Weston Model 736 Exposure Meter is protected by the following United States and Foreign Patents.

UNITED STATES

1,982,406

2,137,466

2,346,555

CANADIAN

347,085

411,975

BRITISH

FRENCH

531,996 862,770

Other Patents Pending

Additional copies of this instruction book are available at 15 cents each... Please specify F-2189 R5 when ordering. INSTRUCTIONS

for

WESTON

Master II

CINÉ EXPOSURE

METER

Model 736

WESTON ELECTRICAL INSTRUMENT CORP. NEWARK 5, NEW JERSEY, U.S.A.





Figure 1 104







HIGH LIGHT SCALE

On the rear of the meter a hinged baffle will be found. The light sensitive photo cell is beneath the baffle. When the baffle is closed, the scale range is 0.26. Keep the baffle closed if the light is 16 or higher.

Figure 2

LOW LIGHT SCALE

When the light reading is less to a less than 16, open the baffle, the scale will then read in brightness units of 0-17. To open the baffle, simply slide the latch, and swing the baffle open against the case until the latch engages in the socket.

Page 2

HOW TO USE YOUR WESTON CINE EXPOSURE METER

ADJUST FOR TYPE OF CAMERA ...

For purpose of simplification all ciné cameras have been divided into two groups, Types "A" and "B"—according to the effective shutter exposure time. Look through the listing below, and determine in which group your camera is listed:

TYPE "A" CAMERAS

Keystone A-7 Agfa Model B Maurer Professional Ansco Model B Bolex H-8, H-16, L-8 Pathe Briskin Paragon De Jur (all) Perfex De Vrv Revere Universal Eastman Kodak (all) Filmo (all 70's and 121) Univex Victor (all Models) Filmo 8 mm (all) Zeiss Kingmo S-10-16 Franklin

TYPE "B" CAMERAS Keystone K8 (872650 Filmo 153 (Autoload, (Automaster) and above) Filmo Golf 70 Simplex Filmo 71 Stewart Warner 8 Filmo 75 Stewart Warner 532 A Filmo 141 Stewart Warner Hollywood Keystone A-3 Keystone (other Sept Models)

Press the dial release "R" (fig. 1) and move segment "S" until the correct type of your camera A or B appears in the opening "T".

2. SET FOR FILM SPEED

Determine the Weston Film Rating of the film with which your camera is loaded, from the Weston Film Rating Pamphlet packed with your meter. Hold the middle dial stationary and rotate the top dial until this value appears in the window "W". If the speed of the film indicated is not on the meter, use the next higher value, i.e., 80 use 100.

3. SET FOR CAMERA SPEED

Rotate both the top and middle dials as one, until the index "F" directly below the window "W" is opposite the figure representing the frames per second at which your camera is to be operated.

When the above settings have been made, you are ready to measure the scene to be photographed. You do not have to change any of these settings until you use a different type camera, a different type of film or a different camera speed.

4. AIM THE METER

Hold the meter any way natural to you, but be sure you do not obstruct the cell opening with your hand, or with the neck cord, as this will result in incorrect brightness readings.

When measuring the relative brightness of the scene to be photographed an overall reading taken from the Camera Position will usually be satisfactory. AIM THE METER AT THE SCENE OR SUBJECT, and sight across the top of the case. Do not measure sky, as this will result in an inflated reading.

Close-up and Brightness Range Methods are discussed on pages 6 through 9.

5. READ THE SCALE

Note the pointer deflection on the scale. If it is below 16 with the baffle closed (see Fig. 2) open the baffle, and swing it over against the back of the case. You will now note that the low range scale has moved into position, permitting readings of from 0-17. The low range scale is for dim light, and the high range scale for normal light, from 0-26.

6. SET YOUR CAMERA

After you have obtained a reading of the relative brightness of the scene, look along the outer scale of the exposure control dial until you locate the corresponding reading. Directly opposite you will find the correct aperture setting for your camera. For example: Assuming a film rating of 24—Brightness reading 18—the f/stop would be f/11. See illustration page 5.

7. TAKE THE PICTURE



Set the Meter ...



THE CLOSE-UP METHOD

The Close-Up Method is so named because the meter is held close to the object of principal interest in the scene to be photographed. With this method only one object is measured, therefore the film will be exposed particularly for this object. It is used where there is but one object of principal interest, the rest of the scene being background, and of no importance.

Take Close-Up Reading

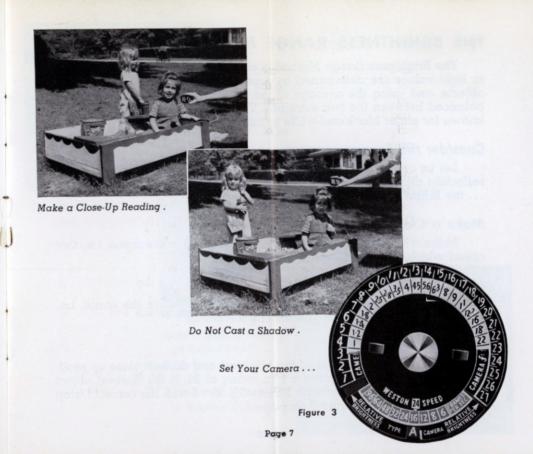
Take a close-up reading of the object of principal interest. Hold the meter close to the object about as far away as the object's smallest dimension. The meter may be held closer than this distance but not farther away.

Do Not Cast a Shadow

Do not cast a shadow of the meter or your hand on the object being measured. To do so would cause an erroneous reading. If necessary, hold the meter at an angle to the direction from which the light is coming.

Set Your Camera

Note the light reading obtained. Locate this figure on the outside row of numbers on the exposure control dial directly opposite you will find the correct f/stop setting.



THE BRIGHTNESS RANGE METHOD

The Brightness Range Method is so named because the brightness or light values are determined by measuring the lightest and darkest objects, and using the average of the two readings. Exposure is then balanced between the two extremes. This method is the most accurate known for either black-and-white or color photography.

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.

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.

Make a Close-Up Reading

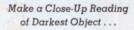
Make a close-up reading of the brightest object in the scene, i.e., that object which yields the greatest light reading.

Set Your Camera

Take the average value of the brightest and darkest close-up readings. For example: Assuming a film rating of 24; if the darkest object reading is 4, brightest object 22; 22+4=26, $26\div 2=13$, the correct f/stop would be f/4.5. See Figure 3 on page 7.



Consider the Scene



Make a Close-Up Reading of Brightest Object

Page S

COLOR PHOTOGRAPHY

Due to the fact that color film has far less latitude than black and white film, it is necessary that greater care be exercised in making measurements for color photography. For this reason the Brightness Range Method is recommended. REMEMBER IN COLOR PHOTOGRAPHY BLACK AND WHITE ARE NOT CONSIDERED COLORS.

A Scene for Color

Here is a scene 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.

Make a Close-Up Reading

Make a close-up reading of the darkest color in the scene. Hold the meter at least as close to the object as its smallest dimension.

Make a Close-Up Reading

Disregarding the white, make a close-up reading of the brightest color.

Do Not Cast a Shadow

Be careful that neither the meter nor your body casts a shadow on the subject.

Set Your Camera

Take the average of the darkest and brightest color readings, and use the f/stop directly opposite this figure.



A Scene for Color . . .



Make a Close-Up Reading of Brightest Color.

Page 11



Make a Close-Up Reading of Darkest Color.



Do Not Cast a Shadow . .

HINTS ON COLOR PHOTOGRAPHY

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.

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 a lighting contrast results in a scene beyond the range of the film, making correct exposure for all objects impossible. Flat illumination is best for color.

Subjects in Shade

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

Face Tones

In close-ups or portraits, usually the brightest color is the face. Since that is usually the most important color anyway, an excellent way of exposing close-ups or portraits in color is to measure the highlight on the face.

Substitute the Hand

The palm of the hand makes an excellent substitute for a person's face. Orient the palm of the hand so it is in the same plane as the face, take a reading, and set your camera to the f/stop opposite this reading.



Time of Day ...



Subjects in the Shade



Face Tones . . .



Substitute the Hand . . .

Page 13

GENERAL INFORMATION

Panoraming

Panoraming over areas where there is a wide variation of brightness, requires considerable care. For best results it is advisable to take separate readings of the bright and dark areas. Then when actually taking the pictures, change the camera f/stop as indicated by the meter for each set of different conditions.

For Still Cameras

A ciné camera is essentially a still camera which takes a number of still pictures in rapid succession with a definite exposure for each frame.

The ciné meter can therefore be used with still cameras as well as ciné types.

1. Set the Film Speed Rating.

2. Set the meter to type "A" or type "B" depending upon the shutter speed desired.

3. Consider the following relationships:

TYPE "A"		TYPE "B"	
Frames	Effective	Frames	Effective
Per Second	Shutter Speed	Per Second	Shutter Speed
6	1/10	6	1/20
8	1/15	8	1/25
12	1/25	12	1/40
16	1/30	16	1/50
24	1/50	24	1/75
32	1/60	32	1/100
48	1/100	48	1/150
64	1/120	64	1/200
96	1/200	96	1/300

Choose the shutter speed desired from the table above and set the index to the corresponding value for frames per second.

Opposite the light value obtained from the scene will be found the correct f/stop for the chosen speed.

For example: If a shutter speed of 1/100th of a second is to be used, the meter is set for type "B" camera and the index set to 32 frames per second. If a speed of 1/120th of a second is desired, set the meter for type "A" camera and the index to 64 frames per second.

Care of the Exposure Meter ...

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 WITHOUT cases, booklets, etc., and return to:

Repair Service Division,

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.



GENERAL INFORMATION

Zero Corrector

When no light reaches the photoelectric cell, the instrument pointer should rest directly over the zero position on the scale.

If the pointer does not rest over the zero position, place a card over the cell, and turn the zero corrector, located on the back of the meter, until this is accomplished.

Use of Filters

Exposure must be increased when a Filter is used. A simple way to compensate for this: Divide the Film Speed Rating of the film in use, by the Filter Factor. Set the resultant Film Speed number on the Exposure Guide Dial. For example: If Film Speed Rating is 100, Filter Factor 2, then Film Speed to use would be 50. $(100 \div 2 = 50)$

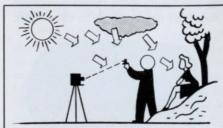
Weston Film Speeds

Weston exposure meters are calibrated in terms of the Weston system of film speed determination. For over 15 years Weston has rendered this important service to the photographer. Film samples are obtained from normal sources, in the same manner as you obtain your film. Speeds are determined accurately and impartially in the Weston Sensitometric Laboratories, and in the field. Film Speeds by WESTON are an important part of Exposure by WESTON.

INCIDENT LIGHT MEASUREMENTS WITH THE *INVERCONE

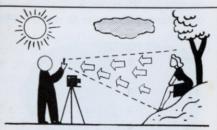
The Weston *INVERCONE Incident Light Adapter, when associated with Weston Master Ciné Meters, extends the scope of the basic Brightness Meter to embrace the method of Incident Light Exposure Determination. The INVERCONE permits the user to retain the many basic advantages of Reflected Light, yet extends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

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.



Weston Master 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.



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 1

FIGURE 2

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 Auxiliary Multiplier automatically changes the 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 INVERTED CONE in position low light scale in use.

FIGURE 3



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

FIGURE 4

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.

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.

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 shude areas of equal proportion or importance, a reading should be made under each illumination condition and the meter readings averaged. 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 lighting 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 methods are subject to failure under certain conditions when not in the hands of the careful worker, yet in the hands of the skilled worker, all 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.