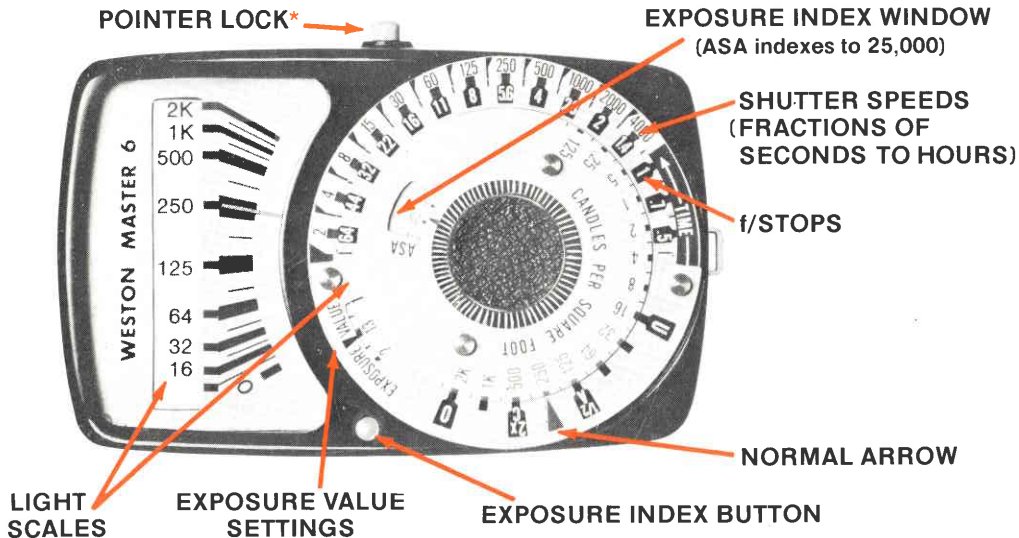


# WESTON<sup>®</sup> MASTER 6

## EXPOSURE METER INSTRUCTIONS



# THE abc's OF



\***POINTER LOCK:** With slot on button in direction of meter length, pointer is locked—depress to take reading. Press and turn button 90° and the pointer is free, lock ineffective.

# YOUR MASTER 6

PHOTOELECTRIC  
CELL

POINTER  
LOCK

BAFFLE

ZERO  
CORRECTOR

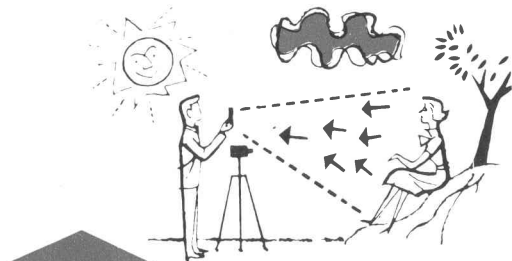
LOOP FOR NECKCORD



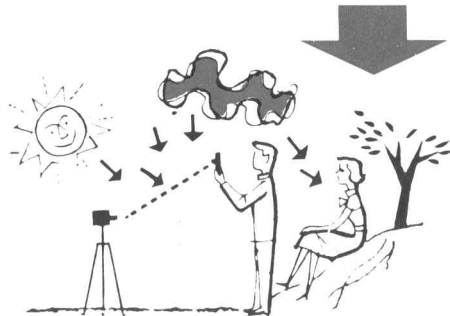
## HIGH AND LOW LIGHT SCALES

Your meter has two sliding light value scales to provide correct readings under extremely bright or very dim light conditions. Movement of the baffle automatically changes scales.

When the baffle is closed the high light scale (16-2K) moves into position. The baffle should be kept closed when the light reads 32 or higher. If the light reading is less than 32 the baffle should be opened for more accurate readings on the extended (.125-32) low light scale.



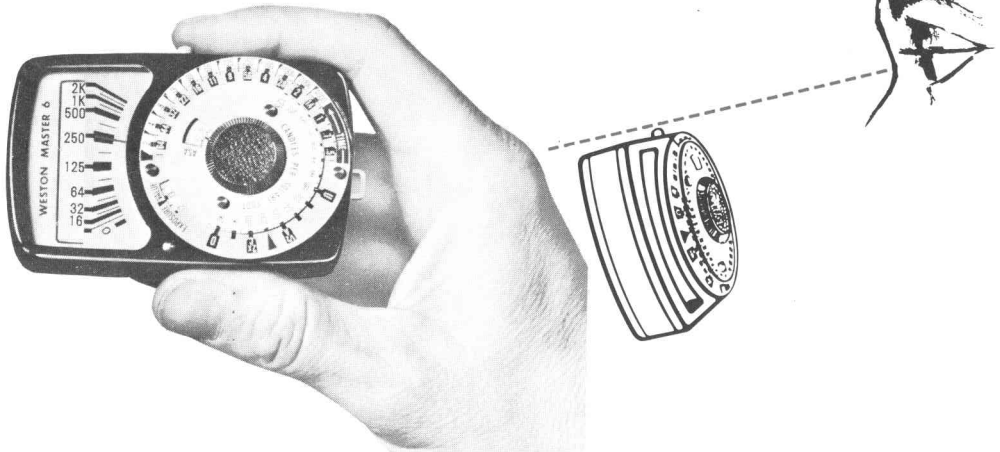
**REFLECTED OR  
INCIDENT LIGHT**



Reflected light is light reflected from the subject to the camera. Incident light is the light which falls on the subject. Measurement of either reflected or incident light can be used to determine correct exposure.

The Master 6 is basically a reflected light meter but with the addition of an adapter it can be used to measure incident light (See Page 14). For certain types of photography such as portraits or copy work incident light will be found quite convenient but for the majority of pictures reflected light is more suitable. The one you use will depend upon prevailing conditions and your own personal preference.

## REFLECTED LIGHT METHOD HOLDING AND AIMING THE METER



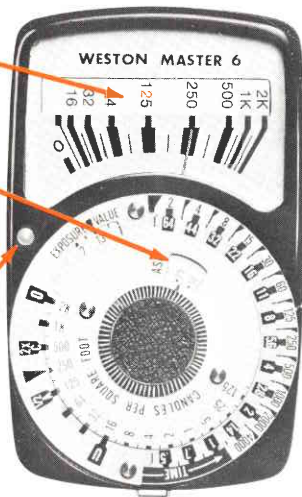
The best way to hold the meter is shown in the illustration. Be careful not to obstruct the photocell with your fingers or have the neckcord dangling across the cell opening. In outdoor general scenes, when the reading is taken from the camera position, tilt the meter at an angle slightly downward so that your line of sight passes over the front edge of the pointer lock, as shown in the insert. This will exclude sky areas which would tend to inflate the reading and cause underexposure.

# THE quick-easy WAY TO TAKE

LIGHT  
SCALE  
READING

EXPOSURE  
INDEX  
WINDOW

EXPOSURE  
INDEX  
BUTTON



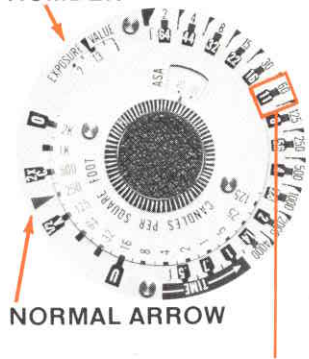
**SET THE FILM EXPOSURE INDEX** by first depressing the EXPOSURE INDEX BUTTON, then rotate the dial until the desired exposure index number appears in the window. Release button and the EXPOSURE INDEX locks into place. The Exposure Index number (commonly called "ASA Index") is given on the film manufacturer's data sheet enclosed with the film. For example let's assume an Exposure Index number of 32 (See illustration).

**AIM THE METER** at the subject or scene and note the reading on the light scale (assume 250).

POINTERS  
LOCK BUTTON

# E REFLECTED LIGHT READINGS

**EXPOSURE VALUE  
WINDOW AND  
NUMBER**



**NORMAL ARROW**

**SHUTTER SPEED  
AND f/STOP NUMBER**

## **POINT THE NORMAL ARROW**

at this reading (250) on the LIGHT SCALE of the exposure control dial by turning the large outer dial.

**SET YOUR CAMERA** with any combination of SHUTTER SPEED and F/STOP indicated, for example 1/60 second at f/11. Any combination of shutter speeds and f/stops opposite each other on the exposure control dial will give the same correct exposure: 1/125 second, f/8; 1/30 second, f/16; etc. The combination you select depends on whether you want a fast shutter speed (with its corresponding lower f/stop number) to stop action occurring in the scene; or depth of field with a higher f/stop number and its slower shutter speed.

**EXPOSURE VALUE NUMBERS**—Certain cameras are calibrated in Exposure Values. If you use this system, set your camera with the Exposure Value number appearing in the Exposure Value Window. In this instance, number 13.

# 3 BASIC METHODS for C

## 1. The Camera Position Method

This is a simple and quick method of using your meter and is usually used for most outdoor general scenes.

Hold the meter as shown on page 5 aiming toward the scene from the camera position. Point the meter down slightly to avoid reading sky areas which will give inflated values and cause under-exposure. Set the arrow on the exposure control dial to the light reading obtained, for example 500. Select any combination of f/stop and shutter speed opposite each other.



Meter Reading 500  
Exposure Index 32  
Use Normal Arrow  
Exposure 1/125 Sec.—f/11  
1/250—f/8 etc.





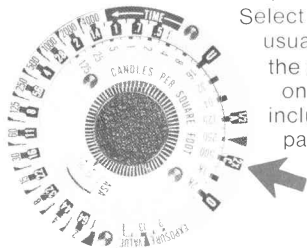
# ORRECT EXPOSURE

## 2. The Close-Up Method

This method should be used for portraits or any scene where there is but one subject of interest and the background is of no importance.

In general, the meter reading should be taken about six inches from the subject, but in no case should the meter be held farther away than the subject's smallest dimension. Set the normal arrow on the exposure control dial to this reading and select any combination of f/stop and shutter speed opposite each other. When the meter reading is taken from a person's face set the "C" position on the dial to the reading instead of the normal arrow (assume 500, see illustration).

Select the camera settings in the usual manner. If the shadow of the meter or your hand is cast on the subject be sure not to include it in the reading. (Turn page for Method Number 3.)



### EXAMPLE:

Meter Reading 500  
Exposure Index 32  
Use "C" Position

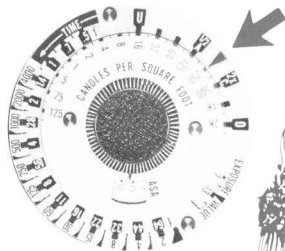
Exposure 1/60 Sec.—f/11,  
1/125 Sec.—f/8 etc.



### 3. The Brightness Range Method

This is the most accurate method for determining the correct exposure of scenes consisting of a wide range of bright and dark light values.

Take two close-up readings, one for the darkest object and one for the brightest. In color photography, black and white are not considered colors and should not be measured. Set the normal arrow midway between the two values measured. This will give an average exposure. For example, assume the darkest object reads 125 and the brightest 500. The normal arrow is set midway between at 250, as illustrated.



#### EXAMPLE:

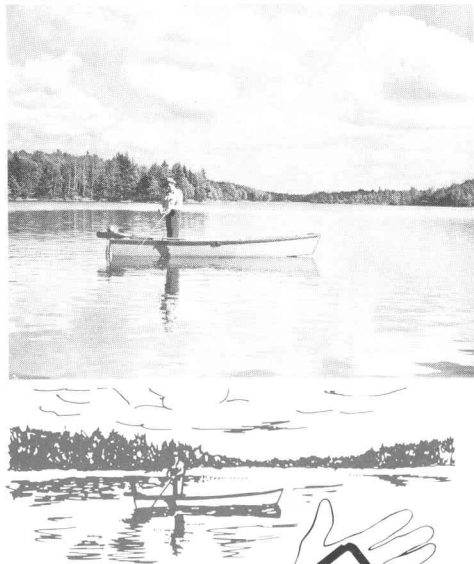
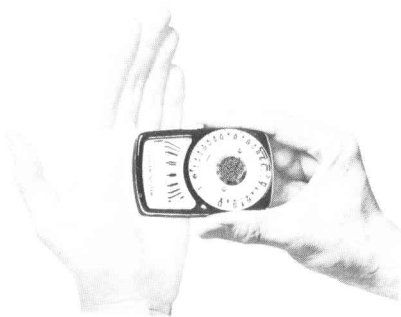
Meter Reading  
Dark Area 125  
Bright Area 500  
Use Normal Arrow  
Midway at 250

Exposure Index 32  
Exposure  
1/60 Sec.—f/11;  
1/250 sec. f/5.6 etc.

## SUBSTITUTE READINGS

If your subject is inaccessible for a close-up reading, substitute readings of nearby similar objects in the same light. Nearby trees for trees in the scene, rocks for rocks, etc. The palm of your hand is a good substitute for a person's face.

Set the arrow on the exposure control dial to the light reading; use the "C" position when reading flesh tones.



### EXAMPLE:

Meter Reading 500

Exposure Index 32

Use "C" Position

Exposure 1/60 Sec.—f/11 etc.

# THE U AND O POSITIONS

## ON THE EXPOSURE CONTROL DIAL

Black and white photographic film has a range within which it reproduces the brightness of objects in a scene in tones of gray from white to black. Knowing these limits enables you to expose so that the negative has the overall density most desired. The U and O positions on the exposure control dial are the limits of correct exposure for black and white film.

When a meter reading is taken from the camera position the reading is the average brightness of the entire scene. Assume in the illustration this reading is 250. From close-up readings of the hair, the darkest object, and of the robe which is the brightest object, readings were obtained of 125 and 500 respectively. Setting the normal arrow at 250 you will note that the 125 and 500 values are well within the U and O positions on the dial and therefore both the high and low brightness values will be included on the film.

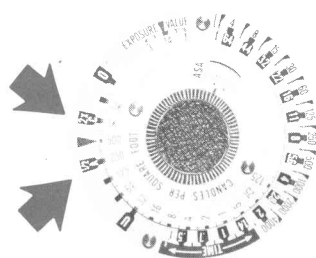
However, if the brightness ratio were greater (e.g., 1 to 500) and the normal arrow placed at the midway point (32), it will quickly be seen that objects having a brightness value of 250 or more will be overexposed since they fall outside the O position.



# THE A AND C POSITIONS

## ON THE EXPOSURE CONTROL DIAL

The A and C positions which represent a brightness ratio of 4 to 1 can be of great value in exposing for color shots. Attempt to have the primary colors of interest fall between the A-C positions for most faithful rendering of those colors. While most color films now have a range, or latitude, that exceeds this ratio, if the primary colors fall within the A and C position you can then be assured that the balance of the scene will be properly exposed within the limits of the film you are using.



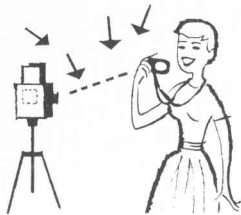
With black and white film the "A" is used to indicate "Absence of Contrast" and "C", "Contrast." The A provides a convenient way of halving normal exposure for "flat" scenes such as landscapes where there is no extreme contrast between highlights and shadows. The C provides double normal exposure as indicated by the 2X and is used for scenes of very high contrast such as back-lighted subjects.

# TAKING INCIDENT LIGHT READINGS

YOUR MASTER 6 CAN BE CONVERTED TO READ INCIDENT LIGHT SIMPLY BY ATTACHING THE SPECIAL WESTON ADAPTER.

## ATTACHING THE WESTON ADAPTER

For most indoor and outdoor pictures where illumination is relatively low, open the exposure meter baffle and slip the adapter into place, as shown. Where the level of illumination is high, close the baffle and slip the adapter into place over the baffle.



## USING THE WESTON ADAPTER

With the adapter attached, stand at the subject you are going to photograph and point the meter at the camera. The exposure meter settings are then selected the same as when taking reflected light readings. If the subject is inaccessible a substitute reading can be taken at the camera position providing the illumination is the same as on the subject.

# MOVIES AND YOUR MASTER 6



## FPS SHUTTER SPEEDS IN SECONDS

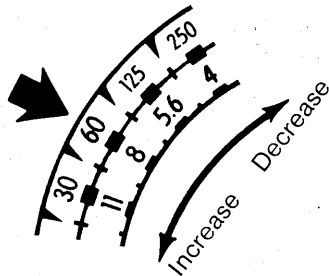
|    | (1)         | (2)   | (3)   |
|----|-------------|-------|-------|
| 8  | 1/15        | 1/20  | 1/25  |
| 12 | 1/20        | 1/30  | 1/40  |
| 16 | <u>1/30</u> | 1/40  | 1/50  |
| 18 | 1/35        | 1/50  | 1/65  |
| 24 | 1/40        | 1/60  | 1/80  |
| 32 | 1/60        | 1/80  | 1/100 |
| 48 | 1/100       | 1/125 | 1/150 |
| 64 | 1/125       | 1/150 | 1/200 |

Any of the techniques described for determining exposure on still subjects can also be used for movies. First, determine the exposure index of the film to be used from the manufacturer's data sheet and set this number in the EXPOSURE INDEX WINDOW. From your camera booklet determine your camera's shutter speed which, for the purpose of illustration, we will assume to be 1/30 second. Having made your exposure reading in the customary manner, you will find the correct f/stop opposite the 1/30 second value (in this case, f/5.6). If your camera shoots at 16 frames per second, no further adjustments are required. For cameras which operate at other frame speeds, consult table.

For example, find the shutter speed at 16 FPS for your camera from your camera instruction book—say, for example, 1/30 at 16 FPS as underlined. The required shutter speed for different FPS speeds will be found in the same column.

# HOW TO INCREASE OR DECREASE EXPOSURE

For special effects, or under unusual lighting conditions, it may be desirable to increase or decrease the indicated exposure. Since the *f*/stop scale markings are one full *f*/stop apart, the exposure can be *increased* one full *f*/stop by turning the outer control dial to the next *lower* number. To *decrease* the exposure, turn the dial to the next *higher* number. For example: shutter speed 1/60 second, *f*/8. Increase one *f*/stop, 1/60 sec., *f*/5.6. Decrease one *f*/stop, 1/60 sec., *f*/11



## HOW TO ALLOW FOR FILTERS

A simple way to compensate for the increased exposure required when using filters is to divide the exposure index by the filter factor.

### FOR INSTANCE:

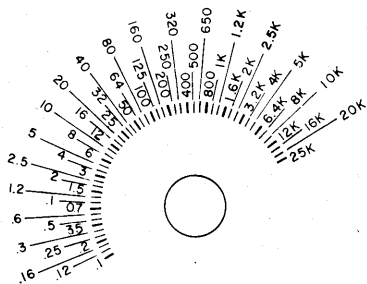
$$\frac{(\text{Exposure Index})}{(\text{Filter Factor})} = 50 \quad \begin{array}{l} \text{(Exposure} \\ \text{Index} \\ \text{to set on your} \\ \text{camera)} \end{array}$$



# MASTER 6

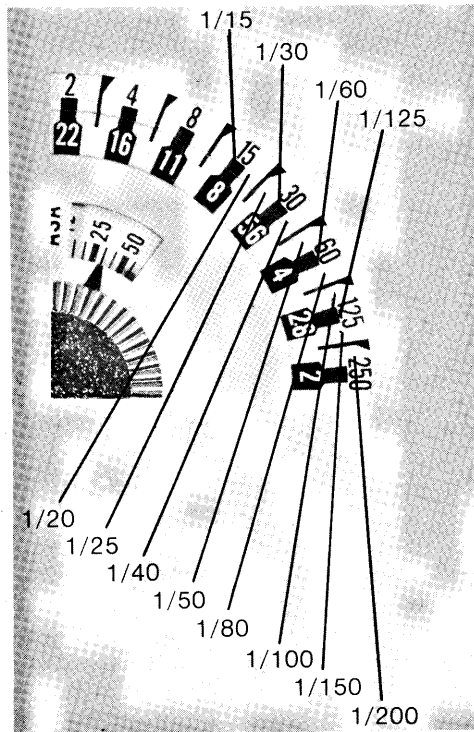
## CALCULATOR DIAL

The dial on your Weston MASTER 6 contains a wealth of information and a few moments spent in familiarizing yourself with the dial will certainly be time well spent. The calculator dial consists of three (3) metal plates, which for the purpose of identification, we will designate as top, middle and bottom plates.

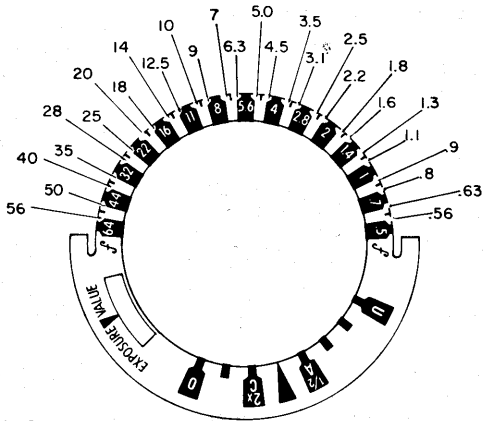


ASA VALUES OF UNNUMBERED BLOCKS

## INTERMEDIATE SHUTTER SPEEDS



## INTERMEDIATE f/STOPS



## TOP PLATE:

The outer rim of this top plate contains the equivalent Candles Per Square Foot Measurements. The top dial also contains a window marked ASA and after the ASA lock button on your meter has been depressed, the top plate may be turned so that the black arrow is positioned opposite the speed of the film. The speed of the film

is normally called the ASA, but at times is referred to as film rating, film speed, emulsion speed or exposure index.

## MIDDLE PLATE:

Along with the f/stop marking from .5 to 64, this plate also contains the normal arrow (red) which is used to line up light scale reading with arbitrary numbers on top plate. Limits of correct exposure for black and white, "U" and "O," and the "A" and "C" for color are also shown. These are described on Pages 12 and 13 of the instruction book. You will find the use of the "C" position very handy when reading skin tones and for sand, snow or water. Since exposure meters are made to read average reflectance, your MASTER 6 provides a convenient method to obtain correct exposure under conditions that require twice normal exposure. The Exposure Value window is also found on this middle plate.

## BOTTOM PLATE:

Contains shutter speeds from 1/4000 to 2 hours.

Fractions of seconds—shown as black numerals on white.

Full seconds—shown as white numerals on black.

Minutes—shown as red numerals on white.

Hours—shown as white numerals on black.

This plate also shows the ASA markings from 0.1 to 25K, the "K" used here is an electrical term denoting thousands; and since the exposure meter is an electrical instrument, this is appropriate. Your meter is therefore capable of giving correct exposure determination with films having ASA ratings up to 25,000.

#### RECIPROCITY:

All films do not have the same reaction to extended exposure times; and, therefore, it is recommended that any necessary exposure correction peculiar to the film being used, be obtained from the film manufacturer.

#### ANSEL ADAMS ZONE SYSTEM DIAL:

An accessory dial is available for followers

of the Ansel Adams Zone System of exposure. This dial allows the user to "pre-visualize" the scene to be photographed in shades ranging from white to black. For those not familiar with this system, the following books, all published by Morgan and Morgan, Hastings-On-Hudson, New York, are recommended.

Basic Photo Series

(By Ansel Adams)

Book II, The Negative

Book III, The Print

Book IV, Natural Light Photography

Book V, Artificial Light Photography

Polaroid Land Photography Manual

(By Ansel Adams)

Exposure With The Zone System

(By Minor White)

#### NOTE:

The Zone Dial may be ordered from your local dealer. Price \$3.95 plus postage. In placing your order would you please advise your dealer that this item is distributed by Weston Instruments, Inc., 736 Monterey Pass Road, Monterey Park, California 91754.

# EXPOSURE FOR SPECIAL EPE

## SNOW, BEACH and WATER SCENES

Take readings of the brightest and darkest objects and use the f/stop midway between or take a reading from the palm of your hand and use the "C" position. Most appealing snow textures occur when the scene is back-lighted or cross-lighted.

## COPY WORK

When copying pages of a book or photographs in black and white or color take a reading from a white card placed over the subject. Divide the exposure index by five and set this value in the Exposure Index window. Point the arrow at the light reading obtained and select the camera settings in the usual manner.

## TELEVISION

Adjust the television screen for contrasty black and whites. Place the camera on a tripod, set the shutter at 1/30 second and focus on the lines across the screen. Dim the room lights. Take a close-up average reading holding the meter about six inches

from the screen. Set the meter arrow at this reading and select the camera settings in the usual manner.

## AERIAL PICTURES

To prevent the sky from inflating the reading, aim the meter down toward the ground. In general, below 1,000 feet use the meter reading indicated; from 1,000 to 2,000 feet stop down 1/3 f/stop; from 2,000 to 4,000 feet close down 1/2 f/stop; above 4,000 feet close the camera aperture one full stop from the reading. Use a Skylight or U.V. Filter with daylight color film, no exposure correction is required. This will also serve to protect your valuable lens.

## OVERCAST SCENES

Overcast scenes frequently lack contrast due to diffused light and absence of shadows. In such situations black and white pictures can be improved by using the "A" position on the meter rather than the normal arrow when scene brightness is measured from the camera position.

# CTO AND UNUSUAL CONDITIONS

## KEY and FILL LIGHTS

For normal results in studio photography, the lighting contrast range should be limited to 8:1 for color, and 64:1 for black and white. This means that the key light for color should produce no more than 8 times the light falling on the subject than the fill lights, and for black and white the key light should produce no more than 64 times the fill light.

To determine the ratio of key light to fill light, insert the adapter in the exposure meter, stand at the subject's position, and measure the light produced by the key light by aiming the adapter at this light, with all other lights turned off. Now turn off the key light and measure the light produced by the fill light. If the ratio is greater than the suggested limits, move the lamps near to or farther away from the subject, as required.

## CONTRASTY SCENES

Occasionally scenes metered from the

camera position will be excessively contrasty. Exposure for black and white pictures can be improved by doubling the exposure indicated by placing the "C" position opposite the brightness reading. Remember, "C" stands for contrast, so use the "C" position for contrasty pictures.

## ABSENCE OF CONTRAST

For scenes with little or no contrast, being metered for black and white film from the camera position, set the "A" on the meter opposite the reading obtained. This will halve the exposure and result in a better print. Remember, "A" stands for absence of contrast.

## FLASH OUTDOORS

Flash outdoors can be used to illuminate shadows, especially of backlighted subjects. For natural looking results the flash fill-in should be only a secondary source. Use blue bulbs with daylight color film. Check the flash lamp carton and find the guide number. Aim the meter at the scene

and determine the f/stop. Now divide the flash guide number by the f/stop number to get the proper flash distance from the subject. This will provide a pleasing effect in the majority of pictures.

## EXTENDED BELLOWS

Where the subject-to-lens distance is less than 8 times the focal length of the lens, a corrective shutter speed must be computed. In this computation, if the focal length of the lens is given in millimeters, convert it to inches by dividing the focal length by 25 (1 inch = 25mm).

### EXAMPLE:

Assume your lens has a focal length of 8" and you are shooting at a shutter speed of 1/125 second at f/5.6. Using the f/stop numbers as focal length numbers (take f/8 to be a focal length of 8"), place the 8 on the f/stop scale above the 1/125 second shutter speed.

Measure the distance of the bellows extension (lens-to-film distance). Assume this

distance to be 16". Now look on the f/stop scale and find the number 16 and directly below on the shutter speed scale will be found 1/30 second. The new shutter speed (1/30) should be used with the f/stop selected previously (f/5.6). Align these two values on the meter dial and any of the exposure combinations aligned may be used, i.e., 1/60 sec., f/4; 1/125 sec., f/2.8, etc.

## A WORKING TEAM

It is possible that slight errors in camera shutter speeds, lens calibrations, as well as exposure meters may be additive and result in consistently over-or under-exposure.

Your camera and exposure meter should be tested together as a working team by making trial exposures of the same scene at different exposure indexes to determine if any compensation is necessary.

If your pictures indicate equipment errors change the listed exposure indexes, lowering them if consistently underexposed and raising them if overexposed.

## ZERO CORRECTOR

A wise precaution is to check the position of the meter pointer once in a while to be sure it returns to zero when all light is excluded from the photo-electric cell.

To set the pointer, cover the cell with your hand or a card and turn the zero corrector until the pointer is directly over zero on the light scale.

## CARE OF YOUR METER

Normal temperatures and humidity will not harm the meter but temperatures in excess of 130°F, which you might find in the glove compartment of a car, may affect the meter's accuracy.

## MEASURING ROOM ILLUMINATION

To determine the footcandles of light falling on any surface such as a writing desk or work bench, take a reading from a piece of white paper. Multiplying the candles per square foot by 4 will give approximate footcandles;

## FOR EXAMPLE:

If the light reading is 8 candles per square foot,  $4 \times 8 = 32$  foot candles.

When the adapter is used, the multiplying factor is 25.

The following chart illustrates the values of the unnumbered candles per square foot blocks:

| Candles/ft <sup>2</sup> | Candles/ft <sup>2</sup> | Candles/ft <sup>2</sup> |       |
|-------------------------|-------------------------|-------------------------|-------|
| *2000                   | 100                     | 5                       | *.25  |
| 1600                    | 80                      | *4                      | .2    |
| 1300                    | *64                     | 3.2                     | .16   |
| *1000                   | 50                      | 2.5                     | *.125 |
| 800                     | 40                      | *2                      |       |
| 650                     | *32                     | 1.6                     |       |
| *500                    | 25                      | 1.3                     |       |
| 400                     | 20                      | *1                      |       |
| 320                     | *16                     | .8                      |       |
| *250                    | 13                      | .65                     |       |
| 200                     | 10                      | *.5                     |       |
| 160                     | *8                      | .4                      |       |
| *125                    | 65                      | .32                     |       |

\*Indicates numbered value on light scale

# WARRANTY

This product is warranted to be of good workmanship and quality and free from defects. Our liability is limited to repairing any such defects, provided it is returned, prepaid with a \$2.50 check for handling and inspection, to one of our authorized repair stations within one year after date of purchase. Weston shall not be liable for consequential damages. This warranty is in lieu of all other warranties, guarantees, liabilities, or obligations, statutory or implied to the original purchaser or to any other person.

All instruments returned for warranty repair should be sent, prepaid with a \$2.50 check for handling and inspection to:

**Weston Instruments, Inc.  
736 Monterey Pass Road  
Monterey Park, California 91754**

Attach an identification tag clearly showing your name and address and identify the defect in the meter. Careful packing is important to prevent further damage during shipment. Please do not send instruction books, carrying cases and other accessories with the meter. **TO AVOID DELAY—PLEASE MAKE SHIPMENTS VIA SPECIAL HANDLING.**

Make checks payable to: Weston Instruments, Inc.

Out-Of-Warranty repairs should be sent directly to this same address.

F-3764-AM/PM

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