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DeJur

EXPOSURE METER GUIDE BOOK

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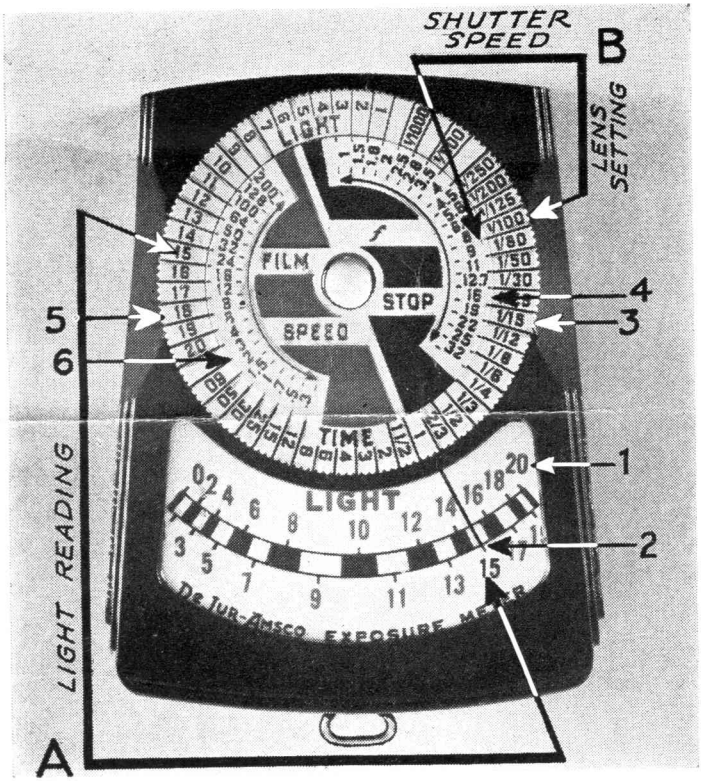


HOW TO USE THE DeJUR EXPOSURE METER

The DeJur EXPOSURE METER is of the photoelectric type. It has a high-sensitivity cell and is designed for ease of manipulation.

The film speed dial is calibrated in the Weston system.

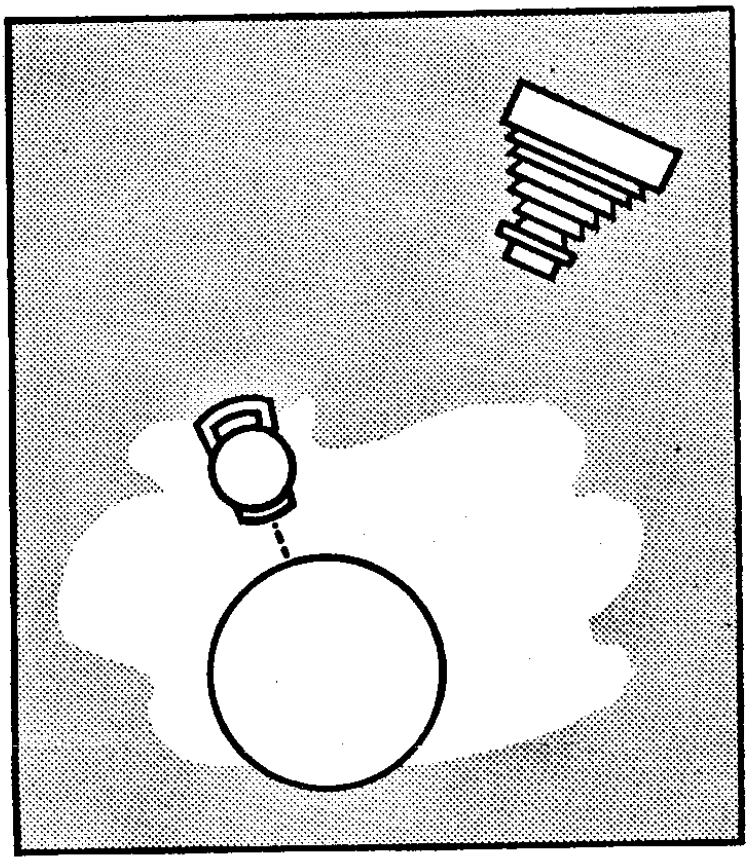
Before leaving the factory, the meter was carefully checked for accuracy by skilled craftsmen. However, due to unavoidable jarring during transportation, the meter may need adjusting. You should check your meter immediately upon purchasing it. To do this, hold your hand over the meter's window so as to cut off all light. The pointer should now rest at zero. If this is not the case, turn the zero set-screw in either a clockwise or counterclockwise direction until the pointer does register zero. Check your meter at regular intervals.

When in use, the meter is held in the hand with the narrow end directed toward the subject. This position places the Light scale in

plain view, showing also the needle which indicates the light strength. Without changing the position of the meter, (but raised in a convenient position) rotate the calculator disc with the thumb until the light value indicated by the pointer is opposite the sensitivity rating of the film you are using. When this is done, the black figures on the dial will provide a full range of stop-time combinations, all of them correct for the film used and the existing light.

In using the calculator, keep the red scales together and the black scales together.

The brief directions given above are sufficient for casual snapshots but the more careful type of photography demands a more careful interpretation of the meter reading, which in reality, indicates the light intensity and tells its photographic strength. The user must select the object whose reflections are to be measured, and in this elementary point the greatest number of errors are made.



Proper position of meter when taking a reading of the most important part of the subject.

Example: The subject is a girl wearing dark clothing and standing in front of shrubbery. While there is a sidelight on her face, the background is in shadow. If a reading is taken from the camera position, the exposure for the dark clothing and shrubbery will be obtained. The result is a badly overexposed face. As the face is the most important part, a reading is

made by holding the meter **in line with the camera,** but only a foot from the face. Then the exposure is for the face. The underexposure of the darker portions is unimportant because these elements of the picture are relatively unimportant.

Example: A photograph of a camera is to be made. The camera is largely black leather, and for contrast a white background is used. In the ordinary composition there will be a preponderance of white in the picture—about eight to one. If the exposure is read from the camera position, the exposure obtained will be that for the white background and the black camera will reproduce a black silhouette. To make a correct reading, one should hold a piece of black paper behind the camera which is being photographed. The meter reading is made from a distance of not more than a foot. The result will be a photograph in which the texture of the leather will be reproduced and the white will be so overexposed that it will remain a good, clean white in the print.

From these examples it will be seen that the meter will give the correct exposure for the

subject measured, but in using the meter you should be sure that you are reading the subject and not including non-important surroundings.

In addition to the above, it must be noted that many changes have occured recently in film materials. Faster emulsions and color films naturally make necessary a more exacting technique in the calculation of "correct exposures".

Keeping abreast with these changing conditions, necessitates a more comprehensive study of the scene being photographed.

To assist the owner of an exposure meter in obtaining the maximum performance from his instrument, the following exposure guide is recommended:

1. SCENES WHICH REQUIRE ONE-HALF EXPOSURE:

A. Areas which are surrounded by heavy shadows as in the case of photographs taken through arches, doorways or windows—in which the arch, door or window is included.

B. Snow scenes where detail is desired in the crystal structure of the snow itself.

2. SCENES WHICH REQUIRE DOUBLE NORMAL EXPOSURE:

A. Areas which contain patches of unavoidable highlights such as might be encountered in photographing buildings surrounded by skyshine or objects on a large body of water wherein much reflection occurs.

B. Snow scenes where detail is desired in dark objects rather than in the snow itself.

C. Distant landscapes which usually have a mist or haze that cut down on the reflected rays.

INDOOR PHOTOGRAPHY

The extremely sensitive DeJur Exposure Meter enables one to photograph objects indoors under natural light, such as may enter the room from a window. However, under adverse conditions, the intensity of such illumination may be too low to give a readable figure on the light scale. Under these circumstances, the following method will give satisfactory results: **hold the meter near the subject being photo-**

graphed and point it toward the main source of illumination. Read the meter and then proceed in the usual manner to obtain the correct shutter speed by using the calculator. Then multiply the shutter speed by ten and proceed to take the picture.

When artificial light, such as might be obtained through use of the common household electric light bulb or photoflood bulb, is the main source of illumination, one must consider the subject being photographed.

In portraiture, hold the meter about 12 inches from and pointing at the subject. In fashion work, hold the meter in the same manner about 3 feet away from the subject.

Readings thus obtained are used to calculate the exposure in the usual manner, remembering to substitute the Tungsten speed rating of the film.

SHUTTER SPEEDS FOR ACTION SHOTS

Children at Rest.....1/50th of a second
Moving Children .....1/100th of a second
Running Children .....1/200th of a second
Fast Moving Sports Shots...1/250th of a second
Top Speed Shots (Auto, Races, Trains, etc.).....1/500th of a second

The above shutter speeds are ample to "stop" the action of your subject, and to produce a sharp, clear cut picture. Whenever the light conditions vary, your DeJur Exposure Meter will show you the correct lens opening or "F" stop to use with the given shutter speed. Thus, you will be sure of a properly balanced picture, free from blurs, and sparkling in brilliancy.

The following is a typical example of the normal or average picture taken by a photographer.

The subject is a child playing on a lawn. Although you prefer to have the child pause long enough to let you take a picture, he keeps moving around. According to the above scale, the shutter speed for a moving child indicates 1/100th of a second.

1 . . Aim your Meter at the child. It is preferable that you get as close to the child as possible so that you will get as true a reading of the amount of light on the child as you can. The needle indicates a LIGHT VALUE of "15".

2 . . Turn the scaled disc until the figure "15" is directly opposite the number corre-

sponding to the SPEED RATING of your film. For example, you are using a film with a speed rating of "24". Therefore, the figures "15" and "24" will be together on the disc. Now glance at the opposite side of the disc.

3 . . The reading of the dial indicates that at a shutter speed of 1/100th of a second, the lens opening or "F" stop should be "8".

F:8 at 1/100th of a second is the correct adjustment to make for a perfect picture.

COLOR PHOTOGRAPHY

Because color photography is assuming major importance in the photographic field today, the DeJur Exposure Meter has been adapted to color, as well as black and white photography. The photo-cell has been carefully designed to respond to practically every visible color in the spectrum.

To secure the correct exposure, read the meter in the usual manner and then proceed to calculate the correct shutter speed, substituting the film speed rating of the color film being used.

Thus it may be understood that photographic exposure is not a cut and dried process, but a

very definite part of the art of photography. The best photographer is the one who learns best to make use of exposure and only by having the information which your DeJur Exposure Meter gives you can you expect to make proper use of exposures.

By taking a few moments to learn the correct use of the meter you can insure a perfect picture every shot.

SPEED AND STOP VARIATIONS

Although the long scales of the DeJur Exposure Meter cover most stops and speeds, you may find a stop or speed indicated that you do not have on your camera. In this case make use of the **next slowest speed** or the **next smaller f number** which is found on your camera.

Example: The meter indicates 1/12 at f 11. This speed does not appear on your camera, so you use 1/10 instead.

The meter indicates 1/25 at f 9. This stop is not on your camera lens, so you use f 8. The meter indicates 1/3 second at f 12.5. Neither this speed nor stop are found on your camera. The next small f number is 11, but

this calls for 1/4 second, but a glance at the scale shows you that you may use either 1/25 at f 4.5 or 1/2 at f 16. If you want to use an intermediate stop you may use 1/5 at f 8 quite safely.

MOTION PICTURE CAMERAS

Most standard amateur motion picture cameras have an exposure of 1/30 second when run at 16 frames a second. However this is not true in all cases so it is essential that you secure this information. (See Speed Sheet.)

To determine the correct exposure, make a reading and set the light value opposite the film speed. On the outer black-numbered scale will be found the shutter speed of your camera. Opposite this figure, on the inner black-numbered scale, will be found the correct diaphragm opening.

In still photography, when the exact meter exposure cannot be given, it is customary to give the nearest **greater** exposure. But in motion picture work, when such compromises are made, the nearest **lesser** exposure is given because overexposure in motion picture work is worse than underexposure—just the opposite of still photography.

When using other than the normal speed of 16 frames a second, the exposure must be compensated. For 8 frames a second, use the next smaller diaphragm stop (next greater number), so if the meter reads 1/30 at f 11, the correct stop for 8 frames is f 16.

Under similar circumstances we have:

24 frames—open 1/2 stop, or between f 11 and f 8.

32 frames—open one stop, or f 8.

64 frames—open two stops, or f 5.6.

Note: The above f numbers apply only when the original reading is f 11 as stated in the example.

CORRECTION FOR FILTERS

A photographic filter produces its characteristic result by preventing a part of the original light from passing into the camera. Because a part of the light is lost, the exposure must be increased. The increase is usually from two to five times. The factor for any specific filter will be supplied by the manufacturer of the film you use. In using filters, remember these points:

For any filter the factor changes with the

type of film used and with the kind of light which illuminates the object.

Artificial light has totally different factors for any combination of film and filter.

The factor permanently marked on the filter mount is worse than meaningless, because the factor changes with each film and light.

Disregard such markings entirely and consult the table on page 20 of this booklet.

Determine the exposure in the usual manner and increase it the number of times indicated by the factor for the film and filter.

Any supplementary lens which alters the focal length of the original lens, renders inaccurate the f numbers on that lens. A correction must be made according to the factor supplied by the manufacturer.

VARIATIONS OF SHUTTERS IN CAMERAS

Due to the variations of shutters in cameras owing to wear, age, etc., it may be helpful in order to get the best results possible from your DeJur Exposure Meter, to try an emulsion speed either one number higher or one number lower than that given by the film manufacturer.

By this method an emulsion speed can be

found for certain films which will give you the best results with the particular camera you are using. (Consult your DeJur film speed sheet).

CARE OF YOUR METER

The DeJur Exposure Meter is an instrument of high sensitivity and accuracy. As with any rugged-built high precision instrument, a reasonable amount of care and protection should be given to it.

To avoid any damage to your meter while in your possession, guard against the following:

Excessive jarring or jolting

Excessive dampness or heat

Removing meter casing or seal in an attempt to make repairs. This procedure nullifies any guarantee made by the manufacturer.

TECHNICAL DATA ON THE DeJUR EXPOSURE METER

The DeJur Exposure Meter is a scientifically designed instrument that weighs only 3½ ounces. It is so small that it can be easily slipped into the watch pocket or handbag. The large, legible scales on the meter and calculator make it easy to read. The exposure meter may

be held in either the right or left hand. In position, the thumb of the hand holding the meter moves the dial of the calculator; the entire instrument is held as comfortably as an ordinary pocket watch.

The galvanometer which "reads" the light that the cell gathers, is constructed from the finest materials available, and is assembled under ideal conditions by skilled craftsmen who have been specially trained for this particular type of work.

The finest grade of sapphire jewels, pivots, special alloy steel magnets and other materials go into the making of this instrument.

Range of Scales:

f stops—twenty combination from f 1 to f 32

Exposure times—thirty-one shutter speeds from 1/1000 to 60 seconds

Film speeds—nineteen speeds ranging from .3 to 200 Weston

Foot-candles—twenty values ranging from 1.5 cp to 1200 cp

Photo-cell set at an angle to eliminate "sky-shine."

Zero adjusting set screw.

COMPARISON OF SPEED RATING SYSTEMS

Scheiner	Din	H & D	Weston
8	1/10	35	.7
9	2/10	45	1.0
10	3/10	56	1.3
11	4/10	72	1.5
12	5/10	91	2.0
13	6/10	117	2.5
14	7/10	150	3
15	8/10	190	4
16	9/10	240	5
17	10/10	308	6
18	11/10	390	8
19	12/10	500	10
20	13/10	636	12
21	14/10	800	16
22	15/10	1050	20
23	16/10	1300	24
24	17/10	1700	32
25	18/10	2100	40
26	19/10	2700	50
27	20/10	3500	64
28	21/10	4400	80
29	22/10	5600	100
30	23/10	7200	125
		11600	200

FILTER FACTORS

FILM	K-1		K-2		G		A		X-1		X-2	
	Day	Tung.	Day	Tung.	Day	Tung.	Day	Tung.	Day	Tung.	Day	Tung.
AGFA												
35 mm. Spools; Also In Bulk												
Ultra-Speed Panchromatic	1.4	1.2	2	1.4	2	1.6	5	2.5	4	4	6	8
Superpan Supreme	1.4	1.2	1.6	1.4	2	1.6	8	3.4	3.5	2.5	4	4
Finopan	1.4	1.2	2	1.5	3	2	6	3	4	3	6	5
Fine Grain Plenachrome	2	2	4	3	7	6	.....	.....	6	4	8	5
Roll Film; Also Film Packs												
Superpan Press	1.5	1.2	1.7	1.4	2	1.4	3	3	4	4	6	6
Superpan	1.3	1.2	2	1.4	2	2	6	3	3	3	4	4
Finopan	1.4	1.2	2	1.5	3	2	6	3	4	3	6	5
Super Plenachrome	1.5	1.7	2.5	2.2	4	3	.....	.....	3	3	4	3
Plenachrome	2	2	4	3	7	4	.....	.....	6	4	8	5
Cut Film												
Triple S Pan	1.5	1.2	1.7	1.4	2	1.4	3	3	4	4	6	6
Superpan Press	1.5	1.2	1.7	1.4	2	1.4	3	3	4	4	6	6
Superpan Portrait	1.3	1.2	2	1.4	2	2	6	3	3	3	4	4
Supersensitive Panchromatic	1.5	1.2	2	1.5	2	1.5	4	2.5	4	6	6	7
Isopan New Type	1.6	1.4	2	1.5	2	1.5	8	4	3.5	2.5	4	4
Commercial Panchromatic	1.5	1.2	2	1.4	2.3	2	6	3	4	6	6	7
Super Plenachrome Press	2	1.4	3	2	6	3.5	.....	.....	4	3	4	3.5
Supersensitive Plenachrome	1.6	1.3	2	1.5	5	2	.....	.....	3	3	4	3
Commercial Orthochromatic	2	2	4	3	7	4	.....	.....	6	4	8	5

FILTER FACTORS

FILM	K-1		K-2		G		A		X-1		X-2	
	Day	Tung.	Day	Tung.	Day	Tung.	Day	Tung.	Day	Tung.	Day	Tung.
EASTMAN												
35 mm. Spools; No. 828 Rolls Also In Bulk												
Kodak Super-XX	1.5	1.5	2	1.5	3	2	7	4	4	3	.....	5
Kodak Plus-X	1.5	1.5	2	1.5	3	2	7	4	4	3	.....	5
Kodak Panatomic-X	1.5	1.5	2	1.5	3	2	7	4	4	3	.....	5
Roll Film & Film Pack												
Kodak Super-XX	1.5	1.5	2	1.5	2.5	2	4	.....	5	.....	.....	5
Kodak Panatomic-X	1.5	1.5	2	1.5	3	2	7	.....	4	.....	.....	5
Kodak Verichrome	2	1.5	2.5	2	5	3	.....	.....	.....	.....	.....	.....
Cut Film												
Super Panchro-Press	1.5	1.5	2	1.5	2.5	2	4	2	5	4	6	5
Panchro Press	1.5	1.5	2	1.5	2.5	2	4	2	5	4	6	5
Portrait Panchromatic	1.5	1.5	2	1.5	3	2	10	5	4	3	5	4
Safety Panatomic	1.5	1.5	2	1.5	2.5	2	4	2	5	4	6	5
Commercial Panchromatic	2.5	1.5	3	2.5	5	3	10	4	6	4	7	5
Panchromatic Process	2.5	1.5	3	2.5	5	3	10	4	6	4	7	5
Super Speed Ortho Portrait	2.5	2	3.5	2.5	.....	.....	.....	.....	.....	.....	.....	.....
Super Ortho Press	2.5	2	3.5	2.5	.....	.....	.....	.....	.....	.....	.....	.....
Safety Ortho Press	2.5	2	3.5	2.5	.....	.....	.....	.....	.....	.....	.....	.....
Par Speed Portrait	4	3	8	5	24	14	.....	.....	.....	.....	.....	.....
Commercial Ortho	3	2.5	5	4	.....	.....	.....	.....	.....	.....	.....	.....

FOOTCANDLE CONVERSION CHART

SCALE READING	FOOTCANDLES
0	0
1	1.5
2	2
3	3
4	4
5	6
6	8
7	12
8	20
9	25
10	40
11	50
12	75
13	100
14	150
15	200
16	300
17	400
18	600
19	800
20	1200

Good Lighting Practice:

0-3 footcandles—aisles, stairways, passageways, etc.

3-10 footcandles—lockerrooms, elevators, power plants, etc.

10-20 footcandles—classrooms, general offices, etc.

20-50 footcandles—fine officework, drafting rooms, etc.

50-100 footcandles—fine manufacturing, inspection, etc.

Consult your electric light company for further light requirements.