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CAMERA # 667209

IKOFLEX

la

INSTRUCTIONBOOK



ZEISS IKON A.G. STUTTGART

The

IKOFLEX Ia

manufactured by ZEISS IKON A.G. STUTT GART, is a twin-lens mirror reflex camera taking $12\frac{1}{4}'' \times 2\frac{1}{4}''$ pictures on BII/8 roll film as well as colour film. Its viewing lens renders an unusually brilliant and sharp image of the motive on a bright ground glass. Since the viewing and taking lenses, which have equal focal length and lens speed, are coupled, the IKOFLEX can be manipulated fast with one hand, and it permits convenient composition and framing as well as 100% accurate focusing. Both the taking and the viewing lens are coated to prevent reflexes. Since the taking lens is excellently colour corrected it ensures black and white as well as colour photographs of unmatched sharpness and definition. With the aid of the dependable ground glass focusing mechanism the efficiency of the high-speed lens of the IKOFLEX can be fully exploited.

The IKOFLEX Ia is equipped with a fully synchronised shutter and an automatic film transport lock preventing double exposures and blanks.

Before inserting the first film into your IKOFLEX Ia carefully practise the manipulations described in this instruction book. If you take this trouble, you will from the very beginning make good pictures and the IKOFLEX will remain to you a source of constant pleasure.

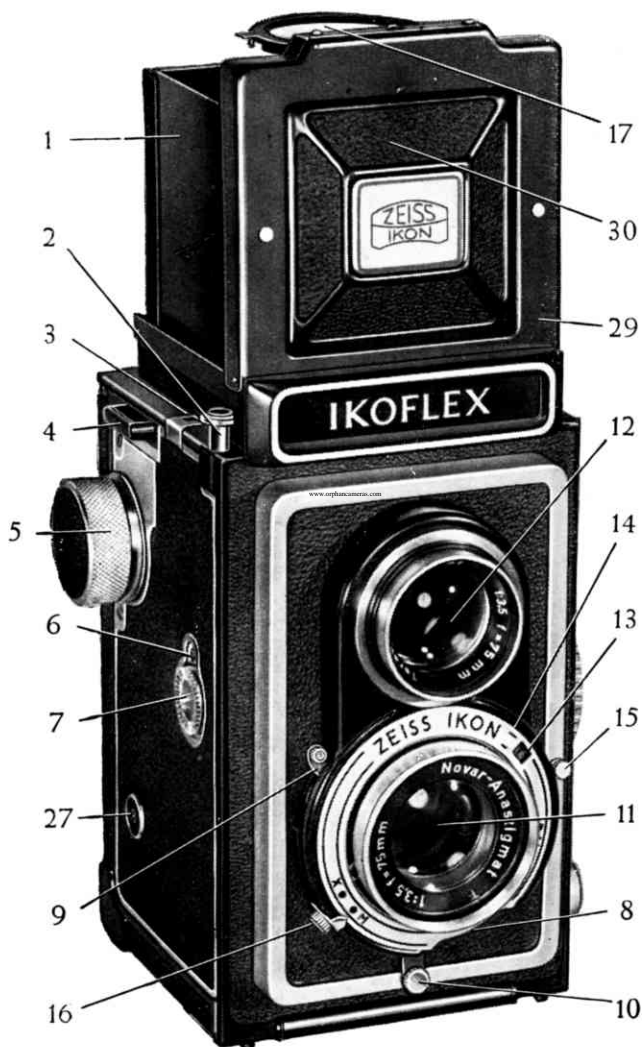
The technical development may require slight changes on the camera as compared to the description.

OPENING AND CLOSING OF THE FINDER HOOD

For viewing the object on the ground glass, open the finder hood by pressing bolt (20) to the left. The hood will automatically erect itself. For pin-point focusing swing out the focusing magnifier which is fitted to the frontside of the finder hood. When closing the finder hood, first fold the focusing magnifier, then the left and right sides, then the rear side and finally the front side, which will catch automatically.

FOCUSING

The special feature of the IKOFLEX is the ground glass image produced by a mirror reflex system and a viewing lens, which has the same optical efficiency as the taking lens. The ground glass image rendered by the viewing lens of the IKOFLEX is equal in sharpness and composition to the image produced on the film by the taking lens. A ground glass image is especially suitable for studying the effect and sharpness of a picture and above all, permits 100% accurate focusing.



THE PARTS OF THE IKOFLEX Ia

- 1 Right side of finder hood
- 2 Body shutter release threaded for fitting cable release
- 3 Signal window of double exposure prevention device
- 4 Eyelet for carrying strap
- 5 Film transport knob
- 6 Automatic picture counter
- 7 Setting wheel of automatic frame counter
- 8 Exposure time setting ring
- 9 Shutter winding lever
- 10 Diaphragm setting lever
- 11 Taking lens
- 12 Viewing lens
- 13 Window for verifying exposure time setting
- 14 Window for verifying diaphragm setting
- 15 Lever for winding delayed action release and flash synchronization mechanism
- 16 Synchro-switch
- 17 Focusing magnifier
- 18 Right side of finder hood with exposure table
- 19 Frame-type sports finder eyepiece
- 20 Bolt for closing finder hood
- 21 Bolt for closing camera back
- 22 Upper film spool holder
- 23 Depth of field scale
- 24 Focusing knob
- 25 Lower film spool holder
- 26 Film window
- 27 Contact nipple
- 28 Tripod thread
- 29 Sports finder frame in front side of finder hood
- 30 Plate covering front side of finder hood from the inside

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The unusually bright ground glass image of the IKOFLEX shows a surprisingly clear pre-view of an object. Taking lens and viewing lens are coupled so that both lenses are focused simultaneously. Since the ground glass image gives a very good idea of what the actual photograph of the scenery will look like and whether it is worthwhile to take it, the IKOFLEX is most suitable to judge in advance the photographic effect of a scene. The novel finder system has such a high light intensity that the ground glass image is evenly illuminated to the very corners.

Focusing is done with the focusing knob (24). With a 90° turn this knob covers all distance settings from 3 feet to infinity. The ground glass clearly shows when the motive



*Focusing
the viewfinder image
by turning the distance
setting knob*

is completely sharp. Thanks to these features, the IKOFLEX permits very convenient and 100 % accurate focusing. Even if the diaphragm aperture of the taking lens is reduced, the viewing lens retains its full light intensity and therefore, permits pin-point focusing. The depth of field of the stopped-down taking lens can be exactly ascertained from the depth of field scale (23).

Needle-sharp focusing can be achieved with the aid of the focusing magnifier (17). This magnifier is swung out with the right index finger after pressing the right side of the finder hood toward the inside of the hood. In using the focusing magnifier, the focusing eye must be as close as possible to the lens and directly above the center of the magnifier.

*Magnifier
for pin-point focusing*



THE DEPTH OF FIELD SCALE

Beside the focusing knob (24) is the depth of field scale. The bracket-like lines of this scale indicate the depth of field for any given lens aperture and distance setting; the figures at the convergent end of these lines indicate the diaphragm settings. The depth of field for a given lens aperture can be read off the focusing scale at the two distance settings to which the left and right brackets of the respective diaphragm setting point. When using distance setting 5 m (approx. 16 feet) and diaphragm setting 11, the depth of field ranges from 3 m (approx. 10 feet) to 15 m (approx. 49 feet). With diaphragm setting 16 it would range from 2,5 m (approx. 8 feet) to infinity and with diaphragm setting 3,5, from 4 m (approx. 14 feet) to 6 m (approx. 20 feet). This scale therefore, permits in any case an exact control of the depth of field.

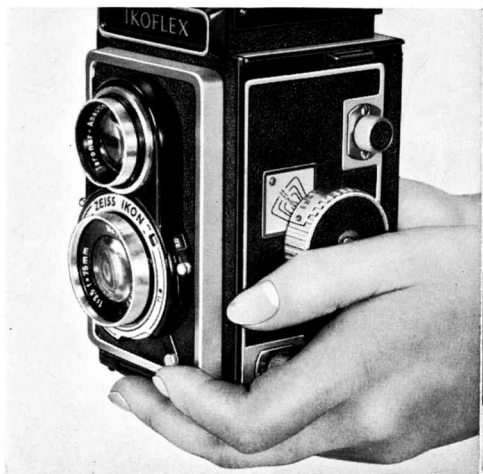


*Distance setting knob
with depth-of-field-
scale*

HOW TO SET THE DIAPHRAGM

The diaphragm is set with lever (10). The settings can be verified in the diaphragm setting aperture (14). The larger the diaphragm setting figures the smaller is the lens aperture. Every reduction of the lens aperture enlarges the depth of field but conditions an increase of the exposure. Small lens apertures (large diaphragm setting figures) are used in order to obtain a large depth of field. However, in taking pictures from the hand the lens aperture should not be reduced too much, otherwise the camera cannot be held still during the required long exposures. It is advisable to use the exposure table on the left side of the finder hood (18). However, since the IKOFLEX ground glass permits 100% accurate focusing, it is recommendable to use short exposure times and a wide rather than small lens aperture.

*Diaphragm setting
lever (values appear
in the window)*



THE EXPOSURE TABLE

The exposure table (18) on the left side of the finder hood indicates the exposure time for the most important lighting and taking conditions. The exposure times are valid for pictures taken in sunlight with a 40 ASA grades film. In case a film with different sensitivity is used or if different lighting conditions prevail, the following points should be observed:

1. In using 20 ASA film multiply the exposure time on the table by 2.
In using 80 ASA film divide the exposure time on the table by 2.
2. The exposure time given for diaphragm setting 8 must be multiplied by 2 if diaphragm setting 11 is used, and multiplied by 4 if diaphragm setting 16 is employed.
3. When the sky is very cloudy, multiply the given exposure times by 2, if the sky is really overcast the given exposure times must be multiplied by 4.
4. During the months of September, October, March, and April the given exposure times must be multiplied by 2, during the months of November and December, January and February they have to be multiplied by 4. During the latter four months the given exposure times are applicable only from 10 a. m. to 14 p. m.

The exposure times given on the table are valid for medium northern latitudes.

Under all lighting conditions, even under the most difficult circumstances, the photo-electric exposure meter IKOPHOT, manufactured by the ZEISS IKON A.G. STUTTGART, indicates with utmost dependability the exact exposure time required for any picture. It is a vital photographic accessory for the IKOFLEX.

THE SHUTTER

The IKOFLEX 1a is equipped with a fully synchronized Prontor-SV shutter with shutter speeds ranging from 1 to $\frac{1}{300}$ second. The shutter speeds are set with setting ring (8). The shutter speed settings can be verified from above in the window (13). The figures appearing in this window indicate fractions of a second, 5 for instance means $\frac{1}{5}$ second.

For long exposures use setting "B". With this setting the shutter remains open as long as the shutter release (2) is pressed. All time exposures should be made with a cable release and from a tripod or another firm support (table, chair, etc.), in order to avoid any shake of the camera. The delayed action release can not be used for time exposures.

*Exposure times
setting ring (values
appear in the window)*



THE ZEISS IKON CABLE RELEASE equipped with plunger catch may be used for long time exposures. It is screwed into the thread of the body shutter release (2). For action photographs and short time exposures press the plate "B" toward "C", slightly turning it, so that it remains in this position. For long time exposures

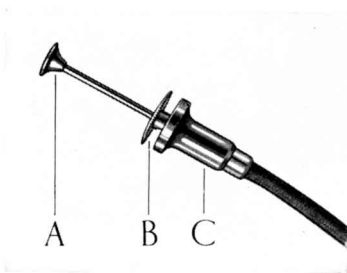


plate B must stand off from C. Upon pressing the cable release with the two plates in this position, the plunger remains in the "release position" until a slight pres-

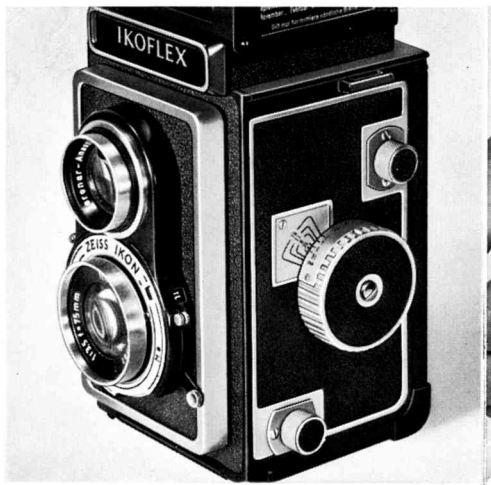
sure is applied to plate "B". With this plunger catch you can make time exposures of unlimited length without constantly pressing the cable release.



THE RED-DOT SETTING

In order to exploit under good lighting conditions the large depth of field of a reduced taking lens aperture, set the diaphragm lever and the focusing knob on the red dots. With this setting everything beyond approx. 13 feet will be rendered sharply without any further focusing. You need only do the framing on the ground glass or, for split-second snapshots, with the frame-type sports finder. Under especially good lighting conditions make a $1/100$ second exposure, otherwise $1/50$ second or, under less favorable conditions, $1/25$ second.

Red-dot setting for snapshots



HOW TO HOLD THE IKOFLEX DURING THE EXPOSURE

When taking pictures from the hand the IKOFLEX is hooked to a carrying strap, which must be adjusted in a way as to permit viewing easily the picture in the finder hood. It is advisable to hold the camera with the right hand, whose index finger sets the exposure time while the thumb winds the shutter and then rests on the body shutter release. The left hand supports the camera. Thumb and index finger of the left hand manipulate the focusing knob (24) while the middle or the index finger sets the diaphragm. The exposure is made by gently pressing the body shutter release (2) as far as possible. After every shot advance the film by one frame by turning the film transport knob (5) until stop.



*The IKOFLEX ready
for taking pictures*



THE FRAME-TYPE SPORTS FINDER

For taking pictures at eye level use the built-in frame-type sports finder. Press upward the inner plate of the frontside wall of the finder hood (30). The frame of the front part of the finder hood

(29) and the eye piece (19) in the rear part form the sports finder. Proper framing is guaranteed when the edges of the eyepiece cover exactly the edges of the frontside frame. Focusing is done in advance on the ground glass or with the aid of the red-dot setting. This frame-type viewfinder is preferably used for sports photographs and other split-second snap-shots.

*Frame finder for
snap-shots and sports
photography*



LOADING THE CAMERA

For loading the camera disengage the film locking mechanism. This mechanism is out of gear if, after the twelfth exposure of the preceding film (number 12 on the frame counter), the film has been advanced. After the twelfth exposure the film transport knob can be turned indefinitely without any resistance.

However, should the film transport locking mechanism not be out of gear, the mechanism has to be advanced until number "12" has passed the picture counter. To this end wind the shutter, release it and keep pressing the body shutter release while turning the film winding knob. Once the number "12" has passed the frame counter window the film locking mechanism is out of gear. Open the camera back with bolt (21), pull out the film spool holder (22) in the upper spool chamber and turn it so that it cannot snap back. Then insert the empty take-up spool into the spool chamber so that the prong

of the film winding knob (5) engages with the slot of the spool. The spool holder will engage by turning it back, then the



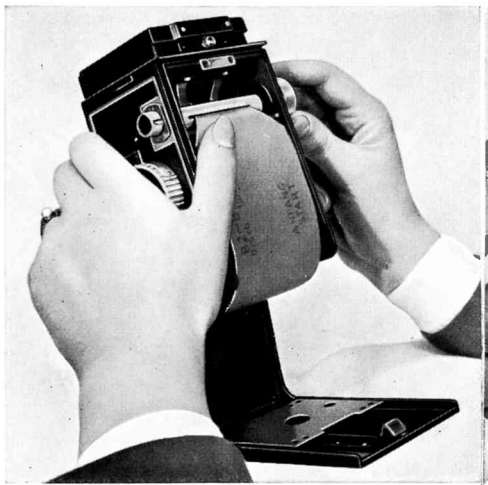
*Inserting
the empty film spool in-
to the take-up chamber*

spool can be conveniently turned with the film winding knob.

Insert the unexposed film spool into the lower spool chamber, handling the lower spool holder as the upper one, to that the beginning of the protective paper points toward the upper spool chamber. Pull the protective paper over the picture frame, insert it into the long slot of the take-up spool and turn the film winding knob (5) until the protective paper is properly tightened. Be careful that the paper winds evenly on the take-up spool. Then close the camera and watch the protective paper passing the film window (26) of the camera and turn the film winding knob until number "1" appears in the film window. This done, the first frame of the unexposed film is ready for exposure. Close the film window (26), turn the wheel (7) of the automatic frame counter mechanism counter clockwise until some resistance is felt in the mechanism. The frame counter now indicates number "1".

It is advisable to load the IKOFLEX in diffused daylight; when you are outdoors in sunshine, load it in the shadow of your body.

*Inserting
the protecting paper*



AUTOMATIC FILM TRANSPORT LOCK AND AUTOMATIC FRAME COUNTER

After every exposure advance the film by turning the film winding knob (5) until stop. As frame numbers need not be watched in the film window (26) the film can be properly advanced even in the dark. The number of the frame which is ready for the exposure automatically appears in the picture counter window (6). Simultaneously a red dot appears in the signal window (3) beside the finder hood, indicating that the section of the film in the picture frame has not yet been exposed. If the film is not advanced after the shutter has been released a white signal appears in this aperture.

The film can be advanced only if the shutter has been released. Likewise, the shutter can only be released if the film has been advanced. Consequently, the IKOFLEX excludes double exposures or blanks.

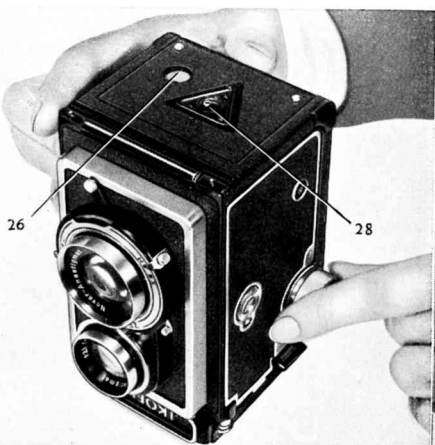


*Setting the frame
counter*

UNLOADING THE CAMERA

The film transport locking mechanism automatically disengages after the twelfth exposure, so that the film can be advanced freely. Turn the film winding knob (5) until the end of the protective paper passes the open film window (26). Open the camera back by pulling out the bolt (21). Pull out the film spool holder (22) and remove the spool only after having glued the label of the exposed film. Immediately remove the empty feeding spool from the lower spool chamber and insert it into the upper spool chamber. Take care that the prong of the film winding knob engages properly with the slot of the spool. This done, a new film may be inserted.

*Film window and
tripod thread on the
bottom of the
IKOFLEX*



THE EXPOSURE

Set the diaphragm and the shutter speeds according to the exposure table on the finder hood or according to the data obtained from the photo-electric exposure meter. The red dot in the signal window (3) indicates that the film has been advanced after the last exposure. If a white mark is in the signal window, the film winding knob (5) has to be advanced until stop.

Prior to every shot wind the shutter with lever (9). Study, compose, and focus the object on the ground glass. The moment the ground glass image shows that a photograph is worthwhile to be taken, press the body shutter release. During the exposure hold the camera safely in both hands while the right thumb gradually presses down the release (2) until stop. Do not move the camera during the exposure. After the release, turn film winding knob (5) until stop. At this moment the next frame of the film is ready for exposure.

The bottom of the IKOFLEX is equipped with a tripod thread, into which can be fitted the screw of the tripod. All pictures requiring an exposure time of more than $\frac{1}{25}$ sec. should be made from a tripod. For these exposures it is recommendable to use a cable release, which has to be screwed into the body release (2).

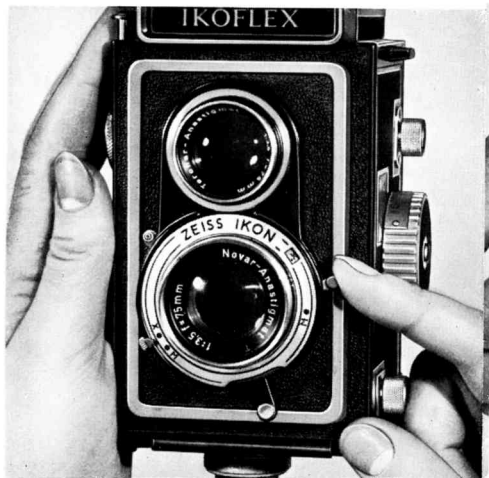
THE DELAYED ACTION RELEASE

For making exposures with delayed action release, set the exposure time (8), wind the shutter (9), and push down clockwise the delayed action release lever as far as possible. Set synchro-lever (16) on mark near X. By pressing down the body release (2) or cable release, the delayed action mechanism built into the shutter is set in motion and, after approx. 10 sec. automatically releases the shutter, the exposure time being the one set before-hand.

The use of the delayed action release is recommendable also in the case of long exposure times, e. g. $\frac{1}{10}$ sec., as it permits holding the camera without moving it. After releasing the shutter the camera can be grasped firmly with both hands, so that long exposures can be made without a tripod and without blurring the picture, provided the photographer does not move during the exposure.

Exposures with the delayed action release can not be made when using the setting "B" (time exposures) or when setting the synchro-lever (16) on the mark near M.

*Winding the lever for
delayed action release
(synchro-switch on X)*



FLASH PHOTOGRAPHY WITH THE IKOFLEX Ia

Fully synchronized flash photographs with flash bulbs or electronic flashes can be made with the IKOFLEX, the firing of the flash being effected by the shutter at the most favourable moment. For taking flash photographs, slip the plug of the flash connecting cord to the contact nipple (27) of the camera. The fully synchronized shutter does not only permit firing of flashes at the very moment when the shutter is wide open (synchro-switch in position X) but can also be set on pre-ignition (setting M).

FLASH PHOTOGRAPHS WITHOUT PRE-IGNITION (synchro-switch in position X)

are made (1) with electronic flashes in conjunction with all available shutter speeds from 1 to $\frac{1}{300}$ sec and (2) with flash lamps in conjunction with all shutter speeds between 1 and $\frac{1}{25}$ sec.

For such flash photographs set the synchro-switch so that the arrow points to the mark beside the X. Wind and release the shutter as usual.

With the synchro-switch in position X, the built-in delayed action release can be used for flash photography. To this end, push the delayed action release lever clockwise until it catches. Upon pressing the body shutter release the delayed action mechanism will release the shutter with a 10-second delay.

FLASH PHOTOGRAPHS WITH PRE - IGNITION (setting M)

Pre-ignition is used for taking flash action photographs with flash bulbs in conjunction with all available shutter speeds from $\frac{1}{50}$ to $\frac{1}{300}$ sec. The length of pre-ignition required for the various types of flashes may be ascertained from the table on the following page.

For firing flashes with pre-ignition set synchro-switch so that its arrow points on the mark beside M. Cock the delayed action release lever (15), wind and release shutter as usual.

Contrary to electronic flashes, flash bulbs need some time to reach their peak light intensity. Although this time lag does not exceed a few milliseconds the ignition of the flash bulb must be affected before the shutter is released, if shutter speeds shorter than $\frac{1}{25}$ sec. are to be used. With setting M the bulb is ignited before the shutter is released. For this reason the delayed action release and electronic flashes cannot be used with setting M.

*Winding the lever for
flash synchronization
(synchro-switch on M)*

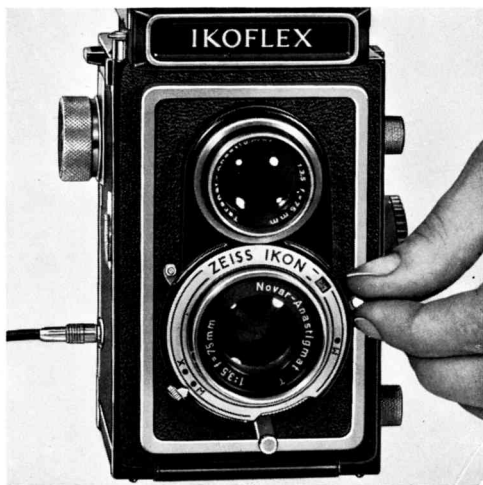


TABLE OF EXPOSURE TIMES FOR FLASH PHOTOGRAPHY

Type of Flash	Synchro-Switch on Setting "X"	Synchro-Switch on Setting "M"
Osram F 0	1— $\frac{1}{50}$	—
" F 1	1— $\frac{1}{25}$	—
" F 2	1— $\frac{1}{25}$	—
" S 1	1— $\frac{1}{25}$	$\frac{1}{50}$ — $\frac{1}{300}$
" S 2	1— $\frac{1}{10}$	$\frac{1}{50}$ — $\frac{1}{300}$
Philips Pf 14	1— $\frac{1}{25}$	$\frac{1}{50}$ — $\frac{1}{300}$
" Pf 25	1— $\frac{1}{25}$	$\frac{1}{50}$ — $\frac{1}{300}$
" Pf 56	1— $\frac{1}{25}$	$\frac{1}{50}$ — $\frac{1}{300}$
" Pf 110	1— $\frac{1}{10}$	$\frac{1}{25}$ — $\frac{1}{50}$
Gen. Electric } Westinghouse } SM	1— $\frac{1}{100}$	—
Gen. Electric } Westinghouse } Nr. 5 Nr. 11 Nr. 22	1— $\frac{1}{25}$	$\frac{1}{50}$ — $\frac{1}{300}$
Westinghouse } Gen. Electric } Nr. 6 Nr. 50	1— $\frac{1}{10}$	$\frac{1}{25}$ — $\frac{1}{50}$
Wabash } Sylviana } SF	1— $\frac{1}{50}$	—
Wabash } Sylviana } Nr. 0 Nr. 2 Press 25 Press 40 Press 50	1— $\frac{1}{25}$	$\frac{1}{50}$ — $\frac{1}{300}$
Wabash Press } Sylviana Press } Nr. 3	1— $\frac{1}{10}$	$\frac{1}{25}$ — $\frac{1}{50}$
Electronic Flash	1— $\frac{1}{300}$	—

HOW TO TAKE CARE OF THE IKOFLEX

It is advisable to clean the interior of the camera and the film transport from time to time with a soft hair brush. If the lens should be dirty wipe it carefully with a soft, well washed-out, dry linen cloth which must be free from any chemical substances. However, the precious lens should be cleaned only when it is deemed absolutely necessary.

Every IKOFLEX camera bears a serial number. It is recommended to note down this number in order to be able to identify your camera and to assert your ownership rights in case of loss or unintentional exchange.



ACCESSORIES FOR THE IKOFLEX Ia

FILTERS are especially useful for effectively rendering the tones of natural colours in shades of gray on black and white film. Screw-on filters ϕ 35.5 mm or slip-on filters ϕ 37 mm can be attached to the IKOFLEX. It is recommendable to use the high quality ZEISS IKON filters, which do not impair the sharpness of the taking lens.

LENS HOODS are indispensable for against-the-light photography. They protect the lens from direct incident light. The ZEISS IKON lens hood with a diameter of 37 mm can be slipped on the above filters or directly on the lens mount.

With the aid of **SUPPLEMENTARY LENSES** the IKOFLEX can be used for close-up photography, i. e. for photographs at distances less than 3 feet.

POLARISING FILTERS effect elimination of reflexes from glistening surfaces of glass, wood, plastic, etc. and thus permit photographs which otherwise would not be possible.

THE PRISMATIC VIEWFINDER for the IKOFLEX is slipped onto the finder hood. It shows a vertical picture of the object without reversing the sides as a mirror. It is especially suitable for sports photographs and other rapid snapshots. Viewing is done in the direction of the object to be photographed.

THE EVEREADY CARRYING CASE protects the valuable IKOFLEX from damage without being in the way when the exposure is made.

THE IKOPHOT, the photo-electric ZEISS IKON exposure meter, indicates the exact exposure time to be used.

THE IKOBLITZ, flash unit for use of flash bulbs, and **THE IKOTRON**, the ZEISS IKON electronic flash unit, enable the owner of the IKOFLEX to make good photographs even under poor lighting conditions or in the dark.

