THE LENS FOR WIDE-SCREEN SHOTS

FOTON-A

I. PURPOSE

The lens with variable focal length (zoom lens) "Foton-A" is purposed to shoot wide-screen movies on b/w and color 35mm film.

The lens works in temperature range of –30 to +40°C and relative humidity of not more than 90%.

II. SPECIFICATIONS

Focal length	37-140mm
Relative aperture	1:3.5
Flange focal distance	57mm
Angle of view (in the object plane)	
horizontal	
max	69°20'
min	19°
vertical	
max	28°22'
min	7°40'
Squeeze ratio at infinity	0.475
Frame size	18.7x22mm
Minimum shooting distance	
without diopters	1.6m
with diopters	0.8m
Dimensions	
length	272mm
width	115mm
height	131mm
Weight without support parts	2.6kg

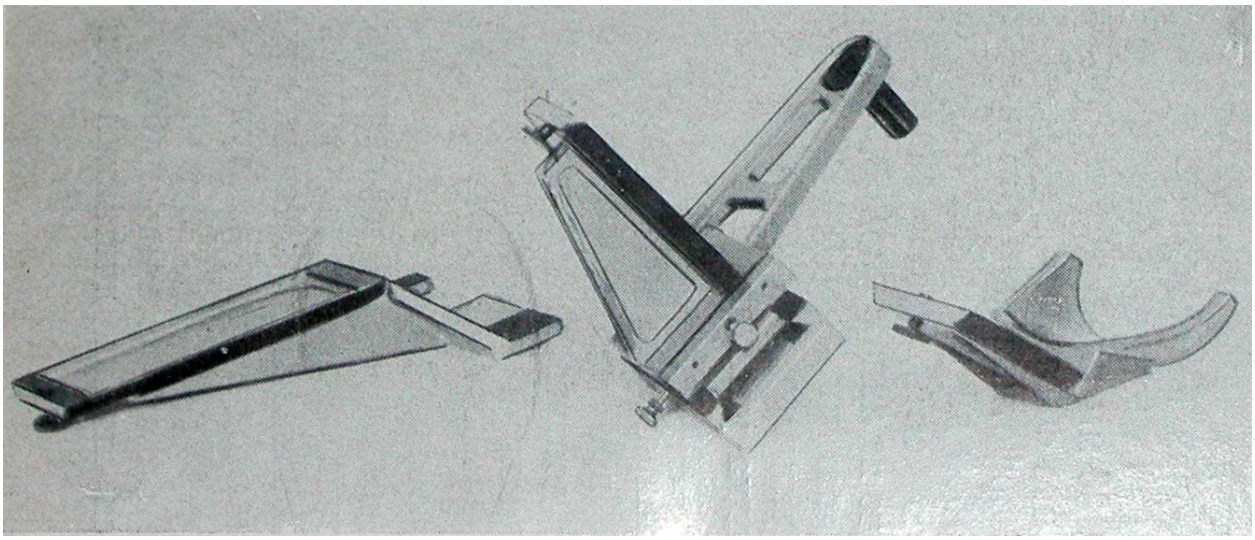
III. CONSTRUCTION

The lens "Foton-A" consists of the zoom lens "Foton" and front anamorphic attachment.

The lens "Foton" can be used without the anamorphic attachment to shoot usual movies on 35mm film.

The anamorphic attachment is 2-element afocal optical system with cylindrical elements having parallel moving lines.

The attachment is mounted on the one of supports (Picture 1).



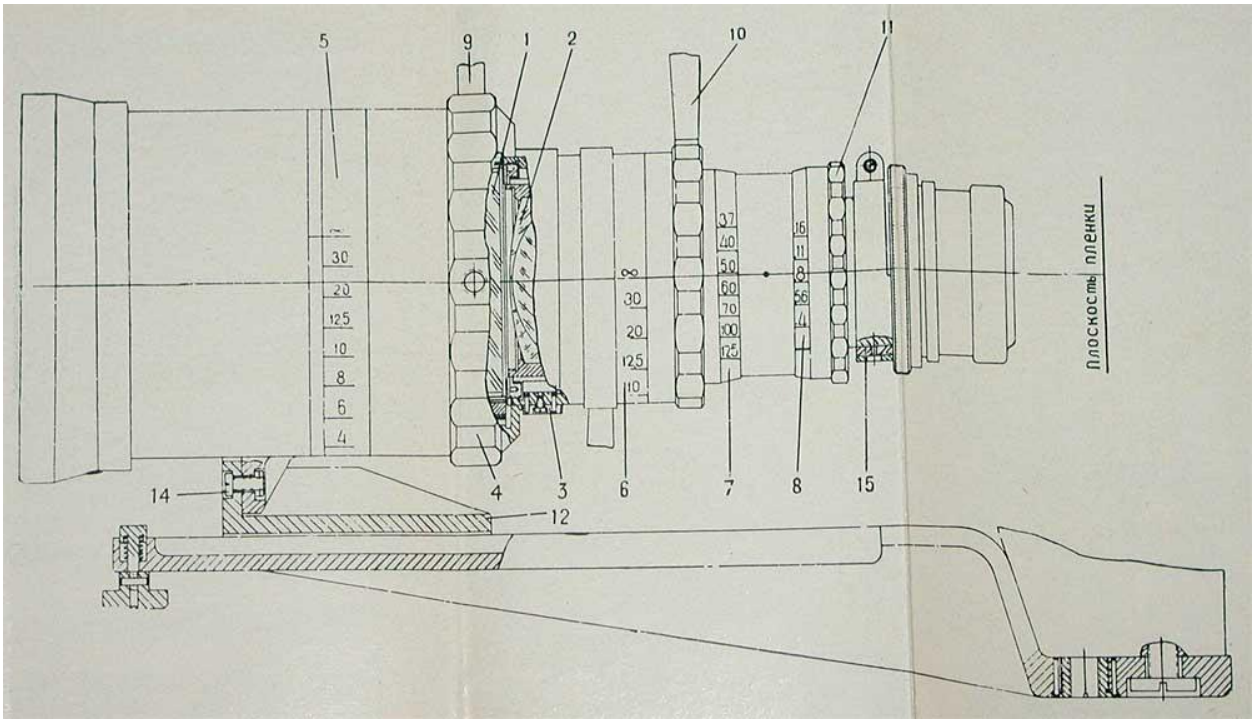
Picture 1

Focusing of the "Foton-A" lens is accomplished by simultaneous moving the second element (1) (Picture 2) of the attachment and first element (2) of the lens.

These parts coupled by means of the lens pin (3) that catches the attachment ring (4) groove.

Both the lens and the attachments have distance scales (5) and (6). The lens has the focal length scale (7) and aperture scale (8). Dots and the aperture scale define aperture values if the anamorphic attachment is installed. The lens can be focused from 1.6m to infinity by means of the lever (9). If you need to shoot from 1m or 0.8m, you should mount corresponding diopter on the front part of the attachment. The lens focusing ring should be set to infinity in this case.

You may adjust magnification factor by means of the focal length ring lever (10). Aperture value is set with the ring (11).



Picture 2

IV. OPERATION

In order to mount the lens onto a camera:

- secure the lens in the camera bayonet mount;
- install the anamorphic attachment with the support slider (12) onto the support rail (13), and make sure that the lens pin (3) and inserted into the attachment groove in the ring (4);
- turn the lever (9) to set the infinity distance;
- install a glass mirror with front aluminum deposition or polished metal plate into the film channel. Check the lens with automatic collimator. Adjusting quality should be checked at the whole range of the focal lengths.

To set moving lines of the attachments in parallel with the vertical side of frame:

- secure the lens in the camera bayonet mount;
- focus the lens at some horizontal line (top edge of some bar or panel etc.);
- align the image with horizontal grid line in the viewfinder;
- carefully mount the anamorphic attachment. The image should stay same or be parallel to the horizontal grid line of the viewfinder. If the image is skewed, you should loose screws (14) a bit and turn the attachment relatively to the support slider (12) to adjust the image;
- adjusted attachment should be secured in this position with the screws (14) and pins.

Check adjustment of the lens focused to infinity in the camera. If the lens focal plane doesn't match the film channel plane, you should adjust position of the lens relatively to the bayonet mount of the camera by means of the ring (15). Each turn of this ring moves the lens 0.25mm back or forward.

Protect the lens from strikes, vibrations and mechanical damages. It is not recommended to disassemble the lens.

After shots are over, remove dust from the optical part with soft brush, clean metal parts, put all caps onto the lens and attachment, and place all parts into the box.