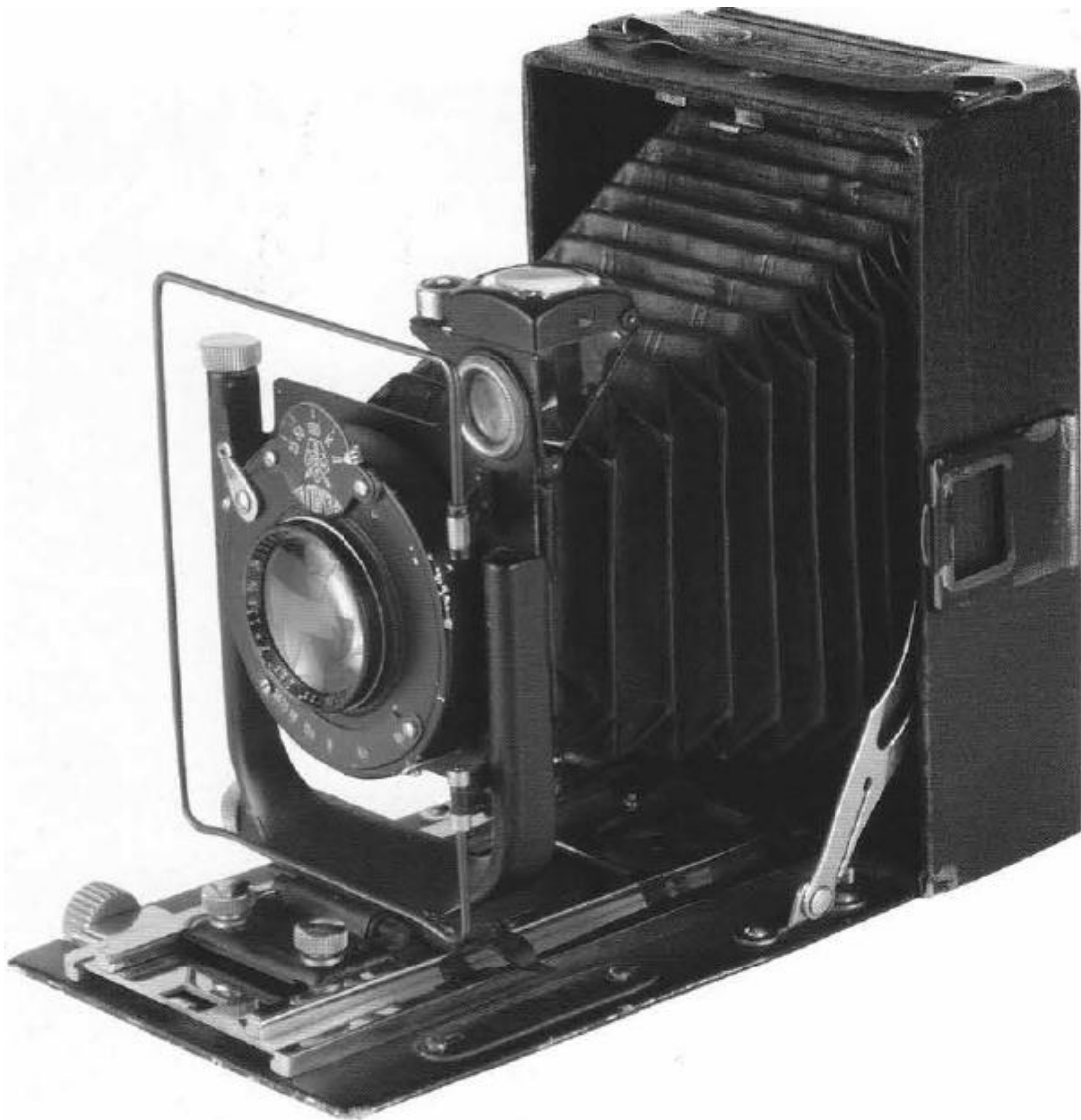


# The Birth of a Phoenix



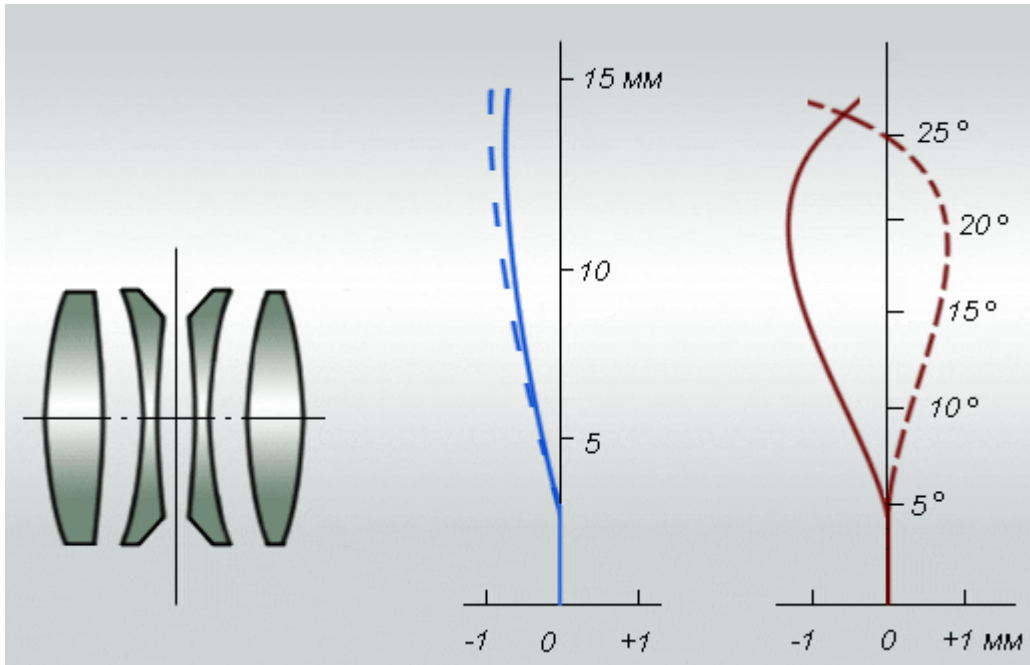
Start of Soviet Mass Camera Production

Probably up to that time no other camera had a direct political decision for its birth. Fotokor was the first.

Undoubtedly it was born due several convergences of facts that occurred in the 1920 years. As you know, Germany was prohibited to develop weapons through the Versailles treaty, Russia was being charged due the war waiver in the final days..

And were apartheid from the Europe business.

Both countries needed to overcome their difficulties. In this climate both signed the Rapallo treaty for mutual cooperation and development. The hungry Russian market, the recent development of Ortagoz lens by the GOI institute,



*Schematics and aberration graph of the objective «Ortagoz»*

«Ortagoz» unglued four element of symmetrical construction (see picture) with 1:4,5 openings and  $f = 13,5$  cm focal length for the 9X12 cm format

and some cooperation of the Germans, made the birth of a camera which has a soul in itself –The Fotokor.

1927 marked the decree beginning the Five Year Plan for the Soviet Union development. In May 1928 the Factory GOZ is made responsible to begin the development of a new camera for the internal market through a decree of the Superior Council of Economy.

The choose camera type was not a new model, but a established model in the recent past years; a plate camera at 9x12 size. Now it is interesting to note that it was relatively common in Germany, roll film cameras, and Russians refused to build such cameras. Why?—

Photo sensitive industry was showing its weakness in the past years, and produce a rollfilms should be a difficult task. During the end od the 1920 years, there were common 127, 120, 122, 126, 128, and 130 films in cameras that were not compatible between them. All are amateur formats and the offer were seasonal. The then most sold sizes were the 35mm due the cinema industry and the 9x2 plates supported by professionals and advanced amateurs alike.

Observe that only 120 films were used in adaptors for plate cameras and 120 films only reached mass production after the WWII when there were issued the Komsomolets and the Lubitel.

At 1<sup>st</sup> May 1929 the camera was first shown to the public.

Now has begun the fascinating history of the endless trend of the mass camera production in Soviet Union.

A second batch of 100 cameras were distributed to the officials in the XV Congress of the Bolshevik Party at June 25<sup>th</sup> 1930.

Soon the cameras were equipped with GOMZ and TEMP shutters substituting the Vario and Compur of the first models.

It was said that Fotokor was a copy of Zeiss Maximar, the Goerz Taro Tenax, The Ica Niklas or Trona, but it was an own project, of course based in all of the best German cameras of then.



*Taro Tenax and Ica Niklas*

These Fotokor cameras overshadowed another similar camera also produced in Soviet Union – the EFTE, Foto Trud or ARFO, Artel Foto, made in Moscow, which had also its production begun in 1929.



*Ica Trona and Zeiss Maximar*



*Soviet «EFTE» camera made in 1929 could come with «ARFO», «ARFO Anastigmat», «Moskva Periscope» or «Kengott» lenses .*

Previous the beginning of the Soviet camera production, Specialized magazines gave a heavy focus on Do-it Yourself towards producing your cameras, simple rangefinders and tripods, adapting old objectives and doing their own emulsions, what led skilled people to arrange themselves as cooperative groups, in order to supply needs and so earning their each day bread. These small business were called 'Atelie', and they placed their own marks.



During 1926 it was founded the magazine *Sovietskoe Foto* directed to show all photo results from artists, the soviet press and news from the official factories of photographic products. When the *Fotokor* was presented in 1928, an article compared the new GOMZ camera to the Ideal of Ica and the Maxima of Nagel. (Andrey Sheklein)

Meanwhile, 1929, the world of photography decisively was changed by Rodchenko, who revolutionized the world press with his unusual and advanced use of his simple Leica. This led to an urgent production of a camera that could be the nearest possible to Leica.

So was born the Pioneer from VOOMP-GOZ, (Leningrad) the FAG from Geodezia (Moscow) the FED (Harkov) and later, after the war, the Zorki in Moscow.

Pioneer was the first trial in a mass produces 35mm but as other factories were doing the same, and FED became established in the market, GOZ decided for another model that became the world's first 35mm SLR – the Sport. Using the same GOZ Industar 10 whose first units equipped the first FEDs from Harkov.

*Fotokor* made the Soul of the Soviet industry, and although in Soviet Union there was no previous experience in mass industrial processes, this camera sold near one million of units during its 10 years production. At those times, this corresponds to more than twice the German camera production in the last twenty years. This phenomenon was repeated again with the *Smena 8M* that reached near 40 million unit. In the end of the production those *Fotokor* were equipped with the high quality Industar 2 4.5/135mm ands TEMP shutter but photographers of the era said that the old *Ortagoz* were the portrait lens "par excellence". They also produced a 6.5x9 camera with Industar 7 lens 3.5/105mm.

While the Russians had in mind large productions with no sophistication to fulfill the common citizen's needs, the Germans were interested in Propaganda through their products. That way extremely high costs in production were partially absorbed by the German government in order to show and attract the consumer to their recent born philosophy. This era was marked by unsurpassable technology masterpieces, impossible to be done in a free world. With the demise

of Germany at the end of the WWII, This technology was passed to Russians not in a free way but at a cost of millions of lives during the conflict.



***These two Fotokor cameras witnessed moments of happiness and also saw the terror of war. They were recently found in the father's home basement of my friend Sergei in St. Petersburg.***



## The Second Phoenix

Just in the previous war years, the Sovietskoe Foto announced in the Autumn of 1937 the birth of a new camera intended for the high class category of photographers. This camera was the Reporter and Industar 7 the link in the step up of the technology from Fotokor.



*From the collection of Alexander Bronstein*

This new camera was basically conceived by Andranik Ioannisiani, conjugated several qualities of the top best German cameras.

The main body came from Contessa Nettel Including the shutter.

The Reporter's large base rangefinder was a clever conjugation of the Contax 80mm paralax prism and the rotating wedges from Super Ikonta. The interchangeable lens of its own, had the glasses inherited from the super ikonta's Tessar and its Newton finder with angular compensation was reminiscent of Plaubel Makina, is now removable to match the fitted lens. The Reporter Used metallic single plate holder, Film pack adapter and roll film back.



"Reporter" - the first Soviet camera for professionals. Speeds 1/5 - 1/1000 sec. Fabric focal plane shutter. Less than 1000 pieces from 1937 to 1940 were made. Two talented designers, two brothers worked at the state optical-mechanical plant of OGPU - Bagrat and Andranik Ioannisiani before war. Younger, Andranik, leading designer

of photo equipment at GOMZ, developed the camera REPORTER. Here A. K. Ioannisiani's sent to the editor of "Leningrad Truth" magazine, a letter in September, 1937:" About your letter sent to me by the editors of "Leningrad Truth", I answer in short with the characteristic of the Reporter camera which, obviously, will settle all your questions. This camera is intended generally for the qualified press photographer, but, obviously, will also answer the tastes of the advanced amateur photographer. Allows obtain all sort of pictures, except reproduction, and represents the manual klapp-camera having advantages regarding convenience of speed shooting, so necessary at the fast reporting. The format of a shot is chosen 6,5 x 9cm both allowing a direct (contact) photo printing, or enlargements to any size. Variable slot curtain with eight pre-set speeds from 1/5 to 1/100 plus K and D manual times. Focus is carried out on opaque glass and at distance scale and also includes a special, range finder mechanically coupled to the lens built into the camera. This guarantees speed in aiming and accuracy on sharpness. Lenses are interchangeable in quick-detachable frames, the main lens is an Industar-7 1:3,5 F = 10,5 cm. Also it is supposed, as an additional, 1 high-aperture 1:2,8, 1 wide-angle and 1 telephoto lens (acute-angled). The additional and interchangeable Newton view-finder, gives the chance of fast installation of various viewfinders of different focal lengths in accordance to additional lenses. The camera has an all-metal stamped body, covered with true skin. Adaptations and lenses to it are assumed to release in sale separately." On July 2, 1941 Andranik Konstantinovich was mobilized for defensive works and was lost.

From article in the Fotomagazin magazine 12' 2000. In the fundamental reference book "Russian and Soviet Cameras", the author Jean Loup Princelle, specifies two designers of this camera. Ioannisiani and Alexander Vorozhbit. On the basis of information which has been kindly provided by employees of LOMO to Fotomagazin redaction, it is possible to draw a conclusion that Alexander Vorozhbit developed only the camera bayonet, and Ioannisiani was the main designer. Probably because of the War, the plant didn't solve a problem of calculation and production of optics to it, since it used as normal lens the Industar-7, primary intended for the cheap Bakelite TOURIST Production of the camera is stopped in 1940 and Soviet mass production of complex photo equipment and optics were ready only after war when the equipment, technologies



and details of finished products were supported by those used on Germany.



Contessa Nettel and Contax rangefinder



Super Ikonta wedge prisms and lens 3.5 105m and Plaubel Makina III

**Old philosophers said that facts in world were repeated each hundred years. Let us see the rebirth of the LOMO Phoenix for another serial premium of success.**

## Sport/Gelvetta LOMO's first World Landmark

Зеркальный фотоаппарат «Спорт». Разработка этой камеры проводилась конструктором А. О. Гельгаром еще

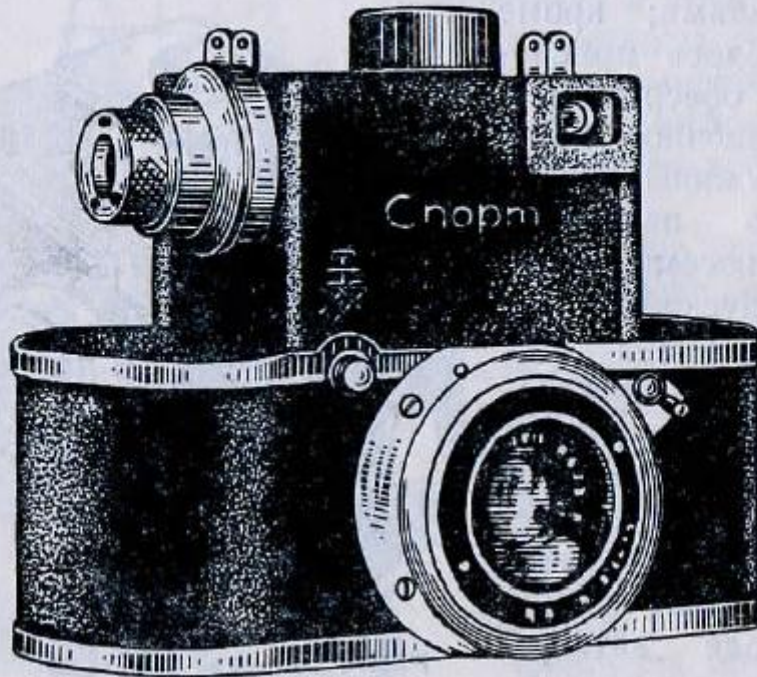


Рис. 80. Зеркальный фотоаппарат «Спорт»

в 1934 году. Первая модель носила название «Гельвета»; массовый выпуск аппаратов начался в 1935 году под названием «Спорт» (рис. 80) с размером кадра  $24 \times 36$  мм.

Объектив «Индустар-10» (рис. 81) с  $F = 5$  см и относительным отверстием  $1:3,5$ . Съемка возможна с расстояния не ближе 1 м.

Затвор шторный, представляет собой конструкцию цельнометаллических шторок, которые перемещаются с помощью кривошипно-шатунного механизма (рис. 82): 1 — спусковая кнопка; 2 — спусковой рычаг; 3 — нижняя шторка; 4 — рычаг зеркала; 5 — пружина; 6 — колодка; 7 — отгибка на колодке; 8 — рычаг; 9 — ось рычага; 10 — упор; 11 — тяга; 12 — рычаг; 13 — пружина рычага зеркала; 14 — рычаг; 15 — отгибка; 16 и 17 — направляющие штифты; 18 — направляющие; 19 — пружина.



Рис. 81.  
 Объектив «Индустар-10»  
 к фотоаппарату «Спорт»

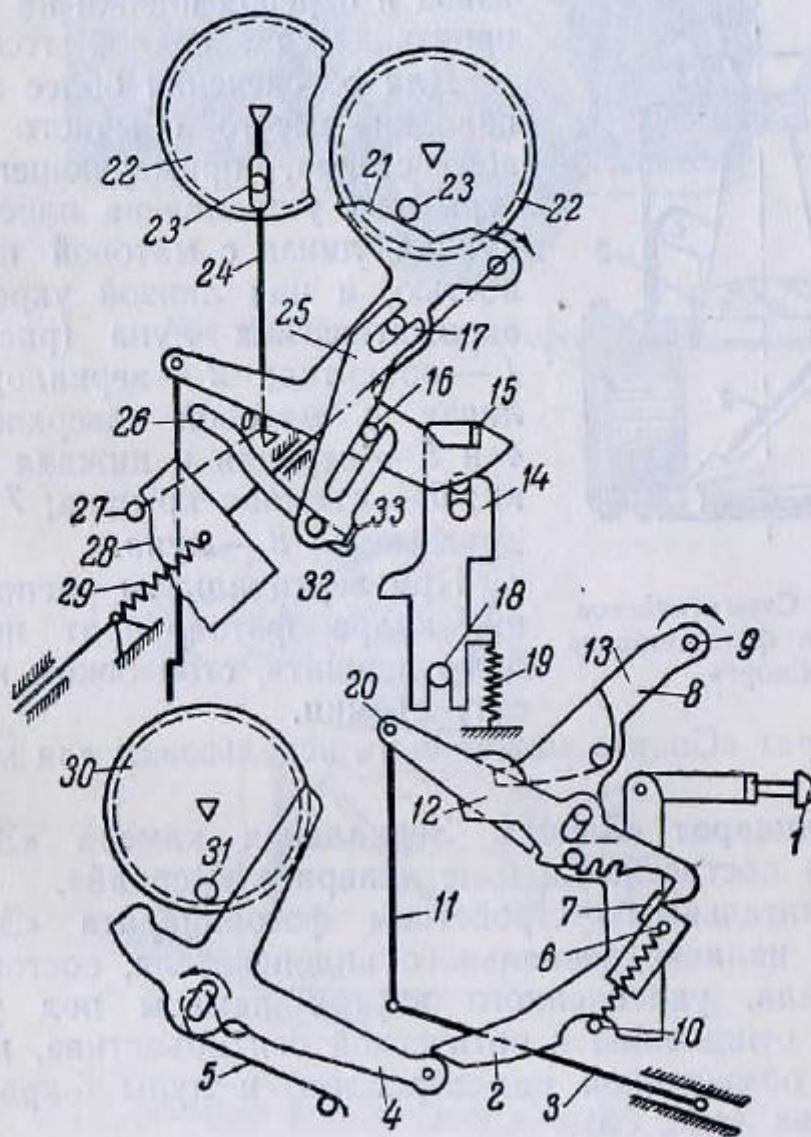


Рис. 82. Развернутая конструктивная схема  
 затвора фотоаппарата «Спорт»

- |                   |                           |                  |
|-------------------|---------------------------|------------------|
| 1- Release button | 11- Arms                  | 22- Wheel        |
| 2- Break lever    | 12- Lever                 | 23- Remark       |
| 3- Lower curtain  | 13- Mirror lever spring   | 24- Speed lever  |
| 4- Mirror lever   | 14- Lever                 | 25- Translator   |
| 5- Spring         | 15- Hook                  | 26- Command      |
| 6- Lifter         | 16- 17 - Orienting guides | 27- Steady point |
| 7- Lifter hook    | 18- Guide                 | 28- Damper       |
| 8- Lever          | 19- Spring                | 29- Spring       |
| 9- Lever axe      | 20- Pivot                 | 30- Wheel        |
| 10- Fixing point  | 21- Lever                 | 31- 32- Remark   |
|                   |                           | 33- Limiter      |

жина; 20 — шарнир; 21 — рычаг; 22 — шестерня; 23 — палец; 24 — рычаг выдержек; 25 — ползунок; 26 — кулиса; 27 — палец; 28 — ступенчатая колодка; 29 — пружина; 30 — шестерня; 31 и 32 — пальцы; 33 — отгибка ползунка. Затвор дает возможность фотографировать с автоматическими выдержками  $\frac{1}{25}$ ,  $\frac{1}{50}$ ,  $\frac{1}{100}$ ,  $\frac{1}{200}$ ,  $\frac{1}{500}$  сек. и с выдержкой «от руки». Затвор обладает большой морозоустойчивостью.

Фотоаппарат имеет счетчик кадров и оптический видоискатель. Катушка с пленкой рассчитана на 50 снимков. Механизм переключения скоростей затвора, его взвод и перевод пленки на 1 кадр производятся заводной головкой.

Для обеспечения более точной наводки вместо обычного матового стекла, применяющегося в зеркалах, установлена плоско-выпуклая линза с матовой поверхностью, а над линзой укреплена ахроматическая лупа (рис. 83): 1 — объектив; 2 — зеркало; 3 — линза с матовой поверхностью; 4 и 5 — верхняя и нижняя шторки; 6 — съемная крышка; 7 — видоискатель; 8 — лупа.

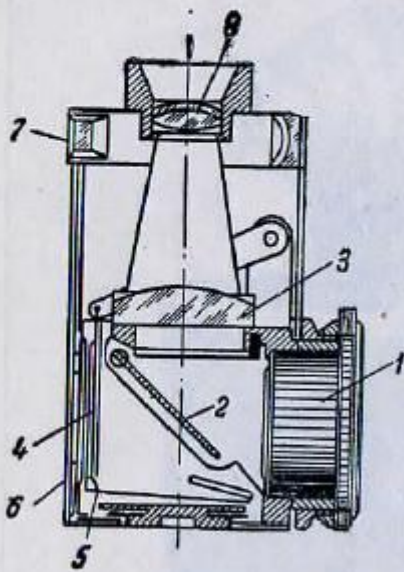


Рис. 83. Схематическое устройство фотоаппарата «Спорт»

При вертикальном расположении кадра фотоаппарат необходимо держать, стоя боком к объекту съемки.

Аппарат «Спорт» может быть использован для микро-съемок.

- |                                 |           |
|---------------------------------|-----------|
| 1- Objective                    | 6- Cover  |
| 2- Mirror                       | 7- Finder |
| 3- Lens with unpolished surface | 8- Lupe   |
| 4- 5- Upper and lower curtains  |           |



### Камера «Спорт» (Ленинградского оптико-механического завода)

Камера «Спорт» относится к группе зеркальных малоформатных камер, конструкция которых совершенно оригинальна и резко отличается от обычной.

Принцип действия зеркальных камер в общих чертах заключается в следующем: лучи света, пройдя сквозь объектив 1, падают на зеркало 2 (рис. 18, слева), находящееся внутри камеры и расположенное под углом в  $45^\circ$  к оптической оси объектива. Отразившись от зеркала, лучи падают на верхнюю стенку, где на горизонтально расположенном матовом стекле 3 проектируется изображение.

Изображение это, наблюдаемое сверху через шахту 4, не перевернутое, а прямое и лишь зеркально

обращено (правая сторона снимаемого предмета получается слева, а левая—справа).

Прямое расположение изображения значительно облегчает наводку на резкость и позволяет лучше решать задачи композиционного построения снимка.

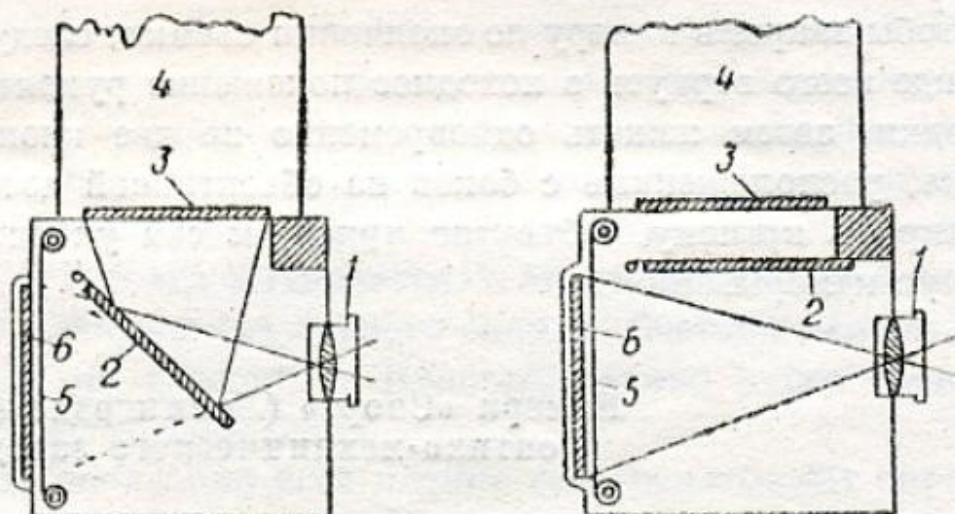


Рис. 18. Схема действия зеркальных камер

В момент съемки зеркало путем нажима на специальный рычаг или кнопку поднимается кверху, как показано на рис. 18 (справа), и закрывает собой матовое стекло.

В этот момент приходит в действие шторно-щелевой затвор *5*, и пластинка или пленка *6* экспонируется под прямыми лучами, идущими от объектива.

По этой принципиальной схеме построены камера «Спорт», описываемая дальше камера «Экзакта» и ряд других малоформатных камер. На рис. 19 показана



Камера «Спорт» и обозначены ее главнейшие детали: 1 — головка транспортера, 2 — регулятор скоростей затвора, 3 — шахта, 4 — увеличивающая линза, 5 — передняя линза видоискателя, 6 — корпус, 7 — замок штыковой оправы объектива, 8 — шкала диафрагмы, 9 — объектив, 10 — спусковая кнопка затвора, 11 — счетчик кадров.

В камере «Спорт» вместо обычного плоского матового стекла использована плоско-выпуклая линза с за-матированной плоской поверхностью, обращенной внутрь камеры. Этим достигается, с одной стороны, увеличение видимого изображения, а с другой — равномерная яркость этого изображения.

Для облегчения наводки на резкость и достижения еще большей точности в этой операции над матированной линзой помещена сильно увеличивающая ахроматическая линза.

Отличительной особенностью затвора камеры «Спорт» являются шторки затвора, не сгибающиеся во время работы подобно шторкам всех других затворов. Дру-

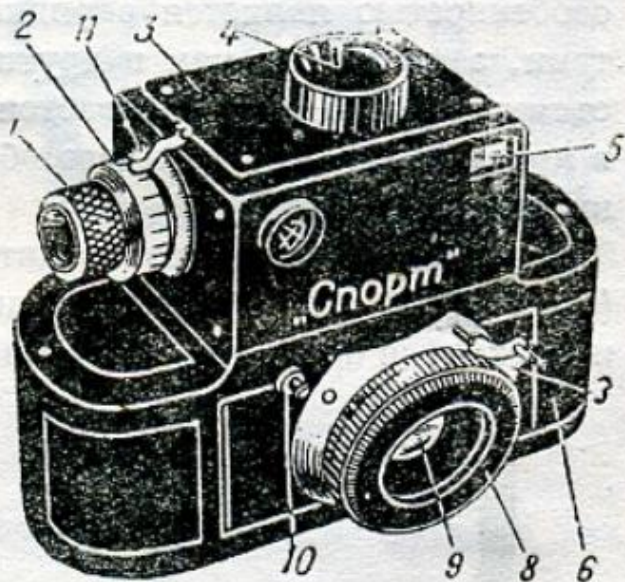


Рис. 19. Камера «Спорт»

- |                          |                    |
|--------------------------|--------------------|
| 1- Advance head          | 6- Body            |
| 2- Shutter setting crown | 7- Objective lock  |
| 3- Top cover             | 8- Diaphragm scale |
| 4- Enlarging lens        | 9- Objective       |
| 5- Finder front lens     | 10- Release button |



гой отличительной особенностью являются кассеты камеры, вмещающие запас пленки на 50 кадров и вследствие этого имеющие большие габариты, чем кассеты других камер. Таким образом применение других кассет в камере «Спорт» невозможно. Наконец, третьей особенностью является зарядка камеры двумя кассетами, а не одной, как в других камерах. В процессе съемки пленка перематывается из подающей кассеты в приемную, вследствие чего обратной перемотки пленки не требуется.

Зарядка кассет производится обычным способом (см. стр. 20) и с той лишь разницей, что концы пленки подрезаются по форме, показанной на рис. 20 (слева).

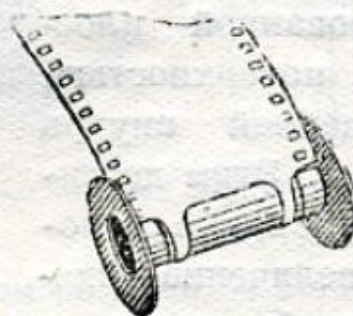


Рис. 20. Подрезанные концы пленки в камере «Спорт» и крепление их с приемной катушкой;

Для зарядки самой камеры свободный выступающий из кассеты конец пленки скрепляется с катушкой приемной кассеты (рис. 20, справа), после чего пленка дважды оборачивается вокруг катушки и последняя вдвигается в кассету.



Закрыв приемную кассету крышкой, обе кассеты вставляют в камеру, как показано на рисунке 21. Для этого предварительно снимают крышку камеры.

Во время зарядки зубцы ведущего зубчатого барабана должны попасть в перфорационные отверстия пленки. После этого крышка камеры надевается и запирается с помощью замка.

До производства первого снимка переводят вхолостую два кадра пленки и ставят счетчик кадров на нулевое деление.

Головка транспортера камеры «Спорт» служит одновременно не только заводной головкой затвора, как в других камерах, но и регулятором затвора. Для перевода затвора с одной скорости на другую головку прижимают к корпусу камеры и поворачивают до нужного деления шкалы скоростей. Затвор работает на скоростях от  $\frac{1}{25}$  до  $\frac{1}{500}$  сек.

Одновременно с заводом затвора и переводом пленки происходит и установка зеркала в рабочее положение.

Для наводки на резкость и визирования камеру берут в руки, как показано на рис. 22, и, наблюдая

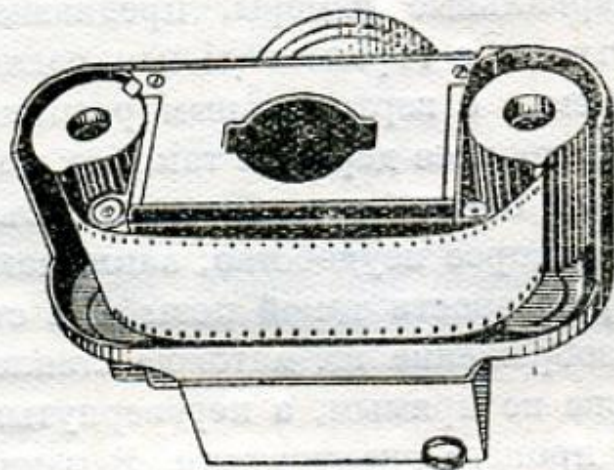


Рис. 21. Зарядка камеры «Спорт»



ва изображением через лупу, левой рукой приводят в движение рычаг червячной оправы объектива.

Камера «Спорт», как и все прочие малоформатные зеркальные камеры, предназначена в основном для съемки с горизонтальным расположением кадра. При съемке с вертикальным расположением кадра камеру приходится держать так, как показано на рис. 23, т. е. стоя боком к снимаемому объекту. Здесь возникает некоторое неудобство, заключающееся не только в непривычности такой позы при съемке, но и в том, что изображение на матовом стекле получается при этом уже не прямым, а перевернутым. Затрудняется также и процесс визирования. В таких случаях наводку на резкость рекомендуется производить обычным способом, а визирование — с помощью видоискателя, которым снабжена камера. Для этого камеру нужно держать так, как показано на рис. 24.



Рис. 22. Как следует держать камеру «Спорт» при съемке с горизонтальным расположением кадра



Рис. 23. Боковое визирование с вертикальным расположением кадра



Рис. 24. Визирование с помощью видоискателя

After Burnmovitch

## **The internals**

Here we demonstrate the working mood of curtains in the Sport/Gelvetta Camera.

This camera which was undoubtedly the first SLR conceived for using for use 35mm film, took inspiration in the 1932 Contax external style.

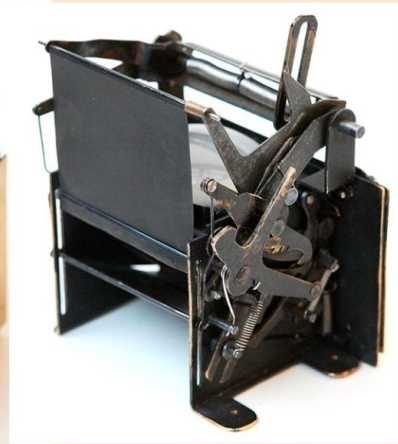
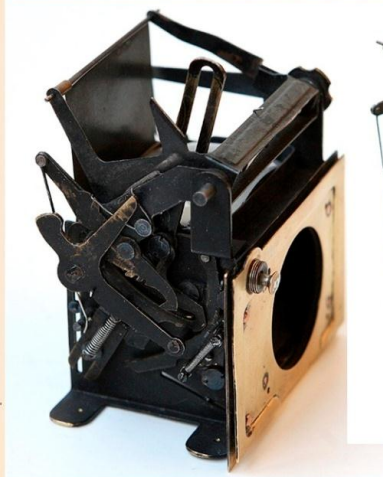
Based in the first concept of MIN of 1927, shows the option of mass diffusion of the 35mm film as an amateur standard long before this idea took other countries.

This SLR had many advances. The first one was the shutter operated by mirror, always clearing the light. The second one was the employment of laminated steel vertical blades and an internal frame to block the light after exposure was made. And more, the non rotating speed dial, the ultra soft release, the front release knob as an extra against vibration, and the overall simplicity and extraordinary reliability for those times and today. Another extras are the full frame focusing screen, which always was a nightmare of camera designers and the built in telescope sports finder.

I prepared these sheets based on the camera itself and in the available data from Photohistory.ru (Abramov), the site of Alexei Niktin, Soviet CAMS(Aidas Pikotas), Nightphoto(Bill Parkinson), Appareils Photographiques (de Halgand), notes on From Russia with a Click (Albino Pegorari and Claudio Asquini) and literature of and the topics in USSRphoto (Vladislav Kern). They are aimed to classes camera historic technology.



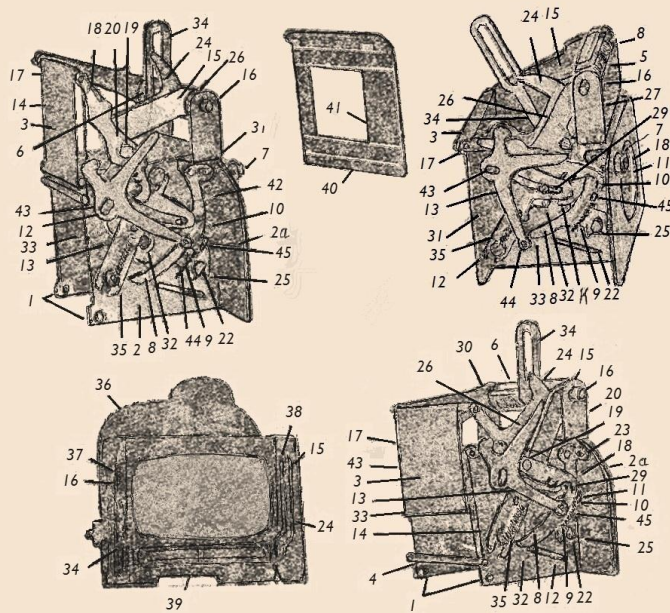
CÂMARA SPORT / GELVETTA 1935



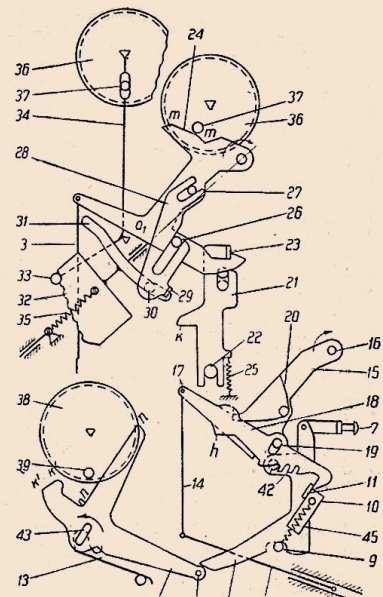
OBTURADOR DA CÂMARA "GELVETTA"  
CORTESIA ALEXEY HIKTIN



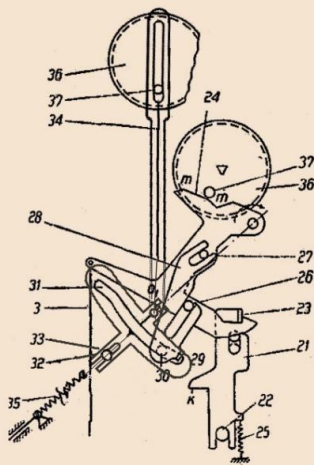
MECÂNICA FUNCIONAL DA CÂMARA "SPORT - GELVETTA"



IMAGENS DO OBTURADOR DA CÂMARA "SPORT"



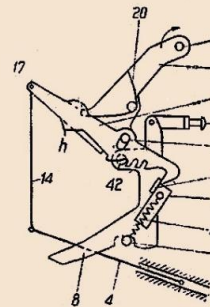
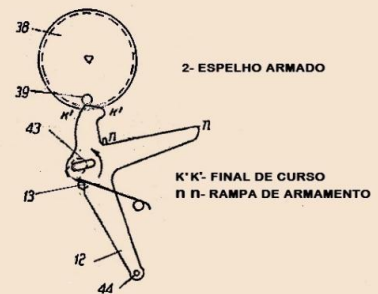
ESQUEMA CONSTRUTIVO DO OBTURADOR DA CÂMARA "SPORT"



1- PRIMEIRA CORTINA ARMADA  
K- RESSALTO DE DESTRAVAMENTO DE 3 mm- ARMAMENTO DA PRIMEIRA CORTINA

NOMENCLATURA

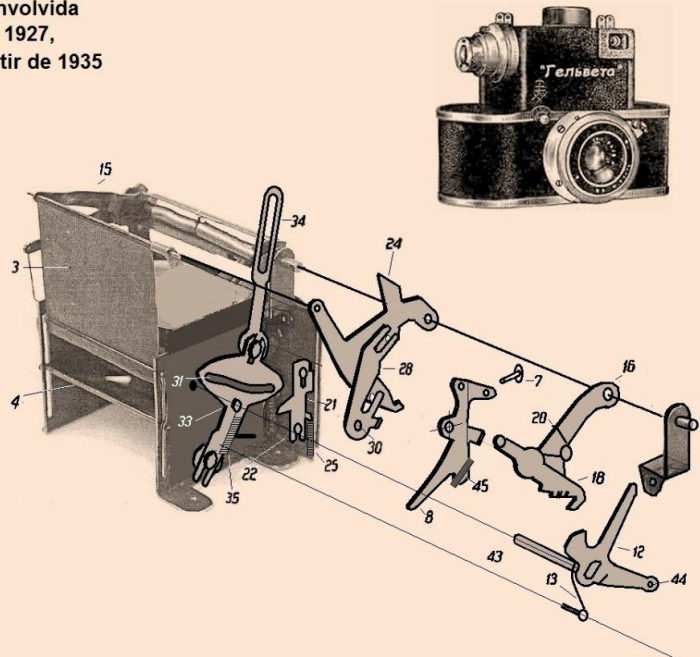
- 1- FUIROS DE FIXAÇÃO
- 2- CAIXA a) LATERAL ESQUERDA b) FRENTE
- 3- PRIMEIRA CORTINA
- 4- SEGUNDA CORTINA
- 5- ENCAIXE DAS CORTINAS
- 6- MOLAS
- 7- BOTÃO DE DISPARO
- 8- PEÇA PRINCIPAL DO BOTÃO DISPARADOR
- 9- EIXO DE AMARRAÇÃO
- 10- AMARRAÇÃO DO DISPARO
- 11- TRAVA PARA O "B"
- 12- ALAVANCA DO ESPELHO
- 13- MOLA
- 14- TIRANTE
- 15- ARMADOR DA SEGUNDA CORTINA
- 16- EIXO PRINCIPAL
- 17- TIRANTE ESQUERDO
- 18- LIBERADOR DA SEGUNDA CORTINA
- 19- LIMITADOR
- 20- MOLA
- 21- LIBERADOR DA PRIMEIRA CORTINA
- 22- GUIA
- 23- ENGATE
- 24- ARMADOR DA PRIMEIRA CORTINA
- 25- MOLA
- 26- GUIA
- 27- GUIA
- 28- AUXILIAR DE 24
- 29- RESSALTO LIBERADOR DE 18
- 30- PRISIONEIRO
- 31- GUIA DAS VELOCIDADES
- 32- AUXILIAR DAS VELOCIDADES
- 33- GUIA COM TRANSLAÇÃO
- 34- ALAVANCA DAS VELOCIDADES
- 35- MOLA
- 36- BOTÃO SELETOR DE VELOCIDADES
- 37- PINO GUIA DE 36
- 38- BOTÃO DE AVANÇO DO FILME
- 39- PINO GUIA DE 38
- 40- PLANO DO FILME
- 41- QUADRO
- 42- EIXO DO BOTÃO DE DISPARO
- 43- EIXO DO ESPELHO
- 44- PONTA DO DISPARO PELO ESPELHO
- 45- MOLA



3- SEGUNDA CORTINA ARMADA  
h- RESSALTO DE 18

"SPORT" / "GELVETTA" - EXPLODIDO

Seguramente a primeira câmara reflex mono objetiva de 35mm produzida. Criada e desenvolvida por A. O. Gelgar a partir do protótipo MIN de 1927, foi fabricada pela GOMZ de Leningrado a partir de 1935 (acredita-se que as primeiras 100 unidades tenham sido lançadas em 1934). Foi também a primeira câmara de 35 milímetros com cortina vertical com lâminas metálicas. Formato do quadro 24x36. Câmara tinha uma cobertura de metal com extremidades arredondadas, Exposições: 1/25, 1/50, 1/100, 1/200, 1/500 segundos. + "B" lente "Industar-10" 3,5 / 50 com montagem em baioneta. Contador de exposições automático. O painel superior é uma superestrutura em forma de paralelepípedo incorporando a ocular do visor reflex, e do lado direito um visor de Newton. A carga da câmara é realizada com cartuchos especiais comportando 50 quadros (2 m de filme). Tapa traseira removível. Pequenas variações de detalhes durante a produção. Dimensões: comprimento: 133, altura: 102, profundidade: 69 (mm), peso – 820g. Produção total de cerca de 20 mil unidades.





PRANCHA 55



GELVETTA - PRIMEIRA VARIANTE COM ÓPTICA FIXA

**СПОРТ**  
ЗЕРКАЛЬНАЯ  
КАМЕРА 24x36

- 1- ОБЪЕКТИВА
- 2- ЕСПЕЛХО
- 3- ТЕЛА
- 4- ПЛАН ДО ФИЛМЕ
- 5- ПЕРВАЯ КОРТИНА
- 6- ВТОРАЯ КОРТИНА
- 7- КВАДРО
- 8- ПЛАКА ПРИБИРА
- 9- ЗАКРЫТИЕ ЗАКРЫТИЯ
- 10- ЛЕНТА ЗАКРЫТИЯ
- 11- ОКУЛЯР
- 12- МОДУРА
- 13- МАСКАРА ЗАКРЫТИЯ

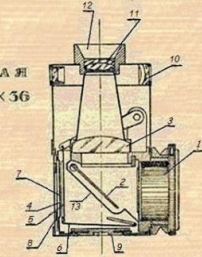


Рис. 2

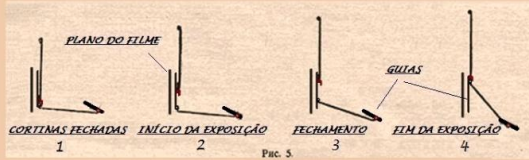
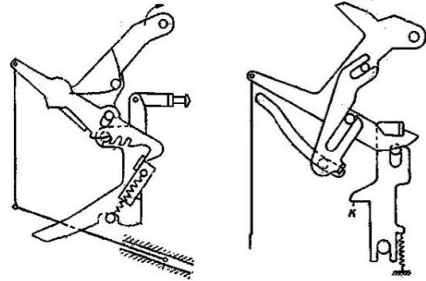


Рис. 3

ESTÁGIOS DE FUNCIONAMENTO DO OBTURADOR DA CÂMARA "SPORT"

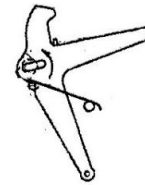
CÂMARA ARMADA



1ª CORTINA FECHADA  
2ª CORTINA FECHADA

1ª CORTINA TRAVADA  
2ª CORTINA LIBERADA

ESPELHO  
ABAIXADO



1ª OPERAÇÃO

**1**

PRANCHA 56

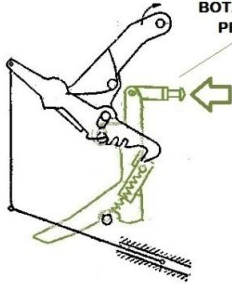
ESTÁGIOS DE FUNCIONAMENTO DO OBTURADOR DA CÂMARA "SPORT"

2ª CORTINA FECHADA

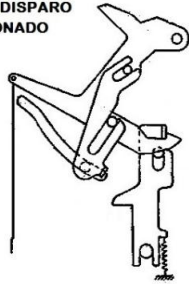
1ª CORTINA FECHADA

2ª CORTINA FECHADA

1ª CORTINA FECHADA

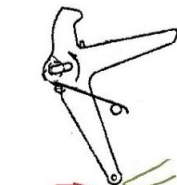


BOTÃO DE DISPARO  
PRESSIONADO



2ª CORTINA TRAVADA

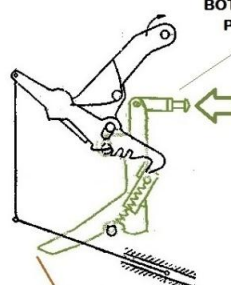
1ª CORTINA TRAVADA



LIBERAÇÃO DO EСПЕЛХО

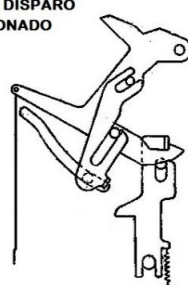
2ª OPERAÇÃO

**2**



BOTÃO DE DISPARO  
PRESSIONADO

2ª CORTINA TRAVADA



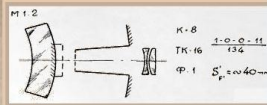
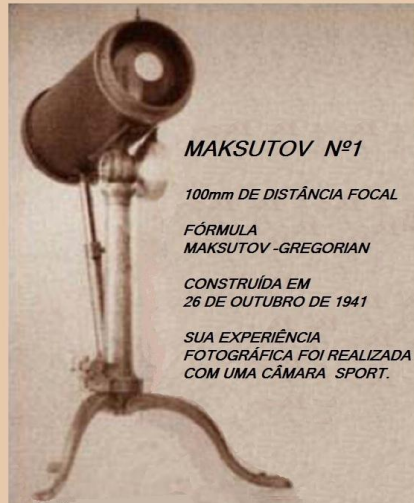
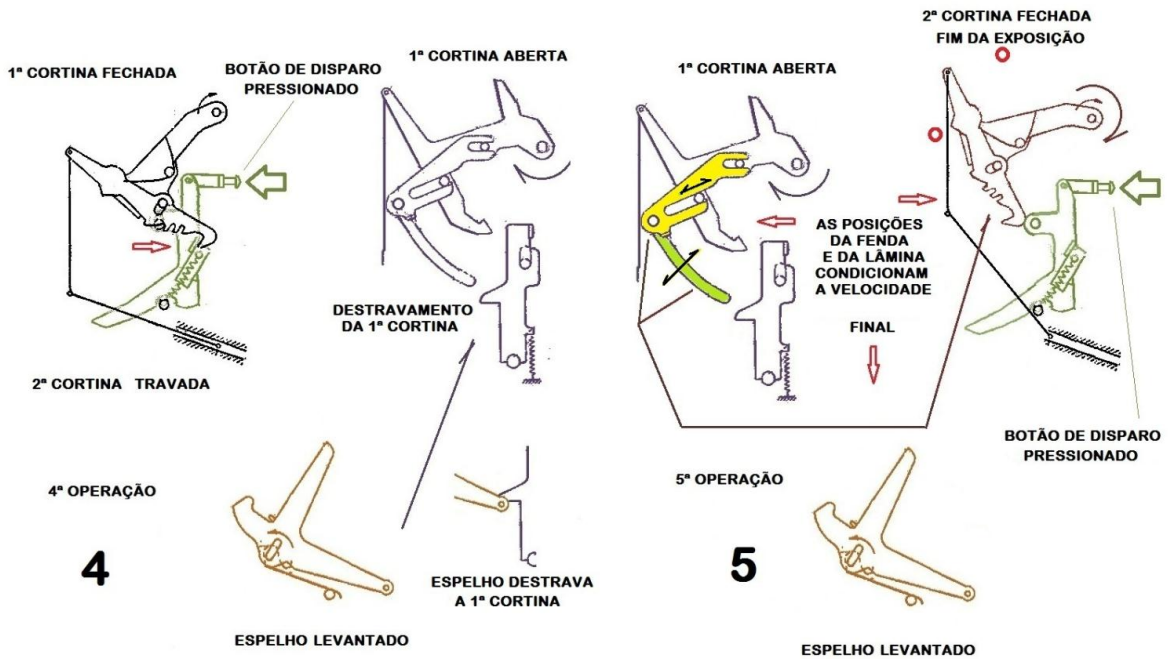
INICIA-SE A  
LIBERAÇÃO DA 1ª CORTINA

ESPELHO LIBERADO

3ª OPERAÇÃO

**3**

ESTÁGIOS DE FUNCIONAMENTO DO OBTURADOR DA CÂMARA "SPORT"



FÓRMULA DA OBJETIVA MAKSUTOV



DMITRI DMITRIYEVICH MAKSUTOV INICIOU UMA NOVA ERA NA CONSTRUÇÃO DE TELESCÓPIOS E PODEROSAS TELEOBJETIVAS A PARTIR DESTA MODESTA TELE Nº1 DE 100mm.

A IDÉIA ORIGINAL NASCEU EM 1929 A PARTIR DE UM DOCUMENTO ESCRITO POR ELE MESMO ONDE ANALISAVA AS PROPRIEDADES DE UMA FAMÍLIA DE MENISCOS ACROMÁTICOS.

COM SUA CONCEPÇÃO DE CORREÇÃO ESFÉRICA A PARTIR DO EMPREGO DE MENISCOS ESFÉRICOS, CONSEGUIU REDUZIR OS CUSTOS PRODUTIVOS E AUMENTAR A QUALIDADE FINAL DA IMAGEM DE PRODUZIDA PELO NOVO SISTEMA.

MAKSUTOV IDEALIZAVA TAMBÉM FORNECER BONS TELESCÓPIOS EM TODAS AS ESCOLAS PARA INCENTIVAR OS ALUNOS EM FUTURAS PESQUISAS ASTRONÔMICAS. FOI O GRANDE RESPONSÁVEL PELA ADOÇÃO MUNDIAL DE TELESCÓPIOS REFLETORES EM SUBSTITUIÇÃO AOS REFRACTORES, NA ÉPOCA DE USO COMUM.

OBJETIVAS DE ESPELHO 1958



## Three Leningrad Generations: A Landmark of an Era

Фотоаппарат «Ленинград». Так называется новый отечественный аппарат (рис. 69), предназначенный для спортивных, любительских, репортерских и технических съемок и рассчитанный на стандартную перфорированную киноплёнку с размером кадра  $24 \times 36$  мм. Зарядка и разрядка камеры производятся на свету любой кассетой, вмещающей 1,6 м киноплёнки, или двумя кассетами, одна из которых является приемной.

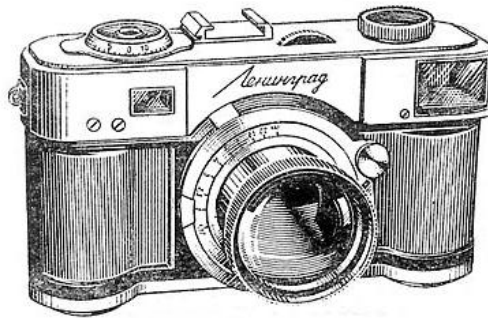
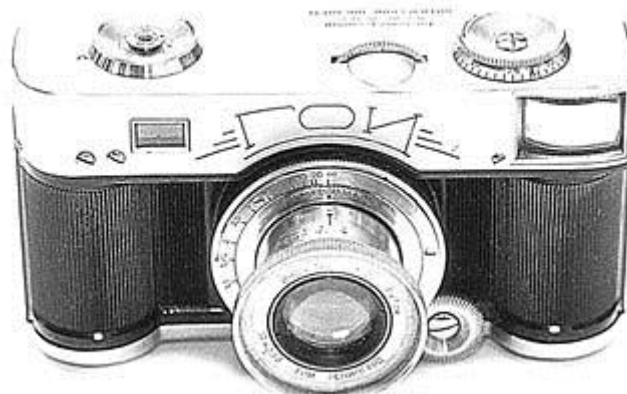


Рис. 69. Фотоаппарат «Ленинград»

Основной объектив — «Юпитер» с  $F = 5$  см и относительным отверстием  $1 : 1,5$ ; однако конструкция аппарата позволяет применять и сменные объективы: «Орион» с  $F = 2,8$  см и относительным отверстием  $1 : 6$ ; «Уран» с  $F = 3,5$  см и относительным отверстием  $1 : 2,5$ ; «Индустар» с  $F = 8$  см и относительным отверстием  $1 : 2,8$ .

Text material adapted from Oleg Tumazov, Aidas Pikotas, Jean-Loup Princelle, Georgy Abramov, J.Karvelis Klaipeda and other related material.

### First Generation

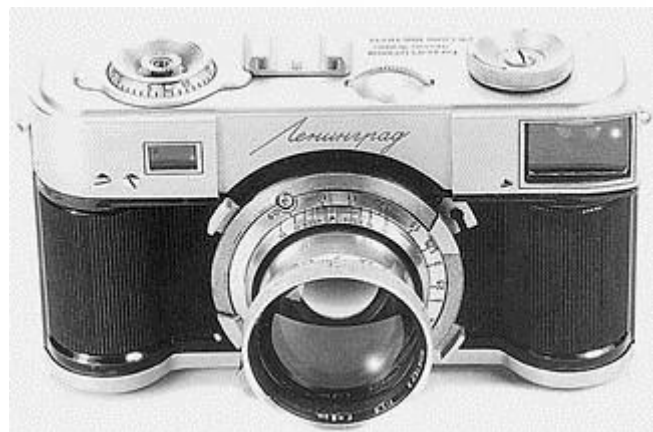


Фотоаппарат « ГОИ», ГОИ, 1947 г

First public shown in the A.A. Syrov book "Photographic Way" in 1952, The Leningrad was a governmental decision to make a high quality camera system in order to compete against "The Greats". After the War, Russia had a large population of German prisoners, including high level of skilled technician engineers etc. Russia proposed the liberty and return to their homes against preparing specialized hand work in their factories. Lots of projects came to life, and Leningrad was one of them. The first generation was conceived by Hans Fibbe, a German employee in the Zeiss house. That returned in 1932. It is interesting to know that some interesting German cameras were developed in Russia by the staff that oriented the works at Kiev, the lenses at Krasnogorsk and the measuring instruments at Leningrad. Through those people, it was born the famous WERRA and the less known Belmira, and also the Pouva Start, Several unofficial versions of the Exakta , the famous low priced Exa and the intriguing Neuca, Neucaflex and Ucaflex that shares same parts of FED, Zorki, and Zenit. Other cameras included should be the Foitzica, the Publica and Lorenza.

Under a certain aspects, it seems that the Sport shutter concept could also be contributed in order to make the second edition of Leningrad.

At this time Russia and Germany were in a recuperation phase and the exchange of information through privileged people was a real fact in everyday practice. Several prisoners had relatives in Germany, and most of that, when they returned nobody could confiscate their minds and their experience.



Фотоаппарат «Ленинград», ГОИ, 1953 г

Model specifications:

GOI and Leningrad Prototypes of a 35-mm rangefinder camera

Dating from the second half of the 1940s.

GOI:

Combined collimated viewfinder and coincident-image rangefinder with a small round eyepiece (long-base rangefinder, base = 7cm, magnification = 0,7x, as in the Contax/Kiev and Reporter third generation). Uniformly semi-transparent golden-tinted viewfinder rendering a greenish viewfinder image. Standard lens GOI Industar 2,5/50mm (four lenses in three groups, Tessar style, calculated at the Institute Vavilov = GOI in 1940), collapsible, uncoated, in an unique three-claws bayonet and with filter ring 40,5 x 0,5, changeable. Focusing to near 0.8m is done by turning a small chrome plated knurled wheel on the left lower side of the lens mount. Along with the Industar standard lens an uncoated and by sure rangefinder



uncoupled GOI Uran-14 2,5/35mm wide-angle lens is known (but unseen) (calculated in 1945 by GOI). Frame counter below the rewinding knob (0 – 40). Only one unit is known to survive.



Leningrad :

Combined collimated viewfinder (van Albada principle) and coincident-image rangefinder with a large square eyepiece with three lens field frames. (long-base rangefinder, base = 7cm, magnification = 0,7x, as in the Contax/Kiev and Reporter third generation).

Uniformly semi-transparent golden-tinted van Albada collimated Galilean viewfinder rendering a greenish viewfinder image. Standard lens GOI Jupiter-3 1,5/50mm (seven lenses in three groups, Sonnar style, calculated at the Institute Vavilov = GOI in 1946), collapsible, coated, and interchangeable in an special bayonet mount and with filter ring 40,5 x 0,5. (Contax standards) Each of the interchangeable lenses has its own helicoids (focusing from infinity to nearer than 0,8m). Other lenses include: Orion-15 6/28mm, Uran-14 2.5/35mm and Industar-33 2.8/80mm (all coated). Frame counter below the release knob (0 – 40).

Lens Bayonet reminiscent but not equal to the old 1935 Contaflex.

Both modes have horizontal traveling focal plane shutter using sliding black painted steel sheet metal plates; speeds 1 – 1/500 sec..

The shutter speeds are controlled by a vertical knurled wheel in the camera top. Film transportation (with a single claw engaging the upper film perforation holes) and shutter cocking is achieved with a (folding) sliding lever mechanism on the rear side of the camera top. As the shutter plates need more space than a textile shutter would,

the film cassettes moved forward and are responsible for the two bulges on the camera front, that, on the other hand, make the camera quite comfortable to hold. For easier and smooth winding, the film pressure plate retracts when the film is transported (patent by Burmistrov).



Leningrad first generation Second issue outfit



After Suglob



After Princelle

Michael Kampf and J;L; Princelle show us the original GOI 1947 prototype.



The original lens Industar 2.5/ 52mm was originally developed as an alternative option for Gelvetta/ Sport cameras.



Here the foldable horizontal translation cocking and frame advance lever ... An unique feature. The triangle at the back cover is intended to hold camera in its case, freeing the camera's bottom tripod hole.

Idea from Contessa.



Milos Miladek and J.L. Princelle now show the Leningrad Original, the second GOI Prototype of 1948, soon after the "Fotoapparat – Conference".

Take a look in its compactness, Leningrad X Zorki 3M



Comparing with Zorki 3M of 1953 we can feel the compactness of GOI/Leningrad design. This was due the completely removable back shutter concept. The compactness was much more felt in the Kiev design.

## The rangefinder in the first Leningrad Generation.



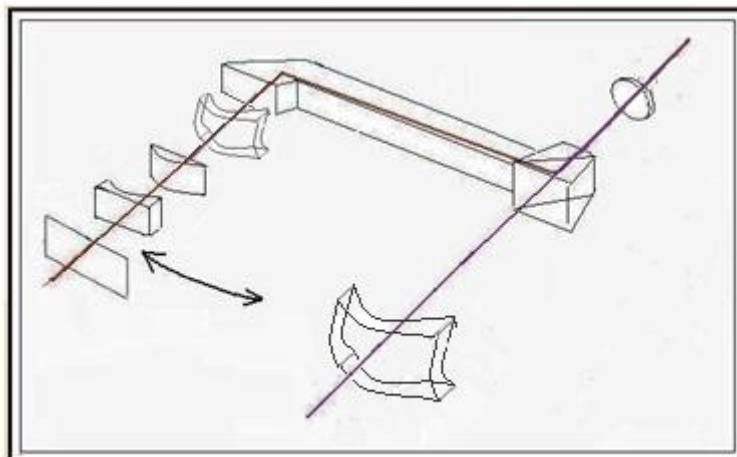
Third variation Reporter rangefinder.

The two versions of Leningrad, the original GOI and the Leningrad, shared the same body, shutter and rangefinder with slight modifications.

Their construction has its origins on Contax long base rangefinder. The basic prism was previously used in the Third generation pre-war Reporter of the same GOMZ factory.

The first generation repeated the Reporter lay-out substituting the counter rotating prisms (of Super-Ikonta) by the cylindrical lenses of the Contax.

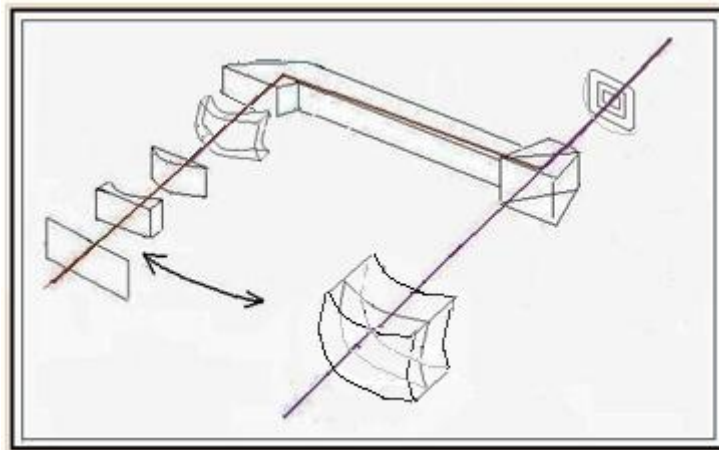
It was placed an exit block to limit the field of normal lens making so a 0.7:1 range-view finder. Here is the schematic.



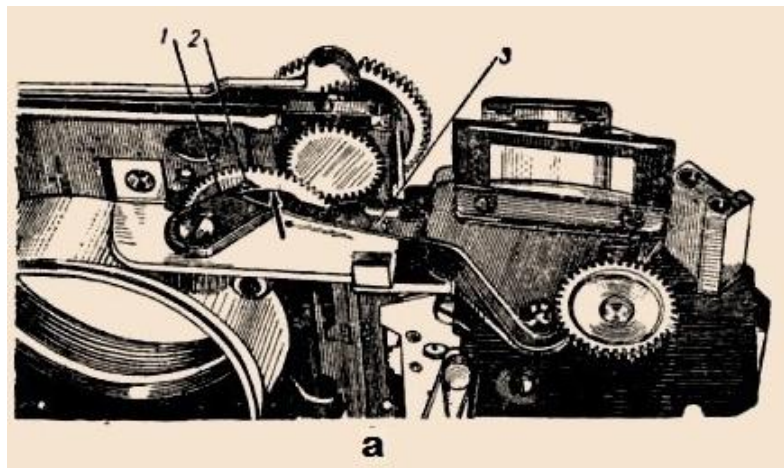


The second version substituted the forward block by a cemented diopter doublet, in which the cemented surface forms the reflecting surface of the Albada view range-finder, this way were shown the frame limits of 35,50 and 80mm lens fields, according the shown drawings.

Important: -This was the first camera to have a built-in universal finder.



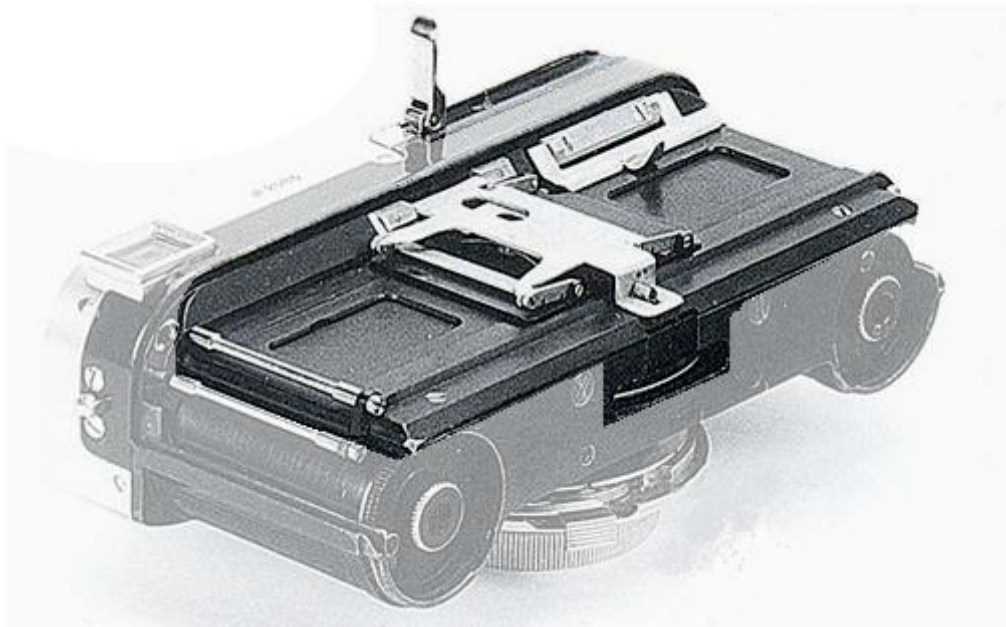
The following Picture shows the rangefinder compensating prisms used in Kiev camera series.



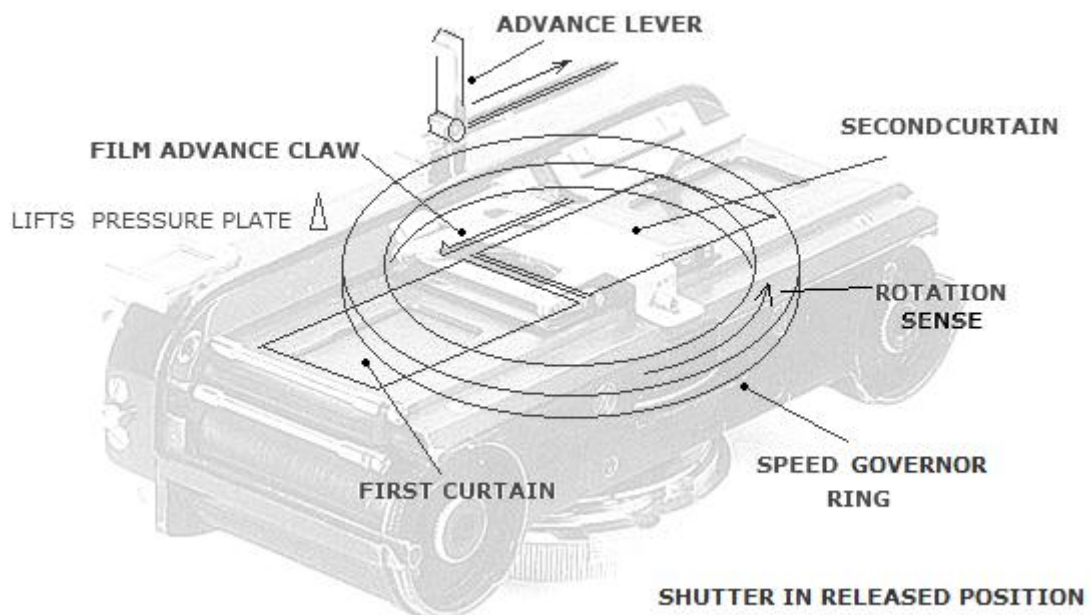
### **The shutter system in the first Leningrad Generation.**

Both versions use the same shutter. It is an Art of Mechanics and unique in its conception as the Italian Gamma and the Hungarian

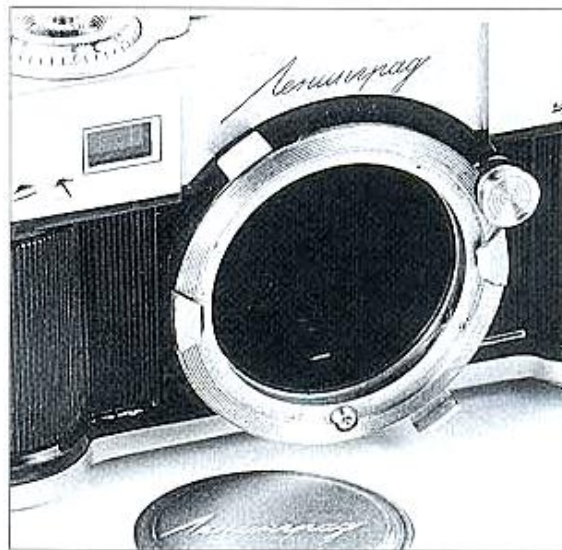
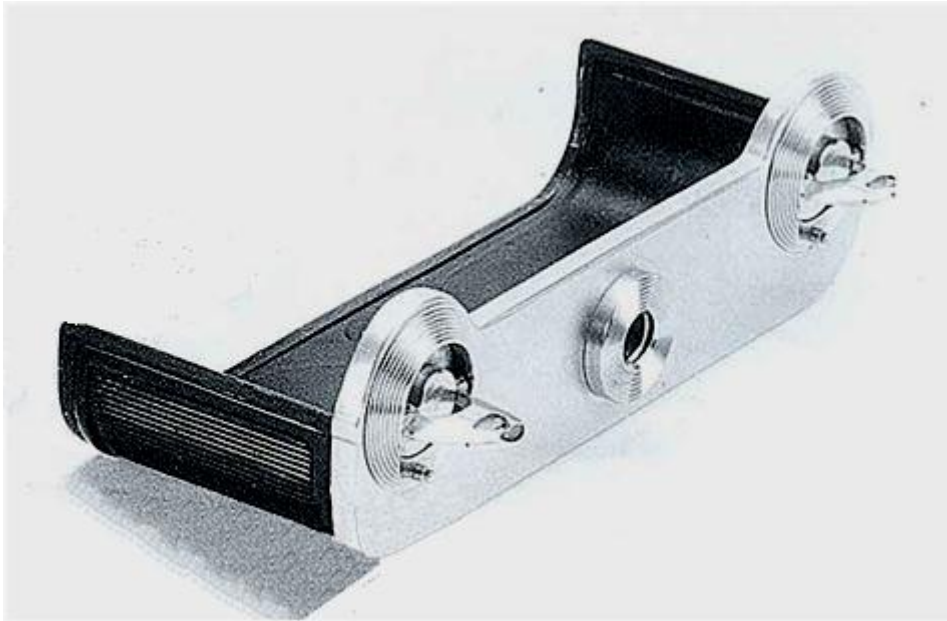
Kinga. As the Italian camera shutter, this one employed in the first generation Leningrad is completely solid metal and has no ribbons at all. Made to last more than a lifetime! Also completely detachable for easy repair. The advance of the curtains is exactly the same advance of one picture frame, so, no sprocket wheel and an extraordinary smoothness. Pressure plate goes off during advance operation.



Shutter assembly and working diagram in first Leningrad generation



The giant pressure plate releases pressure freeing the film for friction free frame advance; the rear removable cover denotes complete Zeiss influence up to the locks.



**Bayonet mount of Leningrad L222**

*Document Milos P. Mladek*

The special bayonet mount follows Contax/Kiev system.

The focusing helicoids are built into the camera. The main differences between the two variations are: the rangefinder types and the lens changeability possibilities in the second model.



## Second Generation

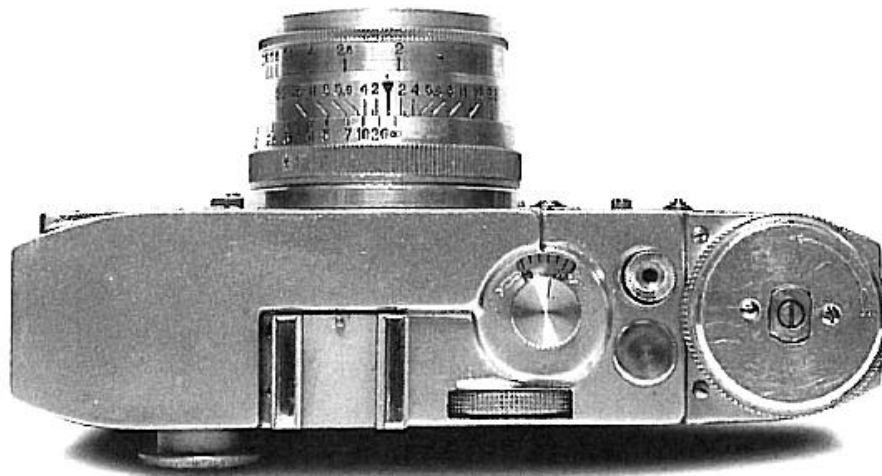
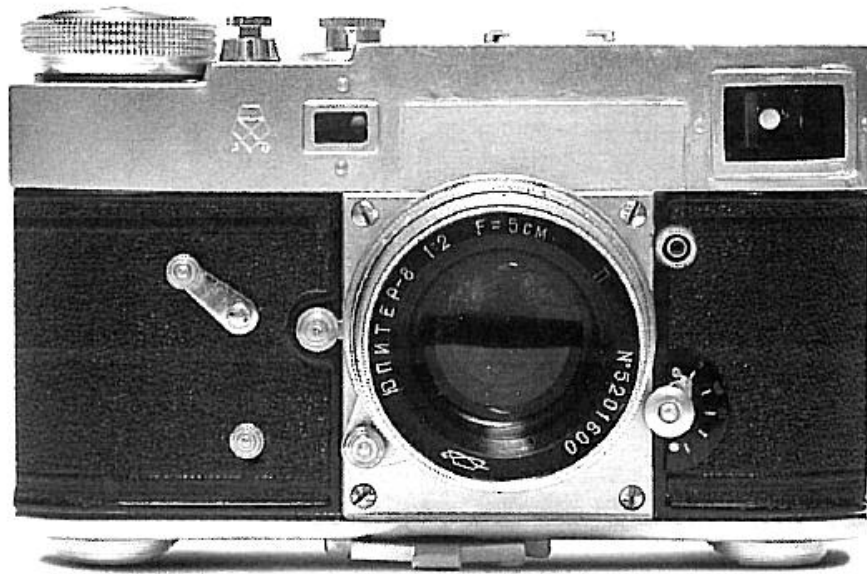
The second prototype generation was conceived by I.Shapiro. The first impression is that there is little connection between this camera and the previous models. The base of the rangefinder is shorter, the appearance is more classical, and the camera is motorized. However, the veritable missing link has the same shutter speed selector knob, now moved back behind the zeroing button of the frame counter, (what denotes similar shutter speeds control) the frame counter itself being placed in front of this knob, but this time with a vertical-running metal shutter (in 1952!). The lens mount, with an original bayonet (like the Alpa reflex c. 1945 and somewhat similar to the future M3 Leica, sporting an adapter ring for Zorki M39 lenses). J.L.Princelle in his *The Authentic Guide to Russian and Soviet Cameras*, 2nd edition, 2004 says that this camera shows signs of the future series-produced Leningrad. -I do not agree-. This camera shows decisive differences to the third generation as we will show.



*«Leningrad» Experimental Camera 1954 -the link to the final camera*



First issue second generation no name Leningrad



This second issue Leningrad had two variations. As a curiosity, it is very interesting to know that the general camera style was some years later found in a totally different camera, but also with

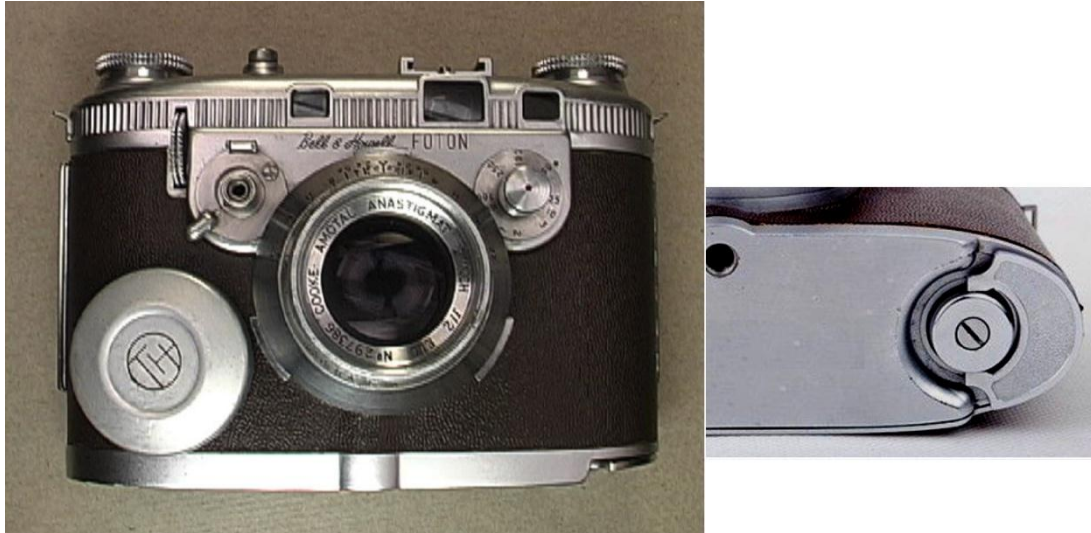


motorized film advance, in the Japanese Beau Auto Tera.



This reinforces the theory of existing data changing or spy activities between large manufacturers.

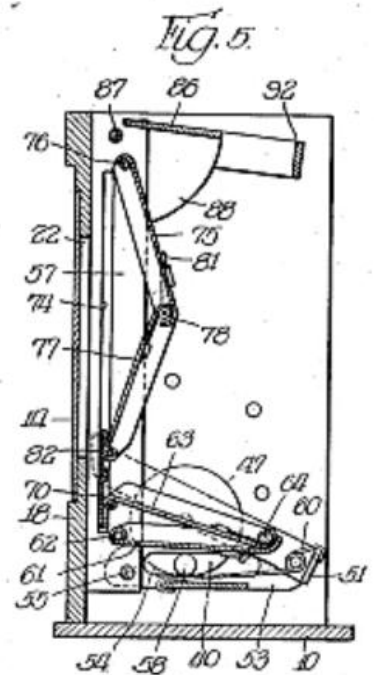
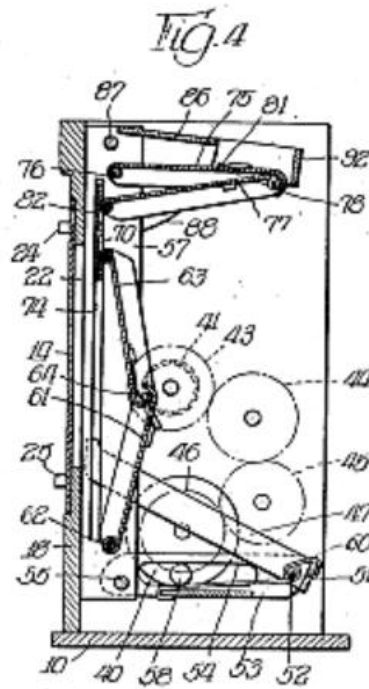
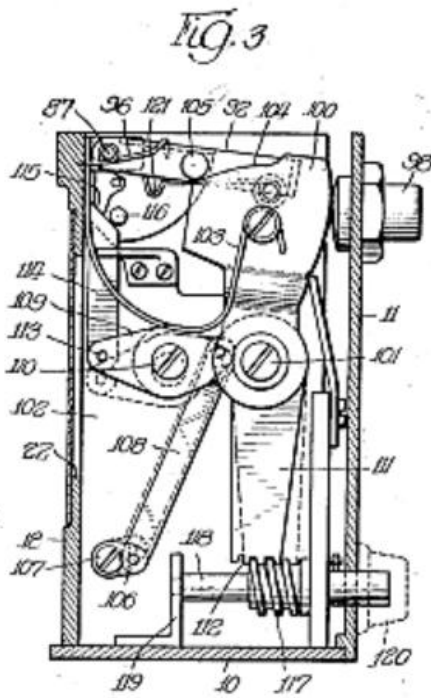




As a kind of illustration we show above Teraoka Auto Tera and Bell & Howell Foton, showing the winding at the camera bottom. Auto Tera (Auto Terra in some models) has normal Copal shutter.

In the next picture it is shown the working system of the Bell & Howell Foton camera. Developed by Lewis Moomaus,

Fig 4 and 5 shows the curtain positions "cocked" and "released".



But remember that the Sport metal vertical shutter is a strong candidate for this second generation. It was a proven one built at the same GOMZ factory in 1935. It was reliable and people there had all the techniques to rebuild them.

The second Leningrad Generation very probably would have a similar system.

See Mechanics of the Gelvetta in the previous description.

In the second generation of the Leningrad, the "normal" speed dial on camera top is the frame counter setter. The vertical wheels at its rear, is the true speed dial.

In the second series of the second generation, there is a dial at the 4 o'clock position. This is to control time space between pictures. (a kind of pacemaker)

The speed dial position together the high body shape, also speculates a repetition of the previous shutter found in the first generation, now in a vertical travel way.



The shutter lay-out found in BH Foton, avoids use of wide angle lenses once there is no space for their rear elements. Due this reason this shutter style was not used in the second generation.

### Third Generation 1958

Here four views of Leningrad first production series





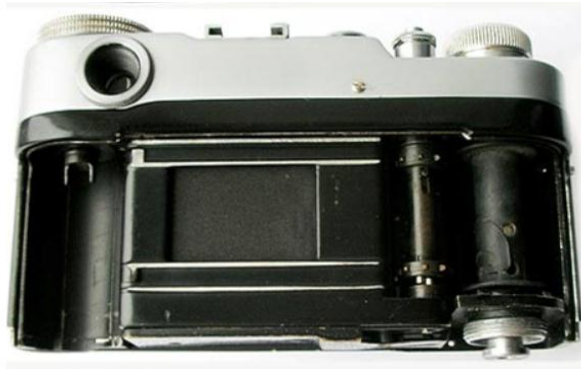




**And some variations on the same matter**



Four front screws version , Double wind



Non motorized version



Burst sequential version



Two Police variants



Outfit of the first issue Third generation



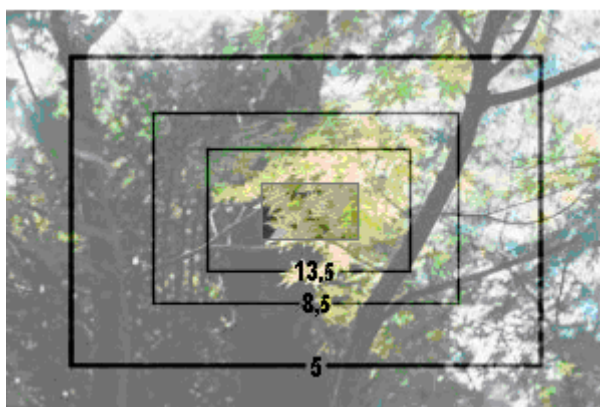
The new rangefinder foresees and shares its project together German WERRA. Curtains mechanics came from Zorki 4 and the film advance spring wind came from Finetta 99!

The new generation was created towards creating an impact to the world market more than a new top quality camera system, which was the first proposal soon after the war.



*Рзф Ленинград* Radio controlled camera set 1959

The new rangefinder shares its project together German WERRA but Leningrad Pioneered the system.



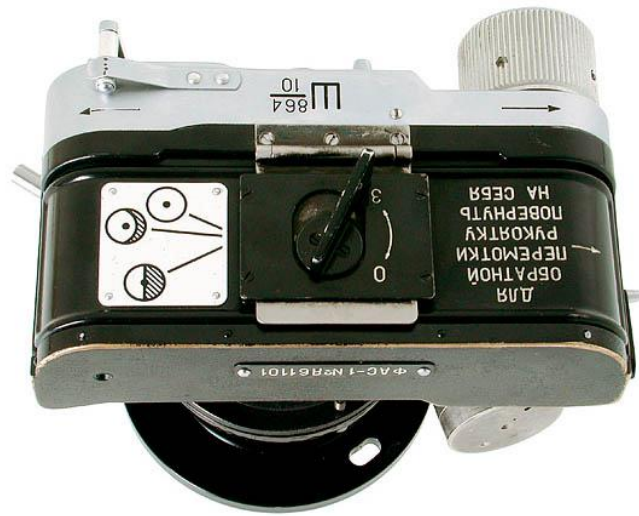
This is an image seen in the Leningrad Range/viewfinder .

One has the 50, 85, 135mm fields.

There were Leningrads in the Land, in the Space and  
under the Sea!



“Space program Leningrads” **ФАС** аппарат



Year: 1966 Electric drive Speeds: 1/60 and 1/1000





## **LENINGRAD SPACE FAS-1, 1968**

Another version of the Space Leningrad presented at WestLicht Photographica Camera Auction at Westbahnstrasse in Vienna with this description: "This camera was manufactured for the Soviet Lunar Space Program with MIR-1 2.8/37mm no.6707935. It is based on a heavily modified Leningrad with enforced clockwork motor drive and no viewfinder. All parts of the camera are made to the highest quality standards. Shutter 1/140 and B. Negative format 20 (24) x 36 mm, the design of the negative window is uncommon and obviously was shaped to accommodate a round object (the moon). All armatures are sturdily built for use with hand-gloves. Mechanical and electric release (direct or remote). Connection to the on-board electrics by a special 19-pole plug. The diaphragm is operated by a substantial lever on the left side of the lens that has three positions: down (fully illuminated moon - f/11), level (halfways lit moon, f/5,6) and up (light at the moon terminator, f/2,8); schematic explanation on a plate on the hinged camera back. Behind the MIR-1 wide angle lens a special flap is mounted that only moves laterally while the release is pressed. It prevents a burn of the shutter fabric if the camera points towards the sun accidentally.

A tailored system was intended for it and one of the best was the underwater cases for them.

## **"KRAB" Underwater housing - UKP model**

Planned to be used with:

Jupiter-8 or Jupiter-3 (27° underwater)

Jupiter-12 (47° underwater)

Orion-15 (56° underwater)







## Leningrad type 1

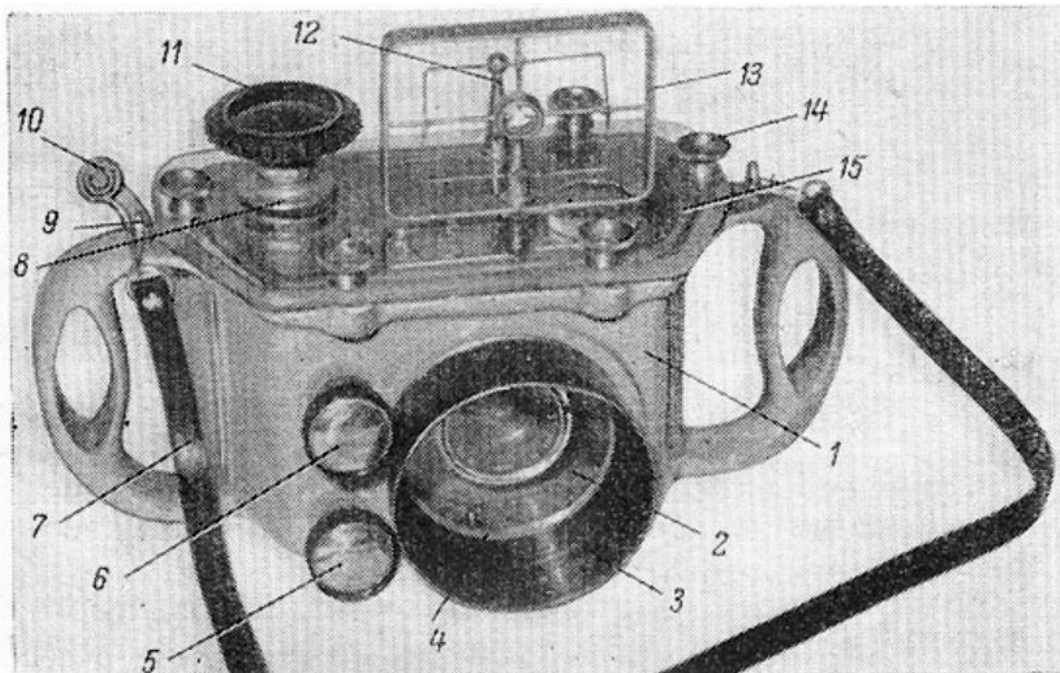
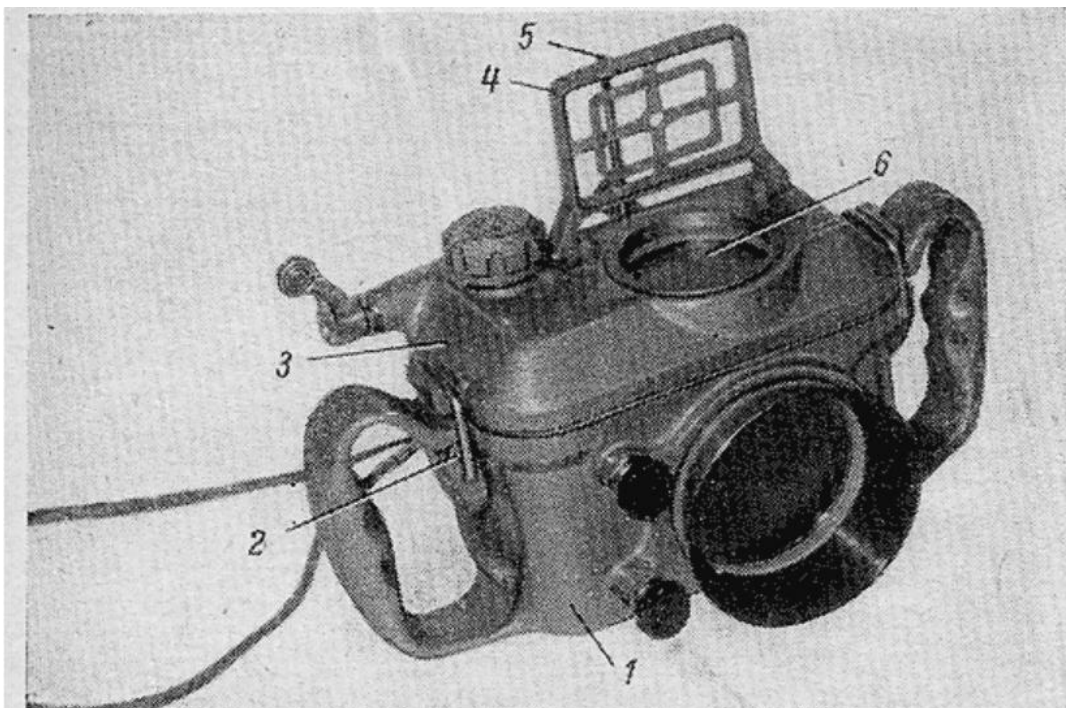


Рис. 24. Бокс с прозрачной крышкой для камеры „Ленинград“:  
1 — корпус бокса; 2 — защитное стекло; 3 — бленда; 4 — резиновая прокладка;  
5 — рукоятка установки диафрагмы; 6 — рукоятка установки метража по шкале  
объектива; 7 — шейный ремень; 8 — корпус сальника; 9 — ушко для крепления  
шейного ремня; 10 — рычаг спуска затвора; 11 — рукоятка перемотки пленки;  
12 — диоптр; 13 — рамка видоискателя; 14 — уплотняющие винты; 15 — крышка из  
оргстекла.

## Leningrad Type 2



Металлический бокс с затяжными замками:  
1 — корпус бокса; 2 — затяжной замок; 3 — крышка; 4 — рамка визира; 5 — диоптр;  
6 — смотровое окно.

## Super Optimist





### **About the Super Optimist camera:**

#### **Technical description:**

Original Leningrad body.

There was added a complete front and prism house of Zenit E/B in order to couple M39X1 lenses.

These components are from a Zenit E first series with wink mirror (as shown by the case in the bottom of the mirror, the mirror small size and the M39 thread.)

There was inbuilt an external exposure meter, with cell placed in the largest window of the original Leningrad's view-rangefinder.

The calculator was taken from a Kiev 4 with a new scale glued over it.

The galvanometer needle is seen from original Leningrad's ocular place.

The photocell (and all exposure meter) was taken from FED 4 –First series with knob advance type.



The rewind crank was borrowed from FED 11 (Atlas).

This model has no self timer and the hole of the original lever is closed by the self timer start button taken from Zenit 3M/Zorki 6/Kristall

The lens is a Jupiter 9 for Zorki(Leningrad) with a shortened focusing mount, to match.

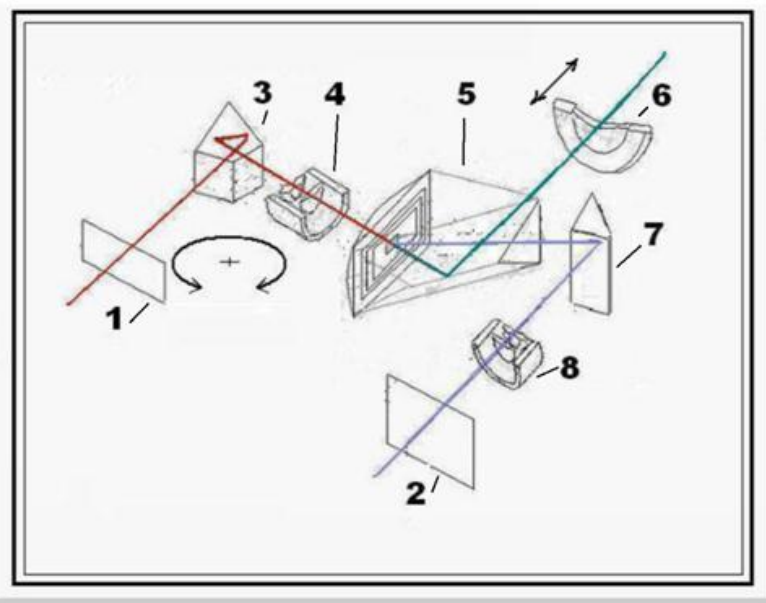
The slow speeds gear 1sec/1/30sec was removed for reflex screen positioning, so the spring advance is considerably lighter.

The original Zenit wink mirror system was changed and lowers only when film advances, but due to the repeatability of mechanics, it operates as it was an instant return mirror camera.

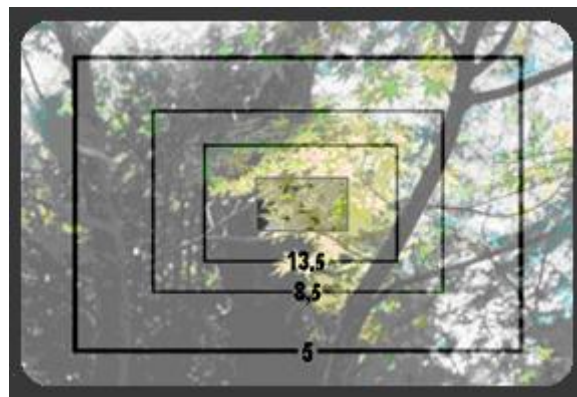
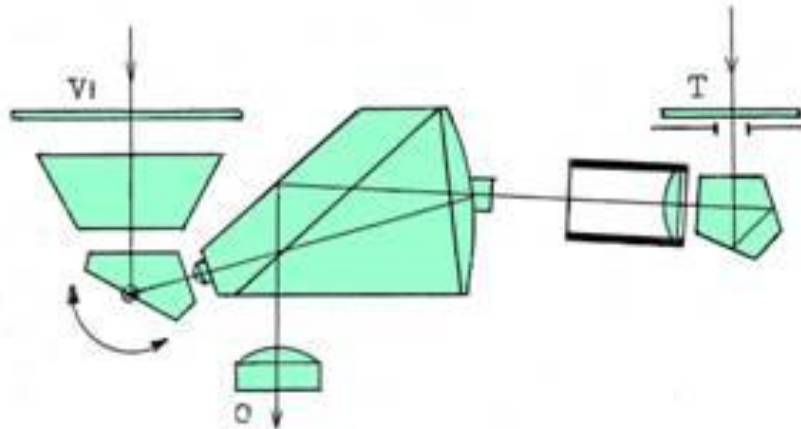
A new roof was made to protect the finder pentaprism.

## The Construction

### Leningrad Rangefinder



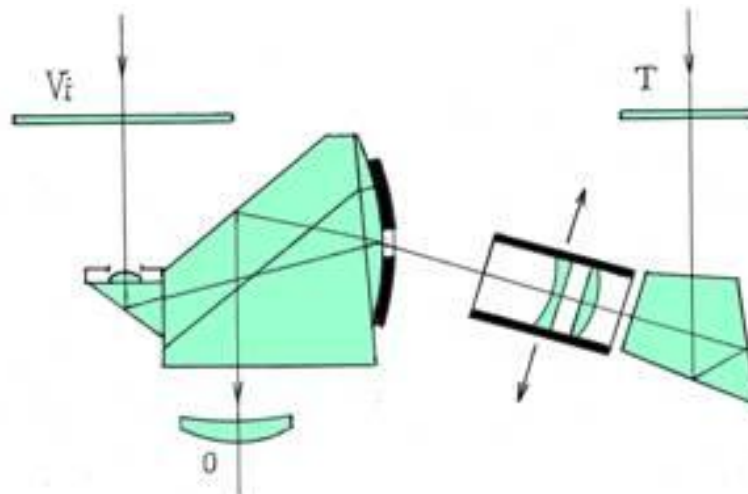
- 1 Second Window
- 2 First Window
- 3 Pivoting Pentaprism
- 4 Second Objective
- 5 Pecham Roof Prism
- 6 Ocular
- 7 Triangular Prism
- 8 First objective



This is an image seen in the Leningrad Range/viewfinder .

One has the 50, 85,135mm fields.

The new rangefinder shares its project together German WERRA but Leningrad Pioneered the system.



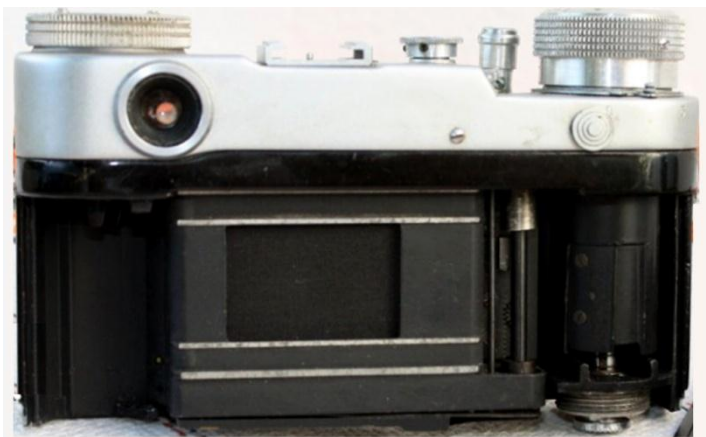


The image seen in Werra range finder where in the lower right angle a prism let chosen speed and diaphragm be seen from the shooting point.



Werramatic

### Leningrad and Finetta 99 the links



advance

Similarities in film



And bottom spool locking device



Similarities in winding button and flash synchro dial



Comparison between spring wind knob, firing button and frame counter



There were two models of Finetta 99, with and without slow speeds dial



Another comparison: spring wind knob, firing button and frame counter

The Belmira

German synthesis of a simplified three generation Leningrad

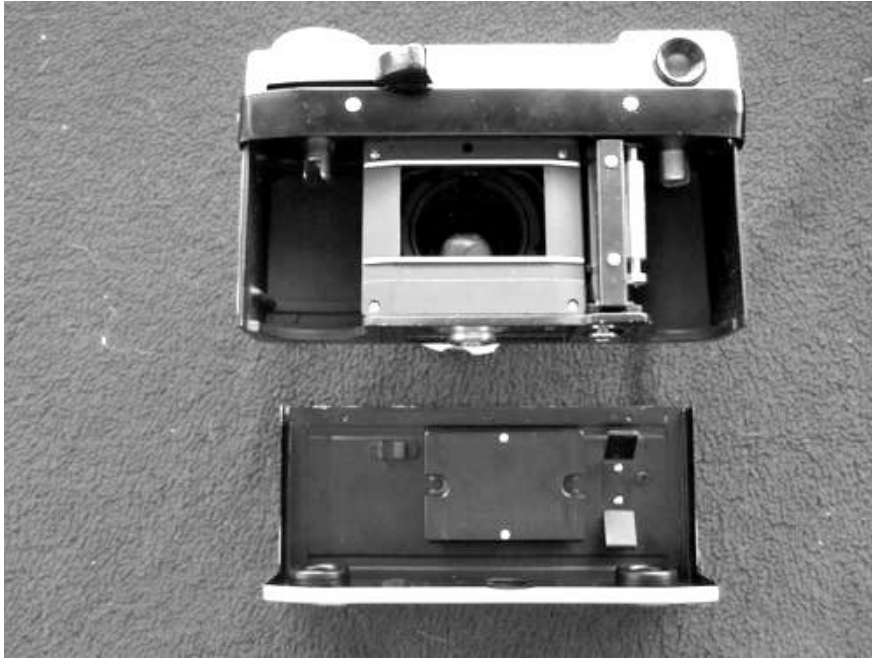


A largebase rangefinder – A Contax S Release.



The sliding advance touch – in a Vebur shutter





A removable back – and right eye rangefinder



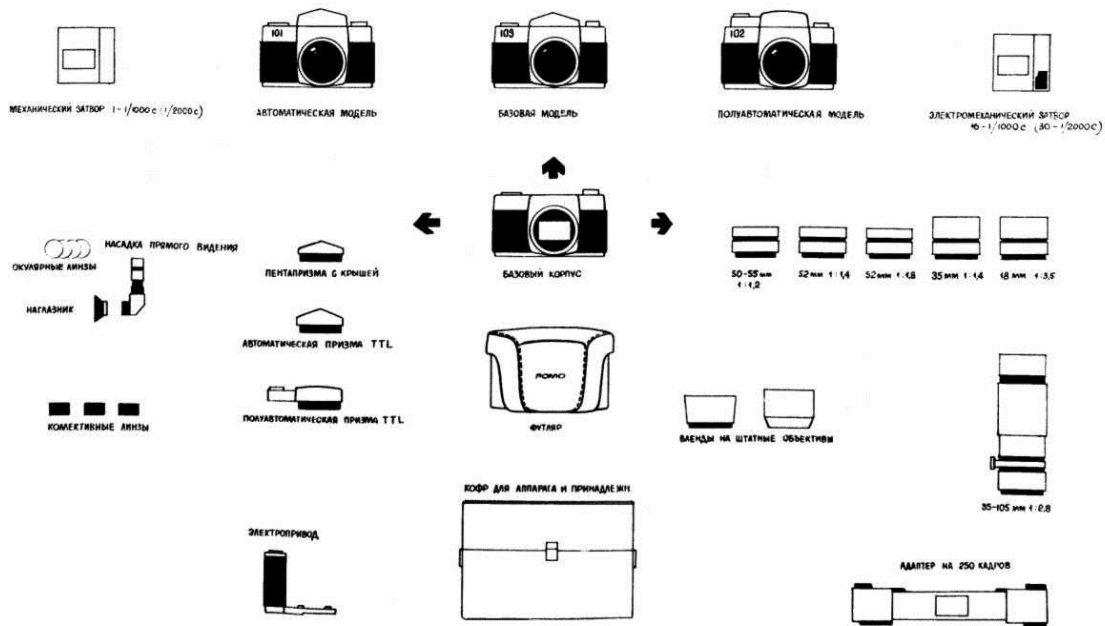
Everything in a comfortable packing



# Almaz – The Swan Song Of Lomo's camera production

The concept:

## СЕМЕЙСТВО ЗЕРКАЛЬНЫХ ФОТОАППАРАТОВ «АЛМАЗ»



### Announced camera system:

The basic body originates three variations: The basic model, The automatic model, and The semi-automatic model. -Two shutter options: mechanical shutter in two variants: 1s up to 1/1000s and up to 1/2000s, and electromechanical shutter 10s to 1/1000 or 30s to 1/2000.

The body accessories include: one plain pentaprism and two TTL pentaprisms; one for automatic information, the other for manual transference, all with changeable oculars. Three ground glass types and a right angle finder.

Six types of lenses: Five with fixed focal lengths 50-55mm/1.2; 52mm/1.2; 52mm/1.8; 35mm/1.4; 18mm/3.5. One zoom lens 35-105mm/2.8.

A 250 pictures magazine adaptor, Two sunshades, Camera case, Outfit case and an extra handle as battery booster.

## The ongoing project:



Almaz 101 -All electronic camera. First study project.



Two variants of Almaz 102 and an Almaz 104.



Almaz model 103.

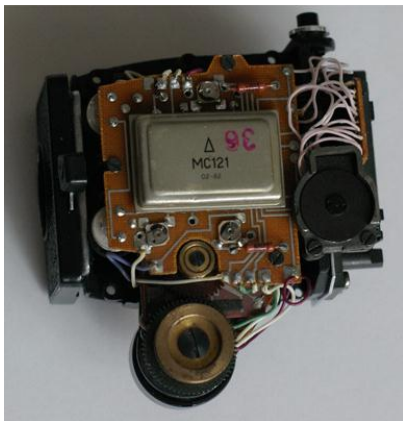


Model 103 wit data back and two finders





Model 104 with 250 picture magazine.



At left TTL prism of model 102 right from 104



Right angle finder with diopter adjustment and folding finder







The four blade all metal shutter

All the included material is a cooperation of Aidas Pikotas,  
Alexander Bronstein, Alexander Shanin, Alexey Niktin,  
Allan Berry, Arthur Grochowski, Juhani  
Halmeenmaki, Vladislav Kern, Xalmaz, Zenit Camera  
Archive, Sovetskoe Foto articles.

Coincidentally The development of this camera occurred at the same time we were developing our own projects, which we describe in the Chapter about LOMO in the foreign countries -Brazil. Meanwhile I visited them twice, unfortunately I have no original images but I have something to tell. The negative face of this history was that all papers at LOMO was destroyed somewhat like to erase the human efforts in research and development of such project. Great part of the persons who worked in this project are jubilated or no more alive the other ones are difficult to gather and the history is going to the forgetting paradise as several other endeavors. The positive point is that there are survivor cameras and lenses which are real dumb witnesses of an important period of study and development. It is our mission to hear and see the testimonials of these imperishable goods of metal and glass components which carries the soul of people who created and did them. By our luck, the soul of sensible collectors is tuned with the creators not only to show them but also tell their history and our history for the present and future generations.

Something as the LOMO's Leningrad was born from the KMZ Zorki the Almaz had its roots on the Zenits. Around 1974, Russians are feeling that the screw mount of such cameras were a bit out-of-mode. All Japanese cameras had migrated to bayonet. But, -Which kind of bayonet to use? An error on this decision would mean a great market loose. Meanwhile the Japanese Asahi, producer of Pentax cameras, were trying to expand its share just though licensing its "K type" bayonet mount to other makers in order to spread the compatibility of their cameras.

Their offer arrived to KMZ and LOMO, and soon joined GOI the "mother of camera techniques". The Arsenal was also called, but after a preliminary study they opted for the Nikon bayonet.

After a detailed study of the past in bayonet evolutions of the various camera builders, it was seen that limitations were greater than expanding possibilities and this is perfectly seen just in the "K" (or AP-K) system that although having the same mount, data were not transferred in lenses of different series for different camera series. This evident fault, is masked in advertising campaigns, with a subliminal message of a new advantage offer which is untrue.

This bayonet was the beginning of a program that culminated in an order to build the best possible camera using ne new bayonet which was an adaptation of the original "K" with new tolerances and retaining only the diaphragm coupling basis. It was so called the Russian bayonet.

The Japanese had no option because all screw mount cameras had its production halted and customers had only the bayonet option, but in Russia it was maintained the screw and bayonet mount production of cameras and bayonet proved to be unpopular. This was not a phenomenon found exclusively in Russia, the selling of screw threads Zenits exploded all over the world with production at extreme high levels up to the demise of Soviet Union.

In Russia the Bayonet "K" became bayonet "K-O" with a preview of being another "KOAF" to be used in auto focus camera. This was standardized in 1987 Under GOST 24692-81 number.

## Model Descriptions

**Almaz -101** - Aperture priority automatic model, it was planned to equip this model with electromechanical shutter of own manufacture (similar to shutter used on Zenit-19, Zenit-APk, etc. - without batteries worked only one mechanical speed and, probably, B); power supply 6V battery (like Almaz -102, PX28). Indication in viewfinder - mixed - optical and digital. Value of a diaphragm transferred optically. Full working models, probably, does not exists at all, only prototypes.

Industrial production is absent - electromechanical shutter was not produced. Probably, prototypes had Seiko-shutter, but this is only speculation.

It was planned to be the most advanced of Almaz family and the most expensive.

Intended to be the "reporter pro-camera". Up to 4 frame per second with winder and, in future, with motor-drive. Info-channel between body and prism.

May be used as basis for "police photocase" with aperture-priority mode ONLY, without manual mode at all.

**Almaz -102** - Produced in small series. The main functional difference from Almaz-103 built-in TTL-metering. (Classified as semiautomatic according to Soviet terminology). In the larger pentaprism viewfinder there was a digital display showing shutter speed and diaphragm values also arrows indicate directions for exposure correction. The price - more than 650 roubles (of 1981!). The regular camera had MC Volna 1.4/50 lens. 63 units (official information by LOMO) were released.

**Almaz -103** - Completely mechanical camera as early Nikon F2 without electronics... The "amateur reporter camera". Interchangeable focusing screens, various viewfinders (prism, waist-level), multiexposure capability, motor attachment, Interchangeable back cover, viewing of depth of field, synchronization X and FP (later model - only X). Camera came with MC Volna 1.8/50 lens. Good for the amateur. A multilayered coatings. Original price - 350 roubles (it is reduced up to 295).

Almaz-103 - Variant, which allows using TTL light metering. 9508 pieces (official information LOMO) were released. All Almaz- 103 used adapted mechanical Kiev 17/19 shutter.

**Almaz - 104** - In fact - the same as Almaz-102, with another TTL-light meter. Supplied with MC Volna-4 lens. In first models indications

are identical Almaz-102, but more frequently simplified indication: 5 LEDs (red,yellow,green,yellow,red) and only shutter speed in viewfinder (NO aperture showing) in some samples. Samples that show aperture have a small round window in the left upper corner through a small prism seeing the outside of lens barrel. Released about 10 samples.

**Almaz-105** - Only rumors. No confirmed data. Of course, Almazes were planned to be upgraded, but – all documents were destroyed, now only rumors and conjectures.

### **First Generation of lenses :**

#### **Lenses produced by LOMO for Almaz**

##### ***MC Mir-47K 2.5/20:***

- 1984 - up to 10
- 1986 - up to 50
- 1989 - up to 110
- 1993 - up to 200

##### ***MC Volna-10K:***

- 1985 - about 10,
- experimental makro: - up to 100,

##### ***MC Volna-4K - 1.4/50:***

- 1980 - up to 20,
- 1982 - up to 80,
- 1984 - up to 100,
- 1985 - up to 60,
- 1986 - up to 100,
- 1988 - about 10,

##### ***MC Volna-8K - 1.2/50***

##### ***MC Vega-13K 2.8/100:***

- 1984 - above 10,

**According to [xalmaz@narod.ru](mailto:xalmaz@narod.ru) , during the years 1980 there were also made several lenses based in the diffractive principles in optics.**

**These were apochromatic lenses and called Ionar:**

***Ionar-1* -  $f' = 300$ , 1:4,5,  $2\rho = 8^\circ$  (the only mass produced lens)**

***Ionar-1M* -  $f' = 300$ , 1:4,  $2\rho = 8^\circ$ , (w/ internal focus)  
(experimental type of sturdy design)**

***Ionar-2* -  $f' = 400$ , 1:4,5,  $2\rho = 4^\circ$**



***Ionar-3K*** -  $f' = 700$ , 1:4,5,  $2\rho = 3,3^\circ$

***Vario Ionar T*** -  $f' = 700-2450$ , 1:5.6-1:19.6,  $2\rho = 3^\circ 30'-1^\circ$ ,  
(variable focal length)

**These projects witnessed the glorious past of optical calculations by LOMO.**

**Sub contracted production lenses for Almaz**

***MC Mir-64K 2.8/20***(KMZ)

***MC Zenitar-K 2.8/20*** (KMZ):

-1993 - about 30,

***MC Zenitar-K 2.8/28***(KMZ):

-1994 - about 10,

***Mir-46 MA,MC Mir-46 MK - 1.4/35***(KMZ):

-1980 - about 10,

-1983 - above 10,

***Zenitar-MA - 1.4/50***(KMZ):

-1980 - about 10,

***MC Zenitar-KA - 1.4/50***(KMZ):

-1986 - at least 15,

***MC Zenitar-K2 - 1.4/50***(KMZ):

-1989 - about 20,

***MC Zenitar-K 1.4/85***(KMZ):

-1986 - at least 6,

***MC Helionar-1K 1.4/85***(KMZ):

-1988 - up to 10,

***MC Zenitar-1K 1.4/85***(KMZ):

(optical scheme are equal *Helionar-1K*)

-1991 - above 10,

-1992 - up to 30,

***MC APO Telezenitar K 2.8/135*** (KMZ):

***MC APO Telezenitar K 4.5/300*** (KMZ):

-1987 - ?,

-1991 - up to 300,

-1993 - greater than 310,

***MC Mir-61K 2.8/28***(UOMZ,Sverdlovsk):

-1988 - above 3

**MC Volna-12K 2.8/35(VOMZ):**

-1989 - about 44

**MC Volna-9K macro - 2.8/50(LZOS):**

-1985 - up to 5,

-1987 - (total released about) 100.

**MC Fodis-1K 1.8/135(KOMZ):**

-1986 - up to 12,

-1990 - up to 10,

**MC Oberon-11 2.8/200(BOM3 VOMZ)**

(optical schematics MC Telegoir-K 2.8/200 1975-91)

-1993 - up to 750,

-1995 - greater than 1100 VOMZ MC Oberon-11K - export variant,



Volna 10 and Volna 4



Super-Helios originated the MC Volna



Vega13 K2.8/100 and Yantar 12 3.5/35-100



**MC Yantar-21K", 3,6-5,3/35-140, 1991-?, GOI, LOMO**

## GOI Lenses



**Tele Goir K 2.8/200**



**MC Granit 20 7/ 70-210**





**MC Granit 13 3.5~4.5 /80-**

**240**

## Other Lenses



Volna 9K



Fodis 1 1.8 135



## **MC Oberon 11K 2.8/200**

The fascinating old history of LOMO, The factory that brought the first mass produced totally Soviet camera, the Fotokor, the first Leica type copy, the Pioner, the first 35mm SLR the Sport, the top class Leningrad of 1949, became more exciting in these last days of the Soviet Union. As an external observer, I accompanied the developing history of this fabulous challenge. Observe this report is based in my point-of-view, but it was seen and felt by myself and by sure I believe is not thoughtless opinion of my own. At first I caught no attention to the Almaz process just because my camera (The Vertex) was delaying a lot in their analysis. Really they said no answer about and now I know why. =It did not enter though the official ways or exactly

saying the one man that do the internal decisions at factory. But in 1995 when I visited again the factory I heard reports over an internal fight to those wanting to halt activities on the factory and those self sacrificing and other giving their lives in order to maintain production, after that I saw everything with another eyes. Meanwhile the production area was purposely lowering the quality level control in order to build a bad reputation in their products. But as everything is never lost, in the same period Lomography came to light and gave an over life to the small LOMO LC-A camera.

Almaz was developed, constructed and commercialized under government order, to create the best possible camera in the world. The Syndicate of Journalists of URSS would be the great buyer of such cameras but regrettably in those confused days (1986) it removed its support to this LOMO great project.

Government was the target for quick political changes, that way, the sabotage practice was done everywhere to everyone's eyes. Soon I remembered the Russia's history purge years greatest argument. As a victim of such behavior, I personally bought and payed a lot of Smena 8M which arrived with empty packing with original factory closing inspection seal! While half of LOMO Compact simply do not work at all. The Almaz, (Diamonds, the camera that would be eternal!) failed by that same reason. In the era, I was absolutely impressed by the high quality of the new lenses recently issued. Production costs were of no matter the prestige was more important! The huge program was to build a complete professional system in three years! Japanese took at least forty years to do so. The technical staff involved in such plan was tremendous! Today it is economically unfeasible such a challenge! The boot was doing the best camera system of the world. Something like was aimed in the 1937 Five Year Plan but was broke by the War and the 1949 trial with Leningrad first generation was not achieved. Almaz were planned to reach a production of 25000 units by year and was also planned to be the camera for reporters from small newspapers to the biggest agencies.

According to my point of view, the camera had wrong roots since the beginnings. The lenses were exceptional due the relative little amount of influences but the body is much more complicated.

Its departure basis was the Minolta with a Nikon look. Minolta was also the basis of Leicaflex both cameras were terribly unstable with premature death commercially dissimulated. The Almaz camera



suffered from another problem all Japanese shutter production (Copal and Seiko) were employed in Japanese cameras that way Almaz cameras should employ other makers It was tested Pentacon electronic shutter But the Pentacon Electronic cameras were the demise of the factory. They suffered from quick death syndrome. The best shutter, the FEL-74 from KMZ do not fit Almaz models although reliable it was difficult to produce. By unknown reasons it was denied the use of titanium sheets to LOMO cameras. At the same era, Kiev used titanium in their shutters (Kiev 10, 15, 17, 19) and Kiev 88 and titanium dishes were normally sold in street vendors at Moscow!

I personally bought some as gifts after my return. Something was wrong and very wrong.

As an exception Almaz 103 used a deeply adapted Kiev 19 shutter.

These cameras are still surviving! Once and then they are found in the used market in working conditions, if not, requiring only a slight lub and cleaning.

Minolta disappeared from market and together came the general "discard philosophy" dissimulating unachievable standards.

This era, end of 1980 beginning of 1990 and up to 2000, marked a profusion of electronic cameras of all makes and types that do not work at all; somewhat that intended to force people to go to digital. Very sad... the consumer has no active voice.

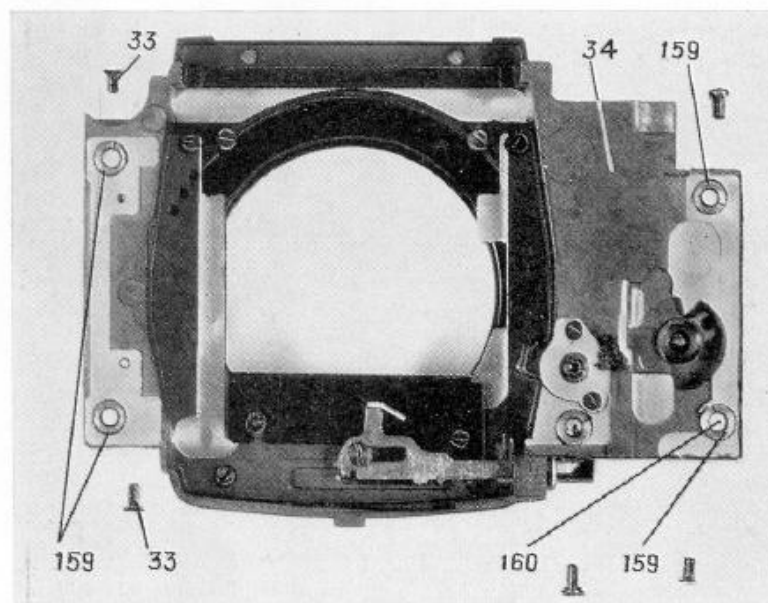
In Belarus 1987-88 there were finishing tests on passive auto-focusing CPU. On LOMO there was planned production of point-and-shot camera using thi CPU, as a new model of LOMO-Compact. After this stage, insert CPU in Almaz prisms. Full auto-focusing is planned, but this requires FULL re-engineering of lens production, not feasible. Another way to modernize cameras was inserting a motor drive... In 1990 at LOMO it was planned starting production of motor-driven point-and-shot cameras (Zenit-35MF). In future - use this motor in SLR's. I heard a report about a mal function of those motors and high rejection level. To me it is absolutely incomprehensible once motor making is a very old and known engineering technique. Can one tell me about this other disaster?

Testimonials say (not only rumors) that project "Almaz" had its documentation destroyed (as instruction demands - all has limitation period). Trustworthy information is not present. Samples, happily

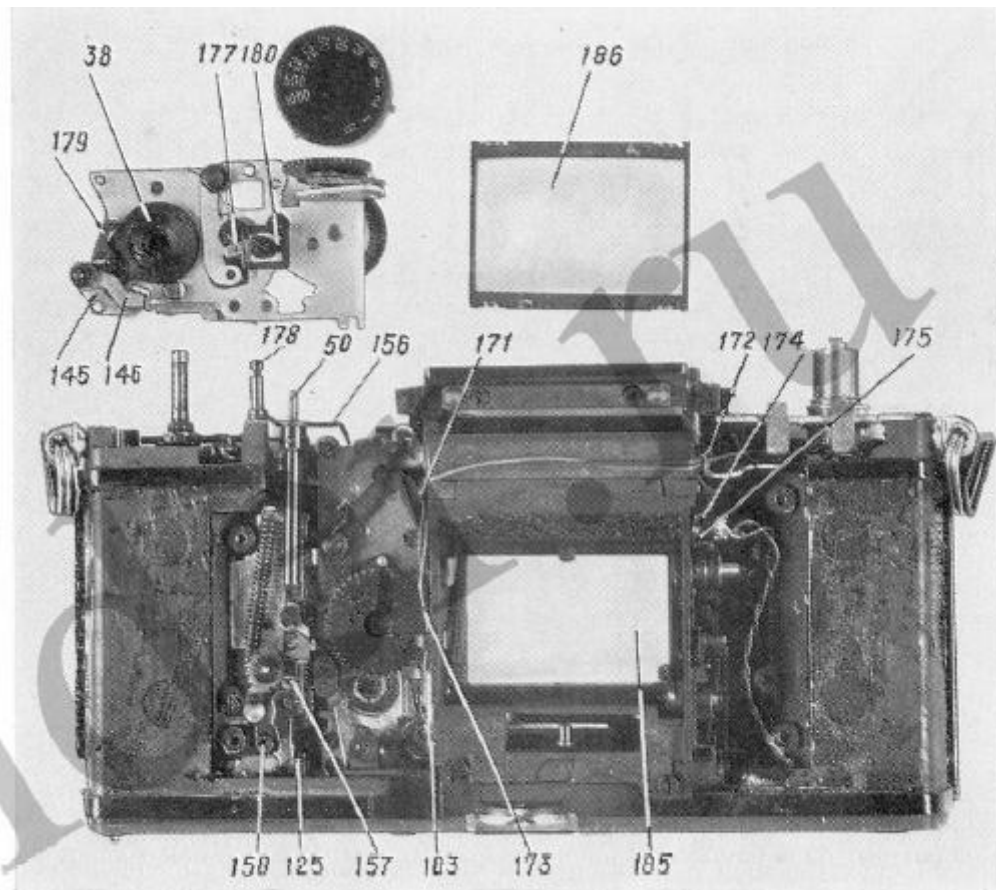
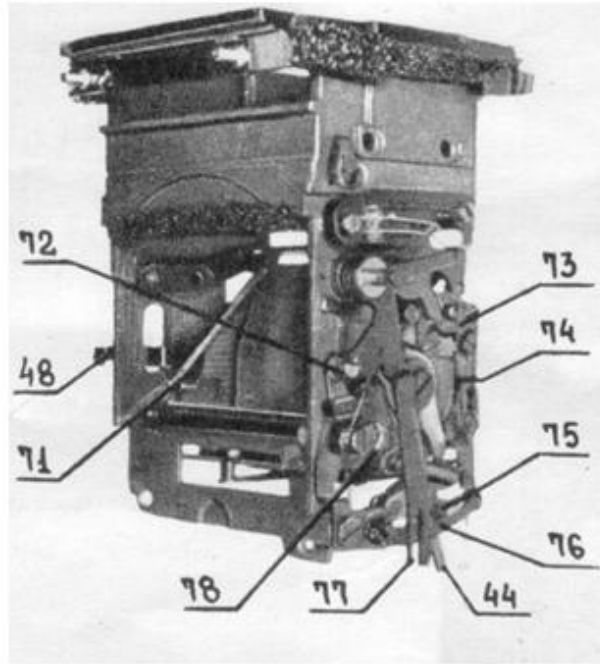
were settled in private collections, in Russia and in foreign lands. During the destruction some items were preserved because they were sold to these collectors; remember that the surviving examples must disappear.

When one of participants of the Almaz project in the beginning of 1990's has returned after study and work in America in order to open the market there, he brought with him the Volna-4K, Mir-47K and Almaz-103 he had on hands, and return them to the factory (as that clause was under the contract). Then he noted that not only the department was disbanded, but also the accounts of the department!.

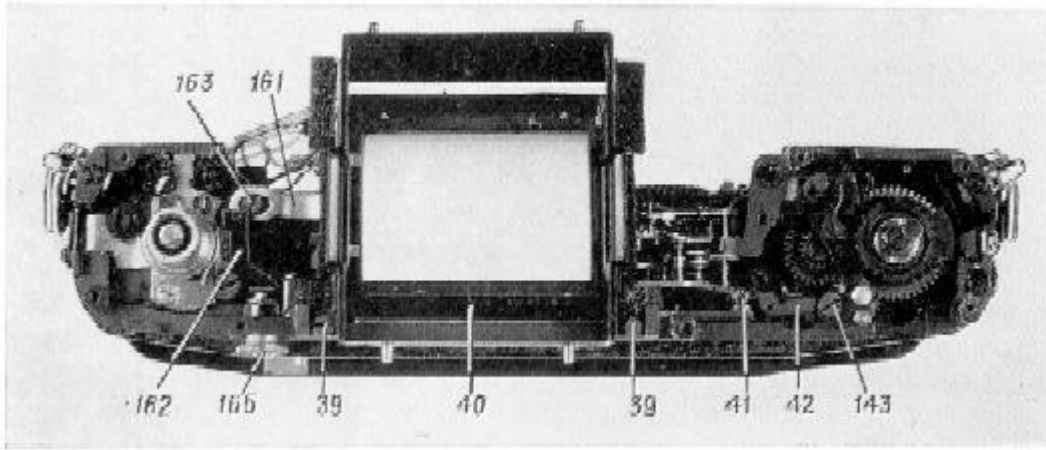
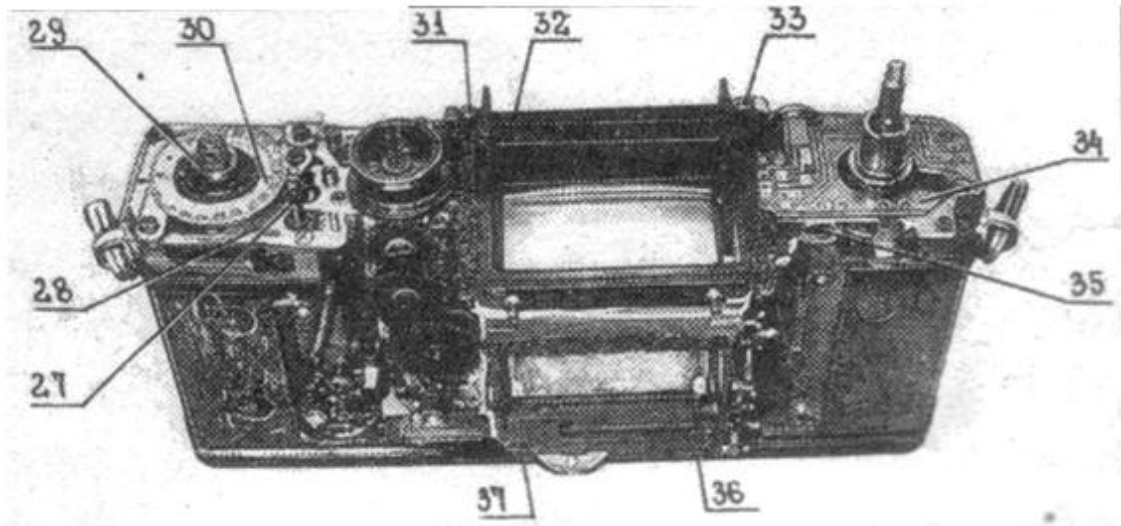
All papers (the contract, the receipt, a copy of the waybill and so forth), testifying about presence at him the given photo technical equipments are destroyed. So they (fortunately for him) could not accept this equipment at all.



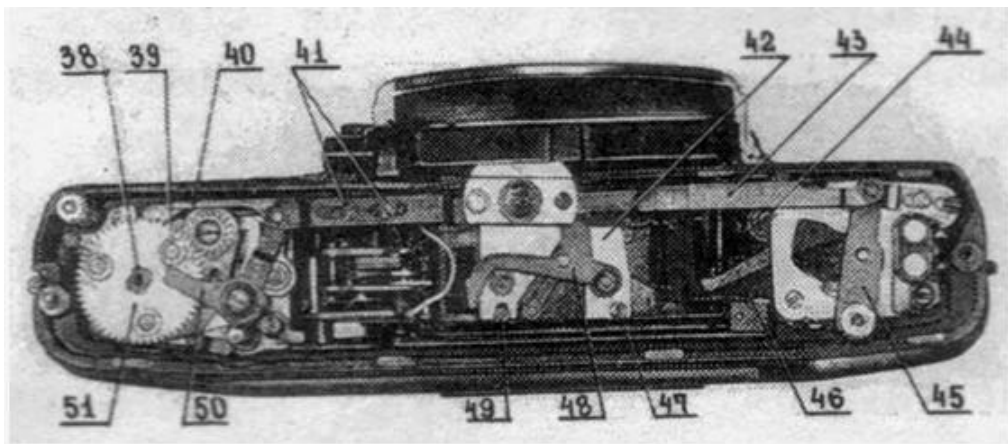
Front face mount and mirror housing



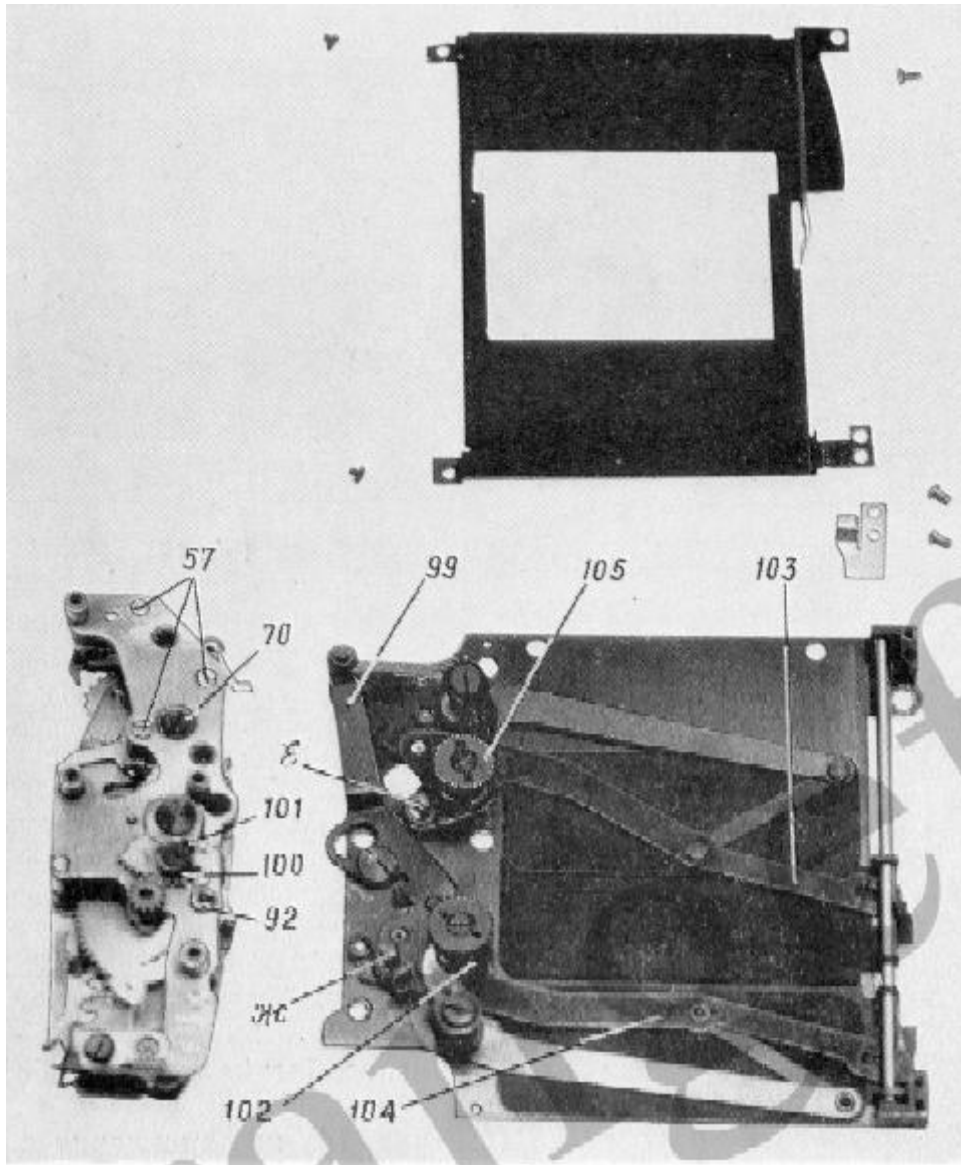
Front and top views of the main body



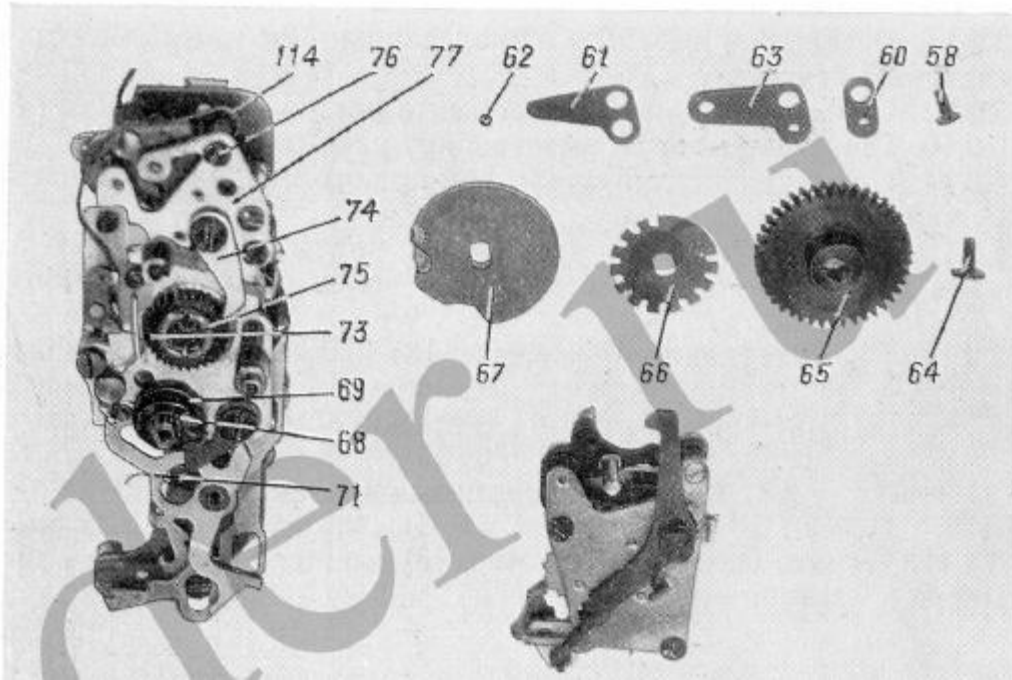
Top and bottom mechanics



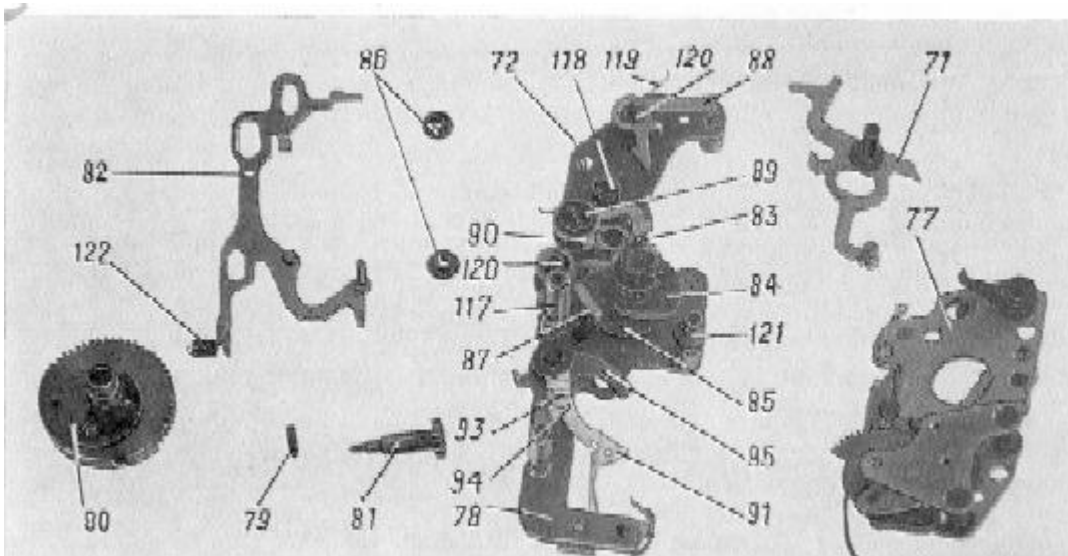




Shutter assembly and speed governor (at left)



Rear view of speed governor and self timer



Front plate of speed governor and associated parts

Thanks for Club Dalnomer and Sovetskoe Foto Magazine for the use of pictures.