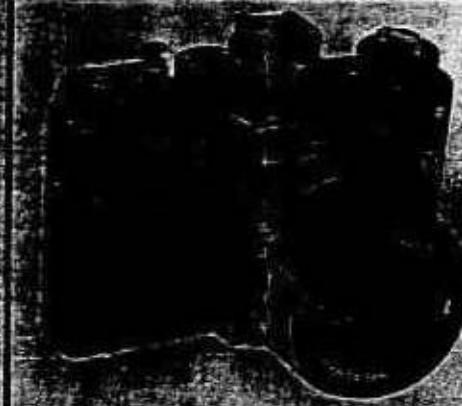




ZENIT-12XP



**Technical
Description**

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PURPOSE AND ADVANTAGES

ZENIT-12 XP is a 35-mm single lens reflex camera intended for taking various amateur pictures on black-and-white and color films. It can be used for special kinds of photography as well, such as copying, taking close-up pictures of small-size objects at short distances (ultra-close-up photography), taking pictures with the help of a microscope (photomicrography), etc.

The camera accepts interchangeable lenses with mounting thread of M42×1 and flange/film distance of 45.5 mm.

The following features are remarkable with the camera:

— semi-automatic exposure meter operating through the lens (TTL system) provides for correct exposure setting when taking pictures with the standard lens as well as with interchangeable lenses, light filters, supplementary lenses, extension tubes;

— light-emitting diodes in the viewfinder, indicating correct exposure setting, can be clearly seen both with the diaphragm fully open and stopped down;

— instant return mirror ensures continuous viewing of a subject before and after exposure;

— high speed lens is provided with a pre-set diaphragm mechanism which automatically closes the diaphragm down for the moment of shutter operation;

- fully open diaphragm ensures maximum brightness of the image in the view-finder which is very important for viewing and focusing;
- focusing can be done both by a microraster and a ground glass collar;
- speedy exposure setting and simplified film loading procedure reduce the time required for preparing the camera for picture taking;
- built-in self-timer enables you to take picture of yourselves among your friends or to make a self-portrait;
- secret lock of the back door interlocked with the film rewind knob provides for reliable locking of the back door and convenient unloading of the camera;
- flash unit connector socket and hot-shoe enable to use flash units both with cable and cableless connection;
- shutter disengaging bush of stay-put type simplifies the film rewind procedure.

Before using this camera, make thorough study of the present Description which contains characteristics and essential operating principles of the camera. In so doing bear in mind that the present Description can not be regarded as a handbook on photography.

Due to ever-advancing development in camera construction, minor differences may occur between the text and your camera.

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ATTENTION!

The camera is a precise optical-mechanical instrument. It should be handled carefully, kept clean and protected from jolts, dust, moisture, and sharp temperature fluctuations.

Do not remove the camera from its case the moment it is brought indoors from cold to avoid sweating of its parts, especially the optical ones.

Do not touch with fingers the surfaces of the optical parts since it is likely to cause deterioration of their coatings. Clean the optical coated lens surfaces with a clean soft cloth or cotton wool wad slightly moistened with rectified alcohol or ether. The surfaces of the mirror and the focusing device may be cleaned only if absolutely necessary with a dry soft brush but in no case with humid cleaning agents.

• Keep the camera closed in its case with the cap put on the lens.

Do not remove the lens from the camera without need to prevent dirt and dust

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from getting both onto the surfaces of the lens optical parts and into the camera itself.

Load and unload your camera either indoors or in shade protecting it against direct sun light and bright artificial light.

Always cock the shutter as far as it will go to avoid blank exposures.

Do not keep the camera with the shutter cocked for a long period of time since it is likely to impair the shutter operation.

Do not try to rotate the shutter speed dial 15 with the index mark 14 moving along its short section from "300" to "B" and the film speed dial 26 with the index mark 17 moving along the figureless section of scale 27. Do not rotate shutter speed dial and do not cock the shutter when self-timer is running in "B" mode and when setting the release button in "T" position. It is likely to cause unsticking of the shutter blinds tape.

When taking pictures in frosty weather, keep the camera under your street-clothes but not in the open air and take it out only for the moment of picture taking.

Since the camera is a complex instrument, its repair and adjustment should be made in workshops only.

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SPECIFICATIONS

Frame size, mm	24×36
Film used	35 mm, perforated
Length of film in cassette, m	1.65
Number of frames	36
Shutter speeds, s	from 1/30 to 1/500, "B" (by hand) and long exposure
Standard lens, one of the lenses:	HELIOS-44M-4 HELIOS-44M MC HELIOS-44M-4 MC HELIOS-44M
Focal length, mm	58 58
Maximum relative aperture	f/2 f/2
Aperture scale	from 2 to 16
Distance scale, m	from 0.5 to ∞ from 0.55 to ∞

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Lens mounting thread	M42×1
Light filter mounting thread	M62×0.75
Seat for sun shade, mm	Ø54
Viewfinder field of view, mm	20×28
Eyepiece magnification	4.3x
Flange/film distance, mm	45.5
Tripod bush thread	1/4"
Overall dimensions (without case)	136×98×97
Power supply voltage, V	3 (2×1.5)
Power supply	from 2 batteries of Mallory D 386, Seiko SB-B8, CL-32 types, etc.
Mass, kg	0.95

Certificates of Authorship

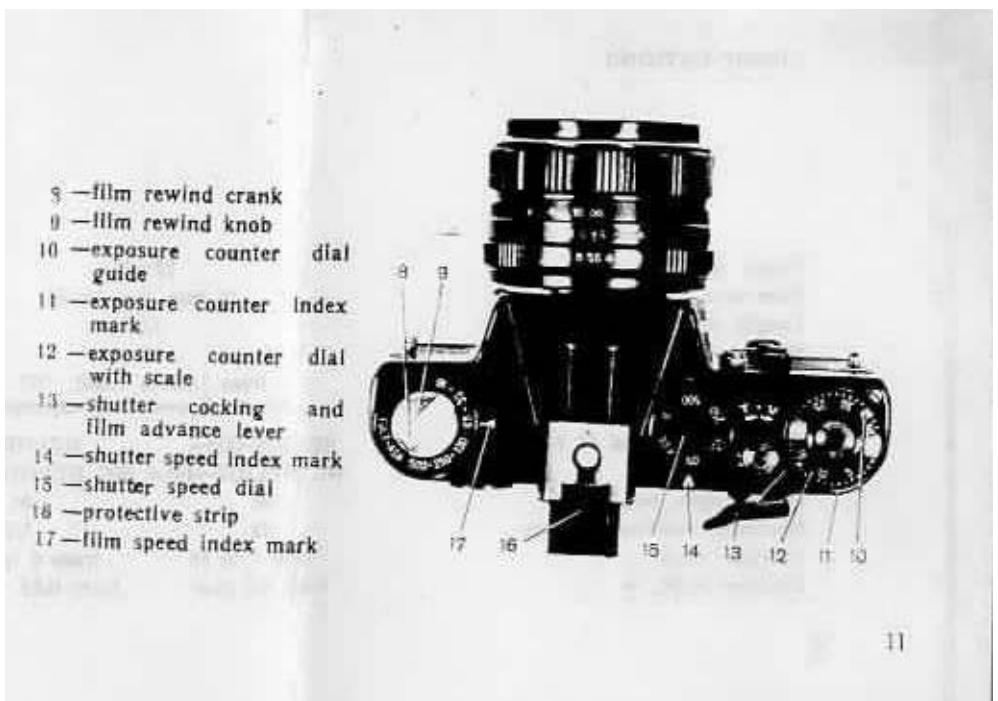
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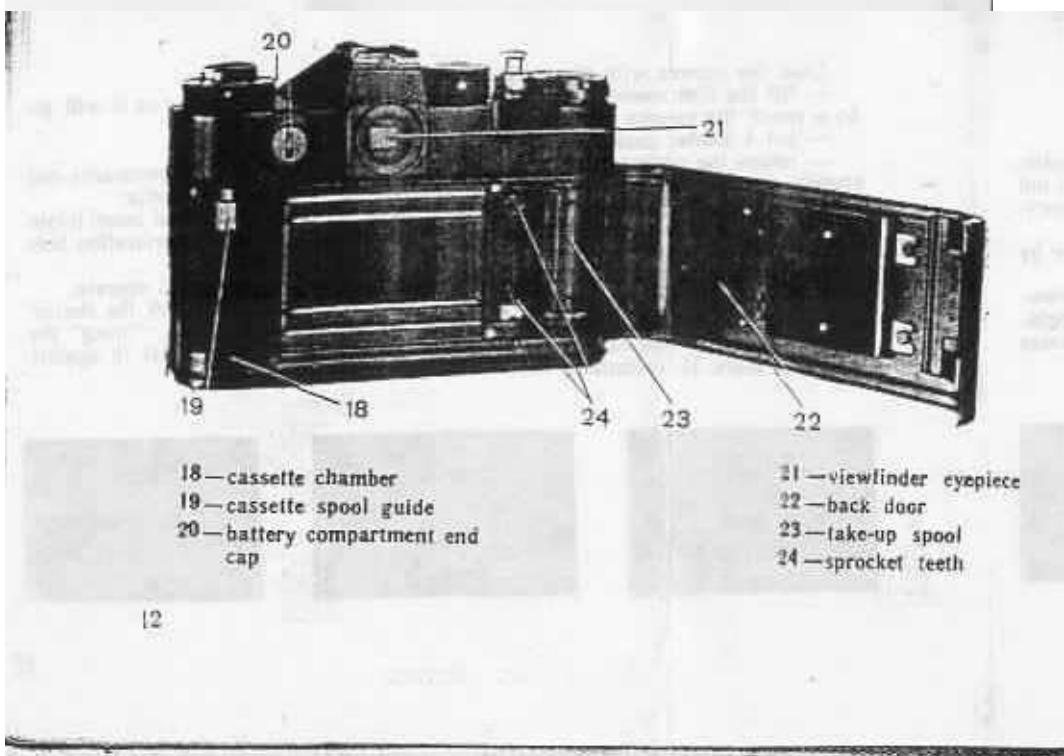
CAMERA DESIGN



- 1 — self-timer lever
- 2 — self-timer release button
- 3 — flash unit connector socket
- 4 — release button threaded for cable release
- 5 — shoe for mounting flash units and other accessories
- 6 — eyelet of strap securing
- 7 — lens



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CAMERA LOADING

Put two batteries into the camera in the following way: turn the cap 20 counter-clockwise so that its slot take the horizontal position, remove the cap and take out the exhausted batteries should there be any. Put new batteries into the compartment with signs "+" outward (upwards).

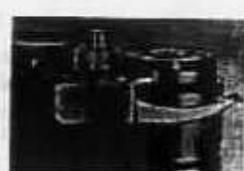
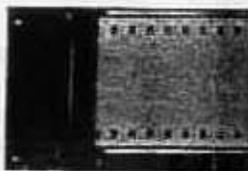
Replace the cap with its slot in the horizontal position and turn it clockwise by 90° to set the slot in the vertical position.

Check the indicating light for operation. To do this, looking through the view-finder eyepiece press the release button 4 till a definite stop is felt. If the light-emitting diodes (one or both) light up it means that the power supply operates properly.



Load the camera with film in the following way:

- lift the film rewind crank 8, pull out the rewind knob 9 as far as it will go.
- As a result the camera back door will open;
- put a loaded cassette into the chamber 18;
- return the rewind knob 9 to a locked position by pressing it downwards and slightly turning if required so that the spool guide 19 enter the cassette;
- draw out a film leader as long as to reach the camera edge and insert it into the slot of the take-up spool 23; in so doing be sure to engage a perforation hole with a tooth of the sprocket 24;
- close the back door 22, lightly pressing it to enable the lock to operate;
- to transport a nonexposed portion of film to the film gate, cock the shutter two times pressing the release button after each cocking. Prior to "firing" the shutter for the second time set figure "0" of the exposure counter dial 12 against the index mark 11 by turning the dial by its short guide 10.



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Should the film be wound tightly in the cassette, the film rewind knob will rotate when the shutter is being cocked. If the film is loose in the cassette, the rewind knob will not rotate at the first frames; — set the speed of loaded film by turning the dial 26 till a corresponding film speed value is click-stopped against the index mark 17.

Bear in mind that wrong setting of the film speed with the dial 26 will result in incorrect exposure.

Dashes engraved between figures on the film speed dial enable to set intermediate values of film speed in accordance with the Reference Table.

Reference Table of Film Speed Units

GOST	16	22	32	45	65	90	130	180	250	350	500
ASA	16	20	25	32	40	50	64	80	100	125	160
DIN	13	14	15	16	17	18	19	20	21	22	23

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STOP SETTING

Set a selected aperture against the index mark by turning the aperture setting ring 33.

Should your camera come complete with HELIOS-44M lens, set beforehand the diaphragm mode selector switch to "A" position.

When taking pictures with a self-timer, the procedure of stop-setting is somewhat different as described in the section "Operating the Self-Timer".

FOCUSING



The camera viewfinder is provided with Fresnel lens 35 with two focusing devices in its centre: microraster 36, arranged in the centre of the field, and ground glass collar 37. Watching an object to be photographed, turn the focusing ring to obtain a sharp image on the microraster 36 or the ground glass collar. Focusing is better done at full aperture. The best sharpness is obtained when the image on the microraster is clear, without ripples.

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The ground glass collar is used mainly in ultra-close-up photography and photomicrography or with the smallest lens stops when the microraster sensitivity is not sufficient.

Focusing can be done as well without looking through the viewfinder. To do this turn the focusing ring 32 and, making use of the distance scale 31, set the distance value between the object and the film plane against the larger index mark of the scale 30. The smaller index mark with letter "R" is used when taking pictures on infrared film. In such a case after focusing the lens by the microraster or the ground glass collar set the obtained distance value against the smaller index mark with letter "R".

Focusing done, you can determine the distance from the film to the nearest and the farthest sharp planes of your picture by making use of scales 30 and 31.

For example, the lens is focused at 3 m and an aperture of f/8 is selected. In this case you can read on the scale 31 against two figures 8 of the scale 30 that the image will be sharp within the limits from 2.3 to 4.5 m.

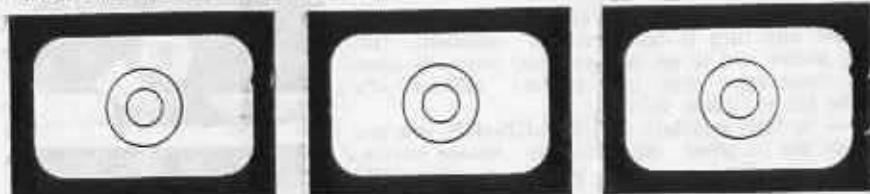
Approximate depth-of-field limits can be determined visually as well, when a required aperture is set on the lens with ring 33.

To do this set the lens stop and close the diaphragm down to this aperture by slightly pressing the release button till a definite stop is felt on it. Then looking through the viewfinder eyepiece, evaluate the image sharpness on the ground glass collar.

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EXPOSURE SETTING WITH THE HELP OF EXPOSURE METER

The camera semi-automatic exposure meter measures the light passing through the lens (TTL system). As a result, making use of various combinations of aperture and shutter speed values, you can set the exposure depending upon the brightness of an object and the speed of film being used with a high degree of accuracy. It remains true as well when interchangeable lenses, light filters, supplementary lenses and extension tubes are used.



Looking through the viewfinder eyepiece in such a way that the whole of its frame could be clearly seen, press the release button 4 till a definite stop is felt but not till the shutter "liting", should it be cocked, and hold the button in this position.

On the right-hand side of the viewfinder light-emitting diodes can be seen.

If the upper diode lights up it means that the exposure is excessive and when the lower one does the exposure is insufficient.

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Turn the aperture setting ring 33 or the shutter speed dial 15 till the moment when both of the diodes are lighting. It indicates the best possible combination of shutter speed and aperture providing for correct exposure.

However, if you fail to obtain simultaneous blinking of both of the diodes, and changing the shutter speed and aperture values over between the two neighbouring ones results in switching the lighting from one diode to the other, you may select one of these values. In such a case the exposure will be still acceptably correct.

PICTURE TAKING

Having prepared the camera for picture taking, cock the shutter, make sure of correct focusing, framing and exposure setting and smoothly press the release button to take a picture.

BEAR IN MIND that sharp pressure on the release button results in camera shaking at the moment of exposure and thus in blurring of the picture.

To take a picture with long exposure mount the camera on a tripod, set the shutter speed dial 15 at "B", press the release button 4 (the shutter should be set beforehand in the "ready to fire" position) and turn it counter-clockwise as far as it will go ("T" position).

The exposure over, return the button to its normal (middle) position and release it. As a result the shutter will close.

When taking pictures see to it that index marks on the release button and the camera top plate (between "T" and "V") should be lined up.

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CAMERA UNLOADING



When the exposure counter shows figure 36, rewind the film into the cassette.

To do this:

- release the shutter, pressing the release button 4;
- press the bush 25 downwards against the stop;
- hinge out the crank 8 and rotate it in the arrow direction until the film leaves the take-up spool. Try and rotate the crank smoothly, without jerks, and not too fast to avoid traces of static electricity on film;
- pull out the rewind knob 9 as far as it will go, open the back door and remove the cassette;
- turn the cocking lever 13 and, holding the sprocket teeth 24 with your finger, make sure that it is engaged.

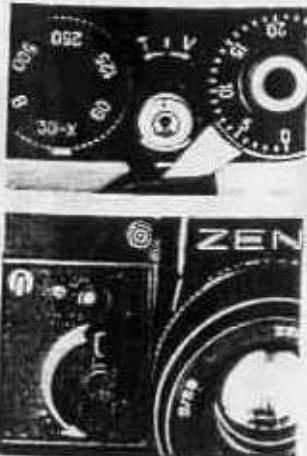
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OPERATING THE SELF-TIMER

To use the self-timer mount the camera on a tripod, then do the following:

- focus the lens;
- press the release button 4 till a definite stop is felt and turn it clockwise ("V" position). This will enable you to set the lens stop manually since the diaphragm does not operate automatically when the self-timer is used;
- to take a picture with HELIOS-44M lens one needs not to press and lock the release button setting the diaphragm mode selector switch to "M" position will do;
- set the lens stop and the shutter speed;
- cock the shutter;
- wind the self-timer by turning lever 1 downwards as far as it will go;
- press the self-timer release button 2 and take your place in front of the lens.

The shutter will operate no sooner than in 7 seconds after pressing the button.



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Interchangeable lenses

Lens name	Main specifications			
	focal length in mm	relative aperture	angle of field of view	minimum focusing distance in m
Mir-10A	28	f/3.5	75°	0.20
Mir-1	37	f/2.8	60°	0.24
MC Industar-61	50	f/2.8	45°	0.30
Jupiter-9	85	f/2	28°	1.00
Helios-40-2	85	f/1.5	28°	0.80
Tair-11A	135	f/2.8	18°	1.20
Jupiter-6-2	180	f/2.8	14°	2.00
Jupiter-21A	200	f/4	12°	1.70
Tair-3A	300	f/4.5	8°	2.20
3M-5A	500	f/8	5°	4.00
MC MTO-1000 AM	1000	f/10	2°30'	10.00

В связи с переходом на новую систему обозначения светочувствительности пленки в фотоаппаратах могут быть установлены новые шкалы светочувствительности. Поэтому рекомендуем пользоваться следующей сравнительной таблицей светочувствительности пленок (стр. 14).

On account of transition to a new film speed designation system, new film speed scales may be installed in cameras.

Therefore the following reference table of film speed units is recommended (page 16).

Votre appareil peut avoir une autre échelle de sensibilité des films que celle donnée dans la Notice technique (page 16) à cause de l'introduction d'un nouveau système des désignations de sensibilité. Alors Vous pouvez vous servir d'un tableau comparatif de la sensibilité des films donné ci-dessous.

Обозначение на шкале светочувствительности пленки

Designation on film speed scale

Désignations sur l'échelle de sensibilité des films

	25	50	100	200	400	.											
FOCT/ISO	16	20	25	32	40	50	64	80	100	125	160	200	250	320	400	500	640
DIN	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

(Вкладыш в техническое описание фотоаппарата «Зенит-12ХР» с новой шкалой светочувствительности пленки).

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