

## ERNST LEITZ M WETZLAR

The FOCOMAT Ic is the ideal enlarger with automatic focusing for miniature negative films





## ASSEMBLING

The FOCOMAT Ic enlarger is supplied with the following components packed separately: baseboard with clamping lever screwed off, upright with setting pin inserted, enlarger head with focusing arrangement and clamp fitting the upright, and a spanner; film slides and single negative masks, printing board, etc, as ordered.

Slip CLAMPING LEVER underneath the metal bar on the lower surface of the baseboard in such a way that the concave side of the indented portion faces the board and then fasten lever to the screw in the baseboard using the hexagon nut and the thin washer between nut and lever.



Fit UPRIGHT to top surface of baseboard by inserting and tightening the 3 hexagon screws with washers from below after the flex projecting from the upright has been pushed through the hole in the middle of the 3 screw holes in the baseboard.

Secure LEAD WIRES tightly in connection box

PUT PLUG into socket

## OPERATING

Attach EXTENSION SPRING to pin on the lower left arm of the parallelogram mechanism.

SECURE ENLARGER HEAD including its focusing arrangement on the upright so that the clamp rests on the setting pin.

For using the PRINTING BOARD push back the clamping lever, raise the guide wedge countersunk in the baseboard and insert it in the groove of the lower surface of the printing board so that the latter may be conveniently moved and clamped in any desired position by pulling forward the lateral lever.

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For ENLARGING WITHOUT PRINT-ING BOARD the enlarger head must be lowered after the setting pin has been withdrawn and inserted into the lower hole.

> EARTH CONNECTION

PLUG SOCKET for exposure timer.

## FILM STAGE



The built-in condenser lens may be raised and lowered by means of the lateral lever on the enlarger head.

#### PUSH LEVER BACKWARDS

as far as it will go to raise the lens and to enable the film slide or the negative film to be inserted or withdrawn.



#### MOVE LEVER HALF-WAY FORWARD

to bring the lens to such a position as to enable the film to be advanced without escaping its guide.



#### LEVER SETTING DURING THE EXPOSURE

#### PULL LEVER TO ITS FRONT STOP

to lower the lens with its plane surface on to the film to keep it perfectly flat.

FOR CLEANING the condenser surface which touches the negatives swing the hinged lamphouse back using both your thumbs whilst the forefingers pull forward the spring catches on their ballheads.

NEWTON'S RINGS may prove disturbing when enlargements are made of old and very dry films which have been stored in tightly wound rolls. They can be avaided, however, by means of the special pressure frame NEWOO which is easily fitted on to the condenser lens when the lamphousing is littled back. It is used exclusively with the film side.



### **ILLUMINATION**

In accordance with safety regulations the apparatus is to be earthed for which purpose the red terminal screw on the base of the upright (back) is connected to, say, a water pipe. For stationary professional use it is advised to use a three-pin plug (obtainable from us) having two pins for carrying the current and a third for the earth connection.

The LAMP HOLDER may be raised, turned and lowered and also centered by 3 screws from the outside. so that the negative frame can be completely and evenly illuminated.

The 75 WATT BULB normally supplied and used in conjunction with the condenser lens yields a diffused illumination advantageous for miniature negatives as blemishes or dust particles on the back of the film are prevented from appearing on the picture and harmonious enlargements are obtained.



CONNECTION is made direct to the lighting circuit!

Make sure that the correct lamp is used for the available MAINS VOLTAGE.

The ORANGE FILTER is swung into the path of rays for checking the image direct on the enlarging paper.



## ENSES



The standard equipment of the FOCOMATIc includes the SPECIAL ENLARG-ING LENS of 5 cm (2\*) focal length for which the automatic focusing mechanism is properly adjusted. If is it desired, for financial reasons, to use an existing LEICA lens the automatic focusing must be specially adjusted for that particular lens. Both the ELMAR 5 cm and SUMMITAR are suitable.

> The adjustment must also be made if the special enlarging lens is supplied at a later date. (See Section F).

For conveniently adjusting and reading the diaphragm setting when using the LEICA ELMAR 5 cm we supply the slip-on ring VALOO. To attach this, set the lens diaphragm to F/3.5 so that the square cut-out of the

ring engages the small diaphragm lever of the lens.



When enlarging the following relationship between diaphraam stops and exposure times should be taken into consideration:

diaphragm figure 3.5 4 4,5 5,6 6,3 16 18 relative exposure time 0.75 1 1.25 2 2.5 4 R 10 16 20 For enlarging stop to a medium aperture (F/5.6 to F/8), Stopping down too much may reduce contrast.

# E

## FILM SLIDES AND NEGATIVE MASKS

These are provided for film strips and single negatives respectively and have opertures up to 4x 4 cm. They have 3 guiding prion on their under surface. With the condenser lens fully raised the slide or mask, with the two of the three lower pins turned avay from the operator, is pushed into the film stage as for as it will go and until the single pin sliding in a groove settles into a hole thus ensuring the correct position.

#### FILM SLIDE 24x36 mm.

for LEICA film strips (LEICA picture size): Raise condensere lens lily and inset film strip with its sensitized side facing downwards into the stage where it will side into the correct position over the two guide blocks on the front of the film side. Then lower the lens to that the film is adequately flattened. To avoid scratching the film while it is moved in its guide the condenser is slightly roised by pushing the lateral lever halfway back. (See also section 8).

#### SINGLE NEGATIVE MASK 24 x 36 mm.

with hinged double glass plate. Insert the single negative or negative strip sensitized side downwards, into the double glass plate. Raise the condenser lens fully and slip the glass plate from the front into the negative stage, then lower the lens ofter the negative has been properly located to the aperture of the mark. Note carefully that the side of the double glass plate marked OBEN is always facing the condenser.



For the appropriate lens locating clamp for slide or mask see section F.

#### ACCESSORIES FOR OTHER NEGATIVE SIZES UP TO 4x4 cm.

For each negative size a special film slide is supplied, and for the sizes  $3 \times 4$  cm. and  $4 \times 4$  cm. single negative masks with hinged double glass plate  $5 \times 16$  cm. are also available.



For these slides and masks no locating clamps are provided on the lens mount (see section F). The lens is focused by hand with the enlarger head set to magnification 10 x. Thereby automatic focusing is established through the entire range of enlargement.

## AUTOMATIC FOCUSING

The automatic focusing arrangement of all FOCOMAT enlargers leaving the Works complete with lens is adjusted to the utmost accuracy.

- Slip film slide into negative stage, insert a Leica film strip with negatives of crisp definition and good contrast and lower the condenser lens by means of its lever.
- 2. Switch on lamp using trigger switch on the side of the baseboard).
- 3. Swing the enlarger head upwards (to approx. 10 x magnification).
- 4. Screw in lens a tightly. When using a Leica lens pull out its barrel and lock it in the infinity position (∞). Open lens diaphragm fully; only the SUMMITAR needs stopping down to F/4.
- 5. Carefully focus the image by turning the focusing mount b.
- 6. Loosen grooved locating clamp c and move it along the focusing mount b until it engages the spring catch f while the lens setting is retained; then secure clamp c by using a screw-driver or pin.
- Swing the enlarger head down to approx. 2.5x magnification as read off on the lateral scale (not lowering it to its final stop).
- 8. Give screw d half a turn to the left thus releasing the guiding cam.
- Adjust cam by means of screw a so that the image is in perfect focus also in the lower position (it is advisable to use a magnifier).
- 10. Tighten screw d.

To check the correct adjustment it is reargemented to make 3 test enlargements. Make the described above and the second other having adjusted the core as follows: Le e a quarter-turn to the right and tighten screw d again. The original setting of the milles by the engraved red dot. Before making the third lest enlargement again losen screw d, quarter turn beyond its original setting, and tighten screw d. The guiding can is finally and the described aboved the bet definition.

The adjustment of the focusing mechanism becomes necessary only when a LEICA lens is used or the special enlarging lens is fitted at a later date. A lens for which the adjustment has been made may be unscrewed from the enlarger and replaced without any detrimental effect, but other lenses will always require special adjustment.

Also the film slides and single negative masks supplied with the enlarger should not be confused with those of other equipment.

If a film slide 24 x 36 mm, or a double glass plate are obtained subsequently as replacements, it may be necessary to readjust the lens and the appropriate grooved clamp, the quiding cam remaining unaffected.



Film slide 24 x 36 mm. — grooved clamp on the right. Single negative mask 24 x 36 mm. — grooved clamp on the left.

For other negative sildes and masks focus lens on knurled mount independently of the two grooved locating clamps while the enlarger head is in its top position. Automatic focusing is thus obtained for the whole range of enlargement. When replacing the film slide or single negative mask 24x38 mm, the lens mount has to be turned until the optroprinde grooved clamp engages the spring catch.

I test enlargement with the cam setting on screw d once more, give the screw ended screw e can be easily checked e screw e a half-turn to the left, i. e. a ed and the screw d tightened at one

#### Single Negative Mask

- Replace film slide by single negative mask and the appropriate hinged double glass plate (with its lettering facing upwards and the sensitized side of the film downwards).
- 12. Raise enlarger head.
- Focus image by turning lens mount b and disengaging (right) clamp c from the spring catch.
- 14. While maintaining lens focusing mount in its position move the second grooved clamp h under the spring catch f and tighten its screw. After these operations the automatic focusing arrangement is perfectly adjusted.

## RANGE OF ENLARGEMENT

The ratio of enlargement desired is obtained by vertical adjustment of the enlarger head on its paralleloaram arrangement.

By pressing the operation handle the self-clamping device is released and the enlarger head may be vertically moved at will only one hand being required. The head is automatically clamped in its position the moment the hand is withdrawn.

Focusing is automatic for enlargements from 2 up to 10 times.

A scale on the right hand side of the head shows the ratio of enlargement for the various settings.



To obtain higher magnifications clomp enlarger head higher up on the upright or swing it back so that it projects on to a surface suitably arranged at lower level. In this case focusing is carried out by hand on the knurkel lens mount. To revert to automatic focusing (2–10x) readjust lens until the appropriate grooved clomp engages the spring catch again.

An upright 1.2 m (4 ft.) long may be supplied on request. Before swinging round the enlarger head a sufficient counterweight must be placed on the baseboard.



## COPYING WORK WITH THE REPRODUCTION DARKSLIDE



With the FOCOMAT I c it is possible to make reproductions from documents, drawings etc. with the aid of the reproduction darkslide which is available to special order. This accessory is, of course, less convenient in its use and not so versahle than are our SPECIAL COPYING EQUIPMENTS.

TEST

The application of the reproduction darkslide in the FOCOMAT is as follows:

 Take a Leica test negative or positive, one that is not too dense, place it with its sensitized side downwards in the reproduction darkslide and put on the accompanying glass plate.

 Slip reproduction slide into negative stage in place of the standard film slide and lower the condenser lens as far as it will go.

3. Place the document or other flat object on printing board and adjust enlarger head until the projected image coincides with the object field to be reproduced. Open diaphragm and turn lens mount until the test negative is in facus on the object, then stop down to a medium diaphragm aperture.

 Remove reproduction slide, switch off FOCOMAT lamp and take off top half of lamphousing to have it available for illuminating the object to be photographed. Reproduction darkslide with test film

# THE FINAL MANIPULATIONS MUST BE CARRIED OUT WITH THE APPROPRIATE DARKROOM LIGHT ON.

5. Load the reproduction slide with a piece of film for a single Leica negative or with a  $5 \times 5 \text{ cm}$ .  $(2^* \times 2^*)$  lantern plate (sensifized side downwards) and put an black metal cover. Push darkslide into negative stage and lower the condenser on to it.

6. To expose the negative, illuminate the object as evenly as possible by using the top-holf of the lamphousing as a hand lamp. The reproduction negative is ready for removal from the apparatus and for development after the lamp hos been switched off.



## CORRECTING DISTORTION

Converging lines such as oppear on photographs taken with the camera filled upwards or downwards can be corrected in enlarging by the special DISTORTION ELI-MINATING DEVICE in conjunction with an additional arrangement for inclining the printing board. The device proper fifs the negative stage in place of the film slide and is firmly held on the lower plate of the stage by 2 screws, the opening of the spring holders for the double glass plate facing the operator.



The following modifications have to be made: Remove tophalf of lamphousing and bayonet ring and spring holding the condenser lens. Lift and turn the latter until it rests with the locating pins of its mount on the sliding sleeve.

The double glass plate is used not only for single negatives but also film strips.

If the FOCOMAT is fitted with the special enlarging lens DOOIT the rear collar of its mount is to be screwed off. Thereby the correct distance between the lens and the negative now accommodated at a higher level in the double glass plate is re-established.

In this instance the LEICA ELMAR 5 cm, cannot be screwed to the enlarger in the usual way but necessitates the interposition of the bayanet collar VBHOO into which the lens barrel is locked, the screw thread remaining unused.

> The enlarger head is now raised along its upright to such a level as to compensate for the extra height involved by the tilting arrangement for the printing board.

The double glass plate with negative inserted is slipped into the spring holders: which may be adjusted vertically and also tilted to enable the negative to be slande at will. The latter movement must be in a direction apposite to the fill of the printing board until the enlarged image is freed from distortion and shows even definition over the entire image area with the lens not stopped down. For the exposure a medium lens setting should be employed as usual in in order to ensure optimum definition.



## CARE OF THE APPARATUS

#### Dust is the enemy of miniature photography.

Remove dust with a damp cloth in order to prevent it from swirling up and settling down where it is wanted even less. When the FOCOMAT is not in use, place over it a cover of suitable cloth or plastic material that does not collect the dust.

When the apparatus is in continuous use, clean the condenser lens of least once a week: Remove top-half of enlarger head, release bayonet ring by turning it to the left and take out the spiral spring and the lens with its mount. After cleaning, replace these parts in their original positions (plane side of lens downwards) and lock the bayonet ring by turning it to the right.

The rear surface of the enlarging lens must also be dusted from time to time with a piece of soft chamois leather or soft linen. If several enlargers are installed make sure that each enlarger is fitted again with the particular lens with which it was supplied.

The lower surface of the condenser lens which comes in touch with the negative film and keeps it flat should be cleaned more frequently since it is exposed to dust particles in the air and those on the films. The latter must also be kept clean and not morked with a soft pencil which might smeare them and the lens. (For further instructions also see section B, To remove dust particles which settle down whils tendrarian gooply a soft dean brund specially kept for the purpose.

The lateral film troughs must also be kept absolutely clean as the ends of the film accommodated in them would draw dust and dirt with them.

All bare metal parts, with the exception of the braking arc should, from time to time, be protected by a thin film of vaseline.

If, after prolonged use, the selfclamping device for the vertical adjustment does not function satisfactorily give a slight left turn to the bolt to increase its friction on the braking cam.



REPAIRS If, due to any external effects, a repair should become necessary, it is recommended to send the FOCOMAT to our Works or one of our agents. It can easily be taken apart in accordance with the instructions given in section 8 of this booklet.

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