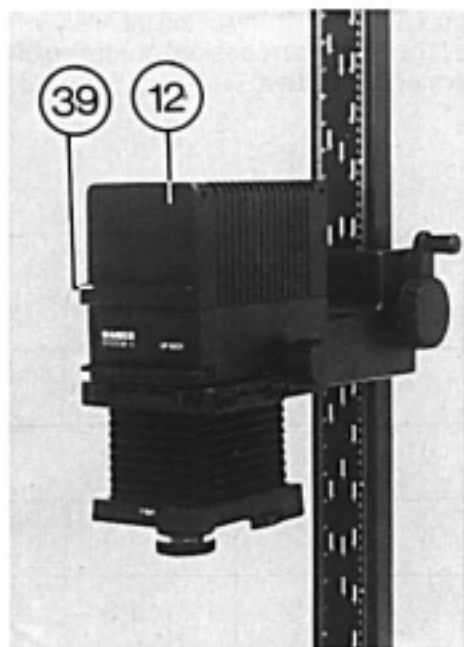
Gradation	Polycontrast Filter	Y	M
Soft	1	35	—
	1,5	10	—
Special	2	—	20
	2,5	—	35
Normal	3	—	60
	3,5	—	100
Hard	4	—	325*

*Additional filter inserts are required here to obtain this Filter Value.

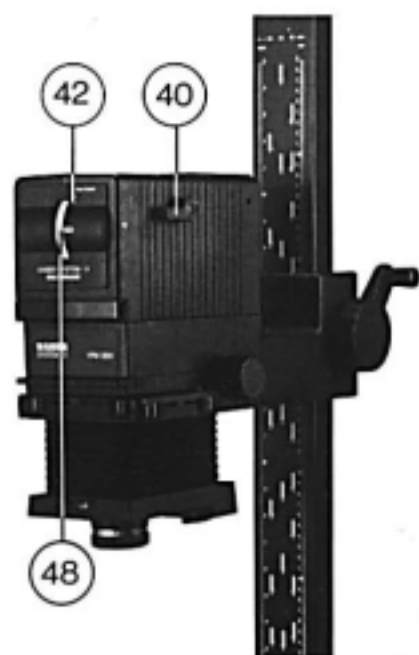
B&W Model VP 6001 and VP 3501 Enlargers are operated with a 75 Watts Opal Lamp.

Colour enlargements may be produced with the aid of 7 x 7 filter inserts to be placed in the filter drawer (39).

A Heat Absorbing Filter is available — to be placed in the filter drawer — to protect both the negatives and the filter inserts against damage from excessive heat.



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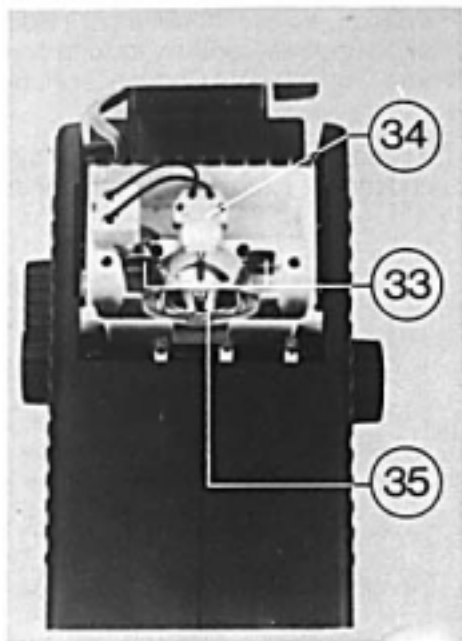
The VPM 3501 multigrade head is particularly designed for work with Ilford Multigrade II.

It permits the very simple processing of contrast changing papers (including Labaphot Multiscal).

Via the illuminated graduated wheel (48) the gradation may be infinitely varied from 0 (extraordinarily soft) to 5 (extraordinarily hard) without requiring any change of the exposure time.

For easy sharp adjustment the filters may be swivelled in and out via the white light lever (40).

The red indicating light (42) shows the existing condition.



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11. Replacement of Enlarger Lamp

The VCP/VPM models have been supplied complete with lamp.

If the lamp failed whilst the enlarger was in operation, allow the unit first to cool down to room temperature – then remove the two Cover Attach Screws (32) of the Lamp Housing Cover (31). Push the cover slightly back and lift it off the lamp housing.

Pull the Locating Springs (33) back with two fingers and lift the Lamp (35) up and remove it from its Socket (34). When installing the new lamp, take care not to touch the reflector surface and the lamp bulb with your bare fingers! Push the contact pins straight into the lamp socket until reflector seats in the recess provided in the base of the lamp holder. Make sure to use only the specified Halogen Quartz Cold-Light Mirror Lamp, 12 Volts/100 Watts with Socket Type GZ 6,35 (Code No. 4459).

Reattach the Lamp Housing Cover (31) and reinstall the Cover Attach Screws (32).

Please Note that the permissible surface finishing tolerances set forth for cold-light mirrors are likely to create changes in the colour temperature and it is therefore advisable to check the basic filter status after a new lamp has been installed!

To replace or change a lamp, remove the lamp housing (12) from the condenser housing (5).

PRIOR to doing this, DISCONNECT the enlarger from the MAINS!

To separate the lamp housing from the condenser housing, grasp the lamp housing with both hands and rock it gently from side to side until it lifts off.

Next remove the filter drawer to gain access to the lamp, which is then ready for replacement or change.

Make sure to use ONLY the specified 75 Watts Opal Lamp (Code No. 4356).

To optimize the illumination the opal lamp may be adjusted. Proceed as follows:

Do not yet insert the magnifying lens; if fitted, remove it.

Return the bellows on the head base to its minimum extension position. Turn on the enlarger (room light OFF) and set the enlarger so that the size of the illuminated area corresponds with that of the baseboard.

For lamp adjustment loosen the lock screw on the right side of the lamp house.

Now adjust the lamp by displacing and turning the rod (95) so that the maximum brightness points to the centre of the illuminated area.

Fix this setting with the aid of the lock screw.

12. Modification Requirements for other Negative Sizes

Enlarger Models VCP 6001 and VP 6001 are equipped with a Double Condenser System for the Negative Size 6 x 6 cm – and Enlarger Models VCP 3501, VP 3501 and VPM3501 with the same system, only for the Negative Size 24 x 36 mm. Both these negative size-optimized Double Condenser Systems are complemented by equally optimized Diffusor Screens adapted to the requirements of the colour mixing head for the applicable negative size.

All units may be retrofitted to different formats.

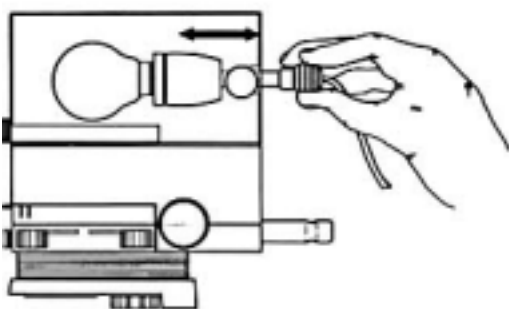
The following condenser systems are available:

4441 double condenser 6 x 7 cm

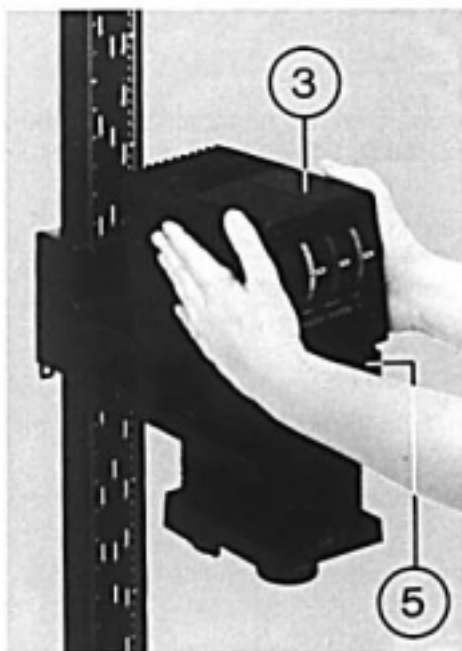
4442 double condenser 6 x 6 cm

4443 double condenser 24 x 36 cm

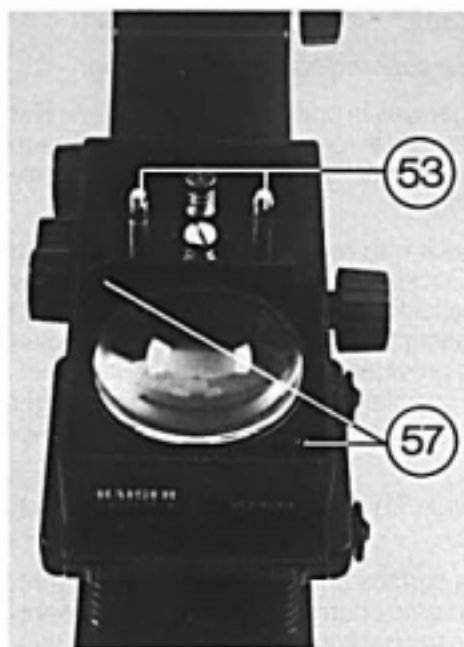
The use of 6 x 7 cm negative material and/or transparencies requires the replacement of the Standard-size filter drawer by a large-size Filter Drawer, Code No. 4448 (for filters measuring 8.5 x 8.5 cm).



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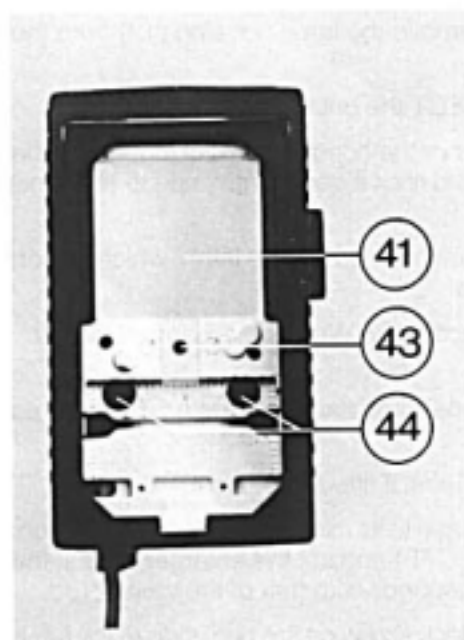
30



31

To replace the double condenser system, remove the Enlarger Head by holding it with both hands and lifting it up whilst carefully rocking it sideways to release it from its anchorage (Fig. 30). The Condenser Housing (5) is now readily accessible.

Remove the two Attach Screws (57) and lift the double condenser system off its seat. Install the new condenser system in similar manner (Fig. 31).



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When reattaching the Colour Mixing Head (3), it must be ensured that the Guide Bars (53) of the lens carrier friction drive system locate within their Receiving Channels (44) in the Colour Mixing Head.

13. Exchange of Instrument Heads

The instrument heads of the enlargers are exchangeable, which permits retrofitting for colour enlarger, multigrade enlarger or opal lamp illumination at any time.

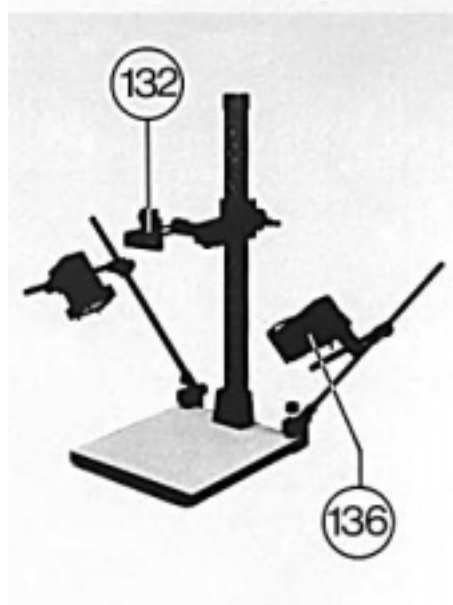
The following instrument heads are available:

- 4481 colour mixing head with white light lever
- 4450 colour mixing head without white light lever
- 4445 multigrade head
- 4446 B & W halogen head
- 4447 B & W head with opal illumination

The lamp houses 4481/4450/4445/4446 must be used together with Kaiser transformers (4451/53) exclusively.

Remove the fitted instrument head in upward direction and fit the new head accordingly.

Prior to exchanging the instrument heads pull the mains plug.

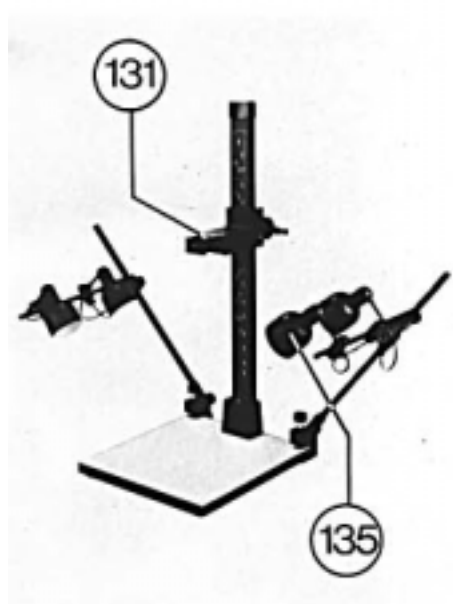


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14. Conversion into copying unit

Your enlarger can be readily converted into a copying unit, for which purpose you require the following items:

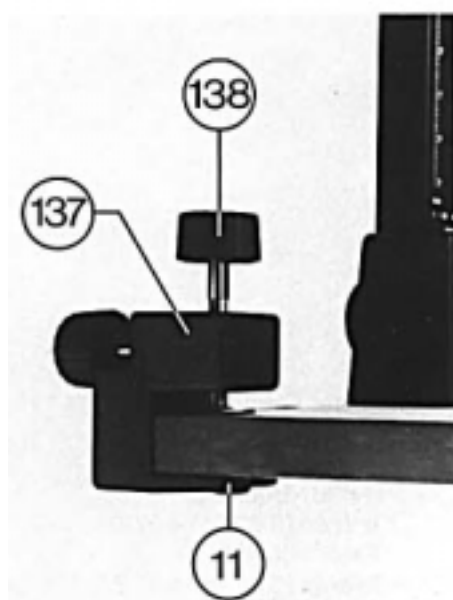
Code No. 5520 Copy Arm RA 1 (Fig. 34-131) or Code No. 5521 Copying and Titrating Arm RT 1 (Fig. 33-132), and Code No. 5550 Copy Light Set RB 1 (Fig. 33-136) or Code No. 5450 Copy Light Set (Fig. 34-135).



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To convert the enlarger into a copying unit, replace the enlarger head with the copy arm by way of removing the Head Locking Screw and pulling the enlarger head towards you. Insert the Mounting Pin of the copy arm full into the Receiving Bore of the mounting arm and refit and tighten the Head Locking Screw.

To attach the Copy Light Set, position the Mounting Clamp (137) of each mounting bar at the baseboard in such way, that mounting clamp base recess is centered on the Foot (11) of the baseboard (Fig. 35). This done, tighten the Mounting Clamp Lock Screw (138).



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15. Servicing and Maintenance

All moving parts are designed to operate with a minimum of servicing attention.

As soon as the friction drive system of the height adjustment begins to feel tight, apply a thin film of vaseline – with the aid of a lintfree cloth – to the column. Except for the surfaces exposed to the friction rollers. The same applies to the friction drive system of the lens carrier assembly, where the Guide Bars (53) of the friction drive system are to be greased.

To prevent the enlarger from collecting dust, make it a rule to cover it with a Dust Hood (Code No. 4375) whenever you have finished with your darkroom work. Take care that such components as the condensers, negative carrier and lens are free from dust. Clean these components regularly with the aid of a soft-hair cleaning brush and/or a compressed air duster. Grease stains on condenser and lens surfaces are best removed with the aid of a lintfree cloth and/or a special formula lens cleaning solution.

The baseboard may be cleaned with a mild domestic cleaning agent. Spillage of chemicals on lacquered and anodized surfaces should be removed with water as soon as this is noticed.

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