

www.orphancameras.com

This manual is for reference and historical purposes, all rights reserved.

This page is copyright© by M. Butkus, NJ.

This page may not be sold or distributed without the expressed permission of the producer

I have no connection with any camera company

On-line camera manual library

This is the full text and images from the manual. This may take 3 full minutes for the PDF file to download.

If you find this manual useful, how about a donation of \$3 to: M. Butkus, 29 Lake Ave., High Bridge, NJ 08829-1701 and send your e-mail address so I can thank you. Most other places would charge you \$7.50 for a electronic copy or \$18.00 for a hard to read Xerox copy.

This will allow me to continue to buy new manuals and pay their shipping costs.

It'll make you feel better, won't it?

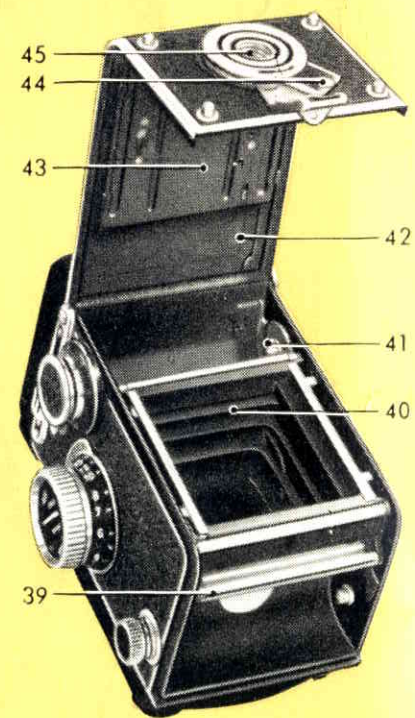
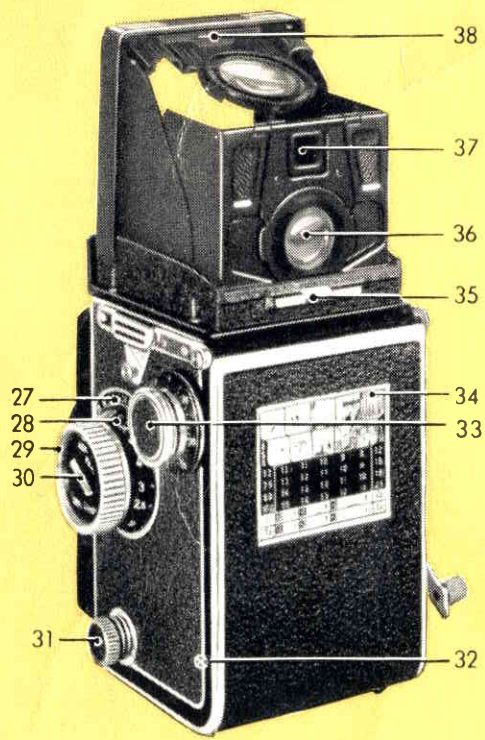
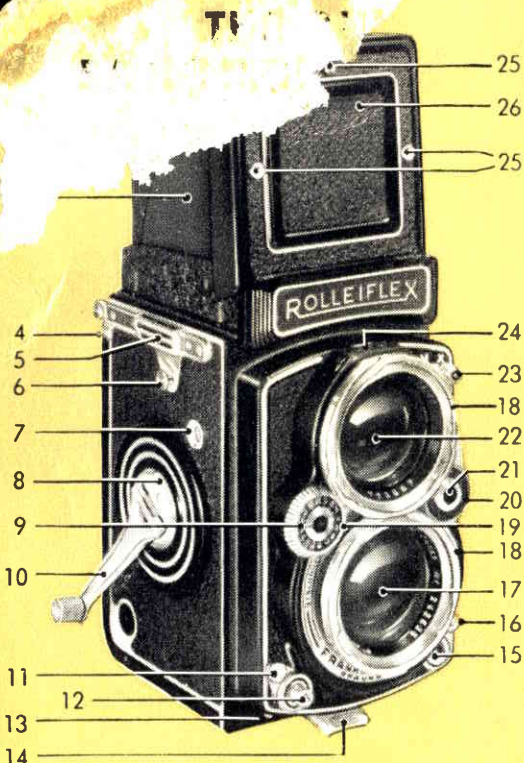
**If you use Pay Pal or wish to use your credit card,
click on the secure site on my main page.**



Rolleiflex

2.8D

I N P R A C T I C A L U S E



- 1 Focusing magnifier
- 2 Magnifier flap
- 3 Focusing hood
- 4 Locking clip for backhinge

- 5 Eyelet slot for neck strap
- 6 Neck strap button
- 7 Film frame counter window

- 8 Crank release (to re-tension shutter for double exposures)
- 9 Light value scale

- | | | | |
|----|---|----|--|
| 10 | Film advance and shutter tensioning crank | 29 | Focusing knob |
| 11 | Shutter release guard | 30 | Adjustable reminder of film type and speed |
| 12 | Shutter release with cable release socket | 31 | Film-spool knob (Rolleikin rewinding knob) |
| 13 | Locating sockets for panorama head | 32 | Focal or film plane (focusing distances measured from this line) |
| 14 | Back lock clip | 33 | Take-up spool knob (Rolleikin counter knob) |
| 15 | Flash cable socket | 34 | Exposure table |
| 16 | Locking device for flash cord plug | 35 | Retaining device for Rolleikin ground glass mask |
| 17 | Taking-lens | 36 | Magnifier for eye-level focusing |
| 18 | Double bayonet mount for lens accessories and lens hood | 37 | Rear sight for direct view finder |
| 19 | Shutter speed control | 38 | Magnifier lifting handle |
| 20 | Diaphragm control | 39 | Automatic film feeler mechanism rollers |
| 21 | Locking button | 40 | Anti-reflection baffles |
| 22 | Viewing-lens | 41 | Winding key for take-up spool |
| 23 | Synchro lever (also serves as cocking lever for self-timer) | 42 | Combination back for No. 120 (B 11 8) and 35 mm film |
| 24 | Indicator window for shutter and diaphragm settings | 43 | Adjustable film pressure plate |
| 25 | Pin-socket for Rolleikin direct view finder mask | 44 | Back locking lever |
| 26 | Direct view finder panel | 45 | Tripod socket |
| 27 | Depth of field scale | | |
| 28 | Focusing scale | | |

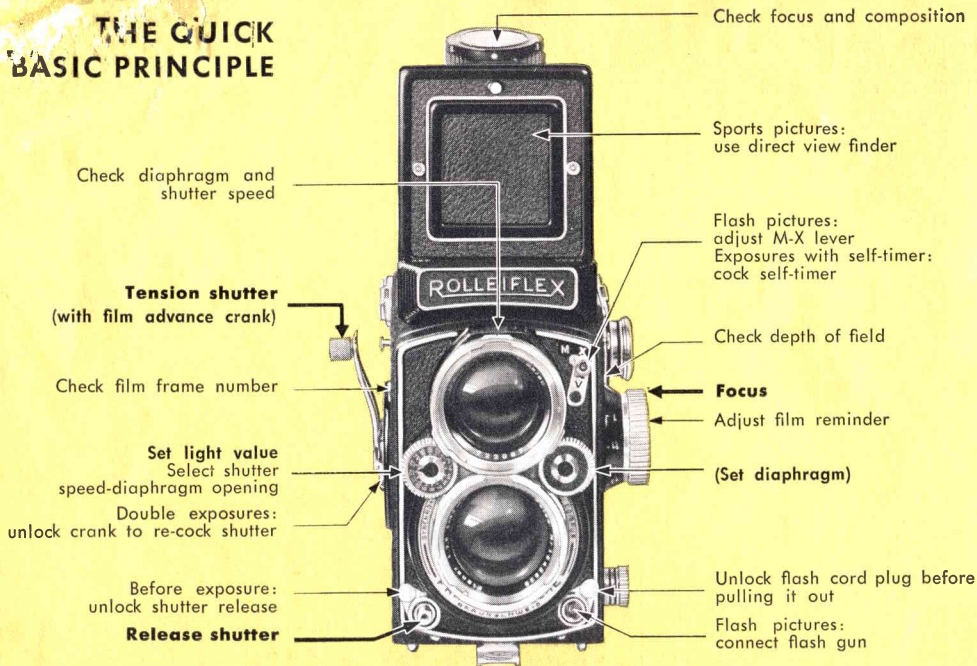
Equipped with the "high Xenotar or Zeiss Planar f: 2.8 D offers a new and higher degree of graphic performance. To the already well known and distinctive conveniences of the Automatic Rolleiflex are now added new constructional features, designed to meet the most exacting professional demands. Truly, a new Rollei leader has arrived.

The following pages contain a fully detailed description, with illustrations, of the operation of the camera. A careful reading should serve to speed the new Rollei owner on his way to acquiring an easy proficiency in the practical use of his camera. Helpful rules and hints are also included.

We hope that this book will serve to help open new paths so that the many possibilities of the Rolleiflex 2.8 D may be easily and fully explored.

**FRANKE & HEIDECKE
BRAUNSCHWEIG**

THE QUICK BASIC PRINCIPLE



TO LOCATE THE MOST IMPORTANT PARAGRAPHS QUICKLY

Page:

- 6 **I. A Brief Rolleiflex-Anatomy**
- 10 The Automatic Film-Transport Mechanism
- 12 **II. Rolleiflex 2.8 D in Operation**
- 12 Ever Ready Case
- 12 Neck Strap
- 12 Lens Cap
- 14 Holding the Camera
- 16 Focusing Hood
- 16 Focusing Magnifier
- 17 Direct View Finder
- 18 Focusing
- 18 Diaphragm
- 19 Depth of Field
- 24 Shutter Speed
- 24 Light Value
- 24 Shutter Tensioning
- 25 Releasing
- 26 Exposure and Light Value
- 29 Exposure Table
- 30 Self-Timer

Page:

- 31 **III. Flashlight Technique**
- 34 Flash Photography Tips
- 36 **IV. Loading and Film Transport**
- 36 Back
- 38 Inserting the Film Spool
- 40 Threading the Film Leader
- 40 Film Transport
- 43 Film Reminder
- 44 **V. Tips on Picture-Taking**
- 44 Landscapes
- 46 Portraits
- 47 Children
- 47 Animals
- 48 Snapshots
- 49 Sports
- 50 Theatre and Music-Hall
- 50 Night
- 51 Copying
- 52 Reflecting Surfaces

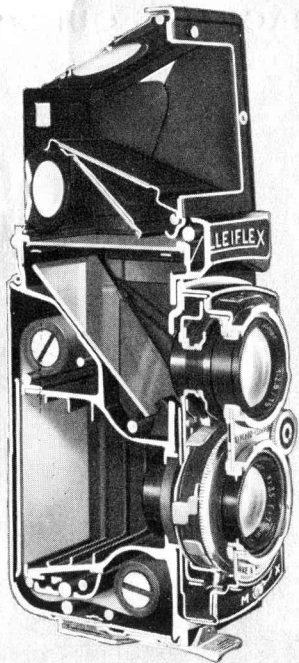
Page:

- 53 Plants
- 53 Color Pictures
- 54 Panoramas
- 55 Multiple Exposures
- 56 Micro Photography
- 56 Care of Camera
- 56 In Case of Damage to the Camera

Tables:

- 21 Depth of Field
- 23 Speed of Moving Objects and Shutter Speed
- 27 Light Values
- 28 Exposure Table
- 32 Flash-contact and Shutter Speed
- 43 Speed of Emulsions
- 57 Practical Accessories
- 58 Rollei Filters
- 59 Rolleinars

Important: Before attempting to use or handle the camera we urge you to read carefully pages 12, 16, 24 and 36.



THE ROLLEI PRINCIPLE

I. A BRIEF ROLLEIFLEX-ANATOMY

The Automatic Rolleiflex is a camera characterized above all by two special design features: the rigid construction of the twin lens reflex and the automatic film transport mechanism. These technical advantages do not form merely a basis for very high performance but at the same time contribute materially to the simplicity and ease of use for which the Rollei is justly famous.

Construction of the Twin Lens Reflex

In the Rolleiflex two separate cameras are joined in a twin-camera with a common sturdy die-cast body: the bottom half is the

taking-camera, in which the film is exposed, and the upper half is the

viewing-camera, which is designed on the mirror-reflex principle. Its special task is to make the focusing visible on the ground glass and to supply a control image essentially similar to that of the prospective picture.

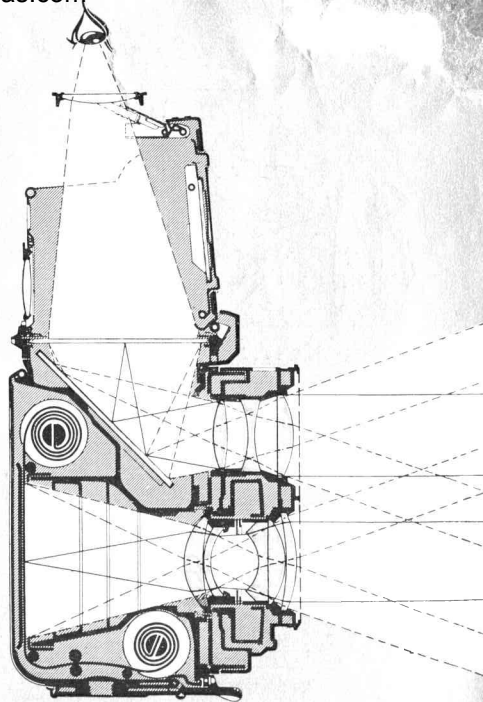
The image forming rays are transmitted by the fully open viewing lens, projected on to the ground glass

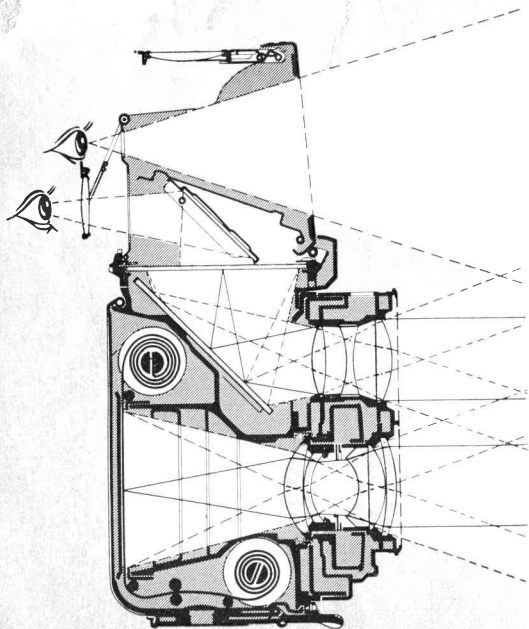
screen via the mirror and the result is a right-side-up ground glass image, in the full size of the original picture. This viewing image is visible at all times and every detail of composition and framing may be watched even during exposure.

The ground glass screen is ruled with a number of vertical and horizontal lines making it possible to detect errors, such as lines which converge but should be parallel or a slanting horizon, in time to notice and correct them. It is easy to straighten or level the camera by means of the lines on the ground glass screen.

Above all, the ground glass screen provides the means for **focusing the camera**. This is accomplished by rotating the focusing knob. Both lenses, which are inflexibly coupled to each other by means of a sturdy common front plate, are thereby adjusted simultaneously: a sharp viewing image therefore guarantees an equally sharp picture. Since the Rolleiflex is equipped with a fast viewing lens and an optically prepared ground glass screen, the viewing image is extremely bright and clear and focusing can be done very critically.

The **focusing hood**, which is designed for one-hand operation is kept in both open and closed positions by spring tension. It is equipped with a swinging **magnifier**, adjustable to the individual eye-sight.





It offers at approximately 2.5 times magnification of the entire ground glass image, a still more precise means for focusing the camera.

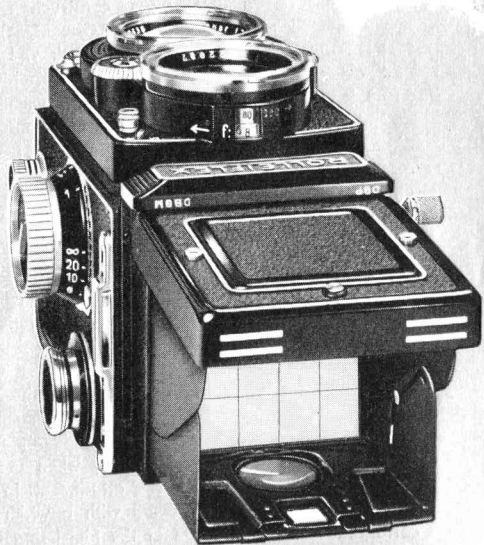
If the front panel of the focusing hood is pushed inward, it is transformed into a **direct view finder** through which the subject may be seen in natural size making it particularly easy to follow fast action. In this case it is still possible at all times to maintain control over focus: this is made possible by means of a second, adjustable magnifier in the back of the focusing hood, and a diagonally mounted mirror. A slight raising or lowering of the Rolleiflex is all that is required to alternate between the right-side-up open view in the direct finder, and the reversed center portion of the ground glass focusing image. The fact that the two finder openings are located so close together, enables quick framing of the subject after focusing. The usefulness of the open direct view finder is thereby enhanced for sports pictures.

Focusing the front lens panel throughout the range from ∞ (infinity) — 40 inches (distances measured from the focal or film plane to the subject) is accomplished by nearly one full turn of the focusing knob. The special design of the focusing mechanism (a camdrive based on the principle of the archimedic spiral) insures uniform movement of the lens panel in both directions without play or backlash.

Tied in with the movement of the lenses is a simple sliding mechanism, located beneath the ground glass, providing completely automatic **parallax compensation**. Consequently, the final picture is always framed exactly as originally viewed on the ground glass screen. Similarly complete control is had even when using supplementary Rolleinar lenses for close-up work because of the Rolleipar which is built into the Heidosmat-Rolleinar.

The **Synchro-Compur Shutter** is set to the desired exposure either by means of the light value scale or through independent adjustment of the shutter speed and diaphragm controls. For this purpose the two knurled control wheels are used. The selected exposure is maintained because of the automatic interlocking device (locking button). The shutter speed and diaphragm opening may be changed at will throughout the available working range merely by moving one control wheel, without affecting the previously chosen exposure. Scale setting figures for the shutter speed and diaphragm opening appear in combination in the single peep window located just in front of the ground glass screen.

Since the two **lenses** are of identical focal length ($f = 80$ mm, picture angle [across diagonal] 53°) it follows that the image in both sections of the camera will always be critically focused on the same



portion of the subject simultaneously. The f:2.8 taking lens is a five glass construction with two cemented elements (modified Gauss-type) and features outstanding correction for black and white and color pictures, while the viewing-Heidosmat f:2.8 lens meets with the special requirements for critical ground glass screen focusing. Both lenses are treated with abrasion resistant coating. The bayonet receptacles circling the mounts are intended for attaching the lens hood and supplementary optical accessories, which in this way will be held in optically correct position and form a solid unit with the camera.

The removable **combination back** is attached to the camera by means of two hinges with automatic lock and at the bottom it contains the tripod socket and the safety back lock. Its adaptability for the two picture sizes $2\frac{1}{4} \times 2\frac{1}{4}$ " and 24×36 mm is the result of the adjustable film pressure plate which can be set for 120 (B II 8)-film (with paper backing), or for 35 mm film (without paper backing) when used in conjunction with the Rolleikin 2 C attachment. In both cases a film channel is created with a width that corresponds to the thickness of the film being used. Thus the film can be properly held in the focal plane, and also can slide through without undue friction when advanced.

The Automatic Film Transport Mechanism

The constant readiness of the Rolleiflex, a natural result of its advantageous twin-lens design, is further enhanced by the automatic film transport mechanism. The quick acting crank coupled with an automatic gear mechanism performs five important functions with each pendulum swing:

1. Advances film to next frame
2. Advances film frame counter
3. Tensions the shutter
4. Releases shutter lock
5. Engages film lock.

The shutter release and film advance crank are locked and unlocked alternately, thereby offering full insurance against double exposures or skipped frames.

For intentional double exposures the crank must be unlocked at the crank base: Turning the crank a full turn to the left cocks the shutter again without advancing the film.

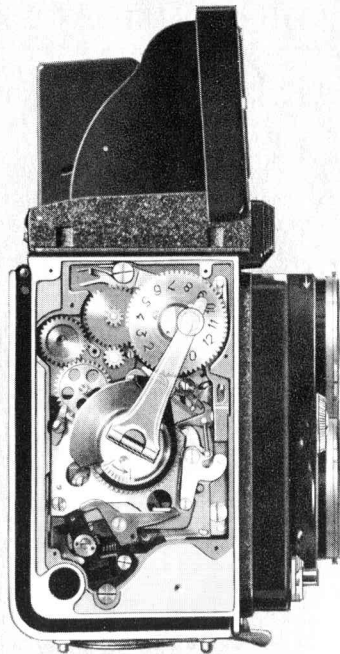
Automatic stops limit the extent of crank swing. With the increasing thickness of the film on the take-up spool the crank swing decreases from $\frac{3}{4}$ of a turn in the beginning to just under $\frac{1}{2}$ turn at the end

of the roll. Thus the film is always advanced exactly one full frame. -

In addition to this, each swing of the crank automatically brings up the next number in the film counter window.

The positioning of the film so that the first frame is correctly placed also is accomplished automatically. After inserting the full film spool in the bottom chamber, the paper leader must be passed through the two feeler rollers and drawn up on to the empty take-up spool. The feeler rollers will allow uninterrupted passage of the thin backing paper. Only when the increased thickness (at the point where film joins paper) goes through the rollers, does the automatic tripping mechanism allow the counter to go into action. The crank continues briefly and then stops, firmly — the film has reached the position for exposure No.1. The pressure of the rollers is released immediately after the passage of the film's beginning so that the rest of the roll will slip through freely.

After the twelfth exposure, the counter mechanism automatically disengages and the crank turns freely, permitting the complete winding up of the fully exposed film.



II. THE ROLLEIFLEX 2.8 D IN OPERATION

The Ever Ready Case

deserves mention here since it is so often used with the camera.

To Open: lift the top by grasping the snap catch buttons at the rear and fold forward and down ①.

To Close: pull the top over the camera and push down to engage the snaps. (Simultaneous folding of the focusing hood is also possible with this movement.) Always return focusing knob to infinity position since the extended front may otherwise interfere with closing the case.

To Remove Camera From Case: pull up the metal clips located at the top of the sides of the case ②. Lift the crank a little way from the case, spread the sides and lift the camera forward and out ③.

Putting the Camera in the Case: pull up the clips and spread the case apart; then slip the crank through the large opening from the inside and lower the camera backwards into the case. Push the clips down through the chrome plated strap holder slots.

The Neck Strap

In order to be able to carry the camera slung from the neck without an ever ready case, a special black leather strap is available.

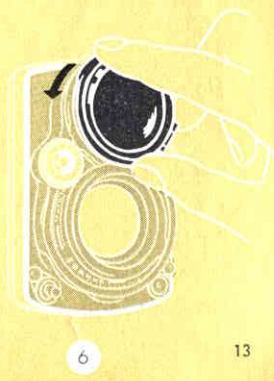
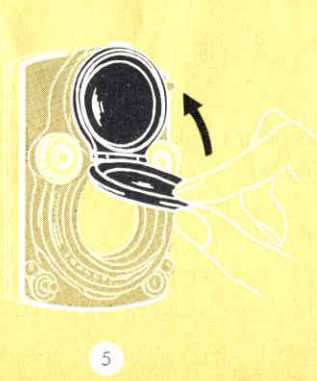
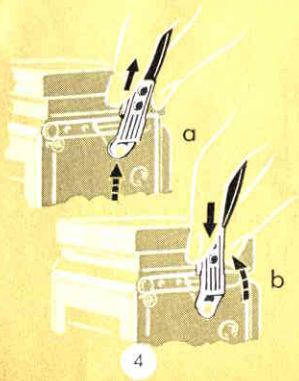
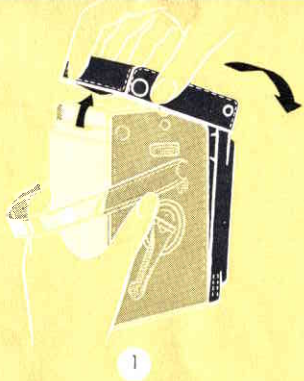
How to fasten it: hook the metal loop of the leather strap on the strap holder button ④a, pull locking slide up and push it into the strap holder slot as far as it goes ④b.

The Lens Cap

is foldable. The upper part is attached in front of the viewing lens by bayonet mounting and the lower part through friction fit.

Removal of Lens Cap: lift the lower part by the tab at the lower edge and fold it against the upper part ⑤. Remove cap from the bayonet by turning it counter-clockwise $\frac{1}{4}$ of a turn ⑥.

Attaching Lens Cap: fit the folded cap into the bayonet of the viewing lens — hinge pointing to the right (focusing knob) — and fasten it with a $\frac{1}{4}$ turn clockwise. Fold down the lower part and snap into place.





1



2



3

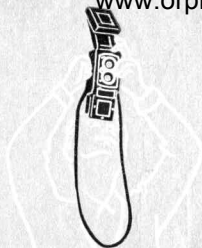
Holding the Camera

Basic rule: camera hanging around the neck with taut strap and the camera held firmly by both hands. The right hand grasps the camera at the bottom, the index finger on the shutter release, the thumb supporting the uplifted crank (quick handling of the film transport: p. 42). The left hand does the focus-

ing ①. In this position diaphragm and shutter controls may be operated comfortably with two fingers. **The Carrying Strap** is adjusted to a comfortable length, so that the camera may be carried on the shoulder when not in use. In order that the shutter may be released with taut strap to avoid camera movement, loop the strap around the right hand, thus shortening it to achieve normal viewing



4



5



6



7

distance ②. Further shortening of the strap when using the magnifier can easily be effected by making use of the left hand in the same way ③.

Caution: a wrong or uncomfortable "grip" may cause you to lift inadvertently the hanging top of the ever ready case.

In order to assure solid contact when working with a tripod, do not use the ever ready case.

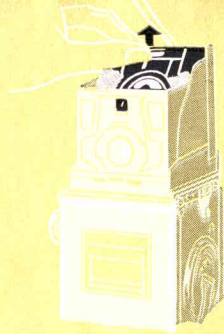
Waist-level or eye-level positions for the camera are considered normal for most pictures. The extremely flexible Rollei, however, readily permits exposures at or near floor level, overhead, shooting straight up or down, and occasionally, surprise snaps "around the corner". The illustrations ④-⑦ show a few possibilities for such pictures with the camera in different positions.



1



2



3

Focusing Hood

To Open: lift the rear edge of the focusing hood cover — Spring tension keeps it open ①.

To Close: pull back focusing hood ②.

The push-button at the rear of the focusing hood serves to hold the Rolleikin ground glass screen mask or the Rolleigrid lens.

Focusing Magnifier

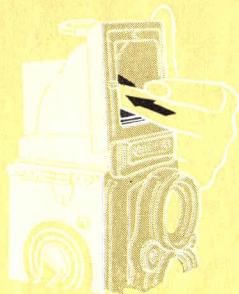
To Raise: pull release lever in the open focusing hood upwards — the magnifier springs into position ③.

To Lower (before closing the focusing hood); push down magnifier flap by pressure on the side of the frame until it snaps into position ④.

Use of the Magnifier: use the magnifier as close to the eye as possible.



4



5



6

Direct View Finder

To Open (after raising the magnifier): push the direct view finder flap inwards until it snaps into place ⑤.

To Close: depress magnifier flap slightly — the direct view finder panel immediately returns to normal position ⑥.

The subject is viewed at eye-level through the direct view finder and focusing may be checked by means of the second magnifier.

Focusing Magnifiers for Added Convenience

Both magnifiers can also be focused by far-sighted persons, but not wearing glasses, by tilting magnifiers out of their normal position: grasp magnifiers at the sides, lift and focus critically on the ground glass screen lines.



Focusing

Focus the Rolleiflex by turning the focusing knob, at the same time critically observing the sharpness of the ground glass screen image. The footage scale serves also to indicate the depth of field, a matter which need not concern you too much at first.

The magnifier facilitates the most critical focusing. Important:

Focus so that the greatest degree of sharpness prevails at main subject distance.

The Diaphragm

The diaphragm controls the amount of light passing through the lens. It has a double effect:

Stopping down

increases the depth of field and
reduces the effective amount of light.

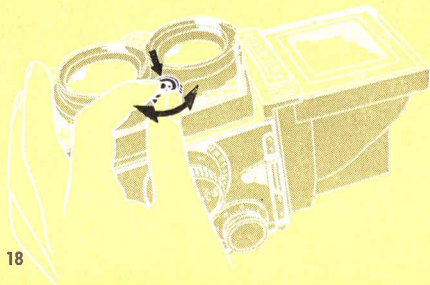
Therefore the exposure time must be increased correspondingly when using a smaller diaphragm opening. This is done automatically in the range between 1/500 th — 1 sec. by means of the speed-diaphragm coupling (see page 26). A recalculation is necessary only when using "B", for time exposures. The table immediately following gives correct relative times for use in this case.

Diaphragm	2.8	4	5.6	8	11	16	22
Exposure	1	2	4	8	16	32	64

Notice that each succeeding smaller stop requires exactly double the exposure of the preceding one (page 26).

The diaphragm scale itself is easily seen, black figures, in the peep window above the viewing lens.

Adjusting the diaphragm: depress locking button and turn control wheel.



Depth of Field

Most picture subjects require that acceptable sharpness extend somewhat before and behind the exact distance focused on. Landscapes, for instance, require considerable "depth of field". Two factors influence the extent of the sharp zone: distance actually focused on and diaphragm opening.

In contrast to close-up focusing the sharp zone is many times greater when the lens is focused on long distance :

1. The depth of field increases with the taking distance.

In any case, however, the sharp zone of the picture may be increased considerably by stopping down the diaphragm:

2. The depth of field increases when stopping down.

As a practical rule the second alternative is preferable and only in emergency cases should the taking distance be increased because of loss in image size.

The extent of the depth of field at any distance may be read off on the focusing knob.



Depth of Field Scale

On and next to the focusing knob two scales are visible: the movable focusing scale with figures indicating feet and the fixed depth of field scale with the diaphragm values. The diaphragm stops 4—22 are arranged in pairs symmetrically on both sides of the central focusing point ▼. The 5.6 positions are indicated by dots.

The center of each footage figure indicates the correct setting for that distance.



1



2

In Practice

After focusing, the near and far limits of the depth of field may be read off directly below the pair of figures indicating the diaphragm opening chosen.

Sharp focus extends throughout the area bracketed by the marks representing the selected diaphragm opening.

1. Example: focusing to 12 ft with diaphragm opening 8 gives a depth of field 10 ft to 15 ft approx. Focusing to 12 ft with diaphragm opening $f : 22$ gives on the other hand a depth of field from 7.5 ft to 40 ft approx. (Stopping down improves the depth of field!) Considerable stopping down necessitates greatly increased exposure time. To obtain depth of field with the largest possible diaphragm opening, a different method of focusing must be employed:

2. Example: the subject requires sharpness from 8 ft to 15 ft. (Other distances, if unknown, can be read directly off the scale after focusing separately to the limits required.) Procedure: the focusing knob is turned until both footage values are located opposite identical diaphragm openings, and in this way the most favorable diaphragm opening is obtained, in this case $f : 11$.

Depth of Field Table (distance in feet)

Diaphragm		2.8	4	5.6	8	11	16	22	
Taking distance (in feet)	∞	187' 4" — ∞	131' 3" — ∞	93' 10" — ∞	65' 7" — ∞	47' 9" — ∞	32' 10" — ∞	23' 10" — ∞	16' 5" — ∞
	60'	43' 11" — 85' 4"	41' 4" — 109' 9"	36' 10" — 164' 4"	31' 8" — 690' 7"	26' 10" — ∞	21' 6" — ∞	17' 4 1/2" — ∞	13' 2" — ∞
	30'	25' 11" — 35' 7"	24' 6" — 38' 8"	22' 11" — 43' 9"	20' 11" — 55' 6"	18' 7 1/4" — 78' 7"	15' 11" — 312' 8"	13' 6 1/2" — ∞	10' 11" — ∞
	20'	18' 1 1/2" — 22' 4"	17' 5" — 23' 6"	16' 7" — 25' 3"	15' 5 1/4" — 28' 5 1/2"	14' 3" — 33' 10 1/2"	12' 7" — 49' 9 1/2"	11' 1" — 114' 11"	9' 2 1/2" — 197' 5"
	15'	13' 11" — 16' 3"	13' 6" — 16' 10 1/2"	12' 12" — 17' 9"	12' 3 1/2" — 19' 3 1/2"	11' 6 1/2" — 21' 7"	10' 5" — 27'	9' 4 1/2" — 38' 10"	8' 1 1/4" — 145' 7"
	12'	11' 4" — 12' 9 1/2"	11' 1 1/2" — 13' 2"	10' 8 1/2" — 13' 8"	10' 3" — 14' 6 1/2"	9' 8 1/4" — 15' 10"	8' 11" — 18' 7"	7' 10 3/4" — 23' 5"	7' 1 1/4" — 41' 5"
	10'	9' 6 1/4" — 10' 6 1/2"	9' 4" — 10' 9 1/4"	9' 1" — 11' 1"	8' 9" — 11' 8 1/2"	8' 4 1/4" — 12' 6"	7' 9 1/4" — 14' 1 1/4"	7' 2 1/8" — 16' 8 1/2"	6' 4 1/2" — 24' 3"
	8'	7' 8 1/2" — 8' 4"	7' 6 3/4" — 8' 5 3/4"	7' 5" — 8' 8 1/4"	7' 2 1/4" — 9' 1 1/4"	6' 11" — 9' 5 3/4"	6' 6 1/4" — 10' 8 1/2"	6' 1 1/4" — 11' 8 1/2"	5' 6 1/4" — 14' 11"
	7'	6' 9 1/4" — 7' 3"	6' 7 7/8" — 7' 4 3/8"	6' 6 5/8" — 7' 6 1/4"	6' 4 1/2" — 7' 9 1/4"	6' 2" — 8' 1 1/4"	5' 10 1/8" — 8' 8 7/8"	5' 6 1/8" — 9' 7 3/4"	5' 3/8" — 11' 8 1/2"
	6'	5' 10" — 6' 2 1/4"	5' 9 1/8" — 6' 3 1/8"	5' 8" — 6' 4 1/2"	5' 6 3/8" — 6' 6 1/2"	5' 4 5/8" — 6' 9 3/8"	5' 1 5/8" — 7' 2 1/2"	4' 10 5/8" — 7' 9 3/4"	4' 6 1/8" — 9' 1"
	5'	4' 10 5/8" — 5' 1 1/2"	4' 10" — 5' 2 1/8"	4' 9 1/4" — 5' 3"	4' 8 1/8" — 5' 4 3/8"	4' 6 7/8" — 5' 6 1/4"	4' 4 7/8" — 5' 9 5/8"	4' 2 5/8" — 6' 2 1/8"	3' 11 1/4" — 6' 11 1/8"
	4'	3' 11 1/8" — 4' 7 7/8"	3' 10 3/4" — 4' 1 1/4"	3' 10 1/4" — 4' 1 3/4"	3' 9 3/8" — 4' 2 5/8"	3' 8 3/4" — 4' 3 3/4"	3' 7 1/2" — 4' 5 5/8"	3' 6" — 4' 8 1/8"	3' 3 7/8" — 5' 1"
3.5'	3' 5 3/8" — 3' 6 3/4"	3' 5" — 3' 7"	3' 4 3/4" — 3' 7 3/8"	3' 4 1/4" — 3' 8"	3' 3 3/8" — 3' 8 3/4"	3' 2 5/8" — 3' 10 1/8"	3' 1 1/2" — 4'	2' 11 3/4" — 4' 3 3/8"	
Diaphragm		2.8	4	5.6	8	11	16	22	

The Depth of Field Table

Since the sharp zone in the picture does not end abruptly, but gradually changes to something less sharp, it is generally sufficient to read the depth of field in round figures. With this in mind the scale on the focusing knob has been calibrated for quick and practical use.

If exact figures are desired, these may be found in the table on page 21.

For normal use the upper of the double row of diaphragm figures is used as in the case when an enlargement is to be made later from the entire $2\frac{1}{4} \times 2\frac{1}{4}$ negative. (These diaphragm openings are based on a circle of confusion of $1/1400$ of the focal length.)

On the other hand if enlargements are to be made from a small portion of the negative (or Rolleikin negatives), it is advisable to go by the lower row of diaphragm openings (circle of confusion = $f/2000$).

Explanation: the degree of sharpness required from a negative is exclusively dependent on the magnification of the prospective enlargement and its subsequent viewing distance.

In order to obtain a correct perspective impression at 10" (a comfortable viewing distance) a whole Rollei negative would have to be enlarged $3.1 \times$ to $7\frac{1}{8} \times 7\frac{1}{8}$ ". Enlargements of this size, viewed at 10", determine the basis for the minimum acceptable sharpness. With this in mind the size of the circle of confusion is computed and the limits of the depth of field ascertained. Negatives made in this way will permit enlargements also to larger sizes, while still retaining the same impression of sharpness. This is because the viewing distance is always correspondingly increased.

With enlargements from portions of Rollei negatives or from Rolleikin negatives, the requirements with regard to sharpness are more critical. In this case depth of field is calculated using a smaller circle of confusion. In practical use the required depth is obtained through the use of a smaller diaphragm opening.

The effectiveness of the scale on the camera itself may be extended in the same manner merely by using the next smaller diaphragm opening than the one indicated for the desired zone.

If enlargements of very great size are to be made use a diaphragm opening two stops smaller than the one indicated.

Speed of Moving Subjects and Shutter Speeds

		Miles per hour approximately															
		3 mph		6 mph		12 mph		30 mph		60 mph		120 mph					
Example:		Pedestrians		Runners Moving air		Bicycles Windy		Light Athletics Stormy Surf		Automobiles Railway Trains Racing		Motor Racing					
Distance (yards)	40		1/30	1/60	1/30	1/60	1/125	1/60	1/125	1/250	1/125	1/250	1/500	1/250	1/500	1/500	50
	15	1/30	1/60	1/125	1/60	1/125	1/250	1/125	1/250	1/500	1/250	1/500		1/500			25
	8	1/60	1/125	1/250	1/125	1/250	1/500	1/250	1/500		1/500						12
	4	1/125	1/250	1/500	1/250	1/500		1/500									6
		Distance (yards)															

Moving Objects require short shutter speeds in order to be reproduced sharply. For this purpose the table contains computed minimum values, depending on the factors: speed, distance and direction.

Taking distance: the yard-column on the left stands for sufficient sharpness (f/1400), the yard-column on the right for increased sharpness (f/2000). In spite of these normally correct figures,

it is often possible in actual photography to use longer shutter speeds. This is because the eye interprets slight unsharpness as giving an added impression of speed.

Long arrow = direction movement.

A short arrow = taking direction (→ up to 10°, ↗ up to 30° and ↑ up to 90° to the direction of movement).

Hand-Held Pictures:					Tripod Pictures:					Time Exposure
Fast Speeds					Slow Speeds					
1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1 sec	B

The Shutter Speed

The Synchro-Compur shutter is a between-the-lens shutter operating at the above designated speeds. In-between speeds are not possible. 1/60 th sec. represents a most commonly used instantaneous shutter speed which minimizes risk of camera movement. Shutter speeds longer than 1/30 th sec. are generally safe only with a tripod. To avoid unsharpness due to subject movement, see table page 23.

Shutter speed values appear in the peep window as red figures — read them as denominators of the fraction values, i. e. 30 = 1/30 th sec. Selected scale values will resist accidental displacement through click stops.

Setting the shutter speed: depress locking button on the diaphragm wheel (1b) and turn shutter speed wheel (1a).

The light value

is set on the appropriate scale, located on the shutter speed control wheel. See page 26 for information on use of light values.

Setting the light value: depress locking button on the diaphragm wheel and turn shutter speed wheel (1a) or diaphragm wheel (1b).

Shutter speed-diaphragm opening change, while retaining same light value: turn shutter speed wheel only (1a).

Shutter tensioning

Tensioning together with film advance is automatic through crank action (page 40). Tensioning without film advance — possible only with roll-film loaded camera — for intentional double or multiple exposures:

Move release ring at base of crank in direction of arrow and then turn crank through one complete backward revolution until it stops (2).

Tensioning with Rolleikin: automatic through crank action. Double exposures not possible.

Tensioning with Plate Adapter: swing crank normally, through 180°, and back to stop. Repeated tensioning for multiple exposures possible.



Releasing Shutter

The **body shutter release** is locked when the safety guard is in the upper position and unlocked when it is swung down (180°) to the lower position. When the release button is pressed, a slight but distinct resistance is felt and then the shutter is immediately actuated. — The depressed release button may also be locked in this position for long time exposures. — **A cable release** may be screwed into the release button and can be operated whether button is locked or not.

Instantaneous exposures: with release guard in lowered position, press release button gently until it stops **(3a)**.

Time exposures: set shutter to "B", unlock release button, press and hold for duration of exposure. To reduce possibility of camera movement, use a locking type cable release.

Long Time exposures: set shutter to "B", depress release slightly (not enough to open shutter) and swing guard to lock it in this position **(3b)**. Exposure: press release completely **(3c)** and terminate by swinging release guard downward **(3d)**.

Brightness →

Light value

Shutter Speed

← Subject Motion (Page 23)

Diaphragm Opening

← Depth of Field (Page 19)

Exposure and Light Value

Correct **exposure** is dependent upon existing illumination (more exactly: subject brightness). The **light value** indicates the correct exposure. A reading is taken from the exposure table or a photo-electric exposure meter set for the proper film speed and then transposed to the light value scale of the camera. This sets the camera for the correct or desired exposure.

Through the interlocking mechanism both shutter speed and diaphragm scales are positively coupled. The combination may therefore be altered at will within the available working range without affecting the relationship between the two scales, or the exposure. The most suitable combination, according to the subject's requirements for depth-of-field sharpness (see table), may be selected without the need for further recalculation. This adjustment is made merely by turning the shutter speed control wheel alone (page 24).

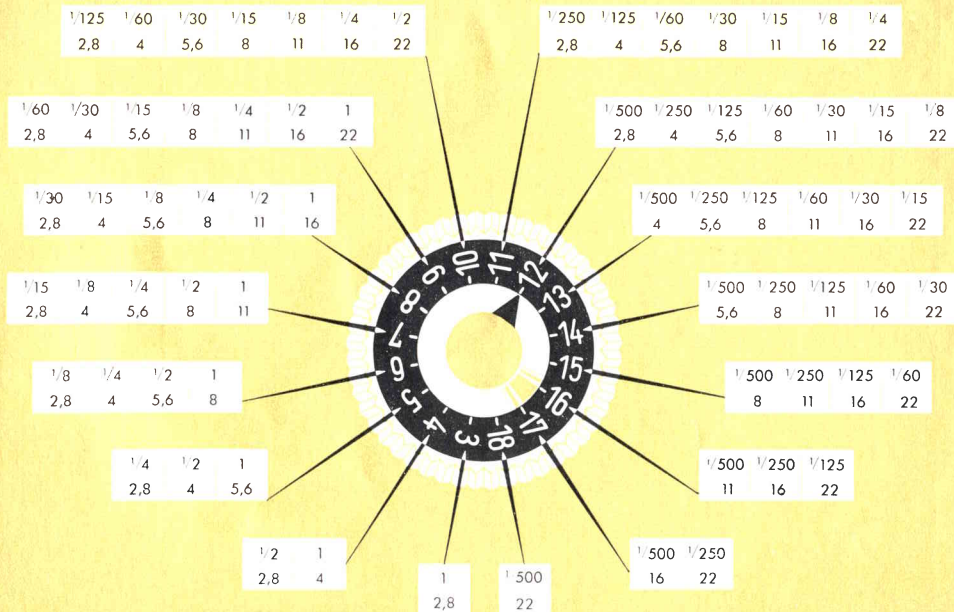
The light value scale has been calculated in such a way that each smaller number gives twice the exposure. It is thus very simple to compensate for changes which occur in lighting (page 29), changes due to difference in film sensitivity (page 43) or when increased exposure is required when using filters (page 58).

It is also possible to set for **intermediate values** on the light value scale. This always results in intermediate diaphragm opening settings, since in-between shutter speeds cannot be used.

If the "B" setting appears when choosing the shutter speed-diaphragm combination it will indicate that double the next previous setting is required, or 2 secs. Exposure time is doubled for each smaller diaphragm opening. For example, light value 6:

Shutter speed	1/8	1/4	1/2	1	(2)	(4)	(8)
Diaphragm opening	2.8	4	5.6	8	11	16	22

The light values with the adjustable speed-diaphragm combinations



A

B

C

D

E

Explanations
of the Picture
Examples:

A
High mountains
(snow) without
foreground
Open beach

B
Sport scenes
Bright streets
and squares,
open landscapes

C
Landscapes with
foreground
Groups in open air

D
Groups in shade
Street scenes with
shade

E
Groups under trees,
lightly shaded
Groups in glass-
roofed halls



The Exposure Table

Subject brightness is easily judged and classified by means of the five standard lighting conditions represented by two illustrations each at the top of the table.

Film speed is indicated at the left by ASA figures and at the right by $1/10^\circ$ DIN values (see page 43).

Light value is found where brightness and film speed columns cross.

Light value adjustment, due to overcast sky or when sun is lower in the sky, is made by use of lower scale. Upper scale: full sunshine — lower scale: overcast sky. The length and intensity of your own body's shadow will give some idea of light conditions. The ability to estimate and choose the correct light values for various lighting conditions and times of day will soon come when you begin working on sunny and cloudy days.

Example: Color film 25 ASA ($15/10^\circ$ DIN), landscape with foreground, sunny, noontime (shadows short, no light value adjustment): light value 11. Available speed-diaphragm combinations: $1/250$ — $f: 2.8$, $1/125$ — $f: 4$, etc. Same subject in the afternoon, longer shadows, would require adjusted value, perhaps $11 - 1 = 10$.

The **exposure table** with its light values has been designed for use with most often met with lighting conditions and serves to prevent serious errors. In difficult cases or for greatest accuracy, it is advisable to make use of a photo-electric exposure meter. If the meter is not calibrated for light values, shutter speed and diaphragm scales are set separately. Thus the correct light value will be indirectly ascertained and changes to other combinations may be easily and quickly made in the previously described manner.

General Exposure Rule: It is not always possible to pair a sufficiently fast shutter speed (to minimize effect of subject motion) with a small diaphragm opening (for greater depth of field). Obviously a compromise is required and it would be well to remember that under-exposure results in hopelessly lost shadow detail, whereas over-exposure may be compensated for to a great extent by proper processing. Therefore: a good general rule for exposure:

Always expose for the **shadows**,
rather a bit **more** than too little!