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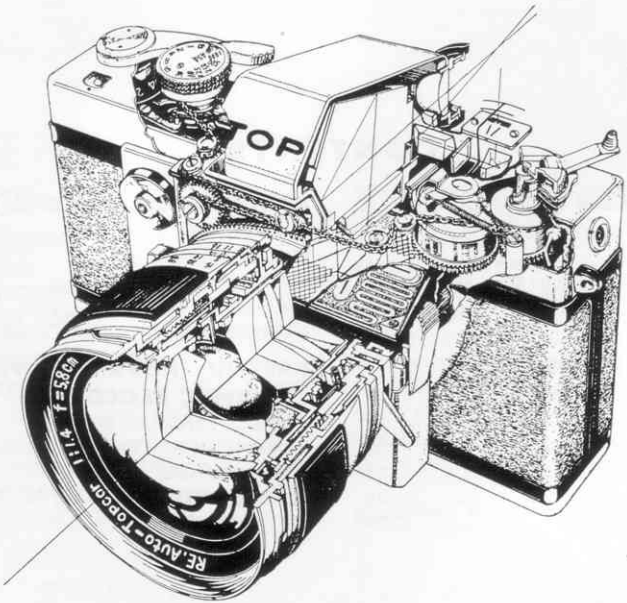
**Congratulations on your choice of the TOPCON RE SUPER which we are sure will give you many years of unfailing service. The TOPCON RE SUPER is a camera which you can be proud of and which will justify your choice.**

**Before touching your camera, may we suggest that you read this instruction manual carefully, in the order that it is written, and that you familiarize yourself with its working parts (so that your fingers will work the camera automatically) before you even load your first roll of film. Your pleasure in using the TOPCON RE SUPER will be even greater if you know your camera thoroughly.**

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# IMPORTANT

1. Don't touch the surfaces of lenses, mirrors, focusing screens, and finder.
2. Stroke the film winding speed-lever all the way — until it stops.
3. Don't stroke the speed-lever until shutter action is completed.
4. Keep the exposure meter on OFF during storage.
5. Cover the lens when not in use.
6. Don't force movements but re-read instructions once more.
7. If your TOPCON RE SUPER needs repair, don't do it yourself but contact the nearest authorized dealer.


TOP
RE. Auto-Topcor 1:1.4 f=5.8cm

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# PART I
# THE TOPCON RE SUPER

In this part you are introduced to the camera, the names of its various parts, the distinctive features of the camera and the TOPCON RE SUPER system of photography, which is built around the fully integrated single lens reflex system.

## A FULLY INTEGRATED SINGLE LENS REFLEX SYSTEM

The TOPCON RE SUPER is noteworthy because it is one of the very few fully integrated and completely automated single lens reflex cameras, complete in all details and equipped with all the latest important features which go to make it one of the most complete single lens camera for professional use, as well as a camera highly suitable for use by advanced amateurs and beginners who intend to use the best there is.

The principal virtue of the camera is the system itself—with viewing-focusing through-the-camera-lens. There is absolutely no parallax—even when the standard lens is exchanged for a telephoto, or extended by bellows, or used for photomicrography—and auxiliary finders are not required or supplied. Because the reflex mirror intercepts the very image that will be focused on the film plane, the final picture is always seen even before the shutter is released.

BUT, the real value of the TOPCON single lens reflex system is in its focusing screen :—

(1) The screen is precision centered to coincide exactly with the center of the film frame, and shows an almost life-size finder area that matches the exact film area,

(2) The standard focusing screen has TRUE (not plain glass) ground glass boosted with fresnel lens for corner-to-corner brightness —the only kind that shows the actual depth of field, and,

(3) A split-image rangefinder spot, surrounded by a fine focus ring, for speedier linear focusing and faster ground glass focusing, also.

Naturally, a single lens reflex camera should have depth of field previewing in order to take full advantage of its special properties —and, TOPCON RE SUPER has a press-release depth of field preview lever which shows the actual depth of field when the lever is pressed down. Release of pressure immediately returns diaphragm to wide aperture. No top class single lens camera should be without this important feature which was first introduced by TOPCON-R.

For full automation of the single lens reflex system, the TOPCON RE SUPER has the fully automatic instant opening lens diaphragm action, —in all popular focal length lenses. This means that the lens is always wide open for maximum view-focusing ease but closes down automatically to the predetermined aperture for the picture-taking moment and reopens once more to wide aperture, in an action that is so fast that it is hardly noticed at faster shutter speeds.

And, for added convenience, this lens action is always coupled with the instant return mirror action, which means that the reflex mirror, in coordinated action with the shutter and lens diaphragm, jumps out of the way for picture-taking but snaps back instantly to viewing position, completely eliminating mirror black-outs and permitting rapid sequence shooting. The action is fast but positive with mirror vibration held to a minimum.

However, the most astonishing and revolutionary feature of the TOPCON RE SUPER is the built-in thru-the-lens Mirror-Metering system which is a CdS exposure meter attached behind the reflex mirror and internally coupled to both lens diaphragm and shutter speed. In other words, it is only necessary to take a reading of the reflected light from the subject area

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(same as seen in the focusing screen) coming through the lens onto the mirror; adjust either aperture or shutter speed, or both, until the match-point indicator in the finder shows exposure is correct; and, then simply press the shutter release to get the picture.

Since the exposure reading is through the lens, it is highly accurate. Because only 7% of the Mirror-Lite is taken away from the finder, the view is neither obstructed nor darkened. And, the Mirror-Meter is mechanically coupled to all RE. Auto-Topcors, which means that full automation is not lost and view-focusing at maximum aperture is possible.

The TOPCON RE SUPER system of photography is raised to its highest standards with interchangeable finders. The standard eye-level Pentaprism finder, unexcelled for speedy snap-shooting, may easily be exchanged for two types of waist-level finders, both showing a reflex view which is ideal for careful composition work and specialized photography. The Pentaprism finder has an oversized finder eyepiece, which may be supplemented by eyepiece correction lenses—giving diopter corrections suitable for the user. A rubber eyecup is available for attachment to the eyepiece frame, with a special type also available for more precise focusing work.

As an extra bonus, the finder system includes numerous interchangeable focusing screens, to suit the type of work and lens being used, while magnifier and angle view finder are also available for attachment to the Pentaprism finder eyepiece for greater versatility and accuracy in view-focusing.

The crowning touch to the TOPCON RE SUPER is, of course, the great range of superior TOPCOR lenses—noted for fine optical design, superior lens characteristics and general top performance under difficult shooting conditions. The most popular focal lengths are supplied with the fully automatic lens diaphragm—the RE. Auto-Topcor group.

Other telephoto lenses are supplied with the semi-automatic preset diaphragm—the R. Topcor group, while a whole group of special-design lenses are available for extreme close-up shooting—the Macro-Topcor group, and a special RE. Zoom Auto-Topcor lens continuously covers a shooting range from medium to long telephoto distances, thus greatly increasing the range of shooting that can be handled by the Topcor lenses.
To round out the TOPCON RE SUPER system of photography, a full range of top quality accessories are also available for greatly increasing versatility in various fields of photography—such as, macrophotography, photomicrography reproduction work, color slide copying, etc.

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# MAIN FEATURES OF THE TOPCON RE SUPER

## Standard Lens:

RE. Auto-Topcor f/1.4 58 mm 7 element lens. Exakta type modified bayonet mount. Fully automatic instant opening lens diaphragm internally coupled to built-in exposure meter. RE. Auto-Topcor f/1.8 58 mm 6 element lens is also available.

## Shutter:

Focal plane shutter, with non-rotating single axle shutter speed dial. Eleven equal distant shutter speed settings 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1//250, 1/500, and 1/1000 sec. plus Bulb; internally coupled to built-in exposure meter.

## Finder:

Eye-level Pentaprism finder, with detachable large-size eyepiece frame. Eyepiece frame exchangeable with correction lens. Finder interchangeable with accessory waist-level finders.

## Focusing Screen:

True ground glass over full area is boosted by fresnel lens for overall brightness; has split-image rangefinder spot surrounded by fine focus ring. Center of finder is aligned exactly with center of film frame. Standard screen is interchangeable with accessory focusing screens.

**Depth of Field Preview:**

Push-release lever stops lens diaphragm down for previewing of actual depth of field on true ground glass—with standard focusing screen.

**Mirror Action:**

Positive stopping instant return mirror action, coupled with shutter and lens diaphragm actions.

**Exposure Meter:**

Cadmium Sulphide exposure meter is attached behind (and is an integral part of) the reflex mirror. Narrow 0.05mm (0.002″) slits cut in mirror surface permit 7% light transmission to meter, without darkening or obstructing focusing screen view. Gives average reading for whole subject area seen in focusing screen. Internally coupled to both shutter speed and lens diaphragm (of all TOPCOR lenses). Match-point indicator below focusing screen and also on camera top deck. Covers range of EV 2 to EV 16, with ASA 100 film and f/1.4 lens. Works on miniature 1.3 volt mercury battery.

**Flash Synchronization:**

Automatic internal peak compensating flash synchronization, with single flash socket for all flash bulbs and electronic flash units. Color-coded shutter dial for simplified flash illumination: all flash bulbs synch on black numerals, electronic flash synchs on red and black speeds while green figures are for FP and special bulbs. Built-in accidental flash prevention double contact system.

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**Direct Flash Contact:**

Exclusive bayonet mount non-cord flash unit connects directly with flash circuit by simply mounting on the accessory shoe attached over the rewind knob outside bayonet mount.

**Speed-Lever:**

180 degrees single stroke, or multi-strokes up to 180 degrees, advances films, charges shutter and mirror raising mechanism, as well as advancing exposure counter.

**Exposure Counter:**

Additive exposure counter automatically returns to start-mark upon opening camera back.

**Film Rewinding:**

Fold-down rewind crank flips open and floats up for fastest rewinding action; turn-stop rewind button automatically pops up with speed-lever action.

**Self-Timer:**

Adjustable for 5 to 10 seconds delayed action; exclusive release button.

**Film Indicator:**

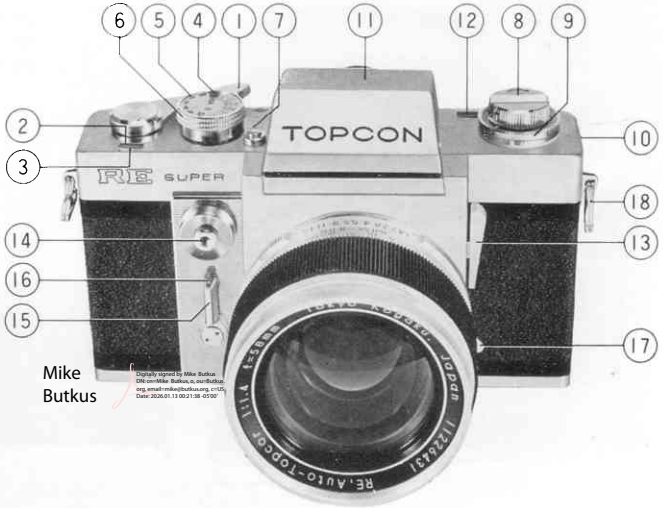
Twenty click-stop film speeds ASA 25 to 1600 (or DIN 15 to 33).

**Film Loading:**

Hinged camera back locks tight on safety catch when closed. Opens when safety lock is push-turned. Detaches for attachment of special 33 ft. film magazine.

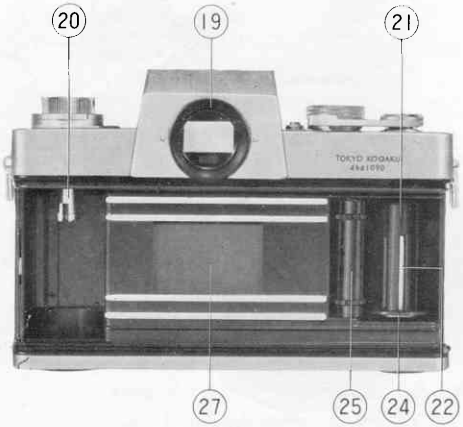
## NOMENCLATURE

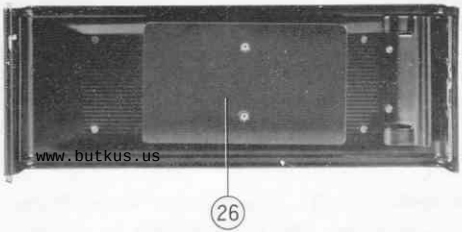
① Film winding speed-lever
② Exposure counter
③ Exposure counter index
④ Film speed indicator
⑤ Shutter speed dial
⑥ Film speed adjusting ring
⑦ Shutter speed index
⑧ Rapid rewind crank
⑨ Flash unit bayonet mount
⑩ Flash socket
⑪ Pentaprism finder
⑫ Exposure indicator window
⑬ Depth of field preview lever
⑭ Shutter release button
⑮ Self-timer
⑯ Self-timer release button
⑰ Lens locking lever
⑱ Shoulder strap lug



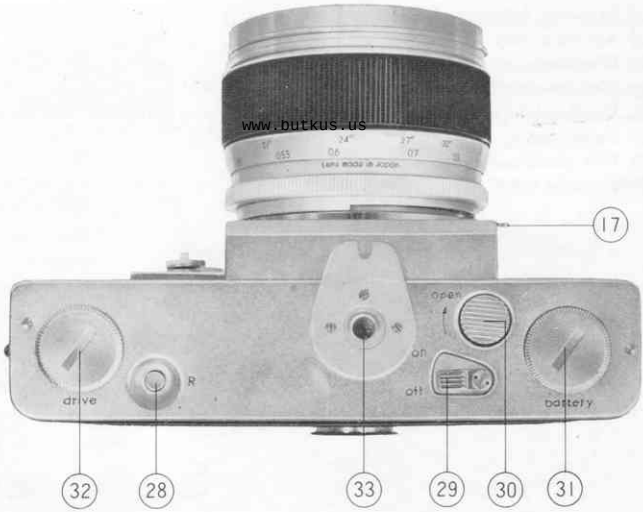
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⑲ Finder eyepiece frame
⑳ Film cartridge shaft
㉑ Film take-up spool
㉒ Film take-up spool multi-slots
㉔ Film take-up spool serrated flange
㉕ Film transport sprocket
㉖ Film pressure plate
㉗ Focal plane shutter curtain



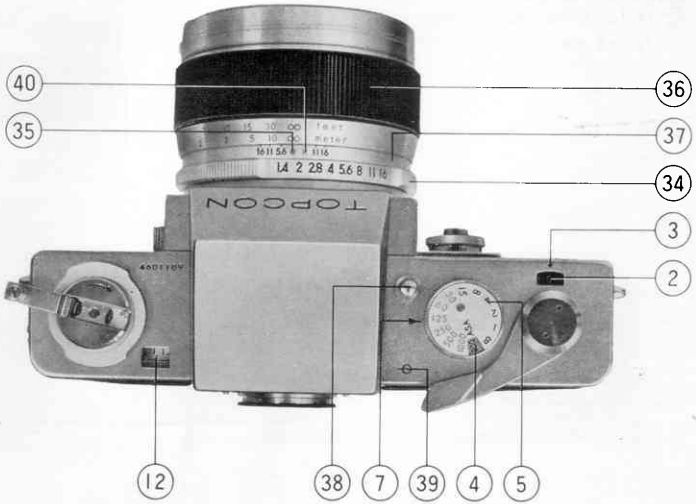



⑰ Lens locking lever
㉘ Rewind button
㉙ Battery control switch
㉚ Back cover lock
㉛ Battery compartment cover
㉜ Motor drive shaft cover
㉝ Tripod socket



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② Exposure counter
③ Exposure counter index
④ Film speed indicator
⑤ Shutter speed dial
⑦ Shutter speed index
⑫ Exposure indicator window
㉞ Aperture ring
㉟ Distance/aperture index
㊱ Distance focusing ring
㊲ Depth of field scale
㊳ Finder catch
㊴ Film plane indicator
㊵ Infrared index



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# PART II
# BASIC PICTURE-TAKING PROCEDURES

Only the basic procedures for taking pictures with your camera are given in this part. Additional information for taking superior pictures are covered in Part IV and film loading is discussed in Part III.

The procedures covered in this part should be practised fully, before film is even loaded in the camera, in order that you are so familiar with the movements that they are done automatically. Basically, picture-taking may be considered simply as—

1. Advancing the film one frame, cocking the focal plane shutter, charging the mirror mechanism, etc., and
2. Releasing the shutter.

However, since exposure conditions change, as well as the distance to the subject, it is also required that—

3. Exposure be set properly, and
4. Distance be correctly focused and subject composed.

And, finally, since sharply focused pictures can only be attained if the camera does not move while shooting, it is also necessary that—

5. The camera, with accessories, be held properly.

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## CORRECT EXPOSURE

One of the most important factor governing the taking of superior picture is correct exposure, which is the correct relationship between—

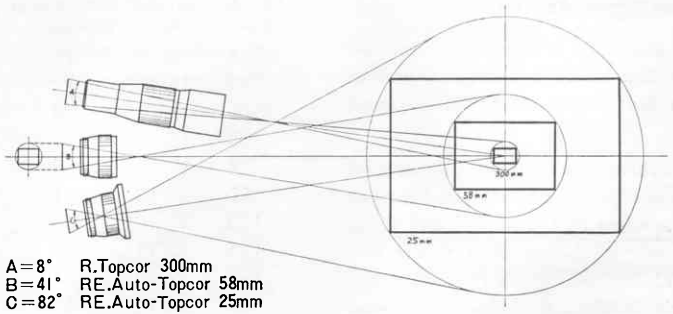
1. Shutter speed, and
2. Aperture (lens opening), as decided by—
3. The brightness of the subject, and dependent on—
4. The speed (film sensitivity — ASA or DIN index number) of the film loaded in the camera.

When either the lens opening or shutter speed, or both, are incorrect for the brightness of the subject matter, either under-exposure or over-exposure is the result. Thus, it can be seen that it is very important to be able to judge the brightness of the subject correctly in order to obtain properly exposed pictures.

### Mirror-Meter:

For obtaining far more accurate exposure adjustments than possible with other cameras, your camera has an exclusive built-in CdS Mirror-Meter (an exposure meter attached behind the reflex mirror) which is, furthermore, internally coupled to both shutter speed and lens diaphragm. Since the Mirror-Meter is designed to give an average exposure reading for the full area covered in the focusing screen, based on the amount of light reflected from the subject through the camera lens onto the reflex mirror, it is superior to other exposure meters.

1. It gives precise accurate exposure readings no matter whether interchangeable lenses, from wide-angle to telephoto, or special lenses are attached to the camera, or even when the camera is used on the microscope or with the telescope, and, of course, it works perfectly with the standard 58 mm lens.




A=8° R.Topcor 300mm
B=41° RE.Auto-Topcor 58mm
C=82° RE.Auto-Topcor 25mm

2. The exposure factor is automatically taken into account when the lens is racked out for ultra close-up shootings.
3. Filter factors, light transmission properties of the lenses, overall illumination of the field of view, etc., are all automatically taken into consideration and exposure calculations and worries are always eliminated.

The exposure measuring range of the Mirror-Meter is entirely dependent on the speed of the lens attached to the camera because exposure readings are always taken of the reflected light coming through that particular lens. For example, with the fast RE. Auto-Topcor f/1.4 lens and ASA 100 film, the Mirror-Meter is capable of measuring image brightness from 0.5 cd/m$^2$ to 8000 cd/m$^2$, or giving exposure readings from EV 2 to EV 16, which is automatically changed to EV 4 to EV 18 (image brightness 2 cd/m$^2$ to 32000 cd/m$^2$) when the f/2.8 lens is attached (and ASA 100 film used).

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## Setting Film Speed:

Since correct exposure is dependent on the film speed, the film speed indicator (4) should first be set to the proper ASA (DIN) speed number.

Lift up and revolve the milled ring, around the shutter speed dial, until the required number is seen in the window on top of the dial face. There are twenty click-stop ASA (DIN) film speeds from 25 to 1600, with the stops between numerals indicating intermediate speed numbers.

If you are not sure what your film speed is, check the instruction sheet in the film package. If speeds other than ASA (DIN) are indicated, use the following table for conversion to the film speed of the camera.

| ASA & BSA | German DIN | European Scheiner | Gost | Weston |
|---|---|---|---|---|
| 25 | 15/10 | 26 | 22 | 20 |
| 32 | 16/10 | 27 | 32 | 24 |
| 40 | 17/10 | 28 | 32 | 32 |
| 50 | 18/10 | 29 | 45 | 40 |
| 64 | 19/10 | 30 | 65 | 50 |
| 80 | 20/10 | 31 | 65 | 64 |
| 100 | 21/10 | 32 | 90 | 80 |
| 125 | 22/10 | 33 | 130 | 100 |
| 160 | 23/10 | 34 | 130 | 125 |
| 200 | 24/10 | 35 | 180 | 160 |
| 250 | 25/10 | 36 | 250 | 200 |
| 320 | 26/10 | 37 | 250 | 250 |
| 400 | 27/10 | 38 | 350 | 320 |
| 500 | 28/10 | 39 | 500 | 400 |
| 650 | 29/10 | 40 | 500 | 500 |
| 800 | 30/10 | 41 | 700 | 650 |
| 1000 | 31/10 | 42 | 1000 | 800 |
| 1250 | 32/10 | 43 | 1000 | 1000 |
| 1600 | 33/10 | 44 | 1500 | 1250 |

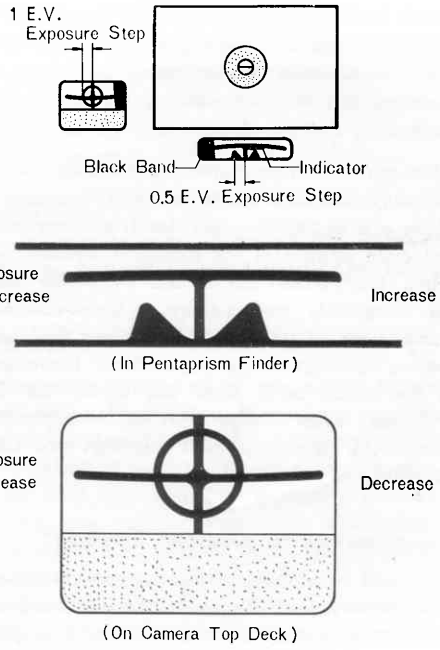
## Exposure Reading:

Switch on the exposure meter, by pushing the control switch (29) to ON. Next, point the camera at the subject until the required area fills the focusing screen (and Mirror-Meter) area fully.

Adjust either or both the shutter speed dial and aperture ring until the match-point T-indicator, seen just below the focusing screen, is aligned correctly with apex of the V-index mark.

Normally, it will be much more simple to choose a suitable shutter speed first of all and then adjust the aperture ring until the T-indicator is aligned to show correct exposure. This is because the aperture ring is moved in the same direction as the movement of the match-point indicator.

The extended legs of the V-index show one-half stop exposure adjustments for slight over- or under-exposure effects.



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In all instances, however, once correct exposure is obtained with the finder indicator, both shutter speed and lens openings are automatically adjusted and nothing else need be done.

Although the Mirror-Meter is capable of taking exposure readings under extreme conditions, there are occasions when the T-indicator will not even appear in the exposure window, or when the vertical bar of the T-indicator will be completely covered by a black-colored band, both of which are indications that exposure readings are not possible. However, if the black band does not cover the T-indicator, even though it is in the exposure window, it is a sign that readings are still possible.

## Recommended Shutter Speeds:

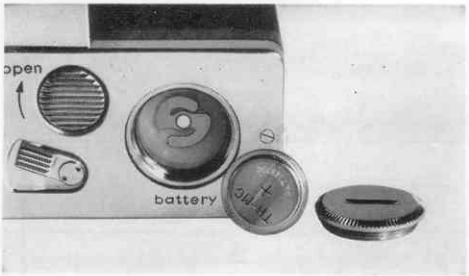
As noted previously, it is recommended that the shutter speed be set to the camera first, because it is more often dictated by the lighting condition and film speed. The table on page 19 should be used as a general guide :—

## Battery:

The power for the Mirror-Meter is taken from a round mercury battery of 1.3 volt (such as Mallory PX-13, Everready E625, General No. 625 and Toshiba TH-MC), which is enclosed in the battery compartment in the base of the camera body.

To open the battery compartment cover (31). use a coin, or similiar object, and unscrew it. Insert the battery with plus (+) side facing outwards, or towards the compartment cover, as otherwise the Mirror-Meter will be short-circuited.

Under normal usage, the battery should last about one year. It is, therefore, recommended that the battery be exchanged every year, even if it can still be used, because the mercury battery does not slow down, like most other batteries, but suddenly drops dead.




Incidentally, the newly-purchased battery will be sealed in a plastic air-tight package which should be torn away before the battery is inserted into its compartment.

The Mirror-Meter need not be switched off, after each reading, because the power drainage is negligible. However, the lens should be covered when the camera is not being used and the battery should be switched off when the camera is stored away for some time, or taken out if it is not intended to use the camera for a long time.

**CAUTION:**

The shutter speed dial of the camera cannot be revolved completely, although it may be revolved in either direction. It will not go beyond 1000 (for 1/1000 second) or B (for bulb exposures).

**CAUTION:**

Do not use B (bulb exposure) for exposure readings because it is not suitable for taking a reading.

**CAUTION:**

When exposure reading are taken in extremely bright places, such as at the seashore or in the desert, with a lens opening of f/2 and faster, it may be found upon development that the negative is slightly over-exposed due to the fact that the subject brightness was greater than the measuring range of the exposure meter.

To prevent such errors, it is recommended that a neutral density filter of 4× or 8×

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(or the polarizing filter) is attached to the filter mount of the lens to cut down on the intensity of the light passing through the lens, when the subject brightness is more than EV 15 (say, f/11 and 1/250 sec., with ASA 100 film).

| Lighting \ Film Speed (ASA) (DIN) | 25 15/10 | 32 16/10 | 50 18/10 | 100 21/10 | 200 24/10 | 400 27/10 |
|---|---|---|---|---|---|---|
| Bright Sun on Sand or Snow | 1/125 | 1/125 | 1/250 | 1/500 | 1/1000 | 1/1000 |
| Bright Sun Strong Shadows | 1/125 | 1/125 | 1/125 | 1/250 | 1/250 | 1/500 |
| Hazy Sun Weak Shadows | 1/125 | 1/125 | 1/125 | 1/125 | 1/250 | 1/250 |
| Cloudy Bright No Shadows | 1/60 | 1/60 | 1/60 | 1/60 | 1/60 | 1/125 |
| Open Shade Under Clear Blue Sky | 1/60 | 1/60 | 1/60 | 1/60 | 1/60 | 1/125 |
| Cloudy Rain | 1/30 | 1/30 | 1/30 | 1/30 | 1/30 | 1/60 |

## SINGLE LENS VIEW-FOCUSING

Two other important factors for obtaining good pictures are :—

1. Accurate focusing of the image on the film plane, and
2. Correct composition of the subject matter within the limits of the negative area.

In your camera, both these important factors are taken care of by a single system,—viewing and focusing through the camera lens, which means that—

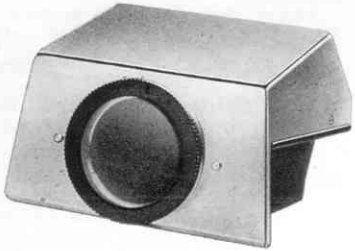
1. Focusing adjustments made with the camera lens can be checked directly in the finder, and,
2. An exact negative size frame is placed along the extension of the optical path, completely eliminating the parallax problem.

Furthermore, the system as incorporated in your camera is doubly attractive because—

1. Focusing is always done at the widest aperture and the lens diaphragm closes down automatically (not manually),
2. The finder shows 97 percent of the final negative frame, with an equally spaced margin area around the full frame, and,
3. The centers of the finder and film negative frame coincide exactly.

### Pentaprism Finder:

The standard finder system utilizes a Pentag-



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onal prism finder, which is precision-made of the finest optical glass.

The Pentaprism finder (11) means that—

1. A right side up laterally correct image, moving in the same direction as the actual subject, is always seen, and is especially attractive for fast, candid type snap-shooting.
2. Both eyes can be used for shooting, with one eye on the finder and the other on the general scene, which comes in useful when following your subject with the camera.
3. Eye-level viewing means correctly lateral and erect images in vertical format, also.
4. Brilliant and life-size enlarged image.

## Large-Size Finder Eyepiece:

Your camera has one of the largest finder eyepiece, and an eyecup which may be attached to the eyepiece frame. The large-size eyepiece is valuable for checking all four corners of the finder area, even when the user wears eyeglasses.

Correction lenses may also be used if the user's eyesight is defective.

1. **Detachment of Eyepiece Frame:** Detach the eye-cup and simply revolve the black colored eyepiece frame (19) counter-clockwise which will unscrew it.
2. **Attachment of Correction Lenses:** For diopter corrections, seven accessory lenses are available upon special order. These lenses are screwed in place of the eyepiece frame and will also hold the eyecup securely.
   See Part V on the effects obtained.

## Focusing Adjustments:

All focusing adjustments for obtaining a sharp image on the film plane must be made directly on the camera lens itself, simply by revolving the distance focusing ring (36) in either direction until the image is properly focused. The distance may be found by reading the distance figure opposite the distance index (35), which also doubles as the aperture index. All focusing adjustments are checked on the focusing screen.

## Standard Focusing Screen:

The standard focusing screen, supplied with the camera, has a full-area ground glass field plus a split-image rangefinder spot, surrounded by a fine focus ring. The focusing screen is detachable and interchangeable with accessory focusing screens.

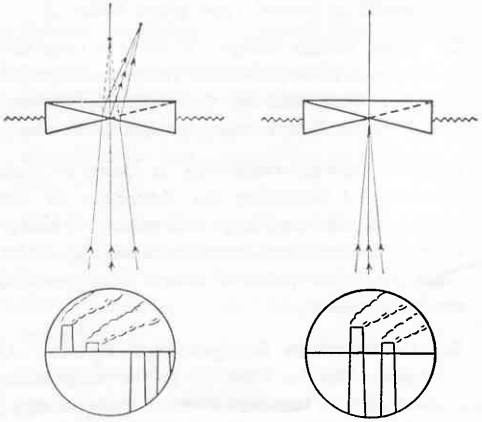
1. **Full-Area Ground Glass:** The ground glass extends over the full area of the finder screen, except for a central round portion, and is boosted for additional brightness and brilliance by the TOKO-BRITE, a fresnel type plate lens.
2. **Fine Focus Ring:** A narrow ring surrounds the split-image rangefinder, which is not assisted by the fresnel lens but gives a finer focusing ground glass circle.

**Ground glass focusing** is done at wide aperture by observing the sharpness of the image as seen on the ground glass. If sharpness is in doubt, re-focus in either direction from the initial point of utmost sharpness and compare results.

3. **Split-Image Rangefinder Spot:** As shown in the illustration, the rangefinder consists of two semi-circular wedge-shaped prisms, which split the image into two halves. When in focus, the two halves coincide. When out of focus, the two halves separate laterally. Thus focusing is very speedy, even under the most difficult lighting conditions, and especial-

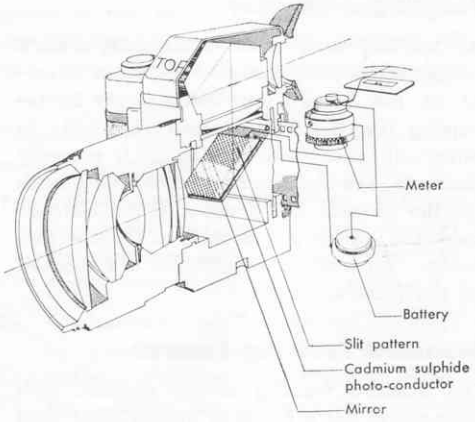
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PRINCIPLE OF THE SPLIT-IMAGE RANGEFINDER



Out of focus

In sharp focus



ly when the subject has strong linear features.

**Combined focusing** is recommended in most cases, because the area covered by the split-image rangefinder is small and because the ground glass simultaneously enables one to focus on the entire picture area, and when combined will give still more faster focusing speed.

4. **Detachment of the Focusing Screen:** Simply pull up the focusing screen by inserting a fingernail under the catch extending rearwards from the screen.

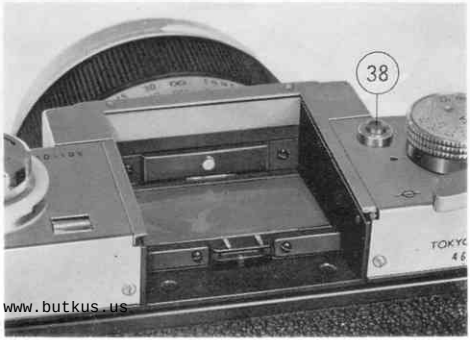
5. **Attachment of the Focusing Screen:** Place the front edge of the screen into place first and then push down on the side with the catch.

**CAUTION:**

Don't touch the surface of the screen and don't lift the screen in a dusty place or you will get dust and sand inside your mirror box.

## Exchanging the Pentaprism Finder:

1. Depress the finder catch (38) and push the finder out towards the camera back cover side, to detach.
2. To attach, simply push the finder in correctly until it catches.



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## HOLDING THE CAMERA

As important as correct exposure and accurate focusing are for getting better pictures, it is just as important to hold the camera in the most steady and comfortable working position for getting sharp pictures. Practise the following methods which are recommended for your camera, with the standard Pentaprism finder, and which may also be used with some adaption for the camera with longer lenses attached or the waist-level finder in position.

### Horizontal:

Most photos are taken in the horizontal format. Take a firm grip on the distance focusing ring (36), with the left thumb and left forefinger, resting the camera body on the palm of the left hand. Place your right thumb against the speed-lever (1), with either the right forefinger or middlefinger on the shutter release button (14) and the rest of the hand cradling the right side of the camera body. Most of the holding will be handled by the left hand, which will also take care of focusing, while the right hand should advance the film and take the picture, aiming the camera at the same time.

In this position, the camera should be brought up to the right eye, leaving the left eye to take in the whole field, with the elbows of both hand tightly pressed against the body for additional support. The camera should be pressed against the forehead, also, to minimize camera movement.

### Vertical:

Without changing the basic grip noted above, turn the camera around until the speed-lever side is topmost. Now the left side of the camera body will be supported by the left hand. The right elbow will not be pressed against the body but will jut out into space, not giving any support to the camera. This

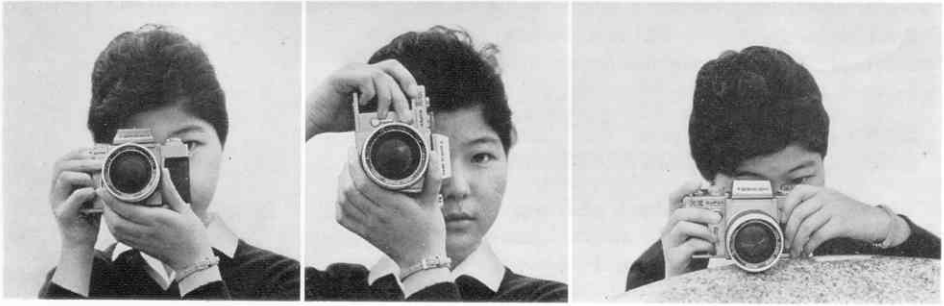
version, however, is superior to turning the camera body around the opposite way because the speed-lever can still be used for speedy winding action.

## Upside-down Horizontal:

Although not recommended for everyday shooting, it does give some additional height. The distance focusing ring should be grabbed by the right thumb and forefinger, with the Pentaprism resting on the palm of the right hand. The left hand should be used for advancing the film and pressing the shutter release, with the left thumb on the speed-lever and the left forefinger on the shutter release.

**NOTE:**

While the above methods are recommended, individual preference may take precedence if the camera can be hand-held in the most comfortable position to assure steadiness without strain, and if there is no loss of handling



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speed.

In any case, the following principles must be followed to keep camera shake at a minimum :—

1. Spread the legs wide apart for body steadying purpose, no matter how short the exposure. Use the body or as much of it as possible for supporting the camera, such as digging both elbows into the body, pressing the camera against the forehead, nose and/or cheek, depending on your facial structure, etc.

2. Don't tense the fingers but hold the camera firmly while leaving the fingers free to work.

3. Don't jerk or strongly press the shutter button but press it smoothly and gently.

4. Whenever possible use the tripod, especially at slower speeds, and, if impossible, use other props, such as desk, chair, tree, ledge, or anything solid.

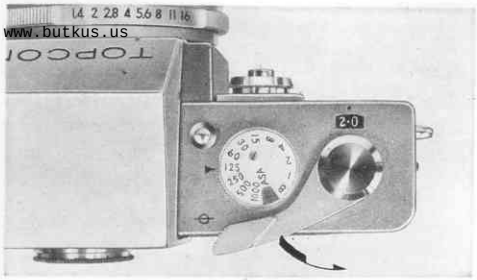
5. Pull the neck strap taut, whenever possible, looping it around the wrists, if necessary, which will brace it against the body.

6. Use a string (rope, chain) tripod if nothing else is possible, by attaching a long string to the lugs of the camera body and pulling it taut by running it around both feet, taking up any slack by looping it around the feet or wrists.

## SPEED-LEVER ACTION

In the holding positions noted, the ball of the right thumb is kept constantly pressed against the speed-lever. When an exposure has been made, the right thumb is used to push the speed-lever as far as it will go and then returned to its resting position, the speed-lever returning on its own accord. Or, if preferred, the speed-lever may be given several short jabs until a full stop is made, which will also accomplish the same thing.

In any case, the speed-lever action will—




1. Advance the film by one frame,
2. Advance the exposure counter by one frame,
3. Cock the focal plane shutter,
4. Charge the mirror raising mechanism,
5. Release the shutter lock,
6. Set the flash circuit, and
7. Engage the speed-lever lock.

**NOTE:**

Either a single 180 degrees stroke or short, rapid strokes up to an accumulated 180 degrees stroking movement will do the job. In any case, the stroking action should continue until a FULL STOP is made.

After the first stroking action, the speed-lever will return to a position about 10 degrees short of its storage position to facilitate the next stroking action. When storing, the lever should be pushed in all the way.

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## SHUTTER RELEASE

When the shutter release button (14) is gently and smoothly pressed with the right forefinger, the following actions take place and the picture is taken :—

1. The mirror swings up. (The safety flash circuit is half closed.)
2. The lens diaphragm closes down to the pre-determined aperture.
3. The focal plane shutter runs across, taking the picture. (The shutter flash circuit is fully closed.)
4. The mirror return mechanism is charged.
5. The mirror returns to reflex viewing position. (The safety flash circuit is broken.)
6. The lens diaphragm opens to full aperture.
7. The shutter release is locked.
8. The speed-lever lock is released.

# PART III
# FILM LOADING PROCEDURE

Now that you have thoroughly familiarized yourself with your camera and know how to view-focus, set exposure, hold the camera and take the picture, you are ready to load your first roll of film in the camera and actually take your first roll of pictures.

If you have an old roll of exposed 35 mm film, however, it is a good idea to try several practice runs with the film before actually loading your first roll of good film.

Your camera is designed to use 35 mm film in daylight cartridges and will take either 20 or 36 exposures of 24 mm × 36 mm size black-and-white pictures. There are also color films of 12, 20 or 36 exposures.

## FILM LOADING

Both loading and unloading of films should never be done in direct daylight or strong artificial illumination, although it is not necessary to get into a really dark room. Outdoors, get in the shade of trees, buildings, or even your own body, always where no direct light will hit the camera. The camera should be placed on a solid object or on the lap so that it will not be dropped accidentally.

### Opening Camera:




1. Push-turn the back cover lock (30) on the bottom of the camera and the back cover will spring up.

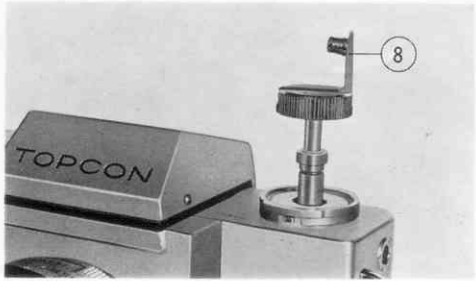
   **CAUTION:**

   Don't press the back cover at this time or it will not spring up.

2. Pull it open all the way.

### Loading Film:

3. Pull up the rewind knob (8) as far as it will go and insert the loaded film cartridge into the empty chamber, with the

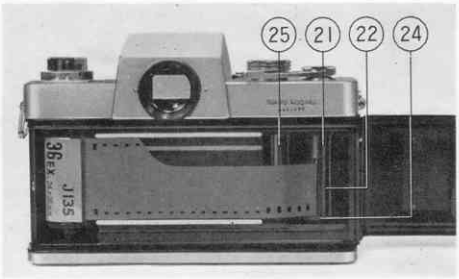


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leading end of the film pointed towards the take-up spool (21).

4. Push the rewind knob back down to catch hold of the film cartridge. If the slot on the rewind (film cartridge) shaft (20) does not engage the cartridge, revolve the rewind knob until it catches.

5. Pull the film out from the cartridge and insert it as deep as possible into one of the multi-slots (22) on the film take-up spool.
   Film insertion is speedy because it will not be necessary, in most cases, to revolve the film take-up spool to place one of the slots into view.




6. Revolve the serrated flange slowly so that the film perforations at the top and bottom fully engage the film transport sprocket (25) teeth.

## Closing Camera:

7. Once the perforations fully engage the sprocket teeth, carefully close the back cover by pushing it until it catches.

8. Slowly turn the rewind knob (8) clockwise which will tension the film inside the cartridge. Once this is done, each time the speed-lever is stroked the rewind knob will also turn counter-clockwise, indicating that the film is being advanced properly.

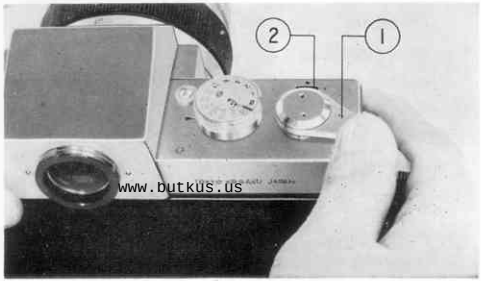
## Advancing the Film:

9. Push the film winding speed-lever (1) with the thumb of the right hand until a full stop is made. As noted, this action will not only advance the film one frame but also charge the shutter action, as well as other inter-related mechanisms,

   Press the shutter release button (14).

10. Repeat the above operation once more, which will mean that two frames will have been advanced and that the next film winding action will place the third frame into position for actually taking the first shot.

    The two blank exposures are required because the first two frames may have been exposed in film loading.




**CAUTION:**

Always stroke the film winding speed-lever until it makes a full stop.

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## EXPOSURE COUNTER

For keeping track of the number of exposures made, your camera has an automatic exposure counter (2) which requires no adjustment at all. Whenever the back cover is opened, the exposure counter automatically returns to the starting-mark, i.e., white dot index.

Two blank exposures put the exposure counter on "zero", indicating readiness for the actual shooting.

With each following speed-lever action, the exposure counter shows the number of exposures actually taken (not that remaining), with a red colored "20" and "36" to show the completion of these numbers of exposures.

## UNLOADING FILM

After the last exposure is made, as indicated by the exposure counter, do not advance the film winding speed-lever anymore or you will tear the film or pull it out of its cartridge.

In any case, if the speed-lever does not move easily, the exposure counter should be checked to see whether the last exposure has been taken or not.

If the last exposure has been taken, leave the speed-lever half-advanced, as it is, and proceed with rewinding the film.

**CAUTION:**

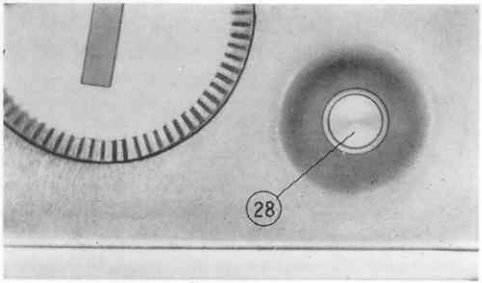
Don't open the back cover at this time or you will ruin your exposed film.

### Rewinding:

1. Depress the rewind button (28) on the bottom of the camera.
2. Unfold the rewind crank from its storage position and revolve it clockwise. The

rewind shaft will slowly float up for easier rewinding action. Revolve the rewind crank to rewind the exposed film back into its cartridge. Rewind smoothly and at an even speed BECAUSE erratic or too rapid rewinding, under certain atmospheric conditions, can cause static electricity marks on your film.

Rewind until you feel the tension lessen as the film end slips out of the take-up spool and then stop rewinding.




## Unloading:

3. Open the back cover as noted.
4. Pull up the rewind knob and lift out the cartridge.
5. Bend the end of the film (as a sign that the film has been exposed) and place it in its original packing for full protection until the film is developed.

**NOTE:**

The rewind button may be left depressed because the next speed-lever action will automatically pop it up.

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## MAINTENANCE OF YOUR CAMERA

1. During extremely cold weather, protect your camera by keeping it under cover (inside your coat) until about one minute before the shot (to permit condensation to clear up).
2. If the camera is intended to be used in freezing weather continuously, winterization is recommended.
3. In extremely hot weather, keep your camera cool by keeping it in the shade. Do not put it in the glove compartment or on the rear window deck of the car but leave it on the floor or seat where it is the coolest.
4. Don't keep your shutter tensioned if successive shots are not intended.
5. Don't keep your distance focusing ring at the focused distance but always return it to infinity.
6. Cover your lens(es) with their cap(s) when not in use.
7. Don't touch any of the glass surfaces, whether lens, mirror, or focusing screen, with your fingers.
8. Don't apply pressure to the focal plane shutter curtain.
9. Always keep the exposure meter on OFF, when it is not intended to use the camera for some time.
10. Protect your camera, lens and exposure meter against rain, dust, sand, strong sunlight and salty air outdoors by keeping the cover of the leather everready case closed until the actual shot.

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# PART IV
# ADVANCED PHOTOGRAPHIC PROCEDURES

In the previous parts, you have been introduced to your camera, acquainted with rudimentary picture-taking steps, as well as shown how to load and unload film into the camera. In other words, it should now be possible for you to take quite acceptable pictures.

However, in order to get the best out of your camera, to take photographs of higher quality, to really enjoy a wider range of photography, and to obtain satisfaction from photography, you will soon realize that the basic steps so far mastered must be augmented further, and in the next sections you will find much information which should help you in improving your shots.

## CORRECT EXPOSURE READING

After taking several rolls of film, you may soon realize that it is not as simple as merely pointing the Mirror-Meter at the object to obtain the desired effect or the correct exposure.

While correct exposure depends on the effect that the photographer is looking for in the final picture (such as over-exposure, under-exposure, shooting for the shadows, or just getting the high-lights, etc.), the points noted below should be followed in taking any exposure reading :—

### Landscape :

Since the sky is much brighter than the general scene, the exposure reading should be taken of an area having less sky than the general scene, as otherwise the overall effect may be slightly under-exposed. It will not be necessary to shield the Mirror-Meter against the light from the sky, however, as it is deeply reces-

sed and protected against reading excess light.

## Shots against the open sky:

When shooting objects, like flags, buildings, etc., standing out against the open sky, take an exposure reading of a similiar object with the light striking it at the same angle as the subject matter and modify it by 1/2 stop less.

## Contrasty shots:

First decide what effect is being sought and control your exposure reading accordingly. Since the Mirror-Meter gives an average reading for the full area seen in the finder area, there is no problem if an average effect is required. If, however, an entirely different effect is being sought, take an exposure reading of the portion which interests you the most, letting the contrasty portion (i.e., lighter or darker portion) get lighter or darker as the case may be.

## Inaccessible objects:

For shooting objects at a far point, where exposure readings are not possible without getting an excessive reading of the background, use any nearby object with the same texture and lighting condition as the subject and take a close-up reading.

## Back-lighting:

If possible, move in close and take a reading of the front-lighted subject area only, checking to see that the back-light does not affect the reading. If this is not possible, take a reading from the camera position but modify it 3 or 4 times to take into account the excessive contrast between the front light and back-light.

## Very low light:

In extreme low light situations, take a close-up reading of a white paper or other white object and multiply it 5×. If f/2 and 1/100



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second, the corrected reading will be f/2 and 1/20 second. If a white subject is not available, or the location very dark, as in dimly lighted bars, stages, etc., take an exposure reading of the principal light source. Next, multiply the reading thus obtained 8× to 10× for the corrected exposure reading. Thus, if the reading should be f/2 and 1/100 second, the corrected exposure should be f/2 and 1/10 or 1/15 second.

### Snow landscapes:

In general, exposure is extremely difficult because contrast is extreme. An average reading of a scene, including a great portion of snow background, would result in underexposure of the subject. But, if the exposure reading is made of the subject only, the snow will turn out as a blank white mass, due to over-exposure. For an average reading, it is recommended that the palm of the hand be used as a substitute, but, if the subject is the main consideration, take a close-up reading of the subject. For getting both subject and background in the picture with sufficient detail, and with the subject fairly close distance, the use of flash fill-in may be the only logical solution because the extreme contrast in this case may not permit any compromise reading.

### Gray card of 18% reflectance:

For an average reading, a gray card of 18% reflectance will serve for measuring the intensity of the light being reflected from an "average" subject, much as the palm of the hand will do, but with greater accuracy. This may substitute for exposure readings from the subject in the case of extreme contrast, or subjects too far for close-up reading, for portraits, etc.

## INCIDENT LIGHT EXPOSURE MEASUREMENT

The basic exposure measurement system of

the Mirror-Meter is a reflected light measurement type, which means that the light reflected from the subject is always measured to obtain the correct exposure reading for the subject. Thus, as already noted on the previous pages, exposure measurements for certain types of subjects, like snow landscapes, shots against the sky, etc., are rather difficult and must be compensated. To overcome these difficulties, it is recommended that incident light exposure measurements be taken for such subjects, or, in other words, the light falling on the subject should be measured to determine the correct exposure.

The Incident Light Receptor is used for this type of exposure reading and is simply attached on front of the lens, like the lens cap, with the incident light measured at the position of the subject with the lens (and receptor) aimed at the picture-taking position. The accessory must, however, be detached before releasing the shutter.

The use of the accessory will eliminate errors in exposure measurements due to strong or weak colors in the subject or background. It will also eliminate errors due to the color of the subject, as CdS cells are oversensitive to red colors and not sufficiently sensitive to blue colors.

Errors due to the color of the light source will also be eliminated because the accessory has a special spectral sensitivity compensation filter. And, finally, side-lighting effect on the subject will also be taken into account because of the hemispherical shape of the accessory.

Exposure measurements determined by the incident light measurement method will be correct for different subjects, also, if lighting conditions remain unchanged, and will also be good for against-the-light shots. If the lighting condition is the same at the picture-taking position as at the subject position, then incident light exposure measurements will be possible simply by turning 180° around and measuring the incident light.



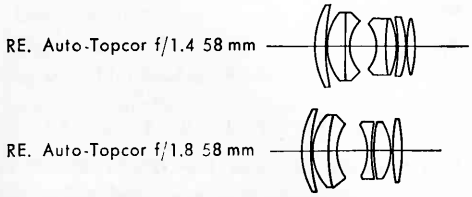
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## TOPCOR LENSES

Two interchangeable and fully automatic standard lenses are available for your camera and may be used interchanged between themselves and with other TOPCOR lenses.

**RE. Auto-Topcor f/1.4 58 mm** standard lens is a 7 element modified Gauss type lens, covering a 41 degree field of view, with lens diaphragm openings from f/1.4 to f/16 and focusing down to a minimum 18 inches (45 cm).

**RE. Auto-Topcor f/1.8 58 mm** standard lens is a 6 element Gauss type optic, also covering a 41 degree field of view, with apertures from f/1.8 to f/22 and also focusing down to a close 18 inches (45 cm).




### Fully Automatic Instant Opening Lens Diaphragm Action:

Both standard lenses are equipped with the fully automatic lens diaphragm action internally coupled with the camera mechanism, and thus permit completely coordinated and synchronized action with the focal plane shutter and reflex mirror actions.

In the simplest terms, this means that the lens diaphragm is always wide open at full aperture for viewing and focusing through the lens, but closes down instantly for picture-taking and opens up instantly when everything is over—without any chances of your mistaking a single important action.

When the shutter release is pressed, the lens diaphragm closes down immediately to whatever aperture has been pre-selected—even before

the shutter curtain starts its run—and stays closed for the exposure; but snaps open immediately and automatically to maximum aperture again—while, in the meantime, the reflex mirror also swings up for the exposure and snaps down instantly after the shot—so that the only movement seen in the finder is a slight flicker which is hardly noticeable.



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## Lens Opening:

The automatic diaphragm, as noted above, has the all important task of stopping down to control the amount of light that enters the lens and passes through to the film plane. These graduated series of lens opening, which are in progression, are called "apertures" or "stops" and are controlled on the standard RE. Auto-Topcor lens by revolving the aperture ring (34), on the lens barrel, until the required aperture number is opposite the aperture index mark (35).

The correct aperture, for the shutter speed of the camera, is automatically set to the aperture index whenever the exposure indicator is correctly matched to its index, while taking an exposure reading.

The standard lenses have the following apertures, with the exposure ratios noted, showing that the larger numbers are the smaller apertures :—

| Aperture | 1.4 | 1.8 | 2 | 2.8 | 4 | 5.6 | 8 | 11 | 16 | 22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Exposure Ratio | 1/8 | 1/5 | 1/4 | 1/2 | 1 | 2 | 4 | 8 | 15 | 30 |

Lens openings between the above apertures are also available and are used when the



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required shutter speed calls for it. The above table shows that each smaller aperture permits only one-half the amount of the next larger aperture and indicates that each smaller aperture, therefore, requires double the exposure of the next larger aperture, and that, therefore, stopping down will require a corresponding increase in the shutter speed if light conditions remain unchanged.

In other words, if the shutter speed is originally set at 1/60 second for f/8 aperture, it will be changed to 1/30 second if the aperture is stopped down to f/11 or to 1/125 second if the aperture is opened one stop to f/5.6.

## Lens Mount:

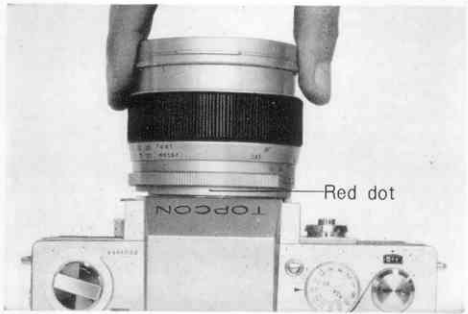
Your camera has a precision fitting modified bayonet lens mount, which provides for the quickest, simplest and most trouble-free attachment or removal of TOPCOR lenses from the camera.

**a. Removing the lens:**

Press the lens locking lever (17), which will disengage the lens locking pin on the lens barrel. Rotate the lens a quarter turn counter-clockwise, around its optical axis, until two red dots (one on the lens barrel and one on the camera body) are lined up. Lift the lens carefully out of the camera body.

**b. Attaching the lens:**

Line up the red dot on the rear end of the lens barrel with that on the body



flange and insert carefully. When well-seated, turn the lens clockwise until a full stop is made and it clicks into position.

### Lens Covers:

When not in use, the lens should be covered with its hard rubber or metal snap-on cover to protect the lens surface. When lenses are detached from the camera body, their rear ends should be covered and the camera body cap also used to protect the interior of the body.

## TOPCOR INTERCHANGEABLE LENSES

For a more fuller enjoyment of the TOPCON system of photography a wide range of Topcor interchangeable lenses, besides the two wonderful standard RE. Auto-Topcor optics, are available for the user to choose from. All of them take full advantage of the single lens reflex system and do not require the purchase of an additional accessory finder.

In other words, when any of the interchangeable lenses are attached to the camera nothing else is required—simply view and focus the subject directly through the camera lens and enjoy the wonderful system which is not to be experienced with a rangefinder camera.

Interchange with the standard lens is simple and quick with the modified bayonet mount providing simple but positive locking action, as explained on pages 42 and 43.

Topcor interchangeable lenses from 25 mm



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# TABLE OF TOPCOR LENSES

| Lens | Number of Lens | Angle of Field | Exposure Measurement | Diaphragm Control | Closest Distance | Lens Hood Mount | Filter | Weight |
|---|---|---|---|---|---|---|---|---|
| RE. Auto-Topcor 25mm F/3.5 | 7 | 82° | Full-Aperture | Automatic | 6.5in (0.16m) | Clamp Mount | Special Bayonet | 320g |
| RE. Auto-Topcor 35mm F/2.8 | 7 | 63° | Full-Aperture | Automatic | 9in (0.23m) | Bayonet | 49mm | 250g |
| RE. Auto-Topcor 58mm F/1.4 | 7 | 41° | Full-Aperture | Automatic | 18in (0.45m) | Bayonet | 62mm | 300g |
| RE. Auto-Topcor 58mm F/1.8 | 6 | 41° | Full-Aperture | Automatic | 18in (0.45m) | Bayonet | 49mm | 220g |
| RE. Auto-Topcor 100mm F/2.8 | 5 | 24.5° | Full-Aperture | Automatic | 4ft (1.2m) | Bayonet | 49mm | 280g |
| RE. Auto-Topcor 135mm F/3.5 | 4 | 18° | Full-Aperture | Automatic | 4ft (1.2m) | Telescoping | 49mm | 400g |
| RE. Auto-Topcor 200mm F/5.6 | 5 | 12° | Full-Aperture | Automatic | 10ft (3m) | Telescoping | 49mm | 460g |
| RE. Auto-Topcor 500mm F/5.6 | 5 | 5° | Full-Aperture | Automatic | 20ft (8m) | Telescoping | Push-in | 2,100g |
| | | | | | | | | |
| RE. Zoom Auto-Topcor 87–205mm F/4.7 | 13 | 28°–12° | Full-Aperture | Automatic | 9ft (2.5m) | Telescoping | 58mm | 710g |
| R. Topcor 300mm F/5.6 | 4 | 8° | Stop-Down | Pre-set | 15ft (4.5m) | Telescoping | 62mm | 740g |
| R. Topcor 300mm F/2.8 | 5 | 8° | Stop-Down | Pre-set | 15ft (4.5m) | Telescoping | Push-in | 3,300g |
| * RE. Macro-Auto-Topcor 58mm F/3.5 | 5 | 41° | Full-Aperture | Automatic | (○ $\frac{1}{50}$ ~0.5X<br>△ 0.5X~ 1 X<br>▲ 1 X~3.6X) | — | 49mm | 260g |
| * Topcor Macro 30mm F/3.5 | 6 | | Stop-Down | Pre-set | (○ 2X~3X<br>● 2X~7X) | — | 22.5mm | 52g |
| * Topcor Macro 58mm F/3.5 | 5 | 41° | Stop-Down | Semi-Automatic | (○ $\frac{1}{50}$ ~0.5X<br>● $\frac{1}{50}$ ~2.5X) | — | 49mm | 120g |
| * Topcor Macro 135mm F/4 | 3 | 18° | Stop-Down | Semi-Automatic | (○ $\frac{1}{50}$ ~0.2X<br>● $\frac{1}{50}$ ~1.1X) | Bayonet | 49mm | 268g |

* Use together with the Focusing Extention Tube or Bellows Attachment Model IV

○ Scale of reproduction : With Focusing Extension Tube
● 〃 〃 : With Bellows IV
△ 〃 〃 : With RE. Auto-Ring
▲ 〃 〃 : With Bellows IV, Reverse-Adapter Ring and Automatic Diaphragm Tube

wide-angle to 500 mm telephoto are available for regular use, with two types of diaphragm action, or fully automatic instant opening lens diaphragm action, as found in those designated the RE. Auto-Topcor, and semi-automatic preset diaphragm action, as incorporated in the R. Topcor group of lenses. In addition, there are four special formula optics designed to give optimum lens performance at close focusing distances; those without focusing mount are designated the Macro-Topcor while that with built-in focusing mount and fully automatic lens diaphragm action is designated the RE. Macro-Auto-Topcor. Finally, the RE. Zoom Auto-Topcor lens is also available, with zooming between 87 mm to 205 mm focal lengths and fully automatic lens diaphragm action, also.

**a. Wide-Angle Lenses:**

The wide-angle lens has a shorter focal length when compared to the standard 58 mm lens, and covers a much wider field of view at the same camera-to-subject distance. The image, however, is much smaller and the depth of field of the lens is much deeper, all of these characteristics growing stronger as the focal length grows shorter. Because of these characteristics, the wide-angle is especially valuable for architectural work, interior shots of rooms, groups in small rooms, and whenever there is not much room to back up in. It is also used for fast candid shooting, by utilizing its great depth of field, for zone focusing, and for slower speed possibilities because of its smaller image. At the same time, it can be used for exaggerated perspectives because of its extra wide field of view.

**b. Telephoto Lenses:**

As opposed to the wide-angle lenses, the telephoto lens covers a smaller field of view, shows a smaller picture area with



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a larger image pulled in closer, and a shallower depth of field, in comparison to the standard lens, and this effect grows stronger as the focal length grows longer.

For its main characteristic of pulling in distant objects, the telephoto is most commonly used for shooting distant objects which cannot be approached close enough to isolate and emphasize, mainly in sports, animal photography and general all around distant shooting outdoors. At the same time, it is very often used, especially the focal lengths 100 and 135 mm, for portraiture because of its natural perspective and because its shallow depth of field is useful for eliminating distracting backgrounds. These effects also make the 100 mm and 135 mm useful for shooting close-ups.

As noted, the Topcor interchangeable lenses are supplied with two types of diaphragm action.

a. **RE. Auto-Topcor Lenses:**

This group of lenses have the same fully automatic instant-opening lens diaphragm action, found on the two standard 58 mm lenses, and are also mechanically coupled to the built-in exposure meter. They are, therefore, extremely useful for everyday photographic assignments.

Besides the two standard lenses—RE. Auto-Topcor f/1.8 58 mm and RE. Auto-Topcor f/1.4 58 mm—two wide-angle lenses and four telephoto lenses are available in focal lengths most in demand with professional and advanced amateurs.

The two wide-angle lenses are f/3.5 25 mm and f/2.8 35 mm—the former with a 82 degree field of view and the latter with a 63 degree field. Both are of retro-focus design to accomodate the longer rear-flange-to-film-plane distance, which is one of the main characteristics of the single lens reflex. But the most

## RE. Auto-Topcor Lenses



distinctive feature of both Topcor wide-angle lenses is that they can be used on your camera without locking the mirror out of position and without using a special finder.

The four telephoto lenses are f/2.8 100 mm, f/3.5 135 mm, f/5.6 200 mm and f/5.6 500 mm. The first three optics are designed for hand-held shooting and feature greatly shortened barrel lengths, extreme lightness in overall weight and excellent shooting balance. The 100 mm lens covers a 24.5 degrees field of view and focuses down to 1.2 meters (4 ft.); the 135 mm covers a 18 degrees field of view and has a minimum focusing distance of 1.8 meters (6 ft.); and the 200 mm has a 12 degrees field, while focusing down to 3 meters (10 ft.).

All three are used extensively for



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## R. Topcor Lenses





portraiture work, while the former two are also used for close-ups (extended with bellows) and the last lens is used for distance shooting, also.

On the other hand, the f/5.6 500mm telephoto lens has been designed specially for long distance shooting and consists of 5 lens elements in 5 groups, or a very de luxe optic design for lenses in this class.

It covers a 4.8 degrees field of view and focuses down to 7 meters (23 ft.). There are two types of tripod screws, with internal screws of 1/4 in. and 3/8 in.

**b. R. Topcor Lenses:**

This group of lenses include only telephotos. They are not equipped with the more complicated automatic lens diaphragm which grows more complex with longer focal lengths, correspondingly

more costly and makes the lens heavier.

The R. Topcor lenses have a simplified preset lens diaphragm action and are optically coupled to the built-in exposure meter. In other words, the exposure meter is coupled to the lens diaphragm as it is stopped down or opened up, and shows the correct exposure reading for the actual lens opening.

**Preset Diaphragm:**

The preset diaphragm mechanism consists of an aperture index mark—a white diamond, an aperture scale ring and a knurled preset diaphragm ring with a white preset index dot, in that order from the front end of the lens barrel.

The aperture scale ring and the preset diaphragm ring can be moved interlocked or the preset ring can be moved independently, as required.

1. Since it is speedier to view-focus initially, set the maximum aperture opposite the aperture index which will give maximum focusing ease.
2. When view-focusing is completed, revolve the preset diaphragm ring and aperture scale ring interlocked until the exposure indicator shows the correct exposure.
3. If the depth of field at this time is not suitable, revolve the interlocked rings until the depth of field is suitable. Then, rotate the shutter speed dial until the exposure is corrected.
4. If the following shots are based on the same exposure, revolve the preset mark opposite the suitable aperture. It will only be necessary to revolve the preset diaphragm ring interlocked with the aperture scale ring until it stops, automatically, at the preselected aperture.



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**NOTE:**
The aperture ring cannot move to the left when the maximum aperture is set to the diamond aperture index, nor can the white preset dot move to the right of the aperture index mark (facing the subject).

Two telephoto lenses are available in the 300mm focal length.
The f/2.8 300mm is considered to be one of the world's finest and fastest, in this focal length, and it is used by professional everywhere for available light shooting, because of its fast lens speed of f/2.8. On the other hand, it is a rather heavy lens but more than makes up for its weight with its effectiveness in night shooting without flash illumination.
The other 300mm lens is an astonishingly light and well-balanced 4 element telephoto which is suited for hand-held shooting. It has a slower lens speed of f/5.6, which is, however, quite sufficient for outdoor shots, for which telephotos are mainly used.

**CAUTION:**
The telephoto lenses are extremely light for their size, but hand-held shooting is not recommended if a tripod can be used. Because these long focal lengths enlarge a small area, they also magnify the movement of the subject (and the camera) and thus make it absolutely necessary to eliminate the hazard of camera shake.

When using the camera on a tripod, with any lens, always use a cable release to minimize camera vibration. If a cable release is not available the self-timer (15) will substitute.
The longer lenses are equipped with a tripod socket (permitting either horizontal or vertical format) and, thus the lens itself is mounted on the tripod instead of the camera.

## Macro-Topcor Lenses



Auto f/3.5 58mm | f/3.5 58mm | Focusing extension tube | f/4 135mm | f/3.5 30mm

### c. RE. Macro-Auto-Topcor Lens:

This f/3.5 58mm lens has been designed to give optimum lens performance at close focusing distances, as opposed to the general purpose lenses which have been designed for giving their best performance at infinity.

Thus, this particular lens is ideal for photographic magnification of 1/10× while, at the same time, equalling the standard lens in performance at infinity. Focusing is infinity to 1:0.5, with the lens only, but further continuous focusing from 1:0.5 to 1:1 is possible simply by using the RE. Auto-Ring between the lens and body, with the accessory also coupling the automatic lens diaphragm mechanism of the lens and body.

Because of its superior performance at infinity, the lens may also be used for



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general shooting, as well as for enlarging or for projection work.

A 49mm mount reverse-adapter ring should be used on the filter mount of the lens, for reversing the lens when shooting over a scale of reproduction of 1:1, because of the superior lens performance which is then possible. For focusing over 1:1, or life-size, the lens should be used with the Model IV bellows.

**d. Macro-Topcor Lenses:**

These lenses have also been designed for optimum performance at close focusing distances, like the RE. Macro-Auto-Topcor f/3.5 58mm lens, but they lack the built-in focusing mount. Therefore, these lenses must always be used with a special focusing extension tube or the Model IV bellows, with semi-automatic lens diaphragm action obtained only when used with the double cable release.

Three lenses are available in this group of lenses, or the Macro-Topcor f/3.5 58mm, the Macro-Topcor f/4 135mm and the very special formula Macro-Topcor f/3.5 30mm.

The Macro-Topcor f/3.5 58mm is identical to the RE. Macro-Auto-Topcor f/3.5 58mm in optical design, only lacking the built-in focusing mount, and gives the same performance when used with the special focusing extension tube, or, in other words, focusing from infinity to 1:0.5. Focusing from infinity to 1:2.5 is possible, when used with the Model IV bellows, while the RE. Auto-Ring can only be used for providing additional focusing from 1:0.5 to 1:1, since there is no need for coupling of an automatic lens diaphragm mechanism.

The f/4 135mm Macro-Topcor is ideal for photographic magnification of 1/8× but is also quite satisfactory for general shooting. With the focusing extension tube, the range is infinity to 1:0.2, which

is increased to infinity to 1:1.1, with the Model IV bellows.

On the other hand, the f/3.5 30mm Macro-Topcor lens is quite distinctive and has been designed exclusively for macro-photography, thus, not being usable for general shooting. Furthermore, because it has a very special screw mount, identical to that of the microscope objective, it must be used with a special bayonet mount adapter for attachment to the focusing extension tube and/or Model IV bellows. On the other hand, it can be used without an adapter on the microscope and, therefore, the microscope tube can be used as a special type of focusing tube, for connecting camera body to lens.

Two types of bayonet mount adapters are available, or one of 5.8mm thickness and a conical shaped one of 65mm thickness.

The lens can be used for macrophotography from 2× to 10×, with best results obtained between 3× to 5×.

The special focusing extension tube, used exclusively with these Macro-Topcor lenses, provides up to 30mm focusing extension and can also be used in combination with other extension tubes and/or bellows.

In addition to the 49mm mount reverse-adapter ring, which can also be used with the 58mm Macro-Topcor lens, a 62mm mount ring is also available for use with the 135mm Macro-Topcor lens, when shooting over 1:1. The Macro-Topcor f/3.5 30mm, on the other hand, cannot be used reversed because of its special optical design; however, the reverse-adapter rings can be used with other TOPCOR lenses (with 49mm or 62mm filter mounts), when they must be reversed in close-up shooting.

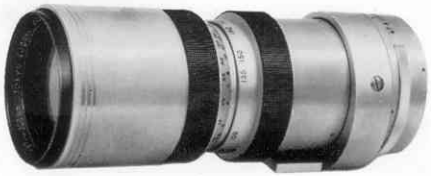
**e. RE. Zoom Auto-Topcor Lens:**



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Besides the foregoing lenses, there is also another special optic with the fully automatic instant-opening lens diaphragm action, which has 13 lens elements in 8 groups, with two groups moving separately to provide constant zooming action between 87mm and 205mm focal lengths. Because of the special high precision built-in cam there is no shifting in focus with zooming action, thus not requiring constant adjustment of the focus once it has been correctly adjusted.

As with the longer telephoto lenses, the lens is equipped with a tripod socket which is rotatable for either horizontal or vertical formats.



**f. RE. Auto-Ring:**

The accessory provides a 29mm rigid extension, without disrupting the automatic lens diaphragm coupling action of the RE. Macro-Auto-Topcor 58mm lens, and extends the range of magnifications possible with the lens from 0.5× to 1×. Although designed primarily for use with the RE. Macro-Auto-Topcor 58mm lens, the accessory may be inserted between the RE. Super body and RE. Auto-Topcor lenses, when extensions up to 29mm are required, without loss of automatic lens diaphragm action.



## DEPTH OF FIELD

In focusing on a distant object, from just inside a window, you may notice that the window frame is blurred, or out of focus. By stepping back from the window, you will notice that without re-focusing, the window frame will gradually become more distinct. On the other hand, if instead of backing away, you re-focus on the window frame, you will notice that the subject initially focused will now be blurred and out of focus. By closing down the aperture two or three stops and using the preview lever (13) it will be possible to see what takes place with the stopped down aperture—the distant object will become more distinct than with the wide-open aperture, as will the foreground objects.

With the single lens reflex, these effects can be checked right on the focusing screen so that it will be possible to have subjects in a greater zone, than the focused plane only, shown distinctly in the final photo. And, the preview lever will assist you in checking the effect for the stopped down aperture which is to be used for taking the picture.

From the above, it will be noted that when a certain subject is focused, not only that subject but certain other subjects, both in front and back of the first subject will be seen sharply. In other words, when a subject has been focused at a certain distance, the lens presents an apparently sharp image not only at the precise distance but also at somewhat farther and nearer distances. This zone of apparent sharpness is known as the depth of field.

The rules governing the depth of field are :—

1. The depth of field is greatest as the diaphragm is closed down and least as the diaphragm is opened. The wide-open aperture of the fully automatic lens always shows the minimum depth of field.

2. The depth of field becomes greater as



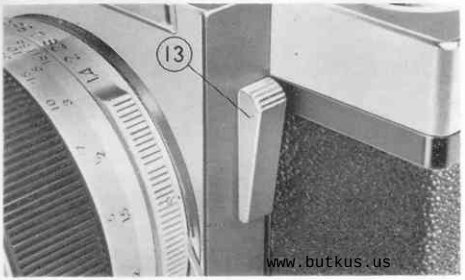
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the subject-to-camera distance increases and least at close focusing distance.

3. The depth of field is greater in the background and shallower in the foreground but grows progressively equal as the focusing distance is decreased.

4. The depth of field increases with the use of a short focal length (wide-angle) lens and decreases with the longer telephoto lenses.

Your camera, with its depth of field preview lever (13) and TRUE ground glass standard focusing screen, permits the actual previewing of the depth of field for a pre-determined aperture. But it is not always practical to depend on this feature because the focusing screen is darkened when the diaphragm is stopped down and the greatest accuracy is not possible. It is a very valuable feature for shooting under most conditions, however, and makes it unnecessary to use the depth of field scale or depth of field table for ordinary work.



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## Depth of Field Scale:

The depth of field scale, on the lens barrel, shows at a glance the zone of apparent sharpness at any lens opening or distance setting and is utilized for quickly and simply ascertaining the depth of field.

The depth of field scale (37) is next to the distance scale and is made up of identical pairs of apertures on both sides of the dis-

tance index (35), which also represents the widest aperture. These identical pairs of apertures indicate the distance that will be in focus at these lens openings.

**1. Finding the depth of field:**

For example, if you are using a f/11 lens opening and focusing on 10 feet (3 meters), read the distances opposite the figures 11 on both sides of the depth of field scale, which will be about 8 and 15, showing that the depth of field is approximately 8 ft. to 15 ft. (2.4 to 4.6 meters).

On the other hand, if f/11 does not give a sufficient zone of sharpness, check the depth of field scale to see which aperture does give you a broader depth of field. If, for example, it should be f/22, your zone will be seen to extend from approximately 6 ft. to 30 ft. showing that stopping down the lens will drastically change your depth of field.









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Of course, since it also means that the shutter speed must be decreased to compensate for the reduction in the effective amount of light reaching the film, there are limits to which the lens should be stopped down.

2. **Zone focusing:**
An alternative and more practical method for finding a suitable aperture, when the zone of sharpness which must be used is already known, is zone focusing. In this method, don't focus on the prime subject, but first focus on the nearest important subject and note the distance setting. Next, focus an the farthest important subject and also note the distance. Now set these distance settings opposite identical aperture numbers or as near as possible to them.

For example, let's imagine that your nearest subject is 8 ft. and the farthest 15 ft., as found on the distance scale. Turn the distance focusing ring until these figures come opposite identical numbers (f/11 in this case) and you are all set.

3. **Fast zone focusing:**
When there is not enough time to find the extreme limits for the above zone focusing method, a rough but faster method is also possible. Since it is known that the foreground is more shallow than the background (except in close-up shooting where a shallow depth of field prevails anyway), focus on a subject about two-fifths of the way into the required zone of sharpness and choose an aperture which will be consistent with the overall field.

## Depth of Field Table:

When greater accuracy is required in ascertaining the depth of field, especially for close focusing distances, the depth of field table should be used as all figures on the depth of field scale are in round sums because it is

impractical and impossible to indicate accurately on the limited space of the scale. It should be realized, however, that the depth of field does not imply that everything within this zone is of equal sharpness or that the sharpness falls off abruptly at the limits of this zone. On the contrary, critical pin-point sharpness is only found in the plane actually focused and sharpness gradually grows less sharp as the distance goes farther from this plane of focus. However, for most practical purposes, everything within this zone is normally considered of acceptable sharpness. But the final criterion in this case should be decided by the use of the final photo, whether it must be greatly enlarged (in which case greater sharpness will be required) or whether it will be used without much enlargement.

In the following depth of field table, it is assumed that the circle of confusion is 1/30 mm, or that a pin-point represented on the negative by a dot not exceeding 1/30 mm is sufficiently sharp. This dot then is termed "circle of confusion" and is used as a standard for this table because sharpness of depth of field is a highly debatable point from each user's standpoint, and certain standards must be agreed on beforehand.
In all instances, the distances on the scale or in the table are measured from the focal or film plane (indicated by the marking ⊖ (39) on the top of the camera) to the subject.

**ATTENTION:**
The depth of field should be increased, as much as possible, by stopping down the aperture rather than by increasing the focusing distance, or by using a shorter focal length lens, if this is more practical.



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## Depth of Field Table (distances in feet)

RE. Auto Topcor f/1.4 58 mm 1/30 mm

| F / feet | 1.4 | 2 | 2.8 | 4 | 5.6 | 8 | 11 | 16 |
|---|---|---|---|---|---|---|---|---|
| ∞ | ∞～233.3 | ∞～163.4 | ∞～116.8 | ∞～81.9 | ∞～58.6 | ∞～41.1 | ∞～30.0 | ∞～20.7 |
| 30 | 34.4～26.6 | 36.6～25.4 | 40.2～24.0 | 47.1～22.1 | 61.1～20.0 | 110.6–17.5 | ∞～15.1 | ∞～12.4 |
| 15 | 16.0～14.1 | 16.5～13.8 | 17.1～13.3 | 18.3～12.7 | 20.0～12.0 | 23.4～11.1 | 29.6～10.1 | 53.9～8.83 |
| 10 | 10.4～9.61 | 10.6～9.45 | 10.9～9.25 | 11.3～8.96 | 12.0～8.61 | 13.1～8.13 | 14.8～7.60 | 18.9～6.86 |
| 7 | 7.20～6.81 | 7.29～6.73 | 7.41～6.63 | 7.61～6.49 | 7.88～6.30 | 8.33～6.05 | 8.98～5.76 | 10.3～5.33 |
| 5 | 5.10～4.91 | 5.14～4.87 | 5.20～4.82 | 5.29～4.74 | 5.42～4.65 | 5.62～4.51 | 5.90～4.35 | 6.43～4.11 |
| 4 | 4.06～3.94 | 4.09～3.92 | 4.12～3.88 | 4.18～3.84 | 4.25～3.78 | 4.37～3.69 | 4.54～3.59 | 4.84～3.43 |
| 3 | 3.03～2.97 | 3.05～2.96 | 3.06～2.94 | 3.09～2.91 | 3.13～2.88 | 3.19～2.83 | 3.27～2.77 | 3.42～2.68 |
| 2.5 | 2.52～2.48 | 2.53～2.47 | 2.54～2.46 | 2.56～2.44 | 2.59～2.42 | 2.63～2.39 | 2.68～2.35 | 2.77～2.28 |
| 2.25 | 2.27～2.23 | 2.27～2.23 | 2.28～2.22 | 2.30～2.20 | 2.32～2.19 | 2.35～2.16 | 2.39～2.13 | 2.46～2.08 |
| 2 | 2.01～1.99 | 2.02～1.98 | 2.03～1.98 | 2.04～1.97 | 2.05～1.95 | 2.07～1.93 | 2.10～1.91 | 2.16～1.87 |
| 1.75 | 1.76～1.74 | 1.76～1.74 | 1.77～1.73 | 1.78～1.72 | 1.79～1.71 | 1.80～1.70 | 1.82～1.68 | 1.86～1.65 |
| 1.5 | 1.51～1.49 | 1.51～1.49 | 1.51～1.49 | 1.52～1.48 | 1.52～1.48 | 1.54～1.47 | 1.55～1.45 | 1.57～1.43 |

## Depth of Field Table (distances in meters)

**RE. Auto Topcor f/1.4 58mm** 1/30 mm

| m \ F | 1.4 | 2 | 2.8 | 4 | 5.6 | 8 | 11 | 16 |
|---|---|---|---|---|---|---|---|---|
| ∞ | ∞～71.1 | ∞～49.8 | ∞～35.6 | ∞～25.0 | ∞～17.9 | ∞～12.5 | ∞～9.14 | ∞～6.31 |
| 10 | 11.6～8.78 | 12.5～8.35 | 13.8～7.83 | 16.6～7.17 | 22.6～6.45 | 49.6～5.60 | ∞～4.82 | ∞～3.91 |
| 5 | 5.37～4.68 | 5.54～4.56 | 5.79～4.38 | 6.22～4.19 | 6.89～3.93 | 8.23～3.61 | 10.9～3.27 | 24.0～2.83 |
| 3 | 3.13～2.88 | 3.18～2.84 | 3.26～2.78 | 3.39～2.69 | 3.57～2.59 | 3.90～2.45 | 4.40～2.29 | 5.60～2.07 |
| 2 | 2.05～1.95 | 2.08～1.93 | 2.11～1.90 | 2.16～1.86 | 2.23～1.81 | 2.35～1.74 | 2.59～1.67 | 2.86～1.55 |
| 1.5 | 1.53～1.47 | 1.54～1.46 | 1.56～1.45 | 1.59～1.42 | 1.62～1.40 | 1.68～1.36 | 1.76～1.31 | 1.92～1.24 |
| 1.2 | 1.22～1.18 | 1.23～1.18 | 1.24～1.17 | 1.25～1.15 | 1.27～1.13 | 1.31～1.11 | 1.36～1.08 | 1.45～1.03 |
| 1.0 | 1.01～0.99 | 1.02～0.98 | 1.02～0.98 | 1.03～0.97 | 1.05～0.96 | 1.07～0.94 | 1.10～0.92 | 1.16～0.88 |
| 0.8 | 0.81～0.79 | 0.81～0.79 | 0.81～0.79 | 0.82～0.78 | 0.83～0.77 | 0.84～0.76 | 0.86～0.75 | 0.89～0.73 |
| 0.7 | 0.71～0.69 | 0.71～0.69 | 0.71～0.69 | 0.72～0.69 | 0.72～0.68 | 0.73～0.67 | 0.74～0.66 | 0.77～0.65 |
| 0.6 | 0.60～0.60 | 0.61～0.59 | 0.61～0.59 | 0.61～0.59 | 0.62～0.59 | 0.62～0.58 | 0.63～0.57 | 0.65～0.56 |
| 0.55 | 0.55～0.55 | 0.55～0.55 | 0.56～0.54 | 0.56～0.54 | 0.56～0.54 | 0.57～0.53 | 0.57～0.53 | 0.59～0.52 |
| 0.5 | 0.50～0.50 | 0.50～0.50 | 0.50～0.50 | 0.51～0.49 | 0.51～0.49 | 0.51～0.49 | 0.52～0.48 | 0.53～0.48 |
| 0.45 | 0.45～0.45 | 0.45～0.45 | 0.45～0.45 | 0.46～0.45 | 0.46～0.44 | 0.46～0.44 | 0.46～0.44 | 0.47～0.43 |



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## Depth of Field Table (distances in feet)

RE. Auto-Topcor 1 : 1.8 f = 5.8 cm 1/30 mm

| F / feet | 1.8 | 2.8 | 4 | 5.6 | 8 | 11 | 16 | 22 |
|---|---|---|---|---|---|---|---|---|
| ∞ | ∞ ~ 184 | ∞ ~ 119 | ∞ ~ 83 | ∞ ~ 60 | ∞ ~ 42 | ∞ ~ 30 | ∞ ~ 21 | ∞ ~ 15 |
| 30 | 35.9 ~ 25.8 | 40.3 ~ 23.9 | 47.2 ~ 22 | 61.3 ~ 19.9 | 111 ~ 17.4 | ∞ ~ 15 | ∞ ~ 12.3 | ∞ ~ 10.1 |
| 15 | 16.3 ~ 13.9 | 17.1 ~ 13.3 | 18.3 ~ 12.4 | 20 ~ 12 | 23.4 ~ 11.1 | 29.7 ~ 10.1 | 53.8 ~ 8.8 | ∞ ~ 7.6 |
| 10 | 10.6 ~ 9.5 | 10.9 ~ 9.2 | 11.3 ~ 8.9 | 12 ~ 8.6 | 13.1 ~ 8.1 | 14.8 ~ 7.6 | 19.1 ~ 6.8 | 29.1 ~ 6.1 |
| 7 | 7.26 ~ 6.76 | 7.42 ~ 6.62 | 7.69 ~ 6.48 | 7.9 ~ 6.29 | 8.36 ~ 6.03 | 9.02 ~ 5.74 | 10.4 ~ 5.31 | 13.3 ~ 4.88 |
| 5 | 5.13 ~ 4.88 | 5.2 ~ 4.71 | 5.3 ~ 4.73 | 5.43 ~ 4.64 | 5.64 ~ 4.5 | 5.92 ~ 4.34 | 6.47 ~ 4.09 | 7.3 ~ 3.84 |
| 4 | 4.08 ~ 3.92 | 4.13 ~ 3.88 | 4.18 ~ 3.83 | 4.26 ~ 3.76 | 4.39 ~ 3.68 | 4.55 ~ 3.57 | 4.86 ~ 3.41 | 5.3 ~ 3.23 |
| 3 | 3.04 ~ 2.96 | 3.07 ~ 2.93 | 3.1 ~ 2.91 | 3.14 ~ 2.87 | 3.2 ~ 2.82 | 3.2 ~ 2.82 | 3.44 ~ 2.67 | 3.64 ~ 2.56 |
| 2.5 | 2.53 ~ 2.47 | 2.54 ~ 2.46 | 2.56 ~ 2.44 | 2.59 ~ 2.42 | 2.63 ~ 2.39 | 2.68 ~ 2.35 | 2.77 ~ 2.28 | 2.89 ~ 2.21 |
| 2.25 | 2.27 ~ 2.1 | 2.28 ~ 2.22 | 2.30 ~ 2.22 | 2.32 ~ 2.19 | 2.35 ~ 2.16 | 2.39 ~ 2.13 | 2.46 ~ 2.08 | 2.55 ~ 2.02 |
| 2 | 2.0 ~ 1.98 | 2.03 ~ 1.98 | 2.04 ~ 1.97 | 2.05 ~ 1.95 | 2.07 ~ 1.93 | 2.10 ~ 1.91 | 2.16 ~ 1.87 | 2.22 ~ 1.83 |
| 1.75 | 1.75 ~ 1.73 | 1.77 ~ 1.73 | 1.78 ~ 1.72 | 1.79 ~ 1.71 | 1.80 ~ 1.70 | 1.82 ~ 1.68 | 1.86 ~ 1.65 | 1.91 ~ 1.62 |
| 1.5 | 1.50 ~ 1.48 | 1.51 ~ 1.49 | 1.52 ~ 1.48 | 1.52 ~ 1.48 | 1.54 ~ 1.47 | 1.55 ~ 1.45 | 1.57 ~ 1.43 | 1.60 ~ 1.41 |

## Depth of Field Table (distances in meters)

**RE. Auto Topcor f/1.8 58 mm** 1/30 mm

| F / m | 1.8 | 2.8 | 4 | 5.6 | 8 | 11 | 16 | 22 |
|---|---|---|---|---|---|---|---|---|
| ∞ | ∞ ~ 56 | ∞ ~ 36 | ∞ ~ 25 | ∞ ~ 18 | ∞ ~ 12.7 | ∞ ~ 9.3 | ∞ ~ 6.4 | ∞ ~ 4.7 |
| 10 | 12.1 ~ 8.5 | 13.8 ~ 7.8 | 16.5 ~ 7.2 | 22.5 ~ 5.6 | 48.5 ~ 5.6 | ∞ ~ 4.8 | ∞ ~ 3.9 | ∞ ~ 3.2 |
| 5 | 5.48 ~ 4.6 | 5.79 ~ 4.4 | 6.49 ~ 4.18 | 6.89 ~ 3.93 | 8.24 ~ 3.7 | 10.9 ~ 3.3 | 23.8 ~ 2.8 | ∞ ~ 2.4 |
| 3 | 3.17 ~ 2.85 | 3.26 ~ 2.78 | 3.39 ~ 2.69 | 3.58 ~ 2.58 | 3.91 ~ 2.44 | 4.41 ~ 2.28 | 5.63 ~ 2.06 | 8.47 ~ 1.85 |
| 2 | 2.07 ~ 1.94 | 2.11 ~ 1.90 | 2.16 ~ 1.86 | 2.24 ~ 1.81 | 2.36 ~ 1.74 | 2.53 ~ 1.66 | 2.88 ~ 1.54 | 3.46 ~ 1.41 |
| 1.5 | 1.54 ~ 1.46 | 1.56 ~ 1.44 | 1.59 ~ 1.42 | 1.63 ~ 1.39 | 1.69 ~ 1.35 | 1.77 ~ 1.3 | 1.93 ~ 1.23 | 2.17 ~ 1.16 |
| 1.2 | 1.22 ~ 1.18 | 1.24 ~ 1.17 | 1.25 ~ 1.15 | 1.28 ~ 1.13 | 1.31 ~ 1.11 | 1.36 ~ 1.07 | 1.45 ~ 1.03 | 1.58 ~ 0.98 |
| 1 | 1.02 ~ 0.99 | 1.03 ~ 0.98 | 1.04 ~ 0.97 | 1.05 ~ 0.95 | 1.08 ~ 0.94 | 1.11 ~ 0.91 | 1.17 ~ 0.88 | 1.24 ~ 0.84 |
| 0.8 | 0.81 ~ 0.79 | 0.82 ~ 0.79 | 0.82 ~ 0.78 | 0.83 ~ 0.77 | 0.85 ~ 0.76 | 0.86 ~ 0.75 | 0.89 ~ 0.73 | 0.94 ~ 0.7 |
| 0.7 | 0.71 ~ 0.69 | 0.71 ~ 0.69 | 0.72 ~ 0.69 | 0.72 ~ 0.68 | 0.73 ~ 0.67 | 0.75 ~ 0.66 | 0.77 ~ 0.64 | 0.8 ~ 0.63 |
| 0.6 | 0.61 ~ 0.6 | 0.61 ~ 0.59 | 0.61 ~ 0.59 | 0.62 ~ 0.59 | 0.62 ~ 0.58 | 0.63 ~ 0.57 | 0.65 ~ 0.56 | 0.67 ~ 0.55 |
| 0.55 | 0.55 ~ 0.55 | 0.56 ~ 0.54 | 0.56 ~ 0.54 | 0.56 ~ 0.54 | 0.57 ~ 0.53 | 0.58 ~ 0.53 | 0.59 ~ 0.52 | 0.61 ~ 0.51 |
| 0.5 | 0.5 ~ 0.5 | 0.51 ~ 0.5 | 0.51 ~ 0.49 | 0.51 ~ 0.49 | 0.51 ~ 0.49 | 0.52 ~ 0.48 | 0.53 ~ 0.47 | 0.54 ~ 0.47 |
| 0.45 | 0.45 ~ 0.45 | 0.45 ~ 0.45 | 0.46 ~ 0.45 | 0.46 ~ 0.44 | 0.46 ~ 0.44 | 0.47 ~ 0.44 | 0.47 ~ 0.43 | 0.48 ~ 0.42 |



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## WAIST-LEVEL FINDERS

The standard Pentaprism finder is unsurpassed for general all-around snap-shooting because it shows an eye-level view of an upright image moving in the same direction as the subject. However, it is not as suitable for careful thought-out and composed photos, for which purpose the accessory waist-level finder is more ideal.

Although the reflex finder may seem slightly out-moded today, it is an original feature of the basic single reflex design and is very essential for certain shots.

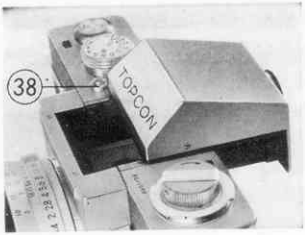
Because the image is reversed laterally, it is not suitable for action shots or for vertical formats (unless viewing is done from the opposite side). However, it is suitable for viewing and focusing with the camera held at some distance from the face, permitting some shots, like over-the-crowd shots, low-angle shots, etc., which are not possible with the Pentaprism finder. But, the main advantage is the fact that it is suited for studying the subject on the focusing screen, for interest and composition, and for critical focusing in close range work.

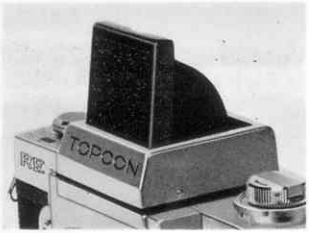
Because of its characteristics, the waist-level finder is valuable in still-life shots, especially close-ups, macrophotography, reproduction work, photomicrography and for obtaining shots with the unusual angle.

### Exchanging Finders:

1. For detaching finder from the camera, take a firm hold on the finder attached to the camera, depress the finder catch (38) and softly push out the finder by gliding it towards the back cover side.
2. To attach a finder, simply glide it in carefully (taking care to see that the front side (with the brand) is towards the camera front) until it clicks into position.

Two types of waist-level finders are available as accessories, i.e., the standard type and the high magnification type.






**Standard Waist-Level Finder:**

After attachment to the camera, simply push the button catch on the back cover side of the reflex finder and the reflex hood will snap open fully, exposing the focusing screen on which the subject will be seen. The reflex hood is closed by simply pushing it down until it snaps close.

When greater magnification is required for critical focusing of the screen area, pull up the magnifier which is folded down behind the cover. The square magnifier shows the full focusing screen area at life-size, with the standard lens. Push down to close.

**High Magnification Waist-Level Finder:**

The accessory is designed for more super-critical focusing than the standard waist-level finder, because it enlarges the full focusing area 6.5× and has an adjustable eyepiece for providing fine dioptric corrections. It is recommended for photomicrography, with the No. 3 or No. 6 interchangeable focusing screens, macrophotography and for use with the telephoto lenses.



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For even greater focusing precision, the accessory magnifier may also be attached to the accessory and will enlarge the central area of the field of view 16×.

## EXPOSURE MEASUREMENTS

When the waist-level finder is used on the camera, the exposure indicator on the camera's top deck, between the finder and rewind crank, is used for checking exposure readings.

The same T-indicator, but with the vertical bar extending up above the horizontal bar, is seen in the exposure indicator window with a round circle index. When the cross-indicator is centered in the circle index, exposure readings will be correct and will be set to the camera. When the vertical bar of the indicator coincides with the circumference of the circle index, the exposure reading will be one full stop over-or under-exposed, depending on which side of the circle it is on. It must be remembered that the cross-indicator moves contrary to the aperture ring movement, differing from the indicator movement as seen in the Pentaprism finder exposure window, and that the waist-level finder must be covered for taking a reading.

Exposure readings are also not possible when the indicator does not appear in the window or when the black band completely covers the vertical bar of the indicator.

### Holding the Camera with the Waist-Level Finder Attached:

Because the waist-level finder is suited for

careful composition work, it is most often used on the tripod, copying stand, flat working surface, etc., which means that it is not hand-held as much as is the Pentaprism finder.

The same precautions noted for holding the camera with the Pentaprism finder should be followed with the waist-level finder, but greater pains must be exercised because it is normally held away from the face and with the minimum of body support.

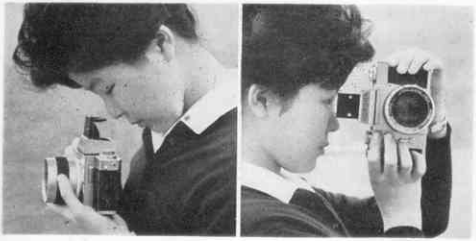
1. **Waist and chest level:** Hold the camera with the neck strap pulled taut (to minimize vibration), left hand thumb and forefinger gripping the lens barrel and the palm supporting the camera body, right hand around the speed-lever end of the camera, with the right thumb on the speed-lever and forefinger or middle finger on the shutter release and with both elbows held tightly against the body, pulling the camera against the body, also, if possible.

2. **Magnifier position:** Hold the camera close to the face, with the magnifier as close to the eye, as possible. Pull the neck strap taut (shorten it, if necessary) and hold both elbows against the chest, with basic hand positions same as above. Since the camera will be in mid-air without much body support, extra care must be taken to hold the camera steady during the shutter release action.

3. **Right-angle vertical:** For shooting in the vertical format, bring the camera to the side of the face, with the finder held as close to the eye as possible. Grip the lens barrel with the left hand, with elbows pressed tightly against the body, and place the right hand around the speed-lever end, as in the basic hand positions first noted. Since the right elbow will be up in the air, as will be the camera itself, this position will also call for extra pains to steady the camera



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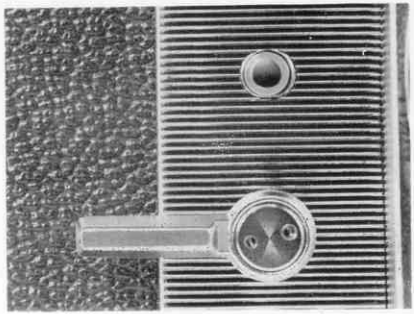
during the actual shot.

4. **Unusual positions:** There is no limit to the manner in which the camera can be held for taking shots from unusual angles, such as lowering the camera until it is almost at ground level, or extending the arm out from the right-angle vertical position for taking shots around the corner, or shooting straight up or down, or shooting above the head past some obstruction, etc., but, in all instances, it should be noted that the arms only will be supporting the camera in most cases and, therefore, extra precaution to insure camera steadiness is a "must". In addition, the fastest possible shutter speed should be used.

## SELF-TIMER

For taking your own photograph, or for acting as your own assistant and holding lighting equipment or a reflector, or for minimizing camera vibration on the tripod, the built-in self-timer (15) is a very useful mechanism. It permits delayed shutter releases between 5 to 10 seconds.

After stroking the film winding lever in the usual manner, charge the self-timer by pushing down the self-timer lever 180 degrees. Then depress the self-timer button which is normally hidden by the lever. The lever will return to its normal resting position and actuate the shutter release. At the 180 degree position, the delay will be a maximum 10 seconds or so, while at intermediate positions the delay will be anywhere from 5 seconds up.



The self-timer may always be bypassed, simply by depressing the shutter release button in the usual manner.

The self-timer may be charged before or after the shutter speed is set and before or after film winding action.

**CAUTION:**

Do not stroke the film winding lever until the shutter action is completed. The return of the self-timer lever to its original position does not necessarily mean that shutter action is completed, especially with slow shutter speeds. Neither should the shutter button be pressed after the self-timer has been activated.



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# INFRARED PHOTOGRAPHY

For obtaining special effects and/or for specialized work, you may want to use infrared film. This is a special purpose film, used a great deal in aerial photography, documentary photography, criminology and in medical work. Due to its characteristics of cutting through haze and fog, actually seeing more than is visible to the eye, it is used extensively in aerial photography and in landscapes, where trees and foliage turn to white or light color (due to the reflection of infrared rays in the chlorophyll of the leaves) against a dark sky. It is also used to get a night or moon effect, in broad daylight. In criminology, it is used for the purpose of discovering alterations or forgeries in documents, for deciphering charred papers, for reading documents stained or aged beyond recognition. Infrared film is noted for the fact that it is sensitive only to the blue-violet infrared wave lengths, whereas ordinary panchromatic film is sensitive to all the colors of the spectrum. When focusing, the visible point—seen in white light—is used for focusing whereas the infrared rays are not visible colors but longer in wave length than the long visible red rays and, therefore, cannot be used for focusing. In other words, some adjustment must be made in focus if sharpness is to be retained on the film. In your camera, the red "R" mark (infrared index) (40) on the distance focusing scale is used for this purpose. After focusing in the normal manner, the distance setting obtained is shifted to the infrared index, or, for example, if the distance index shows that the distance focused is 10 ft., the distance focusing scale should be revolved to place 10 ft. at the infrared index.

For a true infrared rendition of the subject, a suitable filter must be used to cut out the blue (in the blue-violet wave length) because the infrared film is also sensitive to this wave length. A TOPCON R2 or Wratten No. 25 (A) filter is used for this purpose.

Infrared film is extremely slow because of its sensitivity to the infrared wave length, and even more so when used in combination with the red filter. Because the ratio of infrared wave length in the visible light is variable, no exposure indexes can be given for exposure reading of the visible light. But, a fairly accurate reading is possible when the lens itself is covered with the red filter and an exposure reading taken. In any case, the instructions enclosed with the film should be followed carefully, with several bracketing shots made to be on the safe side. In general, more exposure rather than less seems to be a safe guide.

# FLASH PHOTOGRAPHY

When the available light is not sufficient for taking pictures at the desired aperture or speed, or if there is no light or if the subject is in the shadow and details are obscured, artificial illumination, such as photolamps, flash bulbs or electronic flash, should be used.

## FLASH GUN, Model 1

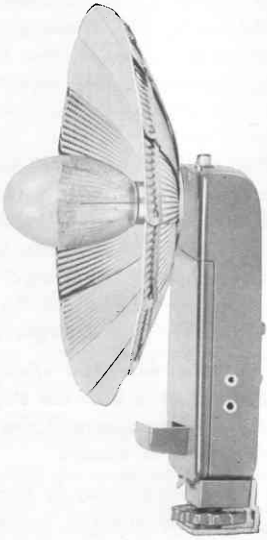
As a portable method of artificial illumination, the flash gun using flash bulbs is one of the most economical, simple-to-use and efficient type available. The Model I flash gun is a special unit designed for use on your camera and may be used connected directly to the flash circuit, when inserted in the flash coupler attached over the rewind knob, or by means of a connecting synchro-cord, for off-the-camera shots.

The flash gun has an automatic 3-way socket which accepts all standard bayonet base bulbs, such as No. 5, all pinless miniature base bulbs,



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such as M2, and all glass baseless bulbs, such as AG-1, without adapters and simply by inserting the bulb into the socket.

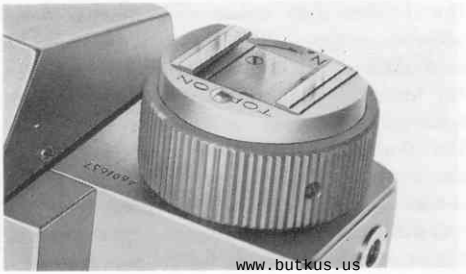


The folding fan reflector is adjustable for wide or narrow illumination angles and is also tiltable vertically in 4 click-stop stages, for use in five positions, including bounce flash lighting.

The flash gun is a battery-capacitator type, designed to give the most efficient and consistent flash illumination, and accepts a 22.5 volt battery of the hearing aid type. A test button is also available for checking the flash bulb and electric charge.

## ACCESSORY SHOE

The accessory shoe is used for attaching flash guns to your camera. It is slipped over the bayonet mount of the rewind knob and fixed in place by revolving the knurled ring. When the foot of the TOPCON flash gun, Model I, is inserted into the accessory shoe, direct electrical connection is made, while, in the case of other makes, the connecting flash cord must be inserted into the single flash socket (10), on the side of the




camera.

A lightweight electronic flash unit may also be attached to the camera with the coupler, although a suitable bracket may also be used for attachment of larger units. The bracket should be fixed to the bottom of the camera with the fixing screw locking it to the tripod socket (33).

## FLASH ILLUMINATION

The various types of flash bulbs found on the market are classified according to their time-to-peak (firing delay) or the time it takes from contact until peak brightness is reached.

**Class FP:** Class FP (flat peak) bulbs are suitable for the focal plane camera only and are designed so that the intensity of the bulb is spread out over a period (the flat peak) for uniform illumination during the total period of exposure for all fast shutter speeds from 1/125 second and up or 1/15 second and slower. Maximum intensity is reached 20 milliseconds (one millisecond being 1/1000 second) after contact. This peak brightness is then held at a level peak for 20 milliseconds (small FP bulbs) or 50 milliseconds (large FP bulbs). The larger bulbs cannot be used on the TOPCON flash gun but will require a larger flash unit.

**Class F:** The firing delay is 4~7 milliseconds. Although light output is low, the stopping action is a fast 1/200 second, with shutter speed set at 1/30 second or slower.

**Class M:** The firing delay is 13~20 milliseconds. Since light intensity is the greatest,



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it is used when fast shutter speed is not required but maximum light output is necessary. Shutter speed is 1/15 second or slower and 1/125 second.

In this class are included the small miniature light bulbs and all glass no-base bulbs which give great light output in comparison to their very small sizes.

**Electronic Flash or Strobe-Light:** There is no firing delay with electronic flash units and, while they do not have great intensity of light, they may be re-used many times (although the initial outlay is comparatively expensive). Their speed is a very fast 1/500 to 1/1000 second or better, stopping most actions even though the shutter is set to 1/60 second or slower.

## FLASH SYNCHRONIZATION

It will readily be realized that the camera's shutter must be synchronized to match the various time-to-peaks of the different classes of flash bulbs, which is taken care of effectively and quite simply in your camera with an internal peak compensating flash synchronization system in which a suitable shutter speed is chosen to fire the bulb by closing the flash contact at the appropriate moment for the flash bulb being used. There are no selector switches, synchro-switches, or other time-consuming operations. Simply look up the appropriate shutter speed from the table on page 76, set it to the shutter dial and press the shutter release button.

## SAFETY FLASH CONTACT SYSTEM

While your camera has a single flash circuit, there is a built-in safety flash contact which works independently of the shutter flash contact. This safety flash contact is coupled with the instant return mirror action and, therefore, is closed only when the mirror is fully raised. Since the mirror only begins rising just before shutter contact and returns immediately after the shutter action, premature

flash shots are not possible. The flash bulbs may be inserted either before or after the film winding lever is stroked and the shutter charged.

## FLASH EXPOSURE

With flash illumination, the exposure meter can no longer be used for obtaining a correct reading and, thus, a substitute method must be used for finding out the correct exposure.

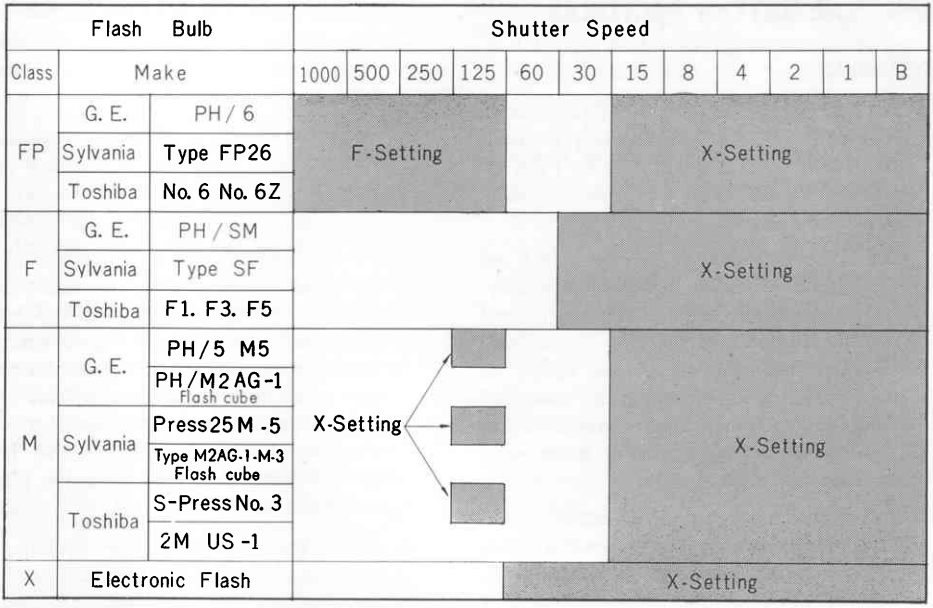
When the TOPCON Flash Gun is used, the Flash Calculator found on its back may be used for quickly and simply finding the suitable aperture for the bulb being used at the distance focused.

In flash photography with the flash unit on the camera, the distance focused is of very great importance for calculating the correct aperture because the brightness of the flash illumination decreases with the square of the distance, or, in other words, an object six feet away will receive only one-fourth the light of an object three feet away.

To find the correct aperture, find the guide number, which is based on the shutter speed and film speed being used (and usually found in the instruction sheet furnished with the flash bulbs), and divide it by the distance from flash to subject (not from camera to subject) which will be the required aperture. For example, the guide number is 120 and the distance 15 feet from flash unit to subject, which will give an aperture of f/8. This figure is normally based on the use of an efficient reflector in a room of average brightness. For a bright room use a smaller aperture and for a large room or at night outdoors use a larger aperture.



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**Shaded areas indicate range of synchronized shutter speeds for bulbs listed. Any bulb not listed should be used at 1/15 sec.**

# TIPS FOR BETTER PICTURES

## FOCUSING:

1. For distance views without any foreground interest, simply set the focusing distance to infinity and the aperture to f/5.6 or f/8, as this will give maximum sharpness in the far distance.

   Don't focus so that the farthest limit of the depth of field just reaches infinity. In this case, the lens would be focused on the near infinity point or hyperfocal distance and the acceptable range of sharpness would extend from the farthest limit to as far as possible in the foreground instead of being sharp only in the far distance.

2. For distance views (landscapes) with foreground interest, focus on the foreground subject and the far distance view. Set the distances thus obtained against the depth of field scale until they are opposite identical aperture figures. Use the aperture and distance obtained in this way, and there will be sufficient depth of field to cover the picture required.

   Don't focus on the mid-point because the foreground is shallower in depth of field than the background and you will be focusing on a farther point than sufficient for covering the foreground subject.

3. For most landscapes, try to insert some foreground interest, particularly of human subjects, because this will give your picture greater impact, story-picture value and even three dimensional effect. Even dark foliage in the foreground, or deep shadows, will set off the lighter background landscape and give the picture greater strength.

4. When shooting interior or architectural pictures, focus on the near and far limits required to be covered. Set these figures against the depth of field scale



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to obtain the required aperture and distance. The aperture will usually be a small lens opening.

5. For portrait or close-up shots, work with a comparatively large aperture and focus on the center of interest, such as the subject's eye. This will produce a very shallow depth of field, for placing emphasis and dramatizing the center of interest, while, at the same time, making it stand out sharply defined against a subdued and diffused background. Furthermore, use a neutral colored and uncluttered background, or move the subject away from the background, or use the sky as the background (if shooting outdoors) and take your pictures early or late in the day when the light is softer than the midday sun.

6. Use zone focusing for sports shots, actions within a limited area or sudden snap shots, when you find little time for accurate focusing. Set your aperture at f/8 and shutter speed according to prevailing conditions. Set distance at 10 ft. which will give a depth of field of 8 ft. to 15 ft. Under most conditions shutter speed should be about 1/125 to 1/250 second, sufficient for most fast action.

   If your particular requirement calls for a larger depth of field, set the limits of your zone against the depth of field scale and find your aperture and distance settings, but choose an aperture which will give you a sufficiently fast shutter speed.

7. Use pre-focusing, if zone focusing is not possible for fast action shots because the selected shutter speed requires a large aperture and results in a shallow depth of field.

   Focus on the spot that the subject will pass and snap the shutter at the right moment.

8. Use the widest aperture for its selective

focus ability, for placing emphasis where it is required, for dramatizing the center of interest, for eliminating distracting background and for greater directional impact.

9. Use the smallest aperture for its covering power from a few feet away to the far distance and for its ability to gather all the separate elements together and organize them into a more effective picture.

10. Move in for close-ups of a part of the subject, which will cover the full negative frame, with added impact and drama, and change the commonplace subject into a more powerful picture.

## SHUTTER SPEED:

1. Choice of shutter speed is entirely dependent on the requirements for stopping the action but choose the fastest possible shutter speed to minimize camera vibration.

2. Choice of shutter speed for any moving object is dependent on—

   a. The speed at which the subject is moving; the faster the subject the faster the shutter speed.

   b. The distance of the subject from the camera; the greater the distance the slower the shutter speed.

   c. The angle at which the subject is moving in relation to the camera; movement towards or away from the camera requires a slower speed than movement at right angle to the camera, while movement at intermediate diagonal angles requires speeds between these two limits.



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d. The focal length of the lens used; the longer focal length shows an enlarged image moving at a faster speed than a shorter focal length from the same position and thus requires a faster shutter speed.

e. The degree of "stopping" required; the fastest speed of 1/1000 second can "deep freeze" most fast action but sometimes a blurred movement of the arms or legs will prove more effective in conveying the feeling of motion than if the motion is stopped "dead".

3. Panning the subject movement can also stop the motion, if exposure conditions do not permit a fast shutter speed, or if the blurred background will help to convey the feeling of motion more readily.

   Move the camera with the subject and release the shutter while following the movement smoothly through to the end.

4. Catch the "peak" of the action with a slow shutter speed, if a fast shutter speed is not possible.

   Since most actions have a beginning, a peak and an ending, with a momentary pause between each phase, try to catch the peak of the action which should also be the most interesting.

5. Use extra slow speed, with the camera set on the tripod and no special lighting set-up, for catching the "mood" of dimly lighted subjects or interiors. While the subject will not be seen as distinctly as in a flash-lighted picture, the subject will have a "mood" resemblance which will not be captured in an artificially lighted shot.

6. Use the following Shutter Speed Table as a "guide" for choosing a suitable shutter speed.

## SHUTTER SPEED TABLE

| Distance from Camera / Action / Direction of Movement | Person Walking Briskly | Moderately Running Person | Car Moving at 20~25 m.p.h. |
|---|---|---|---|
| 15 ft. Parallel | 1/500 | 1/1000 | Pan Camera. |
| Diagonal | 1/250 | 1/500 | 1/1000 |
| Towards or Away | 1/125 | 1/250 | 1/500 |
| 30 ft. Parallel | 1/250 | 1/500 | 1/1000 |
| Diagonal | 1/125 | 1/250 | 1/500 |
| Towards or Away | 1/60 | 1/125 | 1/250 |
| 60 ft. Parallel | 1/125 | 1/250 | 1/500 |
| Diagonal | 1/60 | 1/125 | 1/250 |
| Towards or Away | 1/30 | 1/60 | 1/125 |

## FLASH SHOTS:

1. Always use fresh batteries, as otherwise you may not get the required light output when you need it.

   B-C (battery-capacitator) flash guns are recommended over straight battery types because they are more consistent.

2. Always use the proper flash bulbs for faithful color rendition. Blue coated bulbs are for use with daylight color film; clear wire filled lamps are balanced for Type F color film and gas filled bulbs for Type A film.

3. Use the correct diameter reflector for the bulb being used or your light will be wasted. Bayonet base FP and SF bulbs require a 5″ reflector; M class bulbs are used with 3″ reflectors while AG types can be used with the smaller 2″ reflector.

4. Clean all contact points of the battery and bulb. Avoid kinking the connecting cord



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to prevent possibilities of short circuit.

5. When using flash in a room with weak light, expose strictly according to the main flash without taking room light into consideration.

6. Try using your flash off the camera, at the end of its connecting cord, slightly above and to the left of the camera and pointed slightly down towards the subject. Background shadow will be eliminated and three dimensional effect will be attained with shadows under the nose, lower lip and chin.

7. Use the flash gun on a long extension cord, for side-lighting, back-lighting, or from other angles, keeping in mind that the exposure is based on the flash-to-subject distance and not camera-to-subject distance.

8. Use bounce flash for an effect closest to natural or room light. Point the flash gun at the ceiling (or wall) so that the light will be reflected onto the subject. Point the light at an angle, so that the light will also strike the subject at an angle (for the most natural lighting effect), rather than straight upwards.

   Exposure is calculated on the flash-to-ceiling-to-subject distance but the lens diaphragm is opened one extra stop to compensate for absorption of light by the ceiling and general spilling over of the flash. For a darker ceiling, or a high ceiling, open up two stops, as a general "guide".

9. For multiple flash lighting, using extension flash guns off the camera flash gun, don't take the extra light into account if it is purely background lighting but calculate exposure based on the main flash only.

   If two or more bulbs are used from the same distance to the subject to illuminate the same general area, multiply the guide number by 1.40.

10. When using flash as "fill-in" outdoors

for eliminating harsh shadows or in against-the-sun shots, keep the flash fill-in at a lower intensity than the main sunlight so that some of the shadow is still retained, instead of the flash fill-in overpowering the sunlight effect.

Base exposure on sunlight and divide the aperture to be used into the guide number (for the flash bulb and film combination at the shutter speed being used) for getting the focusing distance. Since this will give you equal intensity as the sunlight, move the flash farther away or cover the flash reflector with a white handkerchief (which will cut the flash illumination intensity about half).

11. Always cover the flash reflector with a clear transparent plastic bag for protection against accidental bulb explosions.

## STORAGE OF YOUR CAMERA

1. Store your camera, lenses and accessories away from humidity, salty air, dust, extremely high or low temperatures and corrosive fumes.
2. Store your camera in a cool, dry and well ventilated place.
3. Don't store it in closed compartments, containers or in the glove compartment of your car.
4. Don't store it in a damp room, or in the basement, or in any wet place.
5. When storing your camera (and other equipment) for a long period :—
   a. Take it out of its leather case.
   b. Remove the battery from the camera.
   c. Check to see that the shutter is not tensioned.



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d. Return the focusing ring to infinity.

e. Wrap the camera completely in a dry and soft lint-free cotton cloth.

f. Place it in a tin-lined container which will close tightly.

g. Put in a lot of desiccant, such as silica gel.

If your camera is stored for a very long time, take it out once in a while to give it an airing when the weather is cool and dry.

# PART V
# ACCESSORIES FOR YOUR CAMERA

The scope and range of photography possible with your camera is greatly enlarged and complemented by the availability of a full range of optically superior TOPCOR brand interchangeable lenses, and a wide variety of practical and exclusive accessories. These increase the pleasure of using your camera in various fields of photography.
Refer to Part IV on the full range of TOPCOR interchangeable lenses and waist-level finders.

## 1. LENS HOODS

The lens hood is one of the most important accessory for use with all the lenses provided for your camera and is recommended for against-the-light shots and artificial illumina-

tion (flash and flood lighted) shots, in which it helps to eliminate stray light which might effect the brilliance and clarity of the picture. At the same time, as an added bonus, it protects the lens surface from rain or snow which would cause image distortion.

Since the various focal lengths have different fields of angle, the use of the wrong hood will not only not serve its purpose but may even prevent part of the light image from entering the lens, causing vignetting. Thus, there are various lens hoods for the different focal lengths TOPCOR lenses which are, furthermore, differentiated by the diameter size and method of attachment.

The lens hoods available are :—

**a. Outside Bayonet Mount:**

These lens hoods are simply inserted over the outside bayonet mounts of their respective lenses and revolved until firmly fixed. They are available for four RE. Auto-Topcor lenses—f/1.4 58 mm, f/1.8 58 mm, f/2.8 100 mm and f/2.8 35 mm. These lens hoods can be reversed on the lens barrel for storage in the everready case.

**b. Screw-in Type:**

This type is available only for the R. Topcor f/4 200mm and is simply screwed in until firmly attached.





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**c. Collapsible Built-in Type:**

These lens hood are part of the lens itself and are pulled out for use and pushed back in when not required. It is found mostly on large-size lenses, such as the RE. Auto-Topcor f/3.5 135mm, RE. Auto-Topcor f/5.6 200mm, RE. Topcor f/5.6 500mm, R. Topcor f/2.8 300mm, R. Topcor f/5.6 300mm, and RE. Zoom Auto-Topcor f/4.7 87—205mm.

**d. Push-on Type:**

The RE. Auto-Topcor f/3.5 25 mm wide-angle lens has a rectangular-shaped lens hood which is pushed on over the lens flange and fixed into position by tightening the screw on its side.

## 2. FILTERS

Filters are very important tools for getting pictures with the colors and/or effect that you want for a particular subject. They can prove to be the difference between a superior, sparkling picture and an average photo.

**a. Filters for Black-and-White Films:**

In black-and-white photography, the filter attached before the lens absorbs wavelengths of complementary colors and darken them, while it transmits wavelengths of its own color and thus lighten them.

The filter is, therefore, used for obtaining a more faithful rendition of the scene,



as seen by the eye, by controlling the different tones. However, it may also be used for the purpose of obtaining special effects by exaggerating or suppressing some of the tones for highlights, dramatic or odd effects.

**b. Filters for Color Films:**

In color photography, however, the filter is used for balancing the light when the color film is exposed to light for which it is not suited or balanced, because all color films are made for specific color qualities or light sources.

**c. Polarizing Filter:**

The polarizing filter, differing from the foregoing two types, is used with both black-and-white and color films for the purpose of eliminating reflections from a non-metallic surface. The camera must be used at an angle between 32 to 37 degrees from the surface and the filter revolved until only light vibrating on a single plane gets through, with the effect checked on the focusing screen. The filter may also be used for darkening the sky in color photography, or as a neutral type haze filter, without warming up colors, or as a neutral density filter of 2.5× to 4×, without effecting color rendition or tone.

**d. Filter Factor:**





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Since filters absorb part of the light that would normally reach the film, it will be necessary to increase exposure time or use a larger aperture when using filters before the lens.

The additional exposure ratio depends on the film color sensitivity, color of the prevailing light or artificial illumination to be used, and the color of the filter, and is called the filter or multiplying factor, and will be found together with other pertinent informations in the tables on pages 90 and 91, or on the instruction sheet enclosed with the filters.

For panchromatic films, however, it should be noted that it will only be necessary to take an exposure reading with the filter over the lens and the reading will already include the approximate exposure factor, which will also be the case when the polarizing filter is placed over the lens and exposure reading is taken.

**e. Filter Mounts:**

Filters for the RE. Auto-Topcor, R. Topcor, Macro-Topcor and RE. Zoom Auto-Topcor lenses are available in three basic types of mounts:—

**1. Screw-in Type:** The filter is simply screwed into the filter mount on the front flange of the lens and is supplied in three different filter mount sizes, or 49mm, 58mm and 62mm.



2. **Push-in Type:** Because of the very large front lens element, both the RE. Auto-Topcor f/5.6 500mm and R. Topcor f/2.8 300mm are supplied with a special push-in type filter, which is inserted into its exclusive filter slot near the rear end of the lens barrel.
   A UV filter is supplied with the lens and must be used when other filters are not being used.

3. **Rear Bayonet Type:** Because of the very large front lens element on the RE. Auto-Topcor f/3.5 25mm lens, the filter is attached to the rear lens mount.

The table on page 92 shows the types of filters available in the various filter mounts and the lenses which will accept them.

**NOTE:**
The UV filter is often used to protect the valuable lens because it is colorless and does not require any increase in exposure.



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## FILTER FACTORS FOR BLACK-AND-WHITE FILM

| Designation | Color | J. I. S. # | Filter Factor | | Similiar to Kodak | Use |
|---|---|---|---|---|---|---|
| | | | Daylight | Tungsten | | |
| UV (Ultraviolet) | Colorless | SL 39—3 | 1 | 1 | 1A | Use for high altitudes above 6,000 ft., as it eliminates ultraviolet and some blueviolet rays, which reduce contrast in the distant landscape, even on a clear day. |
| Y1 | Light Yellow | SY 44—2 | 1.5 | 1 | K1 | Suitable for all outdoor work, landscapes, snow scenes and particularly effective for darkening the blue sky and thus accentuating clouds. Effective for photographing through distant haze. |
| Y2 | Medium Yellow | SY 48—2 | 2 | 2 | K2 | Produces greater contrast in cloud against blue sky and foliage, and used for most accurate tonal reproduction with panchromatic films. Renders red and yellow lighter and blue darker. Can be used with color films for special effect. |
| O2 | Medium Orange | SO 56—2 | 3.5 | 3 | 21 | A special effect filter suitable for depicting heavy clouds against dark sky, for darkening the water surface in marine scenes and for bringing out details in distant views by reducing mist. Subdues skin blemishes in outdoor portraits. Renders yellow and red lighter and blue darker than seen with the eye. |
| R2 | Medium Red | SR 60—2 | 6 | 5 | 25(A) | Greater contrast than Y2 and O2 filters, for dramatic cloud effect against black sky, or moonlight effect in midday with slight under-exposure. Also for dark wood furnitures by artificial light. Used with infrared film for extreme contrast in sky, for cutting through haze, fog and mist, and for special effects. |
| YG | Yellow Green | ..... | | | 11(X1) | Used with panchromatic film for correct monochromatic rendering of multicolored objects in daylight scenes; also recommended for good flesh tones in outdoor portraits against the sky. Also absorbs ultraviolet, greater part of blue and some dark red rays. |
| Polarizing | ..... | ..... | 2.5—4 | 2.5—4 | POLAR | Used for both black-and-white and color films for eliminating reflections from nonmetallic surfaces, and especially useful for taking pictures through glass or water. Not effective for metallic surfaces. |

Remarks: For panchromatic films, such as TRI-X, PANCHROME, ORTHO X. In the case of super panchromatic films, such as SUPER XX, PLUS X, PANATOMIC X, MICROFILM, ULTRA-SPEED, SUPREME, NEOPAN F and SS, filter factors for O2 will be 3 and 2 respectively.

## FILTER FACTORS FOR DAYLIGHT COLOR FILM

| Designation | Color | Alteration in Color Temperature | Filter Factor | Similiar to Kodak | Use |
|---|---|---|---|---|---|
| SKYLIGHT | Colorless | | 1 | 1A | Suitable for sunny weather as it absorbs ultraviolet rays and counteracts the tendency towards being excessively bluish, giving natural color balance, by adding warmth to the scene. Also for use in open shade. Effective for cutting bluish reflection from young foliage. |
| CLOUDY | Light Amber | 7000°K—6000°K | 1.2 | 81A | For use on cloudy days or in open shade under a clear and blue sky, as it lowers the color temperature and absorbs the bluish colors, giving overall color balance and saving the picture from being excessively blue. |
| TYPE F | Deep Amber | 6000°K—4000°K | 2.9 | 81B | For use with Type F film (such as Ektachrome Type F designed for use with clear flash lamp) when exposed for daylight, by lowering the daylight temperature to flash type film temperature and absorbing bluish colors. |
| MOR. & EVE. | Light Blue | 5300°K—6000°K | 1.6 | 82A | For use in the morning (before 9 a.m.) and evening (after 3 p.m.) hours, when the blue light of the sun is absorbed by the atmosphere and lowers the color temperature so that the picture will be excessively reddish. Raises color temperature and absorbs reddish colors. |
| FLASH | Blue | 4000°K—6000°K | 2.4 | 82C + 82B | For use with clear flash bulbs, which have a lower color temperature than sunlight, and thus are not suitable for daylight color film. Raises color temperature and gives correct color balance of otherwise excessively reddish picture. |
| FLOOD | Deep Blue | 3300°K—6000°K | 3.2 | 80B | For use with flood lamps which have a much lower color temperature than daylight, by raising the low color temperature and absorbing the reddish colors. Not required with blue flood lamps. |

Remarks: Daylight films are Kodachrome, Daylight; Kodacolor, Daylight; Ektachrome, Daylight; Ansco Color, Daylight; Agfa Color, Daylight; Gevaert Color, Daylight and Fuji Color, while Type F films are Ektachrome, Type F; Kodachrome, Type F and Anscochrome Flash Type.



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## TYPES OF TOPCON FILTERS

| Types | Diameter | Use with Lenses | UV | Y1 | Y2 | O2 | R2 | YG | Polarizing | Skylight | Cloudy | Type F | Mor. & Eve. | Flash | Flood |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Screw-in | 49mm | RE. Auto-Topcor 35/2.8 58/1.8 100/2.8 135/3.5 200/5.6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 49mm | Macro-Topcor 58/3.5 135/4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 49mm | UV Topcor 35/3.5 53/2 100/4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 58mm | RE. Zoom Auto 87~205/4.7 UV Topcor 135/4 | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 62mm | RE. Auto-Topcor 58/1.4 R. Topcor 200/4 300/5.6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Rear Bayonet | ····· | RE. Auto-Topcor 25/3.5 | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | | ○ | ○ | ○ |
| Push-in | ····· | R. Topcor 300/2.8 | ○(*) | ○ | ○ | | ○ | | | | | | | | |

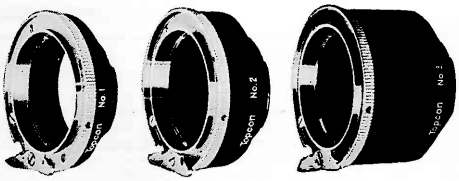
(*) Supplied with lens to be used at all times, when other filters are not inserted.

# 3. MACROPHOTOGRAPHY ACCESSORIES

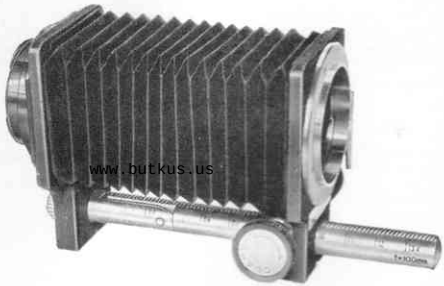
The TOPCON system of photography has several valuable and exclusive accessories for use in macrophotography, or photography at extreme close-up distances. Both rigid extension tubes and bellows are available for the purpose of extending the distance between the lens and film and controlling the degree of magnification in the final picture image. Since view-focusing is through-the-lens, no matter what extension is used, it is photographic work like this which makes one really appreciate the value of the TOPCON single lens system.

**a. Extension Tube Set:**

The set consists of three different length (9 mm, 15 mm and 30 mm) extension tubes which can be used singly, or in various combinations, to control the total extension of the lens from a minimum 9 mm to a maximum 54 mm (with the lens set at infinity). All tubes have bayonet mounts and, therefore, changes in combinations can be made simply and speedily.




**b. Bellows Attachment, Model I:**



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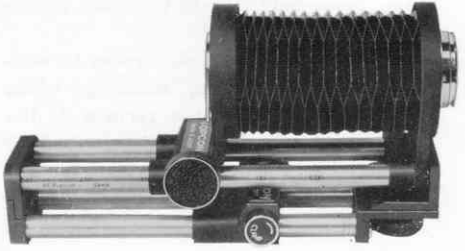
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This folding bellows attachment has been designed for use on field trips, as it folds into a compact shape. The single rail bellows has a minimum extension of 40 mm which racks out to a maximum 140 mm, for a scale of reproduction ranging from 0.69 to 2.41×, with the 58 mm lens. The bellows may be used in combination with the extension tube set for additional extension.

### c. Bellow Attachment, Model IV:

This top quality bellows is a complete set in itself, accepting other versatile accessories, such as the Macro-Stand Attachment and Slide Copying Attachment. The accessory has double racking, which provides one of the most versatile methods of focusing the lens in extreme close-up shooting that is possible. The top rails control the degree of lens extension while the lower rails position the accessory as a whole. The magnification range for the RE. Auto-Topcor 58mm lens is from 0.5× to 3×, as engraved on one of the top rails, while there are two extension scales engraved on the other top rail for use of RE. Auto-Topcor lenses and Macro-Topcor lenses.

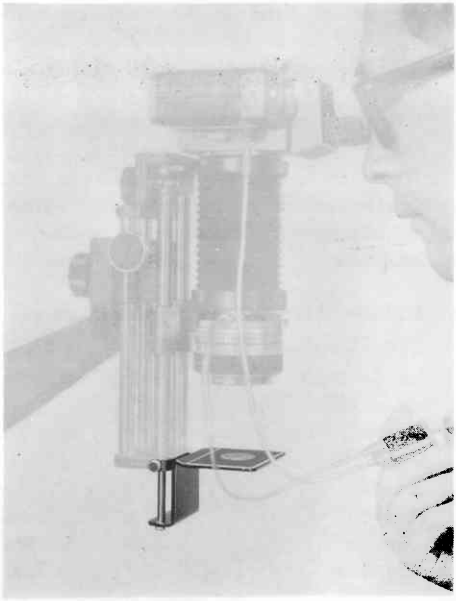
The lower rails may be detached and used for fine adjustments in camera position on the tripod or copying stand, with maximum movement of 122mm.



**d. Macro-Stand Attachment:**

The attachment is a fixed stage for placing small objects to be photographed at pre-determined scales of reproduction with the least trouble. It is inserted into the front member of the Model IV bellows and fixed temporarily at the required magnification figure engraved on its rod, while the standard lens is also fixed at the same magnification figure engraved on the bellow's rod. The attachment is then adjusted slightly until the object is seen distinctly and clearly, with the focusing ring of the lens used only for further fine adjustments, when required.

The macro-stand will also serve to minimize vibrations during shooting, while, at the same time, the surface of the attachment will also provide a standard reflectance surface for accurate exposure measurements because it is finished in matte gray color of 18 percent





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reflectance.

**e. Automatic Extension Tube :**

The accessory is a 9mm length extension tube for providing semi-automatic diaphragm action to the RE. Auto-Topcor lenses in macrophotography. After the desired aperture is set to the lens, the diaphragm lever is cocked, setting up the semi-automatic diaphragm spring action and opening the lens to its maximum aperture for view-focusing.




By using a double cable release, screwed into the diaphragm release (of the accessory) and the shutter release (of the camera), the diaphragm will automatically close down to the predetermined aperture and the shutter will be released in fully coordinated and automatic actions.

Used with the extension tube set, the accessory may replace the No. 1 (9mm) tube or be used for additional 9mm extension.

## Scales of Reproduction using the Extension Tubes & Automatic Extension Tube

| Extension Tubes Used | | Focal Length of Lens | | | |
|---|---|---|---|---|---|
| No. | Length mm | f = 58 mm | f = 35 mm | f = 100 mm | f = 135 mm |
| 1 or A | 9 | 0.16 ~ 0.33 | 0.25 ~ 0.53 | 0.09 ~ 0.19 | 0.07 ~ 0.18 |
| 2 | 15 | 0.26 ~ 0.43 | 0.42 ~ 0.7 | 0.15 ~ 0.25 | 0.11 ~ 0.22 |
| A + 1 | 18 | 0.31 ~ 0.48 | 0.51 ~ 0.8 | 0.18 ~ 0.28 | 0.14 ~ 0.24 |
| 1 + 2 or A + 2 | 24 | 0.41 ~ 0.59 | 0.67 ~ 0.95 | 0.24 ~ 0.34 | 0.18 ~ 0.29 |
| 3 | 30 | 0.51 ~ 0.70 | 0.84 ~ 1.12 | 0.3 ~ 0.4 | 0.22 ~ 0.33 |
| A + 1 + 2 | 33 | 0.57 ~ 0.74 | 0.94 ~ 1.2 | 0.33 ~ 0.43 | 0.24 ~ 0.36 |
| 1 + 3 or A + 3 | 39 | 0.67 ~ 0.84 | 1.09 ~ 1.37 | 0.39 ~ 0.49 | 0.29 ~ 0.4 |
| 2 + 3 | 45 | 0.78 ~ 0.95 | 1.25 ~ 1.53 | 0.45 ~ 0.55 | 0.33 ~ 0.44 |
| A + 1 + 3 | 48 | 0.83 ~ 1.0 | 1.35 ~ 1.65 | 0.48 ~ 0.58 | 0.36 ~ 0.47 |
| 1 + 2 + 3 or A + 2 + 3 | 54 | 0.93 ~ 1.1 | 1.51 ~ 1.78 | 0.54 ~ 0.64 | 0.4 ~ 0.5 |
| A + 1 + 2 + 3 | 63 | 1.1 ~ 1.25 | 1.8 ~ 2.1 | 0.63 ~ 0.73 | 0.47 ~ 0.58 |

A = 9 mm
No. 1 = 9 mm
No. 2 = 15 mm
No. 3 = 30 mm

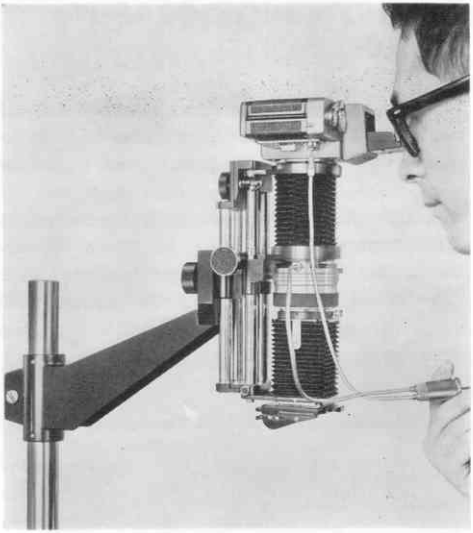


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# 4. SLIDE COPYING ATTACHMENT

The slide copying attachment must be used in combination with the bellows attachment, Model IV, to which it is attached. Consisting of bellows and an adjustable spring-actuated slide holder, duplications of color transparencies as well as production of black-and-white negatives from color transparencies are possible. With suitable controls over lighting, correction filter, copying film, enlargement and cropping, improvements over the original slide are even possible.



# 5. PHOTOMICROGRAPHY ACCESSORIES

Two types of microscope attachments are available for use with your camera and replace the lens which is not used in photomicrography.
Although the camera body is connected to the microscope, by either of these attachments, the final picture image is always seen directly on the focusing screen, without the use of expensive, complicated and bothersome accessories.




**a. Microscope Attachment, Model III:**

A two-piece, rigid, non-adjustable and light-tight connecting attachment for use in low magnification photomicrography only. The attachment may be separated into two parts, during shooting sessions, for the purpose of changing oculars or for continuing visual observation.

**b. Microscope Bellow Attachment:**

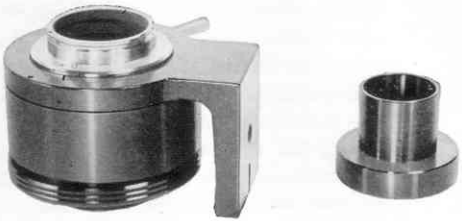
A non-rigid bellows for high magnification photomicrography, but the camera body must be supported firmly on the copying stand and the bellows only



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slipped over (not fixed to) the microscope tube.

The attachment does not provide any support for the camera body but is designed to eliminate all vibrations from the camera body being transmitted to the microscope, while, at the same time, providing a light-tight connecting sleeve. May be used, if necessary, with extension tubes or bellows, Model IV, for even greater photographic magnifications.



## 6. INTERCHANGEABLE FOCUSING SCREENS

Besides the standard No. 1 focusing screen, which is normally supplied with your camera, there are other focusing screens which may all be used interchangeably. The focusing screens and their differences are as follows :—

### a. No. 1 Focusing Screen:

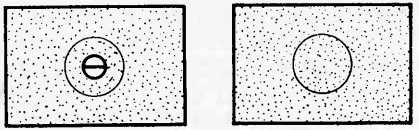
This screen has a 3mm diameter split-image rangefinder spot, which is surrounded by a groundglass ring, with groundglass plus fresnel lens outside the 12mm diameter central spot.

The screen is recommended for general use because speedy and accurate focusing is possible with the central split-image rangefinder, especially in poor light or with low contrast subject, in combination with normal to short focal length lenses, and for moderate distance subjects of

linear characteristics. The screen is not recommended for long distance subjects, for long focal length lenses, small lens openings and macrophotography because of "blackout" of one of the prism halves.

**b. No. 2 Focusing Screen:**

The screen is similiar to the No. 1 focusing screen but minus the split-image rangefinder, or, in other words, consists of full-area groundglass plus fresnel lens outside the central 12mm diameter fine focus spot. The screen is recommended for general use, for those who prefer to work with the groundglass, for focusing with long focal length lenses, for macro-



No. 1 No. 2

shooting and copy-work, or, whenever small lens openings are the rule. The screen is not suitable for use with the wide-angle lens because focusing is difficult with the increased depth of field.

**c. No. 3 Focusing Screen:**

The screen has a 5mm diameter clear spot, with double cross-hairs, in the center of the field plus groundglass outside the 5mm spot, and should be used with the high magnification waist-level finder and/or magnifier. The screen is recommended for use in photomicrography and astrophotography, when the subject grows dark as image magnification increases and when shooting with telephoto lenses. The aerial image is focused, by eliminating parallax between the cross-hairs and image and/or adjusting the eyepiece of the high magnification waist-level finder or magnifier to the user's eyesight, with the cross-



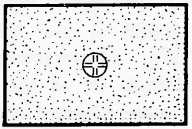
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hairs, and then focusing. Focusing is also possible with the groundglass area but the aerial image is not suitable for focusing at moderate distances with most lenses.

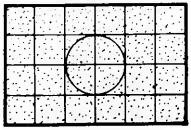
**d. No. 4 Focusing Screen:**

The screen has a full-area groundglass plus fresnel lens, except for the 12 mm diameter central spot, with horizontal and vertical lines etched at 6 mm intervals in a checkerboard design.

The screen is the same as the No. 2 screen but with the addition of the checkerboard lines and is specially valuable for focusing plus control in subject placement and alignment of straight lines. Thus, it is recommended for architectural and interior photography plus close-ups and copying work.



No. 3



No.4

**e. No. 5 Focusing Screen:**

The screen is similiar to the standard No. 1 screen but has a 5 mm diameter microprism focusing spot in place of the split-image rangefinder of the No. 1 screen.

Because it breaks up the image in all directions and does not require linear features for focusing, it is recommended for general photography. However, it should be noted that the central grid spot may darken at lens openings smaller than f/5.6.

**f. No. 5-A Focusing Screen:**(*)

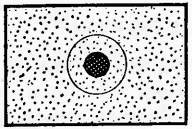
The screen is identical to the No. 5 focusing screen, except that the pitch of the microprism has been made more shallow and the power of the fresnel

lens decreased, making it more suitable for use with slow telephoto lenses, such as RE. Auto-Topcor f/5.6 200 mm and f/5.6 500 mm and R. Topcor f/5.6 300 mm.

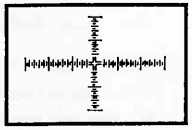
Focusing accuracy falls somewhat in comparison with the No. 5 screen but, on the other hand, focusing is speedier and accurate when used with the slow telephoto lenses because flickering of the image is eliminated in the focusing spot. (* soon available)

**g. No. 6 Focusing Screen:**

Unlike all previous screens, the screen is clear glass (without even fresnel lens) over the full-area, with bisecting scales



No. 5



No. 6

engraved for 0.5 mm divisions and with a central double cross-hairs. It must also be used with the high magnification waist-level finder and/or magnifier, with the aerial image focused or by checking parallax, in the same manner as for the No. 3 screen.

Especially recommended for photomicrography.

**h. No. 7 Focusing Screen:**(*)

This screen is also similiar to the No. 5 screen, except that the groundglass has been completely eliminated, or, in other words, a 5 mm diameter microprism focusing spot is to be found in a clear glass screen area, with fresnel lens outside a 12 mm diameter spot. The screen is recommended for use with the standard lens only, when photographing in dark locations or at night, as the subject will be seen brighter and more distinct than seen on the No. 1



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or No. 5 screens.

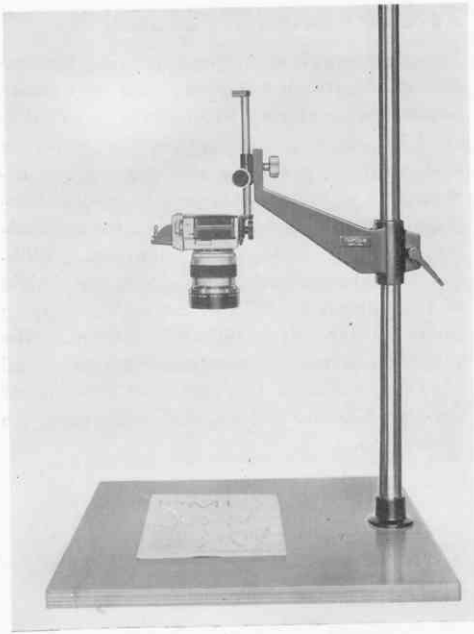
**i. No. 7-A Focusing Screen:**(*)

The screen is identical to No. 5-A screen but with elimination of the groundglass and is thus suitable for use with telephoto lenses, under adverse lighting conditions similiar to those prevailing when the No. 7 focusing screen is used.

As explained on page 24, the focusing screens are simply pulled up by inserting a fingernail under the catch extending from the rear side of the screen and inserted by simply pushing in.

# 7. COPYING KIT, Model II

The accessory is a four-unit copying kit consisting of a three-unit stand and a wooden baseboard measuring 520 mm × 520 mm. It is used for copying and reproduction work, as well as for supporting the camera and attachments in macrophotography, photomicrography, slide copying work and for eliminating vibration during such shooting. Without the extension column in place, the height of the column is 480 mm, permiting copying work of the size 280 mm × 190 mm. The extension column gives a maximum height of 1053 mm, sufficient for reproduction work of the size 520mm × 346mm, both when using the 58mm lens.



## 8. EYEPIECE ADAPTER

A special adapter which is attached to the eyepiece frame and fixed with the eyepiece ring, for attachment of the accessory angle view finder and/or magnifier. The use of the eyepiece adapter will permit the angle view finder or magnifier to be flipped out of the way, temporarily, so that the entire field of view may be checked after focusing.




## 9. ANGLE VIEW FINDER

A special view finder for use in low shooting positions, macrophotography and photo-



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micrography, as it permits viewing and focusing at right angle to the optical axis of the lens. The accessory may be rotated 360° around the optical axis for viewing from all directions. Screwed directly to the Pentaprism finder eyepiece or to the eyepiece adapter, which is fixed to the eyepiece, with eyepiece diopter correction lens, magnifier and eyecup attachable to the eyepiece end of the accessory.



## 10. MAGNIFIER

A special accessory for magnifying 2.5× a 12 mm diameter spot on the focusing screen, when attached either directly to the eyepiece or to the eyepiece adapter fixed to the eyepiece. The accessory may also be attached to the angle view finder or high magnification waist-level finder, for increased precision in focusing. A diopter adjustment ring is also provided for making adjustments suitable to the user's eyesight and is specially valuable when used in combination with the No. 3 or No. 6 focusing screens.
Recommended for general photography, macrophotography and photomicrograghy.



## 11. RUBBER EYECUP

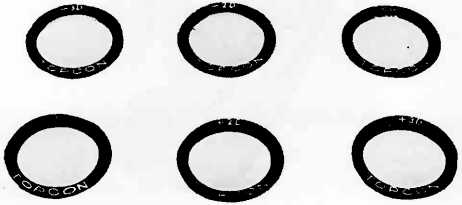
A special focusing aid accessory, shaped to fit the contour of the face, cuts off extraneous light which may effect focusing and meter reading, when attached either directly to the eyepiece or to the eyepiece adapter fixed to the eyepiece.



## 12. EYEPIECE CORRECTION LENSES

Accessory lenses are available for screwing into the eyepiece frames of the Pentaprism finder and angle view finder, and correcting the eyepiece power to suit the user's eyesight. Seven lenses are available and will give the dioptric powers noted on the lenses when attached to the eyepiece, or −3, −2, −1.5, −1, +1, +2 and +3 diopters. The lens will also hold the regular eyecup securely when screwed in.

Consult your optician for the required dioptric power.





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# 13. MOTOR DRIVE ACCESSORIES

**a. Electric Motor Drive:**

An attachment for providing electric motor drive operation to the camera, in single frames or in sequence shooting, at firing speeds up to 3 frames per second. The attachment is attached directly below the camera or in combination with the bulk film magazine, with shutter released directly on the camera or by remote control operation, with automatic suspension of motor drive operation upon exposing all frames.

**b. Battery Pack:**

Portable battery pack, with accessory battery recharger and built-in battery checker, contains two batteries of 5 nickel cadmium cells, sufficient for more than 500 repeated discharges and recharges. One recharge good for 3 rolls of 250 exposure films in one con-









tinuous shooting session. Can be used for remote control operation of electric motor drive at 10 meters distance from camera.

**c. Non-Cord Battery Pack:**

Specially designed for direct attachment and electric connection on the electric motor drive provided with exclusive attachment mount, thus eliminating connecting cords and making portability no problem. May be recharged on household electric line with recharger. Remote control operation of motor drive is also possible when connected with the accessory hand controller. Provided with battery checker.

**d. Bulk Film Magazine:**

Special accessory replacing the removable camera back for providing up to 250 exposures, on 33 ft. film, in motor drive operation. Special film magazines are used for magazine-to-magazine film transportation and thus permit developing part of the film, when necessary.

**e. Bulk Film Loader:**

Accessory used for automatically loading film magazines with bulk films in the darkroom. Can be set for automatically winding films of 50, 100, 150, 185, 200 and 250 frames from 50 ft. and 100 ft. bulk films.






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**f. Film Magazines:**

Special film magazines for loading bulk film cut to the required length, for use in the bulk film magazine. Two film magazines must be used for magazine-to-magazine transportation of the film.



## 14. INCIDENT LIGHT RECEPTOR

A special hemisphere-shaped adapter for taking incident light exposure measurements with your camera, as explained in Part IV. Adapter is simply attached on front of the lens for the exposure reading but must be detached before shutter release. Provided with spectral sensitivity compensating filter for overcoming reddish or bluish tendencies of the light sources.

Available in two sizes, i.e., 51 and 65mm, to fit the 51mm and 65mm diameter filter mounts respectively.



## 15. GRAY SLIDE

Another accessory for taking incident light exposure measurements of subjects illuminated by transmitted light, such as in slide copying and photomicrography. The accessory is inserted in place of the specimen slide or film transparency and exposure readings are determined by measuring the brightness of the illumination.

A 34.5mm × 76mm × 1mm thick half-mirror glass plate with a transmission factor of 18 percent.




## 16. METER-LITE:

A special battery powered device for illuminating the meter indicator when the camera is used in dark places, such as in the theater, etc. The accessory is inserted into the accessory shoe of the flash coupler, attached on top of the rewind knob, and illuminates the indicator through the small exposure indicator window on the top deck.

A 1.3 volt mercury battery, similiar to that used for the exposure meter is used.

## 17. CLOSE-UP ATTACHMENT LENSES

For shooting at closer subject-to-camera distances than possible with the unassisted lens, and without elimination of the automatic lens diaphragm action, the close-up attachment lenses may be simply screwed into the 49mm filter mount of the RE. Auto-Topcor lenses. Bellows and/or extension tubes will not be required within their focusing ranges and,



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## Photographic Magnifications and Distances with Close-Up Attachment Lenses

| | Camera Lens | f/1.8 58 mm | f/2.8 100 mm | f/3.5 135 mm | f/5.6 200 mm |
|---|---|---|---|---|---|
| | Magnifications | 1/∞ ~ 1/58 | 1/∞ ~ 1/10 | 1/∞ ~ 1/9 | 1/∞ ~ 1/12 |
| | Distances | ∞ ~ 0.45 | ∞ ~ 1.2 | ∞ ~ 1.5 | ∞ ~ 3 |
| No. 0 | Magnifications | Ⓐ | 1/14.4~ 1/5.7 | 1/10.7~ 1/4.7 | 1/7.1~ 1/4.1 |
| | Distances | | 1.5 ~ 0.75 | 1.6 ~ 0.86 | 1.6 ~ 1.13 |
| No. 1 | Magnifications | 1/11 ~ 1/3.7 | 1/6.4~ 1/3.7 | 1/4.8~ 1/2.9 | |
| | Distances | 0.73 ~ 0.33 | 0.76 ~ 0.53 | 0.79 ~ 0.6 | |
| No. 2 | Magnifications | 1/6 ~ 1/2.9 | 1/3.5~ 1/2.4 | 1/2.6~ 1/1.8 | Ⓑ |
| | Distances | 0.44 ~ 0.28 | 0.46 ~ 0.38 | 0.49 ~ 0.43 | |
| No. 1 + No. 2 | Magnifications | 1/3.9~ 1/2.3 | 1/2.3~ 1/1.7 | 1/1.7~ 1/1.3 | |
| | Distances | 0.32 ~ 0.24 | 0.34 ~ 0.31 | 0.37 ~ 0.36 | |

Note 1. Photographic magnification is "Image Size/Object Size."
2. Unit for shooting distance is meter.
3. Ⓐ is not required and Ⓑ is not recommended.

because they can be used with fully automatic lens diaphragm action, full aperture exposure measurements will be possible. Three powers are available and may be used individually or in combination, with the covering distances as noted in the table on page 112.

Instruction sheets are enclosed with all accessories and should be read carefully.




## CLEANING YOUR CAMERA

1. The camera body should be brushed with a soft brush. Or use a rubber-ball blower to blow away the dust. Then wipe the body with a soft lint-free cloth. This should be done each time the camera is used at the seashore or on a rainy day because salt and rainwater can be the cause of stains and rust, unless cared for as soon as possible.

2. If the camera is dropped into the ocean, wash immediately with clean water, lubricate with good quality oil and send out for repairs as quick as possible, because it will be more difficult to repair after any length of time has elapsed.

3. The lens should be touched as little as possible. First, blow off any loose matter, then dust off the surface with a soft hair brush and gently wipe with lens tissue.

4. If further cleaning must be done on the



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lens, use a lens tissue or a clean lint-free cloth, wrapped around a piece of rod. Lightly moisten with plain water, or pure grain alcohol, or possibly a mixture of alcohol and ether (in 4 : 1 ratio), if available. The tip should be moistened so lightly that it is dried almost immediately and the lens should be lightly wiped from the center outwards in ever-widening circles. Don't rub the surface under any condition.

5. Don't wipe the reflex mirror or focusing screen, unless absolutely necessary, and then only very lightly with a lens tissue. Always blow foreign matter away or dust it with a soft hair brush first.

6. Use a blower or a soft hair brush to clean the inside of the camera.

7. Keep the film pressure plate clean at all times.

8. Don't oil the camera mechanisms.

9. Don't take the lens, or other optical elements apart.

10. Do not use silicone cloth or silicone-treated eyeglass cleaning tissue paper for wiping the lens surface because they are liable to leave a coating on the surface. All lens cleaning brushes should also be oil-free; if you should touch the brush with your fingers, clean it before using because it will simply transfer the oil from your skin to the lens surface.