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Photomic - **T** **Finder**

SUPPLEMENT TO INSTRUCTIONS

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1. General Photography

The photomic-T Finder which permits viewing the picture field covered by the lens being used and at the same time measuring the average brightness within the picture field, will assure photographers the correct exposure in almost all situations. However, in special cases where the picture field includes an unusually bright light source or where a noticeably brighter or darker area than the main subject to be photographed, occupies 1/3 or more area in the viewfield, the measurement will unavoidably be influenced by such a condition, so that a correct exposure cannot be obtained for the intended subject.

In order to get proper results some compensation will be necessary, while the exposure is being measured. This compensation is especially important when color slide film is used.

Fortunately, in the Photomic-T Finder TTL system, the extent of the exposure measurement coincides exactly with the picture field. Consequently, there is no difficulty in performing such compensation.

If the photographer has no intention of taking pictures of the sky, snow or any other light source itself as the main subject, the compensation is as follows:

- ◆ When a bright area, for example, the sky, snow, a white subject, a window viewed from the interior, etc. or a dark area, for example, a shadow, a black surface, etc. occupies more than $1/3$ of the picture field, move the camera, or get closer to the subject, so that in either case such an area is reduced to less than $1/3$ of the whole finder viewfield. Set the exposure by centering the meter needle and then resume your original position and view.

- ◆ When any intense light such as of the sun, incandescent or fluorescent lamp, etc. is included in the picture field, it is necessary for the same reason as above, to deflect the direction of the camera or to approach the subject to be photographed, so that such a light source does not appear in the finder field, while the exposure is being measured.

In the following examples you will find a sufficient explanation of the above described compensation methods.

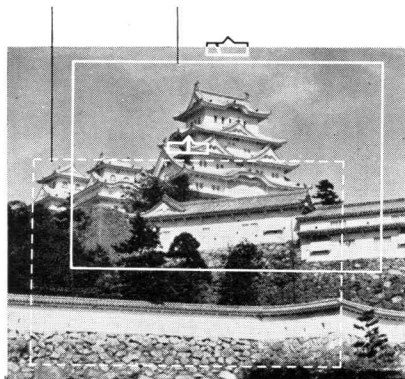
Examples :

In the illustrations here the areas outlined by the dotted lines show the finder view-field changed so as to cover less than $1/3$ of the unusually bright or dark part or to exclude the light source from the viewfield during the exposure measurement.

◆ Deflecting the direction of the camera

A. Area of the sky

Measurement area Picture area



B. Bright area

Measurement area Picture area



D. Fluorescent light

C. Shaded area

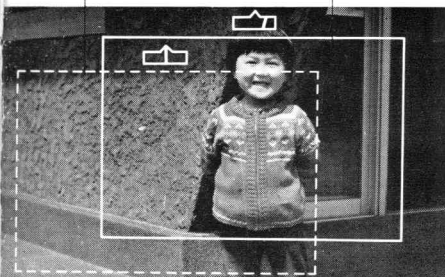
Picture area

Measurement area



Measurement area

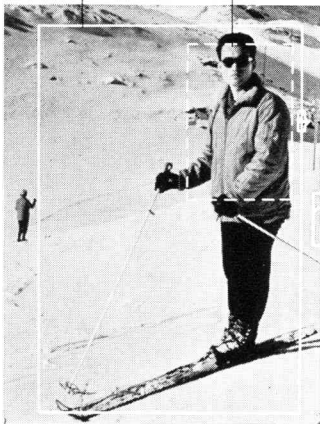
Picture area



◆ Approaching the intended main subject

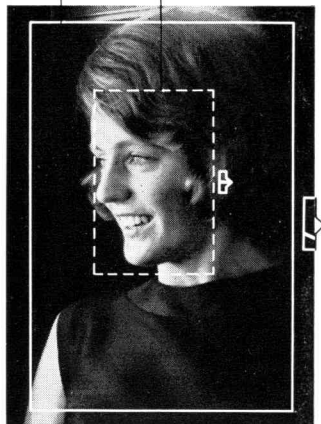
E. Area of snow

Picture area Measurement area



F. Black area

Picture area Measurement area

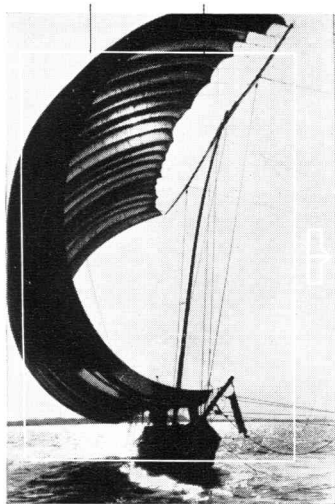


◆ Special cases :

To photograph a silhouette, however, in against-the-light photography, there is no need for such compensation as mentioned heretofore. See the example G.

G

Picture area Measurement area

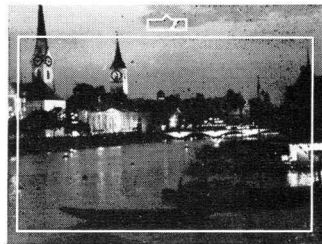


Examples of other cases

H. Film speed : ASA 100

Shutter speed :
1/30 sec.

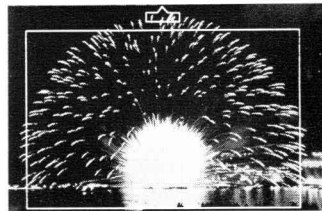
Aperture of lens: F/2.8



I. Film speed : ASA 100

Shutter speed : Bulb

Aperture of lens: F/5.6



Some substitutive methods

If the subject cannot be approached for any reason, one of the following substitutive methods may be used:

◆ Choosing another nearby subject

If there is any nearby subject of about the same brightness, that is, illuminated the same way by the same light source, point the camera toward this, only during the exposure measurement. For example, when making a portrait in the sunshine against the sky, but the person to be taken cannot be approached close enough, center the meter needle while pointing the camera toward another person who stands or is placed near the photographed, under the same lighting conditions.

◆ Measuring the brightness of the palm of your hand

Keeping the camera pointed in the direction of the subject to be photographed, place your hand in front with the palm faced toward the lens, so that only your palm faced toward the lens, so that only your palm fills the viewfield of the finder.

It is not necessary to focus the lens to the palm. But it is important that the palm is illuminated exactly the same way as the subject to be photographed. For example, when the subject is in the shade, the palm should also be in the shade.

However, since the palm usually reflects a little more light than general subjects, exposure measured in this way will result in slight underexposure. Therefore, the measured exposure should be increased by one step, in other words, by using the next slower shutter speed or by opening the lens aperture one stop wider.

◆ Measuring the brightness of any white subject

Instead of the palm of the hand, a white subject such as white paper or white handkerchief can be used. Place it in front of the lens, so as to fill the finder viewfield. In this case the measured exposure should be increased two steps.

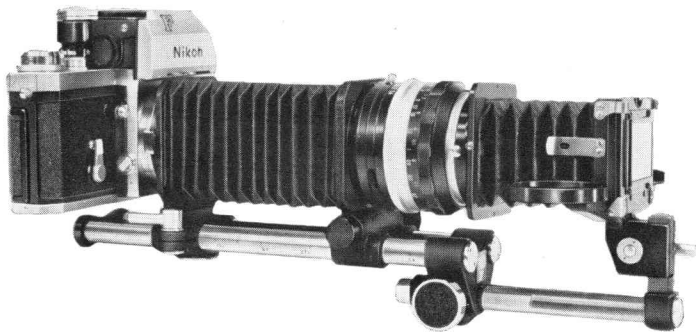
See the example E on p. 7. The correct exposure for the person in the snow has been obtained by increasing the measured exposure by two steps.



2. Close Ups

To determine the correct exposure in close-up photography, that is, closer to the subject than the closest focusing distance of the lens on the camera, proceed as follows, using the Nikon close-up attachments listed below :

- Close-up Attachment Lenses
- Extension Ring Model E2
- Extension Ring Set Model K
- Bellows Focusing Attachment



With the Close-up Attachment Lenses attached on the front of the camera lens, the regular full-aperture measuring method is used, the same as where no attachment lens is used.

With the Extension Ring E2, Extension Ring Set K or Bellows Focusing Attachment, the exposure is determined by the stop-down measuring method.

There are, in addition, lenses specifically designed for close-ups: Micro-Nikkor Auto 55mm F/3.5 and Nikkor 135mm F/4 with short mount. For determination of the correct exposure with the Micro-Nikkor Auto in close-ups, refer to the "Instructions for Using Photomic-T Finder" supplied with the Finder. This lens permits from infinity down to the distance for $1/2$ reproduction ratio. By adding the extension ring M between the lens and the camera, reproduction ratios up to $1\times$ are obtained.

The Nikkor 135mm F/4 is designed for exclusive use on the Bellows Focusing Attachment and permits focusing from infinity down to the distance for the reproduction ratio of $1\times$. To attach the lens to the Bellows adapter tube BRI is required.

3. Copying

Originals to be reproduced may generally be classified into two types: Class 1, photographs, pictures and continuous tone material, all with some tonal gradations and Class 2, documents or line drawings with little or no gradation and therefore of strong contrast.

◆ Determining exposure for Class 1 originals with gradations

To get the best result, some compensation will be necessary by increasing the exposure over the value obtained by centering the meter needle by as many as steps indicated in the following table. To increase the exposure, it is convenient to bring the maximum aperture figure on the max. aperture scale (when the full-aperture measuring method is used) or the red dot on the max. aperture scale (when the stop-down measuring method is used) to a film speed number (ASA) which is decreased by as many as graduated marks as indicated in the parenthesis before determining exposure.

If this range of compensation, however, should extend beyond that of the ASA dial scale, use an alternative means, that is, enlarge the aperture of the lens or lower the shutter speed, corresponding to the increase of exposure, after the centering of the meter needle is obtained.

Type of film	Color reversal	Color negative	Black & white
Increase of exposure (Decrease of film speed)	1 1/2 step (5 marks)	1 step (3 marks)	1 step (3 marks)

For example, when a black and white film with a film speed ASA 100 is used, the figure 50 that is 5 marks smaller is to be set opposite the red dot. Then, center the meter needle to determine exposure.

◆ Determining exposure for Class 2 originals of strong contrast

In the same way as above, compensation should be made by increasing the exposure by as many steps as indicated below.

Type of film	Black and white
Increase of exposure (Decrease of film speed)	2 steps (6 marks)

It is a basic principle that the exposure measurement is performed by a material with the white area larger than the dark. Therefore, even when copying any document or line drawing with a white ground, the measurement should not be made by this but by a material with black figures or letters on the white ground.

Furthermore, refer to the precautions given on p. 22.

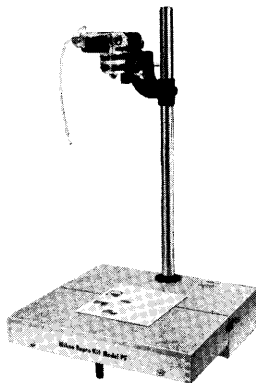
◆ Apparatus useful for copying

The Nikon Repro Kit Model PF, as illustrated, is a convenient accessory.

The best lens for copying purposes is the Micro-Nikkor Auto 55 mm F/3.5. It is not recommended that the normal lens Nikkor Auto 50 mm F/1.4 or 58 mm F/1.4 be used, but rather the Nikkor 50 mm F/2, because of its higher image quality insofar as close-ups are concerned.

No Extension ring or close-up attachment is needed for the Micro-Nikkor Auto 55 mm F/3.5.

Since the normal lens does not permit a reproduction ratio larger than $1/10$, when used alone, extension rings or close-up attachment lens are required for copying in general.



4. Slide Copying

Slide copying is the making of reproductions from original slides or negative films.

- ◆ Determining exposure for reproducing images with continuous gradations (ordinary photographic negatives)

In the same way as in the reproduction of photographic prints (see above) compensation depending upon the film used is necessary.

Type of film	Color reversal film	Panchromatic film generally used	Micro-copy film for reproduction
Increase of exposure (Decrease of film speed (ASA))	1 1/2 step (5 marks)	1 step (3 marks)	2 step (6 marks)

- ◆ Determining exposure for reproducing images with strong contrast (documents or line drawings)

Compensation should be made as indicated below :

Type of film	Panchromatic film, generally used	Micro-copy film for reproduction
Increase of exposure (Decrease of film speed (ASA))	Not needed	1 step (3 marks)

It is a basic principle that the exposure measurement is performed by a slide with the dark area larger than the bright. Therefore, even when copying any slide with a white ground, the measurement should not be made by this, but by a slide with transparent figures or letters on the black ground.

Furthermore, refer to the general precautions given on p. 22.

◆ Apparatus required :

The use of the slide copying adapter in conjunction with the Bellows Focusing Attachment (See p. 11) is recommended. Depending upon the lens being used, the magnification range will be different. Refer to the "Instructions for Using Nikon Bellows Focusing Attachment" for details.

5. Photomicrography

◆ Determination of exposure in photomicrography

Move the aperture pin at the bottom of the Photomic-T Finder to the right until it clicks in position. Then, make compensation by increasing the exposure as follows. indicated below :

Type of film	Color film	Black and white film
Increase of exposure (Decrease of film speed (ASA))	1 step (3 marks)	2 steps (6 marks)

Center the meter needle, to determine correct exposure, by turning the shutter speed dial on the camera or changing the brightness of the illumination.

It is furthermore necessary when using the Microflex FMF, to make the microscope image visible in the finder viewfield of the camera, while the exposure is being measured. After determining the correct shutter speed, set this speed on the shutter on the FMF Microflex. Since the Photomic-T Finder has no provision for a "T" shutter setting, use a cable release provided with a release locking device. The shutter speed on the Photomic-T Finder should be set at "B".

◆ Apparatus to be used

The three photomicrographic attachments as indicated in the table (See next page) are available for use on the Nikon F camera. In all cases, the use of the C-type finder screen is recommended.

Photomicrographic attachments	Microscopes	
	Nikon products	Others
Nikon Microflex model FMF	Model-S microscope with trinocular or vertical monocular eyepiece tube. Stereoscope microscopes Polarizing microscope (POH)	Biological microscopes with vertical eyepiece tube with standard outer diameter of 25 mm.
Microscope Adapter for Nikon F	Same as above	Same as above
	Note: When using a high eyepoint eyepiece, the universal eyepiece adapter and the connecting ring are required.	
Nikon Microscopic Equipment	Microscope model S or model SKe	

6. General Precautions in Copying and Photomicrography

- When using a color reversal film which generally has a narrow latitude, it is recommended that another picture be taken in addition to the one exposed according to the beforementioned tables.

When the subject gives a somewhat brighter impression, take another picture with one step more exposure.

On the contrary, when the subject is of a darker nature, take another picture with one step less exposure.

- Micro-copy film used for copying in general gives various results depending upon the emulsion number and other variable factors such as type of developer, time, temperature of development, etc. In this case it is advisable to make trial exposure on either side of the exposure value determined by the meter.
- In order to minimize vibration, use of a cable release is advisable. At high magnification where no vibration is permissible, exposure can be made by switching the illuminator on and off, instead of using the shutter in the camera.
- For further details on the Nikon close-up attachments heretofore mentioned, refer to their instructions supplied with them.