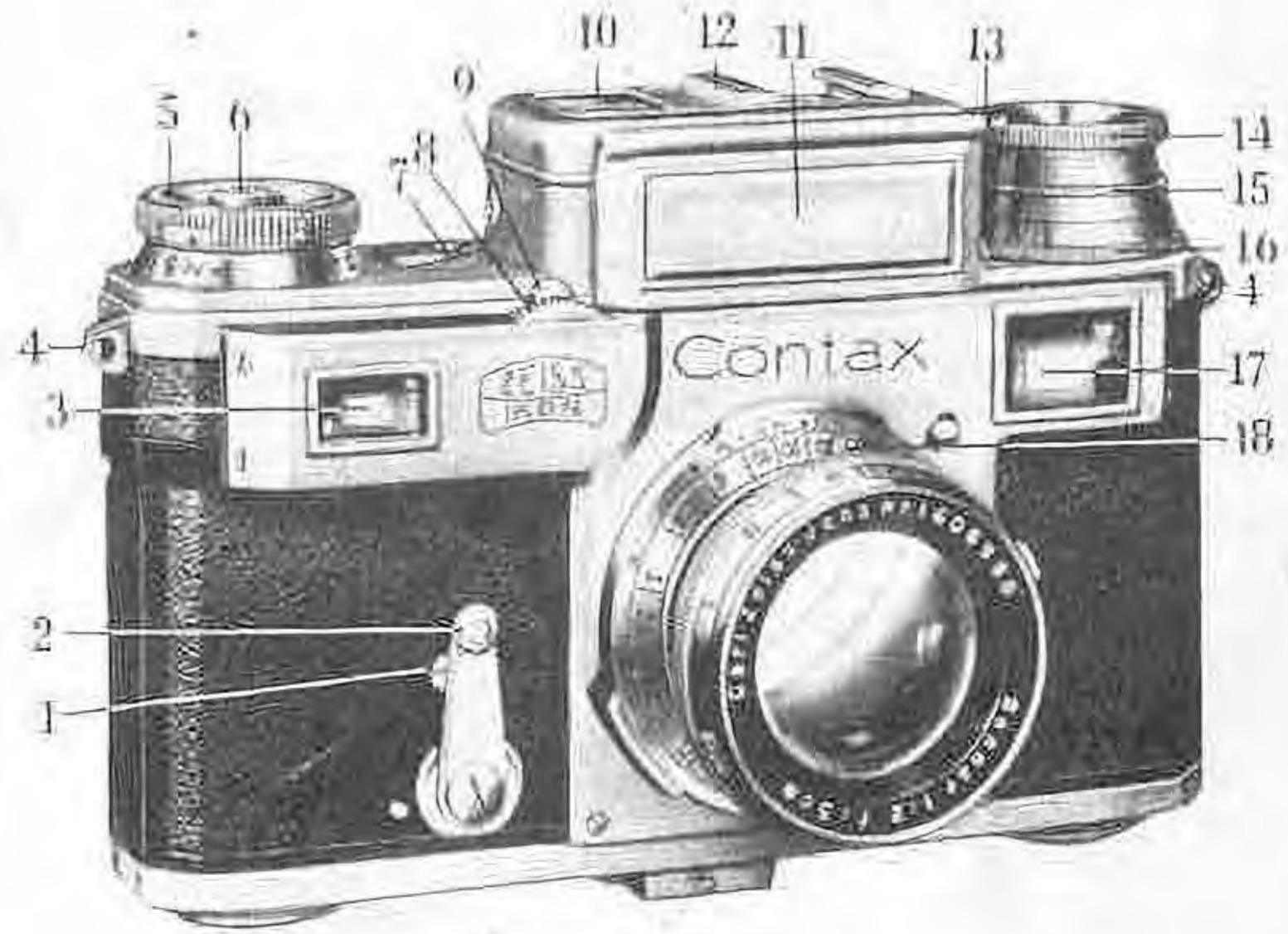


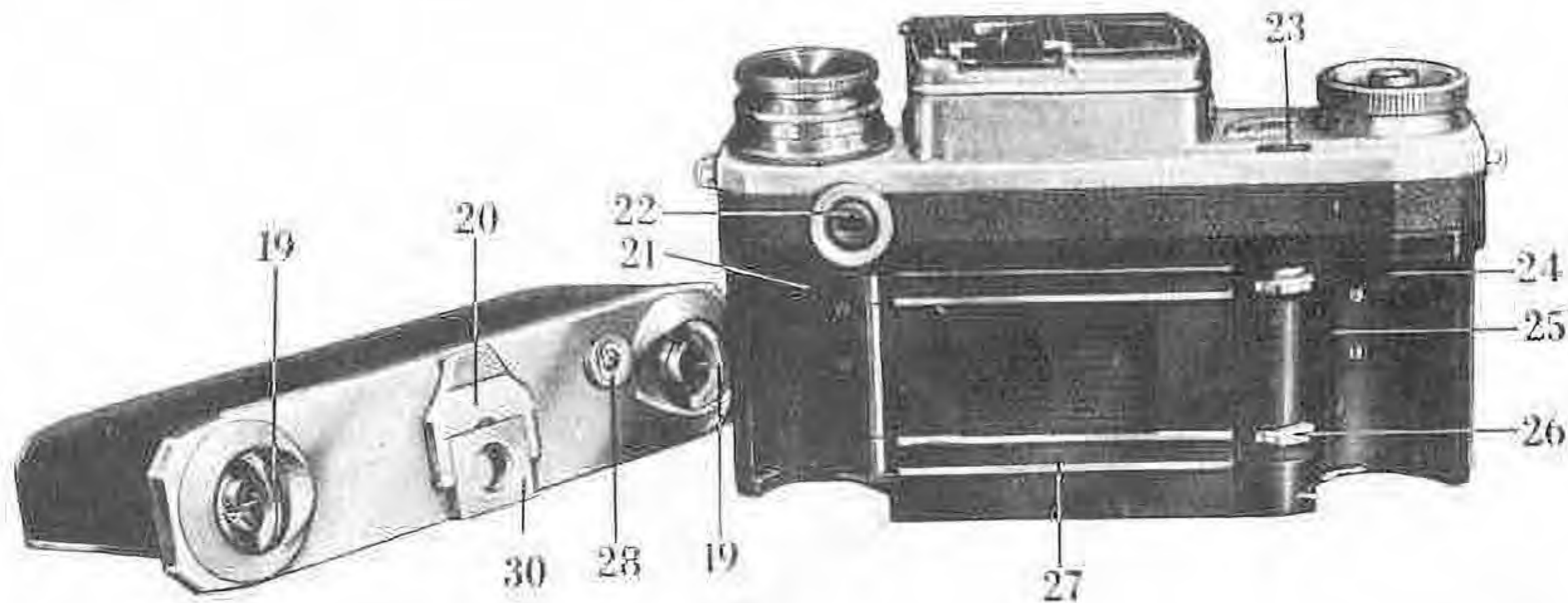
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The Parts of the Contax

- 1 = Release button for the delayed-action shutter release
(almost hidden by the lever 2)
- 2 = Setting lever for the delayed-action shutter release
- 3 = Object glass of the distance meter
- 4 = Metal loops for carrying strap
- 5 = Shutter winding knob
- 6 = Shutter release button
- 7 = Window showing number of exposures made
- 8 = Milled wheel of the coupled distance meter
- 9 = Infinity stop for the distance meter
- 10 = Window of the exposure meter
- 11 = Prism window of the exposure meter with protective cover
- 12 = Finder shoe
- 13 = Knob for raising the cover 11 of the exposure meter
- 14 = Knob for rewinding film



- 15 = Rotating diaphragm scale of the exposure meter
- 16 = Adjusting ring of the exposure meter
- 17 = Object glass of the distance meter and view-finder
- 18 = Spring catch of lens-changing device



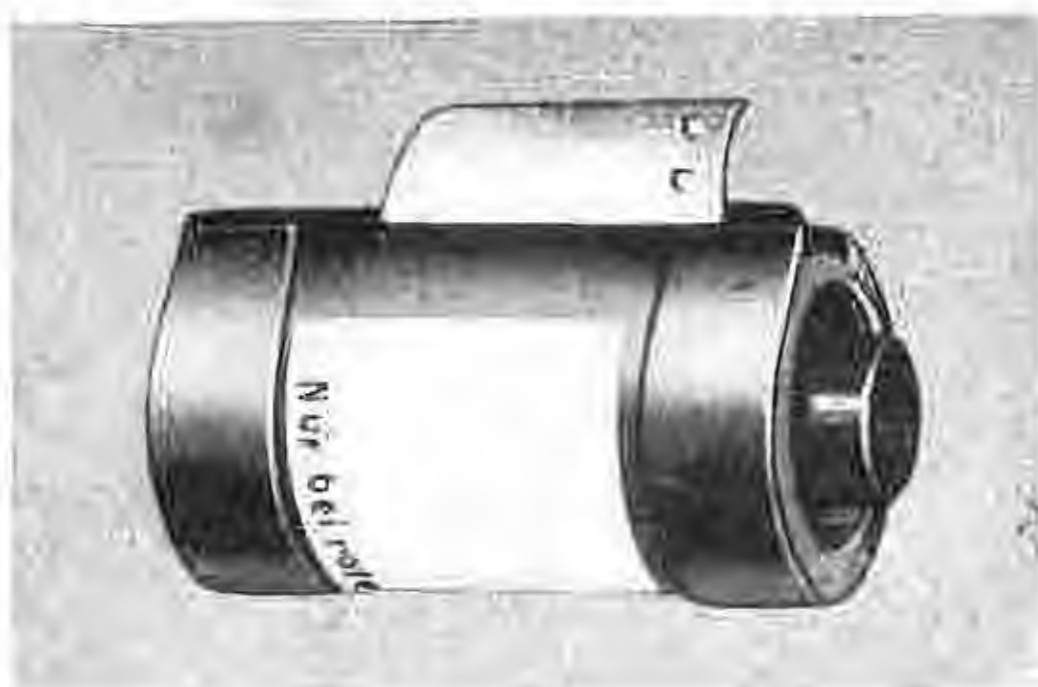
The Parts of the Contax

- | | |
|--|---|
| 19 = Locks for opening and closing the camera | 24 = Claw holding take-up spool |
| 20 = Base support for the camera | 25 = Spool retaining spring |
| 21 = "Free-wheeling" claw holding full spool of film | 26 = Film transport sprocket |
| 22 = Eyepiece of the distance meter and viewfinder | 27 = Picture aperture |
| 23 = Wheel adjusting the film picture counter | 28 = Button releasing the film during rewinding |
| | 29 = Projecting piece of the cassette |
| | 30 = Tripod bush |

Important Note!

The Contax is a precision miniature camera, the handling of which differs considerably from that required in ordinary types of cameras. With careful handling and intelligent use, the Contax will give excellent service and perfect photographic results, but it is essential that the instructions should be studied, and the various mechanical movements practised as described in the pages hereafter, before any attempt is made to use the camera with film in it.

Loading the Camera



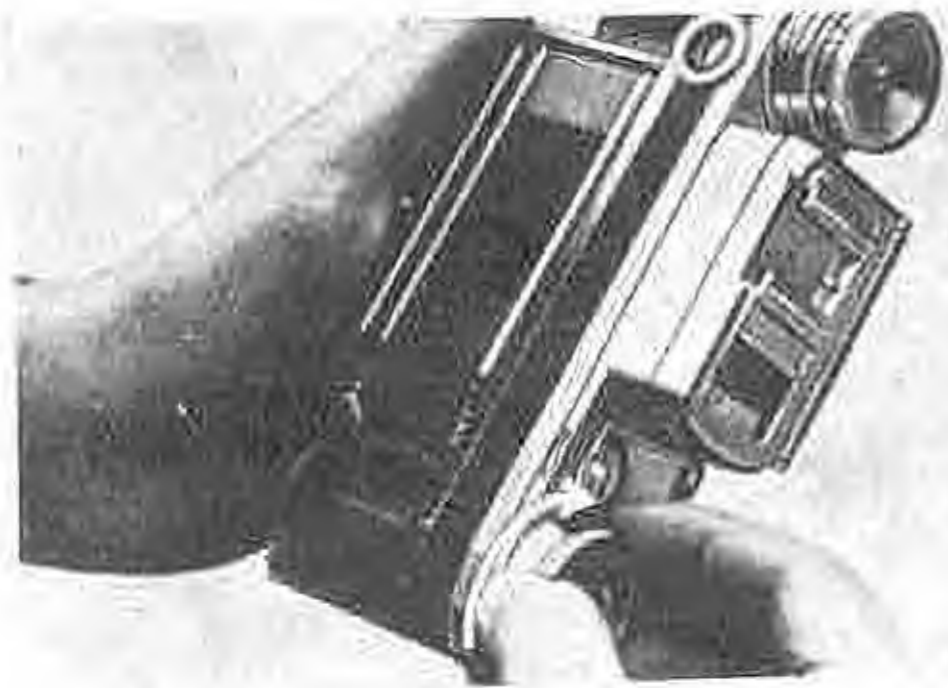
Different forms of perforated cinema film may be obtained that are intended for use in miniature cameras, and which may be used with the Contax. Only those kinds of chargers, cassettes, or cartridges can however be used that are small enough to fit the spool chambers of the camera comfortably, as otherwise it may happen that the film jams in the camera instead of winding on correctly. In particular, the knob of such spools or chargers must have a hollow in it that will fit the projecting stud in the revolving keys that lock the back of the Contax.



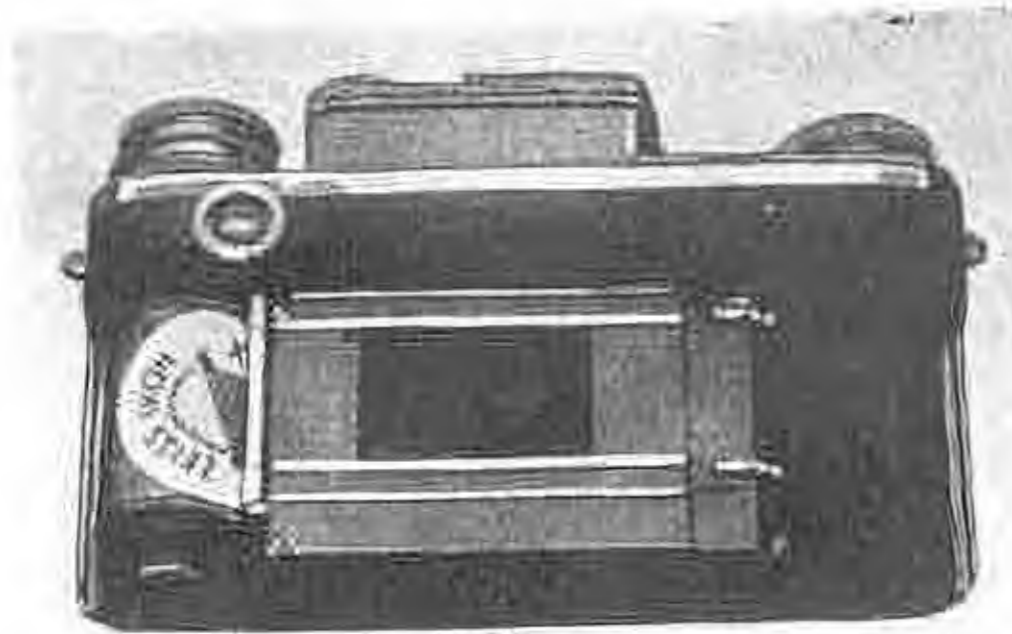
1. Open the camera by raising the two locking keys (19) on the camera base and giving them half a turn. In the open position the keys cannot be folded down against the camera body.



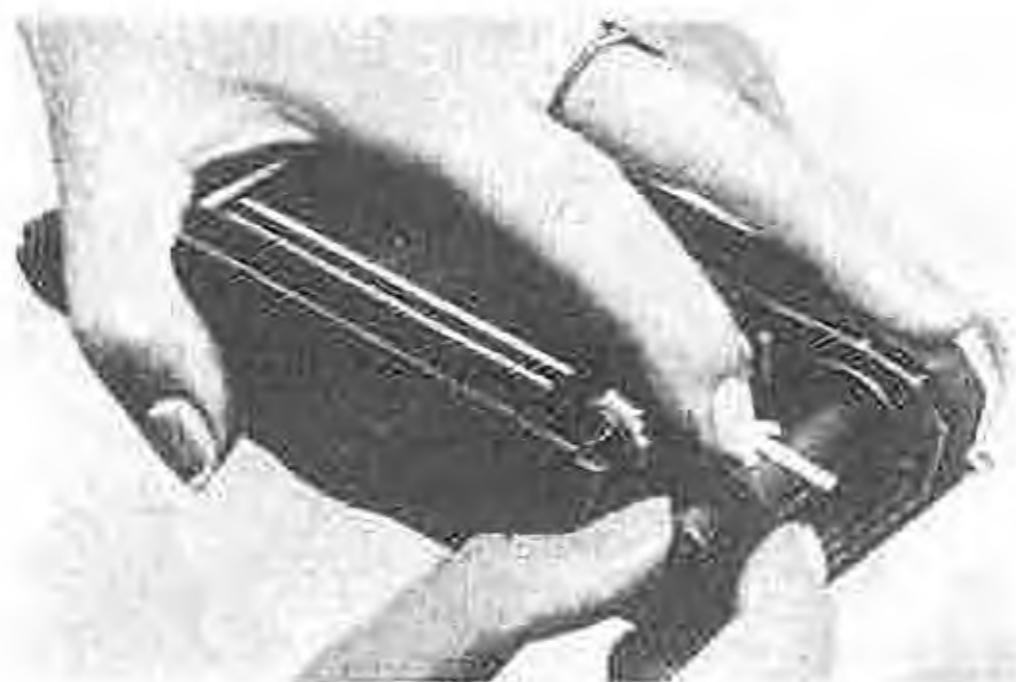
2. Draw the camera back slightly downwards, and then lift it away from the body of the instrument.



3. Wind up the shutter winding knob (5) as far as it will go in a clockwise direction, until a hard stop is felt. (A slight resistance does not mean that the shutter is fully wound, so that it is necessary to turn fully until the stop is reached.)



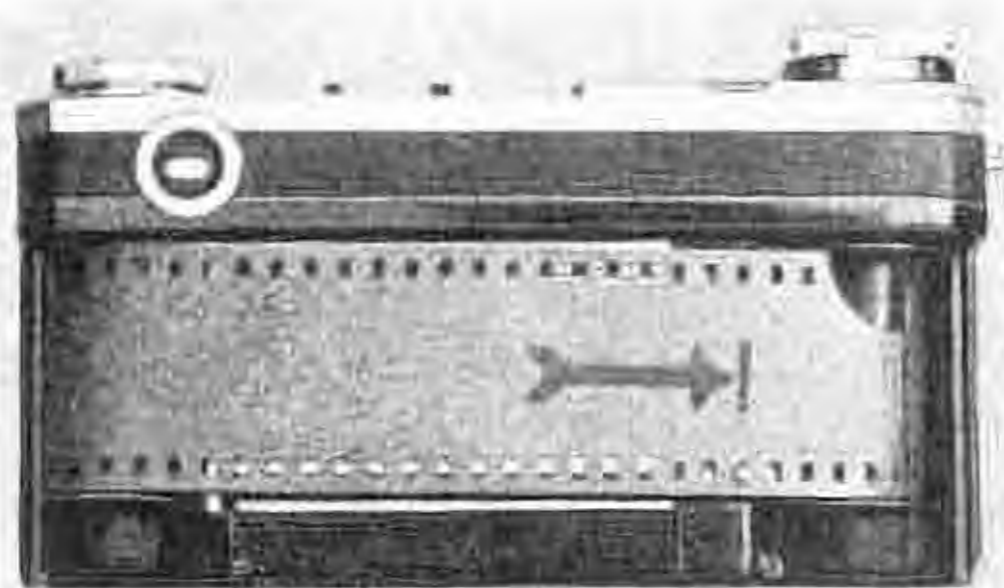
4. Place the **cartridge** with its hollow end on the claw (21) of the left-hand spool chamber.



5. Pulling the leaf spring (25) towards the film sprocket with the left forefinger, take out the empty spool in the right-hand spool chamber.



6. The end of film projecting out of the cartridge is threaded through the large slot of the take-up core and bent back quite shortly (approximately 2—3 mm).

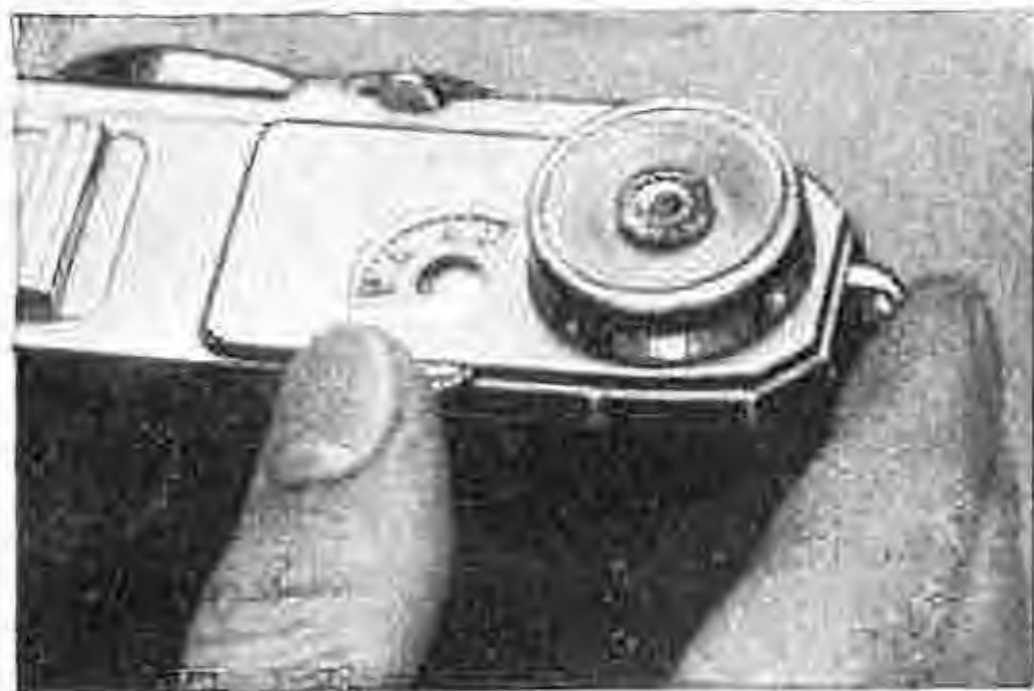


7. Wind the film on the empty spool until it lies over the teeth of the sprocket (26).

8. Now replace the camera back, holding the film strip in contact with the teeth of the sprocket with the thumb of the left hand. The camera back is placed on the body (not slid on) as close as possible to the upper edge of the guiding grooves. When the back is flat on, slide it upwards to close the camera completely.



9. Give a half-turn to the locking keys on the under side of the camera to lock the back in place, and fold them flat once more.



10. By means of the milled wheel (23) set the picture counting disc one frame before "0" (#37).

The camera is ready for first exposure.

11. All film cartridges need to be rewound after 36 exposures have been made. For this purpose, the rewind release knob (28) is pressed inwards and the film rewound into the cartridge by turning the rewinding knob (14) in the direction of the arrow



12. Take off the camera back and remove full cartridge from left spool chamber.

The Distance Meter — View-Finder Combination



Focussing in the Contax is done exclusively with the distance meter—viewfinder combination which guarantees sharp focus since the distance meter is coupled to the lens. The view-finder field shows the camera

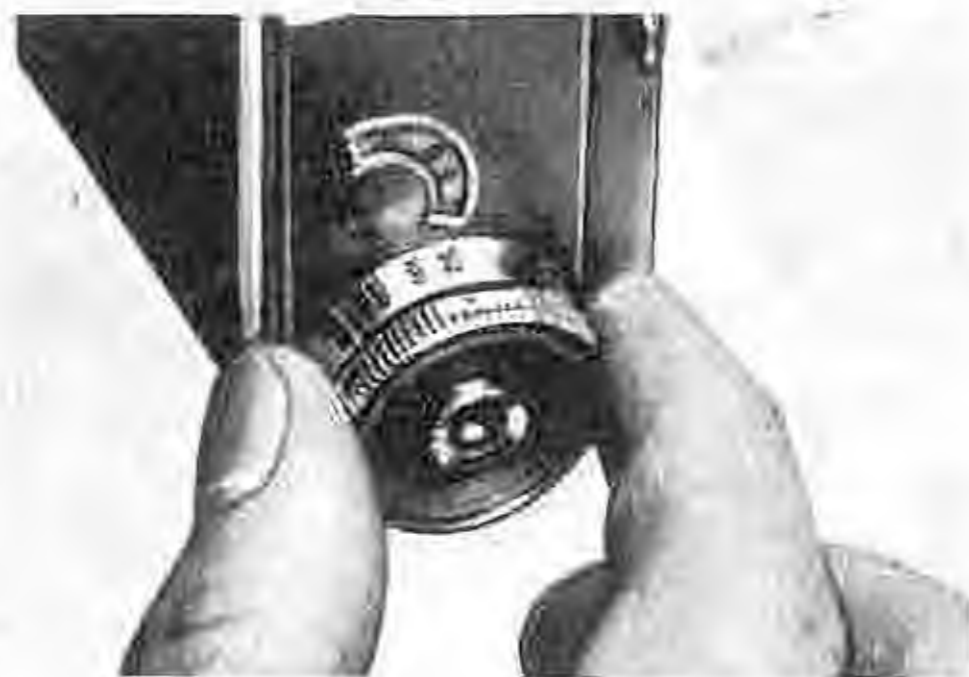
field when using the normal Contax lens of 2" (5 cm) focal length. For all other lenses special finders are used, that fit into the finder shoe (12) on top of the camera.

By looking through the eyepiece (22) of the distance meter and view-finder, a lighter rectangular portion of the field in the centre of the picture will be seen to have a lighter shade, in which a double image of the object included in that portion of the field is easily detected. By turning the small wheel (8) one of these images will be seen to move sideways, and when the two images fuse into a single one, the lens is accurately focussed.



It should be noted that this adjustment must be made with the object on which focus is desired in the centre of the lighter rectangular field, and not at the left or right-hand edges.

The small lever (9) behind the focussing wheel (8) releases the infinity catch on the mechanism. When the wheel (8) is turned to focus, the catch is automatically pressed down and the focussing device is put into action.



The Focal-Plane Shutter

1. Setting the shutter speeds

Shutter speeds are set by adjusting the shutter winding knob (5). This is done by lifting the knob (5) against a strong spring and turning it (still in the raised position) until the

black dot on its periphery is opposite the exposure time desired. (The engraved numbers 2, 5, 10, 25, etc. indicate speeds of $\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{25}$ sec.) At this point the knob is released, and it will drop into position, since a catch (not seen) holds the knob against the exposure time that has been selected. The catches for the $\frac{1}{500}$ th

and $\frac{1}{1250}^{\text{th}}$ of a second speeds are very close to each other. The $\frac{1}{500}^{\text{th}}$ speed is set by lifting the knob and turning forward from $\frac{1}{250}^{\text{th}}$ second until the catch allows the knob to drop into position. When setting the shutter to $\frac{1}{1250}^{\text{th}}$ second the knob is raised and turned as far towards the marking $\frac{1}{1250}$ as it will go, and in the correct position it drops into place as the catch is reached.

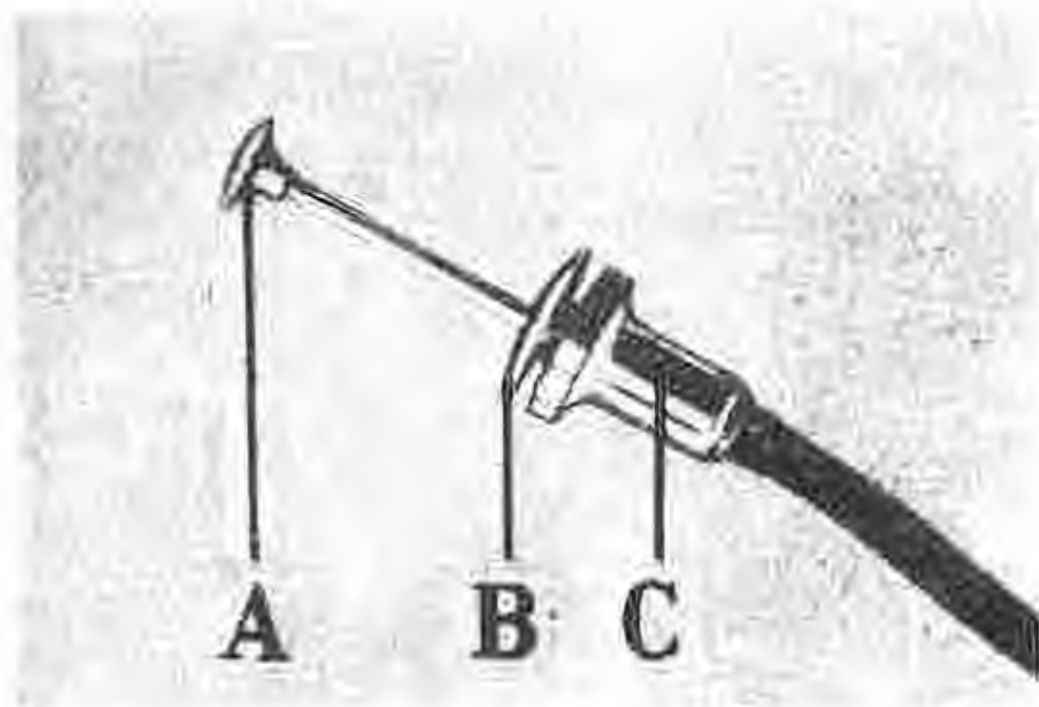
When setting shutter speeds it is essential that the shutter is either fully wound up or fully run down. In both these positions the black dot may be set to the desired figure.

If it is desired to have the shutter open fully, set the knob to "B" and then lock the shutter release button down by pressing it to release the shutter and turning it in an anti-clockwise direction. The shutter may be closed later by turning the knob back in the clockwise direction until it rises to its normal working level.

2. Shutter and film wind

The shutter is wound up by turning the winding knob as far as it will go—a full turn. The knob must be wound up until a hard stop is felt. Winding the shutter simultaneously winds on the film for the next picture. The exposure is made by pressing the shutter release button (6).





3. Flexible wire release

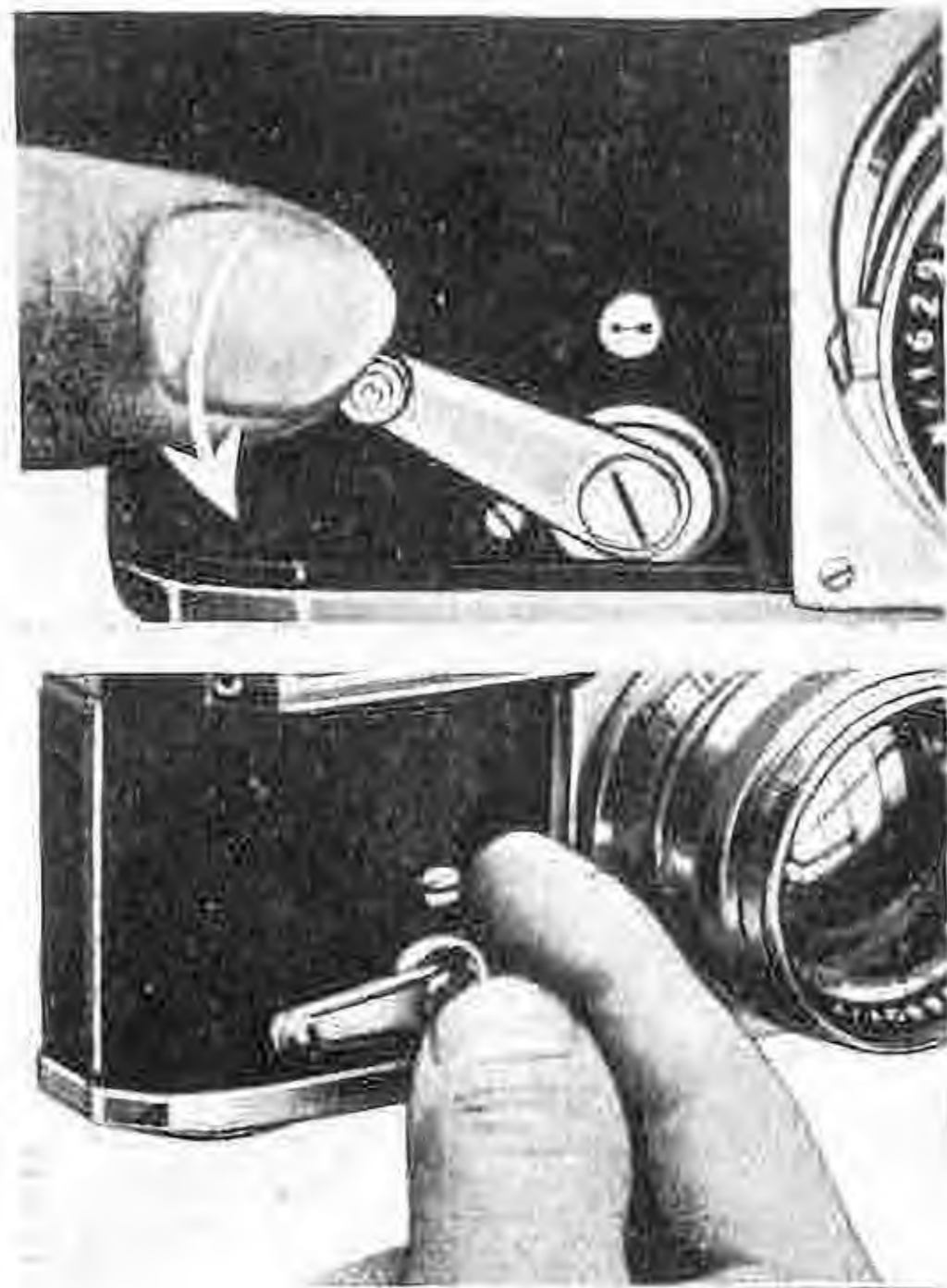
For long "Time" exposures a special flexible wire release is delivered with the Contax which is screwed into the thread of the shutter release button (6). This release is different from ordinary types in having a moveable plate (B) between the pressure stud (A) and the socket (C). By setting the shutter to "B" and pressing the stud (A) of the wire release,

the shutter opens, and remains open until the plate (B) of the release is pressed with the thumb.

This wire release can be used for short time exposures and for ordinary snapshot exposures merely by turning the moveable plate (B) to the right, which presses it down into the socket (C). In this position the release works just in the same way as the ordinary type.

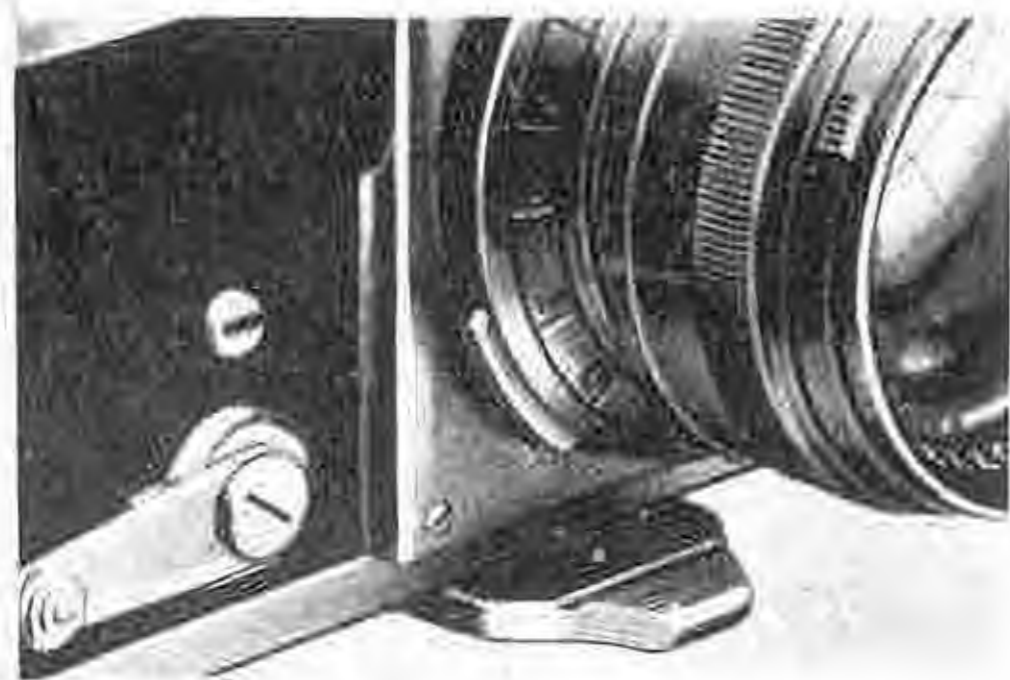
4. Delayed-action shutter release

The Contax has a built-in delayed-action shutter release, which operates the shutter some ten seconds after the mechanism has been set in action. The shutter



is first wound up in the normal way, and then the delayed-action mechanism is wound by pulling the lever (2) to the left (anti-clockwise) as far as it will go.

The clockwork is set going by pressing the release button (1) in the direction of the arrow engraved on it, and the same exposures may be given in the normal way. With the shutter set to "B", the delayed-action mechanism will give an exposure of approximately one second, and then close the shutter. Even when the delayed-action mechanism is fully wound the shutter time may be set or the shutter wound up, but this can only be done with the delayed-action device either fully wound or else fully run down. In order to preserve the spring tension of the delayed-action mechanism, never leave it fully wound for any length of time.



5. Using the Contax without a Tripod

On the rectangular camera bush of the Contax is a hinged foot (20), which is usually folded backwards against the base of the camera. When, however, it is desired to hold the camera firmly, particularly when using the large-aperture Sonnar lenses, the foot may be turned over and pointed forwards, so that the camera will stand up on a table or other flat surface. When using the foot for this purpose the camera is quite firm and well balanced.

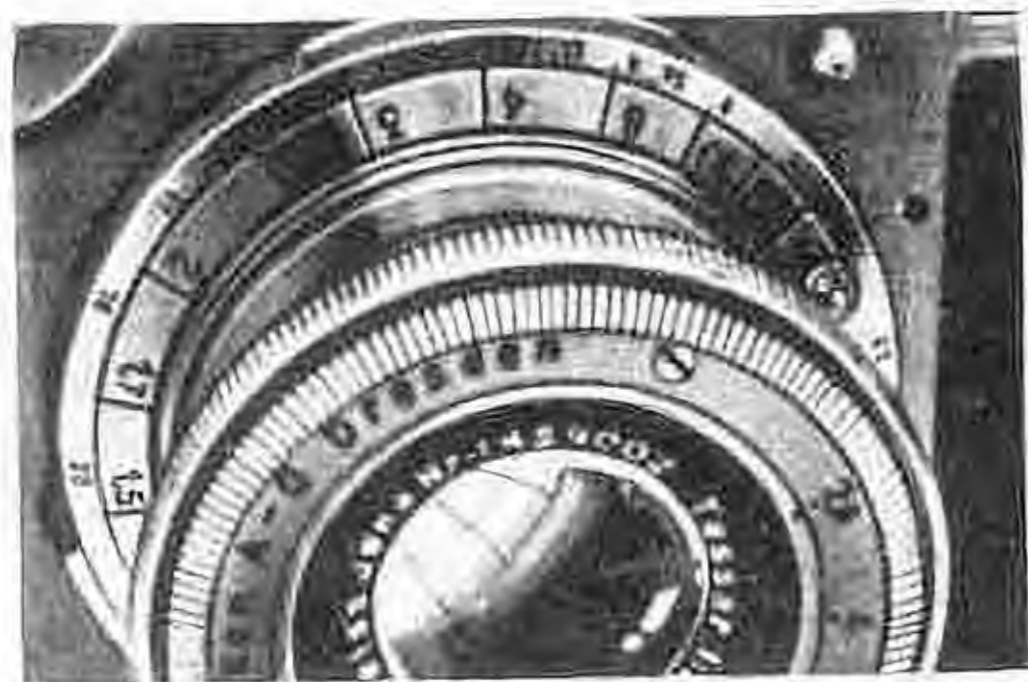
The Lens and the interchangeable Bayonet Mounting

When the camera is not in use, the collapsible 2" (5 cm) lenses—Tessar $f/3.5$, Tessar $f/2.8$, and Sonnar $f/2$ —are pushed backwards into the camera body, and before making an exposure they must be pulled forward into the correct position. This is simply done by hold-



ing the lens by the larger milled ring, pulling it out from the camera body as far as it will go, and then locking it into position by turning it to the right until a stop is felt. After exposure the lens may be turned to the left once more and pushed back into the body of the camera for convenience in carrying.

The adjustment of the lens aperture is made by turning the milled ring on the lens, which is made in different patterns in the various lenses. It is important to set the lens aperture before focussing, since the latter adjustment may be altered by turning the lens aperture ring to adjust it correctly.



The camera has a scale of focussing distances for the 2" (5 cm) focus lenses. On either side of the focussing mark (a black dot or line) are also a number of aperture numbers that indicate the depth of focus. With this device the appropriate depth of focus for any particular aperture and focussing distance can be read off.

Changing the lenses

Lenses of 2" (5 cm) focal length are placed in the inner bayonet mounting of the camera, and all other lenses in the outer mounting.

1. Removing the 2" (5 cm) lenses

The camera focussing mount is first set at infinity. Then the thumb is pressed on the

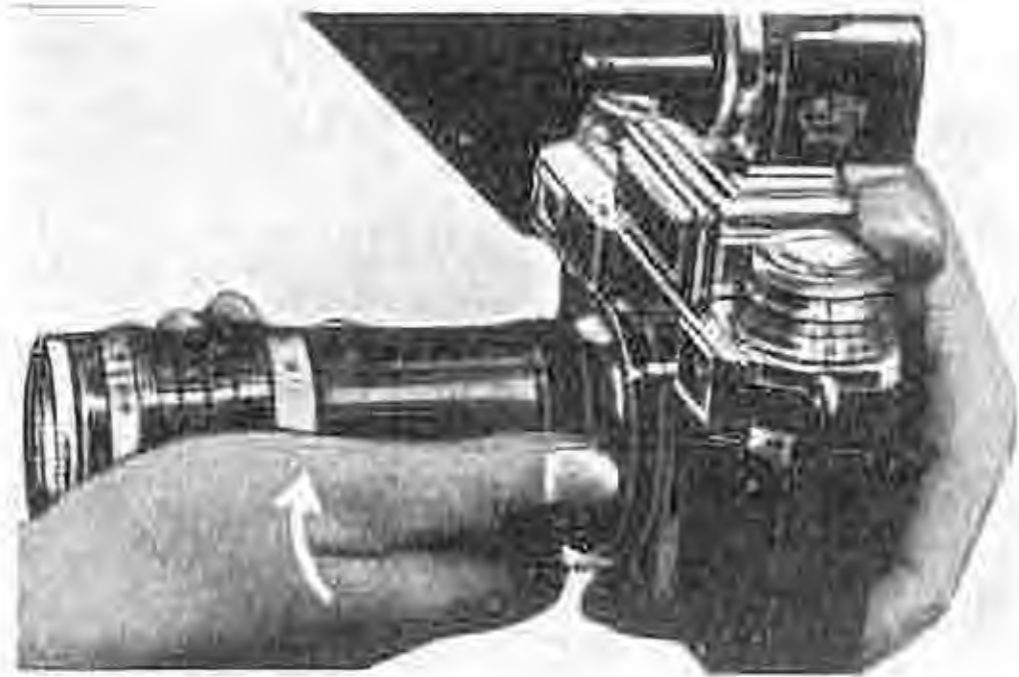


spring (18) so that the projection on the lens barrel, marked with a red dot, slides out of the spring catch holding it. A slight turn of the lens in a clockwise direction releases it, and it may then be carefully drawn out of the helical focussing mount.

2. Replacing the 2" (5 cm) lenses

The lens is inserted into its mounting by reversing the operations mentioned above. It

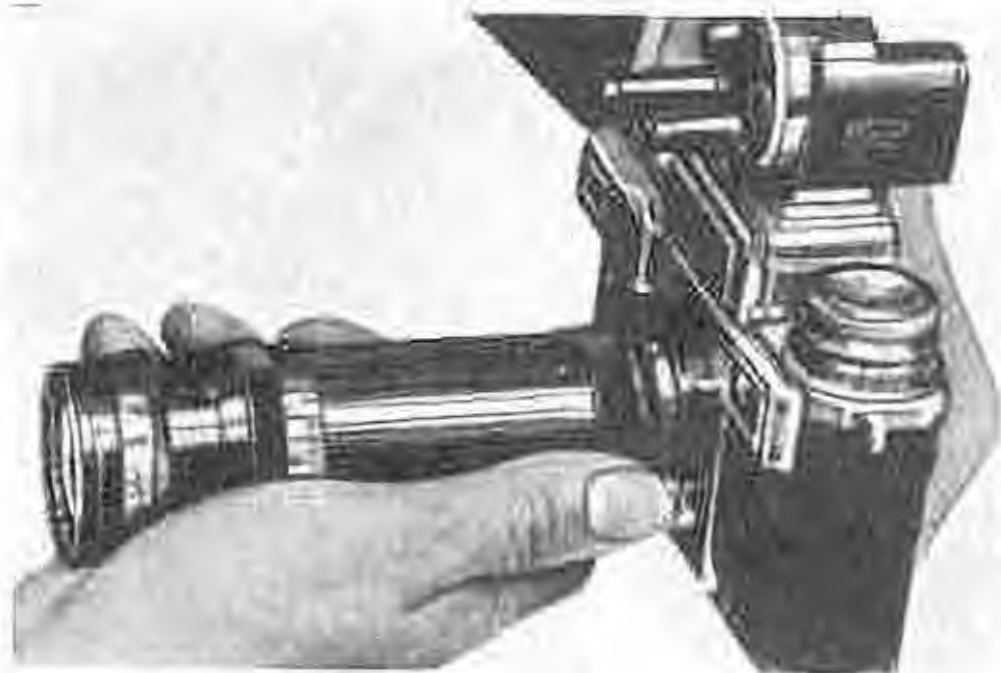
is important to remember that the lens will only fit easily into the mount when the two red dots are opposite each other, and when the lens is held in the same plane as the front of the camera. By slightly turning to the left, the lens slips past the catch (10) and the latter snaps back, holding the lens firmly in the infinity position.



3. Inserting and removing other lenses.

All lenses other than those of 2" focal length are placed on the outer bayonet mount. The lens is held so that the two red dots, one on the camera front and the other on the lens itself, are opposite each other, and the lens is then turned to the left until a stop is felt. The catch on the side of the lens will then be heard to snap into position.

The removal of the lenses fitting the outer bayonet follows the procedure of inserting them. The side catch must first be lifted with the thumb, and then the lens is turned through 90° to the right, in which position it may be removed from the camera. The long-focus lenses are also coupled to the distance meter for focussing, and in order to make sure that the mechanism is working correctly, the focussing ring on the lens should be turned.





It is extremely important to note that when using long-focus lenses the focussing must be done by adjusting the ring on the lens and not by turning the usual focussing wheel (8) on the camera. The gear ratio of the mechanism is so high with these lenses that turning the usual wheel may damage the mechanism.



Since the centre of gravity lies in the lens when using a long-focus lens, it is desirable to hold the camera for exposure by grasping the lens with the left hand. This hand will then attend to the focussing, while the right hand steadies the camera and operates the shutter. The special finders for long-focus lenses are placed in the finder shoe on top of the camera, since the distance meter view-finder is not equipped with masks.

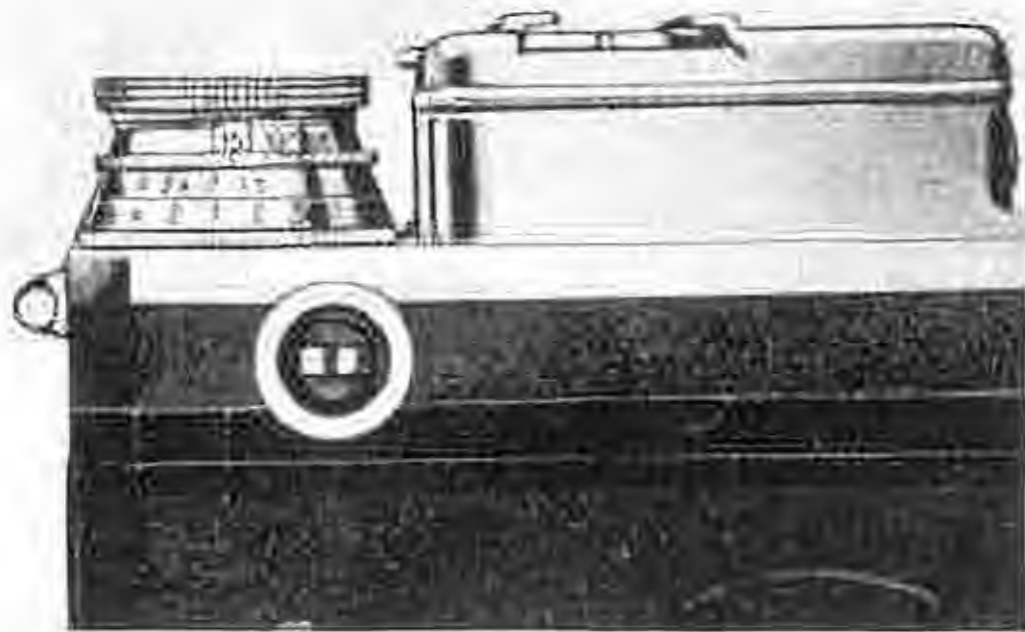
The photo-electric Exposure Meter

The exposure meter consists of a photo cell, an electric precision measuring instrument and a regulating resistance. The light that falls through the prism window (11) on to the cell produces an electric current, causing the needle of the measuring instrument to deflect to an extent varying with the intensity of brightness. The measuring instrument reacts instantaneously to the slightest change in the lighting conditions. Compensation for the variable brightness of the object, and incidentally the electric current, is obtained by the resistance connected to the exposure time scale (16). In this way, with only one marking position of the needle, it is possible to read off the exposure time for all diaphragms without using any conversion table.

Table of comparison for the most used film speeds ⁺

3	6	12	25	50	100	200	ASA
6	9	12	15	18	21	24	/10° DIN
11	14	17	20	23	26	29	Am.° Sch

⁺All cameras imported by Carl Zeiss Inc., New York are calibrated in American Scheiner whereas European cameras are marked in Din°.



Manipulation

1. Set the black mark below the rectangular opening of the diaphragm scale (15) (between the lens stop Nos. 1.5 and 2) to the number corresponding to the speed of the film. Intermediate values are estimated.



2. To use the exposure meter raise the cover (11) of the prism window by pressing on the knob (13). The cover will then remain in horizontal position. **To close cover, press it downward into place.**

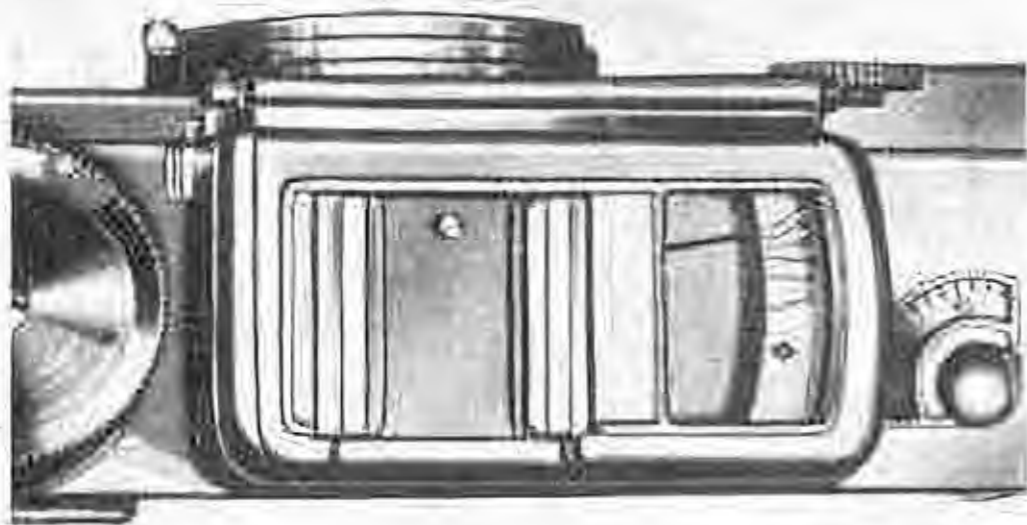
3. For ascertaining the exposure time, the camera should be pointed towards the centre of the subject to be photographed. If the degree of brightness varies considerably, or if a particularly good rendering of details in the shade is desired, it is advisable to aim the camera at the shaded parts and to approach as near as possible to them.



4. Rotate the ring (16) on which is engraved the exposure time scale, until the needle in the window (10) of the exposure meter is opposite the diamond-shaped mark \blacklozenge .
5. The exposure time corresponding to any lens stop, or the lens stop for any pre-selected exposure time can now be read off on the scale of the ring (16). The black numbers on the scale denote fractions of a second, e. g. 25 = $\frac{1}{25}$ th second, 2 = $\frac{1}{2}$ sec.; whereas the red numbers signify full seconds. Intermediate values can be obtained by setting the iris diaphragm accordingly.



6. Where the intensity of brightness is very low, the needle cannot be brought to the indicating mark \diamond even when the ring (16) has been turned to the left (in anti-clockwise direction) as far as it will go. With the ring in this position, the exposure time indicated on the scale (16) must be multiplied by a factor which is determined by the position of the needle on the scale visible in the window (10) of the measuring instrument between the zero point and the diamond mark.



The numbers 2, 5, 10, 20 and 40 on the scale denote that the indicated exposure times must be multiplied by 2, 5, 10, 20 or 40, as the case may be.

If the needle happens to be between the "multipliers", the factor may be estimated. Example: If the needle is between the numbers 5 and 10, the factor = 8, or if the needle is between the diamond mark \blacklozenge and 2, the factor = $1\frac{1}{2}$.

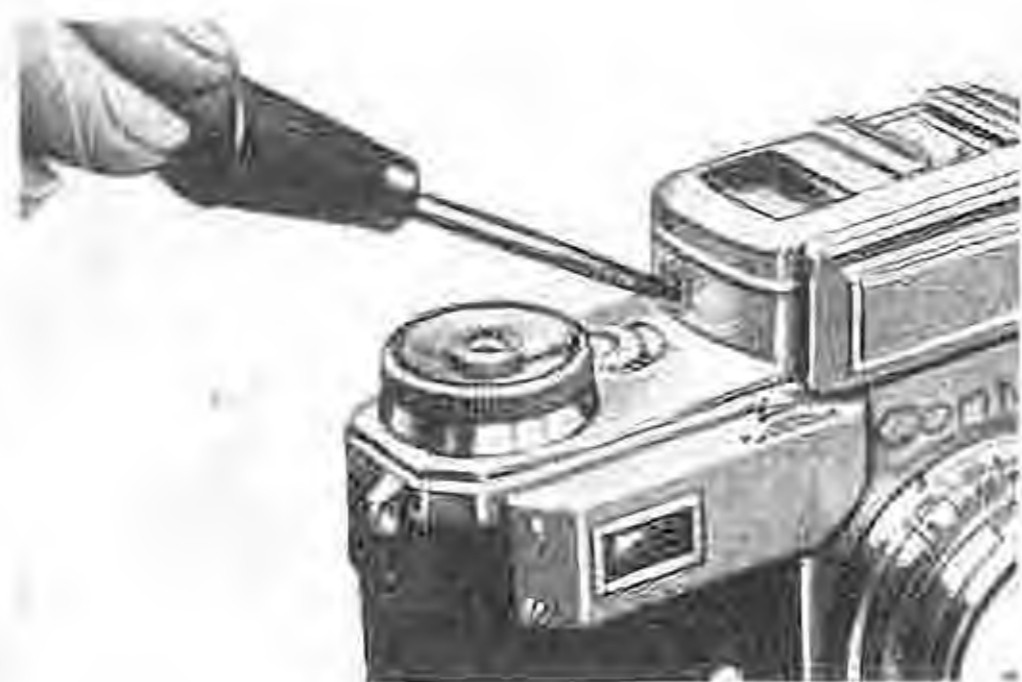
A condition for the accuracy of all measurements with "multipliers" is that the ring (16) must be turned in anti-clockwise direction to its left limit stop.

Manipulation

The exposure meter is a precision measuring instrument and must consequently be treated with care. It should not be subjected to knocks or jolts, and articles containing iron must be kept away from it. In order that the photo cell may preserve its high degree of sensitiveness, always protect it from light when not in use by closing the cover (11) of the prism window. Do not attempt to measure the brightness of the sun; it serves no purpose and the photo-electric cell will not be better for the experiment.

Adjustment

The zero point is the point at the beginning of the measuring instrument scale next to the multiplier 40. Through improper handling it might happen that the zero point position of the needle becomes displaced. In such an eventuality, the exposure meter can be put right by a special adjustment which anyone can effect without difficulty.



The scale can be displaced by turning the screw at the side of the exposure meter casing with a screw driver; adjust the scale until the zero point lies exactly opposite the needle.

When carrying out the zero point adjustment, take care that no light whatever strikes the cell, so as not to impart any current to the measuring instrument. It is only under such conditions that a perfect adjustment of the zero point position can be effected. The exposure meter is so sensitive that the cover (11) does not suffice to shield the cell completely from light. The stray light that penetrates through the hinges and at the sides, although minute, is nevertheless sufficient to cause a slight deflection of the needle. When carrying out the adjustment, it is therefore necessary to take the instrument to some dark spot, on no account in the sun, and place a dark coloured cloth over the protecting cover (11). At the same time it is recommended to turn the ring (16) in clockwise direction to its limit stop.



Making the Exposure

In the open air, the ever-ready carrying case protects the Contax from dirt and moisture. If it is desired to hang the camera round the neck without using this case, the eyelets (4) may be used to attach the strap.

The camera should be held firmly, but not so firmly that the arms become cramped, in the hollow of the hands. Focussing is done by the middle finger of the right hand, while the forefinger of this hand operates the shutter release. This should be practised until one's technic is perfect, if only because the method given above does away with the hasty change of the forefinger from the focussing wheel to the shutter release, which is necessary if one finger is used for both controls. With practice and care it is quite possible to hold the camera still for the longer exposures of $\frac{1}{10}$ th, $\frac{1}{5}$ th, and even $\frac{1}{2}$ a second without incurring camera shake.

The illustrations show the correct way of hold-



ing the camera for both horizontal and vertical pictures. The illustrations also show that the shutter should be released, not with the tip, but with the ball of the finger, or better still, with the top joint (see illustration below). The person with large hands will find it more advantageous to release the shutter with the uppermost joint of the finger. In this position the camera can be held very steady when operating the shutter. It is also advisable to rest the camera on the palm of the hand.

The important points to observe for each exposure are:

1. Adjust the lens aperture to the desired number.
2. Set the time of exposure by the shutter winding knob.
3. Focus the object to be taken with the distance meter.
4. After each exposure wind up the shutter immediately, so that the camera is always ready for use.

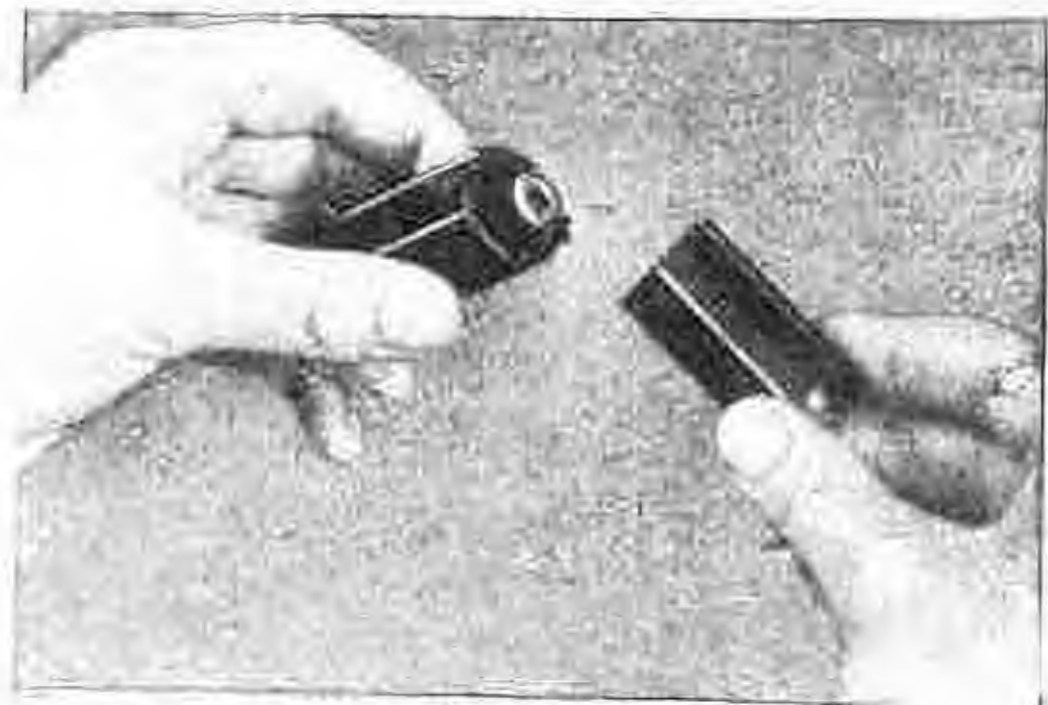




Loading the Contax with Cassettes

Loading the cassette with film

1. Press down the small nicked button and turn in direction of the arrow until the apertures in the two containers are over each other.
2. Draw the two containers apart.
3. To attach the film to the core of the cassette bend it slightly (emulsion side inwards) and push it through the slot in the latter. This makes it easy for the film to run out of the core when unwinding. Wind the film completely on to the core, and place the latter in the inner container of the cassette.
4. Slide the two containers together, with the end of the film outside.

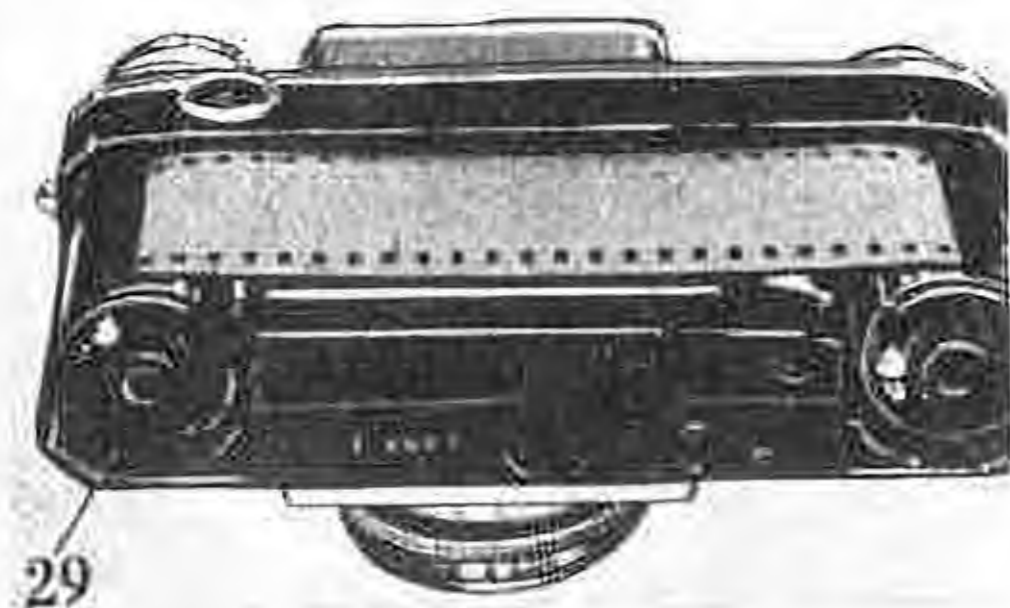


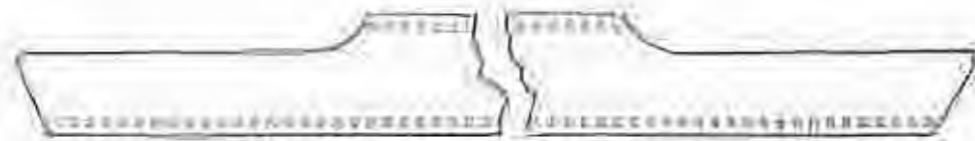


5. Close the cassette by giving half a turn in direction of the arrow. The word "zu" (= shut) should then be visible.

Loading the cassette into the camera and shutting the latter

Place the cassettes into the spool chambers so that the outer small projecting piece (29) lies in the channel cut in the spool chamber to receive it. (It is preferable to use two cassettes in the camera rather than one only.) When loading, the cassettes must always be shut—the word "zu" must be visible on them. When the camera back is replaced and the locking buttons (19) are turned, the action will open the two cassettes, and the film will run freely through the picture aperture and over the sprocket teeth.





35 mm film may be obtained in lengths of approximately 16 feet, 32 feet, 50 feet, and 82 feet, from which lengths may be cut and loaded into the camera. The ends of the film must be cut to the correct shape with the Zeiss Ikon cutting guide (No. 541/16) and a length of $62\frac{1}{2}$ inches will give 36 exposures in the Contax. Ready-cut lengths of film for 36 pictures are also on the market, and these may be loaded into the cassette in the dark-room.

Notice.

Newly loaded cassettes as well as cassettes with exposed film have to be kept covered in full daylight and should be carried about in their bakelite boxes provided for this purpose.

The Contax is also designed to be used with daylight loading spools in the same manner as a rollfilm camera. They are however unavailable at present.

Proxar lenses on Contax at stop $f/8$

Camera lens set to	Focus obtained with Proxar 1* Distance measured from the object to the supple- mentary lens	Focus obtained with Proxar 2*	Camera lens set to	Focus obtained with Proxar 1* Distance measured from the object to the supple- mentary lens	Focus obtained with Proxar 2*
∞	3' 2"	1' 8"	10	2' 5 $\frac{1}{4}$ "	1' 5"
100	3' 1 $\frac{1}{4}$ "	1' 7 $\frac{3}{4}$ "	9	2' 4 $\frac{1}{4}$ "	1' 4 $\frac{3}{4}$ "
60	3' 1 $\frac{1}{2}$ "	1' 7 $\frac{1}{2}$ "	8	2' 3 $\frac{1}{2}$ "	1' 4 $\frac{1}{2}$ "
50	3' 1 $\frac{1}{4}$ "	1' 7 $\frac{1}{2}$ "	7	2' 2 $\frac{1}{2}$ "	1' 4"
30	2' 10 $\frac{1}{2}$ "	1' 7"	6	2' 1"	1' 3 $\frac{1}{2}$ "
20	2' 9"	1' 6 $\frac{1}{2}$ "	5	1' 11 $\frac{1}{2}$ "	1' 3"
15	2' 7 $\frac{1}{2}$ "	1' 6"	4	1' 9 $\frac{1}{2}$ "	1' 1 $\frac{3}{4}$ "
12	2' 6 $\frac{1}{2}$ "	1' 5 $\frac{1}{2}$ "	3	1' 6 $\frac{1}{4}$ "	1' 3 $\frac{1}{4}$ "

* Push-on supplementaries are made for lenses of 27 and 42 mm diameter, and screw-in supplementaries for 25.5 and 40.5 mm diameter.