

U. S. NAVY
BUREAU OF SHIPS
PERISCOPE STILL CAMERA

35 mm.

Mark I, Mod. I

RESTRICTED

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

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THE PERISCOPE STILL CAMERA

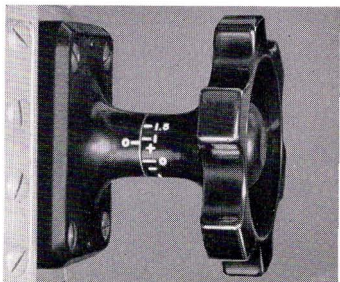
35 mm.

Mark 1, Mod. 1

THE Periscope Still Camera, Mark 1, Mod. 1, provides a means of making 35 mm. still pictures through a submarine periscope. It is equipped with a finder which enables the user to view the target through the periscope while the picture is being made.

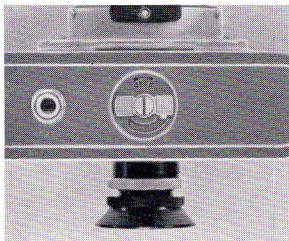
DIOPTER SETTING MUST BE AT TRUE ZERO

1 The diopter setting of the periscope must be adjusted to the "true" zero point if sharp pictures are to be obtained. Since the zero position on most diopter setting scales is *not* true zero, it will be necessary to determine the true zero position. This can be determined and marked for future reference by a representative of the base or tender optical shop, using an auxiliary telescope. If the Periscope Motion-Picture Camera, Mark 2, Mod. 0, **3** is available, the true zero position can be found by the operator, using the accessory Focusing Finder. See page 11 in the manual for the Periscope Motion-Picture Camera.

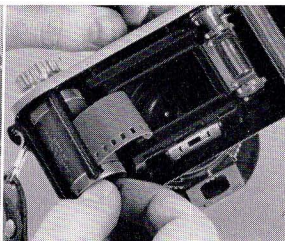


LOADING

2 Load the camera in subdued light, never in strong artificial light or in direct sunlight.



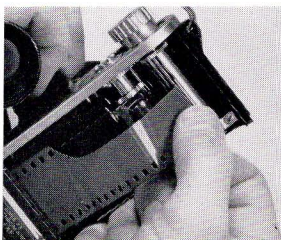
1. To remove the camera back, turn the latch on the bottom of the camera in the direction of the arrow to OPEN, then slide off the back.



2. Insert the film magazine in the recess opposite the take-up reel, turning the magazine spool slightly until it engages the slot in the rewind shaft.

3. Pull film from the magazine until one inch of its full width is exposed. Insert the end of the film into the slot of the take-up reel. Do not try to remove this reel from the camera.

4. Turn the film winding knob in the direction of the arrow until one complete turn of film is on the reel. Engage the perforations of the film leader with the teeth of the lower sprocket.

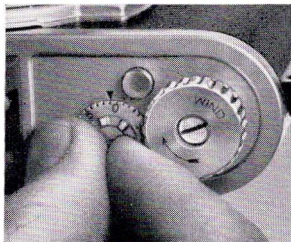




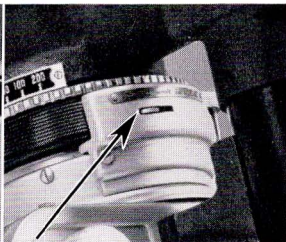
5. Be sure the film is riding in the channel provided for it; then replace the camera back. Turn the latch in the direction of the arrow to LOCK. Turn the film winding knob until it locks.



6. Press the release button and let it spring up immediately. Again turn the winding knob until it locks. Repeat this operation. Pressing the button releases the film-positioning mechanism.



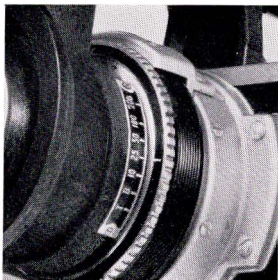
7. Enough film will now be wound on the take-up reel so that the figure "1," which appears on the margin of the film after development, will be in position for the first exposure. Turn the counter to 1, the line next to 0 between 0 and 5.



8. After making each picture, depress the release button, release it, and turn the winding knob until it locks. This winds the film, advances the counter, and cocks the shutter. A red signal on the shutter indicates that the exposure can be made.

EXPOSURE

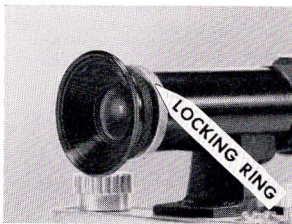
3 The *length of time* the shutter is open to admit light to the film is regulated by turning the knurled collar back of the adapter. Shutter speeds of $1/10$, $1/25$, $1/50$, $1/100$, and $1/200$ of a second are provided. The "T" (time) and "B" (bulb) settings are for longer exposures and will seldom, if ever, be used for periscope photography; see section 12, page 13.



A simple exposure guide is provided with the Periscope Still Camera; it gives the correct shutter speeds for most light conditions when Kodak Super-XX Film is used.

FINDER

4 By means of a beam splitter in front of the camera lens, part of the light coming through the periscope is directed up through the camera finder.



To focus the finder, turn the periscope diopter setting to *true zero*. Loosen the locking ring on the finder tube. Now place the camera in position against the face plate of the periscope, as described in section 7, and screw

the eyepiece in and out until the image viewed through the finder is sharply focused. Tighten the locking ring. This adjustment can be considered permanent for a given operator and periscope. However, it should be checked occasionally.

GLASS DISC AND FILTER

5 A clear glass disc and a filter (Type A Kodachrome Filter for Daylight) are provided in screw-in mounts. *Be sure one or the other is in position on the camera when pictures are made, otherwise the field will be greatly reduced.*

Keep the clear glass disc on the camera for most pictures.

The filter gives increased haze penetration under some conditions. However, it achieves its effect by eliminating certain rays of light which would otherwise reach the film and, therefore, it should be used for periscope photography only on bright days *when shore objectives are being photographed.*

After using the camera with the filter, always replace the filter with the disc before placing the camera in the carry case.

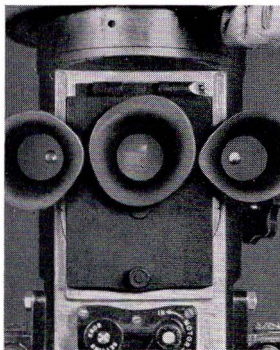
LENS CAP

6 The periscope camera is fitted with a lens cap to protect the outer glass disc surface from dust and moisture. The lens cap should be removed just before operation and replaced when the camera is returned to the carry case.

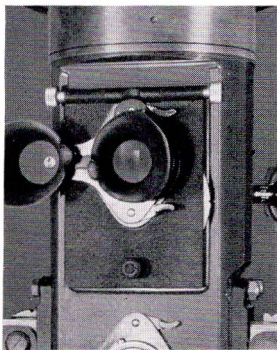
OPERATION

7 Before an exposure can be made, the eye-shield must be removed from the filter plate of the periscope. The two basic types of shields are illustrated below. In one case, the rubber shield is merely slipped from the flange accommodating it. In the other, a metal plate, holding the shield, is removed by pressing the locking levers at its top and bottom.

Slip the eye-shield from the flange on the plate. The camera adapter fits over the flange.



Press the levers and remove the shield. The camera adapter fits into a depression.



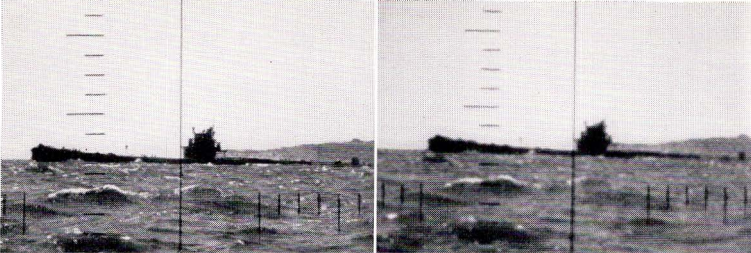
BEFORE MAKING AN EXPOSURE, CHECK THESE POINTS:

1. The periscope diopter setting must be at *true zero*. See section 1, page 3.
2. No filter should be in position in the aperture of the periscope filter plate.
3. The lens cap should be removed from the camera.
4. The glass disc should be in position. The camera filter should not be used unless shore objectives are being photographed and light conditions are good.
5. Be sure the camera is loaded, sufficient exposures remain on the roll, and a fresh frame of film is wound into position.
6. The camera must be adjusted for the correct shutter speed, as indicated by the exposure guide.

To make the exposure, slip the adapter of the camera over the aperture of the filter plate and press the adapter firmly against the plate. Locate the subject in the camera finder and gently press the exposure lever on the shutter. *Hold the camera steady.*

After making each picture, depress the release button, release it, and turn the winding knob until it locks. This brings unexposed film into position, advances the counter, and cocks the shutter. The red signal on the shutter indicates the camera is set for the next picture.

Kodak Super-XX Film is supplied in 36-exposure rolls for use in the periscope camera. *Before putting the camera away, check the exposure counter.* If more than



The picture on the left was made with the periscope diopter setting at true zero. The picture at right illustrates the result obtained with the diopter setting off true zero.

24 exposures have been made on the roll, remove the film as described in section 8, below, and reload the camera with a fresh roll. This will reduce the possibility of running out of film while a series of pictures are being taken.

Do not turn the winding knob after 36 exposures have been made or the film may be pulled from the magazine and cannot be rewound for unloading.¹

UNLOADING

8 Lift the winding knob to release the take-up reel. Rewind the film into the magazine by turning the rewind knob in the direction of the arrow. *Cease winding immediately when the exposure counter stops turning, in order to avoid drawing the film leader into the magazine. Otherwise, the film cannot be loaded into the developing tank in daylight.²*

¹If the film is accidentally pulled from the supply spool, it can be refastened only in total darkness. See page 14.

²If the film leader is accidentally turned into the magazine, it can be retrieved only in total darkness. See page 15.

In subdued light, remove the camera back, take out the film magazine, and replace it in its container to avoid light fog due to light leaking into the slot.

CARE OF FILM

9 The keeping properties of unexposed and exposed films are affected adversely by high humidity and high temperature. Of the two conditions, high humidity is the more serious.

Before Exposure. All film supplied for use in the periscope camera is "tropically packed," that is, sealed in containers under controlled factory conditions.

1. Store the bulk of the supply of tropically packed film in the chill room.

2. Remove film from the chill room several hours *before opening the sealed container*, to avoid excessive condensation of water vapor.

3. Several rolls of film, in their sealed containers, should be kept in the carry case. This film will then be ready for use at any time.

Important: Keep the carry case in a dry place, away from warm pipes, heating units, electric lights, etc.

After Exposure. As soon as possible after exposure, place the exposed film in its container (*do not seal the container*). Store the film in a dry place, away from warm pipes, heating units, electric lights, etc.

In general, regardless of the conditions of storage, all film should be developed as soon as possible after exposure.

KEEP GLASS SURFACES CLEAN

10 Keep the outer prism surface and the surfaces of the filter and disc clean. *Avoid touching them with the fingers.* If they require cleaning, wipe them *gently* with lens cleaning tissue.

STOWING THE CAMERA

11 Before replacing the camera in the case check the following points to be sure that it is ready for immediate use in an emergency:

1. At least 12 unexposed frames are on the roll.
2. The film is wound; check red signal in top of shutter.
3. The shutter speed is set at 1/25 second.
4. The clear glass disc is in position.
5. The finder is focused for the operator's eye.

12



USING THE CAMERA TOPSIDE

12 The 35 mm. Periscope Camera also can be used for making pictures topside. The picture-making conditions are different, however. Here are several important things to remember:

Exposure. Since the aperture through which the light passes to the film is fixed, it will be necessary to use the fastest shutter speed ($1/200$ of a second) and the filter for all exposures on bright days.

Focus. The focus of the camera is fixed on infinity. Only objects at a distance greater than about 35 feet from the camera will be rendered sharp in the picture.

Camera Movement. *Hold the camera steady when the exposure is made.* Any movement of the camera during the exposure will cause the picture to be blurred. No exposure longer than $1/50$ of a second should be made unless the camera is braced against some rigid support.

"B" (Bulb) and "T" (Time) Exposures. Exposures of much greater length than the longest marked on the shutter ($1/10$ second) may be made with the "B" (Bulb) and "T" (Time) settings.

Such exposures will sometimes yield satisfactory results under very poor light conditions, when it is impossible to make a picture with the faster speeds. The camera must *always* be placed on or against a firm support

when a bulb or time exposure is made. *Any movement of the subject, camera, or submarine will blur the picture.*

For an exposure of from 1/2 to 10 seconds, set the knurled collar to "B," press the exposure lever and hold it down. The shutter will remain open as long as the button is held down.

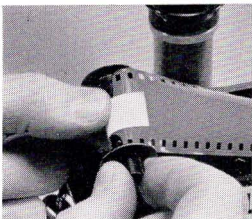
For exposures of 10 seconds or more, set the ring at "T," press the exposure lever and immediately release it. This opens the shutter. Wait the desired time and press the exposure lever again to close the shutter.

IF THE FILM IS PULLED FROM THE MAGAZINE

13 If the film is accidentally pulled from the supply spool, it can be refastened *only in total darkness*. Before entering the darkroom, cut a piece of ordinary adhesive tape or scotch tape about an inch long; then lift the winding knob to release the take-up reel.

In total darkness, remove the camera back and lift out the empty magazine. Pull off the metal cap through which the long spool-end protrudes and lift out the spool.

Pull about 6 inches of film from the camera take-up



reel. Hold the long end of the spool in the right hand; then bring the end of the film *over* the spool and tape it to the core (see illustration). Turn the spool back (counter-clockwise) to wind a few turns of film on it.

Hold the long end of the

spool with the index finger and thumb and slip the magazine over the spool, guiding the film into the cloth-covered slot of the magazine. Be sure the short end of the spool projects through the end of the magazine, and then replace the metal cap on the opposite end.

Replace the magazine in the camera, put on the camera back, and rewind the film into the magazine with the rewind knob of the camera.

IF THE LEADER IS TURNED INTO THE MAGAZINE

14 If the film leader is accidentally turned into the magazine, it can be retrieved *only in total darkness*. Pull either metal cap of the magazine off and remove the film, taking care that the film does not spin loose from the reel; then hold the end of the film leader out and slide it into the cloth-covered slot while replacing the film spool into the magazine. Take care that neither the film spool nor the magazine is turned end for end in any of these operations.

Replace the metal cap. Make sure that the ends of the spool are properly centered in the end caps and that the spool can turn freely, so that it will not bind when the film is being loaded into the developing tank.

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