Nikon

EPI-ILLUMINATOR

FOR MICROSCOPE MODEL-S

INSTRUCTIONS

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The Epi-Illuminator, attached between the stand of microscope model-S and the eyepiece tube, converts the microscope into a metallurgical one, enabling episcopic observation of the surface of opaque specimens such as of metal and others.

For transluscent subjects such as some minerals, it is possible to use the dia- and episcopic illuminations simultaneously, each through a differently colored filter.

Perfect Köhler illumination being applicable even to the lowest as well as to the highest magnification, a uniformly bright viewfield with no or little flare is obtained for all magnifications.

As the pre-centered lamp bulb is used in the illuminator, there is not need for centering the lamp bulb at every time.

Complete Equipment

1 illuminator body

3 filters (green, yellow and daylight)

2 spare lamp bulbs (6 V, 15 W, pre-centered type)

Characteristics

Magnification factor of Illuminator: 1.5×

Total magnification M of the microscope will be as below:

M=Individual mag. of objective × Individual mag. of eyepiece ×1.5

Eyepiece tube to be used:

Every type of eyepiece tube for microscope model-S can be mounted on the top of the Illuminator.

Half-reflecting mirror:

Can be slidden out of the optical path for changing over to diascopic illumination.

Light source:

Pre-centered lamp bulb 6 V, 15 W is used.

Illuminating system:

Köhler illuminating system with an auxiliary lens which produces a continuously changing (zooming) light source image, provides a uniformly bright viewfield without flare at the lowest as well as at the highest magnification.

Illuminated field and aperture diaphragms:

Both diaphragms can be stopped down by turning the exterior milled rings.

Filters:

Each filter can be inserted in the slider.

Polarizing attachment:

Available as accessory. Consists of two polarizing plates; polarizer and analyzer.

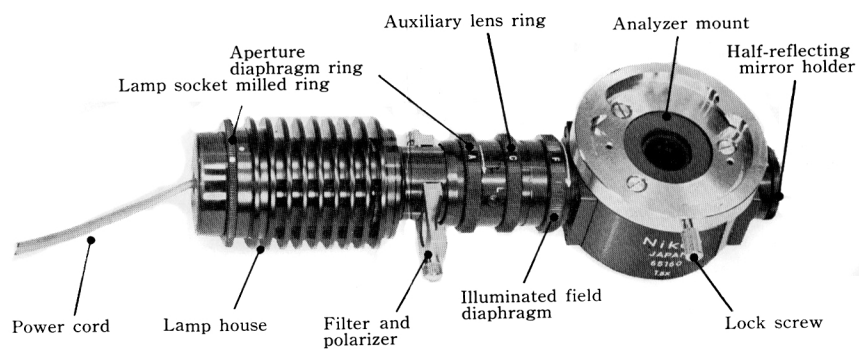

Fig. 1

Instructions for Using

Attaching to the microscope

First, release the lock screw to remove the eyepiece tube from the microscope model-S. Mount the Illuminator on the top in place of the eyepiece tube. It will be convenient to make the Illuminator extend right- or leftward for the operator as shown in the figure on the cover.

Replace the eyepiece tube onto the top of the Illuminator.

Objectives and eyepieces

When using 40× or 100× objective, place a cover-glass on the specimen. When using M4× or no-cover-glass 4× objective, exposed specimens will give an excellent image.

The eyepieces to be used are the same as those for diascopic observation.

Exchanging the lamp bulb

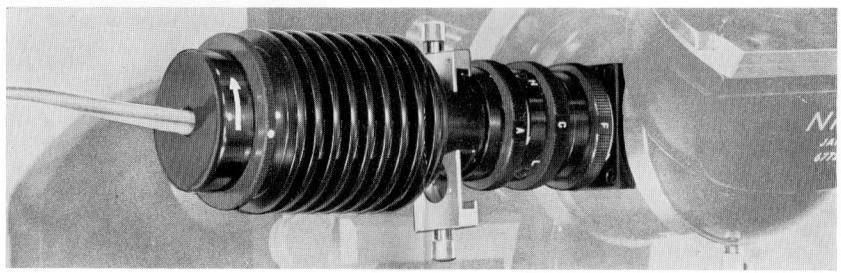

Fig. 2

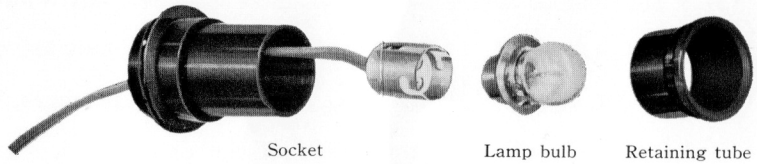

Fig. 3

Turn the milled ring on the lamp socket counterclockwise, to detach the lamp socket (Fig. 2).

Unscrew the retaining tube from the socket.

The precentered lamp bulb can be detached from the socket.

Replace the new bulb into the socket.

Fasten the lamp the socket by means of the retaining tube.

Lining up the white dot on the socket to that on the lamp house, insert the socket and fasten the milled ring.

If the viewfield is not uniformly bright, draw out the socket slightly until a uniformly illuminated field is attained. Tighten the milled ring.

Microscopy

First, place the specimen on the stage, making its top surface flat. Be sure that the half-reflecting mirror holder on the Illuminator is pushed in.

Then, connect the light source cord to the transformer, to switch on the lamp. The voltage is to be 3.5~4 V in most cases.

After lighting, perform coarse focusing.

If the viewfield is not illuminated uniformly, turn the auxiliary lens

ring C toward H when using a high power objective, but toward L when using a low power objective. Stop down the illuminated field diaphragm by means of the ring F. Move the half-reflecting mirror holder back and forth until the center of the diaphragm comes to the center of the viewfield. Then, reopen the diaphragm gradually until there appears no or little flare.

Thereafter, turn the aperture diaphragm ring A so that the best seeing is obtained with a minimum flare.

Filter and polarizing plates*

Three filters, green, yellow and daylight, are supplied with the Illuminator. The green filter is used for monochromatic photography.

The other two are used to increase contrast, depending on the etched surface of specimen.

Insert each filter into the slider and bring it into the optical path.

The polarizer plate is also inserted in the slider with its pin fitted into the groove.

The analyzer is inserted onto the top of the Illuminator.

Changing over to diascopic observation

For diascopic observation, it need not to remove the Illuminator; only draw outward the half-reflecting mirror holder as shown in Fig. 4, to bring the mirror out of the optical path.

Then, proceed the same as in diascopic use of the microscope model-S.

* The Illuminator permits also the Polarizing Attachment S-PO to be mounted on top (Fig. 4), thus making it possible to use the microscope as a completely equipped episcopic polarizing microscope.

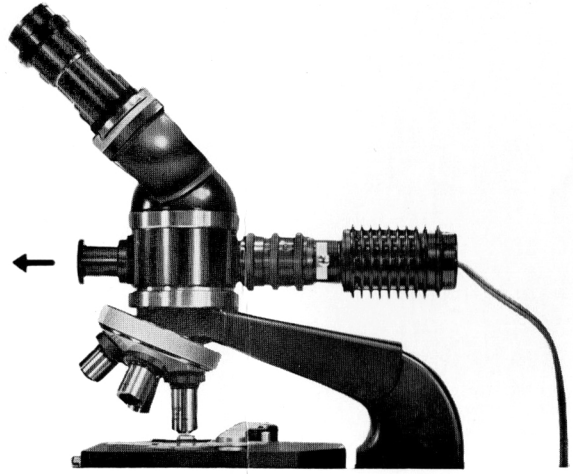

Fig. 4