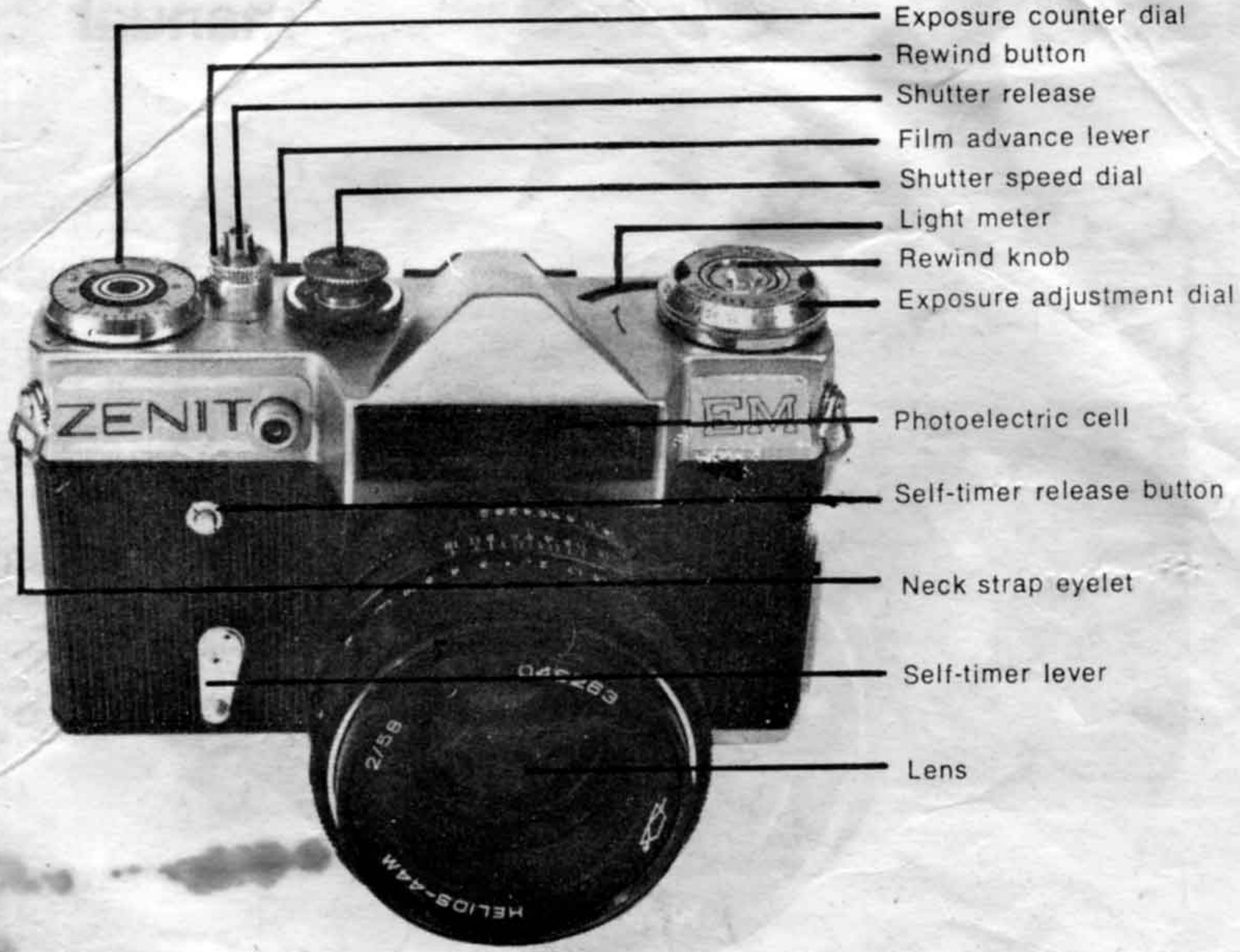
ZENIT EM

Instruction manual


ZENIT
EM
HELIOS-44M
2/58
Exposure counter dial
Rewind button
Shutter release
Film advance lever
Shutter speed dial
Light meter
Rewind knob
Exposure adjustment dial
Photoelectric cell
Self-timer release button
Neck strap eyelet
Self-timer lever
Lens

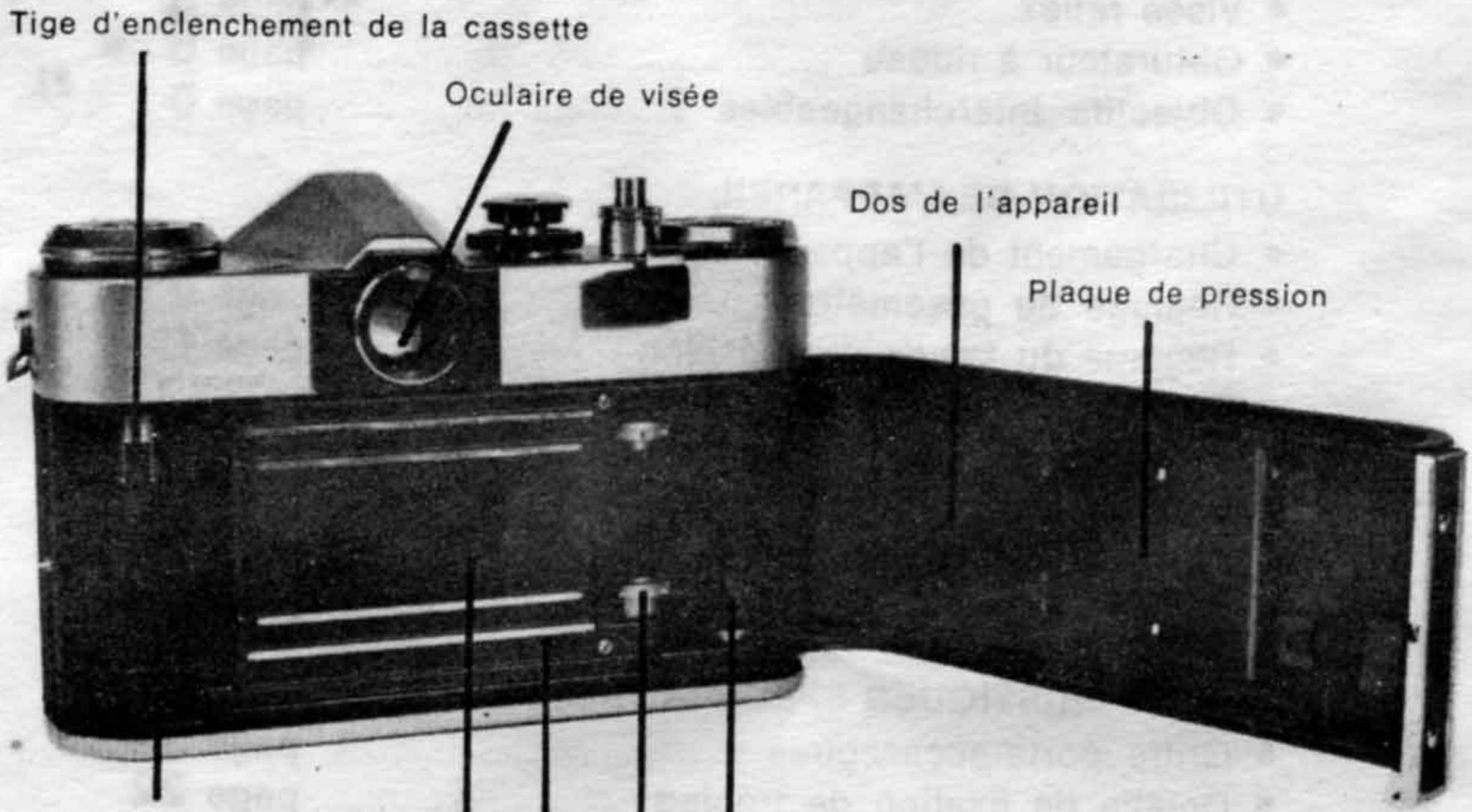

Tige d'enclenchement de la cassette
Oculaire de visée
Dos de l'appareil
Plaque de pression
Emplacement de la cassette
Rideau de l'obturateur
Coulisseaux
Bobine réceptrice
Tambour d'entraînement

TABLE DES MATIÈRES

TECHNICAL DATA

Picture size: 24mm x 36mm
Width of perforated film: 35mm
Maximum number of exposures: 36, size 24mm x 36mm
Shutter speeds: from 1/30 of a second to 1/500 of a second and B for time exposure
Viewfinder field of view; 20mm x 28 mm
Eyepiece magnification: 5 times
Normal lens: Helios 58mm f:2
Focusing range: 0,5m to ∞
Aperture scale: f:2 to f:16
Tripod socket thread: ¼ inch
Camera size: 141mm x 100mm x 93mm
Camera weight: 1100g

CAMERA DESCRIPTION

- **SINGLE LENS REFLEX CAMERA**

The ZENIT EM camera uses 35mm film cassettes which are most popular among experienced photo amateurs.

The reflex lens system allows the photographer to see through a prism and a reflection mirror what will be photographed on film. Focusing through the lens on a ground glass with help of microprisms ensures a perfect focusing.

When the shutter is released, the mirror is displaced the time of shutting, the film is exposed and the mirror automatically returns in place back in the optical path.

A leather case is supplied with the ZENIT EM camera.

- **FOCAL PLANE SHUTTER**

The ZENIT EM camera is equipped with a focal plane shutter. The particularity of this shutter consists in the fact that the exposure time automatically adjusted through the speed selector is controlled by the width of a slit that will travel in front of the film during the exposure.

- **INTERCHANGEABLE LENSES**

The ZENIT EM camera accepts a wide range of interchangeable lenses (with Pentax/Praktica thread) varying from 8mm — fish eye lens allowing photography with minimum room to back up — to 1000mm — telephoto lens allowing closer photography of distant subjects — (see figure 1).

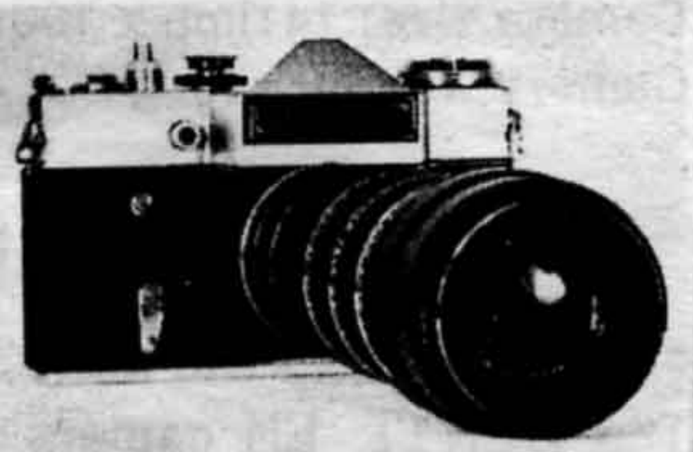


fig. 1

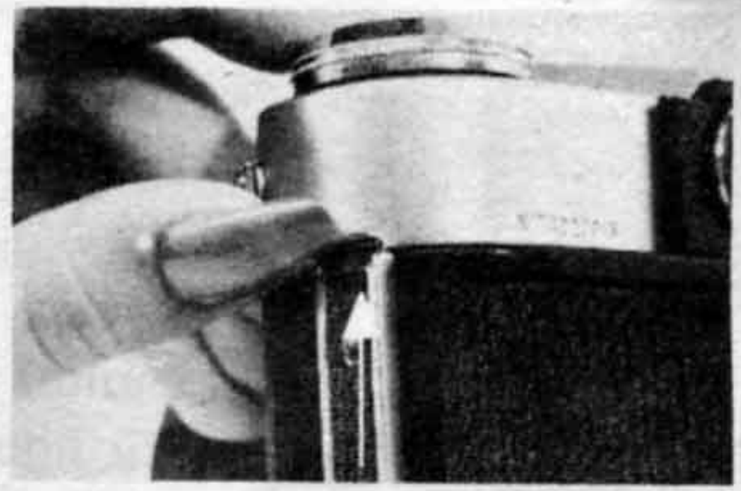


fig. 2

USING THE CAMERA

• LOADING THE CAMERA

Under subdued daylight, load the camera as follow:

1) Open back of the camera by pushing the latch upwards (see figure 2).
2) Push down on the rewind knob and turn left, then pull it out (see figure 3) so that the cassette can be dropped in the empty film chamber.
3) Push down the rewind knob and turn right to lock it in place.
4) Insert film lead in one of the slots of the take-up spool and give half a turn to the spool (see figure 4).

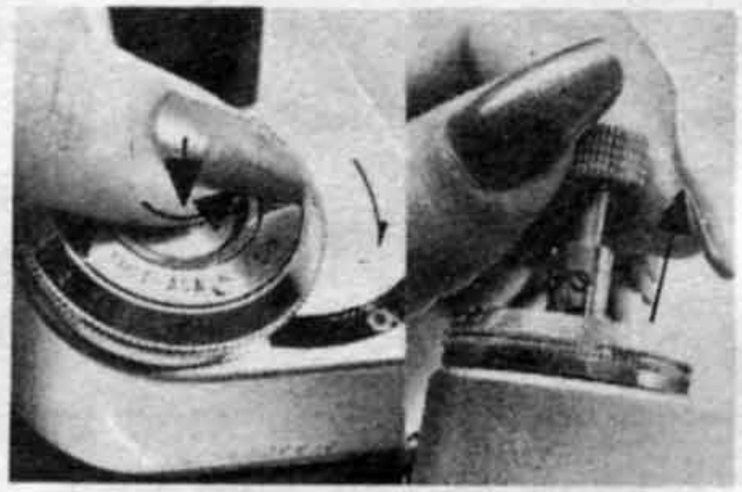


fig. 3

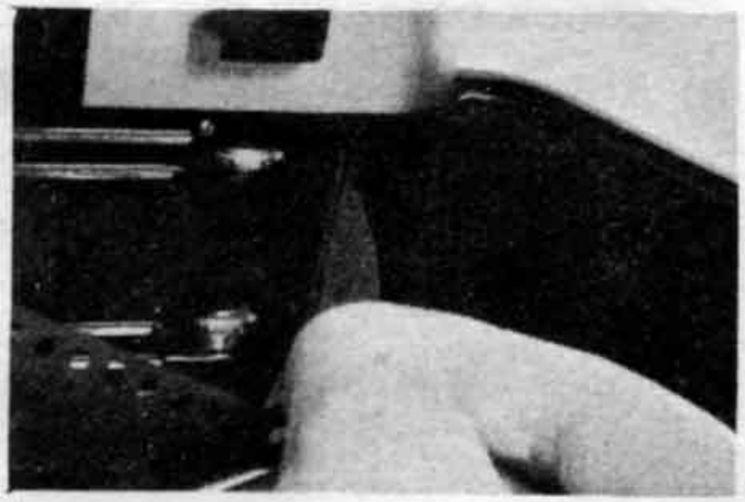


fig. 4

5) Cock the camera shutter by turning the film advance as far as it will go (see figure 5). Make sure the sprocket teeth engage in the film holes. Check position of film in film tracks of the exposure gate.

6) Close the back.

7) Advance the film by winding the lever and releasing the shutter twice (see figure 6) so that the unexposed part of the film moves in front of the shutter curtain.

   Every time you wind the film advance lever, the rewind knob should also turn. If not, reopen the camera and check carefully the position of the film.

8) Adjust the exposure counter dial by matching the figure 0 to the index mark (see figure 7). Afterwards the exposure counter will register each exposure automatically as the camera is cocked.

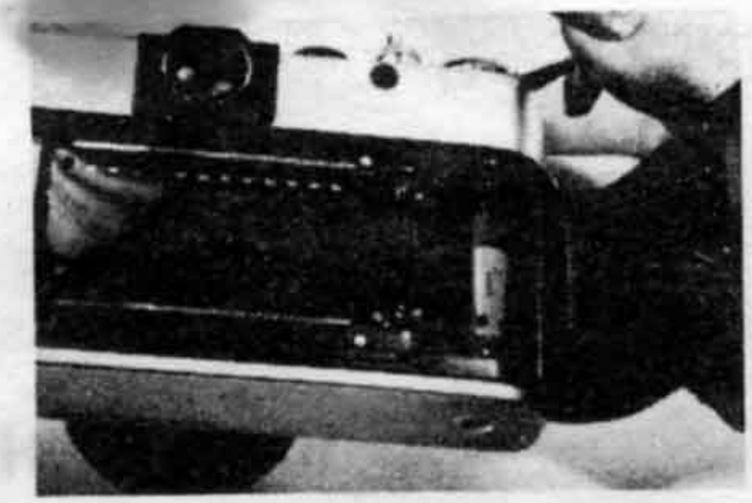


fig. 5

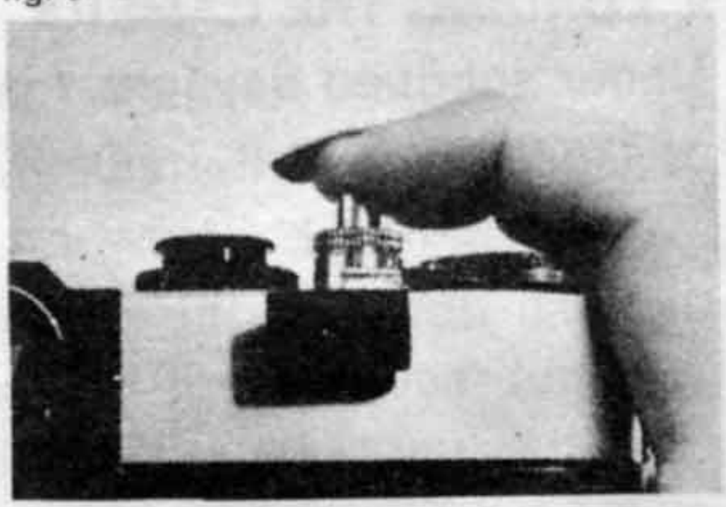
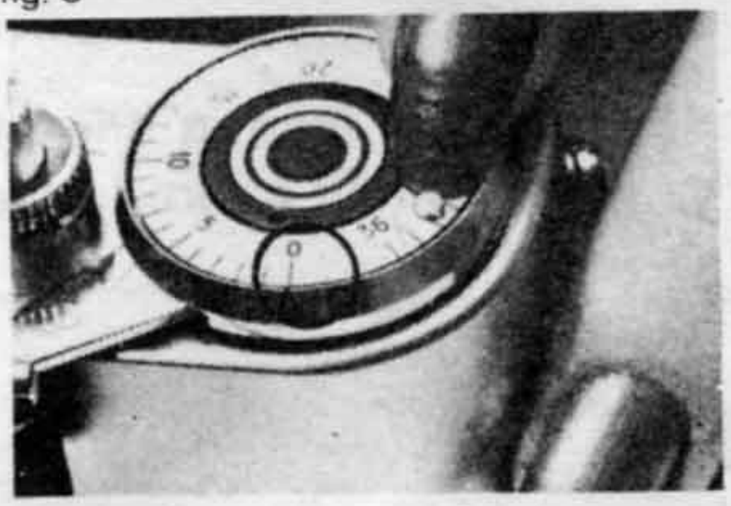


fig. 6



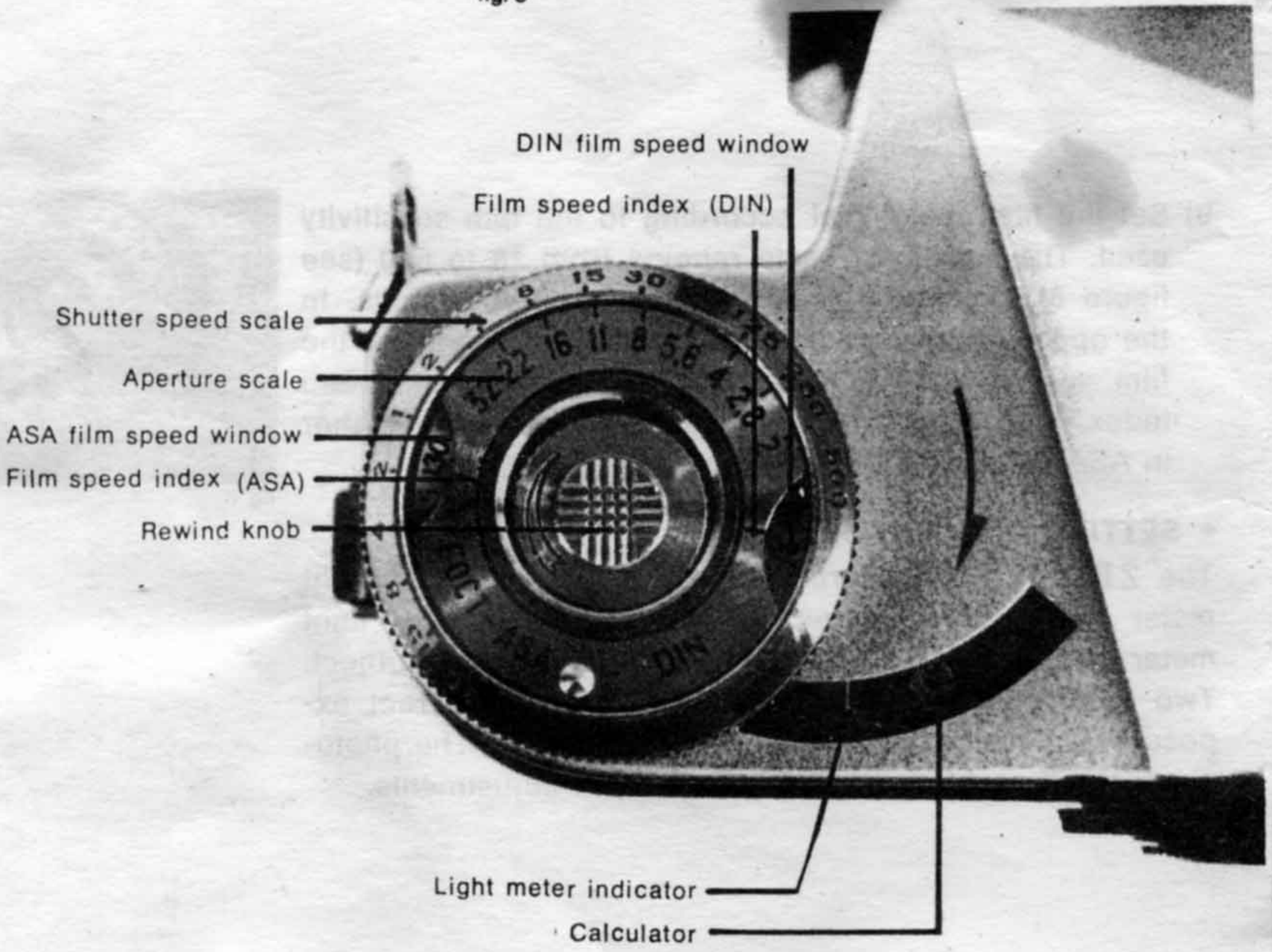
9) Set the film speed dial according to the film sensitivity used. The sensitivity scale ranging from 16 to 500 (see figure 8) indicates the film sensitivity in ASA units. In the opposite window, figures from 13 to 28 indicate the film sensitivity in DIN degrees. Place the film speed index mark according to the film sensitivity used either in ASA units or in DIN degrees.

fig. 8

• SETTING THE LIGHT TIMER

The ZENIT EM camera is equipped with a built-in light meter not coupled to the lens (see figure 9). The light meter permits reading the light intensity on the subject. Two adjustments must be made to ensure a correct exposure: shutter speed and aperture of the lens. The photoelectric cell enables you to compute these adjustments.

fig. 9


DIN film speed window
Film speed index (DIN)
Shutter speed scale
Aperture scale
ASA film speed window
Film speed index (ASA)
Rewind knob
Light meter indicator
Calculator

1) Aim the camera at the subject.
2) Turn to the left or to the right the shutter speed scale (see figure 10) in order to bring the indicator circle of the calculator over the light meter needle (see figure 11). Once these two elements are centered all different combinations of exposure shown should give normal density pictures.
3) Depending upon the special characteristics of the subject, the shutter speed and the aperture of the lens indicated on the dial have to be chosen and transferred respectively on the shutter speed dial of the camera and on the aperture setting ring of the lens (see figure 12).

fig. 10

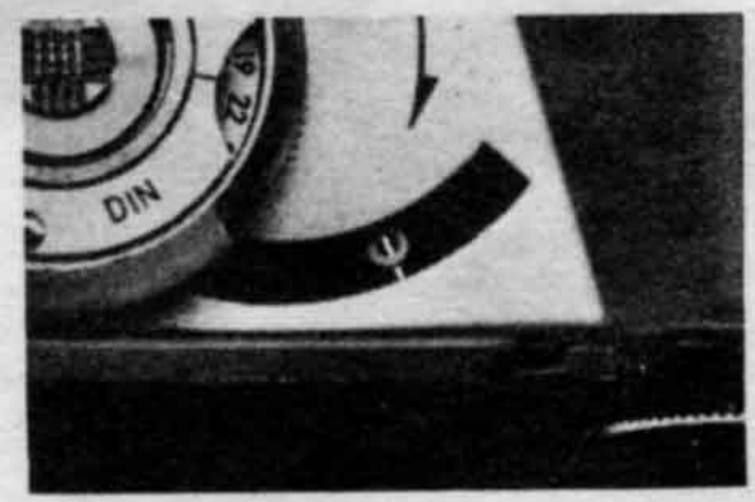


fig. 11

fig. 12

• ADJUSTING THE SHUTTER SPEED

The numbers from 500 to 2 indicated on the shutter speed scale show exposure time in fractions of a second. Numbers from 1 to 30 show exposure time in seconds (see figure 13).

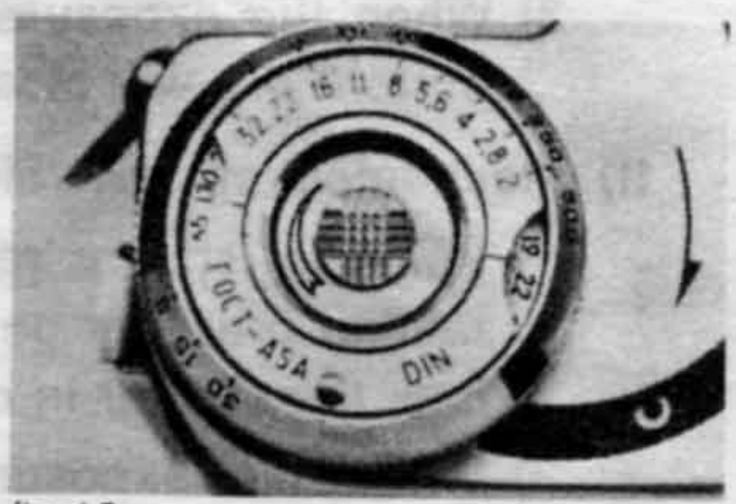


fig. 13

A) Pre-selected time exposure

1) After selection of the shutter speed, pull up the shutter speed dial (see figure 14), turn it on its shaft until the chosen shutter speed matches the index mark.
2) Let the dial down, this will lock it in position. The numbers shown on the shutter speed dial indicate exposure time in fractions of second from 1/30 of a second to 1/500 of a second.

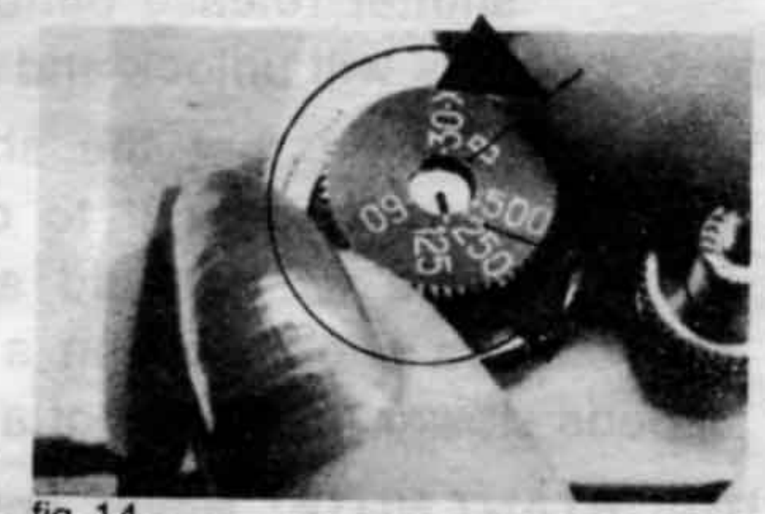


fig. 14

B) Manual time exposure

For shutter speeds slower than 1/30 of a second, match the letter B with the shutter speed dial index mark. Manual time exposure can be used in two different ways:

I) Manual shutter release

1) Depress the shutter release button.
2) Hold the button down as long as the exposure time requires.*
3) When the exposure time is through, release the button; this will close the shutter.

II) Mechanical shutter release

1) Push the shutter release button down and maintaining pressure on it, turn it to the left. This will lock the shutter in open position.*
2) When the exposure time is through, turn the shutter release button back to its initial position. This will unlock and close the shutter.

*During the time that the shutter release button is depressed, be careful not to cock the film advance lever which is free as it could advance unwillingly the film. The camera should be on a tripod for pictures taken at speeds slower than 1/30 of a second.

IMPORTANT NOTE: Never spin dial between B and 500. This could cause serious damage to the speed selector mechanism.

• ADJUSTING THE APERTURE OF THE LENS

The ZENIT EM camera is equipped with an automatic lens.

1) Turn the aperture setting ring until the chosen aperture (between 2 and 16) matches the aperture index (see figure 15).
2) The aperture setting is controlled by the lever on the right of the lens (see figure 16). By setting it on "A", the lens will function automatically: the viewing will be done with the diaphragm fully open and the lens opening will be adjusted automatically to the chosen aperture when the shutter is released. By setting it on "M", the lens opening is kept at the chosen aperture; this enables you to check the depth-of-field.

fig. 15

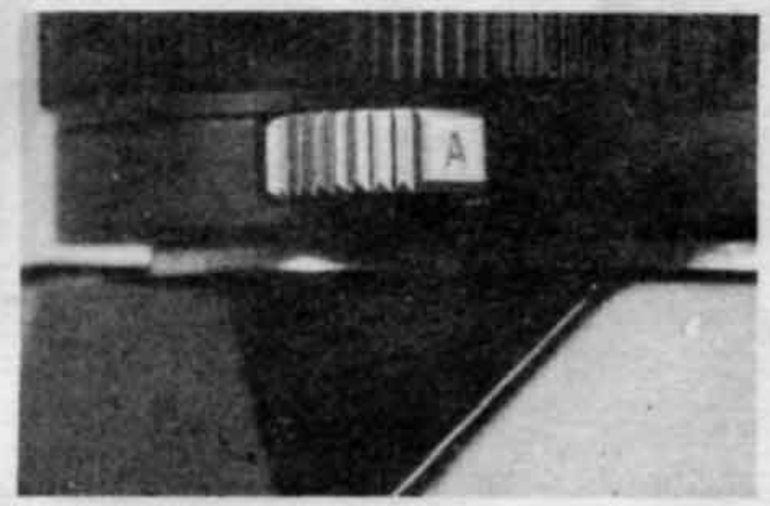


fig. 16

• SHOOTING

A) Focusing

The lens supplied with the ZENIT EM camera is the automatic Helios 58mm f:2 lens (see figure 17).

fig. 17


Focusing ring
Distance scale
Depth of field scale
Aperture setting ring
Lens mounting ring
1,5 1,7 2 3 4 6 10 ∞ M
16 11 8 4 R 8 11 16
16 11 8 5,6 4 2,8 2

1) The lens diaphragm must be fully open for accurate focusing. To open it, set the aperture setting lever on the letter "A".

2) Aim the camera at the subject and, looking through the viewfinder, move the focusing ring back and forth (see figure 18) until you obtain a sharp image on the ground glass. In the center of this ground glass, a microprism circle helps to obtain the sharpest focusing: when this screen is no more visible, your subject is in focus.

fig 18

NOTE: Two indexes are shown on the depth-of-field ring (see figure 19). The line and dot index (⧫) must be used with color or black and white films. The "R" index must be used with infra-red films.

To shoot with infra-red film, focus in the usual way. Then adjust the distance matching the line and dot index in front of the "R" index. This adjustment will correct the focus for the infra-red spectrum.

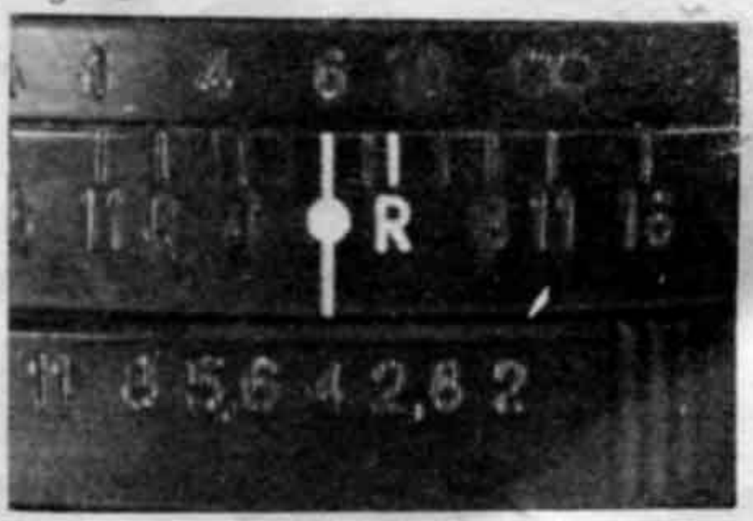


fig 19

B) Depth-of-field

Two scales corresponding to lens aperture stops are indicated on each side of the line and dot index on the depth-of-field scale (see figure 20). These figures are the limits in which the photograph will be in sharp focus. When lens is focused and diaphragm set, limits of depth-of-field can be read on the distance scale.

Example: If focusing indicates a distance of 6 feet (1,8m) with an aperture of f:16, your photography should be in focus from 4½ feet (1,35m) to 10 feet (3m) (see figure 20). If you chose an aperture of f:4, your picture will be in focus only from 5½ feet (1,65 m) to 7 feet (2,1m).

fig. 20

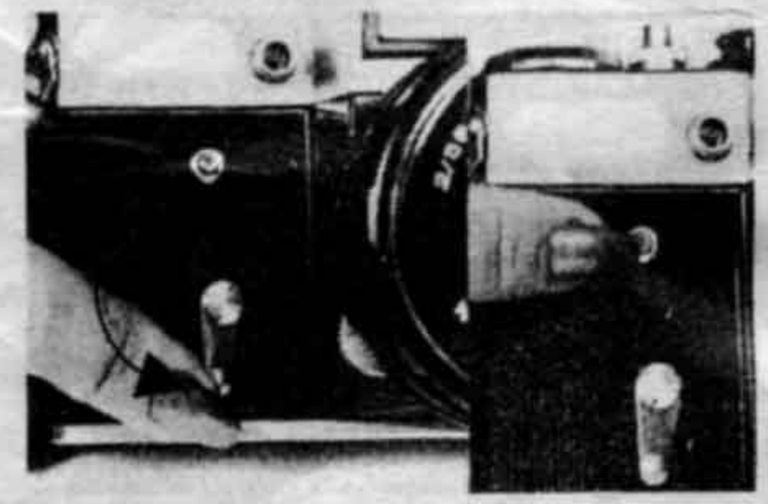


fig. 21

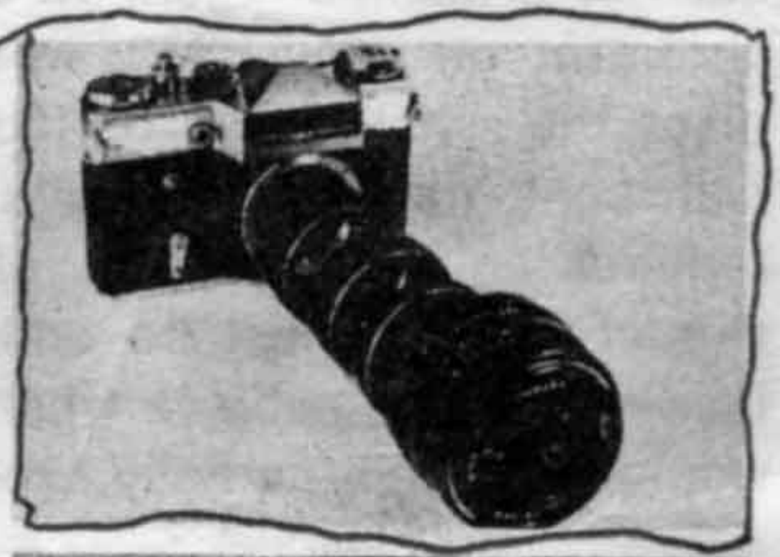
C) Self-timer

Proceed normally for focusing as well as for calculating adjustments of the shutter speed and of the aperture of the lens. Cock the shutter and the self-timer mechanism by turning completely down the self-timer lever (see figure 21). Shutter will be released about 9 seconds after depressing the self-timer button.

D) Macrophotography

For picture taking of non-distant subjects (see figure 22) use extension tubes to be inserted between the camera body and the lens.

This technique is especially interesting to reproduce drawings, photographs, manuscripts and any other small subjects such as flowers, insects, etc.



E) Microphotography

The ZENIT EM camera can also be used for photography through a microscope using special accessories.

F) Lens hood

To avoid parasite reflections in the lens when taking pictures in the sun, use a lens hood mounted in front of the lens.

fig. 22

• ARTIFICIAL LIGHT PHOTOGRAPHY

When light conditions are insufficient, use an electronic flash or a flashbulb gun. To use flashbulbs, place the synchronizer on index "M"; when using an electronic flash, place the synchronizer on index "X" (see figure 23). Artificial light photography with the ZENIT EM camera requires an exposure time of 1/30 of a second since the shutter curtain must be entirely open to allow complete lighting of the subject when firing flash. Faster speeds would result in a partially exposed frame.

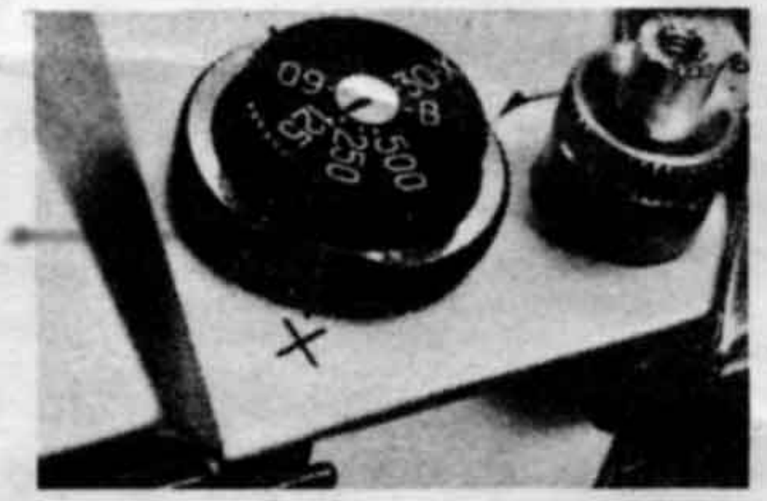


fig. 23

• UNLOADING THE CAMERA

Under subdued daylight, unload the camera as follow:

1) When the exposure counter dial indicates that the maximum number of exposures is reached, a slight resistance should be felt as you try to advance the film; do not force it. Press on the rewind knob and turn it in the opposite direction of the arrow. This will bring the knob out of its seat (see figure 24).

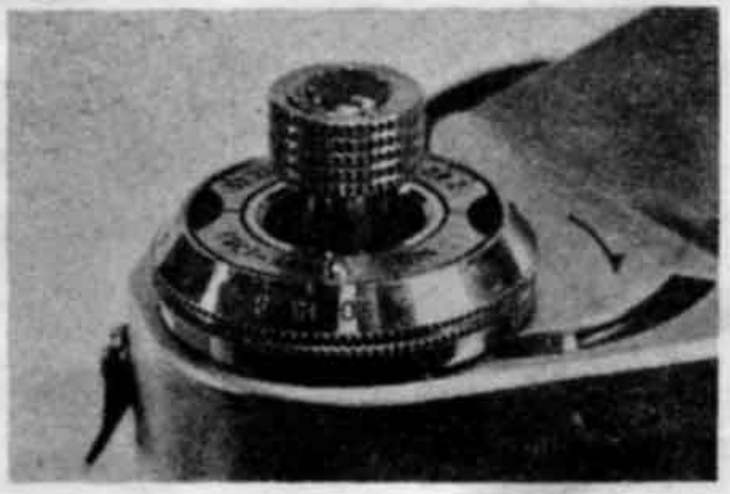


fig. 24

2) Turn the rewind button in the direction of the arrow (see figure 25). This will release the shutter mechanism and will permit the rewinding of the film without breaking any of its perforations.
3) Turn the rewind knob in the direction of the arrow until you hear a click or feel less tension as you are turning. The film is then free from the take-up spool (see figure 26).
4) Open the back of the camera, pull up the rewind knob and remove the cassette.
5) Turn the rewind button back to its original position.

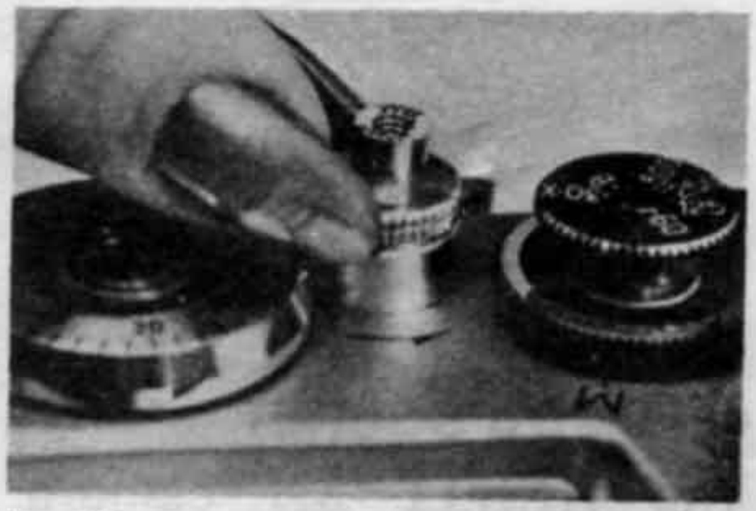


fig. 25

fig. 26

SPECIAL FEATURES

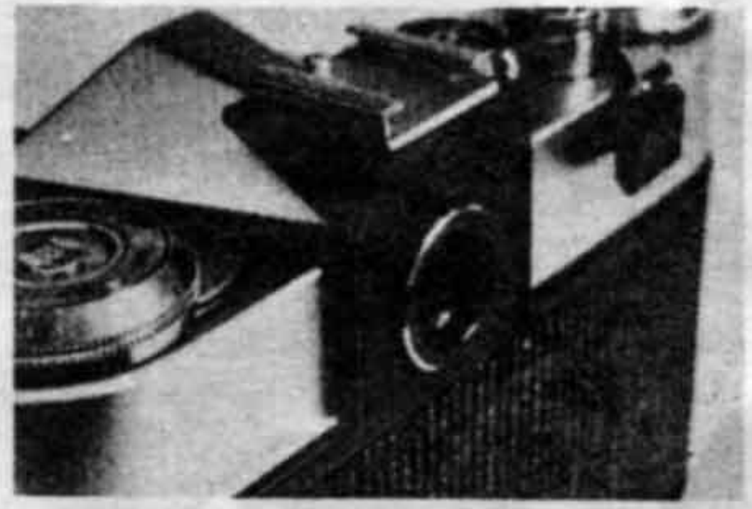


fig. 27

fig. 28

- **TRIPOD SOCKET**

The ZENIT EM camera is equipped with a universal tripod socket (¼ inch). This socket is also suitable to fix other picture taking accessories such as L-bracket, mini-pod, etc. (see figure 28).

- **CABLE RELEASE**

A cable release may be used to release the shutter. This cable release has to be screwed in the shutter release button.
(see figure 29).

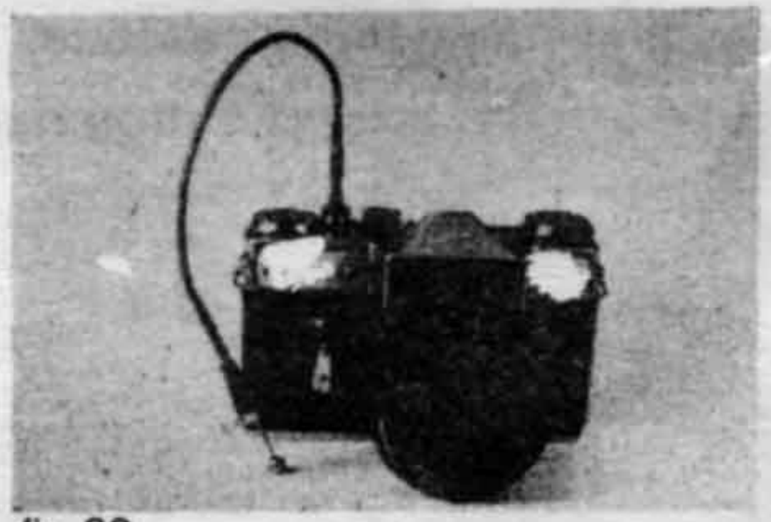


fig. 29

MAINTENANCE

- **CAMERA**

Since the ZENIT EM camera is a precision instrument, it should be handled very carefully. Keep it clean. Protect it against shocks, humidity and quick temperature changes. This is particularly important during winter. At very low temperature, mechanical gears may freeze if not kept warm. Keep camera in its closed case, lens covered by the lens cap. If you do not use the camera for a long period, keep the shutter uncocked.