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Your Guide to Correct Exposure...



WESTON

Ruggedized

**MASTER III
EXPOSURE
METER**

WESTON

Ruggedized

MASTER III

... the culmination of over 20 years' experience in the production of photoelectric type exposure meters by the world's leading manufacturer of precision electrical measuring instruments.

You have purchased the finest of exposure meters and, guided by the simple instructions in this booklet, you can be assured of correct camera settings for all your pictures, indoors or outdoors, in color or black and white, and with all movie or still cameras including Polaroid and cameras with the new LVS shutters.

Your Master III is calibrated to ASA specifications, has film ratings up to 3200, and will read reflected or incident* light values on the same scales which are calibrated in 1/3 f/stop increments. To safeguard your meter against shock your Master III is ruggedized with spring-back jewels and a fully cushioned movement — further assurance of dependability for years to come.

*With the Weston Invercone

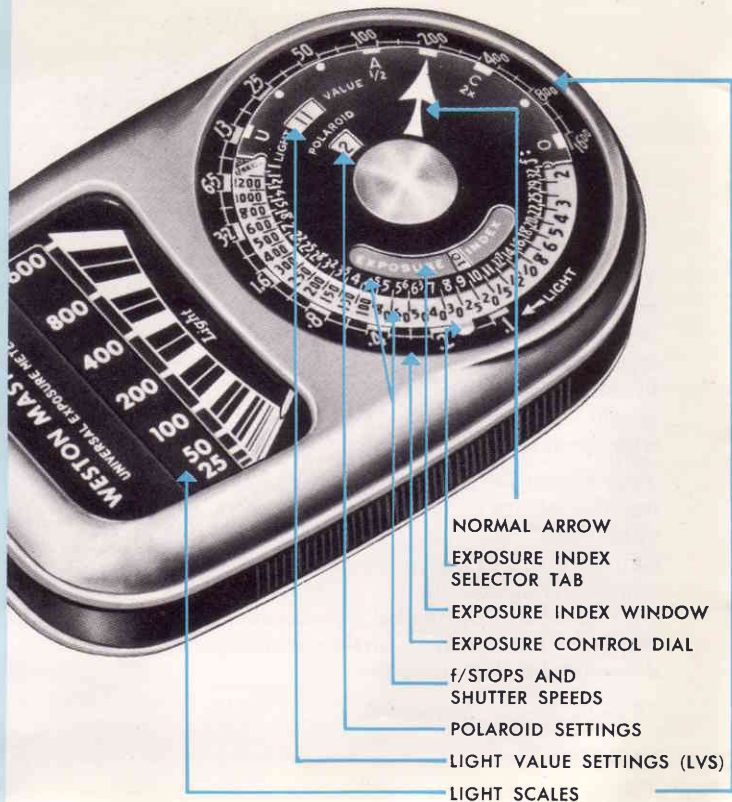
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Spend a few moments with your Master III

SETTING THE EXPOSURE INDEX

First determine the speed of the film from the enclosed Exposure Index sheet or by referring to the film manufacturer's data sheet. Then move the Exposure Index Selector Tab until this number appears in the window marked *Exposure Index*.





MODEL 737
WESTON ELEC. INST. CORP.
NEWARK, N. J., U. S. A.
5 PATENTS
2,137,466
2,274,441
A-S-A CONSTANT
FRENCH FOREIGN PATENTS
CAN 5-47,065
MADE IN U.S.A.
2-346,555
2-163,770
2-528,716
BRITISH 531,996
CAN 411,975

ZERO CORRECTOR

HINGED BAFFLE

PHOTOELECTRIC CELL

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 hinged baffle automatically changes scales.

When the baffle is closed the high light scale (0-1600) moves into position. The baffle should be kept closed when the light reads 50 or higher. If the light reading is less than 50 the baffle should be opened for more accurate readings on the extended (0-50) low light scale.

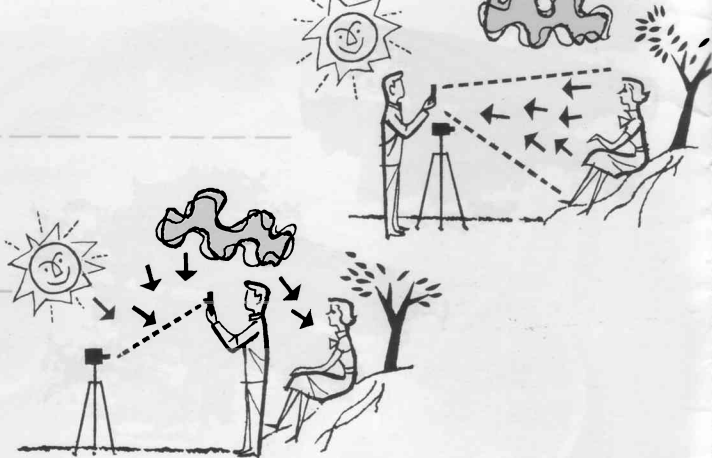


REFLECTED

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 III is basically a reflected light meter but with the addition of the Weston Invercone it can be used to measure incident light. (See Page 15.)

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.

HOLDING 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 the meter should be aimed slightly downward to be certain not to include sky areas which would tend to inflate the reading and cause underexposure.

TAKING REFLECTED LIGHT READINGS

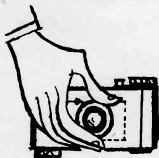
Set the exposure index on the meter as explained on page 4, then simply —



AIM the meter at the scene and note the reading.



POINT the normal arrow at this reading on the light scale of the exposure control dial.



SET your camera with any combination of f/stop and shutter speed desired.

All combinations of shutter speeds and f/stops opposite each other on the exposure control dial will give the same correct exposure.

For moving subjects select a faster shutter speed with its correspondingly lower f/stop number. If depth of field is desired select a larger f/stop number with its slower shutter speed.

NOTE: Setting the normal arrow at the light reading obtained provides an average exposure so that within normal limits both the darker and lighter areas of the scene will be correctly exposed.

DIRECT READING...

In Polaroid numbers

Unlike most cameras, Polaroid cameras are not calibrated in f/stops and shutter speeds but in exposure numbers which can be read direct on the Master III.

After setting the exposure index in the Exposure Index window, take the meter reading as described on page 8 and set your camera with the number appearing in the window marked POLAROID.

NOTE: Since Polaroid cameras and cameras using the LVS system are calibrated in full f/stops, and the Master III in 1/3 f/stops, the Polaroid and LVS numbers may not always appear in the center of the window.

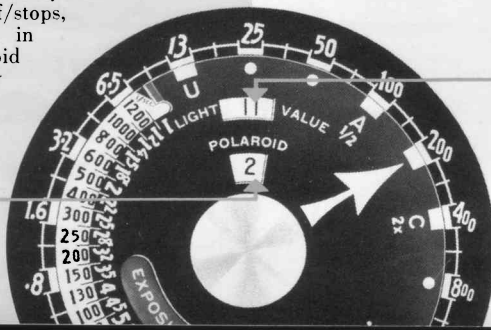
**POLAROID
NUMBER**

In LVS numbers

Many new cameras are calibrated in both Light Values and f/stops and shutter speeds. Your Master III is also direct reading in Light Values.

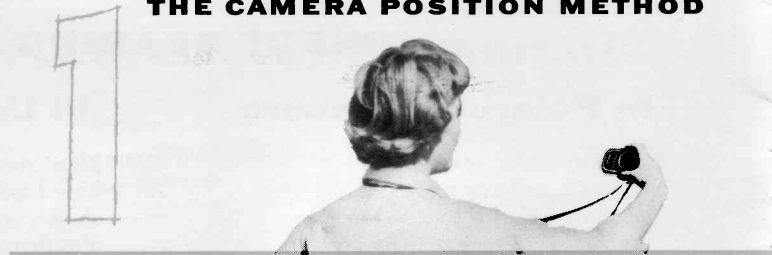
After setting the exposure index in the Exposure Index window, take the meter reading as described on page 8 and set your camera with the number appearing in the window marked LIGHT VALUE.

**LVS
NUMBER**



3
Basic
Methods
for
Correct
Exposure

THE CAMERA POSITION METHOD



THE CLOSE-UP METHOD

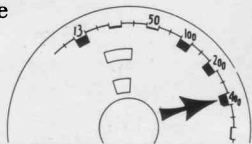


THE BRIGHTNESS RANGE METHOD



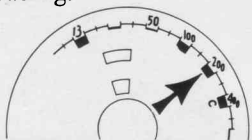
Hold the meter as shown on page 7 aiming toward the scene from the camera position. Point the meter down slightly to avoid reading sky areas which will give inflated values and cause underexposure. Set the arrow on the exposure control dial to the light reading obtained, for example 400.

This is a simple and quick method of using your meter.



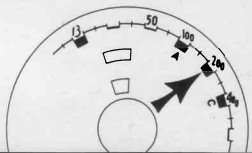
Take your meter reading about six inches from the subject. Set the *arrow* on the exposure control dial to this reading. When the reading is taken from a person's face use the "C" position on the dial instead of the arrow. If the shadow of the meter or your hand is cast on the subject be sure you do not include it in the reading.

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



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 arrow midway between the two values measured.

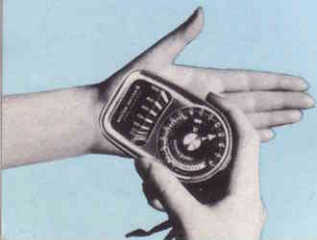
This is the most accurate method for determining the correct exposure of scenes consisting of a wide range of bright and dark light values.



SUBSTITUTE READINGS

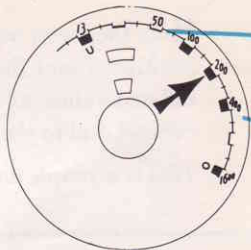
If your subject is inaccessible for a close-up reading substitute readings of nearby similar objects in the same light. Nearby trees for trees in the scene, rocks for rocks, etc. The palm of your hand is a good substitute for a person's face.

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



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 200. From close-up readings of the hair, the darkest object, and of the blouse which is the brightest object, readings were obtained of 50 and 400 respectively. Setting the normal arrow at 200 you will note that the



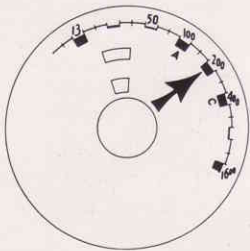
50 and 400 values are well within the U and O positions on the dial and therefore, the negative will be correctly exposed.

Extreme Low Light Readings. The O position will also prove very useful when black and white pictures are to be taken in extremely low light. By taking a close-up reading of the brightest object in the scene and setting the O position at the corresponding value on the light scale of the exposure control dial correct exposure will be given to all areas in the scene which have brightness values corresponding to the range covered by the U and O positions. The U position is used mainly as a check to indicate the lowest brightness that the film will reproduce faithfully.

Occasionally a backlighted or very contrasty scene exceeds even the wide acceptance range of black and white film. In this event the exposure can be keyed to that portion of the scene, either the shadows or the highlights whichever are of most importance, by placing the U or O opposite the darkest or brightest reading respectively.

The A and C POSITIONS

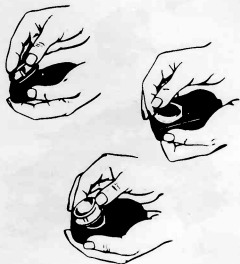
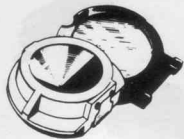
On the Exposure
Control Dial



Color film has a much narrower exposure range than black and white film. For most color film this range is indicated by the A and C positions on the exposure control dial. A scene with all light values falling between the A and C positions will be correctly exposed if the arrow is set midway between the darkest and brightest light values. In a scene with light values below A and above C, those below A will be underexposed and those above C will be overexposed. However, if it is desired to favor the darker colors then the A should be set opposite the lower light reading. To favor the brighter colors set the C opposite the higher reading. For portraits take your reading from the face and use the C position.

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 backlighting subjects.

TAKING INCIDENT LIGHT READINGS...



Your meter can be converted to read incident light simply by attaching the Weston Invercone. The Invercone consists of an Integrating Cone and an Auxiliary Multiplier.

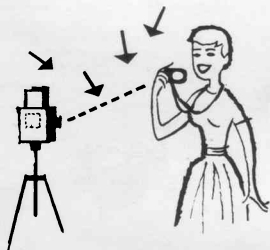
ATTACHING THE INVERCONE

For most indoor, and outdoor pictures where illumination is relatively low, open the exposure meter baffle and slip the Integrating Cone into place. (The Auxiliary Multiplier is not used.)

Where the level of illumination is high, open the baffle and insert the Auxiliary Multiplier. Then slip the Integrating Cone into place over the Auxiliary Multiplier.

USING THE INVERCONE

With the Invercone attached, stand at the subject you are going to photograph and point the meter at the spot from which you are going to take the picture. 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.





CAMERA POSITION METHOD



Meter Reading 400
Exposure Index 50
Normal Arrow
Exposure 1/100 Sec.—f/14



CLOSE-UP METHOD



Meter Reading 400
Exposure Index 10
"C" Position
Exposure 1/50 Sec.—f/6.3



BRIGHTNESS RANGE METHOD



Meter Reading

Dark Area 25

Bright Area 400

Normal Arrow 100

Exposure Index 50

Exposure 1/50 Sec.—f/10



SUBSTITUTE METHOD



Meter Reading 800

Exposure Index 10

"C" Position

Exposure 1/50 Sec.—f/9



Movies and your Master III

Any of the methods of exposure described for still cameras can be used for movie cameras. For correct exposure first determine the exposure index and the shutter speed of your camera from the Weston Exposure Index sheet. Set the exposure index in the Exposure Index window. Aim the meter at the scene and note the reading. Now set the meter arrow at this reading on the light scale of the exposure control dial. Just above the determined shutter speed will be found the correct f/stop.

EXAMPLE: Assume an exposure index of 10, a shutter speed of 1/30 second at 16 frames per second and a light reading of 200. With the meter arrow set at 200, the correct f/stop (f/8) will be found directly above 1/30 second.

Cameras With Variable Shutters

If your camera is provided with variable shutter speeds and you wish to shoot at other than 16 frames per second (FPS), the altered shutter speed required may be determined from the table.

FPS	SHUTTER SPEED IN SECONDS		
	(1)	(2)	(3)
8	1/15	1/20	1/25
16	1/30	1/40	1/50
24	1/40	1/60	1/80
32	1/60	1/80	1/100
48	1/100	1/130	1/150
64	1/130	1/150	1/200

EXAMPLE: Find the shutter speed at 16 FPS for your camera from the Weston Exposure Index sheet. Then locate this number (underlined) in one of the columns (1), (2), or (3). The required shutter speed for different FPS speeds will be found in the same column.

High Altitudes — There is considerable ultra-violet radiation present at high altitudes to which films are sensitive. To eliminate this effect it is always good practice to use a haze filter. No exposure correction is necessary so use the meter in the regular manner.

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 on the control dial. Best snow texture results when the snow is back 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 1/25 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.

Sunsets and Silhouettes — Aim the meter directly at the subject and set the meter arrow at the reading.

Measuring Room Illumination — To determine the foot-candles of light falling on any surface such as a writing desk or work bench, take a reading from a piece of white paper lying on the surface you want to measure. Multiply this reading by four to convert from candles per square foot to foot-candles.

EXAMPLE: If the meter reads 13 this means that the surface has a brightness of 13 candles per square foot. Multiplying this by four gives you 52 foot-candles.

Values of Unnumbered Black Blocks on the Meter Exposure Control Dial

The unnumbered black blocks actually have definite values but to show them all on the light scale would make it appear very congested. In the table herewith are listed the values of the unnumbered blocks.

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, if the exposure index is 100, the filter factor 2, then the exposure index to set on your meter would be 50.

NUMBERED BLOCKS	UNNUMBERED BLOCKS
1600	1300
	1000
800	650
	500
400	320
	250
200	160
	130
100	80
	65
50	40
	32
25	20
	16
13	10
	8
6.5	5
	4
3.2	2.5
	2
1.6	1.3
	1
.8	.65
	.5
.4	.32
	.25
.2	.16
	.13
.1	

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 posi-

tion of the meter pointer once in a while to be sure it returns to zero when all light is excluded from the photoelectric 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

Although ruggedly constructed, your meter is a precision instrument and should receive the same careful handling as you would give any good camera.

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.

Repair Services

Your meter is ruggedized to give you many years of accurate and dependable service. However, should it be damaged and fail to operate, return it to your dealer or, if not convenient, send it directly to:

Attach an identification tag clearly showing your name and address. Careful packing is important to prevent further damage during shipment. To avoid delays in handling please do not send instruction books, carrying cases and other accessories with the meter.

SERVICE DIVISION
WESTON ELECTRICAL INSTRUMENT CORP.
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UNION, NEW JERSEY