

FOCOMAT II_c

Instructions for use

ERNST LEITZ GMBH WETZLAR
(GERMANY)

The FOCOMAT II c is an enlarger with automatic focusing for all negative sizes up to 6 x 9 cm., meeting the most exacting demands in design, reliability and operating comfort.

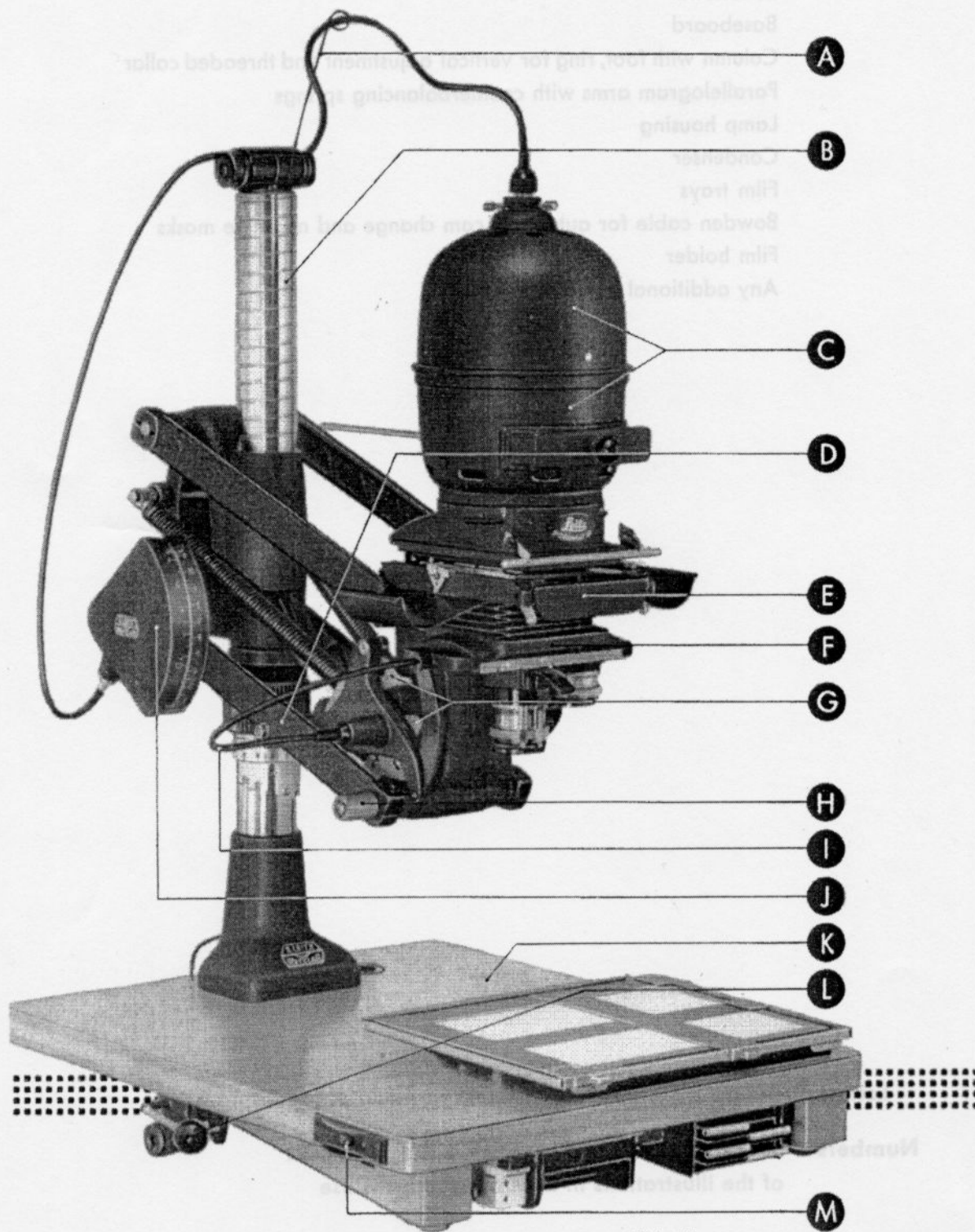


FOCOMAT II c

The following instructions for use contain all details about the various possibilities of application and adaptability for miniature to medium size negatives. Changing over from miniature to medium size negatives, fitting accessories for the correction of converging verticals or photo copying is a matter of seconds. This versatile application, together with simplicity and speed of operation make the FOCOMAT II c a particularly economical enlarger for the professional darkroom.

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For transport, the LEITZ FOCOMAT II c Enlarger is dismantled as follows:

Baseboard

Column with foot, ring for vertical adjustment and threaded collar

Parallelogram arms with counterbalancing springs

Lamp housing

Condenser

Film trays

Bowden cable for automatic cam change and negative masks

Film holder

Any additional accessories

Letters denote features of the general views on pages 3 and 22.

Numbers denote details of parts shown in the remainder of the illustrations in the instructions for use

Assembly

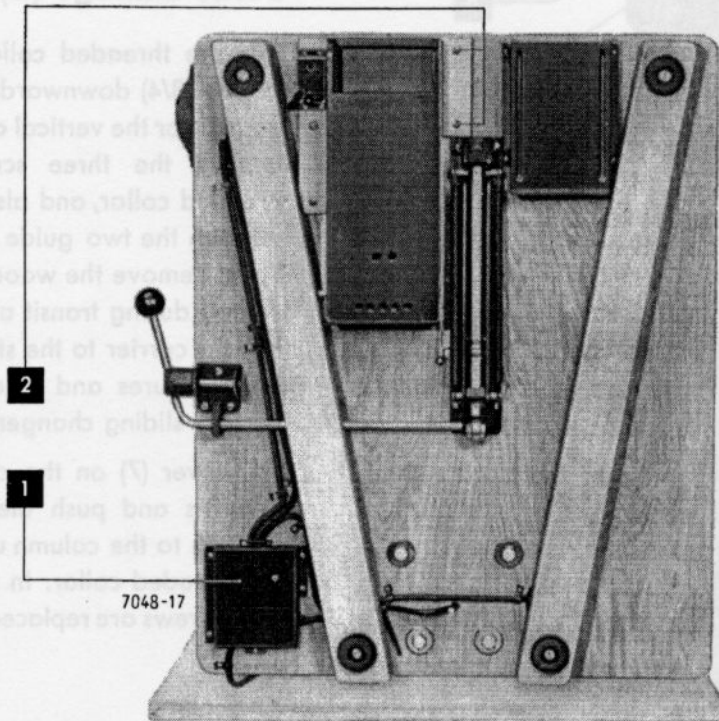


Fig. 1

Baseboard (K)

Remove the cover of the clamping bar of the electric cables on the lower side of the baseboard (Fig. 1). Mount the column B and thread the end of the cable protruding from it through the hole in the baseboard. Secure the column well with the four hexagonal bolts supplied. (Their washers must be inserted between baseboard and screwheads).

The cables must be connected according to the wiring plan inside the cover.

Replace cover. Connect earth wire on column flange with red screw.

A mechanical exposure timer; which must be short circuited on the back with a short circuit plug can be connected to the socket (W) in the baseboard.

The FOCOMAT II c is switched on and off by the hand switch (M) (with protective collar) on the left of the baseboard. Hand switch and exposure timer can be used independently. Where a dimmer switch is installed illumination for focusing is switched on by hand, and for exposure by the exposure timer.

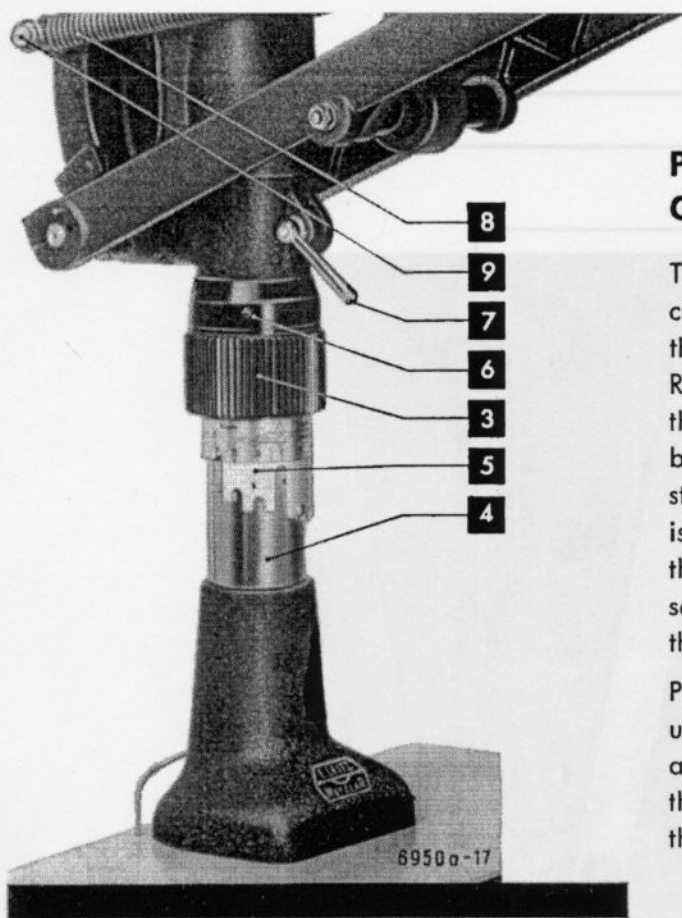


Fig. 2

Parallelogram Guide Linkage (D)

Turn the threaded collar (U/3) on the column (B/4) downwards until it rests on the ring for the vertical adjustment (V/5). Remove the three screws from the threaded collar, and also the red screw between the two guide pins of the film stage. Remove the wooden block which is fitted during transit and slowly lower the lens carrier to the stop (9). (The red screw secures and takes the strain of the lens sliding changer during transit).

Push lever (7) on the clamping device upwards and push the parallelogram arms on to the column until they rest on the threaded collar. In this position the three screws are replaced and tightened.

Counterbalancing springs (T)

Push the lamp housing up to its highest position and tighten locking head firmly. Pull lever (7) downwards; this secures the parallelogram arms against accidental rotation. Insert the counterbalancing springs (T/8) to the right and left of the parallelogram arms in the notches of the rear pivot (9). After loosening locking head pull parallelogram arms to their lowest position, where they are locked again. Support lens carrier (F) from below to protect it against dropping.

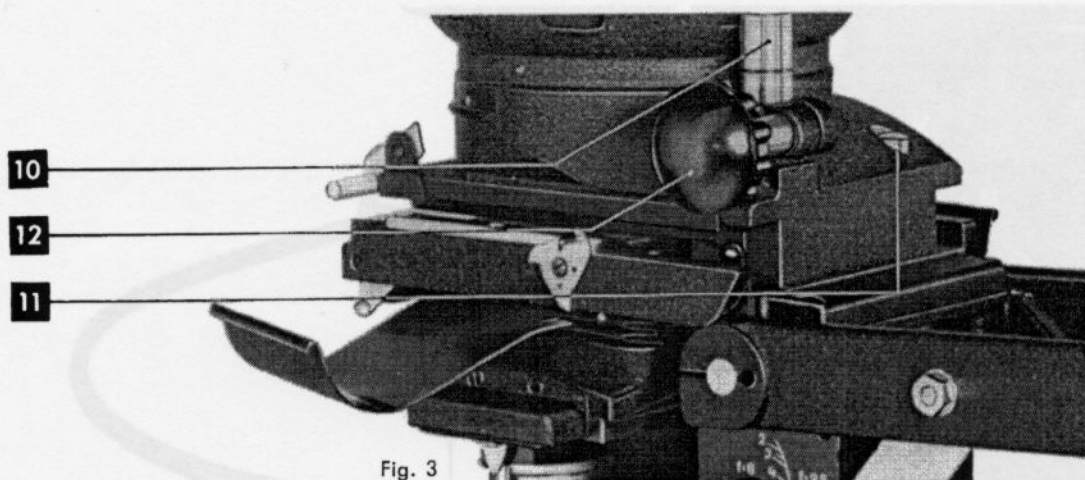


Fig. 3

Lamp housing (C)

Push the lamp housing (C) on to the two guide pins (Figs. 3, 10 and 11) against the stop and arrest with locking screw (0/12). Remove the upper lamp hood, and insert the condenser by means of its handle. The handle of the condenser must point towards the column and is hinged back after inserting of the condenser. Screw in opal lamp, and replace upper lamp hood (white mark facing front).

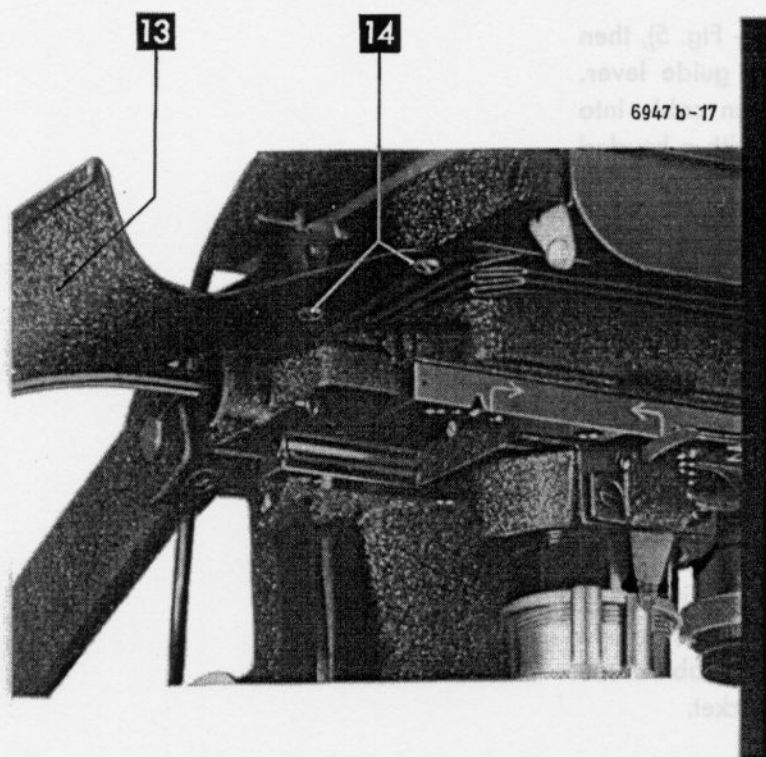


Fig. 4

Film trays (P/13)

Undo locking screws (14 – Fig. 4) to the right and left of the negative stage a little, push film trays underneath the screw heads, and tighten screws again.

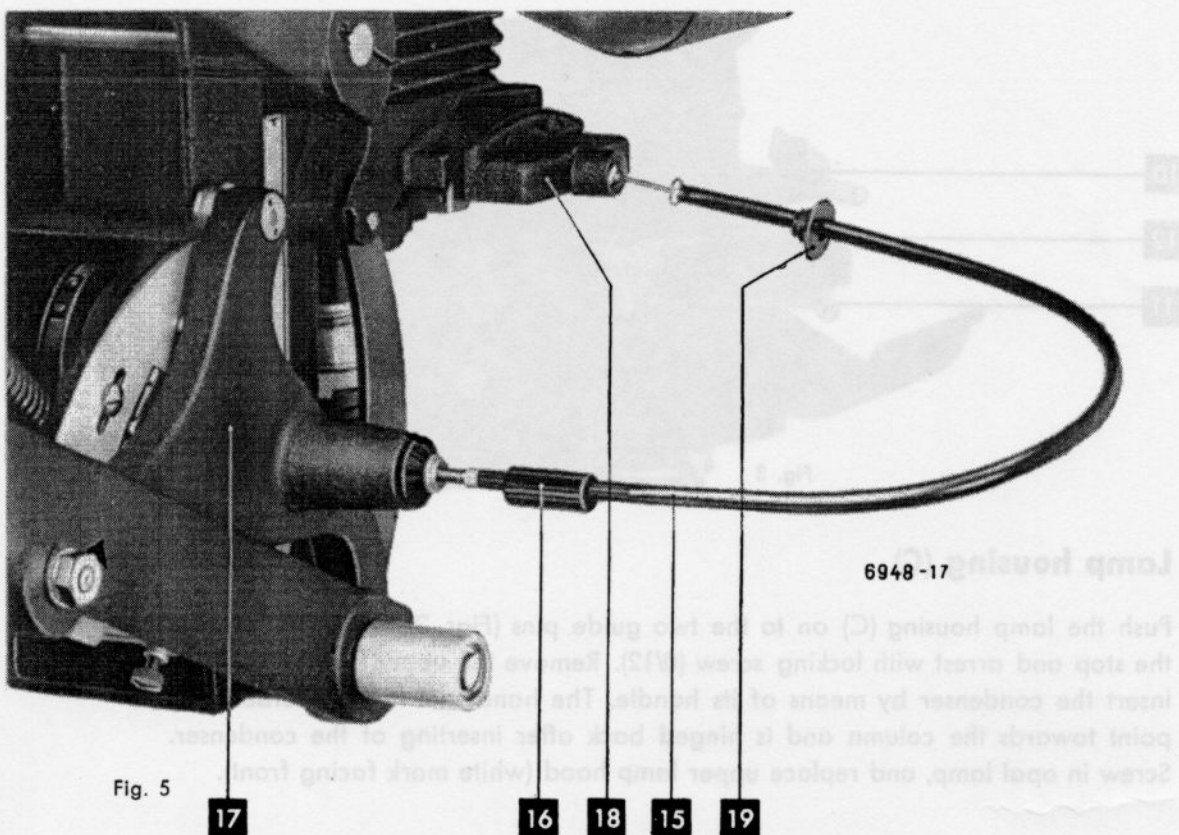


Fig. 5

Bowden Cable (I) for automatic cam change

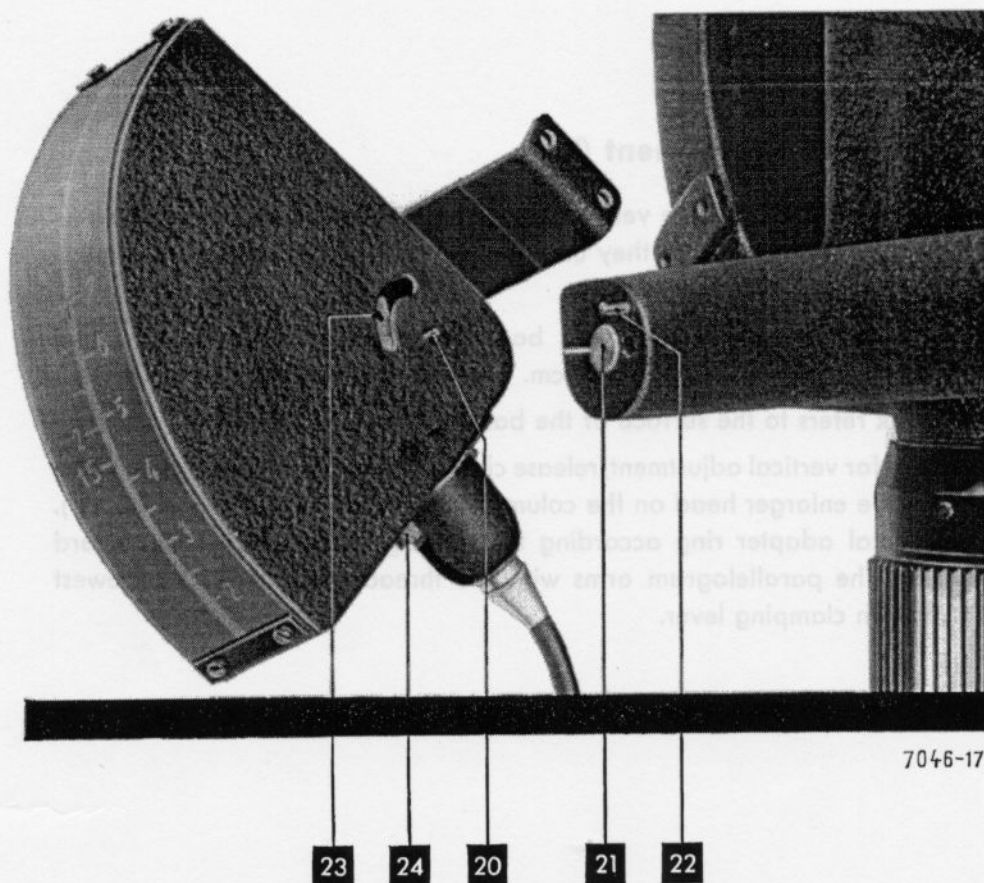
Screw first the Bowden cable (15 – Fig. 5), then the protecting sleeve (16) into the guide lever. Insert the other end of the Bowden cable into the lens guide where it is secured with a knurled screw.

Lamp Hood (C)

Insert sprung cable holder (A) into the hole at the end of the column. Thread cable from the lamp hood through the loop of the cable holder and insert plug into the socket at the top end of the column. Connect the instrument to the mains.

Attention! The FOCOMAT II c is only earthed correctly if it is connected to a German SCHUKO socket installed according to regulations; or else if the "red" wire is connected to a suitable three pin plug which fits to an earthed socket.

Fig. 6



Enlargement indicator (J) with trans-illuminated scale

Pull enlarger head down to its lowest position. Push the protruding pointer spindle (20) of the enlargement indicator into the hole of the lever shaft (21). Take care that the pin protruding from the parallelogram guide engages the pointer (23). Secure the scale housing with its two screws on the holding device.

The twin plug (N) supplied is inserted in the end of the column; it serves to connect enlargement indicator and enlarger head.

The enlargement indicator is equipped with an indicator lamp (CKROO). To replace the lamp, remove its socket after loosening two knurled screws (24).

Ring for vertical adjustment (V)

The numbers on the ring for the vertical adjustment indicate the different heights of the various masking boards; they can also be referred to for copying work if the object is held in a masking board.

The standard height of LEITZ masking boards with grooves (for use with the clamping device) is 25 mm.; the 30 x 40 cm. masking board is 30 mm high.

The zero mark refers to the surface of the base board.

To set the ring for vertical adjustment, release clamping lever (upward position), and slightly raise the enlarger head on the column by means of the threaded collar (U). Turn the vertical adapter ring according to the height of the enlarging board used, and set the parallelogram arms with the threaded collar to their lowest position. Tighten clamping lever.

Masking Board (X)

By means of the clamping device (L) the masking board can be clamped on the base board in any desired position.

Upward position of lever = masking board can be moved freely

Lower position of lever = masking board is clamped.

Opal lamp

To centre the lamp set the enlarger head to medium height, and use the 95 mm lens. By rotating the guide sleeve (25 – Fig. 7) and laterally adjusting by means of the three centring screws (26) the opal lamp is brought into a position when it evenly illuminates a picture frame for the 6 x 9 cm negative size. The lamp should be set as low as possible.

Operation

Enlarging range

The desired ratio of enlarging is obtained by vertical adjustment of the enlarger head on the parallelogram arms. The ratio of enlargement can be read off the scale (Q/27) at any time.

Fig. 7



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To move the enlarger head the locking knob (S) on the right hand side is undone, and the enlarger head pushed up and down with the red handle (H) on the left.

The focusing is automatic throughout the entire range of movement. With the aid of the guide cams (G) the lenses are adjusted in the Works for optimum sharpness and must not be interchanged. Automatic focusing is also guaranteed when the copying cassette is used in the FOCOMAT IIc. Range of automatic focusing: – For 35 mm size negatives with 60 mm FOCOTAR lens from approximately 2 x – 11 x, for medium size negatives with 95 mm FOCOTAR lens from approximately 1.3 x – 6 x (s. also section "Copying").

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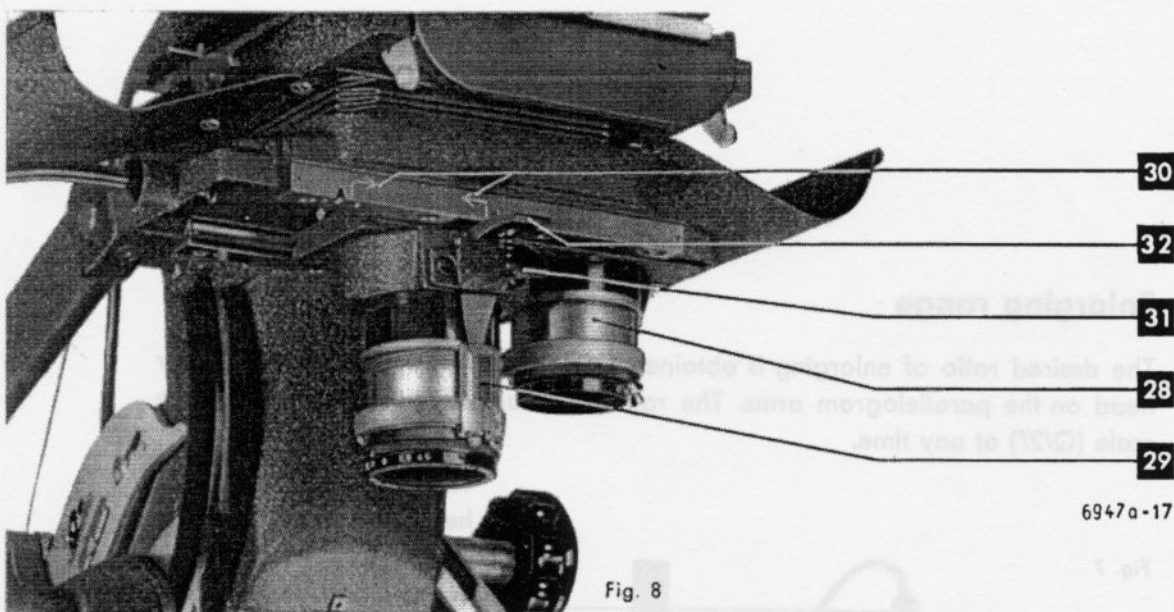


Fig. 8

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Lens change

The 60 mm FOCOTAR f/4.5 (28) and 95 mm FOCOTAR f/4.5 (29) special enlarging lenses are placed in their operating positions according to the guide arrows (30) on the front panel of the lens carrier (sliding changer). The following movements must be carried out: – Lift the lens carrier by the handle (31) to the stop, press locking lever (32), push the lens slide to the right or left up to the stop, release locking lever and slowly lower the lens slide again. (The hand remains on the handle to protect the lens slide against sudden impact).

The lens mount of the 95 mm FOCOTAR has two setting notches; the right one, marked R (Repro = copying) is used with the copying cassette; when a copying cassette is ordered together with the instrument, it is adjusted for optimum sharpness in the Works. When changing over to the copying cassette the enlarging lens is to be turned by approximately one complete turn into its mount until it sets in the second notch.

The first setting notch on the 95 mm FOCOTAR (the setting notch on the 60 mm FOCOTAR respectively) is used with the negative film holders. The film guides are adjusted for an optically effective focusing plane.

For cleaning purposes the lenses may be unscrewed from their helical focusing mounts. The helical mount is gripped round the knurled chromium ring with the left hand.

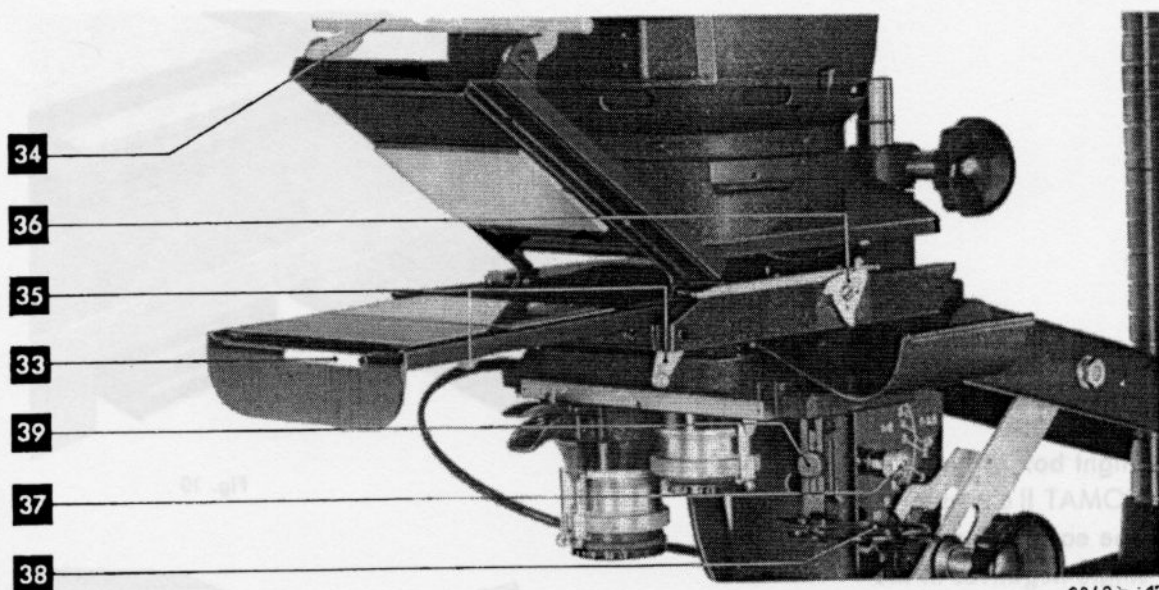


Fig. 9

Negative film holder (E) For negatives up to 6 x 9 cm and single negatives the negative holder with upper and lower glass plate is used, with a clear opening of 6 x 9 cm. For miniature strips, the negative film holder with glass pressure plate from one side can be used. The negative masks (33) are inserted from the front into the special recess provided in the film holder. Care should be taken that the longitudinal ridges impressed on the masks point upwards. The handlebar (34) must be turned upwards during the insertion of the film strips.

Both film holders are pulled out to the stop. By pulling the two levers (35) forward, the stops can be withdrawn, so that the negative holder can be removed from the FOCOMAT.

Interchangeable negative masks are available in the following sizes:

24 x 24 mm	3 x 4 cm	4 x 6.5 cm
24 x 36 mm	4 x 4 cm	6 x 6 cm
	4.5 x 6 cm	

Film stops Rotatable stop discs (36) are located on the left and right of the film stage. Their notches align 35 mm, 45 mm and 62 mm wide films.

Knurled head (37) The knurled head disconnects the automatic focusing mechanism during the use of the tilting device (see page 17).

Orange filter If required, an orange filter (38) can be screwed into the thread (39) on the front of the lens carrier (S); it can be adjusted vertically. To attach it the 60 mm FOCOTAR should be in its operating position.

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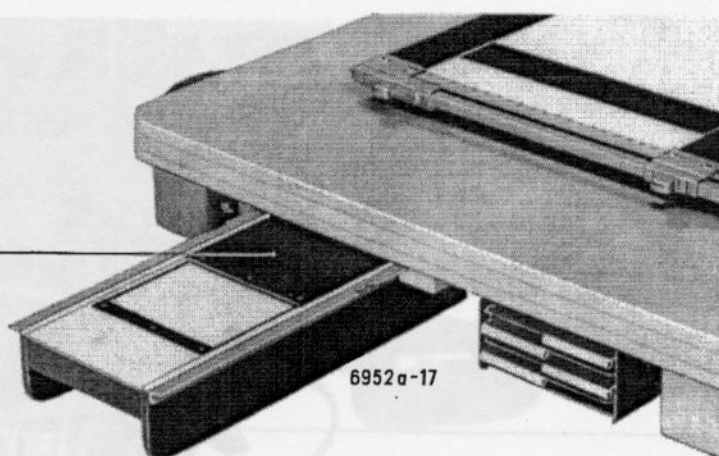


Fig. 10

Light box (Y)

The light box of the FOCOMAT II c is used for the easy alignment of single negatives in the negative holder (Fig. 10). The illumination is automatically switched on and off when the light box is pulled forward and replaced.

The negative holder is placed on the light box where it is locked in the correct position (Fig. 11). After the frame is opened the negative is inserted and aligned in the negative mask, when the negative holder is closed and inserted in the film stage. The position of the negative remains unchanged.

To replace the lamp in the light box the slide underneath is removed after undoing the lateral screw. A pearshaped Osram bulb E 14/15 W should be used (Please state voltage).

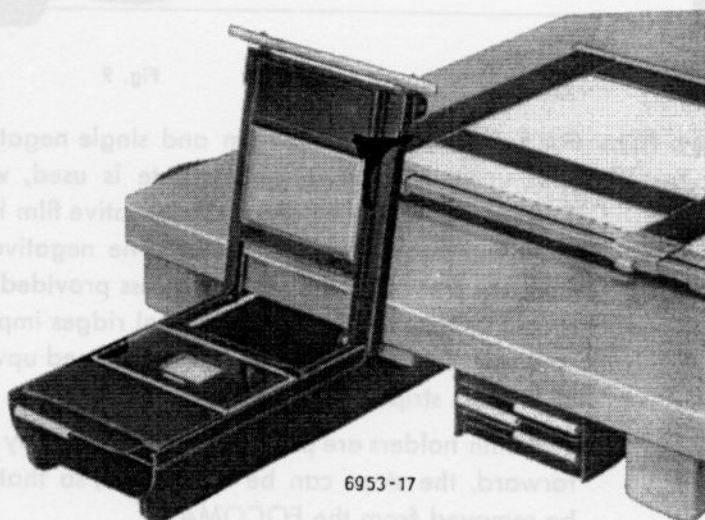


Fig. 11

Negative mask container (Z)

For easier handling the negative masks should be arranged in their container so that the white hand ridges are staggered.

Copying

To insert the plate (6.5 x 9 cm or 7 x 7 cm size) the clamping bar (41) of the copying cassette is pulled forward, the cassette lid (42) opened, the plate inserted in the darkroom, and the lid closed and locked. Close the cassette slide.

Where sheet film is used, the pressure plate supplied (43) must be placed over the film.

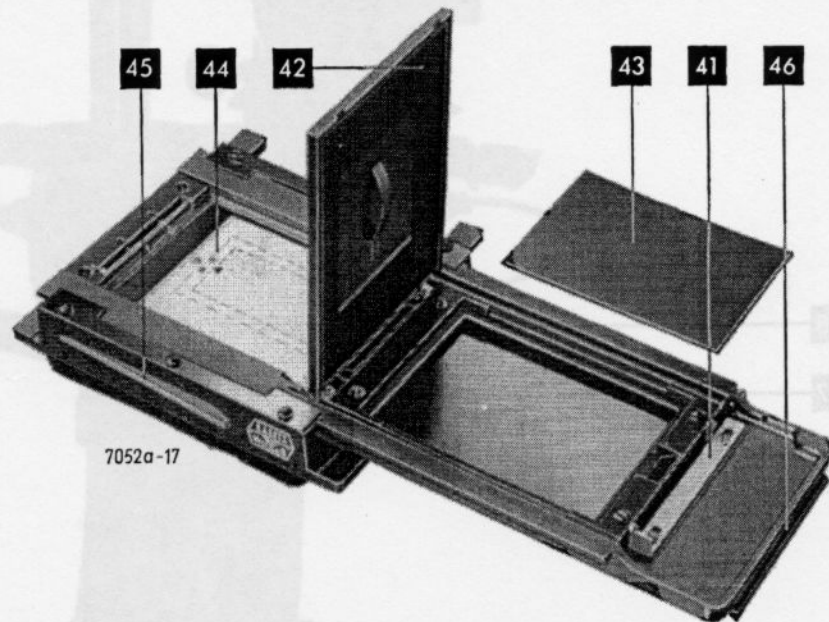


Fig. 12

Insertion of the loaded cassette

Release the locking screw (O), raise the lamp house to the indicator mark (Fig. 3) on the guide pin (10) and arrest it there. Pull out the strip exposure slide of the test plate (44). Insert copying cassette into film stage as far as possible, engage 95 mm FOCOTAR in locking catch R (this requires a full clockwise turn!); set vertical adapter ring (V) at "Repro" (thereby automatic focusing will operate throughout the entire range of adjustment). The locking catch "R" of the 95 mm FOCOTAR must be aligned in the event of subsequent purchase of the copying cassette. After disengaging the catch (45) push the test plate for the projection of the negative sizes into light path until it is locked. Adjust for size by moving the enlarger head. The fields marked correspond to the following negative sizes: – 54 x 54 mm, 32 x 45 mm (microfilm size), 24 x 36 mm, and 59 x 84 mm for the 6.5 x 9 cm plate with a 3 mm rebate.

For the exposure, move the cassette carrier towards the left until it is locked, pull out the cassette slide (46) by the handle to the stop, expose and close the cassette slide.

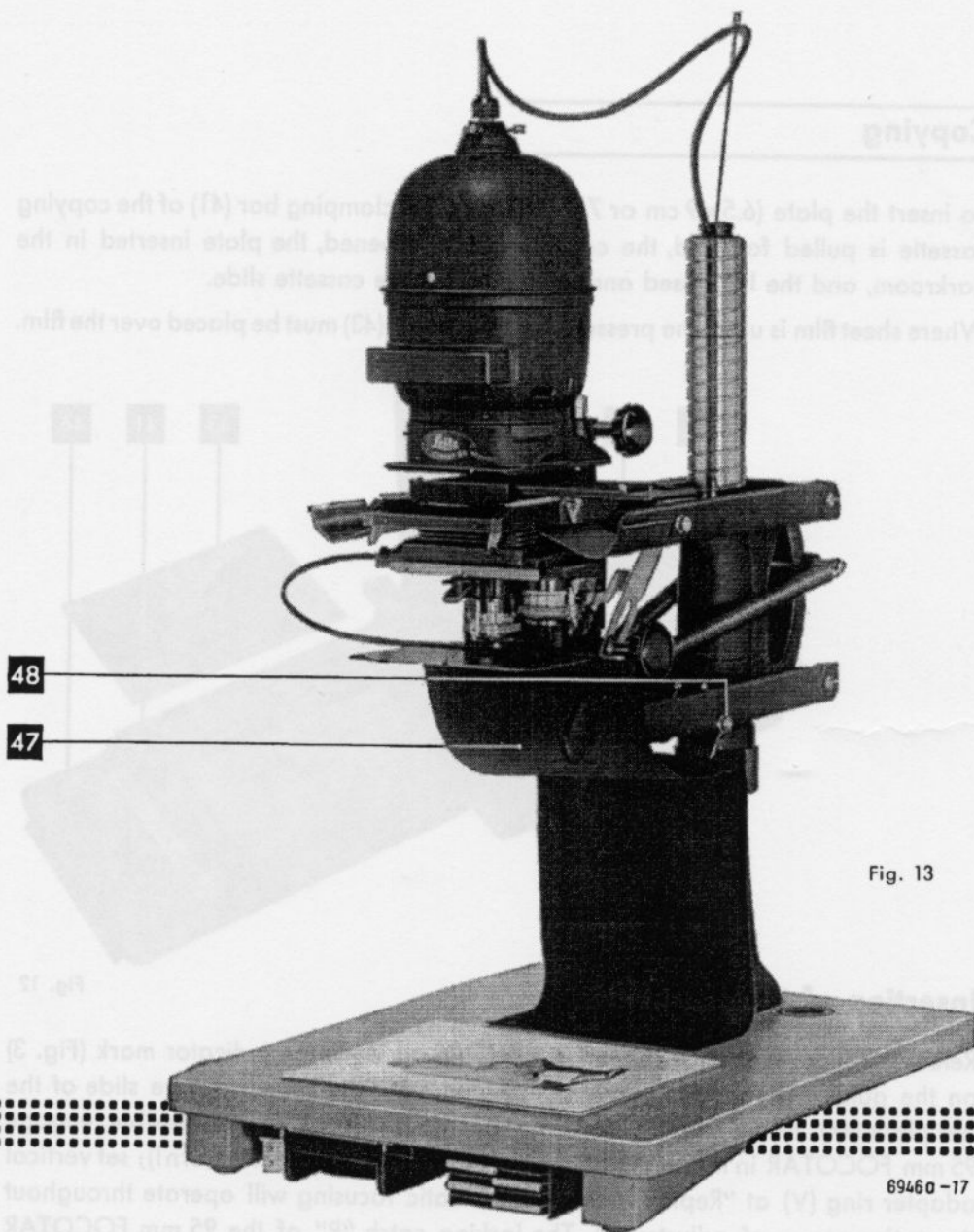


Fig. 13

Light shield for reflecting surfaces

To eliminate reflections, the light shield (47) is screwed on to the lens carrier (see attachment of orange filter) and suspended from the hexagonal screws of the lower parallellogram arm (48 – Fig. 13) by its loops.

Colour enlargements

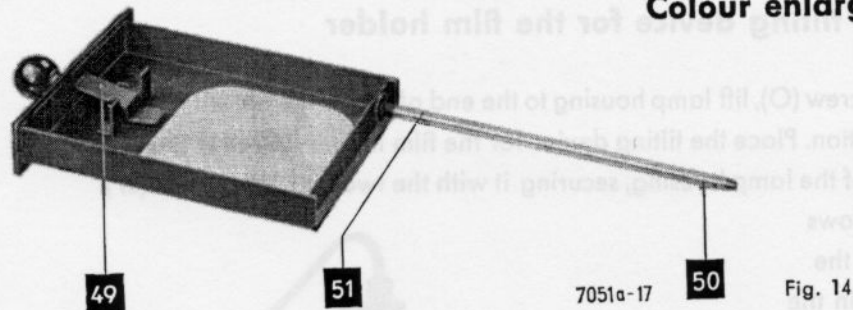


Fig. 14

The filter drawer has been designed for the use of 12 x 12 cm correction filters for colour enlargements according to the negative – positive process; it is inserted in the lower lamp hood in the place of the light-tight cap. The lifting device (49) facilitates the removal of the correction filters.

The filter drawer is protected against accidental removal by means of a locking catch (50) on the guide rod (51); for complete removal this has to be pushed into the guide rod.

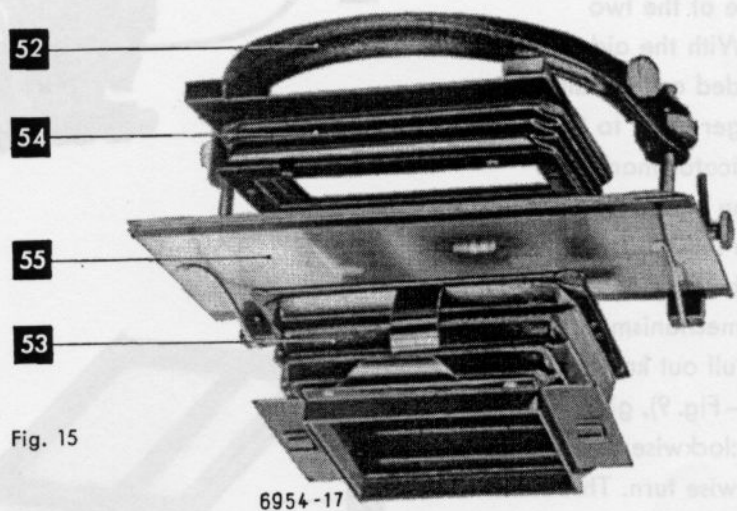


Fig. 15

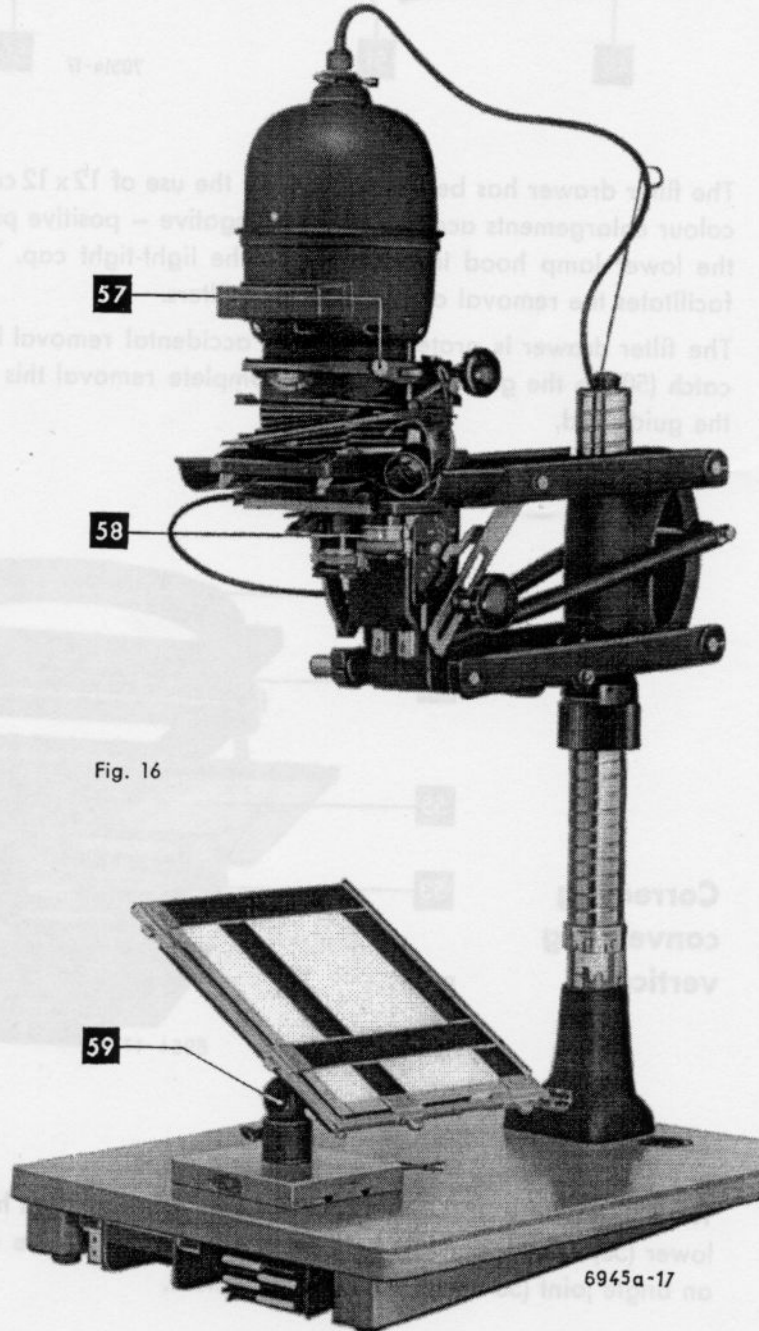
Correcting converging verticals

The tilting device of the FOCOMAT II c consists of a film holder tilting device (52), lower (53) and upper (54) bellows, a double glass plate as film holder (55) and an angle joint (56 – Fig. 16) with base plate.

Insertion of the tilting device for the film holder

Unscrew clamping screw (O), lift lamp housing to the end of the guide pin (10 – Fig. 3) and lock in this position. Place the tilting device for the film holder (52) over the catches on either side of the lamp housing, securing it with the two knurled screws (57).

Insert the upper bellows (54 – Fig. 15) so that the bellows frame rests in the two slots at the back of the lamp housing and engages the cast piece with both catches. Push the lower bellows (53 – Fig. 15) into the film stage until it snaps into position; insert the double glass plate (55 – Fig. 15) between the upper and lower bellows so that it is clamped on either side of the two holders. With the aid of the threaded collar, raise the enlarger head to the black indicator mark on the column where it should be locked. Disconnect the automatic focusing mechanism as follows. Pull out knurled head (37 – Fig. 9), give it half a clockwise or anti-clockwise turn. Three grooves permit fixing the lens carrier (F) at three different heights; by adjusting it, it can be arrested at any of these three positions.



The final focusing is carried out manually by the knurled lens focusing ring (51 – Fig. 16).

The base plate with angle joint (56) must be placed and clamped on the base board like a masking board, which in turn is pushed with its groove on to the dovetail of the tilting joint and clamped with knurled nut.

Operating the Tilting device

Insert negative, emulsion side down in the double glass plate. Replace double glass plate (see page 18). The tilting device for the film holder can be adjusted on all sides by means of its lateral knurled nuts until the converging verticals run parallel on the paper enlargement or masking board. According to the diagram the masking board must be tilted in the opposite direction to the slope of the negative. The inclinations of masking board and negative are correct if uniform sharpness prevails over the entire image with the lines running parallel at full lens aperture. The lens is now set for optimum focus and stopped down as usual.

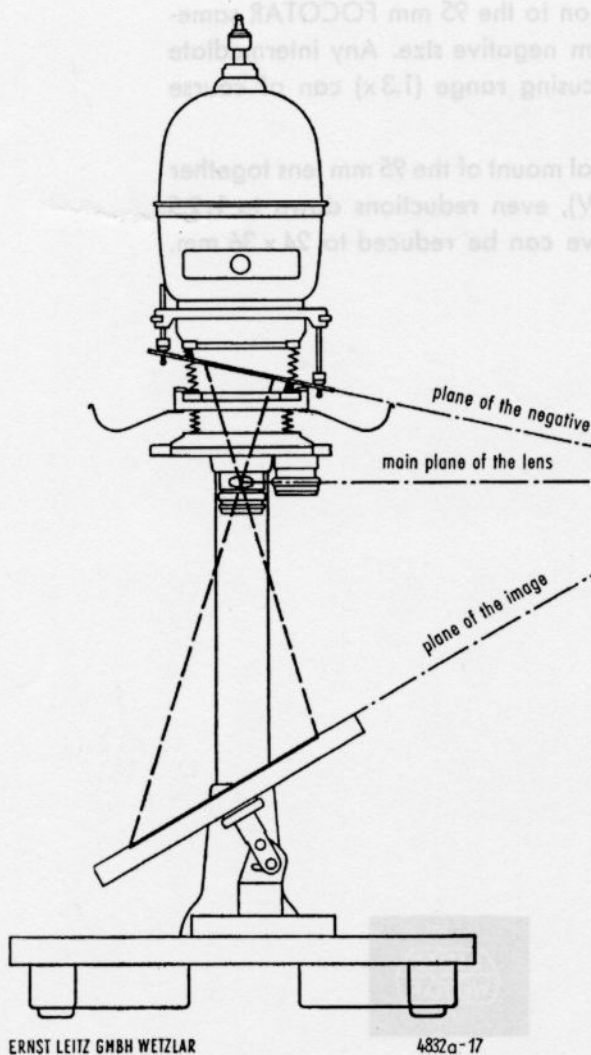


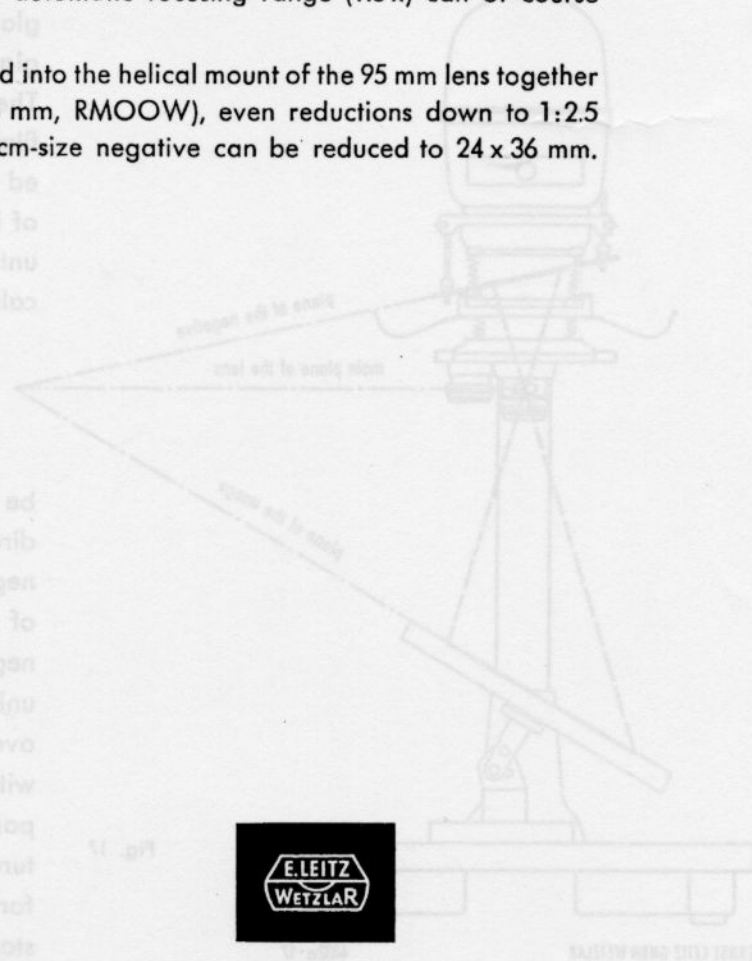
Fig. 17

Enlargements outside the automatic focusing range

The focusing range of the FOCOMAT II c can be extended by manual setting. If the enlarger head is raised to the upper end of the column by means of the threaded collar, enlargement ratios up to 9.3x and 16x respectively are possible. These ratios can be further extended if after weighting the baseboard the enlarger head is swung through 180°, and the negative projected on the floor. The following reproduction ratios can be obtained by manual setting in the range below 1.3x and 2x enlargement respectively: –

If a REPRO adaptor ring (ROOYH) is screwed on to the 95 mm FOCOTAR same-size reproduction is possible for the full 6x9 cm negative size. Any intermediate size up to the beginning of the automatic focusing range (1.3x) can of course be obtained.

If the 60 mm FOCOTAR is screwed into the helical mount of the 95 mm lens together with an adaptor ring (height 44 mm, RMOOW), even reductions down to 1:2.5 can be produced, i. e. the 6x9 cm-size negative can be reduced to 24x36 mm.



Care and maintenance

To protect the FOCOMAT II c against dust it should be covered with an American cloth or plastic dust sheet when not in use.

During daily use the condenser should be cleaned once a week at least; remove lamp hood, take out condenser by its handle, and clean with a soft piece of chamois or linen. Re-insert the condenser with its handle pointing towards the column. Turn handle down. Replace lamp hood with the white dot facing front.

The rear components of the lenses should also be cleaned occasionally, preferably with a soft brush. The lenses may be removed from their helical mounts. The helical mount is held with the left hand by the knurled chromium ring, and the lens unscrewed with the right hand.

Care should be taken that the 60 mm FOCOTAR lens is always screwed in the right-hand mount (seen from the front) of the sliding changer.

The surface of the pressure plate for negative films should be cleaned frequently during use. Here, too, a broad, soft hair brush is preferable; it should be stored in a plastic dust cover.

The lateral film trays should be kept scrupulously clean.

All shiny metal parts should be covered with a very thin layer of Vaseline from time to time.

Lubrication: – Use pure sewing machine oil only and oil at the nipples marked red.

In case of damage



In case the FOCOMAT has been damaged and is in need of repair, the instrument can be easily dismantled according to the instructions contained in the section "Assembly" for dispatch to our works and should be carefully packed.

Core and maintenance

