CAMERA
“ALMAZ 103”

User’s manual

1985

www.RafCamera.com

1. GENERAL INSTRUCTIONS

"Almaz 103" is 35mm single lens reflex (SLR) camera intended for amateur and special shootings.
The camera may work in an interval of temperatures from minus 15 up to +45°C at absence of direct influence of solar radiation and atmospheric precipitation.

Distinctive features of the SLR camera "Almaz 103" are presence of the demountable viewfinder block with pentaprism, a metal focal plane shutter, a mechanism of repeated shooting, bayonet lens mounting, an opportunity of use of replaceable focusing blocks in the viewfinder, and also an opportunity of application of the big number of the accessories expanding operational capabilities of the camera.

The camera is supplied with a fast lens "Volna" with instant-return diaphragm closed for the period of operation of a shutter or by pressing of the repetitor button. The optics of the lens "Volna" has multilayered coating (MC) which substantially eliminates reflexes, auras and patches of light when shooting against light, and improves a color rendition.

NOTE. Lenses for cameras like "Zenit" or "Praktica", and others with flange focal distance 45,5 mm and mounting thread M42x1 may be used in the camera "ALMAZ 103" with aid of special adaptor ring.

Self-resetting counter is automatically set on "0" upon opening a back cover of the camera. The focusing is carried out by wedges, a microraster and by dim surface of the focusing block. The camera is supplied with self-timer. The camera has "pocket" for putting in a "note" - part of a film packing box with its type, photosensitivity and other characteristics. Back cover of the camera is demountable. Before to use the camera, please carefully study this operation manual.

2. SPECIFICATIONS

Film width, mm	35
Frame size, mm	24x36
Quantity of frames	36
Lens "Volna":	
focal length, mm	50
relative aperture	1:1,8
Lens focusing range, m (ft)	0,45 to inf. (1,5 to inf.)
Filter thread	M46x0,75
Shutter speeds, sec	1 to 1/1000 and "B"

System of synchronization of types FP and X with full frame window opening at 1/60 sec.

Self-timer delay, sec	11+/-4
Overall dimensions, mm, no more	155x93x100
Weight, kg, no more	1,07

3. LIST OF INCLUDED ITEMS

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4. CAMERA CONSTRUCTION

The main parts and controls of the camera are shown on fig. 1-10.

1 - lens.
2 - repetitor button.
3 - self-timer lever.
4 - self-timer button.
5 - strap lug.
6 - shutter release button threaded for cable release.
7 - shutter speed dial.
8 - rewind knob.
9 - plug jacks of synchronizer.
10 - lens lock button.
11 - shutter cocking and film advancing lever.
12 - picture counter window.
13 - diaphragm scale.
14 - depth of sharpness scale.
15 - focusing ring with distance scale.
16 - lock button of film speed reminder.
17 - lever of the mechanism of repeated exposure.
18 - button of the mechanism of repeated exposure.
19 - electric contacts for connection with a motor.
20 - tripod nut.
21 - film rewind button.
22 - fork for connecting with motor.
23 - back cover.
24 - pocket for film type reminding note.
25 - eyepiece of the viewfinder.
26 - focusing block lock button.
27 - button and lever of pentaprism lock.
28 - take-up spool.
29 - cartridge with film.
30 - folding handle of return rewind.
31 - index for setting a film photosensitivity.
32 - film speed reminder.
33 - shaft slot.
34 - focusing block.
35 - block of viewfinder with pentaprism.
36 - cable release.
37 - lens cap.
38 - flash holder with connecting wire.
39 - eye shade.

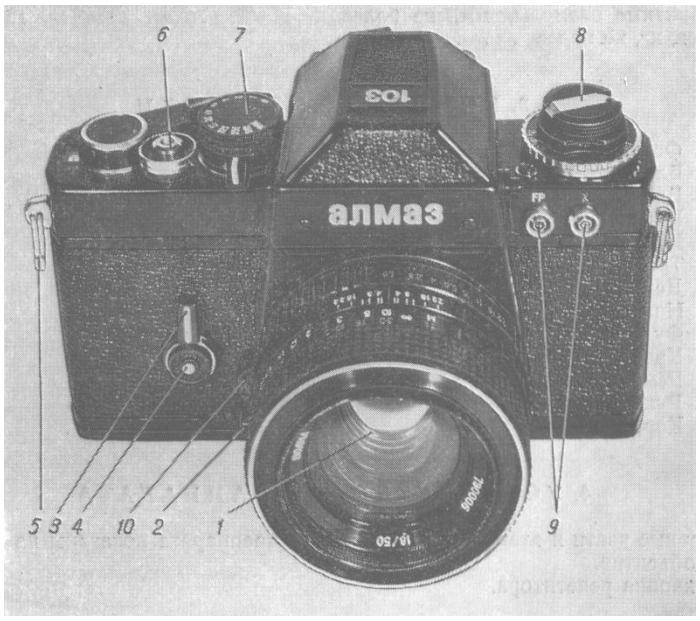

Figure 1

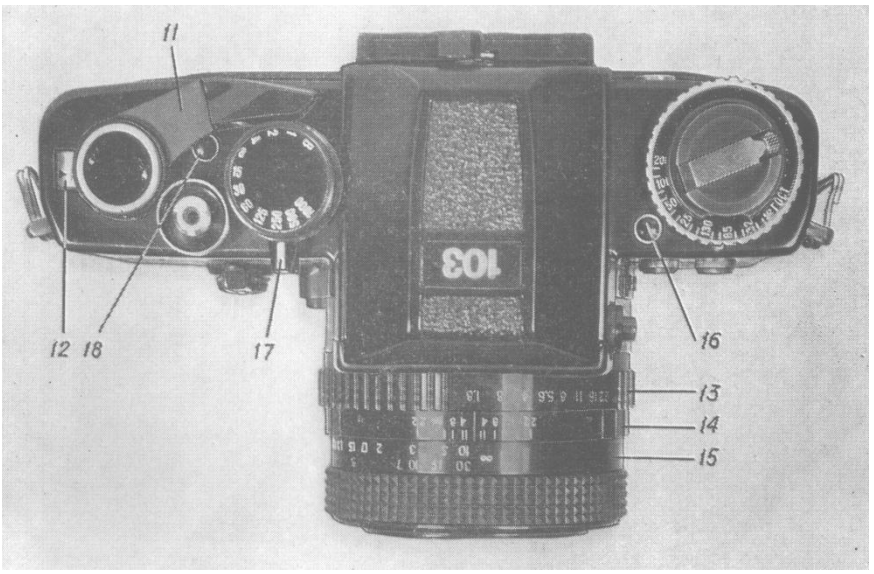

Figure 2

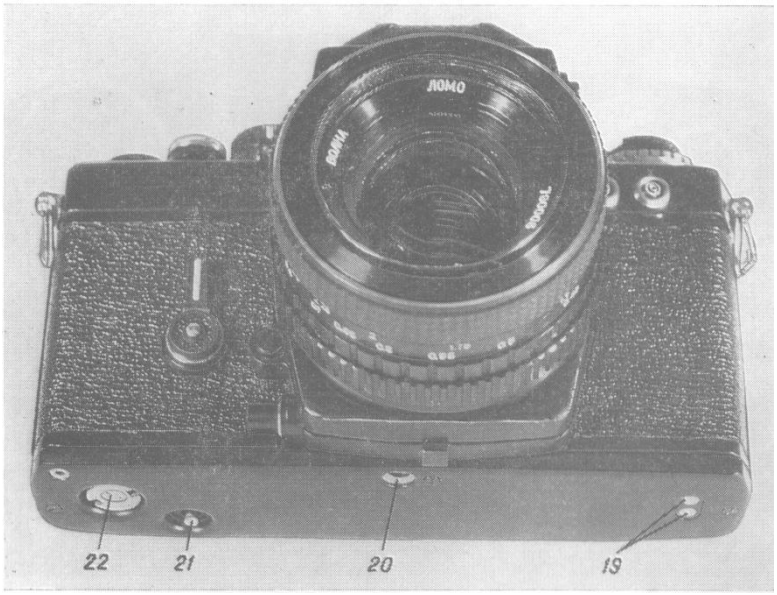

Figure 3

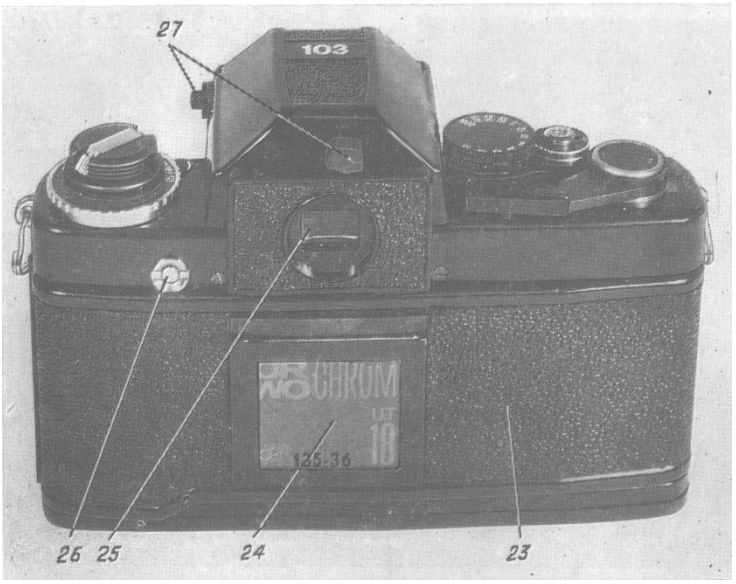

Figure 4

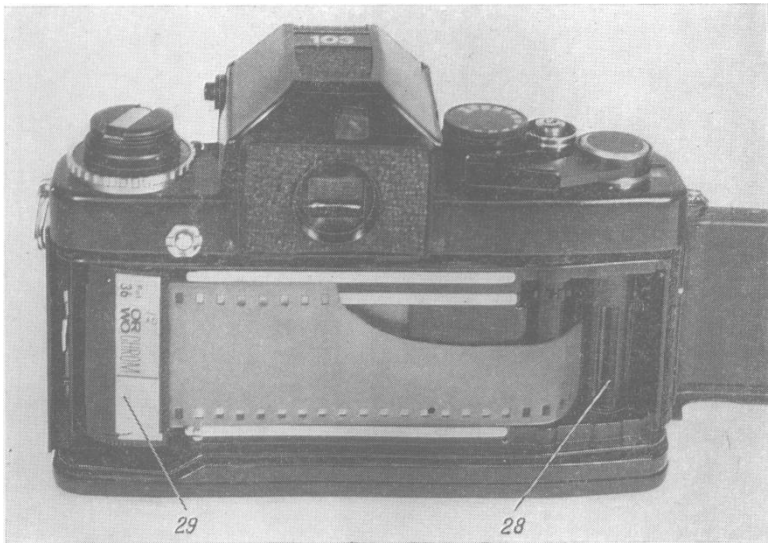

Figure 5

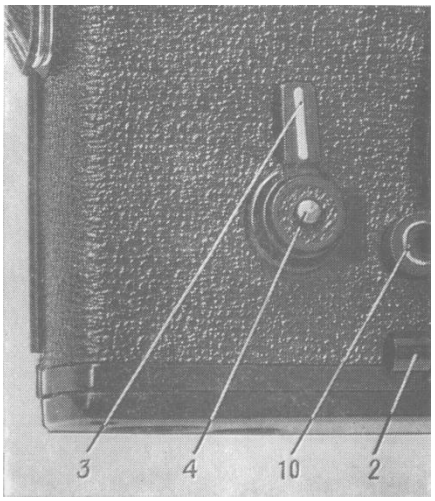

Figure 6

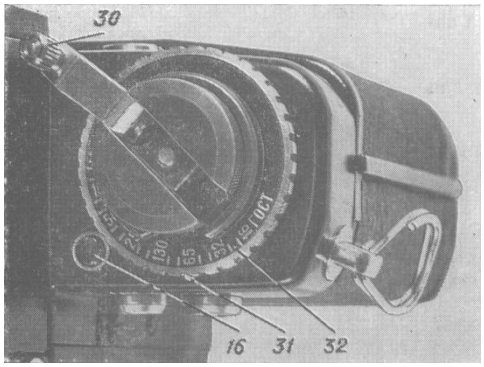

Figure 7

5. USING THE CAMERA

5.1. Loading the camera

Loading of the camera should be done in the following order:

Pull the head of return rewind *(8)* (see fig. 1) upwards and open back cover *(23)* (see fig. 4).

Place the cartridge with film into its place.

Push rewind knob down to stop.

Pull loading end of film from the cartridge and insert it into a slot of take-up spool *(28).*

Turn cocking lever *(11)* (see fig. 2) against until stop and make sure that cogs of sprocket roller have reliably grasped the film.

Close back cover *(23)* (see fig. 4).

Release a shutter by pressing shutter release button *(6)* (see fig. 1) until stop.

Each shutter cocking advances film by one frame. You should cock and release shutter twice to reach not light-struck film part. After this, the number "1" will be set in the picture counter window *(12)* (see fig. 2).

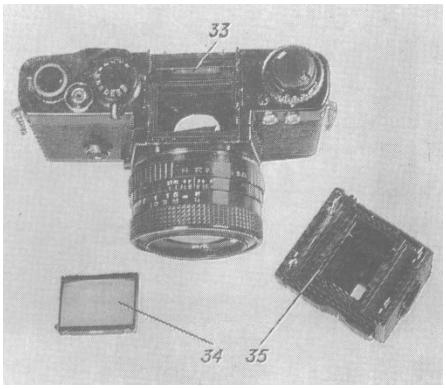

Figure 8

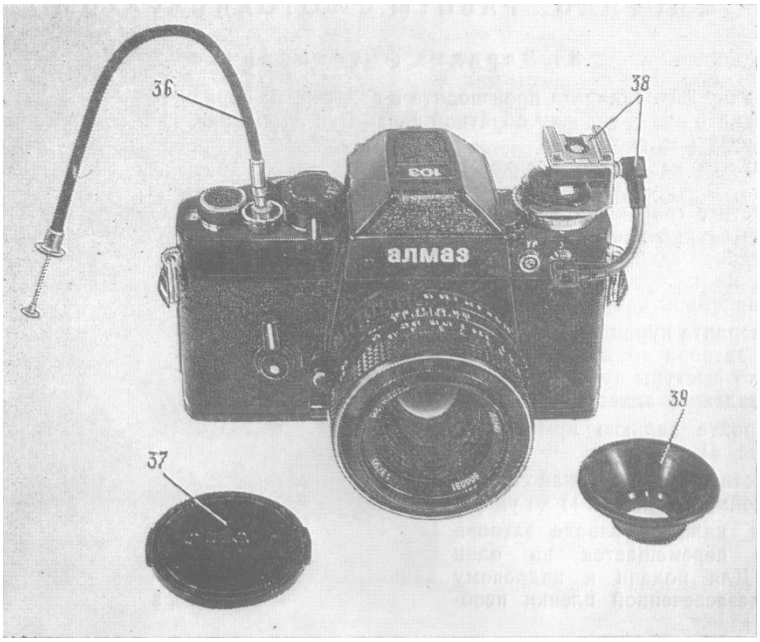

Figure 9

5.2. Focusing

The focusing block of viewfinder has Fresnel lens *(1)* (fig. 10) with dim surface in which middle there are devices of a focusing - Doden wedges and microraster.

If the object is not correctly focused, then, observing it through viewfinder, you will see split image in circle *(2)* (Doden wedges), and dim image in circle *(3)* (microraster).

Rotating a ring *(15)* (see fig. 2), achieve concurrences of images in circle *(2)* (see fig. 10) or sharp image in circle *(3).*

It is recommended to focus image with completely open diaphragm.

Dim surface is used mainly in micro and macro shooting, at small values of relative aperture (when microraster loses its sensitivity), and also for estimation of sharpness depth at given aperture of lens. It is recommended to use Doden wedges when focusing onto objects having vertical lines (trees, buildings etc.) The microraster allows you to focus onto any objects.
You may focus also by means of scale of distances on ring *(15)* (see fig. 2), setting distance to object on scale *(14)*.

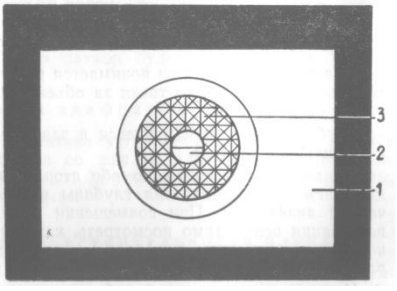

Figure 10

5.3. Determination of sharpness depth

Depth of sharpness is distance from any point before object of shooting up to any point behind object of shooting within the limits of which the image will be sharp.

Depth of sharpness depends on distance up to object and given aperture.

There is scale of apertures on both sides from index of ring that used to determine depth of sharpness at given aperture. When right distance is set against the index of scale *(14)*, it is necessary to look, what values of distance will coincide with the given value of aperture on one and other side of index. The range of distances between the received readouts is depth of sharpness.

For example, the distance to object of shooting is 1.25m, and aperture is set to 22. In this case, on scale of distances against numbers "22", located on both sides of index on scale (*14),* it is possible to read, that the image will be sharp in range from 1,0 up to 1,7m.

Borders of depth of sharpness at the given value of aperture can be also determined visually, by pressing the repetitor button *(2)* (see fig. 6). You'll see which objects will be sharp by examining image on dim surface of viewfinder.

5.4. Setting of shutter speeds

Turn shutter speed dial *(7)* (see fig. 1) so that the chosen value of speed was set against index.

Numbers on shutter speed dial designate shutter speeds in corresponding fractions of second. When shooting with speed "B" shutter will be open while shutter release button *(6)* is held down.

5.5. Setting of aperture

Chosen value of aperture should be set against an index of scale *(14)* (see fig. 2) by turning ring with scale of diaphragms *(13)*. When you doing it, aperture of lens doesn't change, and given value of aperture will be set at moment of shooting only.

5.6. Film photosensitivity reminder

There is scale of film speeds on ring *(32)* (see fig. 7): GOST 16, 32, 65, 130, 250, 500, 1000, 2000. To set a film speed (65, for example), it is necessary to press button *(16),* to turn ring *(32)* until it coincide number "65" with index *(31)* on the body of the camera, and to release button *(16).*

5.7. Changing of the lens

To remove a lens, press lens lock button *(10)* (see fig. 1) until stop, and, turning a lens counter-clockwise, disconnect it from the camera.

To mount lens, combine index of scale *(14)* (see fig. 2) or red point at back end of lens with red point on the camera body, insert lens into the camera, and turn it clockwise until click.

5.8. Changing of the focusing block

There is opportunity of use of replaceable focusing blocks *(34)* (see fig. 8) of various types is stipulated:

"A" - with microraster and wedge in the center and with dim surface of rest field - for universal application;

"B" - with microraster in the center and with dim surface of rest field - for focusing onto objects which don't have clear vertical lines (a crone of tree etc.);

"C" - with microraster in the center and with transparent surface of rest field - for focusing on poor lighted objects, and also for work with slow lenses.

To change one focusing block with another one, remove the block of viewfinder with pentaprism *(35)* from the camera body, by simultaneous pressing (in direction pointed by arrow) the lock button and lock lever *(27)* (see fig. 4). To take out the focusing block *(34)* (see fig. 8), press the button *(26)* (see fig. 4) and, simultaneously having camera covered by your hand, incline it so that the focusing block has dropped out on your palm; do not touch surface of the block which is directed to mirror.

To insert the focusing block, take it for lengthwise sides and, having pressed the button (*26),* insert the block by the narrow side into shaft slot *(33)* (see fig. 8). Then insert the block of viewfinder with pentaprism, simultaneously pressing the button and the lever *(27)* (see fig. 4), then turn the lever *(27)* counter-clockwise against the stop.

5.9. Shooting

Having executed preliminary operations on preparation of the camera for shooting (having established aperture on scale of diaphragms and shutter speed as it described in section "Setting of shutter speeds"),

cock the shutter and, having convinced of correctness of focusing and placement of object of shooting in a field of the viewfinder, smoothly press the shutter release button until stop.

When using a support, in order to prevent infringement of work of the film drive mechanism, it is recommended to check up size of a part acting above a basic surface of support screw which should not exceed 4,7 mm (in accordance with GOST 3362-75).

In the camera the mechanism of repeated exposure of same frame is stipulated. For switching the mechanism on, press the button *(18)* (see fig. 2), turn the lever *(17)* aside the shutter release button (*6)* (see fig. 1) and, having released the button *(18),* secure position of the lever. Cock the shutter by turning cocking lever *(11)* (see fig. 2) and make a shot by pressing shutter release button until stop.

Repeatedly cocking a shutter by turning cocking lever *(11)* and pressing shutter release button *(6)* (see fig. 1), it is possible to expose same frame few times (the film thus will not advance in the camera).

NOTE. In order to prevent imposing edges of the adjacent frames it is recommended to not move cocking lever when switching the mechanism of repeated exposure on or off; place it into working position before switching.

5.10. Using of self-timer

When using self-timer, place the camera on a support. Then focus the camera, cock shutter, set any shutter speed, except for "B", and aperture. Cock the self-timer by turning of the lever *(3)* (see fig. 6) down to stop, press the self-timer button *(4)* and occupy the planned place before camera. The shutter of your camera will fire in 7-15 seconds.

NOTE. If you will break the recommended sequence: cock and start self-timer, and then cock shutter, then camera will not shot.

In order to restore normal functioning it is necessary to cock self-timer again and turn cocking lever to cock shutter.

5.11. Using a flash

The camera allows to use flashes of two types of synchronization - X and FP.

When shooting with flash, connect a plug to a jack of the camera with an index "X". In this case you should set shutter speed to 1/60 or longer. For special disposable flashes with long time of burning, the plug should be connected to a jack "FP" of the camera; in this case it is possible to set shutter speeds from 1/250 up to 1/1000.

When using a flashes with cable-free connection, it is necessary to mount the holder *(38)* (see fig. 9) which plug connected to a corresponding jack of the camera according to type of used flash.

To set correct value of aperture, it is necessary to know lead number of used flash (this info is available in the instruction of flash).

Value of aperture in each case can be found by division of lead number by distance up to an object of shooting (in meters).

5.12. Unloading the camera

When the picture counter will be equal to 36, rewind a film back to the cartridge:

Press the rewind button *(21)* (see fig. 3).

Pull out the rewind handle *(30)* (see fig. 7), and rotate the rewind knob in direction specified by pointer until full rewind of film into the cartridge; you'll fell sudden easing of effort.

Pull rewind knob *(8)* (see fig. 1), open a back cover and take out the cartridge with film from the camera.

ATTENTION! Rewind film after releasing shutter only. In other case, shutter may be blocked. To unblock it, press simultaneously the rewind button and shutter release button.

6. MAINTENANCE

The camera requires care.

The polluted lenses worsen sharpness of pictures, therefore it is necessary to care about cleanliness of optics. Be careful when cleaning a lens and viewfinder to not damage a thin coating layer. Remove dust with soft squirrel brush or by jet of dry air from a rubber pear.

If the camera is brought from a cold into room, do not hasten to take it out of case - it may result in misting of optics.

Disassembling and repairing may be done by qualified experts only.

7. Acceptance Certificate - omitted

8. WARRANTY

The camera meets to the authorized sample and satisfies to specifications.

In case of factory failure detection the consumer have a right to fix camera free of charge within 18 months from the date of purchase.

Claims are not accepted if malfunction (damage) has arisen as a result of the negligent manipulation of the consumer or non-observance of service regulations, and also at absence of the operation manual of the camera and the guarantee coupon with a stamp of shop and date of sale.