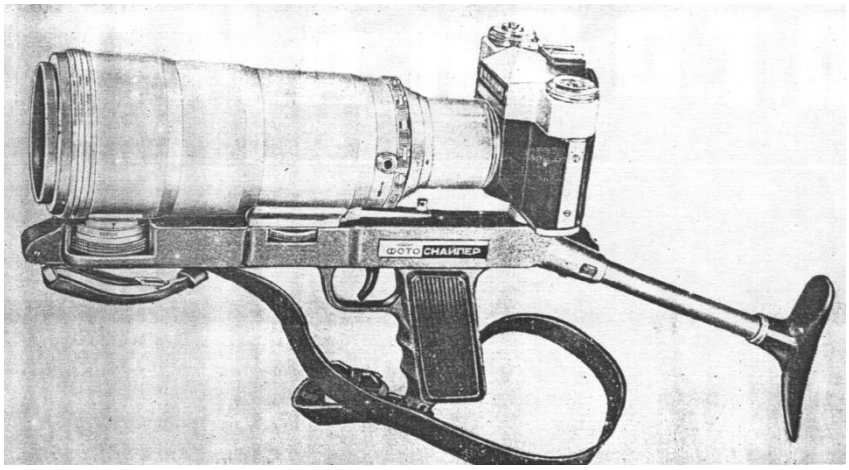


ATTENTION!

This manual contains brief description and basic usage guidelines for the Photosniper kit.

Before using the camera gun, read this manual thoroughly.

Some differences between this manual and actual kit you have are possible due to improvement of the camera kit after printing this manual.

To extend life of your camera kit, hold to following rules:

Don’t touch optical surfaces with your fingers since this may damage coating layer.

Don’t turn the shutter release button when pressing it (unless you do this intentionally) to avoid occasion deactivation of the shutter cocking mechanism.

Don’t try to turn the shutter speed selector in “B”-“500” interval.

Pull the shutter cocking lever till stop each time – this will help you to avoid missing frames on the film.

Before loading the camera, make sure that the camera shutter works well – cock the shutter till stop and release it.

PURPOSE AND ADVANTAGES

The Photosniper kit consists of the telephoto lens “Tair-3-FS” and SLR camera “Zenit-ES” mounted on the gun stock which has a handle and release mechanism.

The camera gun is purposed to shoot close views of animals, birds and plants in their natural environment.

It can also be used at sports events and to picture distant architectural features.

Important advantages of the kit camera “Zenit-ES” are: continuously engaged mirror (except of the film exposure interval) that allows to observe an object almost without interruptions; built-in light meter (especially useful with color film); levered shutter conking mechanism; swinging back door.

13x18cm print made from the film frame (5x magnification) matches resolution of a field binocular. You can see distinct details of a size equal to about 1/10000 of shooting distance. For example, taking a picture from 100 meters, you’ll be able to see 10cm object on a print.

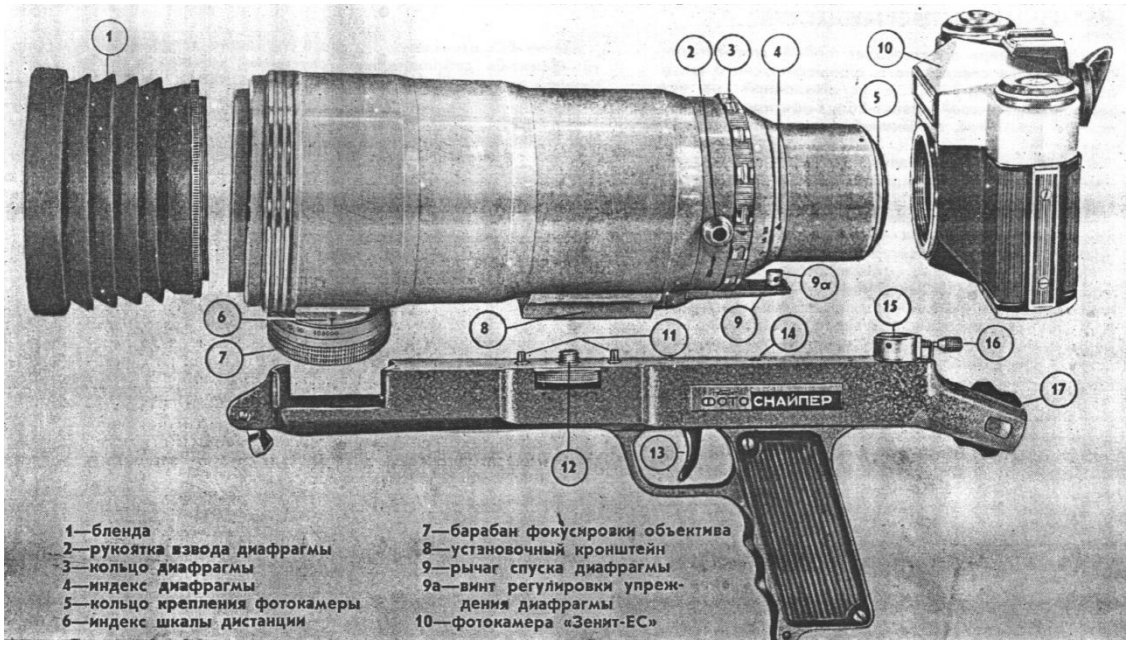
The kit camera “Zenit-ES” differs from more recent “Zenit-E” with additional shutter release button in the bottom part of the camera to be coupled with the gun stock shutter release mechanism. Its viewfinder output pupil is further from the viewfinder for a user convenience. M42 mount thread allows using Praktica, Asahi Pentax, Pentacon, Edixa lenses.

Reflex finder focusing on the ground glass in conjunction with macro rings allows to make reproductions (macro shots) and to take pictures with a microscope.

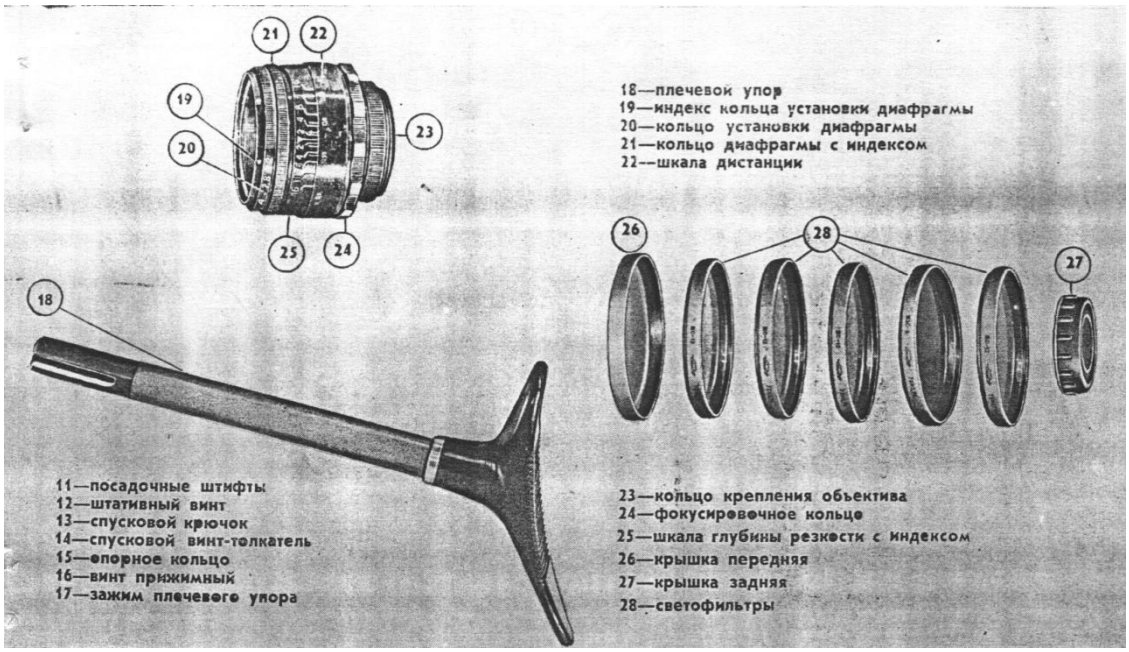
The kit lens “Tair-3-FS” features an instant-return diaphragm that closes to a preset value at the moment of the shutter release.

The lens has mechanism of quick focus allowing to keep an object in focus continuously not removing your hand from the gun stock. To set chosen aperture value and take a picture, just press the shutter release button on the gun stock handle.

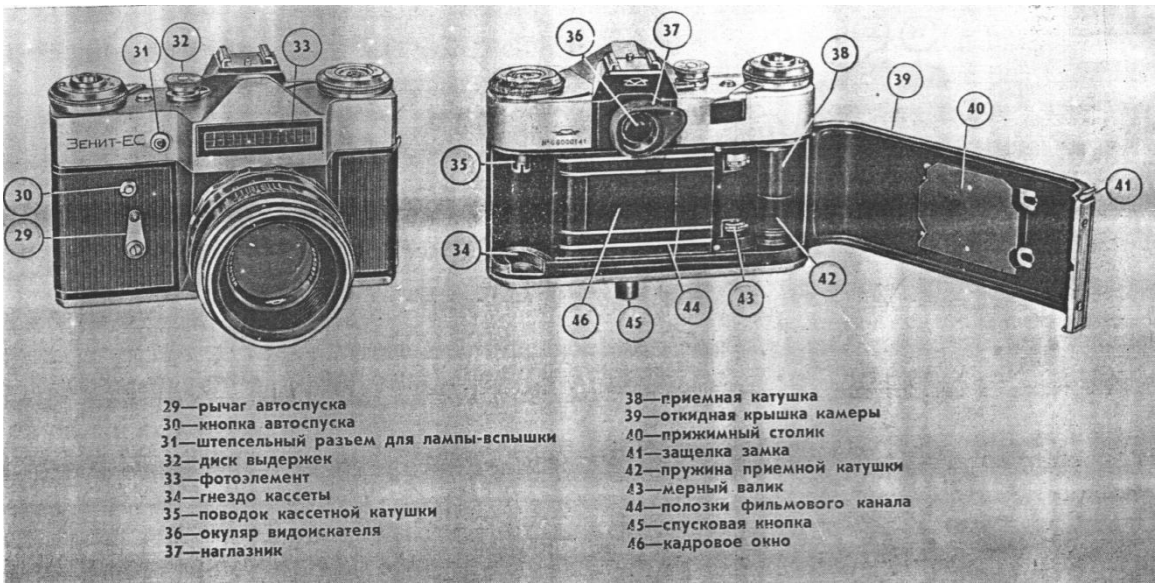
“Amber” coating of the lens provides correct color rendition with color film.



1. Lens hood
2. Aperture preset handle
3. Aperture ring
4. Aperture index
5. Lens mount
6. Distance scale index
7. Lens focusing knob
8. Mounting plate
9. Aperture release lever with (9a) aperture lead adjusting screw
10. Camera “Zenit-ES”

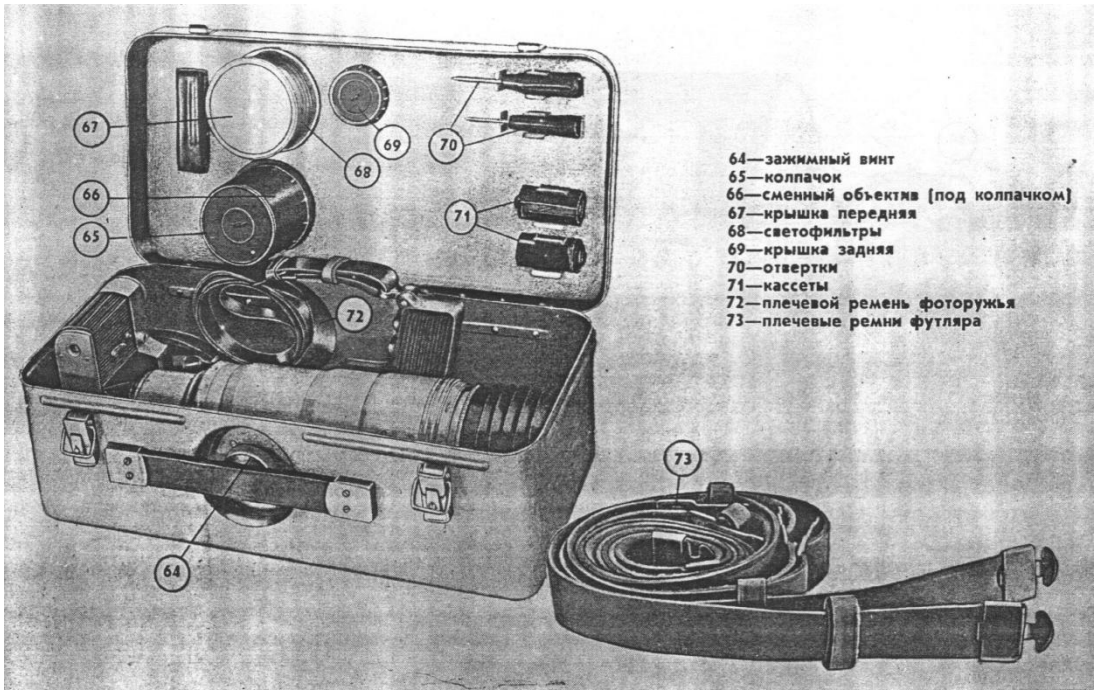


11. Aligning pins
12. Securing screw
13. Shutter release lever
14. Shutter release pusher
15. Support ring
16. Securing screw
17. Shoulder support fastener
18. Shoulder support
19. Aperture scale index
20. Aperture set ring
21. Aperture index ring
22. Distance scale
23. Lens mount
24. Focus ring
25. Indexed depth of field scaled
26. Front lens cap
27. Rear lens cap
28. Color filters



29. Self timer lever
30. Self timer button
31. Flash lamp sync contact
32. Shutter speed selector
33. Photo cell
34. Film cartridge slot
35. Guider of the film cartridge
36. Viewfinder eyepiece
37. Eye cup
38. Take-up spool
39. Swinging back door
40. Pressure plate
41. Lock
42. Spring of the take-up spool
43. Film advance sprocket
44. Film channel
45. Shutter release button
46. Frame window

47. Rewind knob
48. Shutter speed scale of the calculator
49. Film speed scale
50. Film speed scale index
51. Calculator pointer
52. Light meter pointer
53. Aperture scale of the calculator with (53a) guiding pin
54. Synchronizer handle
55. Synchronizer handle index
56. Shutter speed selector scale
57. Shutter speed selector scale index
58. Rewind button
59. Shutter release button
60. Picture counter guiding pin
61. Picture counter scale
62. Picture counter scale index
63. Shutter cock / film advance lever

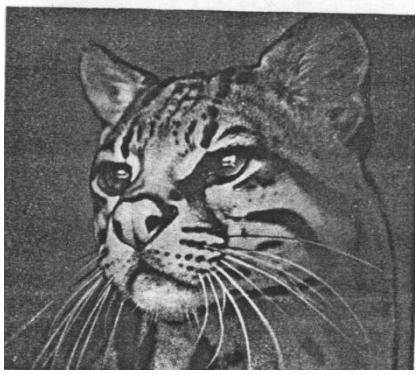


64. Holding screw
65. Lens cap
66. Interchangeable lens (under the cap)
67. Front cap
68. Color filters
69. Rear cap
70. Screwdrivers
71. Film cartridges
72. Camera shoulder strap
73. Carrying case shoulder straps

CARRYING CASE

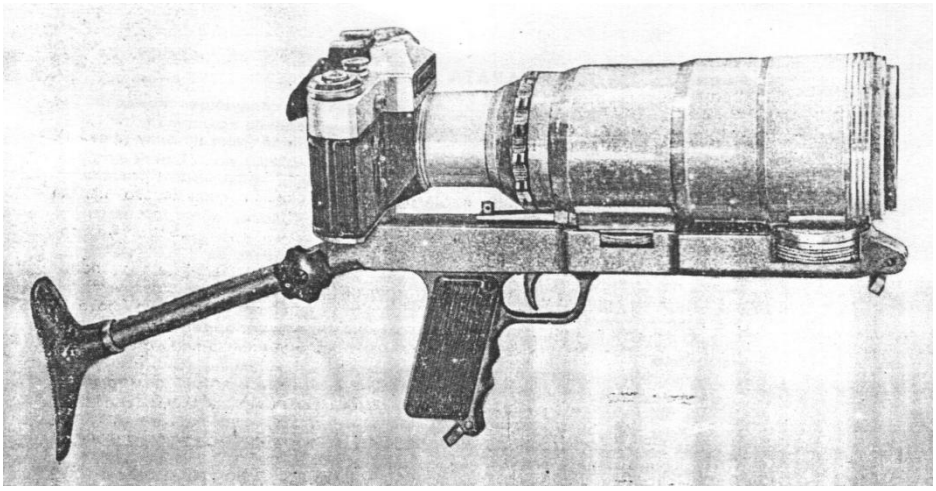
The camera kit should be stored in the stamped aluminum case to prevent it from any weather condition.
The lens “Tair-3-FS” and the camera “Zenit-ES” are secured to the case bracket with the screw (64).
The gun stock is secured to the case with its securing screw.
Shoulder support being kept at the bottom of the case with spring brackets.
Rest of accessories should be placed onto the case lid: the “Helios-44” lens with its front cap; set of 5 color filters; 2 film cartridges; 2 screwdrivers; 2 lens caps (front and rear).
The case has locks preventing occasional opening, carrying handle and adjustable shoulder straps that can be attached to the case brackets for long carrying in the manner of backpack.
Rubber lens hood included into the kit can be screwed onto a lens in the same way as color filters. The lens hood prevents the lens from side light and from damage when operating in complex condition.

F=50 F=300



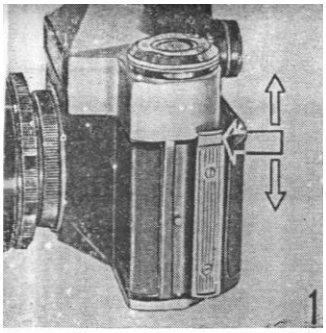
SPECIFICATIONS

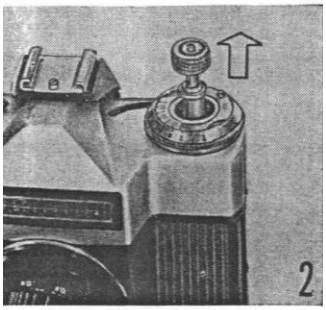
Frame size	24x36mm	
Film width	35mm	
Number of frames	36	
Shutter speeds	1/30 to 1/500, “B”, long	
Viewfinder field of view	20x28mm	
Eyepiece magnification	4.5x	
LENSES	Tair-3-FS	Helios-44
Focal length	300mm	58mm
Relative aperture	1:4.5	1:2
Flange focal distance (from the lens mount flange to focal plane)	45.5mm	45.5mm
Mount thread	M42x1	M42x1
Minimum shooting distance	3m	0.5m
Aperture scale	4.5-22	2-16
Lens hood thread	72x0.75	Ø55mm
Filters thread	72x0.75	49x0.75
Tripod thread of the camera “Zenit-ES” and “Tair-3-FS” lens	3/8”	
DIMENSIONS		
In working state	140x235x560mm	
In the case	170x210x390mm	
WEIGHT		
In working state	2.9kg	
In the case	5.5kg	



PREPARATION FOR WORK

1. Open the case.
2. Take the gun stock out of the case, unscrewing its securing screw.
3. Hold the lens with one hand and unscrew its holding screw; take the lens out of the case.
4. Attach the gun stock to the lens so the aligning pins enter into the lens support bracket holes, and bottom camera release button enters into hole of the support ring.
5. Secure the lens to the gun stock with the securing screw (12).
6. Tight the screw (16) a bit.
7. Attach the shoulder support and secure it with the fastener (17).

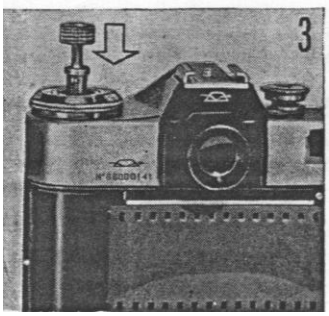


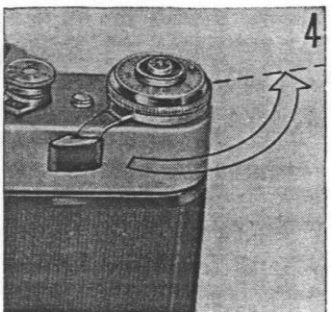


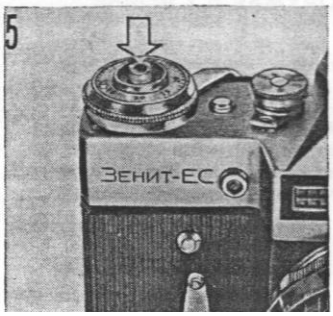
LOADING THE CAMERA

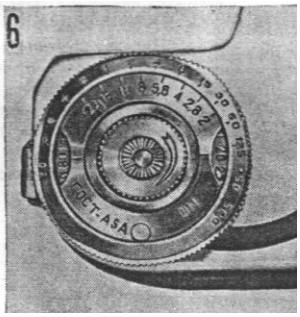
The camera can be loaded in daylight.

1. Cut the end of the film straightly. Open the back door (Picture 1).
2. Insert the film end under the take-up spool spring and catch the spool cog with the film perforation. Place the film over the film channel carefully (Picture 3).
3. Put the film cartridge into the slot, pulling the rewind knob head up (Picture 2).
4. Push the rewind knob head down and fix it in this position by turn in the arrow direction (Picture 3).
5. Close the back door and lock it pushing the lock down (Picture 1).
6. Cock the shutter turning the lever till stop (Pictures 4-5) and press the shutter release button. Cocking the shutter advances the film by one frame. To advance non-spoiled part of the film to the frame window, you need pass three frames (cocking the shutter and releasing it). When you cock shutter, please note whether the rewind knob head rotates or not. If not, check if you loaded the camera correctly.
7. Turn the film counter scale to align “0” with the index. It should be set after shutter is cocked.









SETTING THE FILM SPEED

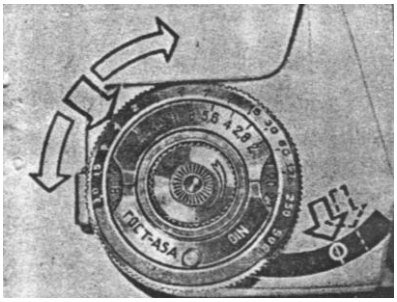
The film speed scale has marked values of 12, 32, 65, 130, 250, 500 GOST. Intermediate marks are for ASA speeds. '32' number has 2 points near it – left one is for 25 GOST/ASA, right one is for 32 GOST/ASA. Opposite side is marked in DIN values of 13, 16, 19, 22, 25, 28.

Film speed numbers are visible in the indexed radial windows of the aperture scale. In order to set a film speed (for example, 65 GOST/ASA), it is necessary to turn the scale till the index is aligned with '65' mark. Same procedure is for a film marked with DIN value.

DETERMINING EXPOSURE PARAMETERS

Point the camera to the object. Turn the shutter speed scale left or right to align center hole of the calculator pointer with the light meter pointer in the window of the camera top. Marks of the shutter speed and aperture scales should be aligned to each other with no more than ½ scale step error.

After the pointers are aligned, you can read set of shutter speeds and apertures appropriate for current light conditions and loaded film. Any of these pairs will guarantee good light density of picture. Keep in mind that numbers on the diaphragm scale are for relative aperture values. Shutter speed numbers from 500 to 2 are for fractions of a second, and from 1 to 30 are for seconds.



Black numbers of the calculator shutter speeds correspond to values on the shutter speed selector. Chosen shutter speed and aperture value should be set on the camera and the lens correspondingly.
Note. The light meter gives correct exposure values for lenses with large enough angle of view comparable with angle of view of the photo cell (for example, the "Helios-44" lens with 40° angle of view). When "Tair-3-FS" lens is used (8° angle) you can get correct result if brightness of the object differs from the background within 40-50 degrees insignificantly.

SETTING A SHUTTER SPEED

Lift the shutter speed disk and turn it to set necessary value. The numbers means corresponding fractions of a second, "B" – manual exposure.

To get so called 'long' exposure, it is necessary to cock the shutter, set the shutter speed disk to "B", press the shutter release button, and turn it counter-clockwise till stop. After finishing exposing, turn the release button back.

Notes:

1. You can set a shutter speed either with cocked or released shutter.
2. It is recommended to use a tripod for long exposures and "B" speed.
3. If you don't use a flash lamp, position of the synchronizer lever doesn't matter.

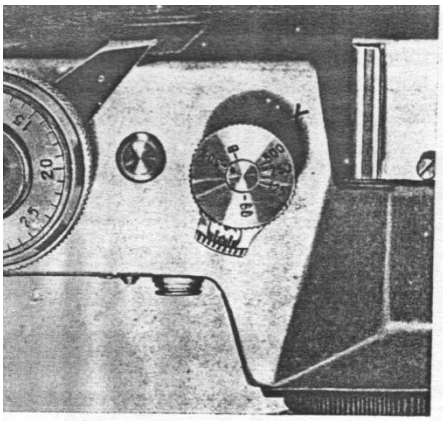
SETTING AN APERTURE

"TAIR-3-FS" LENS

1. Put your left hand onto the lens and turn the aperture preset ring in the arrow direction till stop.
2. Turn the aperture ring to set one of the values (4.5; 5.6; 8; 1; 16; 22). You should hear a click sound when a value is set.

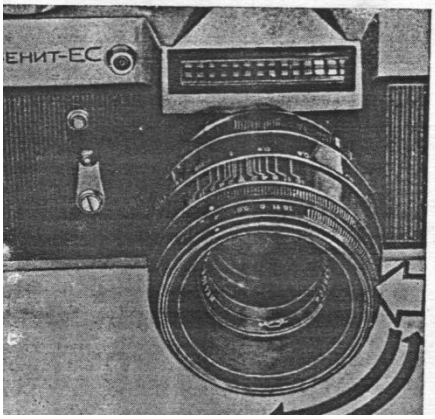
"HELIOS-44" LENS

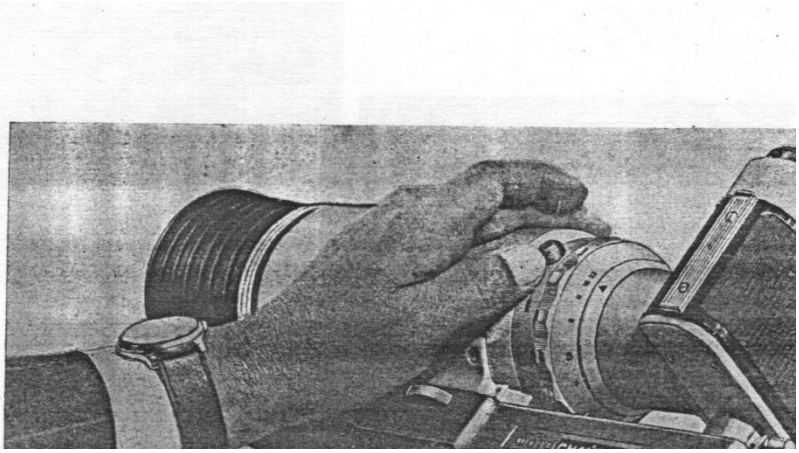
Set one of the aperture scale numbers (2; 2.8; 4; 5.6; 8; 11; 16) against the index (dot). You should hear a click sound when a value is set.

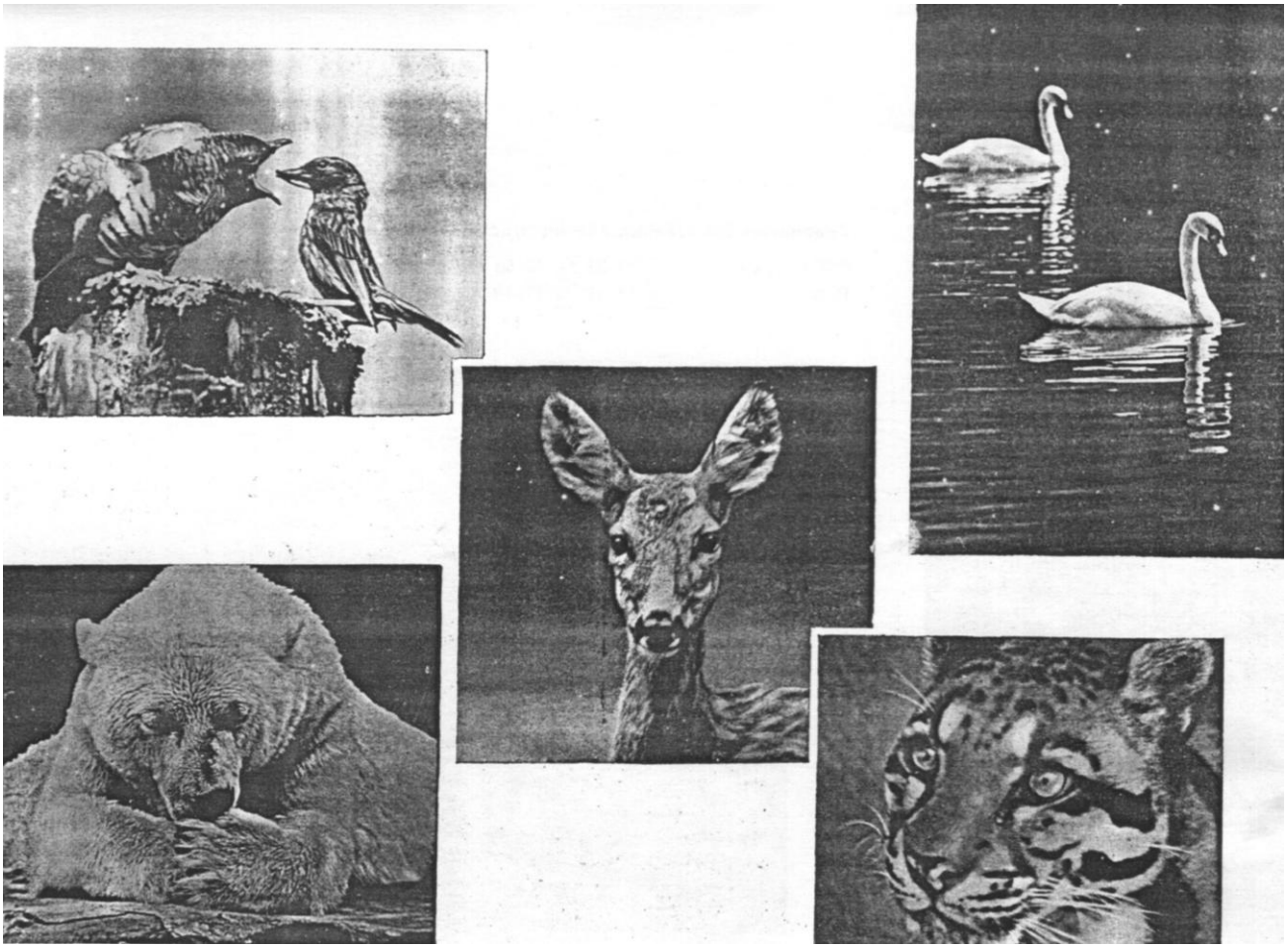


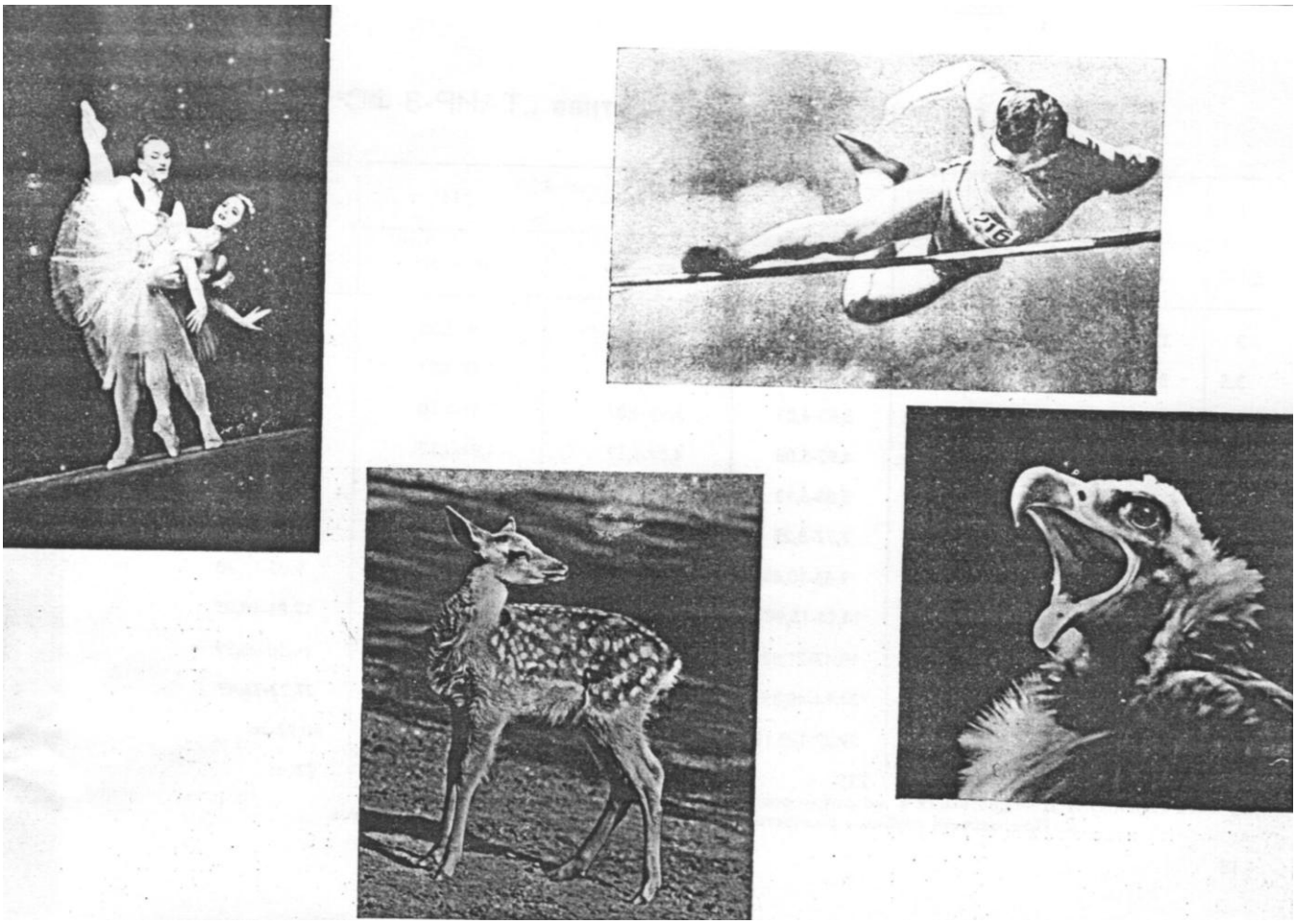
Comparison table of film speed values for GOST, ASA and DIN

GOST, ASA	16	20	25	32	40	50	65	80	100	130	160	200	250	320	400	500
DIN	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28









Depth-of-field table for “TAIR-3-FS” lens (F=300mm)

1	4.5	5.6	8	11	16	22
D (m)	from-to	from-to	from-to	from-to	from-to	from-to
3	2.99-3.01	2.98-3.02	2.98-3.02	2.97-3.03	2.96-3.05	2.94-3.07
3.5	3.48-3.52	3.48-3.52	3.47-3.54	3.45-3.55	3.43-3.57	3.41-3.60
4	3.97-4.03	3.97-4.04	3.95-4.05	3.93-4.07	3.91-4.10	3.87-4.14
5	4.95-5.05	4.94-5.06	4.92-5.08	4.89-5.12	4.84-5.17	4.78-5.24
6	5.93-6.07	5.91-6.09	5.88-6.13	5.83-6.18	5.76-6.26	5.68-6.37
8	7.87-8.14	7.77-8.25	7.77-8.25	7.69-8.34	7.55-8.51	7.40-8.72
10	9.79-10.22	9.74-10.28	9.63-10.40	9.50-10.56	9.29-10.85	9.05-11.20
15	14.50-15.53	14.39-15.67	14.14-15.98	13.85-16.38	13.38-17.10	12.86-18.05
20	19.1-20.98	18.90-21.24	18.47-21.82	17.96-22.59	17.16-24.02	16.30-25.99
40	36.48-44.30	35.71-45.49	34.14-48.35	32.37-52.47	29.81-61.18	27.22-76.49
80	66.84-99.60	64.26-105.97	59.29-123.19	54.07-154.66	47.16-269.92	40.92-∞
∞	400-∞	322-∞	225-∞	164-∞	113-∞	82-∞

Notes:

1. D – distance from the focal plane to the object (meters).
2. When depth-of-field has been calculated, disperse circle was supposed to be 0.05mm.

FOCUSING

WITH THE "TAIR-3-FS" LENS

1. Open the diaphragm turning its ring in the arrow direction till stop.
2. Track an object in the viewfinder focusing with your left hand till you get a sharp image on the ground glass. To get sharp image of few objects at different distances, you should set corresponding aperture based on the depth-of-field table. For example, if you focus the lens to 40m at 1:11 aperture value, you'll get sharp image of objects located at 32-52m distance from you.

WITH THE "HELIOS-44" LENS

1. Open the diaphragm turning its ring in the arrow direction till stop.
2. Point the camera to an object and focus the lens observing a ground glass image through viewfinder.
3. Turn the aperture ring clockwise till stop to set a preset value.

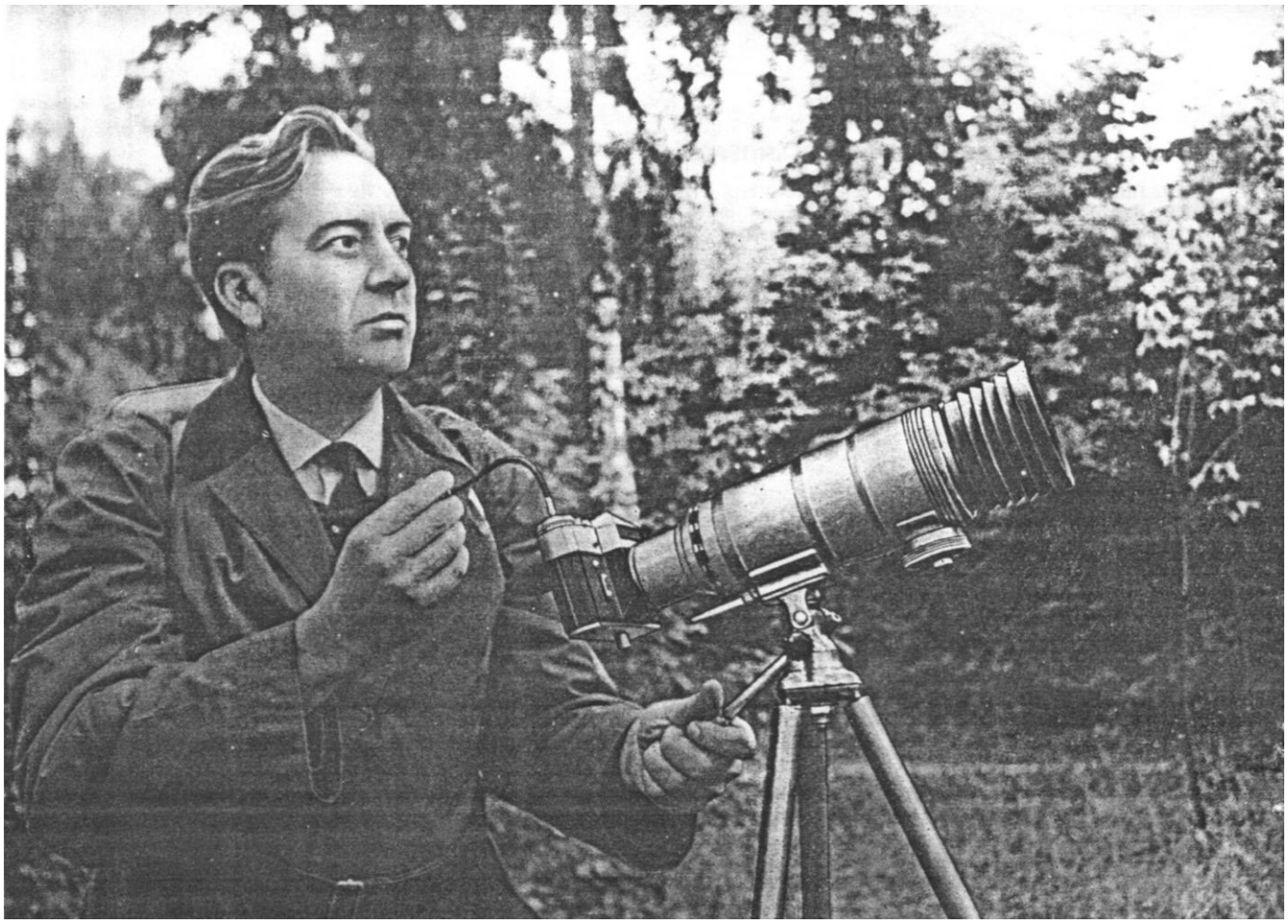
You can estimate depth-of-field by the lens scale. The depth-of-field scale consists of aperture value pairs located symmetrically to both sides of the index. After you focus the lens, you can read near and far limits of depth-of-field against values of the set aperture.

For example, you've set focus to 4m with aperture of '11'. Then you'll get sharp image within 2.5-10m range.

TAKING PICTURES

1. Prepare the camera gun for work.
2. Choose suitable color filter for current conditions and composition, and screw it into the lens accessory thread.
3. Install the lens hood screwing it into the filter or into the lens.
4. Load the camera.
5. Set the film speed on the camera scale.

6. Determine appropriate shutter speed and aperture, and set these values an the camera shutter speed scale and the lens aperture scale correspondingly.
7. Observe the object in the camera viewfinder, focus the lens, and smoothly press the shutter release button.
   To take another picture, it is enough to cock the shutter with the lever and to win the aperture preset mechanism with your left hand. Your right hand remains on the gun stock handle being ready to fire the shutter again.
   When your use lenses with long focal length like the “Tair-3-FS”, and set small apertures, some vignetting of the frame borders is possible.



WITH THE “TAIR-3-FS” LENS AT LONG SHUTTER SPEEDS

If you need to use the “Tair-3-FS” lens at shutter speed longer than 1/60 sec (1/30 or 10 seconds, for example), it is necessary to put the camera onto a tripod since it is difficult to take a sharp picture from hands in such case.

To use a tripod:

1. Take the lens with the camera out of the case. Load the camera with a film. Mount the camera onto a tripod using tripod socket of the lens bracket.
2. Open the diaphragm turning its handle in the arrow direction till stop.
3. Set necessary aperture value.
4. Set the shutter speed.
5. Point the camera to the object.
6. Focus the lens.
7. Hold the lens from the bottom and release the diaphragm.
8. Wind the shutter.
9. Press top shutter release button smoothly.

WITH THE “HELIOS-44” LENS

1. Take the lens with the camera out of the case.
2. Unscrew the “Tair-3-FS” lens out of the camera and place rear lens cap onto the lens (the cap is held on the carrying case lid).
3. Put the lens back to the case and secure it with the screw.
4. Take a cap off, take the “Helios-44” lens out of the container, and screw it into the camera.
5. Load the camera with a film.
6. Set the film speed.
7. Determine appropriate exposure values with the light meter and set these values and the camera and lens.
8. Open the diaphragm completely turning the diaphragm ring **counter-clockwise** till stop.
9. Observe the object in the viewfinder and focus the lens.
10. Set the preset aperture value turning the diaphragm ring **clockwise** till stop.
11. Press top shutter release button smoothly.

USING FLASH LAMPS

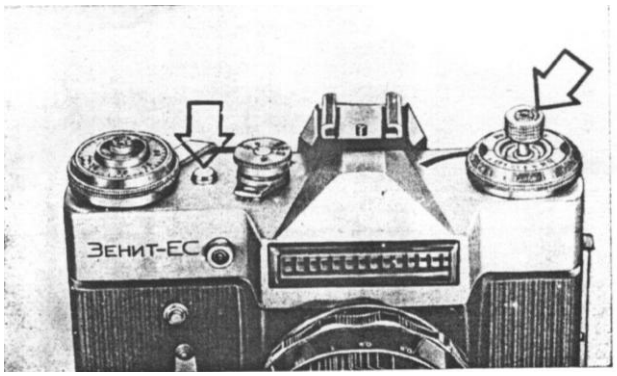
If light is low, it is necessary to use flash lamps. The camera “Zenit-ES” has the special synchronizer to sync the shutter with the moment of flash. When a disposable flash lamp is used, it is necessary to set the sync lever to the “M” position.

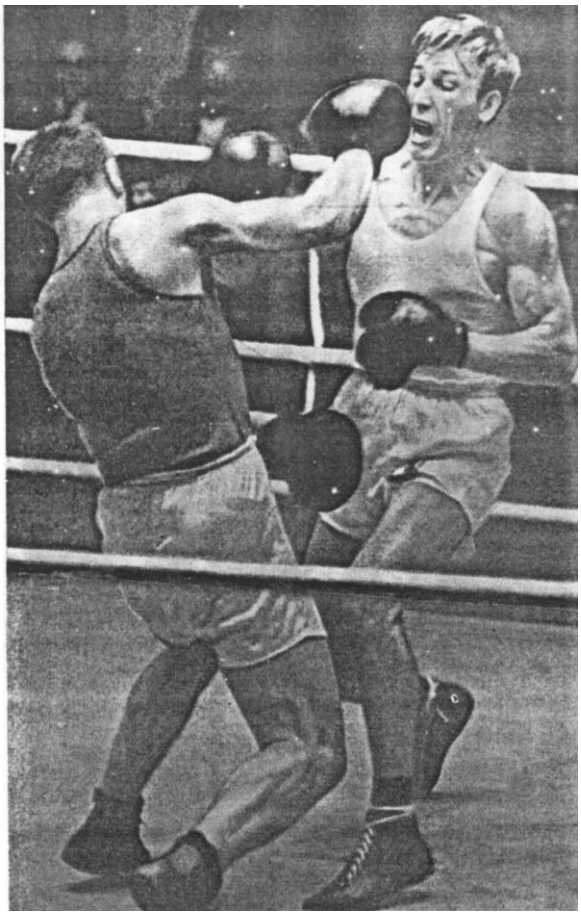
When a reusable flash lamp is used, the sync lever should be set to “X” position. The camera “Zenit-ES” can shoot with a flash at 1/30 shutter speed only since this setting provides full opening of the frame window. Using of the “B” speed with a flash lamp isn’t recommended since the camera gets much of reflected light after lamp flashes, and you may get a double image in result.

USING SELF TIMER

To use the self timer: mount the camera onto a tripod or put it on a stable surface$ wind the shutter; wind the self timer lever (turning it down till stop); set the shutter speed; frame the composition through the viewfinder; focus the lens to the distance you’ll be at; close aperture till stop; press the self timer button; and get to your place in front of the camera.

The shutter will fire after 9-20 seconds after you press the button.





UNLOADING THE CAMERA

After the film counter reaches '36' mark, it is necessary to rewind the film bank into the film cartridge. To do this:

1. Press the rewind knob head and turn it in the direction opposite to the arrow.
2. Deactivate the shutter mechanism holding the rewind button. Rotate the rewind head in the arrow direction till you feel easiness of turning efforts. This means that the film is rewound into the cartridge.
3. Open the camera back door.
4. Pull the rewind head up and take the cartridge out.

ACCESSORIES

COLOR FILTERS

There are five color filters in the delivery set.

Yellow Y-2x filter is widely used at landscape shots to correct rendition of visual brightness of blue, green and yellow objects. It highlights clouds, increases contrast of shadows and distant objects, and eliminates atmospheric haze effect.

Colorless UV-1x filter is used to reduce ultra-violet rays effect (in mountains, for example) on black&white film and especially on color film.

Light yellow Y-1.4x filter enhances relative transmission of blue, green and yellow colors for portraits in daylight, landscapes with large clouds on blue sky, and any landscapes with short shutter speeds at evening time.

Orange O-2.8x filter is used for distant shots to eliminate haze effect giving highly contrast image. At usual shot it renders sky very dark with relief clouds.

Yellow-green YG-2x filter is very useful for correct rendition of relative brightness of colored objects, especially of red and green tones, on panchromatic film. It is used to shoot portraits at daylight and under artificial light, at technical and artistic shots of paintings and color pictures.

TABLE OF FILTER RATIOS
(at daylight)

Films matching GOST 5554-63	FILTERS				
	UV-1x	Y-1.4x	Y-2x	O-2.8x	YG-2x
	RATIOS				
Isopanchromatic	1	1.5	1.5-2	2.5	1.5
Panchromatic	1	1.5	1.5-2	2.5	4

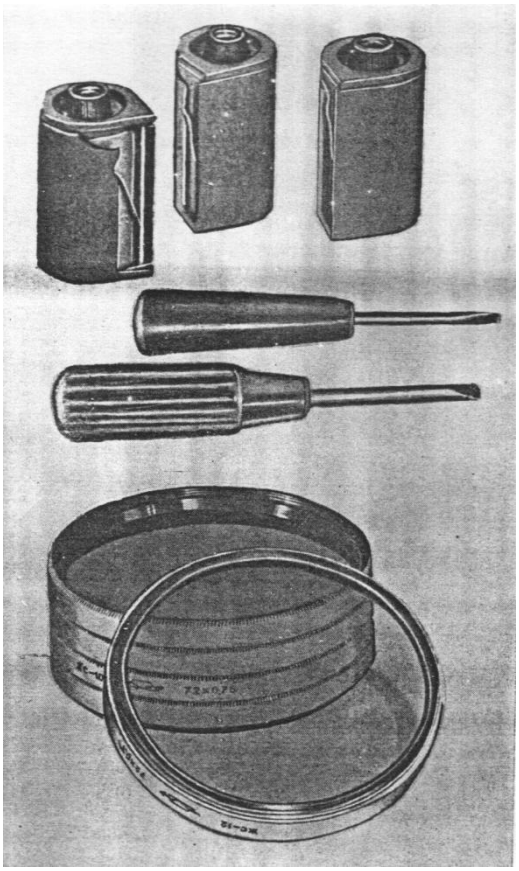
Note. Ratio of a filter is ratio of necessary shutter speed when using this filter to necessary shutter speed without this filter at same light conditions.

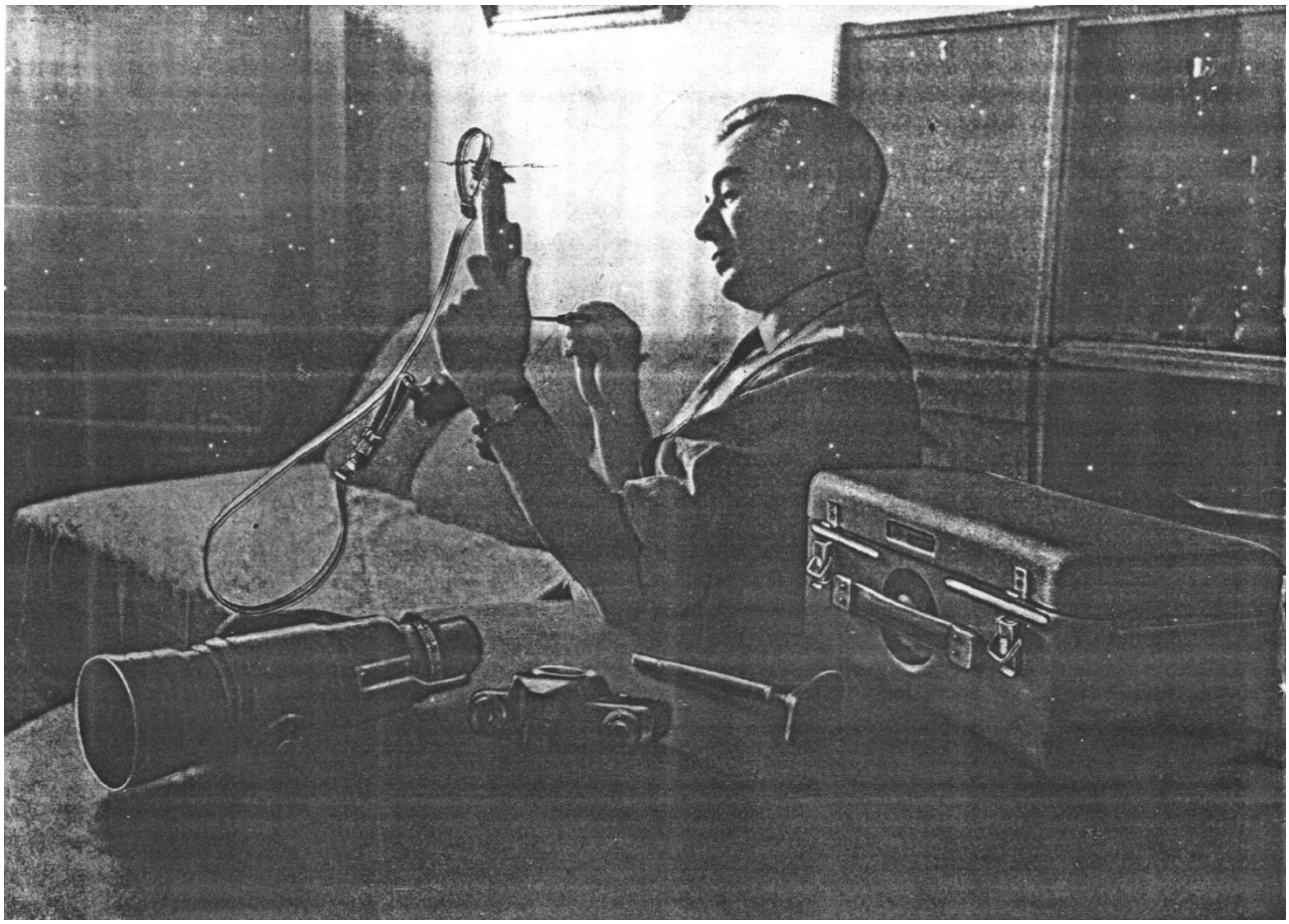
FILM CARTRIDGES

There are three film cartridges in the delivery set: one is in the camera, and two are at the carrying case lid.

SCREWDRIVERS

There are two screwdrivers (4mm and 1.7mm) for simple adjustments that may be required during photo hunting. They are placed at the case lid too.





MAINTENANCE

You should handle the camera gun with care, keep it clean, and protect it against strikes, high humidity and fast temperature changes.

Store the camera kit in the closed case. Aperture of the “Tair-3-FS” lens should be set to ‘22’, and aperture preset mechanism, shutter mechanism and self timer should be released.

Do not remove the lens from the camera to keep it free of dust.

Clean coated optical elements with cleat soft linen of cotton wool moisture in spirit a bit.

The camera gun is complex optical and mechanical device, so any repair should be made by a skilled tech.

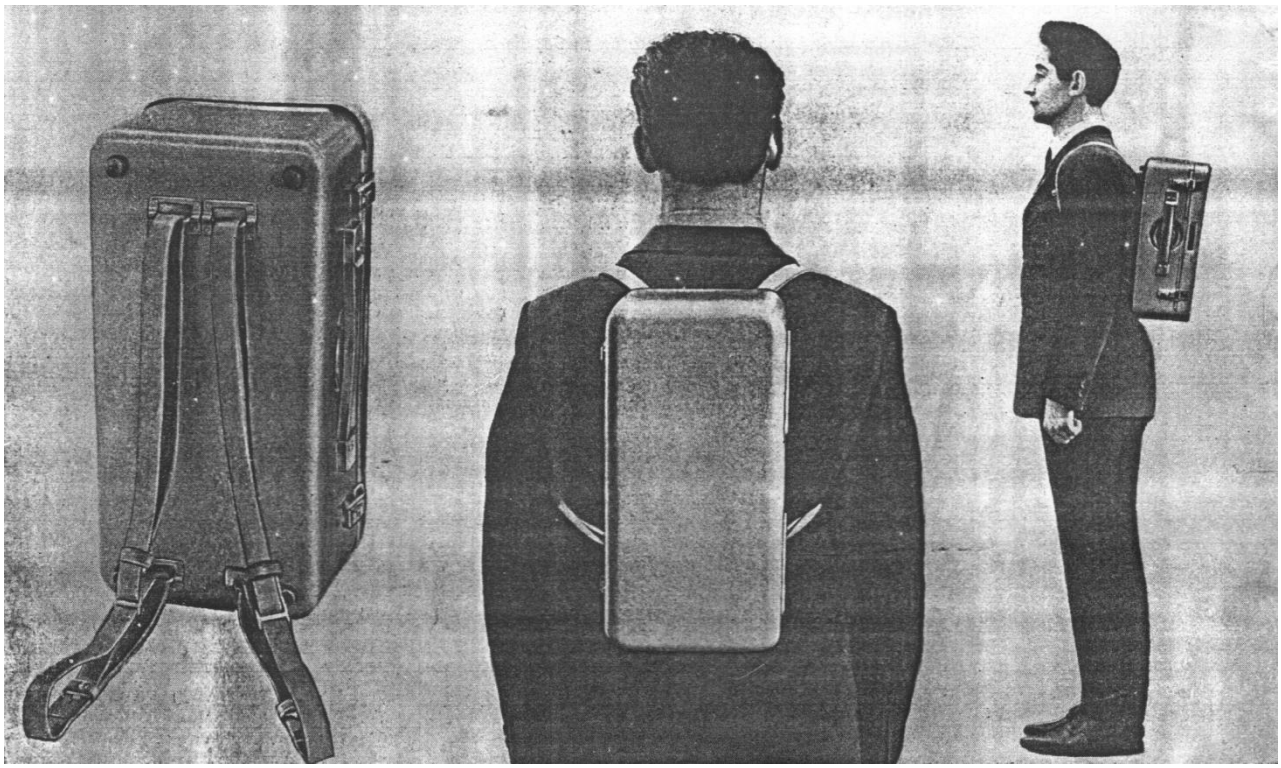


TABLE OF CONTENT