Iskra - 2

User's Manual

WARNING

Camera "Iskra-2" is complex and precise mechanism. Please read this manual carefully before using the camera.

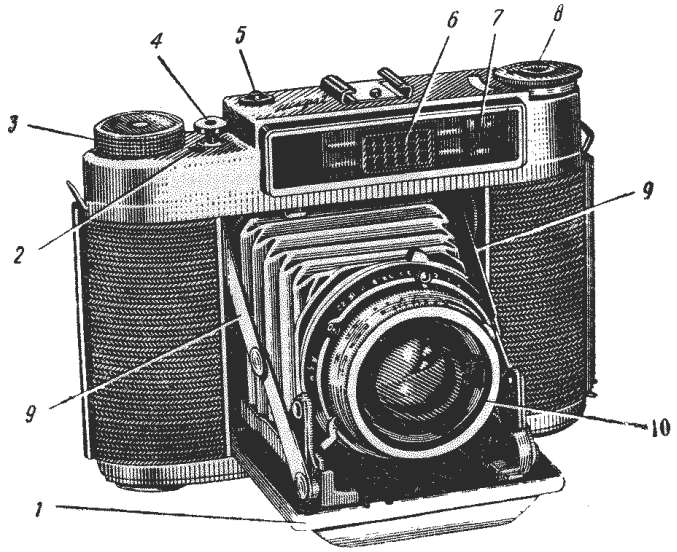
1. Shutter release and picture counter don't work without a film loaded.
2. It is allowed to close the camera after setting the lens to infinity only.
3. Wind a self timer after cocking the shutter only.
4. Don't set a green shutter speed values against an index to avoid break of the shutter.
5. Protect a photo cell against direct light to prevent it's temporary malfunctioning.

PURPOSE

The camera "Iskra-2" is purposed for different amateur and professional applications.

SPECIFICATIONS

The "Iskra-2" is folding medium format camera with 6x6cm frame size. It has 4-element lens and central shutter.
The "Industar-58" is coated anastigmat lens F=75mm, f/3.5. Iris aperture values are 3.5, 4, 5.6, 8, 11, 16, 22. The lens produces sharp images of good qualities both on b/w and color film.
The lens focuses by moving of the whole assembly including shutter.
The camera has a range finder with 55mm base and 0.74x magnification factor. It allows to focus the lens precisely.
The central shutter has wide range of speeds – 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500 second, and "B" ('by hand'). The shutter has a self timer and flash contacts.
Built-in photoelectrical light meter with a scale of exposure values helps to determine best exposure value (combination of aperture and shutter speed). The shutter has mechanical link between aperture and shutter speed scale, so it is possible to work with exposure values.
The camera has 3/8" tripod nut. It has also side lugs for a neck strap.
The camera comes in convenient leather case. You can use the camera not taking it out of the case.
The camera weight is 925 gram. Dimensions is folded state are 152x110x48mm; in ready state – 152x110x98mm.
Picture 1 shows the camera with opened front cover.



Picture 1

1. Front lid.
2. Picture counter.
3. Film winding knob.
4. Shutter release button.
5. Button of the front lid lock.
6. Photo cell.
7. Viewfinder window.
8. Calculator.
9. Levers (left and right).
10. Lens.

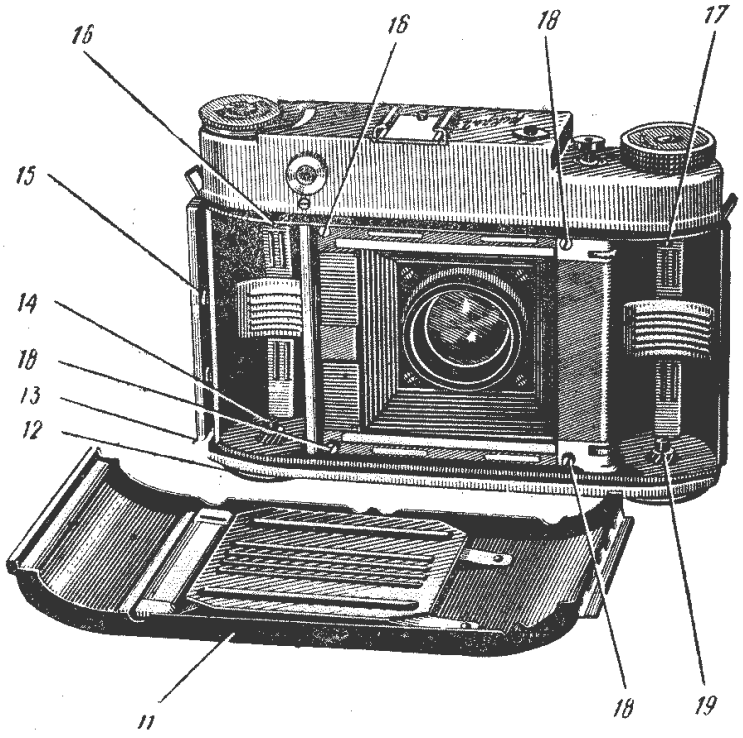
USING THE CAMERA

1. Loading The Camera

You can load and unload the camera at daylight (not too bright).
You should protect a film reel against direct light. The camera is purposed for standard 6cm film reels (12 frames each).
To load the camera:
Remove back lid (11) by pulling the lock (13) (Picture 2). Turn the head center (12) counterclockwise and pull the center until stop; insert a spool onto center (16), align other end of the spool against center (14) and return the center head to its original position.
Remove a film label, pull its protective paper, and insert it into the slot of the take-up spool. The paper should be faced to the camera by its black side. Pull the paper by few turns of the knob (3) (Picture 1). Make sure that the paper moves between the spool flanges without skews, and that it passed between aligning screws (18).
Place the back lid onto it's place. It should lock up the bottom centers to hold them inside the camera.
Turn the knob (3) until stop. You should see number '1' in the picture counter window. After this, set values of the film sensitivity on the dial (20) (Picture 3).

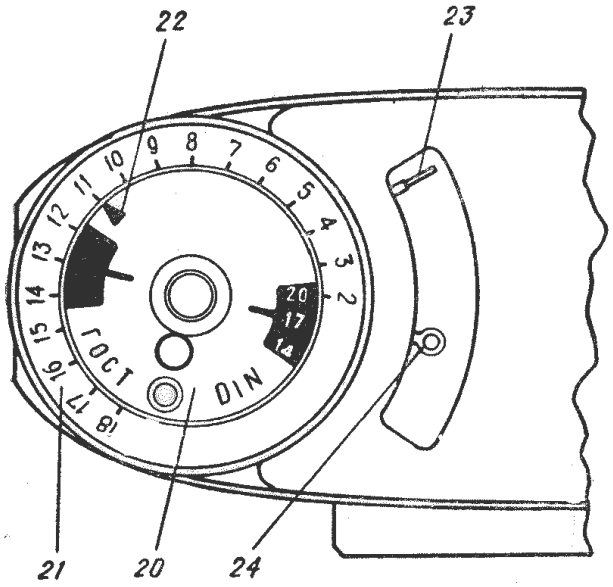
2. Determining An Exposure Parameters

Determining of the exposure parameters is accomplished by means of the photoelectric light meter.
The light meter consists of the following parts: photo cell (6) (Picture 1) of the galvanometer situated under top lid, and calculator (8).
The calculator is shown on the picture 3.



Picture 2.

11. Back lid.
12. Head of the center.
13. Lock.
14. Center.
15. Lock of the back lid.
16. Center.
17. Protrusion of the winding knob.
18. Aligning center.
19. Screw.



Picture 3

20. Top disk.
21. Disk of the exposure values.
22. Index.
23. Arrow of the galvanometer.
24. Arrow of the calculator.

In order to determine the exposure value, set film sensitivity on the disk (20) and point the camera onto an object.

The galvanometer arrow will move to some angle depending on the object brightness. Then you should turn disk (21) to align the calculator arrow (24) with galvanometer arrow (23). Then you should read exposure value against the index (22).
Exposure value is combined figure which presents all available combinations of aperture/shutter speed providing good density of the negative image density at specified film sensitivity and object brightness.
Therefore, the exposure value determines a light energy amount passed to the film. Please note that changing the exposure value by single step means double change of the object brightness or film sensitivity; greater exposure value on the light meter means higher object brightness or film sensitivity. This means that you should reduce aperture or shutter speed to accommodate increased exposure value.

Marks of the exposure scale		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Relative aperture	4	4	2	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500					
	5.6	8	4	2	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500				
	8	15	8	4	2	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500			
	11	30	15	8	4	2	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500		
	16	60	30	15	8	4	2	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500	
	22	125	60	30	15	8	4	2	1	1/2	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500
Long shutter speeds									Automatic shutter speeds									

The table of the exposure values shows dependence between shutter speeds, relative apertures, and exposure values. Since first aperture value of 3.5 doesn't belong to normal series, it is omitted in the table.
The shutter speeds are divided into two areas. White area represents automatic shutter speeds and used most often. Gray speeds are long ones (longer than 1 second), and they are performed manually in "B" mode.
It is not recommended to use 3.5 aperture value along with exposure values scale.

3. Operating The Shutter

a) Setting an exposure by exposure value, and taking pictures

There are two rings on the shutter – shutter speed ring (34) and aperture ring (25) (Picture 4).
The shutter speed ring (34) has a scale marked with denominators of the shutter speed values – 2 instead of 1/2 second, for example. The scale is prolonged with "B" value and series of 4, 8, 15, 30, 60, 125 values in green color. These numbers mean long speeds in seconds.
The long speeds scale serves for low exposure values with long speeds like 2, 4, 8 seconds etc.
Longest automatic speed is 1 second; longer speeds like 2, 4, or 8 can be achieved manually in "B" mode.
Don't set long speed numbers against the index since 'B' is limit position. Therefore, attempt to turn the ring further may cause break of the shutter elements.
The diaphragm ring (25) has a scale of exposure values and apertures (3.5, 4, 5.6, 8, 11, 16, 22).
These two rings (34) and (25) are coupled by means of inner plug-type connection.
To set an exposure value given by the light meter, it is necessary to pull the diaphragm ring toward front until stop, and to turn it to match necessary value with red dot on the shutter speed ring (34). Then you'll be able to see a shutter speed value corresponding to specified diaphragm value. So, you can turn both rings (25) and (34) together to set a desirable combination of aperture/speed (if the speed is automatic for this combination).
If desired speed is longer than 1 second, remember the speed value, and set the speed ring to 'B'. Disconnect the diaphragm ring (25) from the speed ring (34) and set it to desired aperture. Then, provide a necessary shutter speed manually.
For example, at exposure value of 5 we want to set the aperture of 16. This gives us shutter speed of 8 seconds. Set shutter speed ring to 'B', set aperture ring to 16, and then press the shutter release button and hold it for 8 seconds. If you got 'B' shutter speed at desired aperture value, this means that necessary shutter speed is 2 seconds.
Now, exposure value is set on the shutter, and the camera is ready to take a picture. To make a shot, it is necessary to wind the shutter first. Turn the know (33) clockwise smoothly until stop. Then press the shutter release button (4) (Picture 1) until stop to fire the shutter.

Please note that shutter mechanism works only if the camera is loaded with a film, and if the film is advanced to the next frame.
The shutter release button has a cone threaded hole to screw a cable release into it.

b) Self timer

To switch the self timer on, turn the lever (27) toward 'A' letter until stop (the lever comes back to its original position after winding for self-release). The self timer will work only when shutter is wound and set to one of the automatic speeds.
If you'll press the shutter release button (4) (Picture 1) now, the self timer mechanism will work within 9-15 second, and then shutter will fire.

c) Synchronization

There is flash contact (28) on the camera body. It works both with disposable and pulse flash lamps.
If you using a pulse flash lamp, set the lever (27) to 'X' position (no lead in this case). If you using disposable lamps, set the lever (27) to 'M' position, and lead will be equal to 16 milliseconds.

d) Sharpness depth

The sharpness depth depends on the set aperture and distance to the object.
The sharpness depth is distance range within which objects appears with sharp edges. Smaller aperture size and larger distance to the object increase the sharpness depth.
For example, if the distance scale set to 5 meters, and diaphragm set to 1:16, image of all object with 3-15 meters will be sharp. If you'll change the diaphragm to 1:5.6, sharpness depth will be reduced to 4.2-7 meters range.
To determine the sharpness depth, you should look at the scale (3) with markers on both sides from the index (31).
Find the set aperture value on the scale, and check corresponding distance values of the scale (29).
Keep in mind that sharpness depth have no clear limits. It is just approximate values beyond of which the image becomes quite blurry.

4. Using the range finder

The range finder allows you to focus the lens easily.
To focus the lens, turn the ring (20) (Picture 4) by means of the lever (32).
Look at the object through the eyepiece of the coupled viewfinder/rangefinder. You'll see two shifted images. To get a sharp focus, match both the images.

5. Picture counter and camera unloading

The camera has a self resetting picture counter. The picture number is shown in the window (2) (Picture 1).
The counter is reset automatically upon opening of the rear camera door.
After taking all pictures, wind rest of the film to the take-up spool rotating the knob (3) (Picture 1) until whole film including its paper part will be wound.
Now you may open the back cover, take the spool with film out of the camera, and secure the paper end. You can store the film in this state for a while until developing.
Move the empty spool from the center (14) (Picture 2) to the center (19).

6. Care Measures

Examine the manual before using the camera. Keep the camera clean. Protect it from mechanical damages, humidity and fast temperature changes.
Store the camera in its closed case. Keep the shutter and self timer in released state.
Water affects both mechanical parts of the camera and lens coating. Protect the camera from rain and snow using it outdoors.

If you brought the camera from cold to warm room, don’t open the case to prevent a moisture condensation. Wait some time to allow the camera to heat up to room temperature.
Remove a dust by means of a brush and soft napkin. Keep the brush and napkins in closed dust-free box.
To maintain a great appearance of the camera, clean it with acid-free vaseline and clean cloth then. Remove any dust carefully first.
To clean a lens, use a very soft brush washed in ether. Then clean the lens with soft cambric cloth wet in ether or spirit a bit.
Don’t touch the lens by fingers. If this happen, remove fingerprints by cotton wool wet in ether or spirit a bit. Clean the lens with circular moves starting from center.
Even with damaged outer coating layer, the lens will pass more light and will give sharper image due to coating of the inner elements.
Don’t disassemble the camera yourself. Address to specialized workshops for repair.