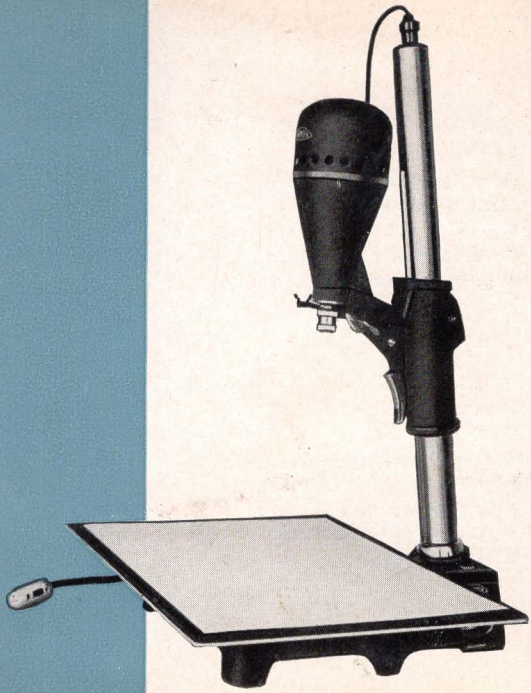
MINOX

ENLARGER

Model II

Instruction Manual



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The MINOX enlarger

is designed especially for enlarging MINOX (8 x 11 mm) negatives. Its lens and lighting system have been developed for the particular requirements of ultra-miniature photography.

The f/3.5 lens is a coated 4-element anastigmat of 15 mm focal lenght. The 6-volt, 6 ampere enlarging lamp in combination with the highly efficient light condensor system produces very bright illumination resulting in relatively short exposure times.

The AC model (standard in the U. S. A.) is supplied with a transformer built into the base which can be set for 110 and 220 volts. The DC model operates through a separate rheostat.

The MINOX enlarger is of very sturdy construction to eliminate the possibility of vibration and to assure utmost steadiness of the enlarger head during exposure.

Assembling the MINOX enlarger.

To protect the MINOX enlarger during transportation, its component parts are packed in separate compartments of the shipping container. To assemble the enlarger, you need only a medium and a smaller size screw driver in addition to the key wrench which is supplied with the enlarger. FOLLOW INSTRUCTIONS STEP BY STEP!

TO ATTACH COLUMN TO BASE —

(1) Detach the protective shield from the underside of the base after loosening the three retaining screws;

(2) Remove the ring nut from the threaded portion of the column;

(3) Insert the threaded portion of the column through the opening in the base so that the guide rack along the column faces towards the front;

(4) The exact positioning of the column is determined by a pin-screw located at the back of the base which engages a dimple in the column to prevent its turning. While screwing in the pin-screw, turn the column lightly until the pin-screw engages the dimple;

(5) Tighten the pin-screw;

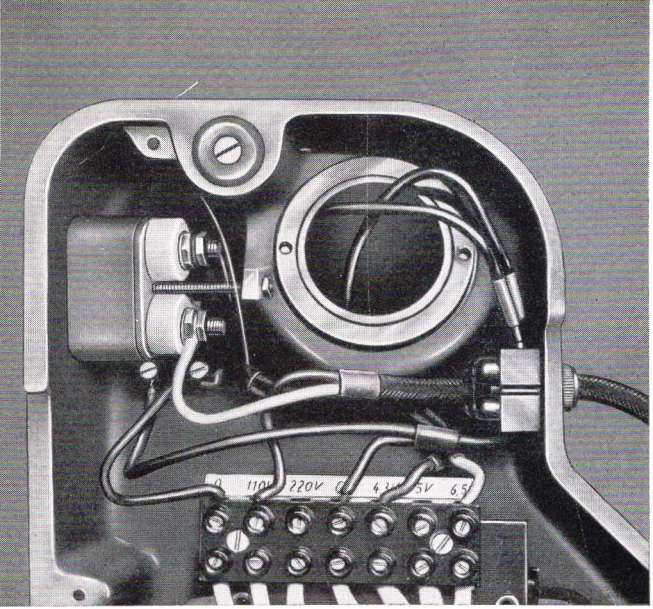
(6) Turn the base on its side; attached the ring nut to the column; tighten the ring with the key wrench.

Cable connection in the base.

(See illustration on page 6)
Connect the two (blue) wires protruding from the column to the double terminals (blue).

Adjustement for line voltage.

The line voltage for which the enlarger has been adjusted at the factory is indicated on a special tag attached to the column. (Enlargers sold in the U. S. A. are pre-set for 110 volts.) Elsewhere — unless other setting has been especially ordered — enlargers are adjusted for 220 volts.



Underside of the base. Enlarger is adjusted for 110 volts. Connections from column to base are shown at right center.

Voltage adjustment on AC model.

Caution: Enlarger must be disconnected from the power line while adjustment is being made. A wiring diagram is shown on the protective shield of the base.

To change adjustment from 220 to 110 volts, detach the wire from the 220 volt terminal (3rd from left in illustration) of the transformer, and attach it to the 110 volt terminal (2 nd from left).

Wires attached to the 5th and 7th terminal connect to the dimmer switch (4.3 v) — see page 13 — and the 'bright' switch (6.5 v). These connections should not be changed. As there is a voltage drop of 0,5 volts in the circuit, the enlarger lamp operates at its rated 6 volts.
Note: Re-attach protective shield under the base!

Front of rheostat

DC model:

For use with DC current, a rheostat instead of the built-in transformer must be connected between the power line and the enlarger; the rheostat shown here is adjustable for voltages from 110 to 240 volts.

Before connecting the rheostat, make sure that the black banana plug (behind the small round window) is in the center (0) socket, and the red plug in the socket corresponding to your line voltage. Otherwise, remove the window and make the necessary switch.

Illumination brightness can be regulated with the large control knob from 0 (dimmest) to 100 (brightest).

The back of the rheostat provides plugs for the enlarger cord ('Lampe') and for connection to the power outlet ('Netz'). To ground the equipment, connect the ground plug with a water pipe or other suitable ground.

Back of rheostat

Attaching the baseboard:

Remove four screws from top of the base. Place baseboard in position on the base, insert screws and tighten. The rubber covering of the baseboard is impervious to chemicals.

Mounting the enlarger head:

Slide the sleeve of the enlarger head onto the column while pressing the locking lever towards the column (see illustration).

Insert the plug of the enlarger head cable in the socket at the top of the column. The lamp is now connected to the circuit and your enlarger is ready for operation.

Connection to power line:

Use only the triple cables with grounding connection supplied with your MINOX enlarger. A similar cable must be used for the rheostat (DC only).

For added safety, connect the grounding lug at the back of the enlarger base (see illustration page 13) to a waterpipe or other suitable 'ground'.

Always disconnect the power line before making electrical adjustments on the enlarger.

Getting ready for enlarging.

Place the paper easel on the baseboard. Its white surface serves for focusing the negative.

ON-OFF SWITCH.

Pressure on the pear-shaped button switch turns on the enlarging lamp. The dimmer switch at the right of the base near the column reduces the brightness of the lamp considerably. As the dim light is used only for special purposes (see page 13), the switch should normally be turned to BRIGHT ("hell").

INSERTING THE FILM.

The negative carrier consists of two highly polished metal masks which hold the negative in the same spherical shape as the pressure plate of the MINOX camera. To insert a film strip, raise the upper mask by pushing the pressure release lever UP as shown on page 11. Holding the negative strip by its edges, place it in the film channel with the emulsion side down. With the lamp turned on, adjust the negative so that it is evenly masked, filling the entire illuminated area visible on the easel. Lock the negative in position by turning the pressure release lever DOWN.

Note: Always move the pressure lever UP when shifting the film from one negative to the next!

Operate the pressure release lever with the right hand while the left inserts and positions the film strip.

ADJUSTING THE ENLARGEMENT SIZE.

The size of the enlargement is determined by the distance between the enlarger head and the easel. The higher the head, the bigger the enlargement; the lower, the smaller. To raise or lower the enlarger head, grasp the sleeve of the head while pressing the chromed lever towards the column as shown on page 8: release

the lever to lock the head at any elevation. To obtain enlargements of more than 9½ x 12″, an optical mirror attachment may be used (see page 19). The 'feeler ,button' at the back of the head sleeve "stops" the head for enlargements of 3 x 4¼″, 3½ x 4¾″, post card size, and 5 x 7″. These stops require the use of an easel of equal height.

FOCUSING.

The MINOX enlarger is fitted with a 15 mm coated 4-element lens of critical correction; in combination with the spherical film carrier, the lens yields outstanding sharpness over the entire picture area.

The lens is focused by turning its lower knurled ring (see illustration on page 3) until the image on the easel surface is perfectly sharp. The use of a magnifier is recommended to assure best results.

EXPOSURE.

After focusing, turn off the enlarger lamp by pressing the line switch button. Place the enlarging paper, emulsion side up, under the masking frame of the enlarging easel, and make the exposure by using the line switch button.

Your MINOX dealer offers a variety of pleasing paper surfaces, and he can advise you on the selection of the proper contrast grades, and developing methods, to give you finest results.

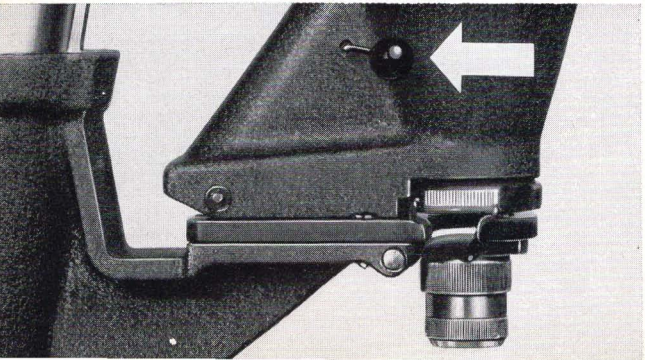
Dimmer switch.

The dimmer switch is located near the column on the enlarger base (see illustration). The dimmed lamp requires an 8 x exposure increase. Such extended exposure is desirable to permit 'dodging', i. e. holding back some portions of the enlargement while giving longer exposure to others. This control would not be possible at the short exposures for small enlargements usually associated with 'bright' illumination.

Scratched negatives.

The condensed illumination of the MINOX enlarger which assures utmost sharpness, naturally reveals scratches or other defects in a negative, which would require extensive spotting or retouching of the enlargement. Such defects can be minimized or completely eliminated by using the built-in light diffuser of the enlarger.

The rear base carries the dimmer switch (top); plug for the power line (left) an auxiliary grounding lug (at lower right of illustration).



To place the diffuser into the light beam, turn the control lever to horizontal position (see arrow in illustration below). Diffused light requires an exposure increase of 6 x. To 'turn off' the diffuser, raise control lever to vertical position.

The best enlargements are obtained from flawless negatives which require no remedial measures during enlarging! Dust and scratches can easily be avoided if film strips are inserted into the transparent MINOX negative wallets immediately after drying.

Enlarging individual frames from movie films.

The following film carriers are available for the MINOX enlarger:

Film size	Frame size	Requirement
16 mm	7.5 x 10.5 mm	Film Carrier 16 mm
8 mm	3.6 x 4.8 mm	Film Carrier 8 mm and lower mask

To change film carrier, raise pressure release lever, pull film carrier forward and replace with required film carrier (see upper illustration on page 14).

To change the lower mask, remove the lens by turning its upper knurled ring to the left and pulling it down. The lower negative mask which is attached to the upper part of the lens mount, can be un-screwed and replaced by a different mask. IMPORTANT: When re-inserting the lens, make sur that the small cut-out at the edge of the mask matches the pin in the bayonet mount which assures accurate positioning of the lens and mask.

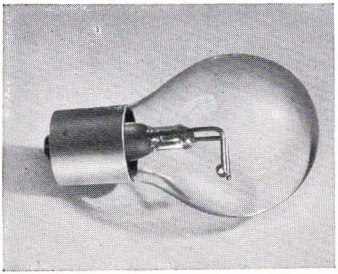
For 16 mm film (7.5 x 10.5 mm) the regular lower mask for the MINOX size is used, but the lens with mask must be removed and re-inserted after being turned 90° (one quarter turn) because the 16 mm frame — unlike the MINOX frame — is located across the film width. To permit the 90° adjustment, the MINOX mask has two cut-outs to mach the guide pin.

Cleaning the lens and condensors.

The enlarging lens and condensor lenses must be kept clean, as dust and smudges in the optical system impair enlarger performance.

To clean the **lens,** remove it from the enlarger as described on page 15; un-screw the mask from the lens mount for better access to the lens surface. Use only soft lintfree cotton cloth to clean the exposed lens surfaces. DO NOT ATTEMPT TO DIS-ASSEMBLE THE LENS.

The **upper condensor lens** is removed from the enlarger head as follows: Press in the locking button at the back of the head (see arrow A on page 17), and lift cover off from back to front as shown in the illustration on page 17. The metal disk containing the condensor lens can be lifted out after a slight turn to the left; clean with lintfree cotton cloth. Re-install and turn disk to the right. To replace the cover on the head, first enage the locating pin at the front of the head, then close the cover until the locking button (A) snaps closed. The **lower condensor lens** (see arrow B on next page) can easily be cleaned after the enlarger head is tilted back.



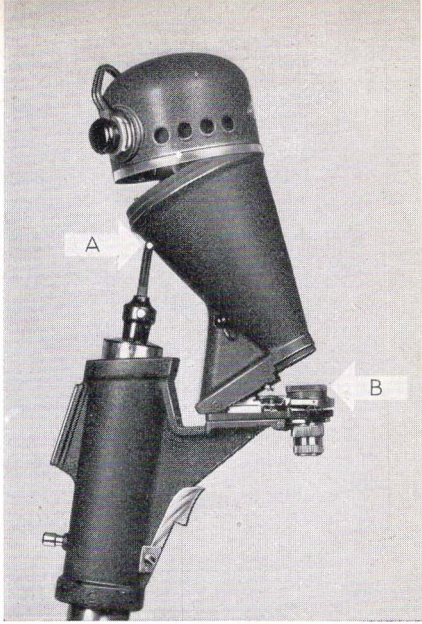
Replacing the bulb.

The 6 volt 6 ampere bulb (see illustration), in normal use, has a life of 50 hours. It is advisible to obtain a replacement bulb ahead of time so that enlarging operations may be carried on without undue interruption when the life of a lamp is exhausted.

Enlargers with serial number below 2390 use a tubular 6 volt 5 ampere bulb. It is best to give your MINOX dealer the serial number of your enlarger when you order a replacement bulb. The serial number is engraved on the front of the enlarger head sleeve behind the head hinge; it will also be found on the small plate at the back of the enlarger base.

To replace a burned-out bulb, remove the cover of the enlarger head as described under "Cleaning" on page 16. The bulb has a bayonet mount and can be removed after a slight turn to the left. Insert the new bulb so that the filament points down, i. e. towards the baseboard.

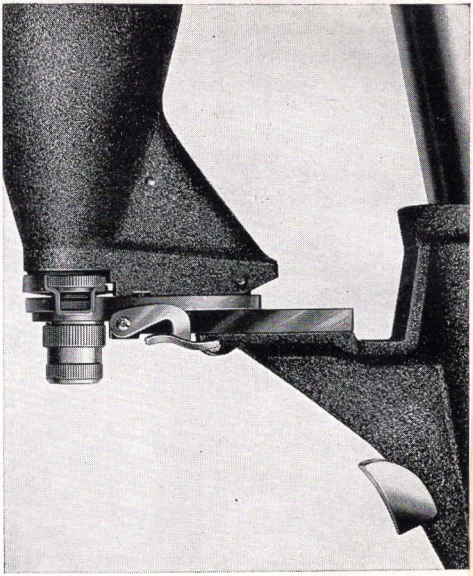
To replace the cover on the enlarger head, first engage the locating pin at the front of the head, then close the cover until the locking button (A) snaps closed. (See illustration at right).

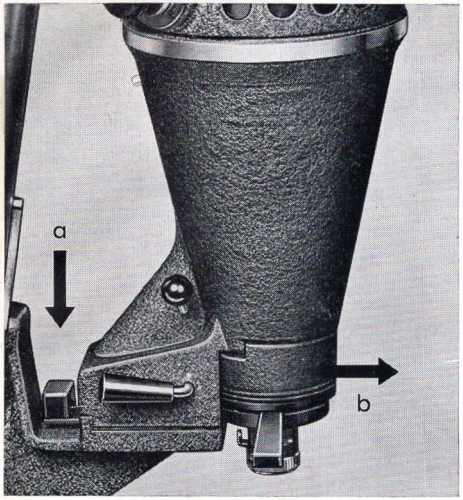


Electronic enlarging easels

1. The MINOX enlarger can also be used in combination with electronic enlarging easels which measure and time the exposure automatically. In case an Agfa Variomat is used the enlarger head has to be mounted further apart from the column, and therefore an inset has to be installed between enlarger head and column.

2. The inset for the Variomat fits between the enlarger head and head sleeve and can be easily fastened with a few screws.





Addition to Instructions for use of MINOX enlarger model II

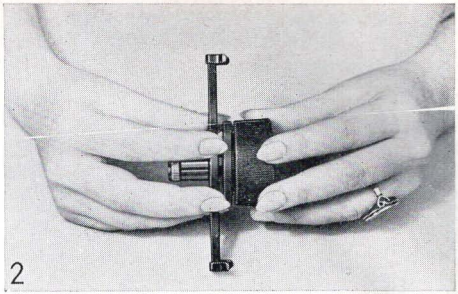
The enlargers of the latest design (from No. 11001) have a detachable lens holder.

The method for changing masks and cleaning the lens as described on pp. 15 and 16 (Figs 9 and 12) has been considerably simplified.

After releasing the pressure in the film channel, press the spring-loaded key ('a' on the left-hand side of the picture) between the enlarger head and the column. You can now pull out the lens holder (b) in the direction of the arrow. Assembly is even simpler: just insert the edge into the slot above the series number, press the key, and push the lens holder back until it clicks in place.

Masks can be exchanged and cleaned by removing the condenser unit from the lens

holder. Take the condenser unit between the fingers of one hand and the film guide in the other hand (see Fig. 2). Press both parts together, at the same time slightly turning the condenser unit. The two components will then come apart (see Fig. 3). It is now easy to clean the condenser lenses. The top and bottom pressure masks can be lifted from the lens holder with the index finger. When assembling, make sure that the polished surfaces face each other.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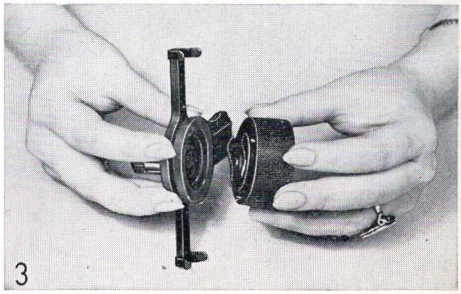
Interchangeable masks

In two parts; mask apertures parallel to the film path (MINOX format) 8 x 11 mm.
After turning both MINOX masks 90 ° (one quarter turn) they may be used also for enlarging single frames of 16 mm cine film 7.5 x 10.5 mm.
8 mm cine film: 2 parts, each 3.6 x 4.8 mm.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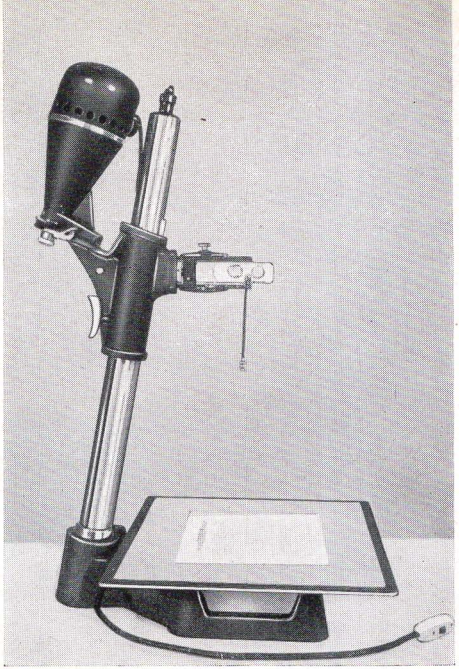
Practical accessories.

The **optical mirror attachment** (right) is used whenever enlargements of more than 9½ x 12″ are desired. The mirror is attached at a 45° angle below the enlarging lens, thus projecting the image horizontally. The enlarging paper may be tacked to a wall or other suitable vertical surface.

For horizontal enlargement, the film must be inserted in the film channel emulsion side **up,** since the mirror reverses the sides.

The **red filter attachment** (right) permits checking focus and easel position with the enlarging paper in place.



Copying attachment

Because it can readily be focused down to 8 inches without supplementary lenses or other attachments the MINOX camera is ideally suited for copying drawings, etchinge and other illustrations, for the documentation of letters and legal documents.

In conjunction with the MINOX copying attachment, the MINOX enlarger becomes an exceptionally rigid and convenient copying stand.
(See illustration).

To convert the enlarger for copying, slide the head sleeve up the column until it can be turned 180°, then slide it down; the locking lever will, as in enlarging, hold the sleeve at any desired level.

Pull the cover ('A' in illustration at right) from the mounting socket which accepts the copying attachment as shown in upper right on page 21.

The MINOX enlarger is readily converted into an efficient and rigid copying stand.

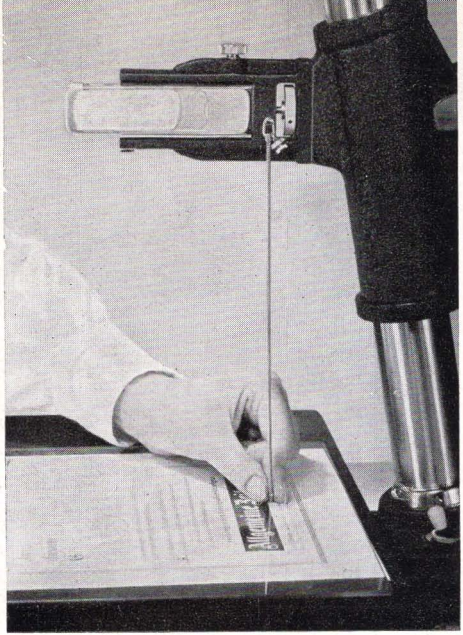
Slide the sleeve to the top of the column and turn it 180°; pull out cover plate A from mounting socket.

The MINOX camera and copying attachment installed.

Mount the copying attachment, with the small milled screw facing up, and attach it firmly by tightening the large milled disk.

Detach the chain from the MINOX camera and slide the camera, lens down, into the U-shaped channel of the copying attchment **all the way;** fix it in place by turning the small milled screw on the attachment. Screw the cable release into the release socket of the attachment, and — — the copying stand is ready!

Place the document, book, or drawing that you want to copy, on the baseboard. While looking into the camera viewfinder, move the copying unit up or down until the subject **almost** fills the luminous frame of the finder. (Allow the width of the luminous frame-line on all sides).



Hang the measuring chain — by the wire loop which holds the camera connecting lock — on the small lug of the copying attachment, as shown at left. Using the beads of the chain, measure the distance to the subject. (Remember: beads are placed at 8″ — 10″ — 12″ — 18″). Set the measured distance on the distance scale of the camera. Because the viewfinder moves with the distance setting to compensate for parallax, you must check the position of the subject in the viewfinder and, if necessary, move the sheet or book slightly to make sure that it is within the luminous frame.

Now, a squeeze of the cable release will complete the copying operation.

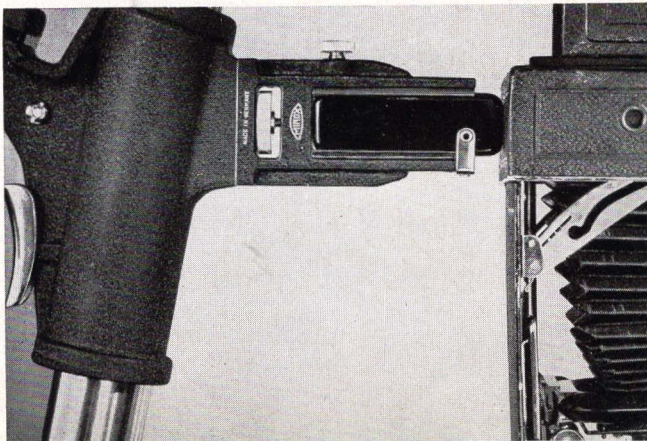
If you copy a number of documents of identical size, the procedure is much simpler because you need to measure and set the distance only once.

Cameras other than the MINOX can also be used with the MINOX copying attachment. Instead of a MINOX cameras, the adapter insert is installed and locked in the attachment. The insert carries two tripod screws so that a camera may be attached at the front or side. (See illustration on page 23).

The correct distance setting is obtained with the measuring chain of the MINOX camera.

Photographs, paintings, and other matter containing halftones, can best be copied with the regular ASA 25 (13 or 14 DIN) MINOX film.

Line drawings, printed, typed, or handwritten letters, documents, etc. should preferably be copied with MINOX ASA 5 MICRO GRAIN ORTHO FILM. This special film must be developed to high contrast; developers for normal films — including MINOX ultra-fine grain developer — cannot be used. Your MINOX dealer can advise you about this, as about all other phases of MINOX photography.



The adapter insert permits using other than MINOX cameras with the MINOX copying attachment.

Ask your dealer about these other MINOX Accessories:

For Picture-Taking: MINOX B/C Flash Units — MINOX Binocular Clamp — MINOX Right Angle Finder Mirror — MINOX Reflex Viewfinder — MINOX Filter Kits — MINOX Pocket Tripod — MINOX Camera Clamp — MINOX Adjustable Folding Copying Stand — MINOX Belt Cases — MINOX Films for Black and White Prints, Color Prints and Color Slides.

For Developing: MINOX Daylight-Loading Developing Tank — MINOX Ultra-fine grain Developer — MINOX Negative Wallets — MINOX Film Viewer.

For Projection: MINOX Minomat Automatic Projector — MINOX Slide Projector Model 30 — MINOX Slide Frames 30 x 30 mm — MINOX Slide Safe — MINOX Transparency Viewer-Cutter.

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