

FILMO
CINE' EXPOSURE
METER

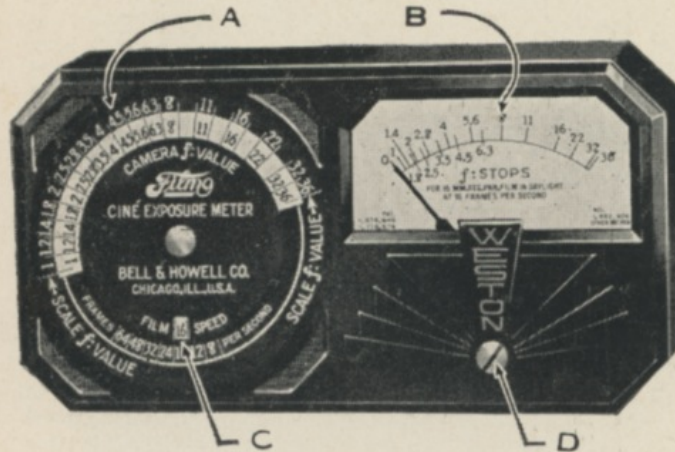
INSTRUCTION BOOK

A Special Weston
Model 650

BELL & HOWELL CO.
Chicago - London - New York
Hollywood

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OPERATING PARTS OF YOUR FILMO EXPOSURE METER



Additional Copies of
this Instruction Book
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A. EXPOSURE GUIDE

This rotating guide provides a simple means of quickly translating meter indications into any combination of aperture, shutter speed and film speed.

B. THE SCALE

The average light of the photographic scene is indicated on the scale which is calibrated in f: stops.

C. INDEX

Provided for accurately setting the exposure guide to the frames per second being used.

D. ZERO CORRECTOR

For resetting the pointer over the zero position when no light reaches the cell. See page 8.

HOW TO USE YOUR FILMO EXPOSURE METER

The Filmo Exposure Meter tells you at a glance, for each set of pictures under daylight, the correct f stop setting for your camera. Stop numbers are indicated directly on the instrument scale for Filmo 70 cameras operating at 16 frames per second when using any film rated at Weston Speed 16, and for Filmo 75 cameras operating at 16 frames per second when using any film rated at Weston Speed 20. For other combinations of film speeds, cameras, and frames per second, the exposure guide is used.

EXPOSURE GUIDE

The exposure guide expands the usefulness of this meter by quickly translating meter readings into correct exposures for any combinations of film speed and shutter speed.

1. Set the top dial so that the correct film speed value appears in the Film Speed window. Film speeds are shown on pages 6 and 7.
2. Now turn the center dial, which will also carry the top dial, until the white index under the window points to the frames per second at which the picture will be taken.
3. Aim the meter at the scene and note the reading.
4. Locate the position of the meter reading on the bottom (SCALE f: VALUE) dial. The corresponding value on the center dial is the correct f: stop setting for your camera.

EXAMPLE

Assume we are using a film rated at 12 Weston and that we intend taking pictures at 16 frames per second.

1. Set top dial so that 12 shows in the window.
2. Set center dial so that index is at 16 (See illustration.)
3. Assume meter pointer indicates 8.

4. Directly below 8, or in coincidence with it, is 6.3 on the center dial. This is the correct aperture at which to set your camera.



USE OF THE METER WITH KODACHROME FILM

Kodachrome, in common with all color processes has less latitude than black and white emulsions. Because of this, the problem of obtaining correct exposure requires considerable care. When dealing with black and white photography, variations in density can be compensated for in the developing. But with Kodachrome this is not the case as color rendition is dependent on the exposure alone and density control cannot correct for errors in exposure.

EXPOSURE LIMITS—Exposures must always be correct within (1) f stop (preferably 1/2) in order to obtain the best possible color rendition.

ACCURACY OF EQUIPMENT

Even with the highest grade cameras, shutter speeds and lens diaphragms may vary as much as 1/3 of an f stop. Likewise the highest grade exposure meters may vary 1/3 of an f stop. These errors may tend to cancel each other but if additive, certain corrections should be made. One method of doing this is described under paragraph "Recommended Film Speeds."

LIGHTING—Substantially flat lighting is recommended at all times so as to prevent excessive contrast. In general, pictures taken on cloudy or dull days will not be satisfactory as the colors will be quite flat and decidedly bluish.

RECOMMENDED FILM SPEEDS FOR KODACHROME

The following speed values are based upon the use of correctly calibrated equipment.

35, 16 or 8 mm. Kodachrome for
Emulsions above No. 9120

Daylight	8
Tungsten or Photoflood (with filter).....	3

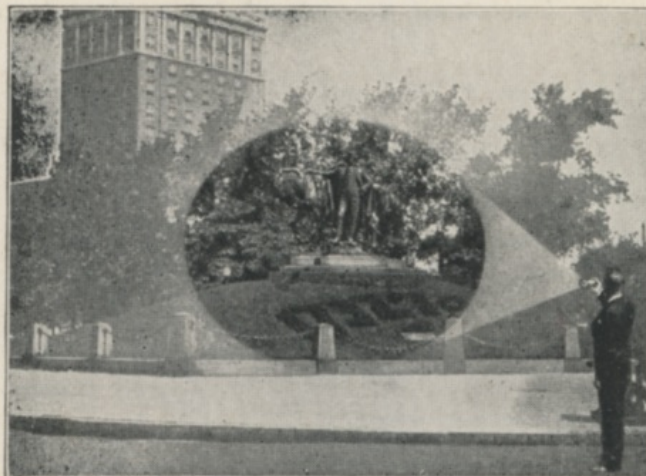
Kodachrome Type A

Tungsten or Photoflood (no filter re- quired)	12
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NOTE: The above film speeds are based on correctly calibrated camera equipment. If either under-exposure (pictures excessively blue) or over-exposure (pictures with colors washed out) is consistently obtained then the above values should be altered. For example, if pictures taken in daylight are consistently under-exposed then try a value of 6. If over-exposure is obtained try a value of 10. These corrections can also be made for tungsten or photoflood light.

It must be appreciated that the technique of obtaining colored pictures is considerably more complex than black and white photography. Kodachrome exposures require more care, but the results obtained should be ample compensation for this additional effort

EFFECT OF DISTANCE WHEN USING METER



If the meter is directed at a **uniformly** lighted area it will indicate the same brightness value irrespective of the distance between the object and the meter. The reason for this is obvious. While the intensity of light decreases as the meter is moved away, the area included by the meter increases in proportion. Therefore the two effects cancel each other and the brightness reading remains constant.

Because of the fact that the meter indications depend on average brightness, it is advisable, though not necessary, to approach the principal object. The "field of vision" of the Filmo Exposure Meter is restricted to an angle of 34°. In other words, the cell "sees" all of the light within a 34° solid cone, although 80% of the light is received within 21° which is the horizontal view angle of a 1" lens.

Close up readings are recommended whenever possible. If pictures are to be taken of a person, in which the face is the principal object, the meter should be held at a distance of 10 or 12 inches. This reading is then used as a basis for the exposure value. It is recommended that the meter be aimed directly at the principal object to avoid the inclusion of sky or bright foreground as these tend to give an inflated reading resulting in under-exposure of the main object.

WESTON FILM SPEEDS

The film speed when used with Photoflood Lamps is the same as for Tungsten Light.

	Day- light	Tung- sten
AGFA		
16 mm. Film		
Fine Grain Superpan Reversible.....	20	12
Panchromatic Reversible.....	16	8
Fine Grain Plenachrome Rev.....	12	8
Fine Grain Pan. Negative.....	8	6
Superpan Negative.....	24	16
Positive.....		0.3
35 mm. Films		
Fine Grain Superpan.....	24	16
Fine Grain Plenachrome.....	16	6
Finopan.....	16	10
Fine Grain Superpan Reversible.....	20	12
Positive.....		0.3
	mm.	
Finopan Straight 8.....	8	10
DUFAY		
Dufaycolor.....	35	8
DUPONT		
Superior Pan.....	35	24
Regular Pan.....	16	12
Superior Pan.....	16	24
Positive M.P. Film.....	35	2
Safety Sound Recording Film.....	16	2
Orthochromatic.....	35	10
Infra D Negative.....	35	8
Micropan.....	35	4
EASTMAN		
<i>Amateur Materials</i>		
Ciné Kodak S.S. Pan.....	16	24
Ciné Kodak Reg. Pan.....	16	16
Ciné Kodak Reg. Pan.....	8	8
Ciné Kodak Safety.....	16	12
<i>Professional Materials</i>		
S.S. Neg. Pan. (1217).....	35	24
Neg. Par Speed (1201).....	35	16
Positive.....	35	1
Sound (1359).....	35	**
Background Pan.....	35	10

	mm.	Day- light	Tung- sten
KINOLUX			
No. 1.....	16	3	1
No. 2.....	16	6	2
No. 3.....	16	24	16
MIMOSA			
Extrema Ortho.....	35	20	6
MONO FILM CO.			
Mono Film.....	16	8	3
PELLEX			
Panchromatic.....	16	12	8
Super Pellex.....	16	40	32
Orthochrome.....	16	8	3
SELO			
Super Pan. Ciné.....	16	16	12
Pan. Ciné.....	16	8	4
Orthochromatic.....	35	8	3

**Never used in daylight.

SHUTTER TIME FOR MOTION PICTURE CAMERAS 16 FRAMES PER SECOND

Camera	Approx. Time (Sec.)
Agfa Model B	1/30
DeVry	1/30
Eastman (all models)	1/30
Filmo all 70's Reg.	1/30
Filmo Golf 70	1/40
Filmo 71's	1/40
Filmo 8 mm.	1/40
Filmo 75	1/40
Filmo 121	1/30
Keystone (all models)	1/50
Paragon	1/30
Simplex	1/40
Stewart Warner 8	1/50
St. W. Hollywood	1/40
Stewart Warner 532A	1/40
Victor (all models)	1/30
Zeiss Kinamo S-10-16	1/30

NOTE—The difference in shutter time for the same number of frames per second is due to the varying size of shutter openings.

Shutter speeds of multi-speed cameras are proportional. If your camera shows a shutter speed of 1/30 sec. for 16 frames then for 64 frames per sec. the shutter speed will be four times as fast or 1/120 sec., etc.

USE OF FILTERS

When photographing with a color filter over the camera lens it is usually necessary to increase the exposure. A simple means of allowing for this is to divide the speed of the film by the filter factor and reset the film speed in the window to this new number and proceed as if no filter were used. For instance, if you are using a Pan. film with a speed of 16 in daylight and a P2x filter then, $16 \div 2 = 8$ —reset the film speed to 8. If you are using a P4x filter then $16 \div 4 = 4$ —in this case reset the film speed to 4.

For orthochromatic films the filter factor given for panchromatic film should be doubled. For example, if a P2x filter is used with orthochromatic film the filter factor is 4.

IMPORTANT

Direct sunlight will not harm the photo cell but if it is allowed to enter the cell opening when aiming at the scene, an erroneous indication of the f stop value will result. The electrical and physical characteristics of the Weston PHOTRONIC Cell are entirely stable and will not deteriorate with use.

ZERO SETTING OF INSTRUMENT POINTER

When no light reaches the "electric eye" in the back of the Exposure Meter, the instrument pointer should rest directly over the zero position on the scale. The pointer can easily be set to its zero position by slightly turning the zero corrector located on the front of the meter.

When making this correction, place the meter back downward on some opaque object, as a card or a book, so as to exclude all light from the cell, and hold it at an angle of about 45°.