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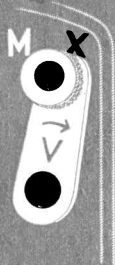
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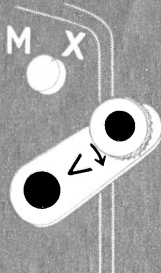
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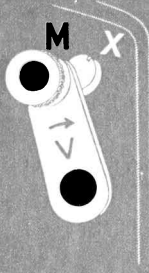
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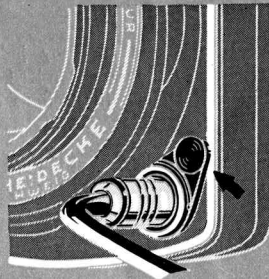
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4

## Self-timer

The Synchro-lever (page 31) serves also as the cocking lever for the self-timer. In self-timer shots a delay of approximately ten seconds occurs between release of the shutter and the actual exposure. Any shutter speed, excepting B, from 1 to 1/500th sec. may be used. Cocking of the self-timer mechanism is possible only after the shutter itself has been cocked, and is accomplished by swinging the Synchro lever from position X ① in the direction of the arrow until it stops ②. To move the

lever from M to X, pull out the spring loaded small knurled knob. Shorter delays than 10 seconds are possible by merely moving the lever only part of the way. Upon release of the shutter the lever immediately springs back to X position ①, indicating that the mechanism has gone into action. This also serves to show that the X setting is the only possible one to use when making flash self-timer shots (see 8 page 35).

**To Use:** First tension shutter (crank), then cock self-timer. Release shutter as usual.

### III. FLASHLIGHT TECHNIQUE

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In modern flashlight technique the camera shutter takes over the task of firing the bulb electrically at the right moment. In this way instantaneous flash exposures are possible with a hand-held camera.

The Synchro-Compur shutter in the Rolleiflex is, for this purpose, equipped with electrical contact. The contact may be adjusted to the required delay of the flash lamps by means of the Synchro-lever:

The **X-contact** ① presents the simplest type of contact (zero-delay). It is required for zero-delay electronic flash units (without relay) and a few flash lamps.

The **M-contact** ③ means full synchronization. It works with most flash lamps and the electrically fired flash powder (capsule flash). The most important advantage of the M-contact: with certain flash lamps it may be employed at the shorter shutter speeds even including 1/500th sec. Due to the full synchronization the shutter is always open when the flash emitted by the lamp reaches its peak intensity.

Thus all types of instantaneous flash exposures are possible with the Rolleiflex.

The selection of flash lamp-type depends on the light output required by the subject. Many makes are available in three groups (normal, medium and high light output). The selection is dependent on the taking conditions, especially as to whether a room of shallow or great depth is to be illuminated.




Selection of M-X lever position, applicable speed range and exposures can be learned from the instructions of the different flash light products. For the best known makes the table on page 32 contains the necessary information and the permissible shutter speeds.

**Connecting Flash Unit:** push flash cord plug into the socket on the camera.

**Setting for desired flash position:** Pull out the small knurled knob somewhat and swing lever to either X ① or M ③. The knurled knob will spring back, locking the lever in the chosen position.

**Removing Flash Cord Plug:** unlock by swinging locking lever ④.

32 **Flash Contact and Permissible Shutter Speeds**

FLASH LIGHT SOURCE		Contact	Shutter Speed:			
Make	Type		Fastest	Recommended	Slowest	
<b>I. Electronic Flash</b>			1/500	<b>1/250</b>	1	
	Without Relay	X				
II. Flash Lamps	General Electric Westinghouse	SM (1/200)	X			
	Sylvania	SF (1/200)		1/60	<b>1/60</b>	1
	West, Japan	SS (1/200)				
	Osram	F0 (1/100) F1, F2 (1/50) XP, X0 (1/200)	X	1/30	<b>1/30</b>	1
	West, Japan	12 (1/100)				
	Osram	S2	M	1/500	<b>1/30</b>	1
		S0, S1				
	Philips (Mazda)	PF 3 N, PF 14, PF 25, PF 56	M			
	General Electric Westinghouse	5, 11, 22		1/500	<b>1/60</b>	1
	West, Japan	0, 3, 5, 11, 22				
	Sylvania	Press 25, 40, 0, Bantam 8				
		2	M	1/125	<b>1/60</b>	1
	Philips (Mazda)	PF 110	M			
	General Electric Westinghouse	50		1/60	<b>1/30</b>	1
Sylvania	3					
General Electric Westinghouse West, Japan	6, 31	M	1/250	<b>1/30</b>	1	
Sylvania	FP 26, 2A					
<b>III. Capsule Flash</b>		M	1/125	<b>1/30</b>	1	
	Average					

## Explanation of the Table

The "**Contact**" column indicates the correct setting of the M-X lever for each lamp type.

The "**Shutter Speed**" column shows the permissible speed range:

**Center:** the recommended shutter speed includes practically the entire light output of the flash lamp. This assures the maximum illumination as well as the smallest diaphragm (for greater depth of field). The following applies as a general rule:

Use the standard recommended speed together with the correct setting of the M-X lever for the lamp in use.

**Left:** the fastest speed indicates the limit to which the shutter may be set. For lively action or sports subjects, the faster speeds are employed.

**Right:** the exposure time may be increased to the slowest speed (1 second or even time exposures), if, in addition to the flash, it is desired to make use of existing light. In such cases the total amount

of light from all sources must be considered in choosing the diaphragm opening.

**The Effective Exposure Time** (as indicated in the table by means of colored ink) is not in each case identical to the shutter speed, but depends on the portion of the flash lamp light output utilized:

**With X-Contact** the duration of the flash itself is actually shorter than any of the permissible shutter speeds. Therefore, the duration of the flash (figure shown in parenthesis) is the effective appropriate exposure time and the diaphragm opening must be the same regardless of the shutter speed selected.

**With M-Contact** the shutter speeds, from "fastest" to "recommended" fall within the duration of the flash: they, therefore, represent the actual exposure time and if the shutter speed is increased, the diaphragm must be opened accordingly. Only when slower shutter speeds are employed is the fully utilized light output equal to the actual exposure time, and this is the same as the recommended speed.

The illustration should make the utilization of the available flash light still more obvious: the white symbols represent the flash, and their size, the utilized light at the shutter speed employed.

## How the Flash Contacts Work

The information given thus far is entirely sufficient for normal purposes and is adequately supplemented by the exposure tables usually furnished by the various flash lamp manufacturers.

The photographer who is familiar with and habitually makes use of flash lamp graphs should know something about the method of operation of both flash contacts.

**X-Contact** (zero-delay): contact is made shortly before the shutter blades reach full opening. Application: for lamps with short firing time (up to 5 milliseconds) and short flash duration.

**M-Contact** (full synchronization): contact is made approximately 16.5 milliseconds before the shutter blades are fully opened. Application: for flash lamps with long firing time (average firing delay 16.5 milliseconds) and long light duration.

For safety reasons one pole of the contact is grounded to the camera body (isolation-test: 700 volts). All commercially available flash guns and electronic flash units may be used. Current-carrying capacity of the contact when several flash lamps are connected simultaneously: 10 ampères at 24 volts for a period up to a maximum of 1/15th sec.

## Tips on Flashlight Photography

1. Use fresh batteries. Condenser or capacitor flash-guns are more consistent since lamp ignition is somewhat less dependent on battery power (Rolleiflash).
2. Be sure that the contacts of the battery and lamp sockets are clean. Handle flash cable with care, avoid kinking, otherwise there will be danger of short-circuit and premature flash ignition. — Note: the contact must not be connected to house current!
3. To light up long rooms or to achieve special illumination effects, one or two Rolleiflash comb. extension units may be connected to the Rolleiflash. Connecting cords adding up to a total length of 33 feet (66 feet with fresh battery) may be used. Always insert flash lamps in Rolleiflash first, then in extension units, to avoid premature firing. Unnecessary battery drain will be avoided by inserting lamps just before firing and ejecting immediately afterwards.
4. Blue flash lamps, like electronic flash, simulate daylight and are intended for use with daylight color film.
5. The power of flash illumination decreases according to the square of the distance: i. e., an object six feet away receives only one-fourth the light as an

object at three feet. Distance from flash to subject must therefore be carefully considered in selecting diaphragm opening. Lamp manufacturers supply easy to use guide numbers which are divided by the distance in feet to obtain the required diaphragm opening.

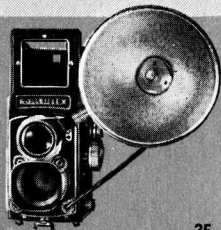
6. Flash as main light source: do not take weak room illumination into account, expose strictly according to flash output.

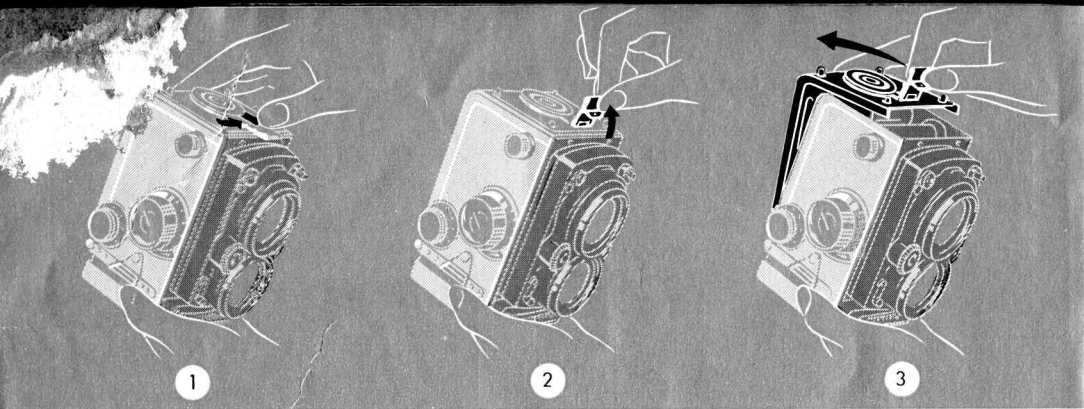
7. Flash as fill-in light: useful in brightening shadows whether due to insufficient illumination or to the fact that the picture is being taken "against-the-light", in full sunlight. The fill-in light must be kept at a lower intensity level than the main source of illumination, otherwise the strong flash will give an unnatural effect, not at all like daylight. Too strong a flash might even cause an apparent underexposure of the sky or the area not reached by the light. Electronic flash units are particularly well suited for use as fill-in lights when shooting color sports pictures. Use smaller lamps or keep them at greater distance.

8. When using the built-in self-timer, only X-contact is employed. It is best to use 1/30th sec. with this contact setting for most lamps.



1:8 - 1/125  
Rolleiflash  
+ Rolleiflash comb.





## IV. LOADING AND FILM TRANSPORT

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The Rolleiflex is loaded with  $2\frac{1}{4} \times 3\frac{1}{2}$  roll-film 120 or B II 8 (620 not usable) and delivers 12 exposures  $2\frac{1}{4} \times 2\frac{1}{4}$ .

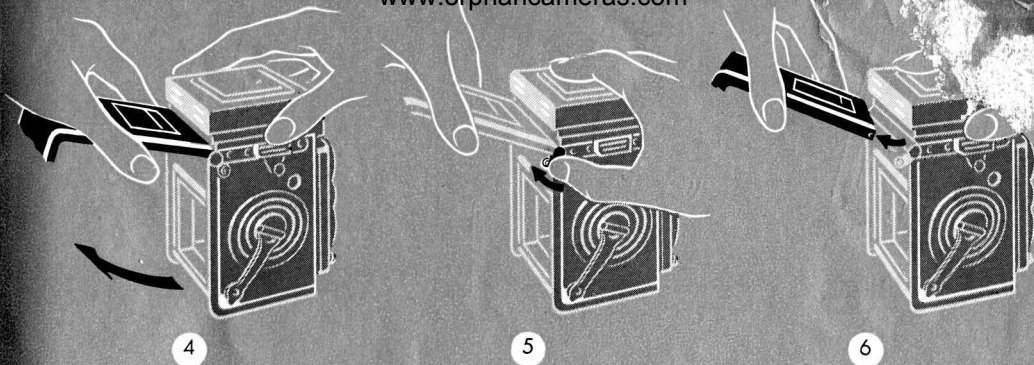
The loading of the camera is confined to a few simple operations: open the back — insert the full film spool — thread the film — close the back. From now on the film transport follows automatically through crank action.

### *Back*

**To Open:** swing aside the back locking lever at the bottom of the camera ①, lift the clip ②, open back ③, using the clip as a handle.

**To Close:** with the flat of the hand push the back closed, fold down the clip and return locking lever to full forward position.





The back is generally removed only when replaced by the plate adapter.

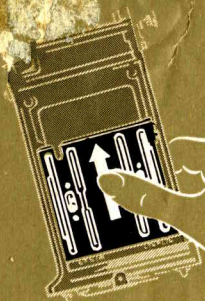
**To Remove:** open back fully ④ and swing the locking lever on the right side back hinge (crank side) in the same direction until it stops ⑤. Slip back out of the opened hinge ⑥.

**To Attach:** insert detached back first into the left and then into the right hinge (with locking lever in the upper position).

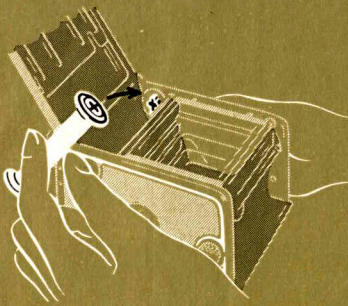
Protect the open camera against prevailing dust and dirt and clean it occasionally with a soft camel's hair brush!

Never change film in direct sunlight, utilize at least your own body's shadow!

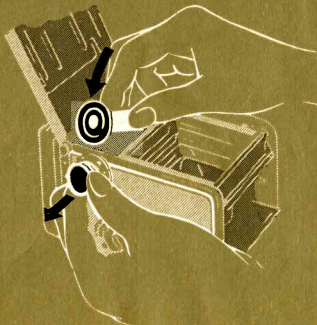
The camera may be attached to a tripod by means of the threaded socket on the bottom. **Caution:** the length of the tripod screw must not exceed 3/16". If longer, employ a washer or spacer to avoid damage to camera. For cameras with continental tripod sockets a reducing bushing is available.



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### **Film Pressure Plate Must be Positioned Correctly!**

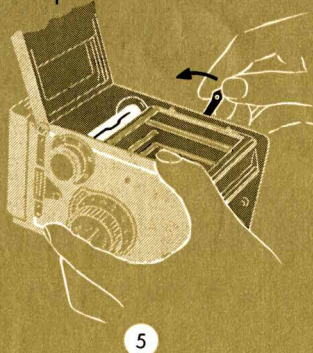
When roll-film is employed, the inscription  $2\frac{1}{4} \times 2\frac{1}{4}$ " must be visible below the film pressure plate. When changing from 120 roll film to 35 mm film, or the reverse, an adjustment must be made according to the film type being used.

To adjust the film pressure plate ①: Press the plate against the back and push it up or down until it stops. When released it must spring forward completely into the normal plane!

### **Inserting the Film Spool**

In the factory-new camera the empty spool (take-up spool) is already in position. After removal of the exposed film the just emptied spool becomes a take-up spool, and must be transferred to the upper spool-chamber. The end with the slot goes to the right engaging the winding key of the film transport mechanism ②.

Both film spools are held in position by the spool knob devices on the camera's left side. The upper (take-up) spool knob also serves as a 35 mm frame counter when using the Rolleikin (see booklet "The



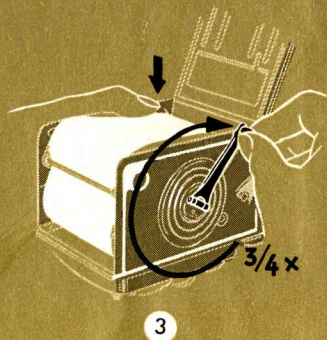
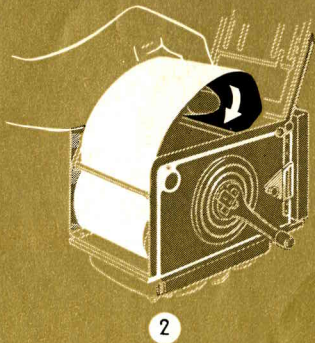
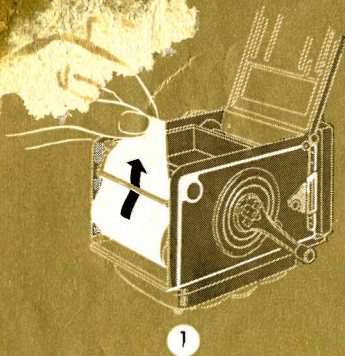
Practical Accessories"). To change films both knobs are pulled to an outward position, where they will remain until a slight pressure is applied to make them return. The camera's back should be closed only after the knobs have been returned to their original positions — closing the back serves to lock the knobs in position.

**To Insert the Empty Spool:** first fit the spool over the winding key on the right (crank side) and pull out the guide knob ③. Push the spool down on the left applying slight pressure, so that the knob may

snap back into place fully ④. It is then necessary to turn the crank until the long slot in the empty spool comes uppermost ⑤.

**Note:** The empty spool must be removed from the camera when using an adapter — however, keep it handy for use with the next roll of 120 film.

**To Insert a Full Film Spool:** in the same way as applies to the take-up spool ⑥. The pointed end of the backing paper must point in the direction of the take-up-spool chamber, so that the colored side of the backing paper remains on the outside.



### **Threading the Film** (Paper Leader)

After inserting the new film-spool tear the tape seal open and remove it.

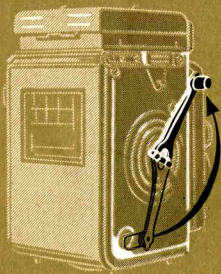
1. Thread the beginning of the backing paper **through the rollers** of the film feeler mechanism (important!) and draw it up to the take-up spool, colored and printed side outwards ①.

2. Push the paper leader through the long slot of the take-up spool as far as it goes ②.

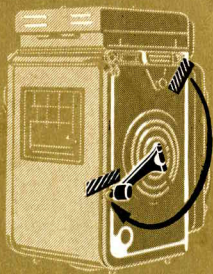
3. Tighten the backing paper by one spool turn (= approximately  $\frac{3}{4}$  crank turn), making sure that the paper is wound up properly on the take-up spool ③. Close back (with the film pressure plate adjusted according to instructions!).

### **Film Transport**

The correct positioning of the film according to the first and following numbers of the exposure counter is accomplished exclusively by the crank. The correct operation of this is governed by stops:



4



5



6

Swing out crank ④,  
turn it until it stops with one continuous  
swing ⑤ and then back again until the next  
stop ⑥!

It is now locked, until the automatically cocked shutter  
is released. The simple rule then reads:

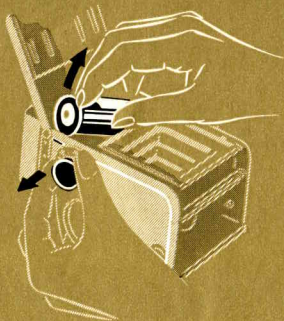
If the crank can be turned, it must be  
turned — once in each direction until it stops,  
until it locks!

When advancing the film to exposure No. 1 some 4  
to 5 complete crank turns are required. During  
the last turn a slight resistance of the mechanism  
must be overcome as the counter moves from 0 to 1.  
If it should happen that the crank reaches starting  
position when it stops, reverse direction one full  
turn, so that it locks!

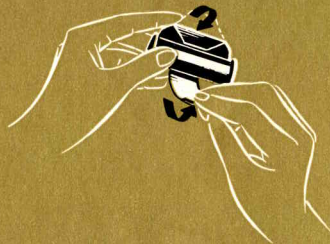
**During continued film transport** the amount of crank  
travel decreases gradually to about a half turn.



1



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When making exposures in rapid succession it is unnecessary to fold down the crank each time. It remains locked in its starting position, ready for the next film advance, with a slight pressure of the thumb keeping it against its stop.

If longer intervals occur between exposures the question could arise: has the film already been advanced and the shutter cocked? The crank gives the answer immediately:

Only if locked is it "ready to shoot"!

### To Remove the Film

After the 12th and last exposure four complete crank turns are enough to wind off the rest of the backing paper ①.

**To Remove:** open the back in the shade, pull out upper spool knob and remove the film from the same side ②. Fold under a good portion of the backing paper (for easier opening when developing) and seal ③. Put the exposed film back into the light-proof protective cover of the original package!

## Speed of Photographic Emulsions

(Comparison values approximated)

Relative exposure	DIN	Scheiner (Europa)	ASA (BS)	General-Electric	Weston
4	10/10	21	8	9	6
3.3	11/10	22	10	12	8
2.7	12/10	23	12	15	10
2	13/10	24	16	18	12
1.7	14/10	25	20	24	16
1.3	15/10	26	25	30	20
1	16/10	27	32	36	24
0.8	17/10	28	40	48	32
0.67	18/10	29	50	60	40
0.5	19/10	30	64	75	50
0.4	20/10	31	80	100	64
0.33	21/10	32	100	120	80
0.25	22/10	—	125	150	100
0.2	23/10	—	160	200	125
0.17	24/10	—	200	250	160
0.13	25/10	—	250	300	200
0.1	26/10	—	320	400	250
0.08	27/10	—	400	500	320

The characteristics of the different rating systems do not permit a direct mathematical conversion. However, the approximate comparison values of the table offer sufficient information for most practical purposes.



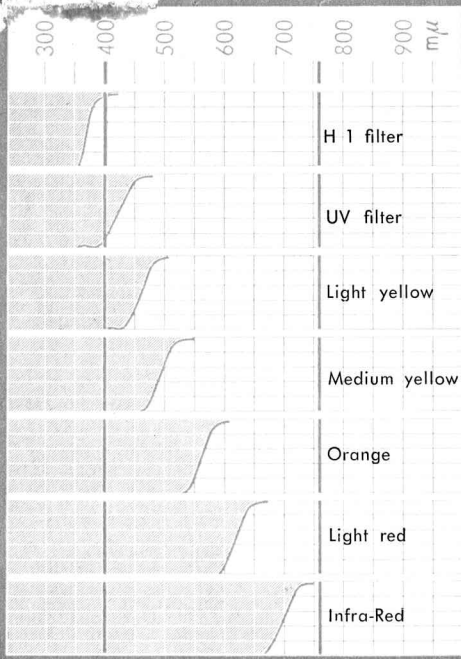
1



2

### Film Reminder in Focusing Knob

In order to know with which film material the camera was last loaded two adjustable discs, located in the front part of the focusing knob, are rotated by means of a cam in the center: if turned to the **right** ① it indicates the **speeds** 8 to 160 ASA (10/10° to 23/10° DIN), if turned to the **left** ② it indicates the **film types** Ortho, Pan, Color daylight film ☼ and Color artificial light film ☾.



## V. TIPS ON PICTURE-TAKING

### Landscapes

**Focusing** for distant views with foreground may be accomplished simply without using ground glass except for viewing: set infinity mark ( $\infty$ ) opposite diaphragm opening used — second corresponding diaphragm mark will indicate nearest point in focus. Example:  $\infty$  at  $f:11$  — sharp area  $\infty$  to 17 ft (5 meters) approx.

**Filters:** important for separating tones, which would otherwise be similarly rendered by the black and white film, or for influencing the mood of the picture.

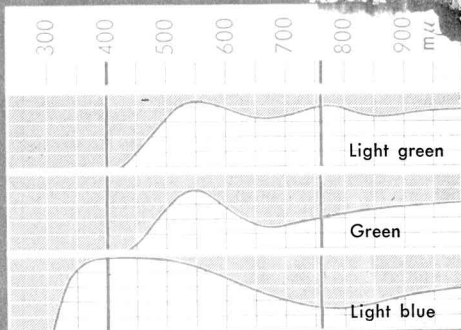
**1. Blue Sky with Clouds:** yellow filters darken blue skies and thus improve the reproduction of clouds. The deeper the color of the filter, the stronger and more dramatic the effect. Blue snow shadows are also rendered truer to tone. The green filter tones down the sky, brightens foliage and darkens the occasionally too lightly rendered reds (with pan film) such as sun-tanned flesh and red tile roofs. For filtering the sky but not the landscape: the Rolleipol filter darkens the blue sky only by eliminating the polarized light.



**2. Haze and Mist:** the blue filter, useful for pictorial effects, increases hazy effect. The orange or red cut through and improve the clarity of distant views. The blue filter reduces contrast, the red or orange increase brilliance. Maximum penetration of light haze is obtained with infra-red film and infra-red filter (700  $m\mu$ ). Barely visible mountain chains are reproduced clearly. An odd effect with this combination is that green leaves are rendered almost white. Filters are of no use at all in really bad weather when there is a good deal of moisture in the air.

**3. Sea, Beach, Mountains:** strong ultra-violet rays must be absorbed through use of UV filter. Results will otherwise be dull. The H 1 filter serves the same purpose for daylight-color film. Reduction of the bluish cast is quite marked.

**Picture Composition Rules:** distant views are generally better if foreground contains (for added depth impression) trees, people, animals, etc. Foliage is often used as a frame for the distant view. Focus should be sufficiently sharp in the foreground. Strong effects are created when deep shadows in the foreground are set against the lighter distance. Side lighting or even back lighting give the most impressive pictures.



**The filter curves** show the absorption of the various Rolleiflex filters in the spectral ranges ultra-violet, visible spectrum blue to red (appr. 400—760  $m\mu$ ), and infra-red. This means: darker portion of the spectrogram = absorbed light; lighter portion = useful light. The light-transmission of the filter from the lowest point to the peak point of the curve thus increases from 0 to 100%. While the H 1 filter cuts out the short wave ultra-violet portion of the spectrum, the green filter absorbs a substantial portion of the long wave red and infra-red range.



*Artificial light 1500 watts  
1:5.6 · 1/30 · Rolleisoft 0*



## Portraits

Large heads: do not work closer than 40 inches to avoid possible perspective distortion. If necessary, enlarge from a smaller section or use Rolleikin. Focus on the eyes. Use quiet, neutral colored backgrounds and do not stop down too much ( $f:5.6$ ) so as to keep backgrounds from intruding. If possible, move subject away from background. Out of doors, try using sky as only background. Open air portraits are best taken early or late in day when light is softer and not too blinding. Favor soft light, avoid deep shadows. In emergencies use reflectors or fill-in flash. Simple, proven artificial light procedure: lamp No. 1 next to camera somewhat above head level, lamp No. 2 on the side to lighten shadows, approximately 1/30th sec. For special effects, lamp No. 3 as overhead or back-light. Important: use lens hood and focusing extension hood for reducing extraneous light. Pan film, no filter. Moisten lips (highlights!). To reduce sharpness and add "glamor": Rolleisoft (soft diffusion disc) 0 or 1 (stronger) over lens. Use larger diaphragm openings and backlight for sunny effects.

## Children

Never use force, watch for interesting effects and expressions carefully. A clever assistant to divert children's attention from camera is often a valuable aid. Try close-up shots of children's expressions as they listen to favorite or exciting stories. Laughter, astonishment, pity and even an occasional yawn provide wonderful material for good shots or picture series. For close-up shots use same technique as for portraits. For children in motion, use snapshot technique outdoors and flash indoors. Low viewpoints and close-up effects are best.

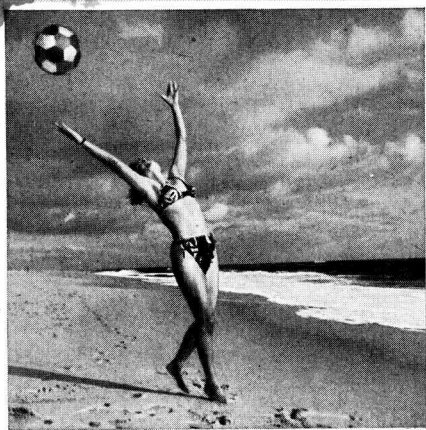
## Animals

Patience, quietness and familiarity with the animal and its peculiarities are great assets. Close-up pictures are most rewarding; use portrait technique. Make use of natural light effects such as back-lighting. Action pictures: use snapshot or sport technique (with flash, if needed). Rolleinarars are often helpful with small animals. Zoo: animal portraits — avoid bars or netting. Hint: netting often becomes invisible when lens nearly touches wire. — Fish in aquarium: use side and overhead lighting in otherwise darkened room. A good trick is to limit movement of fish within sharp zone by means of vertical glass plate in tank.



1:8 · 1/125  
Rolleiflash





1:8 · 1/125

## Snapshots

Unexpected picture opportunities or rapidly changing subject distance make a simplified technique, based on depth of field zones, highly desirable. The following three settings have been found very effective:

1/125 sec.

Diaphragm opening f : 8

Short distances  
approx.  
9 to 16 ft

Medium distances  
approx.  
14 to 34 ft

Long distances  
approx.  
18 to 80 ft

12 ft

20 ft

30 ft

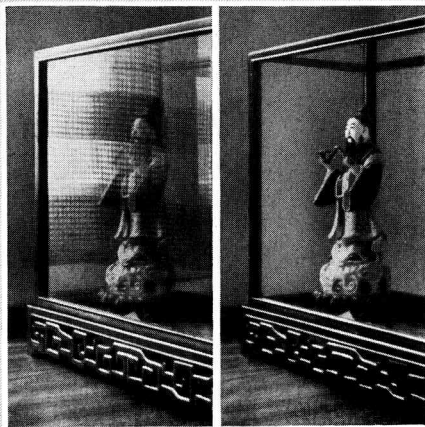
Shutter speeds and diaphragm openings do not often need changing in sunlight. Those suggested cover most contingencies. Thus instead of wasting time for focusing when in a hurry, use one of the above settings. This snapshot technique is especially useful with the direct view finder. Variation of the values (see table page 21) makes this technique available for other depth of field zones. Example: diaphragm opening f : 11, focus at 30 ft, depth of field extends from 15 ft to  $\infty$  for snapshots of scenes. Chief uses for this technique: groups in motion, street scenes, playing children, reportage, sports.

## Sports

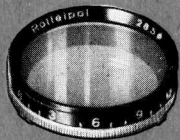
Sports pictures are generally most effective when the original rapid motion has been sufficiently "arrested" and the subject remains well defined. The fastest shutter speeds are essential, together with careful focusing. Sometimes pre-focusing on the spot where the action is to take place is possible. Do not overlook the possibilities of training sessions, since greater cooperation can often be had at such times. Snapshot technique is valuable for turf and ice shots and for any case when it would be difficult to guess exactly where to focus. Watch your shutter speeds and viewing angle. Shooting at right angle to the direction of the action requires a much faster speed than when the action is going in other directions (see table page 23). If the action is very fast or takes close to the camera, it is best to pan or follow with the camera. This results in a sharply rendered main object against a blurred background, thus increasing the impression of speed. There is often a fine moment for shooting when the action reaches a peak and stops momentarily, such as when a pole-vaulter "hits the top" before starting to come down again. With insufficient light or indoors use synchro-flash and 1/500th sec. The extremely short duration of electronic flash is highly desirable in some instances. Use the direct view finder; do not overlook the advantages of the Rolleikin with its telephoto effect, maximum use of film area and greater film capacity.



1:4 • 1/500 • Rolleiflash + Rolleiflash comb.



*Rolleipol*



## ***Shiny Surfaces***

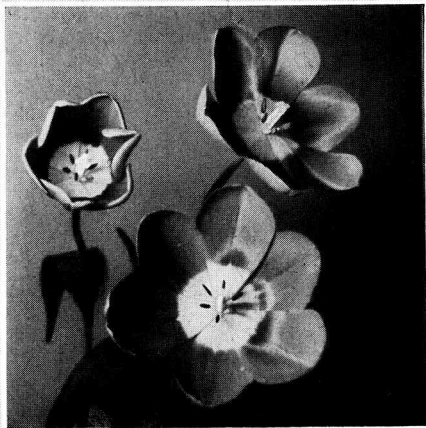
Eye-glasses, pictures, water surfaces, window glass and other brilliant reflecting surfaces often give disturbing reflections, not always avoidable by changing angle or illumination. A simple remedy in many cases is to use the polarizing filter Rolleipol. Reflected light is often polarized in one direction and this can be absorbed or reduced by proper orientation of the Rolleipol. This is done by merely turning it for best effect. It may sometimes be necessary to change camera position to obtain best angle. In artificial light a second pola-filter over the light gives full control at any angle. When the reflections are removed objects seen through the shiny glass or water surfaces become clearly evident. Torsion or strain tests of various materials are also possible with the help of the Rolleipol. Reflections from certain metal surfaces when the Rolleipol has little or no effect are best handled by photographing in diffused light or changing direction of illumination. Small, shiny metal parts can be held over burning magnesium to provide a white coat or greased and rubbed with graphite.

## Plants

Flowers, blooms and grass are most effective in close-ups taken against the light. Use Rolleinars with fill-in light or reflectors. Stop down for needed depth of field and shoot in bright light with no wind. A semi-circular shaped cellophane shield is an effective guard against the ground breezes that destroy definition. Use filters to differentiate between equally bright colors. Keep in mind that a filter renders its own or similar colors lighter, whereas its complimentary color comes out darker.

## Color Photography

Color films have little exposure latitude, so avoid strong light contrasts and use exposure meter. In doubtful cases make three exposures, varying diaphragm opening one half stop each side of what is considered normal. Correct color reproduction is possible only with correct matching of proper film types with illumination. Use compensating filters when needed according to manufacturer's instructions. Rolleipol-Filter: reduces glare from reflecting surfaces, also darkens the blue color of the sky (page 44) without affecting the color of the landscape. Select subjects with pleasing large color patches, not just an accumulation of loud colors. Overcast sky often renders pleasing pastel effect.



Rolleinare 1





1:16 · 1/125 · panorama head

### **Panorama Pictures**

As special landscape photos: distant views covering a wide stretch of the horizon are easily possible with the panorama head. Any number of shots, from two to a complete circle (360°) ten may be taken to form a partial or complete panoramic view. Use a sturdy tripod and carefully level the camera by means of the spirit level provided in the panorama head. You may easily include yourself in one of the

pictures by means of the self-timer, thus adding interest in the form of a figure when none other is available. Changes in lighting must be considered in making the separate exposures. Fast moving clouds require that the succeeding pictures be made quickly in order to get easily matched joints. There is ample overlapping between each picture to make accurate cutting and joining easy. Of course, the prints should be well matched in tone and contrast as well.





### ***Multiple Exposures***

The possibility of cocking the shutter without advancing the film (page 24) permits double or multiple exposures. Here are a few trick possibilities: multiple portrait images of the same person. Pictures of "doubles". Penetrations: technical apparatuses in closed and open presentation.

Action studies with flash: moving machine parts in various working positions. Publicity: photographs super-imposed on text, combination photos.

Tone separations: multiple exposures with different filters. Time and growth studies: phototropism, crystallisation. When pictures are taken from the same position: completely steady tripod, immovable position of camera. Cable release! Dark, unlighted background simplifies photographing objects which are placed side by side (reduces the danger of interfering background). To facilitate composition, fashion paper masks for ground glass.

## *Pictures Through the Microscope*

When a microscope is focused by someone with normal eyesight, the eye sees the image as if it were at infinity. Consequently, the Rolleiflex, also focused at infinity, can simply take the place of the eye over the microscope in order to record the image on film.

Microscope and camera should be mounted on firm stands, without mechanical connections. Place the camera so that taking lens, focusing at  $\infty$ , is brought as close as possible to the ocular. Check optical axis carefully; film plane should be parallel to surface being photographed. For full coverage of  $2\frac{1}{4} \times 2\frac{1}{4}$  use wide angle ocular, however, sufficient coverage for Rolleiflex negative is to be had in any case. Framing through view finder is unnecessary. Do not stop down since this has no effect on exposure. Factors affecting exposure are illumination and transmission of the objective, to be ascertained through tests. Apochromatic micro-lenses are best, particularly with color film. In shooting black and white with these lenses, use ortho material and green filter. Generally interesting are micro-pictures of crystallized chemicals through Rolleiflex filter in conjunction with another pola-filter over microscope condenser.

## *Care of the Rolleiflex*

A precision camera demands care in handling. Protect it against moisture, dust, sand, strong sunshine, hard blows or falls. First safeguard: the ever ready case. Second safeguard (when not in use while traveling): a rubber bag to guard against water, sand or snow. Carry camera around neck to minimize transportation shocks. Keep all parts clear and clean lenses with a soft camel's hair brush or doeskin. Although the mechanism is not unduly sensitive to cold, some condensation may form on the lenses when the camera is brought into a warm room from outside in cold weather. Do not wipe off—let moisture evaporate. In the tropics arrange to keep the camera, when not in use, in an air-tight container.

## *In Case of Damage to the Rolleiflex*

The task of repairing major or minor damage is the special province of the expertly trained mechanic. Franke & Heidecke maintain their own special workshop in which all repairs are done with precision at nominal prices. Abroad, apply to photo dealers and factory representatives for full information.

**The Practical Accessories for the Rolleiflex 2.8 D**

Code:		Code:	
Berce	Ever Ready Case for Rolleiflex 2.8 D	Cesof	Leather Case only
Ceobe	Lens Hood	Focom	Complete Plate Adapter Equipment comprising: 1 Plate Adapter, 3 Slides, 1 Focusing Screen Slide, 1 Leather Case for 2 Slides
Ceihe	Rollei Yellow Filter, light	Foapt	Plate Adapter
Ceimi	Rollei Yellow Filter, medium	Fosli	Slide
Celin	Rollei Green Filter, light	Fopla	Cut-Film Sheath
Ceeen	Rollei Green Filter	Focas	Leather Case for 2 Slides
Cesky	Rollei UV Filter	Fofoc	Focusing Screen Slide
Ceora	Rollei Orange Filter	Rolce	Rolleikin 2 C
Ceubi	Rollei Red Filter, light	Foad	Panorama Head
Cebla	Rollei Blue Filter, light	Fohod	Extension Hood
Cehaz	Rollei H 1 Filter (UV Filter for Daylight Color Photography)	Fogri	Rolleigrd Lens
Cefir	Rollei Infra-Red Filter	Cesyn	Rolleiflash C Attachment [flash comb.
Cetnu	Rolleisoft 0	Boxin	Boxin Case for 1 Rolleiflash + 1 Rollei-
Ceton	Rolleisoft 1	Cekab	Extension Cord for Flash-Attachment 10ft.
Cetar	Rolleipol	Flaco	Extension Flashholder Rolleiflash comb. with Connecting Cord 80 in.
Cepun	Rolleinar Lenses, set 1 (40-18½ in.)	Trika	Extension Cord for Rolleiflash comb. 10ft.
Ceodo	Rolleinar Lenses, set 2 (20-12½ in.)	Blika	Flash Connecting Cord 32 in.
Koece	Leather Case containing: 1 Lens Hood, 2 Sets of Rolleinar Lenses and your choice of 5 Filters		
Celee	Leather Case (without contents)		
Ceset	Leather Case containing: 1 Lens Hood and your choice of 2 Filters		

To avoid errors when ordering accessories please specify camera-number. Full information on the use of Rollei accessories in the booklet "The Practical Accessories".

## Table of Rollei Filters

Special compensation factors for light values are given when using filters, and these may be varied to suit type of film and lighting conditions.

Rollei Filter	Use	Light value compensation	
		Ortho	Pan
Light yellow	Landscapes, snow, clouds. Renders yellow and green lighter, blue darker.	-1.5	-1
Medium yellow		-2	-1.5
Light green	Landscapes, snow, clouds. Renders green lighter, red (complexion) and blue darker. For pan emulsions.	-1.5	-1
Green		-2	-1.5
Orange	Hazy distant views. Renders yellow-red lighter, blue darker, distant objects clearer.		-1.5 to -3
Light red	Hazy distant views. Renders red lighter, blue-green darker. Gives stronger effects than Orange Filter.		-2 to -3.5
Light blue	Artificial light. Renders red darker. For ultra-pan emulsions.	-0.5	-0.5
UV	High altitudes above 6000 feet. Seascapes. Eliminates ultra-violet rays which reduce contrast.	-0.5	-0.5
Infra-Red	Special filter for infra-red emulsions. Transmits dark red above 700 m $\mu$ and infra-red.	*)	
H 1	UV-Filter, especially designed for long distance color photography. Absorbs ultra-violet rays, subdues predominance of blue and cuts aerial haze in distance shots.	No increase of exposure	

\*) Exposure depends on the type of emulsion used and must be determined by tests.

## Focal Length and Focusing-Range with Rolleinar Lenses

Rolleinar lenses	—	1	2
Focal Length	80 mm	76 mm	72 mm
Focusing-Range (in inches)	$\infty - 40$	$39\frac{1}{2} - 18\frac{1}{2}$	$19\frac{3}{4} - 12\frac{1}{2}$

## Field-Size and Scale of Reproduction

Focused Distance	$31\frac{1}{2}$ in.	$19\frac{3}{4}$ in.	13 in.
Field-Size (in inches)	$2\frac{1}{4} \times 2\frac{1}{4}$	$22 \times 22$	$8\frac{3}{4} \times 8\frac{3}{4}$
(in inches) Rolleikin	$9 \times 12\frac{1}{2}$	$5\frac{1}{2} \times 7\frac{7}{8}$	$3\frac{1}{2} \times 5\frac{1}{8}$
Scale of Reproduction approx.	1 : 10	1 : 6.3	1 : 3.9

## Depth of Field with Rolleinar Lenses

Rolleinar		1		2		f/Stop	
Focused Distance (in inches)		$31\frac{1}{2}$	$23\frac{1}{2}$	$19\frac{3}{4}$	$15\frac{3}{4}$		
Depth of Field (in inches)	from to	$29\frac{1}{2}$ $33\frac{1}{2}$	$22\frac{1}{2}$ $24\frac{3}{4}$	$18\frac{7}{8}$ $20\frac{1}{2}$		5.6	Kolleikin
	from to	$28\frac{3}{4}$ $34\frac{1}{4}$	$22\frac{1}{4}$ $25\frac{1}{4}$	$18\frac{3}{4}$ $20\frac{7}{8}$	$15\frac{1}{8}$ $16\frac{1}{2}$	8	
	from to	28 $35\frac{3}{4}$	$21\frac{5}{8}$ 26	$18\frac{1}{8}$ $21\frac{1}{4}$	15 $16\frac{7}{8}$	11	
	from to	$26\frac{3}{4}$ $38\frac{1}{4}$	$20\frac{7}{8}$ $27\frac{1}{4}$	$17\frac{3}{4}$ 22	$14\frac{5}{8}$ $17\frac{1}{4}$	16	
	from to	$25\frac{1}{4}$ $41\frac{3}{4}$	20 $28\frac{3}{4}$	$16\frac{7}{8}$ $23\frac{1}{4}$	$14\frac{1}{4}$ $18\frac{1}{8}$	22	

Taking-distance measured from lens panel to object. Permissible circle of confusion in this special case (due to the large image and less need for enlarging) = approx.  $f/1000$ . For increased sharpness further stopping down is required.