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INSTRUCTION BOOK

WESTON

*Master II*

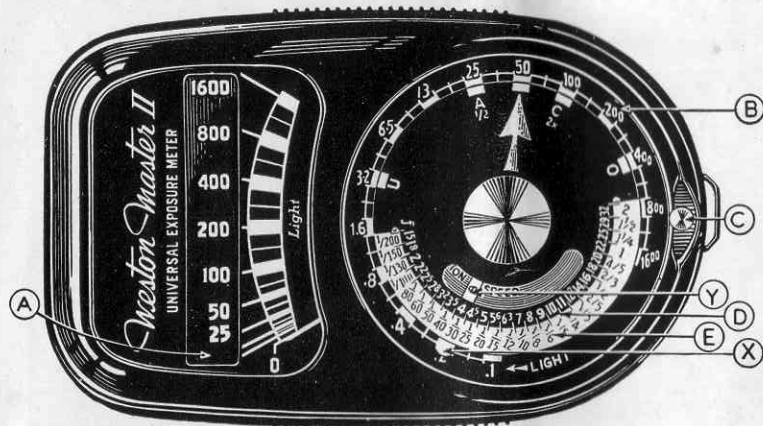
Model 735 UNIVERSAL  
EXPOSURE METER

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Weston Electrical Instrument Corp.  
Newark 5, N. J., U. S. A.

# METER DESCRIPTION

www.orphancameras.com



**A. Light Scale . . .** This is where the light value of the scene is indicated. The two scales on this instrument are calibrated 0-50 and 0-1600. (candles per square foot.)

**B. Light Value Settings . . .** The outside row of figures on the exposure control dial correspond to the light values on the light scale.

**C. Film Speed . . .** To set the exposure control dial for film speed, ascertain the film speed from booklet enclosed with the meter, depress button "C" and move tab "X" until the Weston speed of the film in use appears in window "Y."

**D. f/stop Settings . . .** The row of figures at the bottom of the top dial shown at "D" are f/stop values.

**E. Shutter Speeds . . .** The row of figures directly below f/stop settings at "E" are shutter speeds. After setting the exposure control to the light value obtained on the light scale, any of the combinations of f/stop and shutter speed directly opposite each other are correct. The combination to use depends upon the requirement of the scene. (See # 4, introduction.)



F.



G.



## F. High-Light Scale

On the rear of the meter a hinged baffle will be found. The light sensitive photo cell is directly beneath this baffle. When the baffle is closed, the scale range is 0-1600. Keep the baffle closed if the light is 25 or higher.

## G. Low-Light Scale . . .

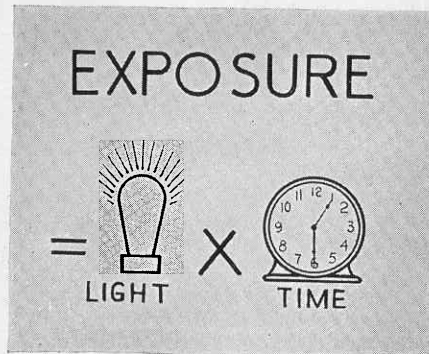
When the light reading of the scene is less than 25, open the baffle. With the baffle open, the scale range is 0-50. To open the baffle simply slide the latch and swing open against the case until the latch engages in the socket, holding it in the open position.

# INTRODUCTION TO METERED PHOTOGRAPHY



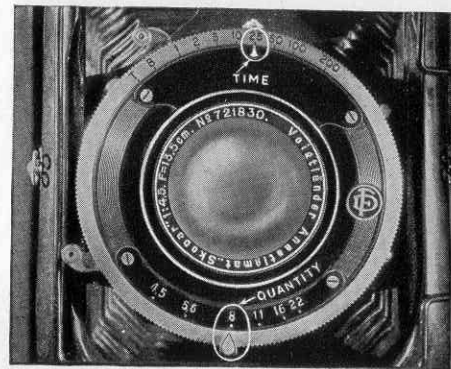
## **Light Affecting the Film**

The light striking the film in your camera will vary not only because the light falling on the scene being photographed varies, but also because the reflecting ability of the scene changes from one scene to another. Therefore your exposure meter is designed to measure reflected light, or brightness rather than incident light.



## **Exposure**

Exposure is the product of the length of time the light from the scene acts on the film, multiplied by the amount of light striking it. At all times this product should be approximately the same for the same film. If the amount of light is small, the time would be long; if the amount of light is large, the time would be short.



## **Controls of Exposure**

The controls of exposure are the f/stop and the shutter speed. The f/stop controls the amount of light and the shutter speed the length of time light acts on the film. The smaller the f/stop number, the larger the aperture. Shutter speeds written as 2, 5, 10 are fractions of seconds, 2 being 1/2, etc.

### 1. The Exposure Control Dial . . .

The exposure control dial on your exposure meter translates the light readings indicated by the meter, into camera settings. It is simple to use and designed to give you the best possible exposure for every type of scene.

### 2. Film Speeds . . .

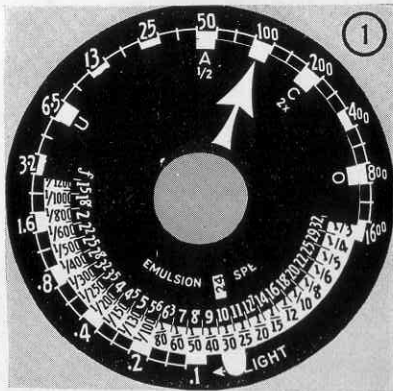
Film speeds differ from one film to another; and for different kinds of illumination. Use the daylight speed of the film listed in the enclosed pamphlet when photographing in natural light, the tungsten value for photoflood and mazda lamps. Set the film speed dial in accordance with instructions "C", page 1.

### 3. Holding The Meter . . .

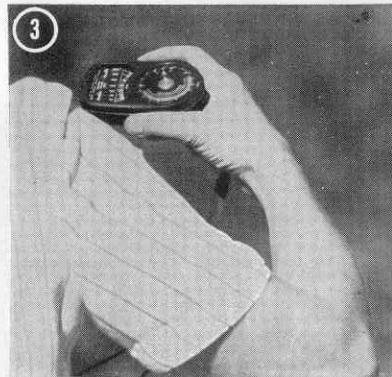
Hold the meter any way natural to you, but be sure not to obstruct the cell with your fingers. Also be sure the neck cord does not lie across the cell opening, for this too would result in an incorrect reading.

### 4. After Setting Dial . . .

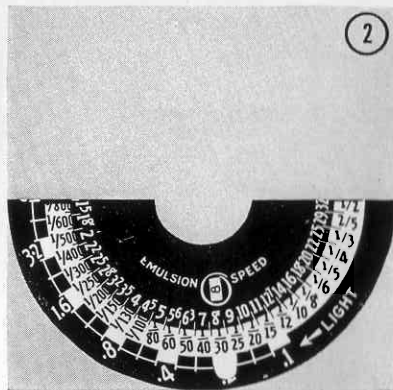
After setting the dial to the light value of the scene, any combination of f/stop and shutter speed directly opposite each other will result in correct exposure. If the scene is an action one, a fast shutter speed should be chosen, and hence the f/stop directly opposite is used. If maximum depth of field is needed, then a small aperture is required, (large f/stop number), hence the shutter speed directly opposite is used.



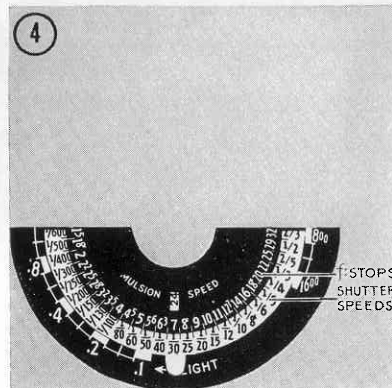
1



3



2

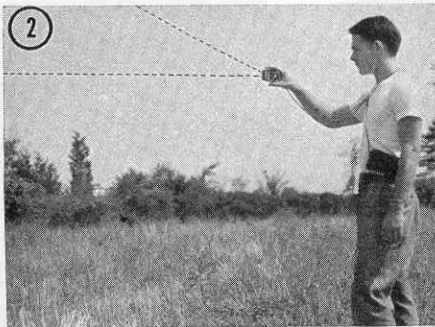
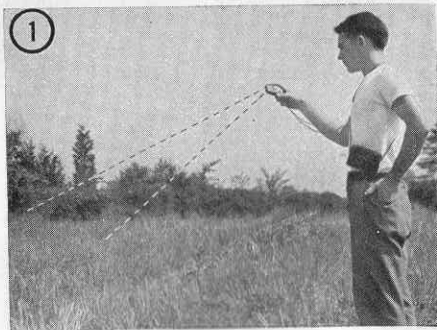


4

# BLACK and WHITE

## CAMERA POSITION METHOD

The camera position method is so named because the meter is used at the location of the camera. It is a simple method and the one used most frequently by photographers. Do not measure sky areas. This method should not be used for back-lighted snow, sand or water, since the sparkling reflections will result in under exposure of the shadow areas. But for landscapes, and other types of photography where a quick reading is wanted, the camera position method will be quite satisfactory.



### 1. Make a Light Reading . . .

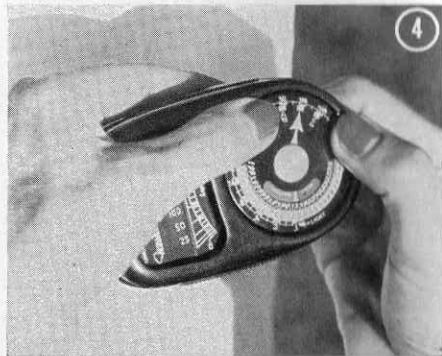
Make a light reading by aiming the meter at the scene, pointing the instrument downward. Consider a spot midway between your feet and the horizon line as the aiming spot.

### 2. Do Not Measure Sky . . .

Do not measure any sky when making a reading. The sky being very much brighter than the rest of the scene will "inflate" the reading and thus result in under exposure.

### 3. Note The Light Value . . .

Note the light value when making the reading. You will notice that only every third block is numbered thus resulting in a simpler scale. To remember the unnumbered blocks, consider the one above a numbered one to be "plus" that number and the one below, "minus." For example, plus 25 would be the block above 25, and minus 25 the one below.



## 4. **Set The Dial** . . .

Set the dial by revolving the disk on which the large Arrow is located until the Arrow, A, or C position is opposite the light value indicated. An explanation of which one to use follows.

## 5. **The Flat Scene** . . .

Distant scenes, where the nearest important object is  $\frac{1}{2}$  mile away, which are usually lacking in contrast, will give flat, dense negatives, if given full normal exposure, and frequently lack sharpness, due to halation. Likewise views through arches, doors, windows, or other dark openings forming a framework, will give a lower average light reading than would result if measured outside. In such scenes, use the "A" position, for  $\frac{1}{2}$  normal exposure, instead of the normal arrow.



## 6. **The Normal Scene** . . .

The Normal scene has a contrast range midway between the flat and the contrast one. Being Normal, normal exposure should be given by setting the Arrow opposite the light value measured. Eighty percent of all scenes require normal exposure. When in doubt, use the Arrow position.

## 7. **The Contrast Scene** . . .

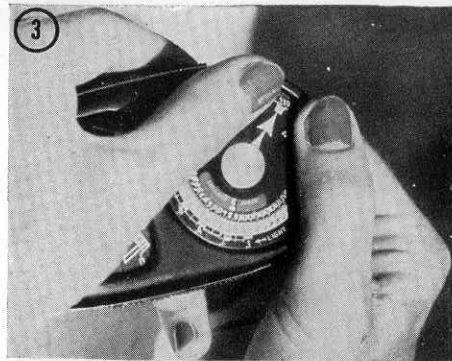
Back lighted and street scenes frequently exhibit excessive contrast. Likewise in snow scenes where dark objects are important, light reading will be unduly increased by the intense reflection from the snow.

Such scenes should be given double normal exposure to bring out the darker objects. Use the "C" position instead of the normal arrow.



# THE CLOSE-UP METHOD

The close-up method is so named because the meter is held close to the object being photographed. With this method, only one object is measured and hence the film will be exposed particularly for the one object, all other objects falling where they will. It is used when there is but one object of interest in the scene and where the other objects are background and have no importance.



## 1. **Take Close-Up Reading** . . . .

Take a close-up reading of the object of principal interest. Hold the meter close to the object, about as far away as the object's smallest dimension. The meter can be held closer than this distance, but not farther away.

## 2. **Do Not Read the Shadow Cast by the Meter** . . . .

Your meter and hand may cast a shadow on the object being measured. If so, be careful not to read the shadow. To do so would cause an erroneous reading. It may be necessary to hold the meter at an angle to the direction from which the light is coming, but be sure the object being measured is not shadowed by the meter.

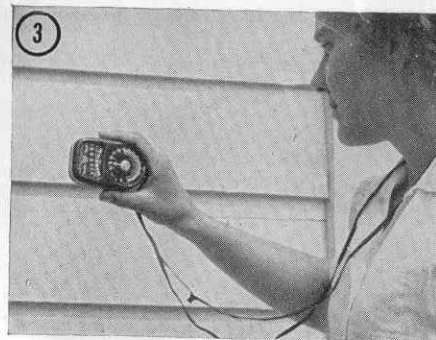
## 3. **Set Normal Arrow** . . . .

The normal Arrow should be set opposite the light value obtained from the close-up reading. Then any of the camera settings shown on the dial will be correct. **DO NOT FORGET TO SET THE CONTROL DIAL TO FILM SPEED BEING USED!**



# THE BRIGHTNESS RANGE METHOD

The Brightness Range method is so named because the brightness or light values are determined from the darkest and brightest objects, thereby determining the range of the scene. Exposure is balanced midway between the two extremes. It is the most accurate method known for the determination of correct exposure, and is recommended for the best possible negative from the exposure viewpoint.



## 1. Consider the Scene . . .

Let us consider an average scene. There are various objects in it reflecting different amounts of light. The dark objects reflect little light, the bright objects much light. In a fine photograph, all objects are correctly exposed. To be sure of doing so, the extremes of dark and light should be measured.

## 2. Make a Close-Up Reading . . .

Make a close-up reading of the darkest object in the scene i.e. that object which yields the smallest light reading. If you are not sure which object is the darkest, measure several that appear to be the darkest, and use the lowest value.

## 3. Make a Close-Up Reading . . .

Make a close-up reading of the brightest object in the scene, i.e. that object which yields the greatest light reading. Here again, if you are not sure which is the brightest, measure several that appear to be so.



#### 4. **Do Not Read the Shadow Cast by the Meter** . . .

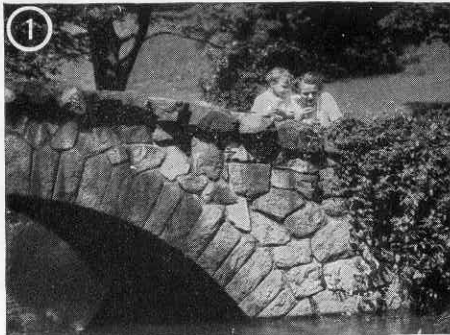
Your meter and hand may cast a shadow when making close-up readings. If so, be careful not to read the shadow. To eliminate the shadow, the meter can be held at an angle to the direction from which the light is coming.

#### 5. **Set The Arrow** . . .

Set the Arrow on the dial midway between the darkest and brightest object light values. By "midway" is meant that the Arrow should be the same number of blocks from the darkest object light value, as it is from the brightest. All combinations of f/stop and shutter speed directly opposite each other are then correct.



## SUBSTITUTED READINGS



It is not always possible to measure the actual objects in the scene. Yet the photographer might need the greater accuracy the brightness range method yields. Where the actual objects are inaccessible or where it is inconvenient to measure them, substituted readings of nearly similar objects can be made.

For example when making the accompanying picture, (1) it would have been inconvenient to cross the stream to make actual readings. Instead, nearby trees were substituted for the actual trees (2) in the scene, a white handkerchief substituted for the young lady's blouse, (3) and close-up readings made of them. Then the exposure meter dial was set with the two substituted values.

It is frequently possible to substitute objects. But be sure that the objects are similar, a tree for a tree, grass for grass, etc. And be certain that the objects are lighted the same. If the actual object is in full sunlight, then the substituted one should be in sunlight also. The palm of the photographer's hand makes an excellent substitute for a person's face. Only be sure that the hand is lighted the same as the face for which it is substituted and that no shadow is cast onto the hand.

# THE U AND O POSITIONS

www.grphancameras.com

Photographic film has a range or limits within which it reproduces the brightnesses of the objects in the scene in tones of gray. A knowledge of these limits enables the photographer to expose so that the negative has the overall density most desired by him. The U and O positions are the limits of correct exposure for black and white film. For a given setting of the dial, all objects whose light values fall on or between these two limits

will be correctly exposed. Any object having a light value below the U position will be underexposed and any object having a light value above the O position will be overexposed.

If, then the U position is set opposite the darkest object light value, the minimum correct exposure will result. If the O position is set opposite the brightest object light value, the maximum correct exposure will be obtained. And if the normal Arrow is set midway between, a midpoint exposure can be had.

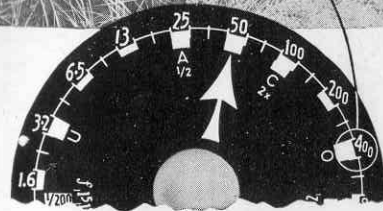
The different light values on the exposure control dial represent the light values of actual objects found in the scene. Since the different light values in the scene result in different densities in the negative it is obvious that the values on the dial can also be visualized as densities.

Since the minimum correct exposure results from matching the lower limits of the scene and film, the densities on the negative will be as thin as is possible and still be correctly exposed. And the exposure will be as short as is possible and still be correct. This fact is worth remembering when the action in a scene dictates minimum exposure.

Maximum correct exposure on the other hand results in the densest possible negative consistent with correct exposure. Since maximum exposure is based on matching the O position to the brightest object in the scene, correct exposure can be measured in a location where

the light is insufficient for other types of measurements. In a dark hall or cave, it might be impossible to obtain a reading from anything but the brightest object.

The U and O positions not only allow the photographer to control the overall average density in his negatives, they also enable him to make correctly exposed pictures under extreme conditions of movement and lighting.



# COLOR PHOTOGRAPHY

Correct exposure for color photography is no more difficult than for Black and White. The brightness range method of using the meter is the most accurate, as it enables the photographer to correctly expose that part of the scene which is of principal interest. The "A" and "C" positions indicate the range of color film, therefore objects having a light value falling between these limits will be correctly exposed. Remember that blacks and whites are not considered, and are therefore not measured.



## 1. A Scene for Color . . .

Here is a scene ideally suited for color photography. The contrast range is low, flatly illuminated, and the object of interest is in full sunlight where the color of the light is that for which the film is balanced.

## 2. Make Close-Up Reading . . .

Make a close-up reading of the darkest color in the scene by holding the meter close to it. Remember to hold the meter at least as close to the object as its smallest dimension, closer if you wish, but not farther away.

## 3. Make Close-Up Reading . . .

Disregarding the white in the scene, make a close-up reading of the brightest color. Be sure not to cast a shadow of your hand or of the meter onto the object being measured.

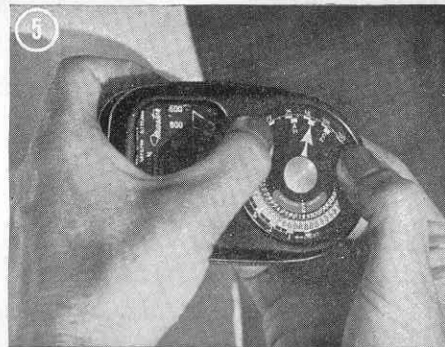
# COLOR PHOTOGRAPHY

## 4. Do Not Read the Shadow Cast by the Meter . . .

Your meter and hand may cast a shadow on the subject being measured. If so, be careful not to read the shadow. To do so will cause a lowered reading and hence overexposure. Hold the meter at an angle to the direction from which the light is coming.

## 5. Set Normal Arrow . . . .

Set the Arrow midway between the darkest and brightest color light values. This centers the exposure and utilizes the film range in the most expeditious manner.



## The A and C Positions



## The Limits of Film Range . . .

The A and C positions on the exposure control dial are indications of the range of color film. The A position represents the lower limit of the film range, while the C position represents the upper limit. After setting the dial for any scene, all objects whose light values fall on or between these two positions will be correctly exposed. If an object has a light value such that it falls below the A position on the dial, it will be underexposed; and if above the C position, the object will be overexposed.

It is recognized that the scene range can be defined as the relationship between the brightest and darkest color light values. For example, if the brightest color light value is 100 and the darkest 20, the

scene range is 5 ( $100 \div 20$ ). The range of color film is generally considered to be about 4, and the range represented by the A and C positions is 4. Therefore, it is easy to determine whether or not the scene range will fit the film range . . . if the scene range is 4 or less, it fits, if 5 or more, it doesn't.

If possible the scene should be lighted in such a way that the scene range conforms to the film range. This means lighting as flat as possible. Many times it is possible to change the angle from which the photograph is being made, and thus shorten the scene range.

However, when the scene range is greater than the film range, and cannot be shortened in any way, it is possible to expose particularly for the part of the scene of greatest interest.

# Color Photography

## **The Dark Colors. . . .**

If the dark colors are of interest, the A position on the exposure control dial should be set opposite the darkest color light value in the scene. This matches the lower limit of the scene range, with the lower limit of the film range.

## **The Middle Colors . . . .**

If the middle colors are of interest the Arrow should be set midway between the darkest and brightest color light values. This matches the middle of the scene range with the middle of the film range.

## **The Bright Colors . . . .**

If the bright colors are of principal interest, the C position on the guide dial should be set opposite the brightest color light value. This matches the upper limit of the scene range with the upper limit of the film range.

Usually the most pleasing color picture results from the third alternative, exposure for the bright colors. Hence, unless the darker colors are the main subjects, it is suggested that this method be used for all scenes.

## **7. Face Tones . . . .**

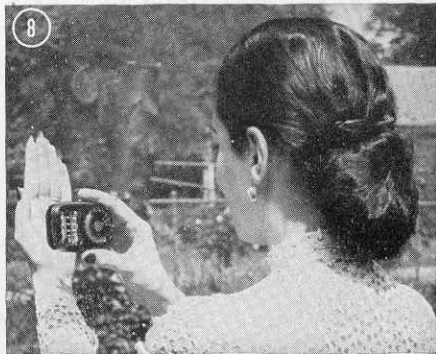
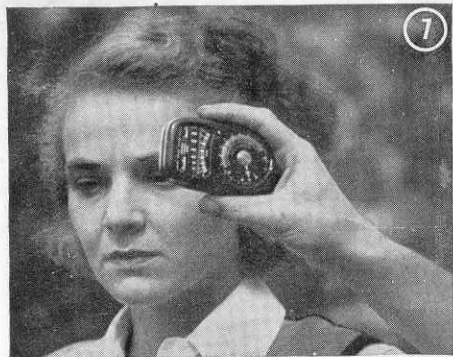
When the color picture is to be a portrait usually the brightest color is the face. Since that is the most important color anyway, an excellent way of exposing for color portraits is to measure the highlight on the face and set the C position opposite the light value.

## **8. Substitute The Hand . . . .**

By substituting the palm of the hand for a person's face, and then setting the C position to that light value, excellent color portraits can be made, quickly and easily.

## **9. Do Not Read the Shadow Cast by the Meter . . . .**

When taking the reading from the hand, your meter may cast a shadow onto the hand. If so, be careful not to read the shadow. This would result in a meter reading that was too low and an exposure too long.



## 10. *Lighting* . . .

Do not use a lighting set-up of extreme contrast when photographing in color. Color itself will provide ample contrast in the picture. Too great lighting contrast results in a scene beyond the range of the film, making correct exposure for all objects impossible.

## 11. *Time of Day* . . .

If pictures are taken before 10 A.M. or after 3 P.M. a color correction filter should be used, and the exposure corrected accordingly.

## 12. *Subjects In Shade* . . .

Do not photograph shaded subjects in color. The shaded portions of the scene are lighted by reflected sky light rather than sunlight. Sky light is bluer than the sunlight for which the film was balanced.



# EQUIPMENT ERRORS

All photographic equipment is manufactured to accuracy tolerances which make it possible to produce this material in quantity. These tolerances result in small errors in shutter speeds and f/stops. Usually these errors cancel each other. But it is possible for them to be additive resulting in consistently over or under exposed color pictures. If your pictures indicate such errors, change the listed film ratings, lowering them if consistently under exposed and raising them if over exposed. A test of a few exposures at different film speeds all of the same scene is helpful in determining if such compensation is necessary.

A ciné camera is theoretically the same as a still one. It has various f/stops to control the quantity of light entering the camera, and a shutter to control the duration of exposure. The main difference is the fact that the ciné camera makes a series of pictures one after another of the same scene. The theory of exposure is the same in both cases and the use of the exposure meter is identical.

Since the exposure meter is used the same for ciné photography as for still, all methods described before are correct. The best method is the brightness range wherein two readings are made and the camera settings determined by setting the Arrow position midway between.

When panning, be sure to change exposure setting if the lighting in one part is materially different from that in another. Make meter readings in both parts of the scene and change the camera settings when the camera views a lighter or darker portion of the scene.

Every movie camera has a definite shutter speed. Usually this is given for the normal "frames per second" of 16. For example, 1/30th of a second. After the exposure control dial is set the correct f/stop will be

found directly opposite 1/30. At 32 frames per second, the shutter speed will be twice that at 16, or 1/60th of a second. At 8 frames, the speed will be half as great, or 1/15th. Note the table.

Frames per second	Shutter speed
8	1/15
16	1/30
24	1/45
32	1/60
48	1/90

If the shutter speed is not marked on the exposure meter control dial, use the nearest number on the dial. For example, 1/45th could be considered 1/40th. The same relationship applies for cameras having a shutter speed different from 1/30th of a second at 16 frames, for example 1/40th at 16 frames, or 1/50th.

Your new exposure meter is rugged and well made. But like a fine watch, which it resembles in many ways, normal care should be given.

If your meter has been damaged, pack it carefully. **Do not send carrying cases, booklets, etc. Return to:**

Service Department,  
WESTON ELECTRICAL INSTRUMENT CORP.,  
Newark 5, New Jersey, U. S. A.

Or through your regular photographic dealer. Prompt attention is paid to all damaged meters. Charges are nominal, depending upon the amount of work needed.

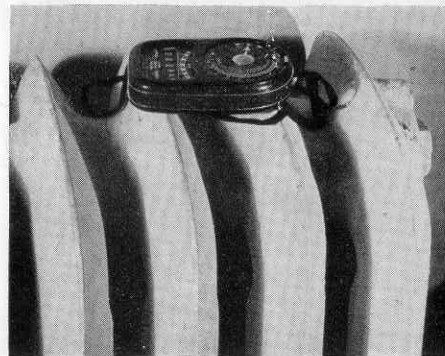
### **Do Not Overheat Meter!**

Normal or even abnormal summer temperatures will not harm the meter. But do not store in a hot place such as on a radiator or in the glove compartment of a car.

**Do Not Drop Meter!** Like a watch, the jeweled bearings and exactly shaped pivots may be damaged by a fall.

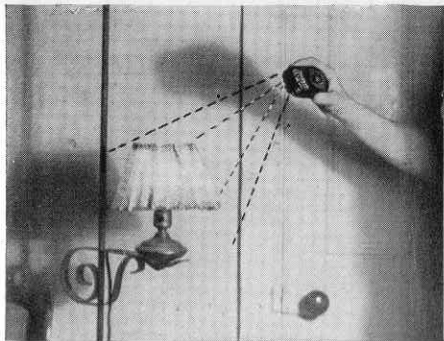
### **Do Not Submerge Meter!**

Your meter is moisture proofed, that is water vapor in the air will not harm it. However it is not waterproofed, so don't drop it in the lake.



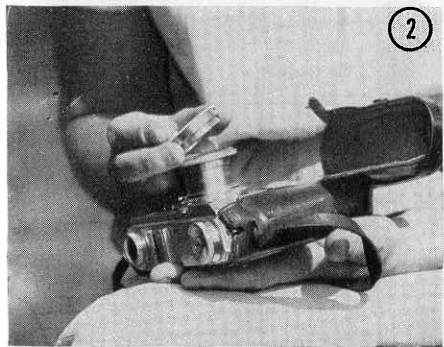


# ADDITIONAL HINTS



## 1. The Two Scales

When the meter is pointed at a small light source such as a reading lamp light, the high and low scales might not read exactly the same. This is due to the difference in viewing angles when the baffle is opened or closed. In practical use, this difference does not show up, and does not influence the results obtained in any case.

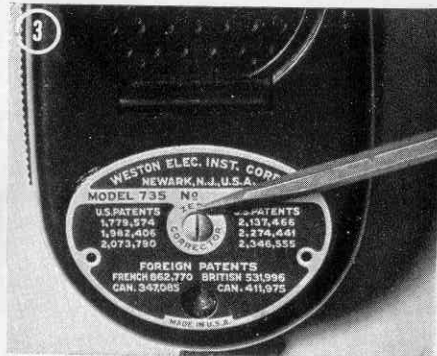


## 2. Use of Filters

When filters are used, exposure should be increased, the exact amount being indicated by the filter factor of the film-factor combination. The easiest way to compensate for this is to divide the film speed rating of the film in use by the filter factor, setting the resultant number on the dial of the meter. For example, if the film speed were 100, and the filter factor 2, the meter dial would be set with a film speed of 50.

## 3. Zero Corrector

If your meter does not indicate zero when no light strikes the cell, do not be alarmed. This occasionally happens to all electrical indicating instruments. The zero corrector, located on the back of the meter as shown in the illustration should be revolved until the pointer rests at zero. Cover the cell with a card or your hand when making this adjustment.



## f/stop Equivalents of Other Step Systems . . .

Camera with stops marked 1, 2, 3, and 4, . . . the f/ equivalents usually are f: 14, f: 16, f: 22 and f: 32 respectively.

Camera with stops marked 1, 2, and 3, . . . the f/ equivalents usually are f: 16, f: 22 and f: 32 respectively.

For V.P.K. cameras with stops 1, 2, and 3, the f/ equivalents are f: 11, f: 16, f: 22.

### Conversion of f Stops to U. S. Stops

f	4	4.5	5	5.6	6.3	8	11	16	22	32
U.S.	1	1.4	1.6	2	2.5	4	8	16	32	64

## **Computing Exposure in Close-Up Work . . .**

(A) Set the Exposure Control Dial of the Meter to the film speed specified for use with the white card reading. If film being used is other than types designed for "white card reading," divide the film rating by 5, using nearest film speed on the Control Dial.

(B) Place a white card in copying position, directly on subject to be copied.

(C) Take a close-up brightness reading of the white card.

(D) Place the Normal Arrow on the Exposure Control Dial opposite the brightness reading obtained, and then select the exposure in the usual manner.

Where the subject-to-lens distance is less than 8 times the normal focal length of the lens, the indicated aperture values do not hold true and thus a corrective shutter speed must be computed.

In this computation, if the focal length of the camera is in inches, millimeters, centimeters, etc., then the new focal distance must be measured in identical units. The corrected shutter speed or effective aperture opening can then be com-

puted with the Exposure Control Dial in the following manner:

(1) Assume a 4-inch focal length lens with a film in use having a Weston Film Speed of 4, the brightness reading as suggested above on the white card to be one block below 100. Let us select the exposure of 1/10 second at f/6.3.

(2) Measure the new focal distance (lens-to-film) of the copy set-up in inches, e.g., 9 inches.

(3) Align shutter speed selected in step 1, 1/10 second, with the f/stop value which is equal to the lens focal length in inches, f/4.

(4) Opposite the f/stop value which is equal to the new focal distance in inches, f/9, will be found a corrected shutter speed value, 1/2 second, to be used with the f/value selected, f/6.3.

(5) Align the corrected shutter speed, 1/2 second, and the aperture selected, f/6.3, and any of the exposure combinations aligned may be used, e.g., 2 second at f/12.7, 1 second at f/9, 1/5 sec. at f/4, etc.

## **Illumination vs. Speed . . .**

Film sensitivity varies with the type of illumination to which it is exposed. Therefore a given film is rated for daylight, or

natural light, and tungsten, or incandescent light. Daylight means all types of natural light whether the day is sunny or cloudy. Tungsten means photofloods and the regular incandescent lamps used in some types of spot and flood lamps. Use daylight ratings with daylight type fluorescent lamps.

## **Weston Speeds . . .**

Weston Exposure Meters are calibrated in terms of Weston film speeds particularly compiled for you, the photographer. It is a photographer's standard developed over 15 years ago by Weston which has proven to be the key to the solution of modern exposure problems. In a new modern laboratory equipped and staffed for the purpose, film samples, secured as you secure them for every day use are processed to determine the ratings. Not only in the laboratory but also in the field, film speeds are accurately and impartially determined and checked for your information. Even the best exposure meter is worthless with improper film speed values and in Weston Film Speeds and the Weston Exposure Meter you have the two factors to insure correct exposure.

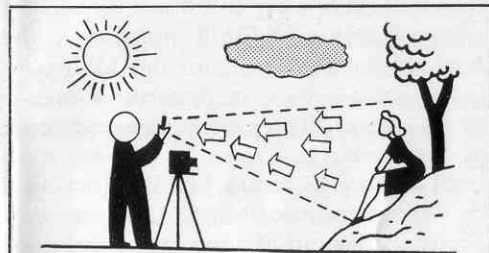
# INCIDENT LIGHT MEASUREMENTS WITH THE \*INVERCONE

The Weston \*INVERCONE Incident Light Adapter, when associated with Weston Master Meters, extends the scope of the basic Brightness Meter to embrace the method of Incident Light Exposure Determination. The INVERCONE permits the user to retain the many basic advantages of Reflected Light, yet extends the use of the device



The INVERCONE consists of two parts, the INVERTED CONE and the AUXILIARY MULTIPLIER.

for Incident Light readings when that method is desired. Comparatively, Incident Light readings (Refer to figure 1) are based upon the intensity and angle at which the light strikes the subject, and Brightness readings (refer to figure 2) are based upon the light falling on the subject and the ability of the subject to reflect the light.



## Measuring Incident Light

Weston Master Universal Exposure Meters, with the Invercone Adapter, measure incident rather than reflected light. The meter "sees" all of the light falling upon the subject.

The meter is aimed at the camera from the subject position.

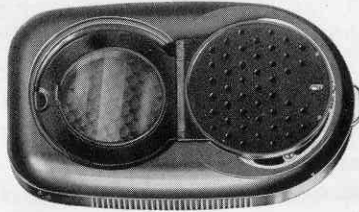
FIGURE 1

\*INVERCONE trade-mark

Weston Exposure Meters are designed to measure reflected light, or brightness, rather than incident light. The meter "sees" approximately the same light as strikes the film in your camera.

The meter is aimed at the subject from the camera position.

FIGURE 2

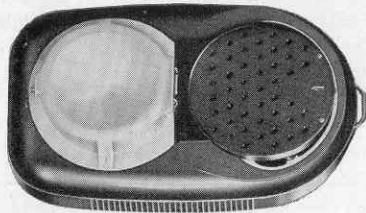


The AUXILIARY MULTIPLIER in position . . . high light scale readings require the use of the Multiplier and Inverted Cone in combination.

FIGURE 4

The Auxiliary Multiplier automatically changes the light scales to the proper positions for either low or high light conditions, serving a purpose similar to that of the baffle when the meter is used for Reflected Light readings. Thus, with this unique automatic feature, and with no added adjustment, the user is aware which range of the meter is in operation.

The INVERCONE consists of two parts, an Inverted Cone (Refer to figure 3) and an Auxiliary Multiplier (Refer to figure 4). It is easy to attach. Open the meter baffle and hold it against the back of the meter, insert the Multiplier and then position the Inverted Cone in place over it. The high range and scale of the meter are then in use for high light intensity conditions. For low light conditions encountered indoors and occasionally out-of-doors, the Multiplier is removed and the Inverted Cone used alone, which places the low light scale in position.



The INVERTED CONE in position . . . low light scale in use.

FIGURE 5

## USING THE \*INVERCONE

After attaching the INVERCONE to the meter, point the meter at the camera from the subject position.

Note the meter reading and use the Exposure Control Dial in exactly the same manner as used when Reflected Light readings are taken.

For scenes where it is impractical to reach the subject position to measure the light falling upon the subject, detach the INVERCONE and take a conventional camera position reflected light measurement.

However, if the light at or near the camera position appears to be equal to the subject's illumination take a substitute reading of incident light using the INVERCONE.

Unlike reflected light exposure meters an incident light type of exposure meter must be calibrated for a scene of average light reflectance. The INVERCONE is so calibrated.

Note the following recommended Exposure Control Dial settings for typical scenes.

#### TYPE OF SCENE

#### DIAL SETTING

Average, where high-lights and shadow areas are evenly distributed . . . groups of people, portraits or similar subjects . . . all color work.

Set NORMAL ARROW to reading obtained on the meter scale.

Flatly lighted, such as landscapes where using black-and-white film.

Set the "A" position to the reading obtained on the meter scale.

Contrasty, dark object or subjects where shadow areas predominate or where good shadow detail is desired.

Set the "C" position to the reading obtained on the meter scale.

The INVERCONE integrates all the light regardless of the number of the lights or their position. Therefore in an outdoor scene, the meter should be aimed toward the camera from the subject position, thus taking into consideration the light falling on the subject. Under conditions of identical illumination at both the subject and camera

position, the reading may be made at the latter, retaining the same direction of aiming the meter in relationship to the subject-camera angle. However, when the area to be photographed is composed of both sunlight and shade areas of equal proportion or importance, a reading should be made under each illumination condition and the arrow placed midway between the values indicated. For indoor work under artificial illumination the reading must be made close to the subject, as the light at the camera position usually differs from that at the subject position.

The scope of the meter has been increased to facilitate readings under certain conditions, and provides an easier means of controlling the lighting contrast ratio. It does not, however, eliminate the necessity of determining whether or not the brightness range of the scene exceeds the reproduction limits of the film. Frequently the light-

ing contrast, range of the scene and the exposure determined with emphasis placed on the objects of interests, can all be accomplished by one set of readings with the Reflected Light Meter. It should remain the basic tool of the photographer in view of its versatility.

No one method of exposure determination is a cure-all. The ease of operation of Incident Light readings increases the scope of application of the Exposure Meter. All are subject to failure under certain conditions when not in the hands of the careful worker, yet in the hands of the skilled worker, both perform an important part of his applications. Under identical light and subject conditions the two methods may give slightly divergent results, yet this is the phase of photography where the careful worker, having calibrated his equipment, applied his experience, departs into the esthetic or artistic phase to accomplish the desired results.

## CARE OF THE INVERCONE

The two components of the INVERCONE are durable, yet as all photographic equipment, should receive reasonable care. The Inverted Cone should not be snapped into place, but by holding the baffle against the rear of the meter, it will be found to slide smoothly into place. Both parts can readily be cleaned with soap and luke warm water if they become dirty and affect the light transmission.

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## NOTES