Film-making apparatus

, KINOR "

16 CX-M | N760030

TECHNICAL DESCRIPTION
and the operating instructions

a p p a r a t

film shooting manual " kinor"

16 CX-M

Technical description and instructions

operating instructions

16 CX-M,00,000, TO

1975

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1. purpose

The Kinor 1.6 CX-M film camera is designed for shooting chronicle documentaries, television, event, sports and other films on black-and-white and color film with a width of 16 mm.,

The device is available in two versions: 1 - from three-objective turret, II - with a single-lens socket, The device version 1 has two options of configuration: normal and full.

2. TECHNICAL DATA

2.1. Used film film, mm-16, GOST 4898-56

2.2. Size and location of the device-razheniya on film - according to GOST 9215-59

2.3, Location and Movement films in the machine - in one plane, straight course

2.4. Cassettes - one-and-a-half, capacity 30 and 120 m

2.5. Shooting frequency, frame/s - 8,16, (24), 25,36, 48, 64

2.6. Image instability, mm:
for shooting frequencies up to 25 fps - 0.01
for shooting frequencies over 25 fps -0.02

2.7. Obturator - single-blade, vertical with adjustable opening angle from 70 to 170

2.8. Applicable lenses - FF = 10, 15, 20, 25, 35, 50, 75, 1 00, 150 mm and a variable focal length lens of 160PF1-2 (FF=12-120mm)

2.9. Object holder	- turret rotatable on the Two lenses and one lens socket - Two lenses and one lens socket
2.10, Focusing the object- WWII	- - by the distance scales on the lenses or visually by the magnifying glass
2. 1. Monitoring the shooting- my object m	using a magnifying glass with - a magnification of 9.5 ^
2. 12. Device drive	- from a constant-current electric drive with stable speeds or synchronous alternating-current electric drives
2. 13. Evuk level, dB "A": with synchronous AC drive	- 39
with DC electric drive - 39	- 45
2.14. The maximum possible duration of continuous shooting, min. at a frequency of 25 frames/s-10	
2. 15. Control of the shooting frequency	- speed control on the electric drive unit
2. 16. Control of the amount of remaining unexposed film	- index of the footage of non -exposed film in the cassette
2. 17. Mounting the device on the support	- screw with 3/8 thread
2.18. Operating conditions:	
ambient air temperature, °C	- from minus 25 to +40
relative humidity, % max	- 95 at +25 °C

- At temperatures above 25°C relative humidity should not be higher than 70%

2. 19. Weight of the device (with a 30m camera without film, with an electric drive 28EPSS-M without a power supply, with an object FF= 10, 15, 50 mm), kg - 4,7

2. 20. Overall dimensions of the ap- parat (with a 30 m cassette, F - 10, 25, 50 mm objects, c 28 EPSS-M electric drive), mm:

length	- 280
width	- 200
height	- 210

3. PRODUCT COMPOSITION

3.1. The set of the device corresponds to the one specified in Table 1.

Table 1.

Name	Document designation	Quantity, pcs. Version 1		Executive	Note
		Committee Full Custom-cooking ant	vari ant	II	
Kinor 16CX-M hand-held film camera	16CX-M.00.000	1	1	1	In the bag
2. Lens = 10 mm per-160P1-10,000 running frame		1	1	1	BLZ-875.044 or OKSZ-10-1
3. Lens F = 15 mm per-160P1-15.000 running frame		1			BL3, 875.049 or OKS3-15-1
4. Lens F = 20 mm in DERE-160P-20.100 running frame		1			BLZ. 875.042 or OKC2-20-1
5. Lens F = 25 mm per-160P-25.000 running frame		1	1		OX1-25-1
6. Lens F = 35 mm in RE-160P-35.000 running frame		1			OX8-35-1
7. Lens F ' = 50 mm per-160P-50,000 running frame		1	1		OKC1-50-1

Continuation of table 1

Name	Document designation	Quantity, pcs. Version 1 Full Custom		Executive Committee	Note
		Iwari-ant	wari-ant	II	
8. Lens F = 75 mm in running frame	re-160P-75.000	1	1		OKC1-75-1
9. Lens F = 100 mm in transition frame	160P-100.000	1			OKS-100-1
10. Lens F = 150 mm in transition frame	160P-150,000	1			OKC1-150-1
11. FF = 12-120 mm lens with variable focal length	160PF1-2	1		1	
12. Cassette 30 m	16CX. 03. 000	3	3	3	In the bag
13. Cassette 120 m	16CX. 04. 000	2	1	1	In the bag
14. Light protection device	16CX. 06. 000	1			
15. Handle	16CX. 00. 220	1	1	1	
16. Shoulder strap	16CX.00.240	1	1	1	
17. Lens socket plug	16CX. 00.141	3	3	1	

Continuation of Table 1

Name	Designation the document	Quantity, pcs. Version 1 of the Executive Note Full Custom			
		cook-	nye cook-ant-ant	cook-	
18. Electric drive constant - current level 28EPSS-M	28. EPSG-M. 00. 000	1 comp			For shooting frequencies from 8 to 64 fps
19. Electric drive constant - current level 29EPSS	29EPSS. 00. 000	1 comp.	1 comp.	1 comp.	For the shooting frequency 25 fps
20. Synchronous electric drive network 10EPS or	10EPS, 00, 000	1 comp.			For a shooting frequency of 25 fps
Synchronous electric drive network 11 EPS	11 EPS. 00.000	1 comp.			For a shooting frequency of 24 fps

Electric drives 28EPSS-M and 10EPSS-M are available only on a separate order. The electric drive 11 EPS-M is supplied only by order of the State Committee of the USSR.

21. Bag	16CX.08.100	1	1	1	For the device
22. Bag	16CX.08.200	1	1	1	For three cassettes of 30 m each
2.3. Bag	16Cx.08.300	1	1	1	For 2 cassettes of 120 m each
24. Suitcase No.	16cx.08.500	1	1	1	For the set of the device
1 25. Suitcase # 2	16Cx.08.400	1			For optics

Name	Document designation	Quantity, pcs.			Note
		Version 1 of the Executive			
		Full variant	Custom new variant	П	
26. Suitcase No. 3	16CX.08.700	1	1	1	Expedition
27. Synchro signal cable	16CX. 00.260	1	1	1	10 m
28. Spare parts kit	16CX. 10. 000. zi	1	1	1	
Э.к operational documents					
29. Technical description and instruction manual operation-using	16CX-M. 00. 000 TO	1 ex.	1 ex.	1. ex.	
30. Form 31.	16CX-M. 00. 000 FO	1 ex	1 ex.	1 eke.	
Spare parts list	16CX-M,00.0003	and 1 copy.	1 copy.	1 copy.	

4. DEVICE AND OPERATION OF THE PRODUCT

General view of the device with a three-lens turret.- put on Fig. 1; a general view of the device with a single-lens socket is shown in Fig. 2.

The device consists of two main groups:

a) the actual apparatus consisting of the following parts:

- the mechanism of the device,
- heads with a turret and magnifying glass or with an object holder-telem and magnifying glass;

b) individual parts and assemblies that are installed - they are connected or connected as needed:

- film shooting lenses in transition frames; -
- cassettes 30 m;
- cassettes 120 m;
- electric drives with stabilized speeds 28EPSS-M and a stable speed of 29EPSS;
- AC 10EPS (or 11EPS) electric drives; -
- shoulder strap;
- the device is light-proof.

The principle of operation of the device is based on photographing an object or a series of phases of its Movement on the film when it is intermittently moving with the help of a grab mechanism.

Feed the film to the film channel with the feed bo- the exposed film is transported to the receiving boss by means of a combined toothed drum.

Рис. 1. Общий type of device
with a three-objective turret

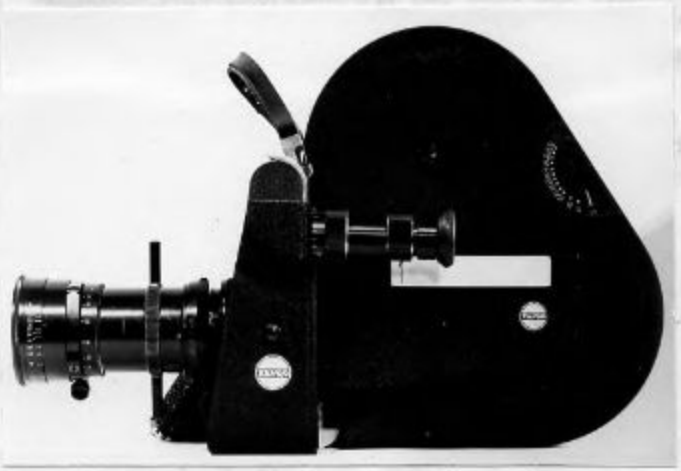


Fig. 2. view of the device
с single-lens гнездом

4.1. The kinematic scheme.

The kinematic scheme is shown in Fig. 3. The rotation from the electric drive 1 is transmitted through the coupling 2 to the shaft 1, which is kinematically connected to the grab mechanism Z and counter-grapple 4 by means of eccentric necks that ensure the transport of the film by the tooth 5 of the grapple and its fixation by the tooth 6 of the counter-grapple during the exposure.

Through a pair of cylindrical gears 7.8, the movement is transmitted to the shaft II of the single-blade mirror generator 9 of the lower position at an angle of 45 to the optical axis,

Using a pair of worm 10, 11, intermediate shaft III and a couple of cylindrical gear wheels 12, 13 rotation is transmitted to the shaft 1U, ending with a clutch 14, wasp- Shestaya rigid kinematic connection with the shaft 1U of cassette mechanism, which, in turn, through a pair of spur gears 15, 16 resulting in motion- tion of the shaft At bearing combo gear drum 17 and the drive pulley 18 persikovoe drive transmission reception- tion of the clutch 19.

The feed clutch is turned into the winding process from his unexposed film,

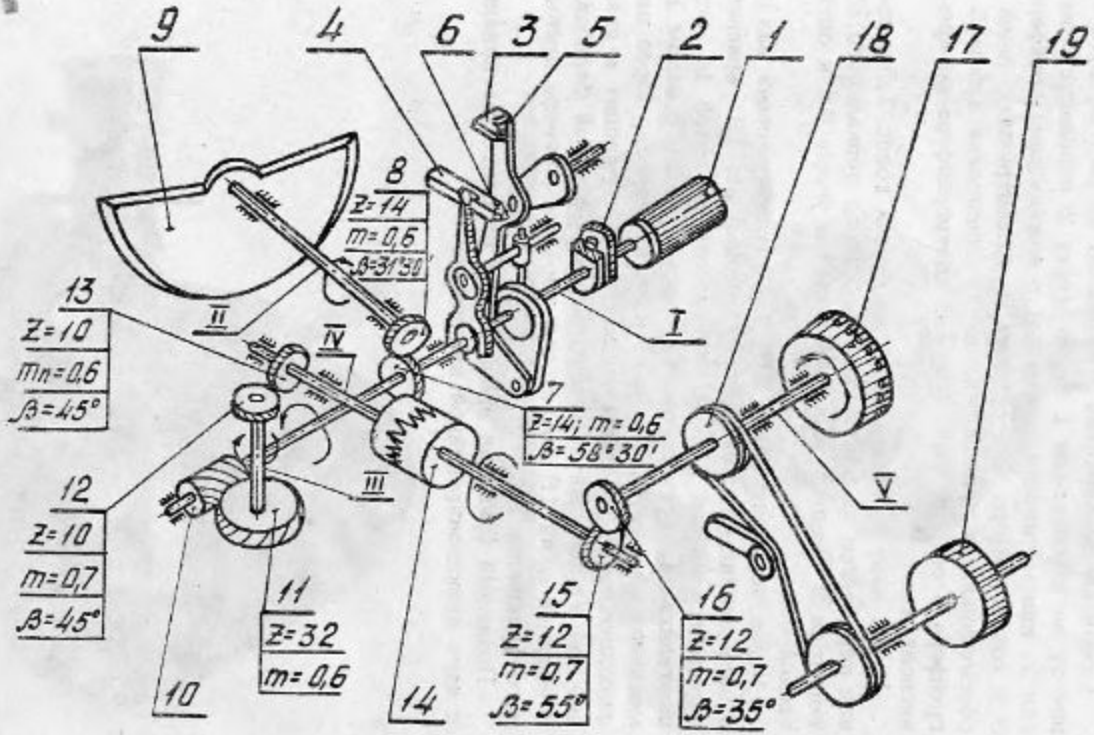


Figure 3. Kinematic diagram

4.2.Optical circuit.

The optical scheme is shown in Fig. 4. The film lens 20 builds an image of the captured object in the frame window of the film channel. When the light beam is covered by the obturator 9, the image is transferred by its mirror surface to the flat matte surface of the collective 21.

Using a two-lens lens 22, two straight- angle roof-shaped prisms 23 and 24, a three-lens lens 25 and a mirror 26, the image from the matte surface of the lens is transferred to the anterior focal plane of the eyepiece 27.

The lenses 22 and 25 are installed in such a way that a parallel course of rays is formed between them , which allows by moving the ocular part of the magnifier in the direction of the eye base of the observer to change the position of the exit pupil of the magnifier for observation with the right and left eyes.

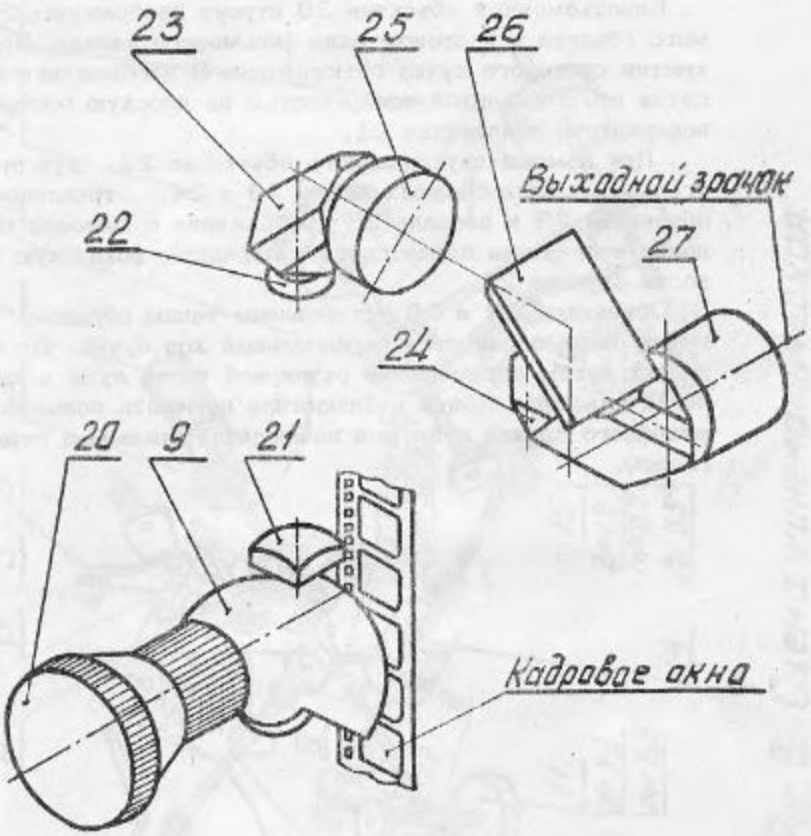


Fig. 4 Optical scheme.

4.3. Electrical connection diagram.

The diagram of the electrical connections of the device is presented in Figure 5.

When working with a film camera , either AC 10 EPS (or 11 EPS) electric drives or DC electric drives with stabilized speeds of 28 EPSS-M and 28 EPSS-M can be used. with a stable speed of 29 EPSS.

Power supply of electric drives 10EPS and 11 EPS is carried out- it is powered by a single-phase AC network 127/220 B with a frequency of 50 Hz (see, passport 10 EPS. 00.000 PS).

The electric drives 28EPSS-M and 29 EPSS are powered by rechargeable batteries located in the corresponding power supply units (see, passport 28EPSS M.00.000 PS and 29EPSS. 00. 000 PS).

When working with the device with drives 10EPS, 11EPS, 29. The 50 Hz pilot tone EPSS signal is generated directly in the drive unit.

The electrical circuit of the device includes a lamp the starting light and the control lamp.

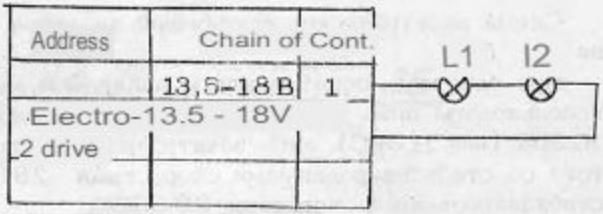
The lamp of the starting illumination L1 is used for the light from- marks on the film of the beginning of synchronous operation of the device, the lamp illuminates the film from the moment the t device starts working until it enters synchronism.

Simultaneously with the end of the gorenje lamp illumination from the electric drive to the recording device, the pilot tone signal is given.

Lamp L2 - external control of lamp

L1. The lamp is powered via an electrical connector- the drive installed on the asharat.

III 1



Y1

W2	Con Chain	Address
K / c machine	1	13,5-18 B
	2	13,5-18 B

Y2

w2	Address Contact	Goal
K / c machine	1	13,5-18 B
	2	13,5-18 B

Pos. notation.	Designation	Name	Stake.	Prima-chanie
L1, L2		Lamp SMN9.-60		
		TU 16 535,453	2	
Sh1 16CX. 01. 420 Pad Sh2			1	
10EPS. 02. 160 Connector			1	
Y1 29EPSS. 00. 000 Electric			1	
Drive Y2	10EPS, 00.000 Electric drive sin-			
		chron network	1	

Figure 5. Electrical connection diagram

5. STRUCTURE AND OPERATION OF COMPOSITE COMPONENTS, PARTS OF THE PRODUCT

5.1. Housing with mechanism,

In the body of the device (Fig. 6) there are: a grappling mechanism, an obturator with a curtain, a vertical shaft, a cassette inlet shaft.

The obturato turning mechanism is mounted on the body - ra, collective, magnifier lens, prism in the frame, button 29 for fixing the obturator curtain,

On the rear wall of the housing there is a landing socket for the cassette and two mounting pins 30 for fixing and fixing the cassette. The front frame of the 31 film channel is also fixed here.

5.2. Head with turret and magnifier and head with lens-holder and magnifying glass.

The head 3.2 of the device (Fig. 7) is a thin-wall casting that serves as a protective cover for the device mechanism and carries a turret and a magnifying glass.

On the right side of the head there is a socket " a" and a handle 33 electric motor mounting locks.

In the upper part of the head there is a socket "b" (see Fig. 6) for mounting lighting device, socket b to the installation of lighting lamps and two eyelets 34 crepe- tion of the shoulder strap or handle portable Turret 35 (see Fig. 1) swivel, designed to simultaneously set free from the three lenses are FF=1.0 - 75 mm or one amount of Krivov FF= 100, and 150 mm lens with a variable fo. the absolute distance. When working with a single lens, the two free sockets of the turret must be closed with a plug 36 (see Figure 7).

The single-lens head (see Figure 2) is designed for installation of any of the lenses and a variable focal length lens,

Magnifier 37 (see, Fig. 1) gives a direct magnified (9.5*) image of the object being captured. It makes it possible to control the image obtained on film both during the preparation for shooting, and during shooting on frosted glass with the use of the reflecting surface of the mirror obturator.

.The magnifier can be rotated in the extended position on 360°.

The magnifier is fixed in the specified position. lock 38 (see Fig. 1). Diopter correction 5 d.

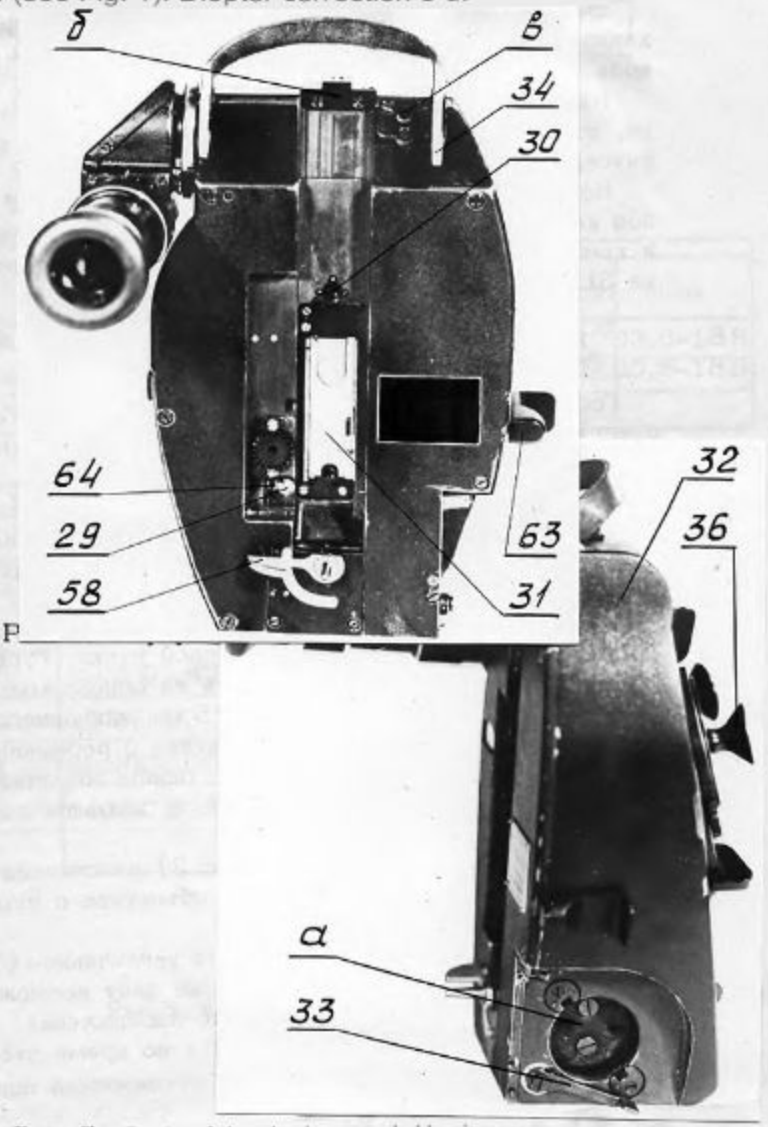


Рис. 7. Body of the device с мekhanizmom

5. 3. Cassettes

The cassettes have a c cavity for the feeder and the receiver-- of the new roll.

The capacity of the cassettes is 30 and 120m. Under the sewn casing of the cassette, the shaft 1.Y (Fig. 8) of the gear drum drive 17 (Fig.9), the friction transmission to the core of the receiving boss 39 to the lever 40 of the cassette lock are stirred.

To adjust the tension of the belt there is lenix 41.

Inside the cassette there is a toothed drum 1.7, the pressure frame 42 (Fig. 9) of the film channel, the cores 43 of the feeding and receiving cassettes.

The film is held on the toothed drum with two fingers. frames 44 and two rotary carriages 45.

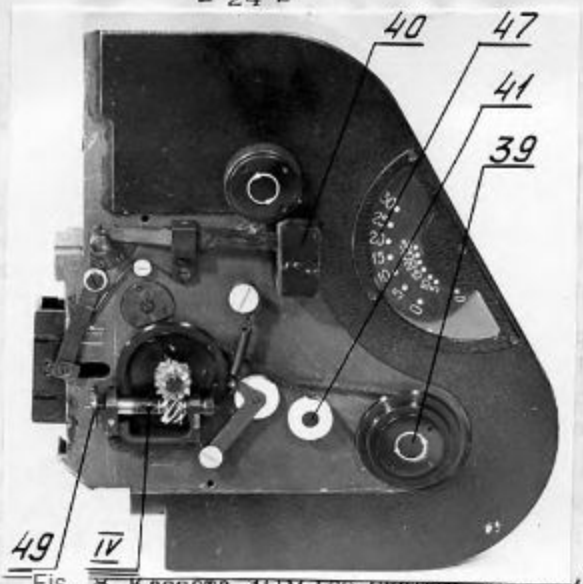
The cassette with a capacity of 30m is designed for charging movies- film both on the bobbins and on standard bobbins, The bobbins are installed directly on the cassette cores.

When working with film on bosses on cores adapter sleeves 46 are put on (see, Fig. 9).

The cassettes have a counter of 47 meters (see, Fig. 8), indicating the amount of remaining unexposed film in the cassette, the cassette is closed with a lid that is locked with locks 48 (see, Fig. 9).

When installing the cassette on the device , the kinematic elements of the cassette are automatically connected to the mechanism of the device by means of a coupling 49 (see, Fig. 8).

Due to the opacity of the cassette, the film is charged in the light by placing the charged cassette in the device.



Fis. 8. Кассета 30М (со снятым кожухом)

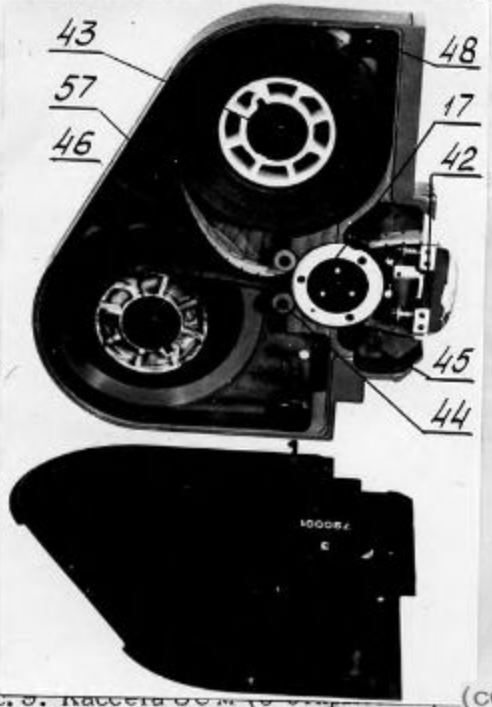


Рис. 8. Кассета 30М (с открытой [illegible] (соу)

5.4. Film shooting lenses in transition оправах conditions Each lens (Fig. 10) has a transition frame, equipped with a light-proof lens hood. Lens hoods ГТ = 50-150 mm wide, focusing of the lenses is performed using the outer ring 50. Distance scales are applied -on the transition frames.

The aperture of the lenses is made by using 5.1 aperture rings on the lens rim,

Fig. 10, Film-shooting lenses in transition zones rims

5.5. Light protection device

The light protection device (Fig. 11) is designed for working with FF - 10-50mm lenses, the device consists of a sliding hood 52 with a filter holder 53 and a crown holder 54, the filter holder is designed for two filters, one of which is rotary.

Mounting of the light protection device on the device is carried out- it is fixed with a screw 55,

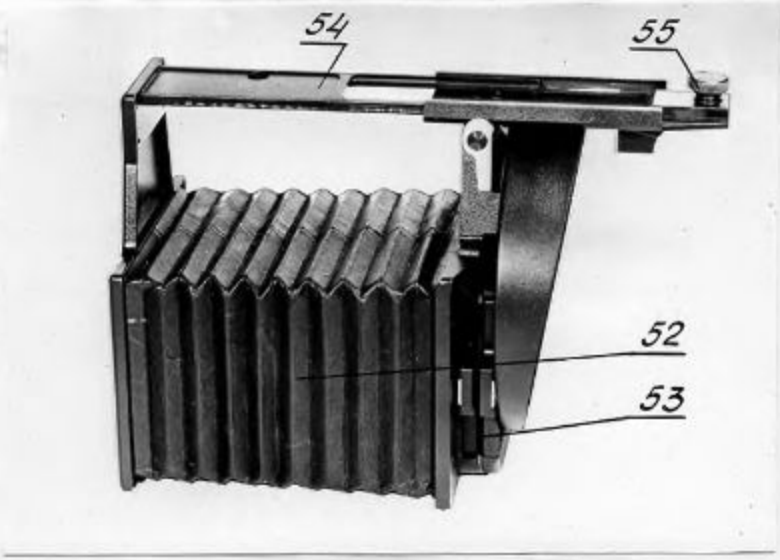


Рис. 11. Устconstruction светозащитное

5, 6, Electric Drives

The device is equipped with the following electric drives: - a DC electric drive with a stabilized-
2.P. PSS-M (Fig. 12) for shooting frequencies 8, 16, 25, 36, 48, 64 frame/s;

- dc electric drive co stabilized-
with a speed of 29EPSS (Fig. 13) for a shooting frequency of 25 frames/s;

- AC electric drive 10 EPS (fig, 14)
for a shooting frequency of 25 fps or 11 EPS for a shooting frequency of 24 fps.

The electric drive 28. EPSS-M provides normal operation of the device at the entire frequency range from 8 to 64 frames/s at ambient temperatures of About to + 40° c and at frequencies from 8 to 25 frames/s - at temperatures from About to minus 25°C.

The 29EPSS electric drive ensures normal operation of the device at a frequency of 25 frames/s at an ambient temperature of minus 25 to +40°C.

The power source of the 29EPSS electric drive is the battery consists of 8 SCS-5 cells with a voltage of 12 V.

The power source of the electric drive 28. EPSS-M is a battery of 10 elements of the SCS-3 with a voltage of 15 V and a power supply unit of 10 elements of the SCS-25 with a voltage of 1.5 V,

Electric drives 1.0 EPS and 11EPS provide normal-operation of the device at ambient air temperature from O to +40° C.

The power source of the electric drives 1OEPS and 11 EPS is a single-phase AC network with a voltage of 127/220 V, a frequency of 50 Hz.

The electric drives provide the output of a synchronized "pilot-tone" signal at a shooting frequency of 25 frames/s.

5.7.Shoulder strap.

For the convenience of wearing the prepared for shooting ap - parat to the ears that are available on it, a belt is fastened with the help of carabiners.

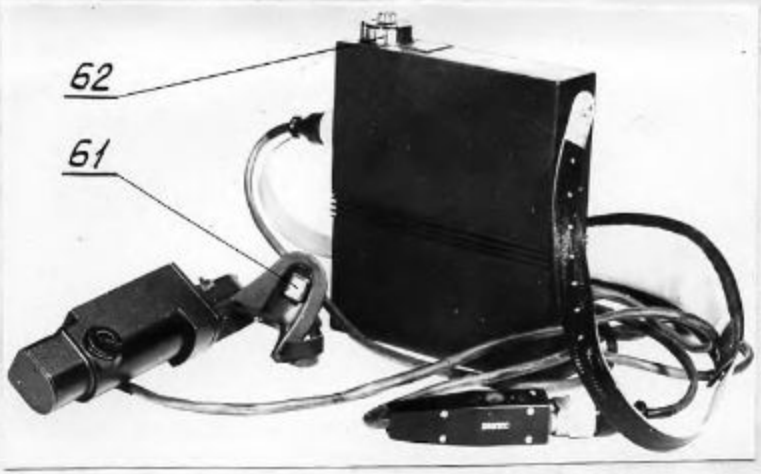


Fig. 12. DC electric drive with
stable speeds of 28EPSS-M

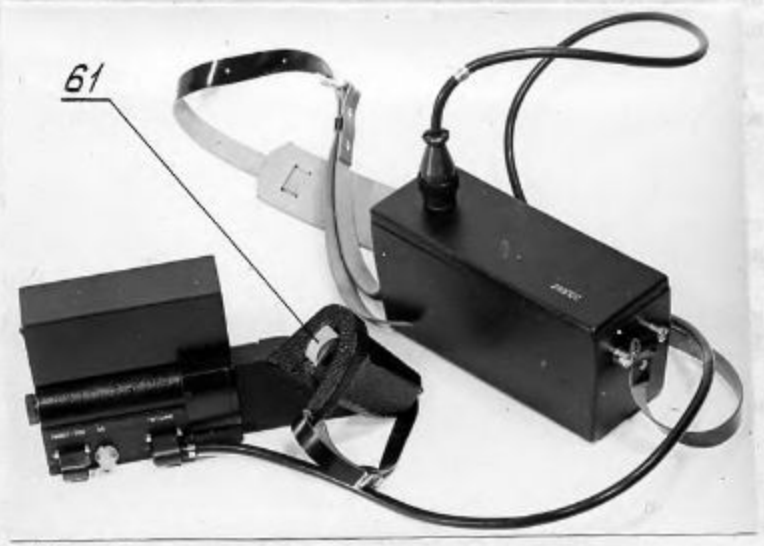


Fig. 13. Direct current electric drive with
stable speed of 29EPSS

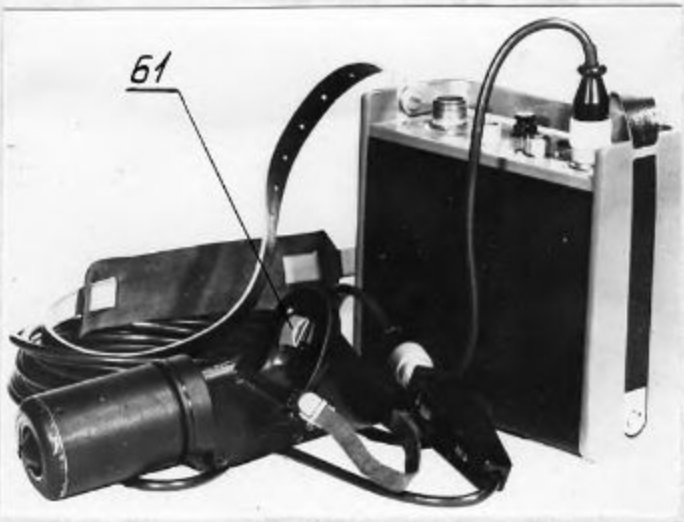


Fig. 14. AC electric drive
current 10 eps

6. PACKAGING AND PACKAGING

6. 1. For the purpose of convenient storage of the device and protection from contamination and damage during transportation , the set of the device is placed in specially designed slots of suitcases.

In the suitcase number 1 fits:

a) hand-held film camera 16SH-M (in the bag) - 1 pc.
b) lens FE=12-200mm in a transition frame - - 1 pc.
c) 30 m cassette (in the bag) - 3 pcs
. d) 120 m cassette (in - 2 the
bag) pcs. e) light protection device - 1 pc.
e) handle - 1 pc.
g) shoulder strap - 1 pc.
i) lens socket plug k) - 3ш- или 1 piece.
synchronous signal cable -10m
l) spare parts kit (in the pencil - 1 set,
case) m) technical description and instructions for
operations - 1 copy.
h) form - 1 copy.
 - 1 copy,
p) packing list - 1 copy.

In the suitcase number 2 fit:

a) lens P= 10 mm in the transition frame - 1 pc.
b) lens E=15 mm in the transition frame - 1 pc.
c) lens F=20mm in the transition frame - 1 pc.
r) lens F=25 mm in transition frame - 1 pc.
e) lens [==35 mm in transition frame - 1 pc.
e) lens [==50mm in transition frame - 1 pc.
g) lens #-75 mm in transition frame - 1 pc.
i) lens [=100mm in transition frame - 1 pc.
k) lens F=150mm in transition frame - 1 pc.
l) Packing list - 1 copy.

7, indication of safety measures

The 16SH-M film camera is designed to work with a team of professional cameramen.

When preparing the device for operation, during preventive maintenance during the inspection, as well as during its repair, it is necessary that it is disconnected from the power source.

8. preparing the machine for operation

Before working with the device, review the entire kit, wipe or blow out places of dust accumulation, especially the film path; make sure that the mechanism is in good working order by manually turning 2/3 turns in the direction of the device's stroke or by starting the test at idle ,

8. 1. Charging the cassette

Press the 2 buttons 48 (see Figure 9) at once and open the lid. Put a roll of film film wrapped on a standard boss with the emulsion inside on the upper core. Before installing the roll, pull the counter lever to the side behind the protruding pin 57 (see Figure 9)

By turning the carriages 45 (in the direction of the rear frame 42) open both carriages,

Pass the film through the tape path, as shown in Figure 9, while the film should freely cover the rear frame 42 without forming an excessive net.

Close the carriages by turning them to a fixed position.- nia. When the carriages are open, the cassette cover will not close,

In the 30 m cassette, the film covers the receiving bobyshcu on top, and in the cassette 120 m - below.

To charge the 30m cassette with film wrapped on the reel, remove the adapter sleeves 46 and put the reels on the cores 43, After charging the cassette, close the lid , the cassette is ready for installation in the machine.

If you put the cassette in a bag, put it on forsewn cover to protect the film and frame from dirt and damage.

8. 2. Charging the device

Charge the device by installing a charged battery. the cassettes are inserted into the landing slot of the device until it stops, In this position the cassette is automatically locked, as evidenced by a characteristic click.

A more secure attachment of the cassette to the machine (especially the 120 m cassette) can be made by turning downwards рукоятки 58 (see fig., 6).

8. 3. Installation of the electric drive

All electric drives available in the complete set of the device, they are attached to the device in the same way.

When installing the electric drive, insert the clutch- those in the socket available on the machine,

When the protrusions on the electric drive clutch are combined with the grooves of the clutch on the device, the electric drive is pushed all the way to the stop, turn the handle 33 (see Fig. 7)of the center lock to secure it to the device,

8. 4. Installing lenses

Before installing the lens in the turret socket, or check the correct position of the filter holder and orient the lens so that the protrusions of the frame fall into the corresponding sockets of the nut 59 (see, Fig. 1).

Then turn the nut clockwise until fixing the lens.

When removing the lens, turn the nut in the opposite direction the side until it stops,

8. 5. Mounting the device on a tripod,

Mount the device on a tripod with a screw with 3/8 " thread. The device allows installation and mounting on any tripod with a 3/8 screw thread"

8. 6. Installation of the light protection device When using the device both from a tripod and from the hands, install the bracket of the light protection device in the socket " b " (see Fig. 6) and secure it with the screw 55 (see Fig. 11), secure the fur in the desired position with the handle 60 (see, Fig. 11).

9. CONTROL OF THE DEVICE

9.1. Starting and stopping the device

Start and stop the device with the start button 6.1 (see Fig. 2, 13, 14), located on the handle of the device, When you press the button, the device turns on, when you release the button, it turns off, When you shift the pressed button "to itself", it is fixed in the"start" position. By shifting the start button in the non-pressed state, it can be blocked from accidental pressing,

9.2. Setting the shooting frequency

Set the shooting frequency using the remote control-bed 62 (see,Fig. 12), located on the power supply unit of the DC electric drive, by turning it to the required digitized position,

9.3. Control of film lenses

Focusing the movie lens on the camera-adjust the distance by turning the outer ring of the lens handle by the leash, and the zoom lens by the handle 28 (see Fig. 2), while the lens moves along the optical axis without rotation.

Control the focus by using the distance scales on the lenses or by using the magnifier. When focusing the lenses at a certain distance and controlling the cut using the magnifier, do not forget to make a diopter correction for the eye in the eyepiece of the magnifier.

Rotate the lens aperture by rotating the lens the aperture rings on the lens rim.

9.4. Introduction of the mirror obturator to the position sightings.

Introduction of the mirror obturator to the position of the visor-press the button 63 (see Fig.6), located on the right side of the device body, in the case of the "dead" position of the button , turn the mechanism manually.

9.5. Setting the opening angle of the obturator

When setting the required angle of opening of the obturator by turning the mechanism, align the edge of the curtain with the center of the frame window of the film channel, press the button 29 (see, Fig. 6) and turn the mechanism to the desired position: of the curtain.

10. SCOPE AND FREQUENCY OF MONITORING... preventive maintenance

The film camera is a precise and complex mechanism, it requires a careful, careful attitude, careful monitoring of work and care.

To ensure reliable operation of the device, you must it is necessary to periodically inspect, clean, lubricate, and, if necessary, adjust individual mechanisms.

10.1. Cleaning the machine and cassettes

The device and all the elements of the kit must always be clean, especially carefully monitor the cleanliness of the cassettes and the film channel.

The cassette must be cleaned before each charge with film film; wipe the inner cavity with a flannel cloth, the film channel and drums must be cleaned with a brush or blown with a rubber"pear".

In case of formation of "soot" in the film channel remove it with a soft flannel soaked in 30-50 % alcohol solution GOST 5962-67 in water.

Removal of "carbon deposits" with solid tools, including including wooden, bone, NOT ALLOWED.

10.2. Cleaning the optics

Optical details of film lenses and magnifiers it is necessary to clean very carefully, so as not to damage the exposed layer.

If dust or debris appears on the surface of the optical parts, they should be cleaned with a soft brush or a rubber "pear".

Oil stains or fingerprints should be removed immediately. rozhno, without pressure with a cotton swab soaked in alcohol or ether GOST 11992-66,

Wipe mirrors with external aluminizing with cotton wool, soaked in ether,

10.3, Cleaning the obturator

Do not touch the reflective surface of the mirror.

Dust that appears on it, blow away with a rubber"pear".

Only in exceptional cases (in case of contact with mac- remove stains by lightly swiping a soft, dry, and clean cotton pad over the surface of the surface.

It is allowed to wipe with a cotton swab soaked in water. in this case, rub the same place and press the tampon should not be used.

10. 4. Lubrication

All bearings in the mechanism of the device, - are self-lubricated- they do not need to be systematically lubricated. These bearings should be lubricated with OKB-122-5 TU MHP4216 ... 55 oil in workshops during preventive repairs.

Systematically at least once a month 2-3 oil drops OKB-122-5 through the oil drain 64 (see, Fig. 6) lubricate the shaft 4 crank grab; through the obturator pen- tralny screw-obturator shaft.

After greasing the device, it is necessary to check it in operation at a shooting frequency of 25 frames/s for 10-15 seconds.

Remove excess oil, splashes and smudges with a soft cloth.- coy.

In addition to the specified cleaning and lubrication of the device, perform a routine inspection, cleaning and lubrication at least once every 3 months, after passing every 10,000 m of film.

Lubricate the gears, as well as the rims of the objects ', with OKB-122-7 GOST 18179-72,

the rollers of the film channel of the cassettes - with OKB-122-5 oil,

When transferring the device to winter operating conditions remove the old grease (by washing the mechanism of the device, the mechanism of the cassette and the lens frames in pure gasoline GOST 443-56), wipe the parts with a soft cloth and lubricate them again. Ferro-graphite bearings of the mechanism are not - recommended to be washed in gasoline.

Lubricate the electric motors in accordance with with the current operational documentation for them (28. EPSS-M. 00. 000 PS, 10 EPS. 00,000 PS),

11. typical malfunctions and methods of their elimination

In case of detection of defects, the elimination of which it is impossible without special equipment and without the presence of a qualified force, the device must be sent to special repair shops.

Such defects include:

a) actuation of the teeth of one of the gears of the cinematic target of the device;

b) mechanical damage to working surfaces film channel;

r) failure of the grab mechanism.

For a list of easily fixed faults, see table 2.

Table 2

Malfunction	Probable Cause	Troubleshooting Method
1. Does not light up lamp starting b) the light bulb	a) No contact b) one burned out from the lamps	Check the contact Replace
2. Weak winding the film films in is tight	Not adjusted the clutch	Adjust the clutch on the cassette with the lenix (30 m cassette) or the clutch nut (120 m cassette)
3. When shooting on the film from the appearance of the filmstrip or the side channel of the strip	a) on the working software- formed "soot" b) do not rotate the rollers of the tape- heavy path	"Carbon", remove soft flannel soaked in 30-50% alcohol solution in water. Remove the rollers, wash them in gasoline, lubricate them with OKB-122-5 oil, and install them again.

NOTE. List of wear-resistant components and деталей см. приложение

12. conservation

For protection of exposed metal parts during transportation and long - term storage of the device in the warehouse , it is necessary to preserve the device from ocd, corrosion (corrosion).

All metal parts that do not have paintwork coating (except for the frame of the film channel), lubricate with a thin layer of PVC lubricant GOST 19537 ... 74.

Do not remove the sled of the film channel during conservation- those. The outer parts of the cassettes that do not have paint coatings, also lubricate.

NOTE, pay special attention to the case parts made of a magnesium alloy that does not allow direct contact with steel, copper,nickel, graphite. In the presence of contact in a humid environment , a galvanic pair is formed, leading to intensive destruction of the magnesium alloy, so even light paint scratches should be eliminated with a primer and tint.

In the accompanying document, specify the date of the deis-· conservation strategy.

13. storage rules

13. 1. For long-term storage, the components of the elements , the outer surfaces of which do not have paint coatings, lubricate with PVC grease and put in special sockets of suitcases and bags,

13. 2. Storage conditions:

- indoor air temperature, °C 25 ±10
-relative humidity, % - 45-80
-atmospheric pressure, mmHg, - 630-800

At temperatures above +25 relative humidity must be no higher than 70%,

13. 3. Suitcases with the device and its components must store on racks in the normal position.

It is not allowed to store the device near sources heat, as well as its storage together with acids and sludge, the presence of chemical active gases and vapors that cause corrosion in the room is excluded.

13. 4. Storage of the DC power supply unit with stabilized speeds together with the allarat kit is allowed for no more than 24 hours . The battery packs must be removed from the power supply unit of the electric drive and stored separately.

14. TRANSPORTATION

14. 1. Transportation of the set of the device is made by- it is stored in temperate and cold climates at temperatures from minus 40 to +50°C in a closed transport port (railway cars, containers, closed cars, holds, etc.).)

14,2. When transporting by air, the device must be located in heated, sealed compartments.

14. 3. During loading and transportation, it is necessary to protect the transport boxes (suitcases) avoid falls and bumps and follow the rules of transportation.

14. 4. Boxes (suitcases) must be secured in the transport vehicles so that during transport the possibility of their movement and impact is excluded.

14.5, When transporting boxes (suitcases), it is necessary- dimo protect them from penetration of moisture and heating by sunlight.

list

wear-resistant parts and nodes

Name Designation / device Note		Kol. pc.	
1. Gasket	16CX.01,026	1	
2. Obturator disc	16CX. 01. 101	1	
3. Plank	16CX. 01,152	1	
4. Spring	16CX. 01.153	1	
5. Gear	16CX. 01,201	1	
6. Passik	16Cx. 03. 007	1	Per cassette 30 m
7. Passik	16CX.04.009	1	Per cassette 120 m
8. Gear in collection	16CX.01.210	1	

NOTE. The specified parts and assemblies can be absorbed during operation on a separate order of the customer.-bitel.

Ротапринт No. 18 Order 247/75.