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# LIGHTOMATIC

35mm Camera

INSTRUCTIONS

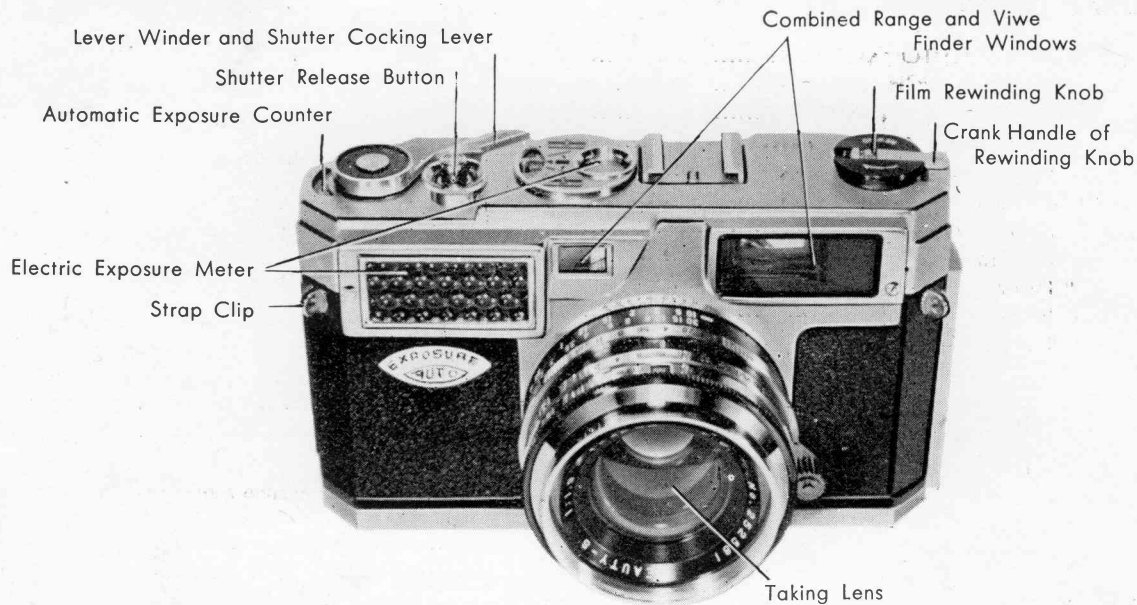


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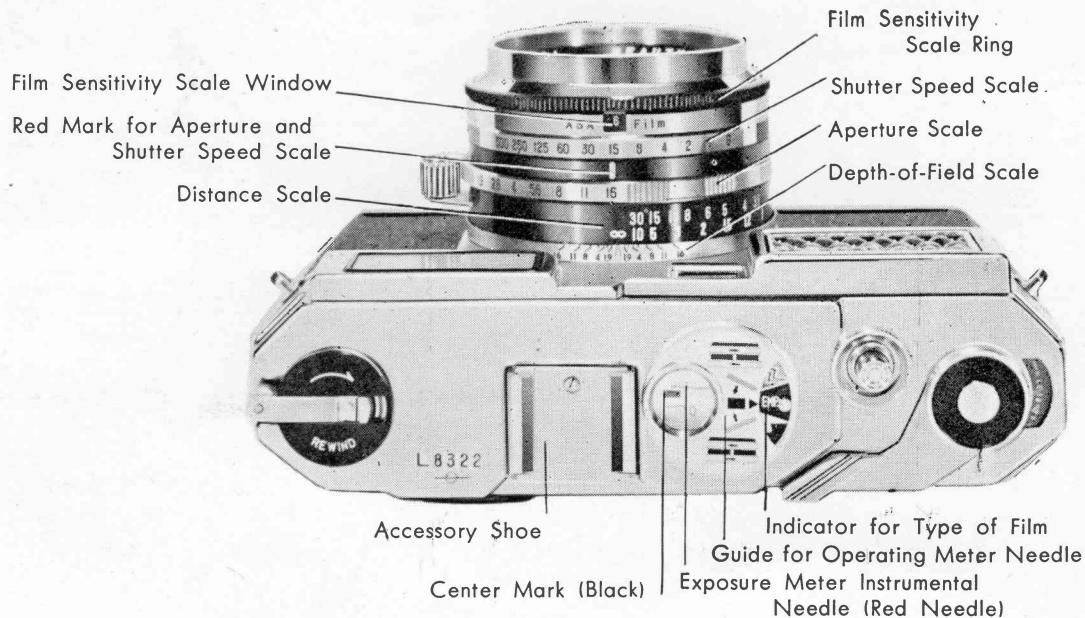
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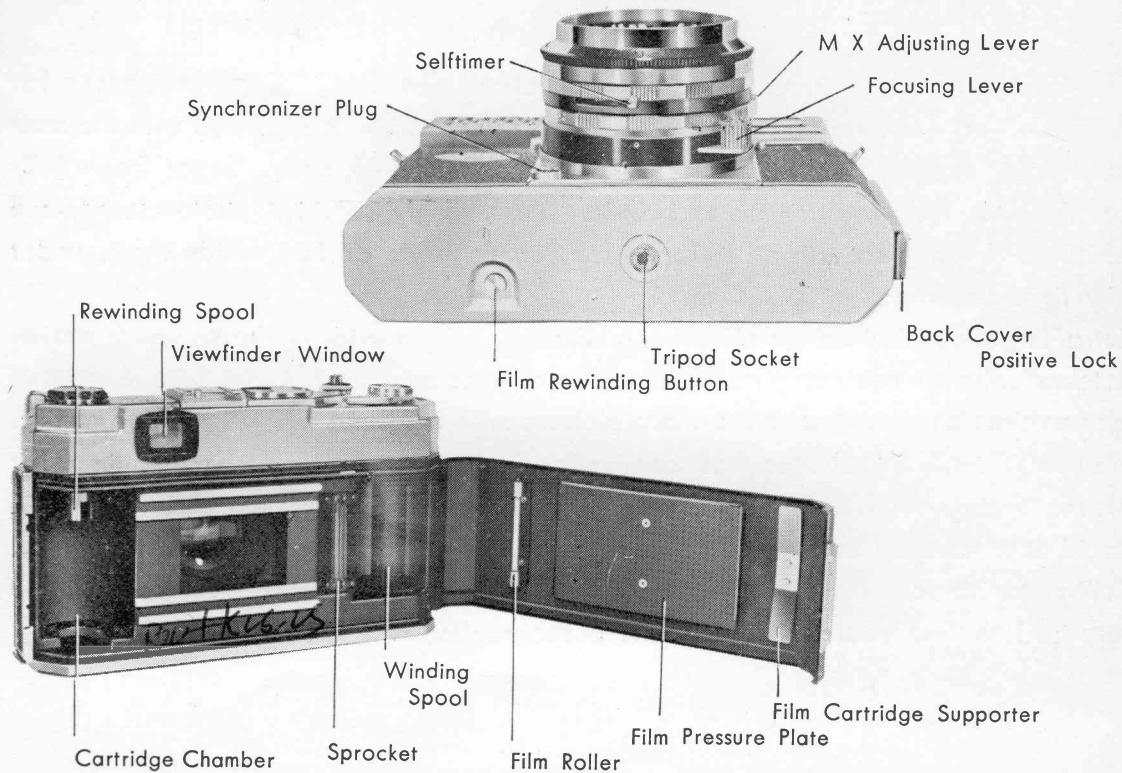
with "Super brains"

L I G H T



# T O M A T I C





The Camera everybody has been dreamed of... LIGHTOMATIC is the answer for it. There has been no camera like LIGHTOMATIC which is equipped with the most outstanding features as this. A sleek, functional beautiful body. Super Brain Fully coupled electric exposure meter built-in. Amazingly sensitive photo-electric-cell which gives an electric motive force for fine portraits or fast action shots, under any light condition.

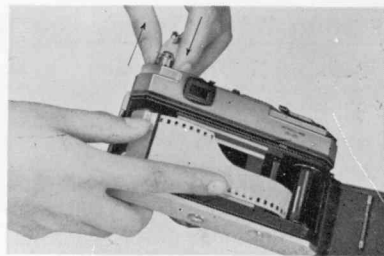
Extra large coupled Range-viewfinder window. Silvery target frame which moves automatically to correct parallax simplifies composing. F1.9 45mm with 6 coated elements which guarantees extra-sharp pictures with both black & white color or film. Newest Copal SV Shutter has conventional shutter and diaphragm settings for eleven speeds to 1/500 sec. plus bulb. Built-in MX Synchronization.

Rapid depth-of-field scale. Helicoid focusing lever adjusts from 2.7 ft. to infinity. Built-in Selftimer. Now read and follow the instructions carefully. You will be surprised to find yourself a first-class photographer with LIGHTOMATIC.

## LOADING THE FILM

### To Load The Camera

1. Pull down the Back Cover Positive Lock, then open the back cover to a fully opened position.
2. Rotate the fixed Winding Spool by the milled flange until the film slot faces up.
3. Pull the Film Rewinding Knob as far out as it will go.
4. Insert the new film cartridge preferably in subdued light; even your own shadow will help.
5. Hold the cartridge in place with your thumb.
6. Push in the Film Rewinding Knob, rotating it slightly to make sure that the slot at its end grips the slot on the film spool.
7. Pull out the end of the film and push it in





the slot of the Winding Spool.

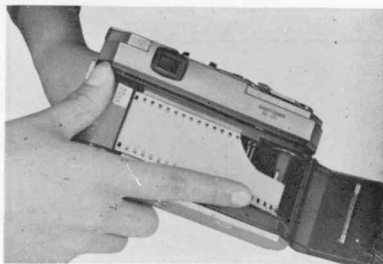
8. Guiding the film with your thumb, wind the film on the Winding Spool by turning it slowly by its milled flange until the full width of the film covers the full length of the film guide rail.

9. Engage the perforations of the film in the cogs of the Sprocket.

10. Close the camera back and lock it by pressing with both hands.

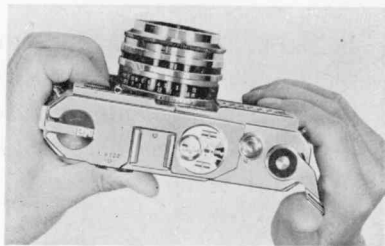
### **Setting The Exposure Counter**

Before taking picture with a newly loaded film, you have to wind the first of the film by making two preparatory shots i.e., turn the Lever Winder as far as it goes and when the lever returns to its working position press the Shutter Release Button. Repeat this operation.



Then, in making the third full stroke of the Lever Winder, the Automatic Exposure Counter indicates No. 1 and you are ready to shoot the first picture.

While making these two preparatory shots, be sure that the disc under the Film Rewinding Knob rotates in the counter direction indicated by the arrow on the Film Rewinding Knob. If the disc does not rotate, it means that the film was not loaded correctly. So load it again.



## **TAKING THE PICTURE**

LIGHTOMATIC's super coupled electric exposure-meter thinks for you and saves you to select the proper Shutter Speed and Lens Opening, which only be adjusted by coinciding the needle of meter with the Center Mark in the window on camera-top. The specially made photo-electric-cell gives an electric motive force according to the brightness of the picture subject. And, within the wide range of brightness (from 4 to 32000  $\text{cd/m}^2$ ), the electric motive force shall

be balanced by the variable electric resistance which shall be changed by turning the Film Sensitivity Scale, Shutter Speed Scale and Lens Opening Scale when the needle of meter indicates the center position.

### **HOW TO ADJUST THE SHUTTER.**

1. Slightly draw out the ASA Ring and turn it until the ASA number of loaded film is found in the Film Sensitivity Scale Window.
2. Direct camera exactly toward the subject to measure the brightness of the subject.
3. **To adjust the Shutter,** Turn the ASA Ring coupled to the Speed Scale and then set it to any shutter speed you wish.
4. Turn the Lens Opening Scale until the meter



instrumental needle coincides with the Center Mark.

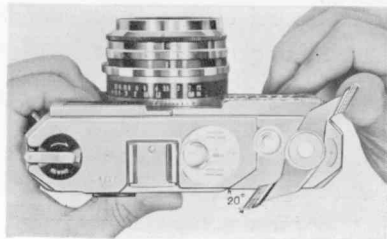
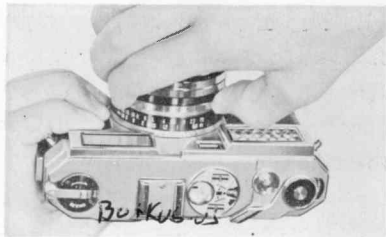
Now you have the proper speed and opening for your picture subject and ready to shoot.

### **HOW TO SHOOT**

Cock the shutter by turning the Winding Lever as far as it goes and return it to the working position.

(The first 20° of the Lever Winder are free for cocking and advancing where the lever will be stopped by click stop which is the working position). Holding the camera firmly in both hands, view the subject through the viewfinder window and coincide the double images exactly.

Then press down the Release Button gently and you will have the proper exposure.

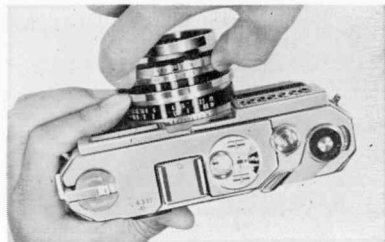


## **IMPORTANT**

1. Even after the Lens Opening Scale is set, still you can change either Shutter Speed or Lens Opening by turning the ASA Ring which accompanies the Speed and Opening Scales together as you wish without missing the coincidence of the needle, i.e., you can get another combination of speed and opening under constant light value.

2. If you wish to shoot under constant Lens Opening, adjust the Opening Scale after the ASA Scale is set and then turn the ASA Scale which accompanies the Speed Scale until the needle of meter coincide with the Center Black Mark. In this case, the Opening Scale must be disconnected by a slight pressure with other finger.

3. If the needle does not coincide with the Center Mark, even you turn it as far as it goes, it means that the first adjustment of speed or opening is not proper for the brightness of subjects. In this case, it is necessary to re-set the

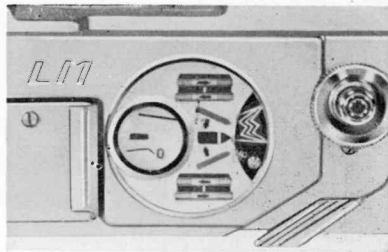
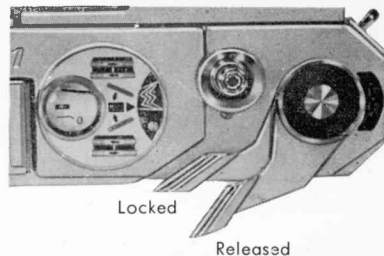


first adjustment by one or more step.

#### 4. **To adjust by the Opening Scale.**

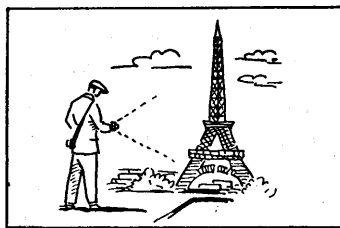
It is not necessary to align the figures of Opening exactly to the index. When the needle coincide exactly with the Center Mark, any position of scale is good for the most proper exposure. This is the excellent speciality compared with the same type of the other models which proves "LIGHTOMATIC" is the most precisely meter coupled camera ever made.

5. **Adjusting by Speed Scale.** It is necessary to align any figures to the index when it stops by click. In this case, it is often impossible to coincide the needle with the Center Mark exactly, but, as far as the needle comes within the Center Mark, it means the



exposure can be done within the allowance of less than 0.5 step of light value.

6. When the Winding Lever is in its folding position after winding it, the Shutter Release Button is locked for safety. Therefore, when you shoot, you must pull out the Lever to its working position ( $20^{\circ}$ ) and press down the Button.



7. **Diagram on the Camera Top.** This is the guide for the direction of adjusting.

**A. Needle locates upward against the Center Mark.**

Turn the Opening Scale to the left, or

Turn the ASA and the Speed Scale to the right in holding the Opening Scale as shown by arrows. Then the needle will move towards the Center Mark.

**B. Needle locates downward.** Turn either Scales to opposite to the above mentioned directions as shown by arrows.

After you tried every possible combinations of F & T, and you still can not have

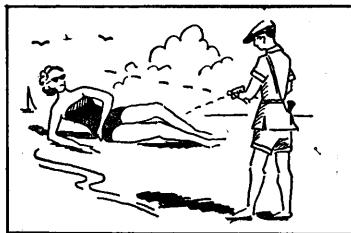
the needle coincides with the Center Mark, it means the subject is so dark that you have to use flash light or so bright that you have to use filters.

**8. Open Scenery with a Bright Back Ground and a Dark Foreground and distant part has to be well reproduced.**

Take your readings against the Background.

But the Foreground has to be well reproduced,

take your readings with the camera inclined slightly forward.



**Portrait.** Take your readings from the most required part. For instance to take a person in front of a very bright sky, readings has to be taken from, for instance, the face.

**Close-ups, i. e., Ornaments, Flowers, etc.** Taking your hands as stand-in, hold your hand about 4" from the Exposure Meter and not your shadow fall on the subject.



## **ASA SPEED INDEX**

For the following film's ASA index, please use the ASA speed index of LIGHTOMATIC as shown in the table. There is allowance of  $\pm 40$  in ASA speed for any film.

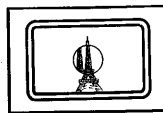
ASA Index	Name of Film	ASA Index of LIGHTOMATIC
10	Kodachrome	10
25	Anscochrome Tungsten used in daylight	32
32	Kodacolor	32
32	Anscochrome daylight	32
80	Plus-X	100
100	Super Anscochrome	100
125	New Ektachrome Hight Speed (Tungsten)	100
160	New Ektachrome Hight Speed (Daylight)	200
200	Tri-X (Daylight)	200
400	H P S	400
800		800
1600	Isopan Record	1600
1600	Royal-X Pan	1600

## **Focusing**

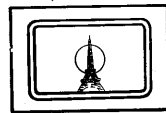
Focusing is obtained by helicoid motion using Focusing Lever. Combined Range and View Finder Windows gives both composition and focusing at the same time through a window. Correct focus is secured when the double image in the center circle of the view finder coincides exactly. The focusing distance between camera and the object may be found out by reading the figure on the Distance Scale when the coincidence occurred. Distance Scale is given in feet : 2.7 feet to 30 feet and  $\infty$ . By the focusing motion, the trimming frame in the view finder moves automatically as to correct the parallax.

## **Composing the Picture**

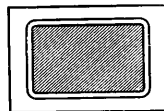
1. HORIZONTAL POSITION—Hold the



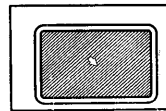
Out of Focus



In Correct Focus



$\infty$

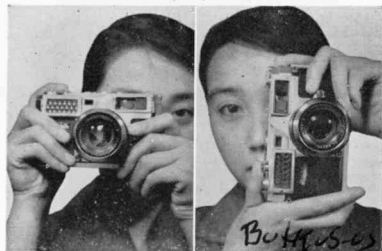


In close distance

camera steadily in both hands, keeping your elbows pressed to your sides. Use right hand fore-finger to operate the Shutter Release Button and left hand forefinger and middle finger to compose and focus the object through the View finder.

2. VERTICAL POSITON—Hold the camera with your right hand and support it with your left hand as shown in the right picture.

Release the shutter with your right hand's forefinger, in keeping your right elbows close to your body.



## HOW TO READ THE "DEPTH-OF-FIELD" SCALE

### What is "Depth-of-Field"

When you focus your camera toward a picture-subject, you will find a zone both in front and back of the picture-subject within which everything is still in acceptable focus. On the other hand images of object outside of this zone become progressively blurred. This zone of acceptable sharp focus is called

the "depth-of-field" and is particularly important to beginners when focusing at very close distance.

### **Relation between Aperture or Lens Opening and "Depth-of-Field"**

Broadly speaking, the "depth-of-field" is influenced by (1) the distance of the picture-subject from the lenses and (2) the aperture or lens opening. For fairly distant object, the "depth-of-field" is generally adequate but when focusing at very close distance, there is surprisingly little "depth-of-field" and the photographer must be very careful about focusing his main subject correctly. The aperture or lens opening is another factor which determines the amount of "depth-of-field" available. Small aperture (high number) gives greater "depth-of-field" whereas a larger aperture (low number) will result in decreasing this zone of sharpness.

### **The "Depth-of-Field" Scale on the "LIGHTOMATIC"**

Firstly, it is necessary to know that the "Depth-of-Field" Scale indicates approximate values. The following is the procedure for reading the "Depth-of-Field" Scale. On the "Depth-of-Field" Scale, there are two sets of equal numbers to the left and right of the distance index.

1. Read the aperture number. (for instance 8)
2. Read the distance number. (In the illustration, this is 3 feet)
3. Now read on the Distance Scale two sets of the figures opposite the figure 8. (In the illustration they are about "2.7" and "3.5")
4. This means that the depth-of-field for this particular "shot" is between approximately 2.7 feet and 3.5 feet; which is to say that any image falling inside this zone will be acceptably sharp in focus.



In case of using Filters. Increase of Exposure can be adjusted by changing the ASA numbers as follows:

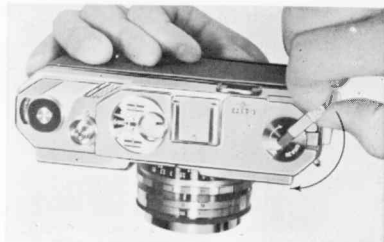
- |               |                          |
|---------------|--------------------------|
| UV Filter     | Not necessary to change. |
| Yellow Filter | Decrease ASA by 1 step.  |
| Orange Filter | Decrease ASA by 2 steps. |



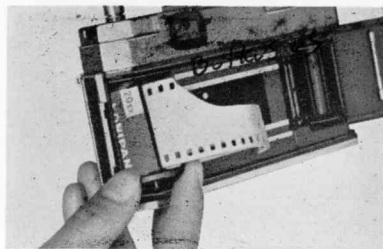
## UNLOADING THE FILM

When your Automatic Exposure Counter indicates that you have made 36 exposures (or 20 at the case may be), it is time to unload the film. Since the exposed film has been wound on the fixed spool in the camera, it will be necessary to rewind it back to the spool of the film cartridge. This is performed by the following procedure :

1. Raise up the Crank Handle on the Rewinding Knob to winding position.
2. Turn the Crank Handle clockwise after pressing the Film Rewinding Button on the bottom of the camera.
3. When the exposed film has been completely



rewound on the cartridge spool, open the back cover and remove the film cartridge. The film Rewinding Button on the bottom of the camera will return to its original position by winding after loading new film.



## **FLASH SYNCHRONIZATION**

The Copal-SV shutter is incorporated on the "LIGHTOMATIC". It is possible to use M class bulbs or an electronic flash at any shutter speed.

Change of synchronization can be done by MX Adjusting Lever as follows:

1. When the MX Adjusting Lever is set at X, the synchronization is such that the shutter is fully open at the time of flash. In this case, it is fully synchronized with an electronic flash at all shutter speed.
2. When the MX Adjusting Lever is set at M, the shutter is wide open 18 milliseconds after the flash starts. In this case M-type bulbs are synchronized

at all shutter speed. This time, you cannot use the Selftimer.

3. With F-type bulbs, synchronization is done between  $1/60$  and 1 second, the MX Adjusting Lever being set at X. The Selftimer may be used only when the MX Adjusting Lever is set at X.

### **GENERAL INFORMATION**

A modern camera is a precision instrument manufactured to exact dimensions. Specially, the electric Exposure Meter fitted in "LIGHTOMATIC" has a high sensitive micro-ammeter in which a coil of wire thinner than 0.02mm in diameter is used to make the indicating needle rotate by extra weak electric current as several micro-amperes. It should therefore be handled with greater care than ordinary cameras.

1. Don't touch the lens with fingers. Keep the lens always clean. When it gathers dust, wipe and clean it carefully with soft brush or cotton cloth.
2. Don't forget to replace the cap when the camera is not in use.
3. Don't give dangerous shocks to the camera.



4. When your film has come to the end, the lever winder no longer operates or stops halfway or so. In this case push the film rewinding button and let the lever winder turn slightly, and then the lever will return to the original position.
5. Don't load or unload the film under direct sunlight.
6. Don't leave the film loaded in the camera for a long while after it has been completely exposed. Develop it within a week.



**INSTRUCTIONS for LIGHTOMATIC**

## HOW TO OPERATE THE LIGHTOMATIC EXPOSURE METER

- (1) Set the ASA Ring according to the film loaded in the camera. The ring must be pulled out — to set. Numbers on this ring (ASA) are printed in green.
- (2) Set the lens diaphragm ring (f stop) on 16, and **hold this ring tightly with your left hand while doing the next operation.** (Note: this ring has engravings of 1.9, 2.8, 4, 5.6, 8, 11, 16 — on it).
- (3) Then move the Coupled or Combined front rings until the needle stops on the Black Marker. The Coupled or Combined rings are the ASA Ring and the Shutter Speed Ring.
- (4) Then release the left hand and turn the speed dial to any desired combination of speed and f/stop.
- (5) When the camera is loaded with slow speed film, you may find the needle does not move up from 0 to the marker. Should this be the case do the following: Set the shutter speed ring on B — then move the diaphragm ring counter-clockwise to 11, 8, etc. — until the needle moves up to the marker. Now, release your hands as all three rings are combined — therefore you can move the rings to the desired speed or to the desired opening (f/stop).