How to Use Zenobia

DAIICHI OPTICAL CO., LTD

Zenobia camera

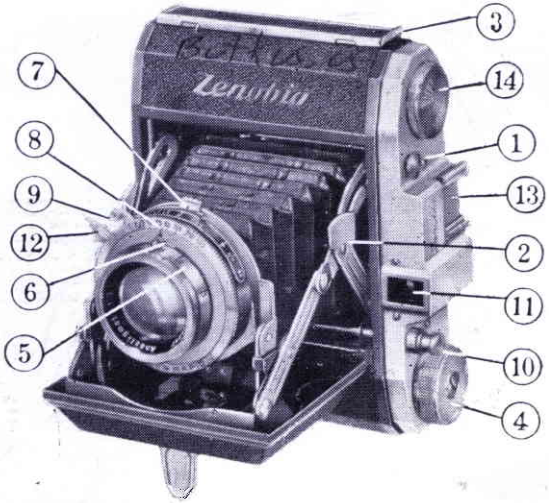


Fig. 1 Model C-1

(1) Button to open Camera
(2) Prop
(3) Slide Lock to open Back
(4) Film winder knob
(5) Distance scale (in foot)
(6) Distance indicator pin
(7) Diaphragm stop
(8) Shutter speed dial
(9) Shutter setting lever
(10) Shutter release button
(11) Finder Lens (objective)
(12) Flash terminal
(13) Shoe for accessories
(14) Depth of field scale

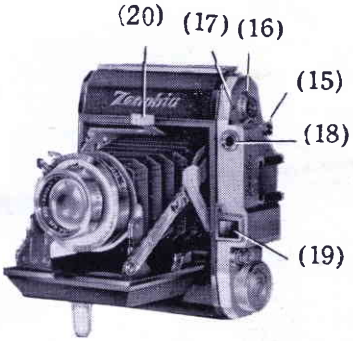


Fig. 2 Model R

(15) Distance adjusting lever
(16) Distance dial scale
(17) Red point
(18) Range-finder window
(19) Finder objective lens
(20) Slide lock to open camera

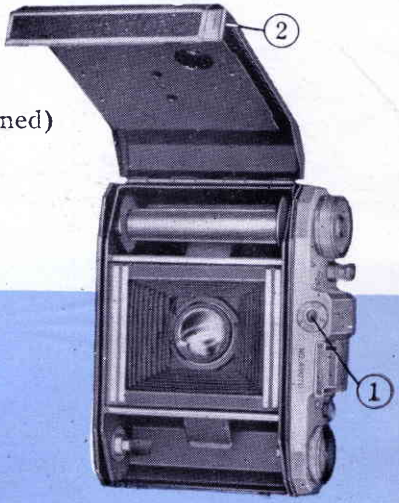


Fig. 3 Model C-1 (Back opened)

(1) Finder eyepiece
(2) Slide lock

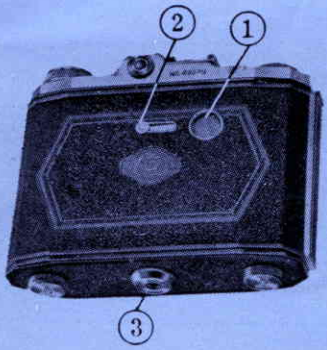


Fig. 4 (1) Red window
(2) Window opener
(3) Tripod seat

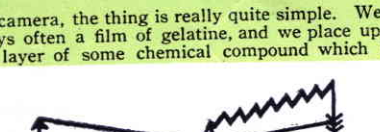
Zenobia camera

How does a camera take a picture?

The picture really show us quite well how a camera takes a picture. If we understand the eye, we understand a camera. In both there is a dark chamber (camera is simply Italian for chamber), a lens or lenses, in front, and a sensitive screen, or curtain, or "plate," or "film," behind. All the light allowed into the chamber must come through the lens or lenses, and they throw it—upside down, as the picture shows—on the screen or plate behind.

In the case of the eye, we cannot quite explain how the screen is able to register the light that falls on it, and we are still further from even guessing how the nurve running to the brain is able to tell the brain what has been happening in the screen.

But with case of camera, the thing is really quite simple. We merely take a plate of glass, or nowadays often a film of gelatine, and we place upon the plate or film a thin and smooth layer of some chemical compound which light has the power



of decomposing—for instance, a salt of silver. So where the light falls the layer of salt is decomposed, and where the light is brightest the decomposition is most complete. What happens inside the camera?

A white thing, like a collar, sends strong light on to the film or plate and quite destroy the layer of salt it finds there. Then we do something to the film or plate, so that no light can do any more to it, and when we look at it we find dark places corresponding to the brightest and lightest parts of the thing we were photographing, and vice versa.

The light from the thing we photograph—that is to say, the thing—has printed itself dark, and where there is "nothing" to photograph, white is left. As everything is the opposite, or negative, of what it really should be, we call this plate the negative. We then let light shine through the negative on to a sensitive piece of darkish paper, and now the salt, where it remains, keeps the light from the paper, and, where it has been destroyed, the light gets through and bleaches the paper. So we get a positive picture, in which light and dark correspond to the light and dark of the original. Photo means light, and gragh means writing. A photograph is a thing that has been written by light.

F. A. S. T. in Photography

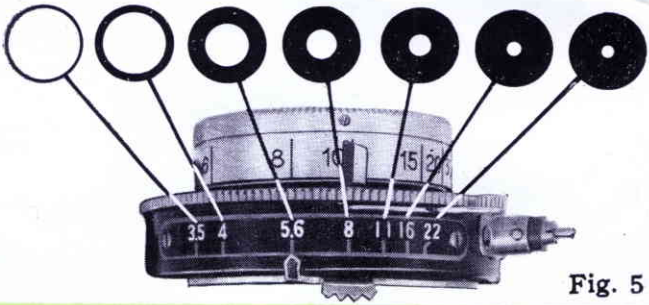


Fig. 5

F. A. S. T. in Photography

(1) Focusing—Get the distance between the film and the object by taking measure with tape or by a range-finder and turn the lense barrel so that the figure (foot) inscribed comes to the indicator. Thereby focal distance of the lens is adjusted so that the sharp and accurate image is thrown on the sensitive screen. (film)

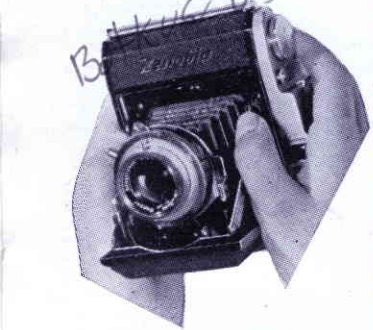
(2) Aperture—After taking into account of the brightness of the object, its motion and depth of focus, determine the aperture or opening of lens and set the indicator to the scale of the disc to give a proper opening of the diaphragm. By doing this, the light allowed into the chamber is regulated.

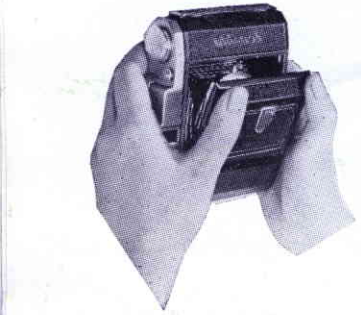
(3) Shutter Speed—The time for an exposure is determined considering the brightness, motion and aperture. Turn the outer ring so that the figure 25 (1/25 sec) 50 (1/50 sec) etc. comes onto the indicator. The figures, 1 is for one second, 2 is for 1/2 second, 250 means 1/250 second. "B" is for the Bulb setting and at this you can keep the lense open while you push shutter release and closes when you let go the release. You cock the lever to set the shutter and to make exposure push down release button and the shutter works.

Fig 6

(4) Think—After selecting the object, think over the angle, direction of light, composition etc. before firing a shot so that you can make the picture you wish.

Zenobia





HOW TO OPEN

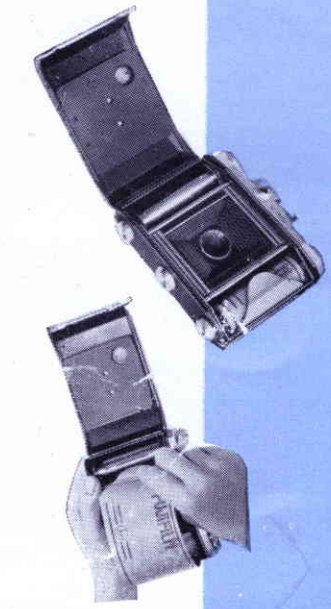
Give light push on the opening button (1) or slide the catch in Model R and open the lid (base-plate) slowly till it stops with a click. Do not open camera with a jerk or it will tend to cause trouble to correct focalplane of camera.

HOW TO FOLD

Push both upper end of the props and fold the camera by closing the lid, and press it till it locks with a click.

LOADING FILM

Pull out the slide lock at the end opposite the body hinge Fig. 3 and open the back and put the empty take-up spool into spool chamber at the take-up side. Load spool with the unexposed film in the chamber on the other side. Make sure the spools are properly seated. Fix the end of leader paper of unexposed film onto the take-up spool and close the back and lock by pushing on the catch. Wind film by turning knob reading the figure of film through the red-window until No. 1 appears in the window.



CAUTIONS ON LOADING

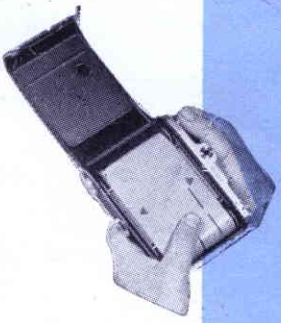
1. Do not load film in direct sun-light.
2. Keep outer package of film which indicates sensitivity of the film.
3. After breaking seal, be careful not to allow the film unroll—so it is safer to load film first and then cut the seal.
4. Take care to insert the end of the film correctly and wind on until ▶◀ or ◀—▶ appears.

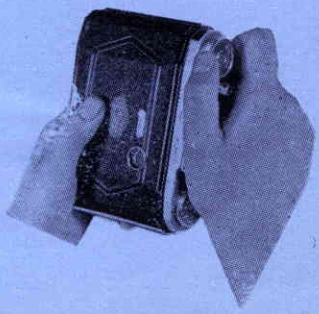
ON WINDING FILM

1. Avoid direct sunlight while you read film number through the red-window.
2. Do not use force and wind slowly so that no scar will be made on the film.
3. When the new number of film appear in the window, please be sure to close the slide-cover.

ON UNLOADING FILM

1. Before opening camera, turn on the winding knob until you can ascertain the film is quite taken up by the winding spool and do not allow to unroll.
2. Avoid direct sunlight when you open the camera and when unloading the film please hold the film not to allow it unroll.
3. Before sealing the exposed film, turn over the end of back paper of the film 5-6 mm and this will help easier work in the dark room.





TO TAKE PICTURE

Focussing

Open the camera to make ready for exposure. First you must get correct focussing. The figures on the barrel of the front lens indicate distance from the object to the film in foot. Measure the distance with rangefinder or by a tape, and turn the lens barrel so that the required figure (distance in foot) will come to the indicator. Measure must be taken from the focal plane of the camera. First you must get a correct focussing. If focussing is incorrect, you can not make a good picture for all other condition exposure etc. are good because the picture obtained will be out of focus.

The Diaphragm (Aperture)

Next you must adjust diaphragm. Diaphragm is the adjustable screen to regulate the light allowed into the camera and, at the same time, to make the focal field of lens thinner or deeper. The smaller you close the diaphragm, the deeper becomes the depth of field, or in other words you can get more clear-cut picture. But in this case, you must slow down the shutter speed so that sufficient light can be allowed into the camera. As shown in Fig. 5 opening of diaphragm is given in the figures—3.5; 4; 5.6; 8; and so on—on the dial. To adjust the opening, move the adjusting lever and thus set diaphragm by stopping the indicator at required number. These

figures show the proportion of effective aperture of the lens to its focal length. Therefore the larger the figure, the smaller becomes the effective aperture of the lens naturally reducing the quantity of light allowed into the camera.

Under the same light condition, when you wish to make shutter speed faster you must set the diaphragm indicator at smaller figure (to get large aperture) and at a given shutter speed when light condition is poorer, you will also have to adjust diaphragm at smaller figure to make wider opening to allow more light.

The relative data between diaphragm and shutter speed based on the light condition which enables an effective correct exposure at diaphragm 3.5 and shutter speed 1/250 sec. is shown in the following table.

Shutter Speed

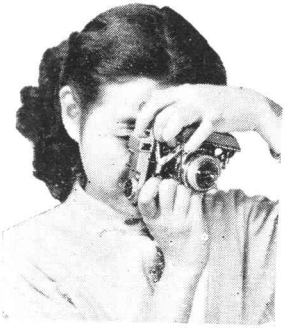
The shutter speeds adjusts the time of exposure, that is the duration of light allowed on the sensitive film, while the diaphragm regulates the quantity of light allowed in to the camera.

Diaphragm — f —	3.5	4	5.6	8	11	16	22
Shutter Speed — second —	1/250	1/250	1/200	1/50	1/25	1/10	1/5

In the above table, you will see that the change of diaphragm by one graduation (or scale) calls for corresponding change in the shutter speed.

To make picture of the moving object, you must use faster shutter speed or if taken at slow speed you will have the object blurred in the picture.

To adjust shutter speed, you turn the outer ring with the shutter speed inscribed in figures (see Fig) until the required figure stops at the indicator. The figures on the scale are the denominators of 1/2, 1/5, 1/10, 1/25, 1/50 of a second and so on, representing the time of exposure. After correct focussing, right exposure time and aperture (diaphragm) are obtained, cock the lever to set shutter and now you are ready to take a picture. By pushing the release button Fig. 1, the shutter works and a snap-shot is completed.



How to make a correct exposure

When you take an upright picture you hold the camera with your both elbows fixing securely on your side and the camera back resting on your cheek lest the camera moves during exposure as seen in the picture on page 9.

To take a side long picture, you must push shutter release with your left hand and in the meanwhile you must keep your right elbow fixed on your side.

The camera may be held in any way as photographer find it convenient but the thing is to hold it secure—free from slightest move during an exposure, that is at the moment when you push shutter release.

How to use the View-finder

The view-finder is usually placed above the lens, and therefore the nearer you approach the object, you will find the center of the field of the finder go astray from the center of the field of the film. This is so called a parallax.

Always be sure to see the object through the finder keeping the centers of the eye-piece of the finder and its front glass in a straight line.

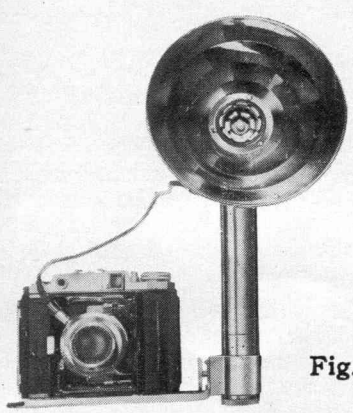


Fig. 7

How to take a flash photograph

Fix a flash-gun to the camera and connect both by circuit cord as shown in the Fig. 7.

By using two-way circuit cord, you can fire a flash from the gun detatched from the camera. When you take flash picture indoor or at night, longer time of exposure and larger diaphragms are necessary for the distant objects than in case of close by obejct where shorter exposure and smaller aperture can do—this is quite contrary to the case of outdoor photograph by sunlight.

The difference as above is based on the rule that strength of light is in inverse proportion to the squared distance between the source of light and the object and the exposure must be determined by the distance of the object from the flash.

In short, to make an exposure for the flash picture, you have to exercise contrary precautions to adjust diaphragm (aperture) and time of exposure relative to the distance to those observed for making sun-light photograph. The shutter speed for a flash exposure must be 1/25 sec. in case your flash bulb is of time lug 15-20 m/sd and up to 1/200 sec. in case you use flash bulb of time lug under 10 m/sd.

How to use Range-finger
(non-coupled)

ZENOBIA Model "R" has a built-in range-finder, not coupled with the focussing of the lens, but only to find an exact distance from the camera to the object. You look through the eye-piece of the finder and will find a lighter circular patch in the center and the image of your object is seen in two, inside and outside of the patch.

You move the lever back and forth so that you arrive at the point where the two images of your object come to one, and you will read the figure on the scaled disk stopped at the red mark on the top plate. The figure represents the number of feet from the camera to the object. Then turn the front lens barrel so that the number of feet inscribed on it meets with the indicator and now your object has become precisely focussed on the film of your camera.

To prevent double exposure

Make it your practice to wind the film immediately after making an exposure. This will eliminate the cause of double exposure.

To take care of the lens

Keep your camera in a clean and dry place. Be sure not to touch the lens with your fingers. If the lens had finger-print by carelessness, give a light wipe immediately with a clean and soft cotton cloth or it will become uneraceable.

If you find any dust on the lens, wipe the lens with a clean and soft feather or a brush. Should you find a fibrous mold on the lens, send the camera to a reliable optical works for a cleaning.

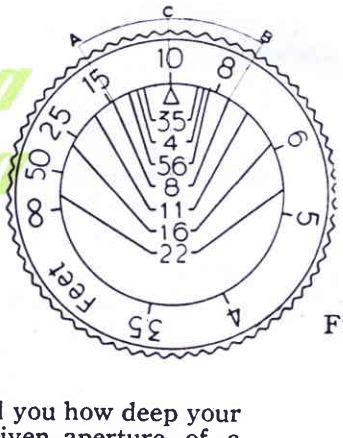


Fig. 8

Depth of field scale

This scale serves to tell you how deep your object is focussed at a given aperture of a lens. The figures inscribed along the rim of dial show the distance (between the camera and object) in feet and the figures given in an upright line in the inner disc denotes the diaphragm (aperture).

When your object is 10 feet from the camera, set the arrow at 10 feet (see Fig. 7), and if you stop the diaphragm at 8, the object between 8 feet to 15 feet from the camera will be in a good focus as shown in the picture.

In the Fig. 8, follow the lines emanating from sides of the diaphragm number read the figure (in feet) on the outer ring. The range C between the upper ends of the lines, A and B, show the range within which all objects are in good focus.

And A shows the furthest limit and B the nearest limit. In this instance, A points at (coincides) about 15 feet and B at about 7½ feet and the objects in the distance between 7½ feet and 15 feet from the camera will be in a good focus.

In this way, you can find the right opening of diaphragms to give a good focussing to your objects.

After you made trials on many other distances and openings of diaphragm you will find the following facts concerning the depth of field :—

1. The smaller you close the diaphragms, the deeper gets the depth of the field.
2. The depth of field is deeper behind the object in focus and thinner in front of it.
3. The depth of field is deeper when the distance of the object is longer.

Fixed focus

To take the instance of our "ZENOBIA" camera, when you set diaphragm at 10 and the distance at 25 ft., you can get all object in a good focus in the range from about 13 feet to the infinite.

In other words, you need not care the distance about the objects beyond 13 feet from your camera. Thus, if you set the diaphragm 10 and distance at 25 feet, you can take a photograph of any objects beyond about 13 feet from a camera in the same way with any fixed focus camera. But you had better not to get used to such a practice because, your "Zenobia" camera has a very much lighter lens than those of any fixed-focus cameras and you ought to learn how to master your camera to the best of her high performances, and make out of it many good pictures which are beyond reach of an ordinary fixed focus camera.

Exposure the Foremost Thing

To make a fine negative, you must allow the most adequate quantity of light onto the sensitive film, and the photographer calls this a correct exposure. You can never get a satisfactory negative from an over or under-exposed film for all efforts made in developing.

Daylight Exposure Table

We give in the following table some standard exposures under various conditions:

A STANDARD TABLE OF EXPOSURE			
Object	Distance	Diaphragm	Shutter-speed
Distant view of mountains, cloud, etc.	over 50 meter (165 ft)	22	1/150 sec.
Sea view	"	16	1/150 sec.
Farm, Fishing village, country side view	over 10 meter (33 ft)	11	1/100 sec.
Water front view	"	11	1/100 sec.
Baseball match etc.	5–10 meter	9	1/100 sec.
Sporting Snap (near)	2–5 meter	8	1/100 sec.
Street snapshot in bright light	4–6 meter	8	1/100 sec.
Snapshot in shadowy light	"	6.3	1/100 sec.
Outdoor group portrait	4–8 meter	11	1/50 sec.
Portrait outdoor	1–3 meter	8	1/50 sec.
Portrait, in shadowy light	"	6.3	1/25 sec.
Portrait by a window	1.5–3 meter	8	1/10 sec.

Place: Japan Season: March—June
Weather: Fine Time: 11 a. m.—1 p. m.
Film: NEOPAN; NEOCHROM; PAN F; PAN X (=Kodak Plus-X Panchromatic film).
When you use USS or SS film (=Kodak Super-XX Panchromatic film), increase shutter speed by multiplying 3 to the speed in the table.

Note :

For an exposure at 10 a. m. and 2 p. m., slow down shutter speed by 50% : for an exposure at 9 a. m. and 3 p. m., slow down the speed by half the speed in the table; and at 8 a. m. and 4 p. m. by 75%.

On a light-cloudy day, you must slow down shutter speed into half the speed, and on a cloudy day, to one third of the speed in the table.

In the months, from July to October, speed up the shutter speed by double the speed and in the months, from November to February, you must slow down the speed into a half of the speed in the table.

Colour Photography

When you use a colour film, you must use a quite different sense from in the case of a black-and-white photograph. First thing a colour photographer needs is a painter's sense about colour, its composition or harmony—it is not, of course, an easy task to explain in brief.

A colour film has a very narrow latitude (or an allowable range of exposure)—much smaller than a black-and-white film. Therefore, a correct reproduction of natural colours is possible only when you make a quite adequate exposure.

Generally speaking, colour film will need an exposure three times as much than in case of a black-and-white film. But it is safer to use an exposure meter for a better result.

Our Products:

"Zenopia" cameras,
Neo-Hesper lenses,
Pent-Hesper lenses,
E-Hesper F 3.5, 4 elements enlarger lens,
Daiichi Rapid shutter (Comper type),
B-C Flash-guns, etc.

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