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The camera

START

INSTRUCTION MANUAL

Before using the camera, study the manipulation and operating procedure with it under the given description.

In order to prevent damage of the camera you must install the shutter speed only after cocking the shutter.

REMEMBER, that rotation of a shutter speed dial 10 (fig. 2) with non-cocked shutter results in breakage of the device!

The small divergence between the description and your camera are possible owing to technical development of a design of the camera.

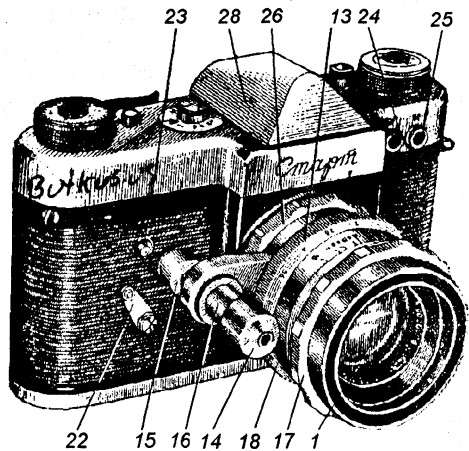


Fig. 1

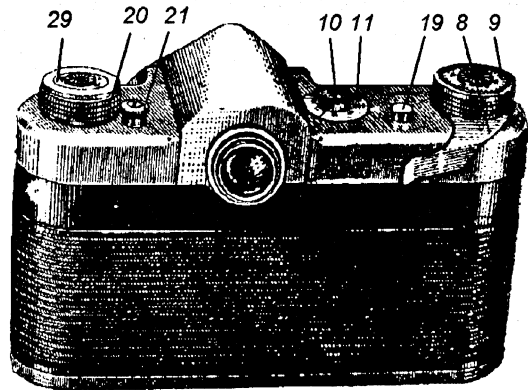


Fig. 2

1. SPECIFICATIONS

Type of camera

The camera «START» is portable 35-mm film camera having all advantages of modern cameras.

The camera «START» is the high class single reflex lens (SLR) camera with the mirror, which allows to see the image is direct, instead of reflected or revolved.

Camera is intended for the most various photoshootings and can satisfy to the high requirements showed to the camera by qualified photofans. It is suitable also for many kinds of reporting and scientific works.

Picture format

24 mm x 36 mm. The camera is designed for application of the standard 35 mm film format.

Loading in the cassette 1.6 m of a film provides shooting 36 frames.

The camera is adapted to work with two cassettes similar with cartridges from the Soviet RF camera «Kiev». Also can be used usual 135 type film cassette and take-up spool.

Shutter

Original focal-plane shutter with a horizontal-travel curtains is applied in the camera «START».

Shutter speeds

It provides an automatic shutter speeds 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500 and 1/1000 seconds, and also «B» by hand and long exposure.

Lens

-The camera «START» is completed by six-element lens «HELIOS-44» with the coated optics, with a relative aperture 1:2 and focal length of 58 *mm*.

It provides the high quality images. The resolution (in pairs of lines per 1 *mm*) is not less than 30 at center of a field and 12 at edge of a field.

With pressing on the shutter release button using springblende aperture (first in USSR!), it automatically jump to the meaning installed before.

Working distance of the camera (distance from a basic plane of the lens to a plane of a photographic film) is equal 42 *mm*.

Lens mount

The lenses mounted with special bayonet or with adapter for lenses with 39 *mm* mount from old

«ZENIT» cameras (all lenses are without springblende aperture).

Viewfinder

The eyepiece of the prism finder has 5x magnification. Waist level finder also can be installed.

Size of focusing screen, which you can see into the viewfinder — 22 x 33 *mm*.

Focusing

For adjusting sharpness the camera has both matte field and split image finder, which makes focusing same with optical rangefinder. Focusing with the scale of distances is also available.

The SLR camera «START» is convenient for close-up shootings with different optical devices.

Self-timer

Mechanically controlled 9-15 *sec*.

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Filters

Screw mount M40.5 x 0.5 mm.

Tripod

Socket with standard 3/8" groove.

Flash synchronization

1/30 sec. or slower with electronic flash (socket «X») or lamp-flash (socket «M») and other shutter speeds).

Knife

The camera has a special knife for cutting exposed part of the photographic film inside the camera body. It was actually for fast developing and film economy in 1960th years.

2. COMPLETE CAMERA SET

1. Camera with lens, removable back cover and removable prism finder.
2. Front lens cap
3. Empty film cassette (2 items)
4. Adapter ring for M39 lenses from the camera «ZENIT»
5. Ring for eyepiece correction lens
6. Case with a neck-strap
7. Shutter release cable
8. Description of the camera
9. Passport

3. NOMENCLATURE

The basic units of the camera (fig. 1 & 2) are: shutter, lens, viewfinder, mechanism of self-timer mounted in the body, knife and removable back wall.

The shutter cocking is made with the help of the lever 8.

The mechanism of a shutter is connected with the mechanism of film transportation and with a frame counter. That feature protects from repeated shooting on one shot. With turns the lever 8 the shutter is simultaneously cocked, the mirror lowered, the film moves on one frame and the disk of the counter turns on one division.

Shutter is actuated by the release button 14 (or 15 for lenses other than «HELIOS-44») or button of the self-release timer 23. Shutter release buttons 14 and 15 have a conic groove for connecting a shutter release cable.

The adjusting on sharpness is consists of focusing image on the clear matte field or/and overlapping the images in the center of focusing screen.

Install the frame counter on «zero» by turn of a disk 9 for an actual part.

Install the shutter speed with the help of the dial 10, raising it and establishing on a shutter speed scale 11.

The installation of shutter speed should be made only after a cocking shutter and within the limits of

divisions of a scale: 30, «B», 1000, 500, 250 125, 60, 15, 8, 4, 2, 1 and back. It is impossible to turn the knob 10 with an index in interval between 30 and 1. The shutter speed scale 11 has numbers 1, 2, 4, 8... up to 1000, that means 1, 1/2, 1/4, 1/8... 1/1000 sec. With turn of the dial 10 in limits from 15 up to 1 will be felt additional effort from a spring and noise of the brake mechanism.

NOTE: It is not recommended to cock the shutter with pressed button 14 or 15. There can be a jamming of the shutter. It is possible to remove this jamming by pressing of the button of film rewind 19, and in case the jamming is not eliminated, it is necessary besides to open a back cover and to turn by a transport sprocket 35.

The lens «HELIOS-44» is supplied springblend aperture. With rotating of an aperture scale 13 the brightness of the viewfinder still maximum. Springblend aperture occurs only at the moment of pressing on the button 14, which in turn presses on the button 15 located under the button 14. Thus, aperture occurs directly before the moment of taking picture.

The mechanism of springblend aperture can be switched-off by turn of the button 14 in direction of an arrow before overlapping a stroke on a stalk 16 buttons with two points on the cup 14. Thus the springblend aperture occurs as established by a ring 13.

The switching on the springblend aperture mechanism is made by turn of the button 14 in a

direction of an arrow before overlapping one point on cup of the button with a stroke on a stalk 16.

The focusing of the lens is made by rotation of a ring 17.

The lens is supplied with a scale of depth of sharpness 18.

The fastening lens to the body of the camera is made by a ring 26. By turning it against a movement of a hour arrow against the stop to insert in bayonet cuts of a ring the appropriate ledges on the lens so that the button 14 has settled down above the button 15, then turn of a ring 26 in the return party to fix the lens on the body.

It is possible to use the long shutter speed «T» with replaceable lenses. It turns by the button 15 at «B» shutter speed on a shutter speed dial, just press

directly on the button 15 against the stop and turn the button on a course of a hour arrow. After that the button will remain in lowered situation, and the shutter opened so long as the button will not be revolved back, before overlapping points on the button and on the body.

Your camera has the mechanism of synchronization between a shutter and a flash unit. Before shooting with a flash carefully study instruction, applied to it.

With connection of a flash unit to a plug socket 24 with a symbol «lightning» or «X» short circuits of contacts occur in the moment, when first curtain of the shutter comes to the end of a frame window. The shooting with this contact is possible only with shutter speed more than 1/30 sec with a

completely opened frame window. You can use with this contact electronic flash or lamp-flash (with shutter speed 1/15 sec or more).

With using the self-timer it is necessary to connect a lamp only to a plug socket 24.

For mounting the flash on the body of the camera required additional adapter with accessory shoe. It can be used only the flash units with a cord connector (or with a special adapter from «hot shoe» to cord connector).

Fast shutter speeds from 1/60 up to 1/1000 sec, marked on a scale 11 by red figures, can be applied with long burning lamps having time of combustion approximately 0,05 sec. For connection of these lamps the camera has the second plug socket 25 with a symbol «lamp» or «M».

Eyepiece of the prism finder has manufacturer's correction in limits from 0 up to $-1.5 D$, and designed for a normal sight. If the shooter has a lack of sight, it is recommended to add appropriate tiny lens with the diameter of 18 mm into the eyepiece. Special ring for fastening the correction lens into eyepiece is included into a complete set. For fastening this ring with a lens to the eyepiece it is necessary to remove (unscrew) from it decorative ring 26 (fig. 1) before.

The prism finder can be removed from the camera and is replaced by the finder-hood (or WLF) (see Fig.3). The photographing without these devices can result lightning of the frame through the holes near the focusing screen.

For removal of a prism finder it is necessary to move the prism 28 (see fig. 1) in a direction of back wall of the camera, and the eyepiece prism will be easily removed from the camera.

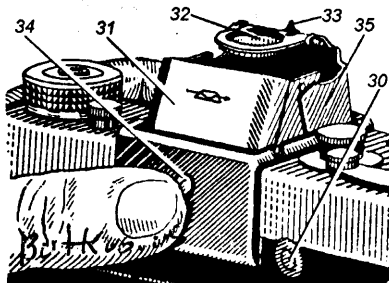


Fig. 3

NOTE: Old issues of Start camera have special lock (item 30 at fig. 3) for viewfinders. You can see it at right side from eyepiece.

To open the viewfinder-hood press the button 34. After it you can use magnifying lens 32, to drive it to working position use the button 33. To close the viewfinder hood combine the lens 32, then close shades 31 and 35.

In the head of film rewind knob 20 is mounted the index of a grade of a photographic film (color daylight, color for lamps and a black-and-white films).

4. BASIC OPERATIONS

4.1. Loading film

You can use a standard (135 type) film cassette or special old type cassettes (fig. 5).

The camera should be taken out from a case before film loading. Just unscrew the screw of the case which has been screwed into tripod socket 32 (fig. 4).

Open the camera and take out the cassette from it, it is necessary to turn the camera by the bottom party to itself and to cast away two handles of locks 31 (fig. 4) and to turn them on a half-revolution against the stop.

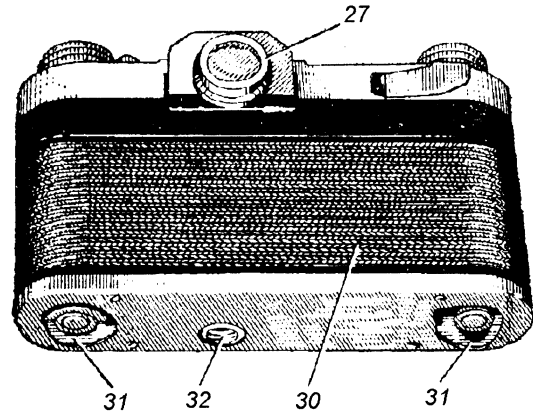


Fig. 4.

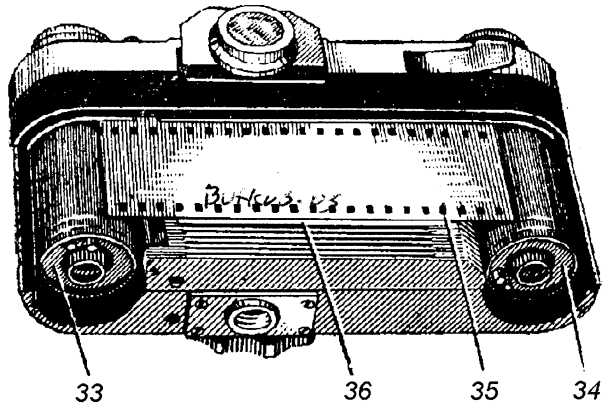


Fig. 5.

Then remove a back cover by moving it to a bottom of the camera.

NOTE: Don't remove a back cover holding the camera lens up, thus the cassette and take-up spool can drop out.

Avoid loading or unloading film in direct sunlight (it is desirable in the poorly covered place, even in a shadow from an own body).

Check up action of camera mechanism before loading the film.

Insert new cassette into a jack of the camera's body. The cassette with film should be placed into left, and take-up cassette or a spool into the right jack of the device.

Fix the leader of a film on the take-up spool. The punching of a film should get in pins of a transport sprocket 35.

Close the camera in a sequence, return the opening. For it apply a back wall so that its edges have come in grooves of the case. Holding edge of a film, push a back wall, turn locks against the stop and lower them.

It is necessary to make 2 single frames with the closed camera that first two frames were not made on the lighted part of a film.

If the camera is charged correctly, the rotation of the shutter cocking lever 8 causes simultaneous rotation of the rewind knob 20 in the direction opposite specified arrow on the head. The immovability of the rewind knob 20 is an attribute

either wrong loading, or leaky winding of a film on the spool of the cassette or take-up spool. The loading film process comes to finish by installation of the frame counter on «0» by rotation of an acting part of a disk 9 (fig. 2).

4.2. Shooting

For cocking the shutter turn the lever 8 by a large finger of the right hand against the stop and smoothly release it (let off).

NOTE: At some (latest) «START» cameras the lever 8 has some preliminary course (15° — 35°) before it will begin film winding and shutter cocking.

If the shutter is cocked not completely (for example, when the photographic film comes to an end) in this case shutter release (without film exposing) can be made with the help of the button 19 (fig. 2).

When the frame counter will show figure 36, it means that all loaded film is used. It is necessary to stop the further shooting and to unload the camera.

NOTE: In a case of using by a film of length there are less than 1,6 meters, the signal to the termination of shooting is served by the appeared effort in rotation of the lever 8 (fig. 2).

If was used two film cassettes, the film rewind is not necessary. In other cases hold the button 19 in the pressed position and rotate the knob 20 on a

course of an arrow. Rotate film rewind knob until resistance to rotation will not specify, that the film from the take-up spool has passed into the cassette completely.

If it is necessary to process exposed part of a film, it is possible to use for it the advantage of built-in knife. In this case it is necessary to cock the shutter 1—2 times that exposed film has passed completely into the take-up cassette. Then close the take-up cassette (if it is old type cartridge) by turn a handle of the lock 31. Unscrew the knob 21 to extend a core with a knife against the stop and to lower a knife on a place, after that screw the head 21 to its place again. By a movement of the lever 8 remove the cut off end of a photographic film into

the cassette, then it can be taken out from the camera.

For using the self-timer it is necessary to turn the lever 22 (fig. 1) counter-clockwise against the stop. Then cock the shutter, install shutter speed, aperture and sharpness. Switch off the mechanism of springblend aperture and press the button of self-timer 23 against the stop, thus the mechanism of auto release will be started.

To prevent blurred pictures, the camera must be used with a tripod (or any suitable support) and a cable release for exposures longer than $1/25$ sec.

5. REPLACEABLE LENSES

With the camera «START» can be applied replaceable lenses, intended to the old «ZENIT»

cameras with M39 lens mount (latest «ZENIT's» has M42 lens mount), or latest lenses with «A» (adapter) index and with M39 adapters.

Replaceable lenses can be mounted on the camera with the M39 adapter ring, which comes with new camera or with macro rings sets. Screw the lens against the stop into the adapter ring and then fix it into the camera's bayonet. Some lenses with a large diameter of rear part (for example, MTO-500 lens), complicate access for fastening ring 26. In this case it is necessary to fix on the camera adapter ring, and then to screw the lens.

Most of replaceable lenses are without springblend aperture and use the button 15 (fig. 1).for shutter release

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Table of macro ratio for HELIOS-44 lens and macro rings set

Distance form the object to film plane, <i>cm</i>	Macro ratio	Type of the ring (fig.6)
52,9 — 36,7	1/6,98 — 1/4,10	Adapters 5 & 6 only
38,2 — 30,9	1/4,37 — 1/3,04	1
33,8 — 28,8	1/3,57 — 1/2,63	2
29,4 — 26,5	1/2,74 — 1/2,15	1 & 2
27,5 — 25,5	1/2,36 — 1/1,91	3
25,7 — 24,4	1/1,97 — 1/1,64	1 & 3
25,0 — 24,0	1/1,79 — 1/1,51	2 & 3
24,1 — 23,4	1/1,55 — 1/1,34	1, 2 & 3
23,5 — 23,1	1/1,38 — 1/1,21	2 & 4
23,2 — 23,0	1/1,24 — 1/1,10	1, 2 & 4
23,0 — 22,9	1/1,15 — 1/1,03	3 & 4

MTO-500 lens close the access to the button 15. In this case release the shutter with the help of the special device which comes with old «MTO-500» and «MTO-1000» lenses. It is not recommended to use the button 19 for shutter release. In this case the film at the moment of shutter release can to move, and the image will be blurring.

With usage telephoto lenses «Tair-3» and «MTO-500» it is necessary to remember, that in the top part of the frame will appear a dark band with width about 1 *mm*.

6. MACRO AND ADAPTER RINGS SET

Standard HELIOS-44 lens allows focusing it at distances between 0.7 m and ∞ only. For close-up

shootings special adapters and macro rings set can be used. Such set sold separately from the camera.

Adapter ring for M39 optics 5 (fig. 6) should be attached to the camera's bayonet. Macro rings 1, 2, 3 & 4 should be attached to the adapter 5 separately or in necessary combination according with the table below. Finally second adapter ring 6 should be attached to those ring(s) and HELIOS-44 lens can be locked into the bayonet.

Sharpness adjustment can be achieved with distance ring and with delicate moving the camera. Adjust it with opened aperture and close it before the shutter release. To close the aperture at standard HELIOS-44 lens, just rotate the button 14 to the "double dot" position.

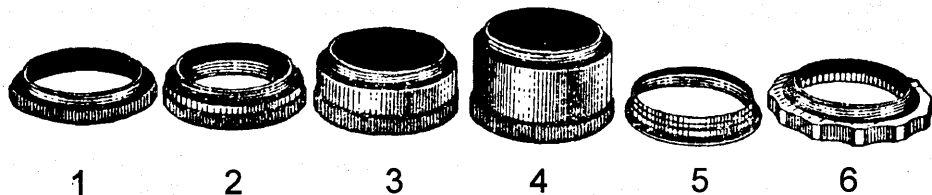


Fig. 6

Macro rings allows using a lot of M39 lenses designed for old ZENIT cameras or for rangefinder LTM cameras. But the table of scales for HELIOS-44 lens will not applicable in this case. Special M39 bellows also can be applicable and it can provide very serious macro ratio and smooth adjustment of it.

Close-up shootings require the support because

relative aperture will reduce with it. For macro ratio more close than $1/5$ different exposure correction should be used. It should be 1 exposure step for $1/3 - 1/2$ ratio, 2 steps for $1/1$ ratio, 3 steps for $2/1$ ratio.

Best sharpness will received at 5.6—11 aperture meanings.

6. CAMERA & LENSES CARE TIPS

Store the camera in a cool, dry place. In humid environments, store the camera inside its leather case to keep out dust, moisture, and salt.

NOTE: In tropical climates, it is better to store the camera separately from its leather case. The leather case moulds quickly in tropical climates, and will cause the camera to mould as well. Storing the camera in a sealed vinyl plastic bag with some desiccants (Silica gel, dry rice, etc.) will give to it more protection.

If the camera had been exposed to rain or mist, or after shooting near the sea, wipe the camera with a soft, clean cloth. Don't leave the camera in an

excessively hot place. Don't apply excessive force during operation.

Don't point the lens toward the Sun, You can burn a hole in the curtains of the shutter in just a few seconds if the shutter is not cocked and there is no the mirror between lens and shutter. Cover the lens with the lens cap immediately after shooting outdoors.

As mentioned earlier, the lenses have anti-reflection coated surfaces. Because of its extreme thinness, this coating can be easily abraded with improper wiping or cleaning. To protect the anti-reflection coatings, the lens surface has to be protected from contamination so that cleaning is less often. Attaching a colourless «Skylight» 1A or UV filter on the lens can give it ample protection.

Being colourless, these filters can be permanently left on the lens. The filter will absorb the brunt of contamination, and are easier to clean. Easier and cheaper to replace too, if damaged. Protect the lens from, and do not store it in, a damp environment. Dampness can cause spotting and moulding, which damage the coating.

Bubbles may be found in complex Soviet and foreign lenses. The process by which the optical glass found in these lenses is made inevitably causes bubbles to form. The bubbles which may be found are very small in size and quantity, and are

within acceptable specifications. They are not considered as defects and will not affect the quality of images.

If the camera is brought from a cold environment into a warmer one, let it warm first in its case and stabilize to ambient temperatures to prevent moisture condensation.

If the camera malfunctions, take it to an authorized service center for repair. Do not attempt to do your own repairs at home. The cleaning of a matte field surface and wedges of a focusing screen also requires professional skill and extra care.