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**Instructions**

**Thank you for purchasing a new Zenza Bronica EC.**\_\_\_\_\_

The Bronica EC is a system camera that features lens interchangeability and a high-precision electronic shutter control mechanism. To insure maximum photographic performance from the camera, please read this booklet of instructions carefully and let it be your guide in camera handling and operation.

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Distance Comparison Table
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Interchangeable Lenses Exclusive for Bronica EC

## BRONICA EC Features

The Zenza Bronica EC is the result of human-engineering research for easier handling. It features a high-precision electronically control shutter mechanism and complete system-camera compatibility.

**a** For easy operation, all graduations on the Bronica EC can be seen from above the camera at a glance, and controls are concentrated on the right-hand side of the body. Many special safety mechanisms have been built-in.

**b** The mirror is a two-piece, main-mirror and sub-mirror combination to preclude mirror shock, usually one of the disadvantages of a large-format camera. A two-piece mirror yields a complete field of view in the viewfinder (top, bottom, and both sides) when using telephoto lenses with a longer than standard focal length.

**c** The shutter is a highly-accurate, electronic-control type especially suitable for color photography. Shutter speeds are extremely accurate.

**d** Film back interchangeability permits switchover during mid-roll, from color to black and white film, freely. The film

back and camera body function automatically as an integral.

**e** The lens bayonet mount is identical to the type used for other Zenza Bronica cameras, permitting lenses to be interchanged without difficulty.

**f** The waist-level finder opens and closes by a one-finger action, and the focusing screen and magnifiers can be interchanged freely.

**g** Electronic flash synchronization at 1/60sec. Once the plug of the electronic flash unit is inserted into the camera body, it is locked into place and cannot be removed unless the release lock is depressed. This insures perfect contact at all times.

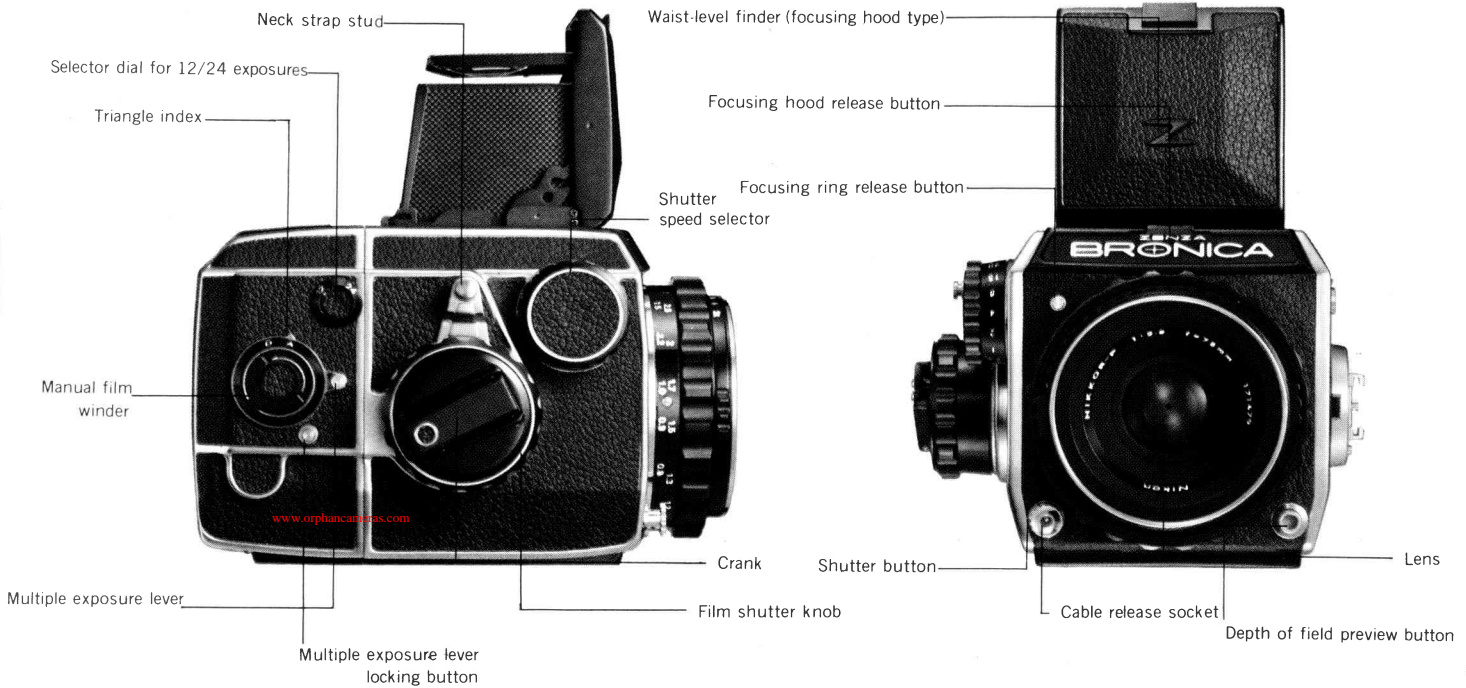
**h** Other Bronica EC features: Mirror locking mechanism, multiple exposure feature, and a camera body designed to readily permit mounting of a TTL exposure meter, the latter insuring the photographer a camera that is designed to display the full merits of system photography.

## ZENZA BRONICA EC Specifications

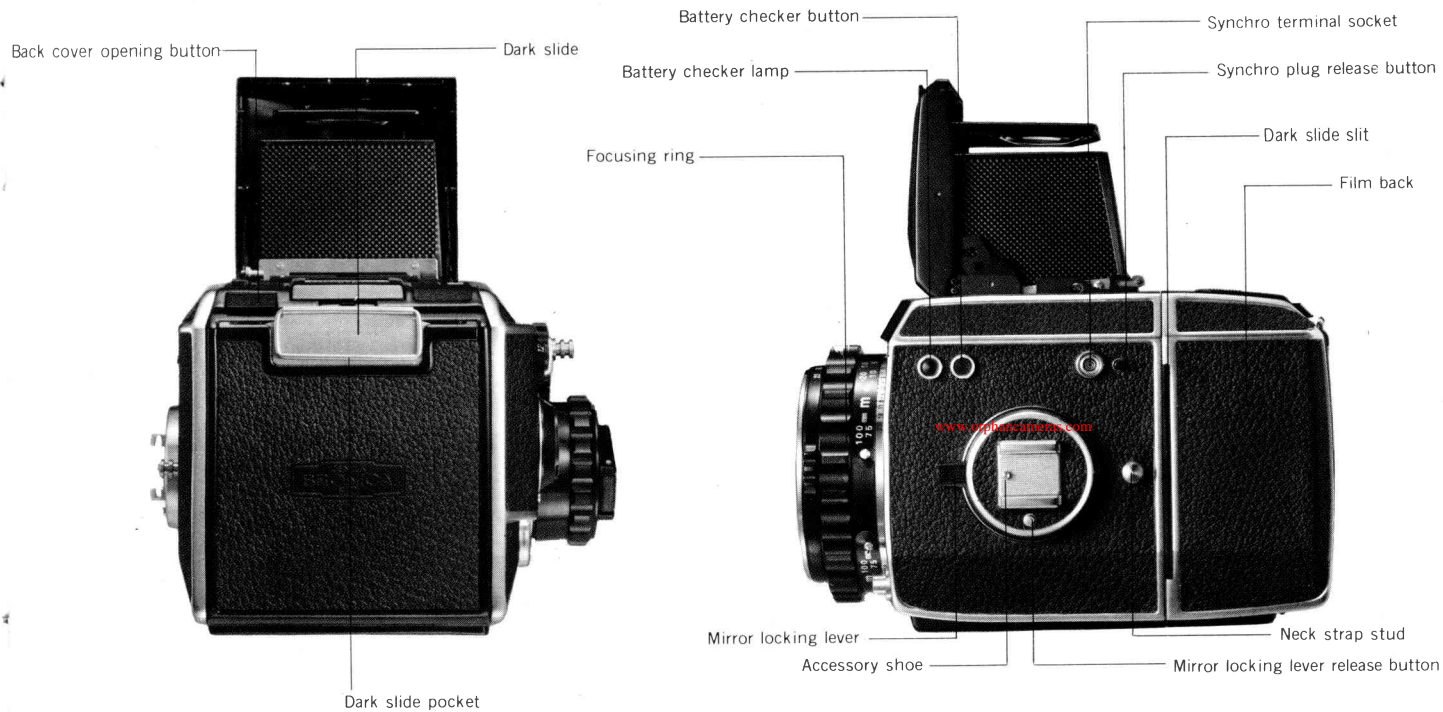
- Type—2-1/4" x 2-1/4" (6cm x 6cm) single lens reflex camera.  
Daylight film change type.
- Picture size—55.2 x 55.2mm  
Film—120 film (12 exposures) and 220 film (24 exposures)  
Standard lens—Nikkor 75mm f/2.8 (Zenzanon 100mm f/2.8 lens is also available as standard.)
- Lens mount—Large bayonet mount for 105, 300, 400, 600, 800, and 1200mm lenses  
Small bayonet mount for 40, 50, 75, 100, 150, and 200mm lenses removable.  
Screw mount (57mm diameter, 1mm pitch) for close-up rings (fixed)
- Focusing—Helical focusing system with parallel movement (stroke 14mm)  
Focusing ring is removable.
- Diaphragm—Fully automatic, equi-spaced graduations.  
Intermediate settings are possible.  
Permits depth of field previewing.
- Shutter—Electronically timed focal plane shutter.  
Shutter speeds B—4—2—1—1/2—1/4—1/8—1/15—1/30—1/60—1/125—1/250—1/500—1/1000.  
Shutter button locking permits time exposure.  
Shutter is powered with a 6-volt silver oxide battery (Eveready No. 544, U C A R No. 544, or Mallory No. PX-28.).  
Battery checker system (button and light) provided.
- Film back—Daylight film back change type, fully coupled as an integral to the camera body.  
Provided with multiple exposure lever, automatic reset exposure counter, film type indicator frame, selector dial for 12/24 exposures, manual film winder, dark slide pocket, and dark slide.
- Reflex mirror—Two-piece, up and down, instant return type.  
Mirror locking device.
- Film shutter knob/crank—Film shutter winding is possible by two turns of the crank or by winding the knob.
- Waist-level finder—Interchangeable focusing hood type.  
One-action open/close operation.  
Magnifiers are interchangeable.
- Focusing Screen—Interchangeable. Types available: with mat center, with microprism center, with split-image prism, and with fine mat finish.
- Synchronization—Automatic switchover synchronization system.  
X (electronic flash) .....B—4 to 1/60 sec.  
FP .....B—4 to 1/15—1/125 to 1/1000 sec.  
M.....B—4 to 1/15 sec.  
F.....B—4 to 1/30 sec.  
Self-locking socket.
- Other particulars—Accessory shoe, shutter button safety lock, tripod mounting holes (1/4" diameter and 3/8" diameter) provided.
- Dimensions—139mm x 117mm x 170mm  
Weight—1,980grams

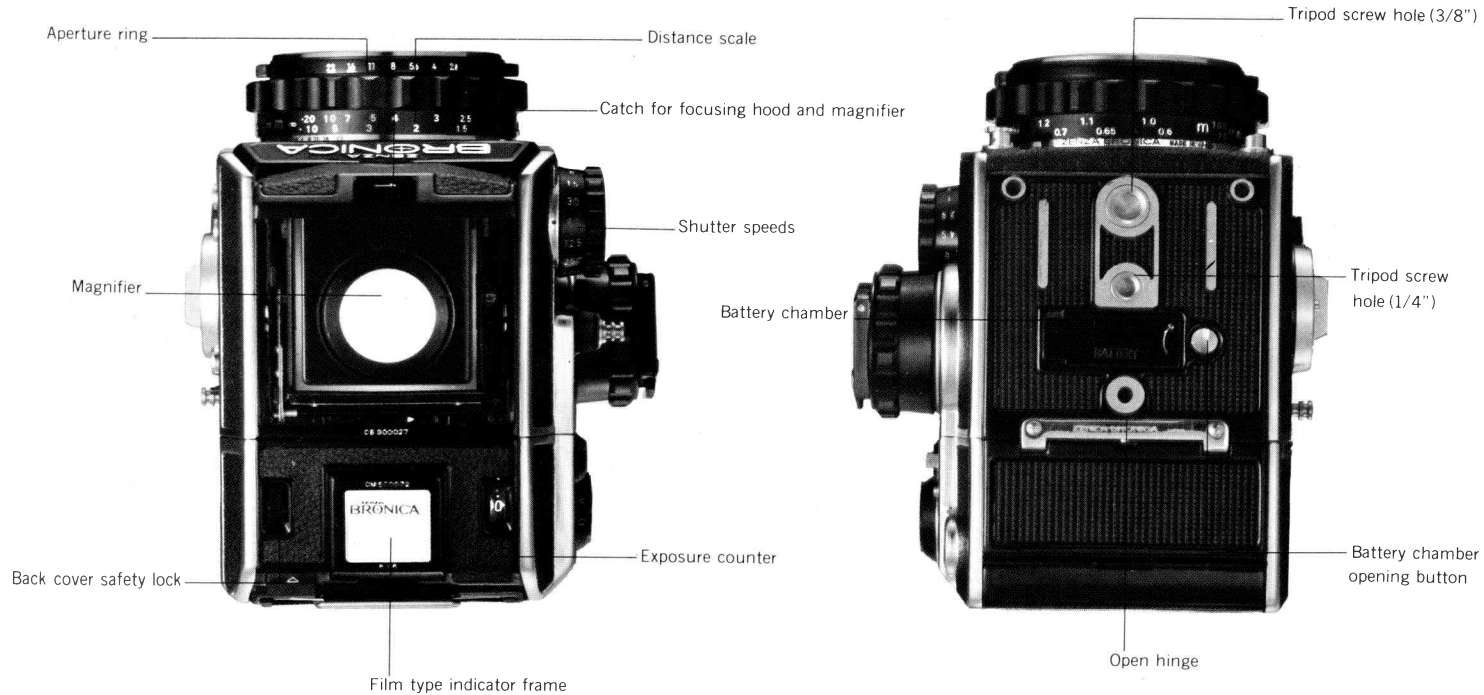
## Know the Parts that Make up Your Bronica









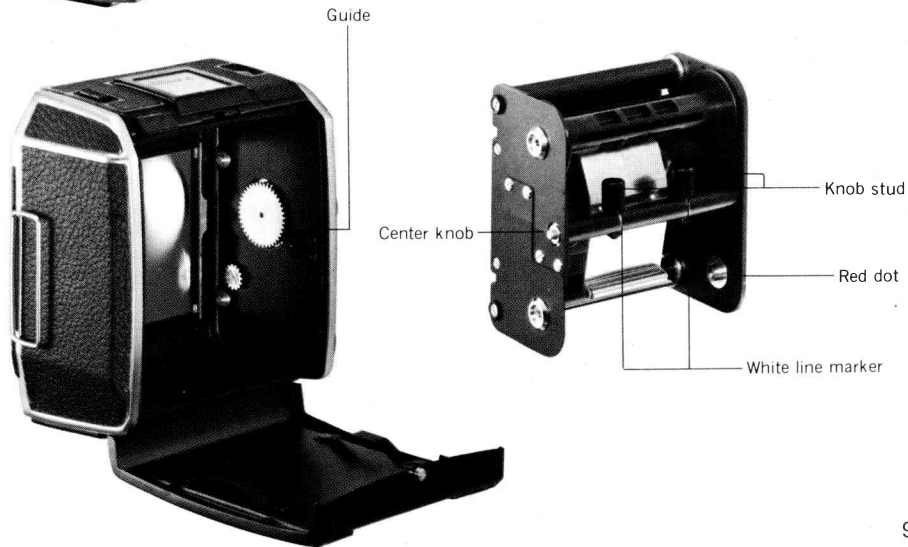


## 1. Film Back



### 1) Construction and Components

The film back consists of the film back body and the film holder insert. Film is loaded into the film holder insert, and the insert is inserted into the film back body. Insertion automatically establishes contact with respective gears.





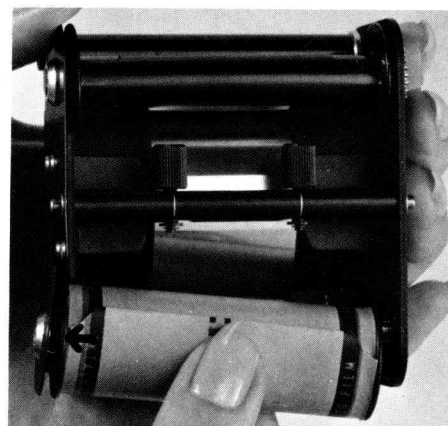
## 2) Film Loading and Removal

**a** To open the cover of the film back, depress and hold down the back cover safety lock and push the back cover opening button in the direction of the arrow.

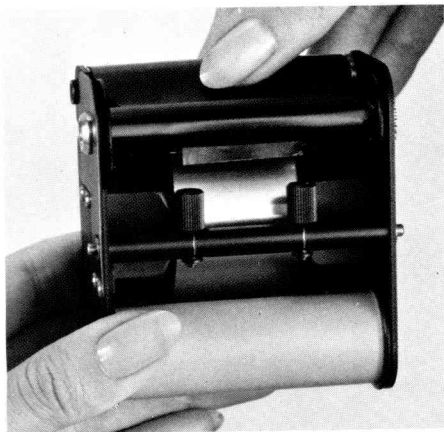
\* Press the safety lock first. Depressing the back cover opening button first will prevent opening the back cover.



**b** Opening the back cover of the film back reveals the film holder insert, which has two center-positioned knobs. Press these inward, releasing the lock, and remove the insert from the film back body.

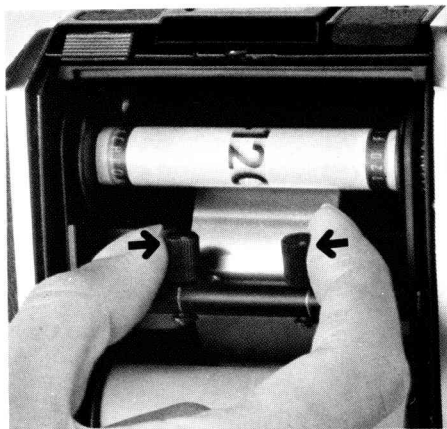


**c** Spool holders are located at the top and bottom of the insert. The top holder is for the empty take-up spool and the bottom holder is for the fresh film spool. A spring pressure plate is located on one side of the spool holder. Insert one end of the empty take-up spool against this plate and, while pressing the plate out, insert the other end of the spool into place.



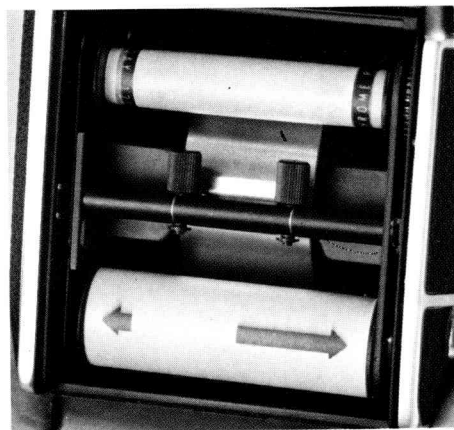
**d** After the fresh film spool is inserted into the bottom spool holder, draw out the leader paper, as shown in the photograph, bring it across the outside of the film pressure plate, and insert the end into the film take-up spool.

\* The back side of the leader paper must face out.



**e** Insert the film holder insert by depressing and holding the two center knobs inward, as shown in the photograph, and replace the insert into the film back body. When replacing the insert, slide the spring loaded knob studs (retracted when the center knobs are pressed inward) on both sides of the insert body into the guides on both sides of the film back body interior. Correct insertion will result in the center knobs springing back to their original position, indicated by exact centering of the knobs and white line markers, as soon as finger pressure on the knobs is released.

\* When the center knobs do not return to the white line markers, winding gears will not engage properly, and reinsertion is necessary.



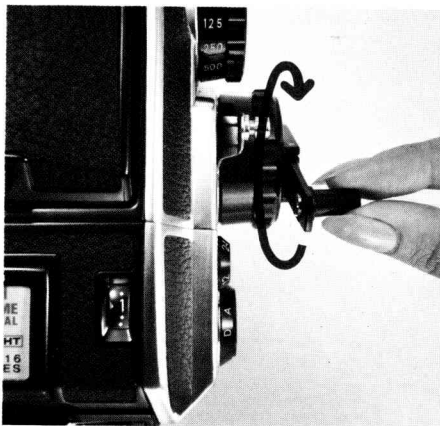
**f** Wind the film shutter knob/crank and advance the film leader paper to the film start point (the arrow mark on the film), and align the film start point and the red dot on the film holder insert.

\* If the film leader paper is not taken up when the film shutter knob/crank is turned, the insert is incorrectly positioned or the film back is set to the multiple-exposure setting, "D". If the film back is not at the "D" setting, reinsert the film holder insert. (Refer to the section on Multiple Exposure, page 24)



**g** Close the film back cover by pushing the top of the cover against the film back body. It will snap-lock close, completing loading.

\* The film back cover cannot be closed if the film holder insert is incorrectly positioned.



**h** To bring the film to the first frame after loading, turn the film shutter knob/crank until it stops. This advances the film, cocks the shutter, and at the same time advances the exposure counter indication from "0" to "1".

\* Exposure counter indication consists of figures for odd numbers and dots for even numbers. The 12th or 24th frame is indicated by a red dot.



**i** When the film has been loaded, tear off the end flap of the empty film box and insert it into the film type indicator frame. This will provide at-a-glance indication of the type of film in use, and will be especially helpful when using more than two film backs alternately.



**9** After the 12th exposure with 120 film or the 24th exposure with 220 film, the shutter is freed from the cocking function, and turning the film shutter knob/crank advances the film only and permits winding the leader paper of the film to the end. Open the cover of the film back only after winding up all of the leader paper.

## Loading Film with Film Back Removed from Camera Body

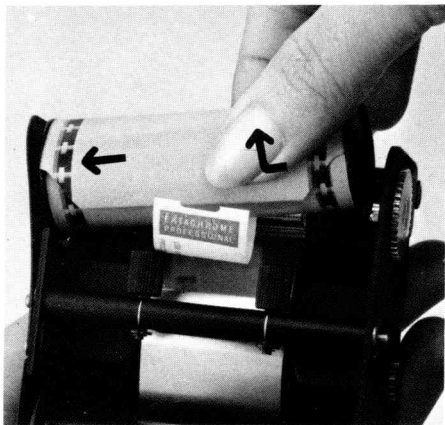
The procedure, here, is the same as that for loading film with the film back coupled to the camera up to loading film onto the film holder insert.

To align the start mark and the red dot on the film holder insert, turn the manual film winder in the direction of the arrow, and close the film back cover.

To advance the film to the first frame, turn the manual film winder in the arrow direction until the number "1" appears in the film exposure counter.

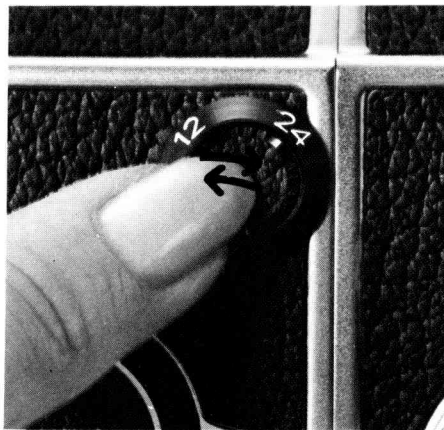


When the "1" appears, make two or three extra winder turns; Neither film advance nor counter advance will occur. Attach the film back to the camera body for photography.



**k** To remove the exposed film, remove the film holder insert from the film back while carefully grasping and holding the loose film. After removing the film seal it.

\* Avoid direct light on the film when loading and removing.



### 3) 12 and 24 Exposure Switchover (120 film and 220 film)

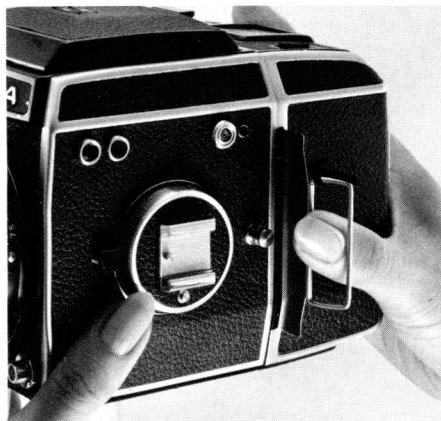
When using 120 film, align the white dot and the number "12" by pushing and holding down the center of the dial selector with the tip of the thumb and turning it to this setting. In the case of 220 film, align the white dot and the number "24".

\* When using 220 film always remember to switch the selector dial to this setting to avoid the needless waste of film. This will result because, if 220 film is used and the selector is still set at "12", the shutter will be freed automatically from the cocking function after the 12th exposure has been made, and continued turning results in film advance only. If switchover is neglected but



noticed before the 12th exposure, make switchover and 24 exposures can be taken normally. If switchover is neglected after making the 12th exposure, switchover and the remaining exposures can be taken with the exception of the first exposure following switchover provided film advance has not been attempted. If film advance has been attempted, exposure loss will correspond to how far film advance has been made. Exposure loss can also be extended to the 23rd and 24th exposure, even though the counter registers a 23rd and 24th exposure normally. Extreme caution is necessary to avoid this accidental loss of film. ALWAYS MAKE SWITCHOVER IMMEDIATELY AFTER CHANGING FILM TYPES.





#### **4) Attaching and Removing Film Back**

**a** To remove the film back from the camera body, withdraw the dark slide from the film back pocket, as shown in the photograph, and insert it into the film back (between the film back and camera body). Push the dark slide inward with the thumb, releasing the back from the camera body, and then remove it from the top.

\* The dark slide cannot be withdrawn while the film back is off the camera body.



**b** To attach the film back to the camera body, set the bottom of the film back on the open hinge on the camera bottom, after which withdraw the dark slide.



\* After attaching the film back to the camera body, always withdraw the dark slide and insert it into the dark slide pocket. Shutter release is not possible with the slide inserted, and there is the possibility of the film back falling from the camera if it is carried in this state.

## 2. Shutter



### 1) Checking Battery Power and Loading

**a** The Bronica EC electronic focal plane shutter will not operate unless a battery is loaded in the camera. Battery type is Eveready No. 544, UCAR No. 544, Mallory No. PX-28 or equivalent.

\* Use the specified battery only.

**b** To load the battery, insert a coin into the battery chamber opening button on the bottom of the camera and turn it in the arrow direction.



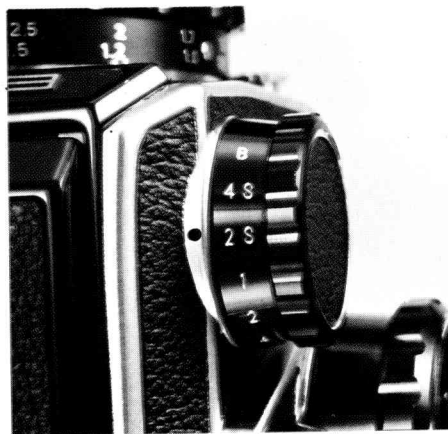
**c** A red "+" mark and a blue "-" mark are stamped inside the battery chamber. Insert the battery matching these marks with the "+" and "-" marks on the battery, placing the negative side of the battery into the chamber first, pushing the positive side into place, and then closing battery chamber cover. The shutter will not operate if these polarity marks are mismatched.



**d** To check battery power, depress the battery checker button. If the battery is properly loaded, the battery checker lamp will light when this button is depressed, indicating sufficient power for camera operation.

\* If the lamp lights and the shutter button cannot be depressed, please load a new battery.

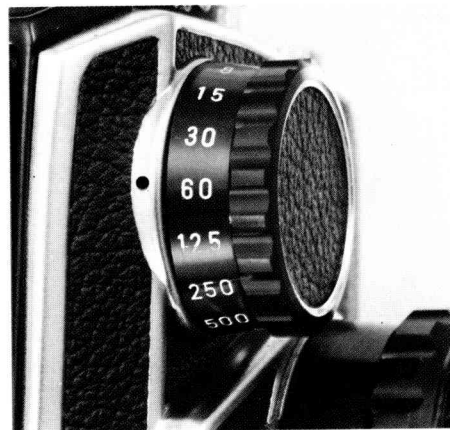
**e** If the battery checker lamp does not light, check to insure proper battery loading. In the case of incorrect loading and insufficient battery power, a built-in safety device functions to prevent shutter operation.



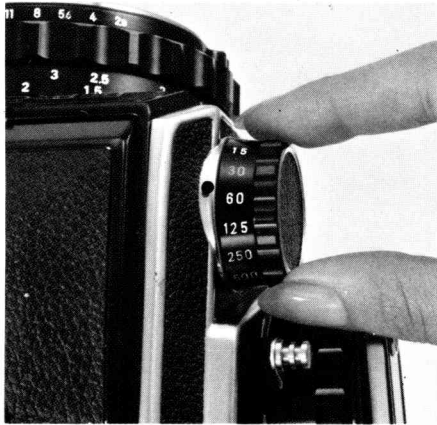
## 2) Shutter Speed Selector

**a** Numbers are indicated on the shutter speed selector and represent shutter speed. "4S" means "4 seconds", "2S" means "2 seconds", "1/1000" means "1/1000 second", and "B" stands for "bulb", at which setting the shutter remains open as long as the shutter button is depressed and closes on release.

\* When the shutter is opened at the bulb setting, battery power is not consumed. (Refer to the section on Time Exposure, page 23.)



**b** The shutter speed numbers are color coded yellow, red, and white. The yellow speeds are longer than 1 second, the red number 1/60 indicates the speed at which electronic flash synchronizes, and the remaining speed numbers are white. (Refer to the section on Flash, page 24.)



### 3) Selecting Shutter Speed

**a** Turn the shutter speed selector and align the desired speed with the red index stop. Shutter speed selection can be made before or after turning the film shutter knob/crank. Always turn the shutter speed selector until the desired speed clicks into place. Intermediate settings are not possible.

\* If the shutter button is depressed with the shutter speed selector at an intermediate speed, the shutter remains open, and the film shutter knob/crank cannot be turned for the next exposure. As long as this condition exists, battery power is consumed. To make correction, return the selector to the correct setting. Always make sure the shutter speed selector is positioned at a full setting.

## 3. Interchanging Lenses

To permit free lens interchange, use the large or small bayonet mount or the screw mount (threads are provided inside the small bayonet mount). All three mounts are the same as those for Bronica C, S2, and S2A cameras, so the same interchangeable lenses can be used.

### 1) Small Bayonet Mount

**a** Use the small bayonet mount when mounting the 40mm, 50mm, 75mm, 100mm, 135mm, 150mm, and 200mm lens.

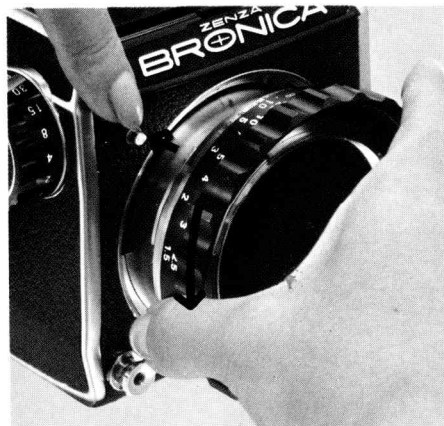


**b** To mount a lens, turn the focusing ring fully clockwise, align the red dot on the lens and the red dot on the mount, and turn the lens clockwise until it click-locks into place.

\* When the lens is correctly mounted, the white dot on the aperture ring will be in the top center position.



**c** To remove a lens, turn the focusing ring fully clockwise, press and hold the lens release lever with the thumb on the left-hand side of the lens, turn the lens to the left (counterclock-wise) until it stops, and withdraw the lens.



## 2) Large Bayonet Mount

**a** To remove the focusing ring, turn the focusing ring all the way to the left until it stops, hold down the focusing ring release button, and turn the focusing ring further to the left and withdraw. Withdrawal reveals the large bayonet mount.

\* Remove the focusing ring only after having removed the lens.



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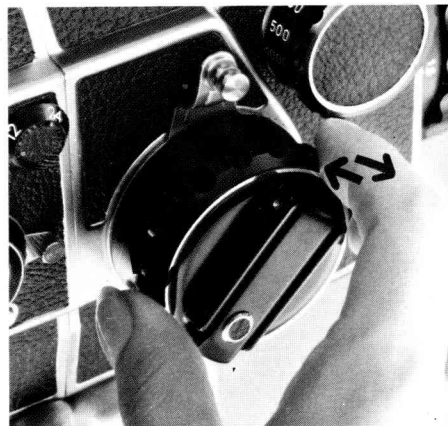
**If you use Pay Pal or wish to use your credit card,  
click on the secure site on my main page.**

## 4. Picture Taking Particulars



### 1) Film Advance and Shutter Cocking

**a** To advance the film and cock the shutter, turn the film shutter knob/crank two full turns. Both operations are made at the same time. Also, to advance the film and cock the shutter, the film shutter knob/crank can be turned (in this case, the crank is folded into the knob) gradually until it stops.



\* The crank stops after it is turned twice, but if additional pressure is applied downward it will continue to turn. This is not a malfunction but the operation of a special safety feature. Applying additional pressure after the crank stops following two full turns is not recommended.





## 2) Film Advance with Respect to Interchangeable Film Backs

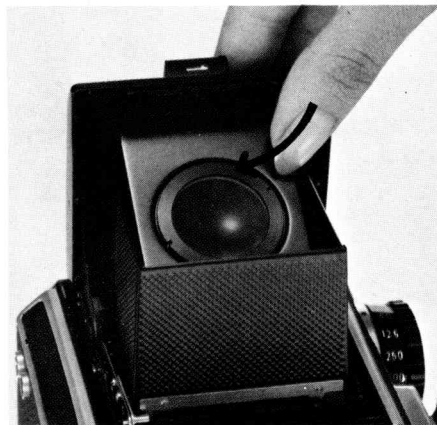
**a** In the midst of picture taking or before, film backs can be interchanged. After a new film back is attached, be sure to turn the film shutter knob/crank. If it cannot be turned, this indicates the mechanism for film advance and shutter cocking is ready for picture taking. Always turn the film shutter knob/crank each time a new back is used.

**b** Because the camera and film are separate mechanisms when apart and work as an integral when together, a number of conditions can present themselves: the shutter can be cocked out the film of a particular back in an unadvanced state or the shutter can be in an uncocked state and the film in the film back in an advanced state. When the back and camera are coupled in a mismatched state, the Bronica itself determines the exact condition. In the case when the camera and film back conditions match (the film in the film back has been advanced and the shutter has been cocked), the film shutter knob/crank will not turn. In a mismatched condition, it will turn. If the knob/crank does not turn, picture taking can be commenced. If it does turn, continue turning it until it stops to correct the mismatched condition.



## 3) Opening Waist-Level Finder and Magnifier

**a** To open the waist-level finder, push up the catch for the focusing hood and magnifier. To close the finder, push it downward from the top. It folds down in a single action.



**b** If critical focusing is necessary, use the magnifier in the waist-level finder. To raise the magnifier, slide the catch for the focusing hood and magnifier in the direction of the arrow. The magnifier will pop up. To return the magnifier, press it down into the inside top of the finder with the thumb. It will lock into place.

\* Magnifiers are interchangeable. (See the section on Interchangeable Magnifiers, page 26.)



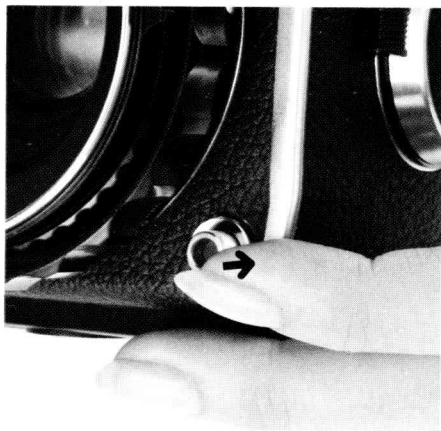
#### 4) Focusing

To focus, turn the focusing ring when using an interchangeable lens having a focal length of 200mm or shorter, except with the 105mm lens, which has its own focusing ring.



#### 5) Aperture Setting and Depth of Field Previewing

**a** To set aperture, turn the aperture ring on the lens and align the desired stop and the white dot. Intermediate settings are also possible. All lenses intended for Bronica use, have their own automatic diaphragm except the 800mm lens and 1,200mm lens. Even with the desired aperture aligned with the white dot, focusing is made at full aperture. At the instant the shutter button is depressed, the diaphragm closes down to the preselected stop.



#### **b Depth of Field Numbers.**

Depth of field numbers corresponding to the same aperture value are engraved on both sides of the red triangle index on the distance scale of the focusing ring. These apply when using the 75mm lens. With the index set at the desired aperture, the distance indicated on the focusing ring on both sides of the index is the depth of field range at a given aperture setting. For example, using the 75mm lens, a subject distance of 1.5m, and an aperture setting of f/22, everything between 1.2m and 2.2m will be within the range of focus.



#### **6) Distance Scale and Depth of Field Scale (75mm lens)**

**a** To focus without using the viewfinder, use the distance numbers stamped on the focusing ring. These represent the distance from the subject to the film plane for 75mm lens and 100mm lens. Meterage is shown in white and footage in red. To bring your subject into focus, align the figure corresponding to the measured distance with the red triangle index.

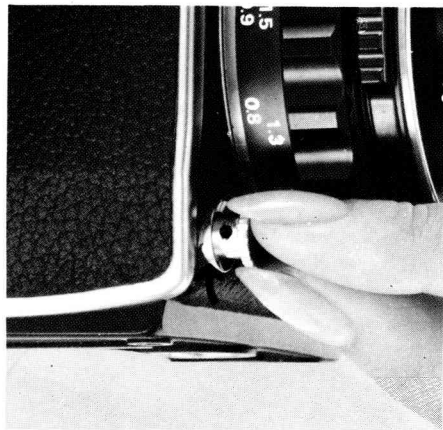
\* When using other than the 75mm lens and 100mm lens, refer to the distance comparison table provided with each lens.



#### **b Depth of Field Preview Button.**

The camera has an automatic diaphragm permitting focusing at full aperture, so the image on the focusing screen is always bright. When the aperture is stopped down to the preselected value and you have focused at full aperture, press the depth of field preview button if you want to preview the depth of field and related subject/foreground/background particulars at the preselected aperture. As soon as the button is released, the view on the focusing screen is returned to full aperture.

\* Do not turn the aperture ring while holding down the depth of field preview button.



## 7) Shutter Button

**a** The shutter button has a red dot and can be released if the dot slants off to the right and downward.

**b** The shutter button can also be locked to prevent accidental exposure. To lock it, turn the shutter button clockwise 45 degrees, at which time the red dot will face straight out from the right.



**c** To unlock the shutter button, turn it counterclockwise.

**d** The shutter button also has a threaded hole in the center to accept a cable release.

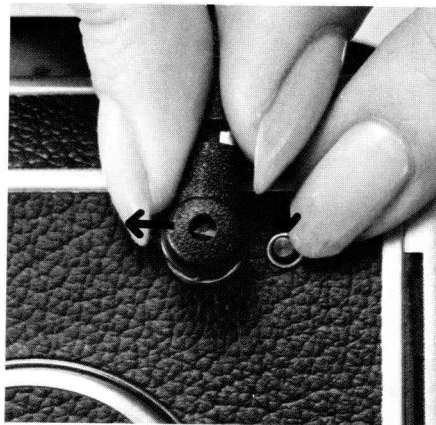


## 8) Time Exposure

Time exposure can be made using the shutter button. First, align the red dot and the "B" (bulb) on the shutter speed selector, and, while pressing down on the shutter button, turn it clockwise 45 degrees and release it. The shutter remains open as long as the shutter button is in this position. To close the shutter, turn the shutter button counterclockwise 45 degrees to its original position.

\* While taking time exposure using the "B" setting, battery power is not consumed.

## 5. Other Picture Taking Particulars



### 1) Flash

**a** Inserting and Removing Synchro Plug. Use a standard synchro plug for flash photography. The synchro plug is locked automatically upon insertion into the synchro plug socket on the camera body. To release it, depress the synchro plug release button. The Bronica EC synchro socket is fitted with cap to afford complete protection against the entrance of both rain and dust.

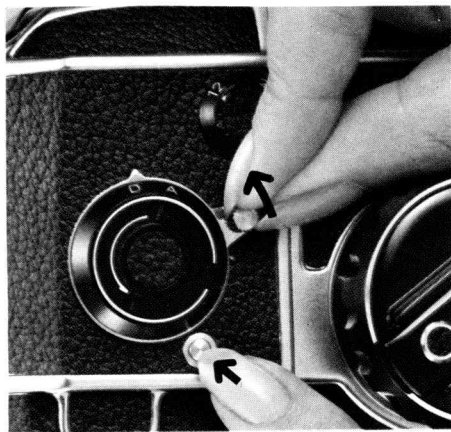
Flash bulb	Yellow				White				Red	White			
Shutter speed	8	4S	2S	1	2	4	8	15	30	60	125	250	500 1000
X contact Electronic flash	[Solid black bar]												
FP bulb	[Solid black bar]										[Solid black bar]		
M bulb	[Solid black bar]												
F bulb	[Solid black bar]												

### b Synchronization.

Synchronization will differ depending on the type of flash bulb used. Refer to the following table.

\* If the electronic flash time exceeds 1/1000 sec., synchronization must be made at a shutter speed from 4 seconds to 1/30 sec.

\* The Nikkor 105mm f/3.5 lens has a built-in synchro-shutter which synchronizes at all shutter speeds from 1 second to 1/500 sec. when using electronic flash. Therefore, this table does not apply to this lens.



## 2) Multiple Exposure

**a** Double and triple exposures can be made as desired for special effect photography.

**b** To make multiple exposures, set the multiple exposure lever to "D" before turning the film shutter knob/crank by depressing the multiple exposure lever locking button and aligning the triangle index and the "D" mark. At this setting, the shutter can be cocked without advancing the film. In making multiple exposures, the multiple exposure lever must be set to "D" before or after making the first multiple exposure picture. Switchover before taking the first picture is recommended.

\* On completion of multiple exposure photography, always return the multiple exposure lever to "A" to prevent inadvertent additional multiple exposure.

\* Unless film is loaded in the Bronica EC, the shutter cannot be released. However, if the multiple exposure lever is set to "D", the shutter can be released for testing with respect to flash synchronization.



## 3) Mirror Locking

**a** To insure that a photographer will get out of his picture taking in the form of satisfaction, all the effort that he puts in, even slight camera movement must be avoided. The Bronica EC mirror can be locked so that the shutter can be released free of fear of camera movement.

**b** To unlock the lever to lock the mirror after turning the film shutter knob/crank and focusing, depress the mirror locking lever release button. Position the mirror locking lever downward. At this time, the mirror will be locked-open and the image in the viewfinder will disappear. After releasing the shutter, the mirror will return to its normal position.

## 6. Interchangeability of Viewing Aids



### 1) Interchangeable Viewfinders

**a** Various Bronica viewfinders are available according to photographic motif. To interchange a viewfinder, depress the focusing hood release button and the focusing hood will be spring released.



**b** To attach the focusing hood, insert the focusing hood into its frame atop the camera, as shown in the photograph, and press down and lock it at the front.

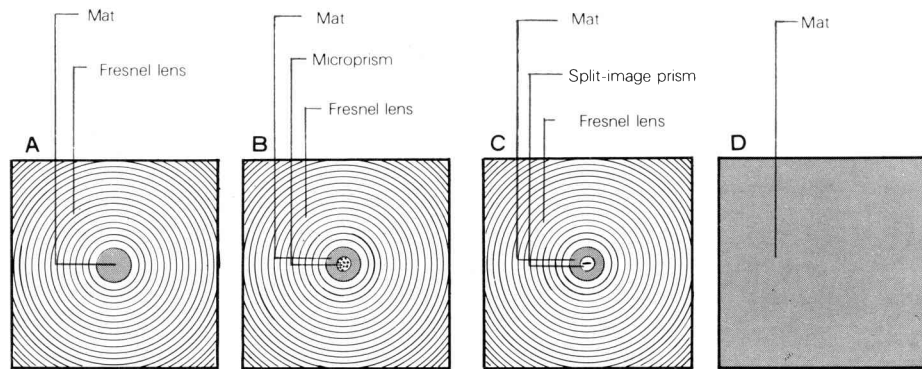


### 2) Interchangeable Magnifiers

In addition to the standard magnifier,  $\pm 1$ , 2, and 3 dioptic magnifiers are also available, and can be interchanged according to individual eyesight. The magnifier is a screw type. To remove it, turn it counterclockwise, and to replace it turn it clockwise.



## 7. Interchangeable Focusing Screens



### 1) Types and Features

a Focusing screens may be selected freely according to photographic motif. Types and features are as follows:

#### **Type A focusing screen with mat center**

For general photographic use. The subject is brought into focus in the mat center. Image brightness extends to the edges of the screen because of the fresnel lens. This type is best suited to taking pictures using a lens with a long focal length.

#### **Type B focusing screen with microprism center**

Also for general photographic use. The image in the microprism and mat center merges to appear as one. When the image in the microprism is not in focus, screen dots obscure the subject.

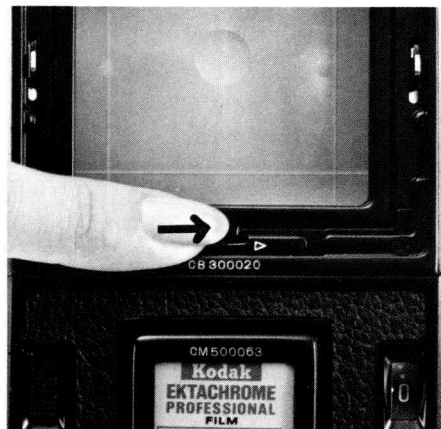
#### **Type C focusing screen with split-image prism**

Focusing is fast and accurate with this type. With the center of the split-image prism as a guideline, the image on the top and the one on the bottom match when focusing is perfect. When you stop down the aperture to below  $f/4.5$  and want to check focusing, use the mat center rather than the split-image, which is darker at this setting. Use the mat center, also, when focusing in dark areas.

#### **Type D focusing screen with fine mat finish**

This screen has no fresnel lens and the entire surface is matted. It is suitable for the photographer who has become used to and prefers a full mat screen. It is also suitable for use with the telephoto lens, but not for the wide-angle lens because edges are too dark.





## 2) Interchanging Focusing Screens

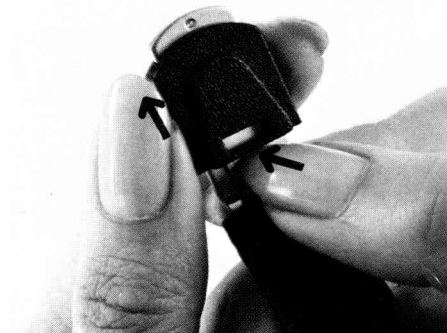
**a** First remove the focusing hood. Next, slide the screen removal lever in the arrow direction. The focusing screen and frame will spring up. To remove a screen, pull it up and out of the slideway.

**b** To insert a screen, hold the front up and insert the screen all the way into the slideway, and press the frame down, locking it into place.

\* If a screen is not inserted all the way into the slideway, the frame cannot be locked. Always make sure insertion is correct before attempting to lock the frame.

## 8. Attaching and Removing Neck Strap

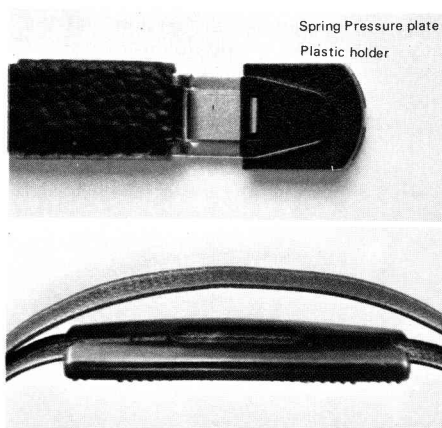
## 9. Attaching Tripod



**a** To attach the strap to the camera, press and hold down the spring plate on the strap metal, as shown in the photograph, and slide the plastic holder toward the strap using the metal protrusion atop the plastic holder. The hole on the reverse side of the plastic holder opens. Insert the neck strap stud on the camera body into this hole, and pull the strap toward you, locking the strap onto the neck strap stud.

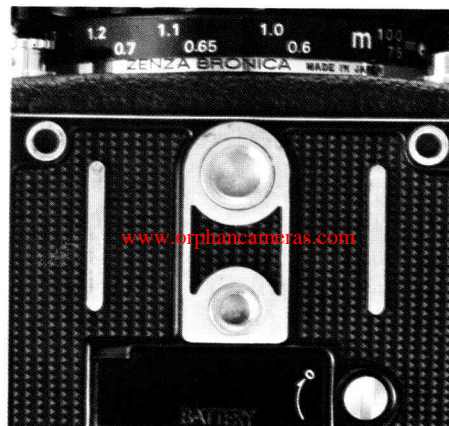


**b To remove the neck strap,** grasp the strap, as shown in the photograph, and with the finger-tip, press down the spring pressure plate, and push the strap metal into the plastic holder, unlocking the strap from the strap stud.



### **c Shoulder Strap Cushion**

After adjusting neck strap length, attach the shoulder strap cushion to the inside loop of the neck strap. To attach the cushion spread it in the middle using thumb pressure, and thus opened, insert the inside loop of the neck strap, and release thumb pressure to close.



Two threaded holes are provided beneath the camera for attaching a tripod. The large, 3/8-inch-diameter hole is for European-make tripods, and the small 1/4-inch-diameter hole is for Japanese and American-make tripods.

The screw on the tripod should not be threaded too tightly into the camera as this may damage the camera. Care is necessary during mounting.

## 10. Camera Care

In addition to the information given in this booklet up to this point on camera handling and operation, this section and the information given on the following pages is no less important for the photographer to obtain maximum camera performance and capability over prolonged periods. Please read this section periodically as it contains guidelines the manufacturer wishes the customer to observe in camera handling and the advantages Zenza Bronica wishes the customer to become thoroughly familiar with.

### Don'ts

**a** Do not use an intermediate shutter speed. At an intermediate shutter speed, the shutter will be kept open and the desired exposure cannot be made. Refer to the section on Selecting Shutter Speed, page 17.

**b** Do not attempt to remove the Zenzanon 100mm lens from the camera while mounted on the focusing ring. This will damage the mirror. Always remove the 100mm lens first, whenever you want to remove the focusing ring. This does not apply to other lenses.

**c** Do not attempt to put strips of cellophane tape or a trimming mask beneath the focusing screen. This will make accurate focusing impossible.

**d** Focusing screens should be cleaned with a soft brush. To remove dirt, wash them in soap and water, paying special attention to careful handling to prevent surface damage.

**e** Do not neglect removing the dark slide from the camera and inserting it into the dark slide pocket after a film back has been attached to the camera body.

**f** The shutter should not be left cocked for a prolonged period of time. Care must be taken because the shutter is in the cocked condition upon unloading the exposed film. To release the shutter, in this case, set the multiple exposure lever triangle index to "D". Rotate the film shutter knob crank twice and then release the shutter. Finally, return the triangle index of the multiple exposure lever to "A". Always remember to release the shutter in the above manner before storing the camera.

## 11. Points to Remember

**a** Always make full use of the advantages of interchangeable film backs:

**b** You can take black and white and color pictures alternately.

**c** If a pre-loaded spare film back is kept on hand, you may shoot continuously without film-change interruption

**d** If at any point during picture taking, you find that for the next picture the type of film you are using is not suitable for your purpose, you may change film backs and continue shooting without the needless waste of film used originally.

**e** The camera can be used in the home and in the studio by any number of persons because of the interchangeability of film backs feature. This permits someone else to use the camera body with their own film back, even if the other person has not completed shooting his roll of film. This is another convenience feature that points out the versatility of the Bronica EC.

**f** When the shutter cannot be released by pressing the shutter button check the following:

**g** Whether the shutter is locked.

**h** Whether the dark slide is inserted between the film back and camera body.

**i** Whether the film shutter knob/crank has been fully turned.

**j** Whether the battery is dead or power is insufficient.

**k** Whether the battery is loaded in the battery chamber correctly with respect to polarity.

**l** The triangle index, of the multiple exposure lever must be reset to "A" immediately after completion of multiple exposure shooting to prevent inadvertent additional multiple exposure.

**m** The film shutter knob/crank will stop after two turns, but if additional pressure is exerted it turns further. This does not indicate malfunction but functioning of a safety device to prevent camera damage.

**n** Unless film is loaded, the shutter cannot be released, but if you set the multiple exposure lever triangle index to "D", you can cock the shutter. This permits shutter testing with respect to flash synchronization.

**o** Even if you make a long exposure with the shutter speed dial set to "B" (bulb), battery power is not consumed.

**p** When taking long time exposure in temperature around 32°F (0°C), voltage drops; use a new battery or have a spare battery on hand as a precaution. Keep the spare in your pocket to keep it warm.

**q** It is not recommended to leave the shutter cocked for a prolonged period of time. Before storage or before putting the camera away, always make sure the shutter is not cocked.

**r** If the camera is not to be used for a long time or if you are packing it away for an extended trip, remove the battery from the battery chamber.

## TTL Exposure Meter for ZENZA BRONICA EC



This exposure meter is a TTL system with a CdS sensor. It is attached atop the camera after removing the viewfinder, in the same manner as the focusing hood.

### Main Features

**a** The TTL meter can be attached easily to the camera body, and electrical circuitry contact is established on attachment.

**b** This is a TTL system in which the average brightness on the focusing screen is read and exposure particulars, shutter speed and aperture setting, transmitted to the photographer to enable pinpointing exact exposure under all light conditions. The exposure meter reads the light actually coming in through the lens, so there is no need to worry about exposure magnification factor or filter magnification factor. The actual light value reading is obtained without difficulty.

**c** After the exposure meter is attached to the camera body, the function of the shutter speed selector is switched-over automatically to the selector on the exposure meter. Full aperture light reading and shutter priority are possible.

**d** The shutter speed selector on the TTL exposure meter permits selection of intermediate shutter speeds to facilitate color photography.

### Specifications

Light reading system.....Average light, full aperture

Light reading range .....reading

Light reading range .....EV 4 to 17 (ASA 100)

Dial graduations.....Dial for maximum aperture of lenses f/2 to f/8

Aperture ring f/2 to f/64

Shutter speed selector

2 seconds to 1/1000sec.

Sensitivity scale ASA 12 to 3200 (DIN 12 to 36)

# **(APPENDIX) Distance Comparison Table**

NIKOR 75mm F2.8	feet	∞ 30 15 10 8 6 5 4 3.5 3 2.5 2.25 2
	meter	10 5 3 2 1.5 1.2 1.0 0.9 0.8 0.7 0.65 0.6
NIKOR 40mm F4	feet	∞ 10 4 3 2.5 2 1.75 1.5 1.25 1
	meter	3 1.5 1.0 0.7 0.5 0.4 0.35 0.3
NIKOR 50mm F2.8	feet	∞ 10 9 4 3 2.5 2 1.75 1.5 1.25
	meter	4 2 1.3 1.0 0.8 0.7 0.6 0.5 0.45 0.4 0.35
ZENANON 100mm F2.8	feet	∞ 30 20 15 12 10 8 7 6 5 4.5 4 3.5
	meter	20 10 7 5 4 3 2.5 2 1.7 1.5 1.3 1.2 1.1 1.0
NIKOR 135mm F3.5	feet	∞ 100 50 30 20 15 12 10 8 7 6 5.5
	meter	30 20 10 7 5 4 3 2.5 2 1.7
ZENANON 150mm F3.5	feet	∞ 100 50 30 20 15 12 10 8 7
	meter	40 20 10 7 5 4 3 2.5 2
NIKOR 200mm F4	feet	∞ 200 100 50 30 20 15 12
	meter	50 30 20 15 10 8 7 6 5 4.5 4 3.5

## Range of Magnification

Lenses	Maximum lens extension mm	NIKKOR 40mm F 4		NIKKOR 50mm F2.8		NIKKOR 75mm F2.8		ZENANON 100mm F2.8		ZENANON 150mm F3.5		NIKKOR 200mm F 4	
		P.M.	E.F.	P.M.	E.F.	P.M.	E.F.	P.M.	E.F.	P.M.	E.F.	P.M.	E.F.
Extension tube set													
CA	28	0.70	1.7	0.56	1.7	0.36	1.9	0.28	1.7	0.19	1.5	0.14	1.5
CA+CB	42	1.05	2.2	0.84	2.1	0.54	2.4	0.42	2.1	0.28	1.8	0.21	1.8
CA+CB+CC	56	1.40	2.7	1.12	2.5	0.72	3.0	0.56	2.5	0.37	2.0	0.28	2.1
CA+CB+CD	70	1.75	3.2	1.40	3.0	0.90	3.6	0.70	3.0	0.47	2.4	0.35	2.5
CA+CB+CC+CD	84	2.10	3.8	1.68	3.6	1.08	4.4	0.84	3.5	0.56	2.7	0.42	2.8

P.M. = Photographic Magnification

E.F. = Exposure Increase Factor

**Effect of Filters Table**

FOR MONOCHROME	Color Number	Color	Exposure Magnification				Effect of Filters
			*B type panchromatic film		*C type panchromatic film		
			Daylight	Art. Light	Daylight	Art. Light	
SL-39	UV	Transparent	1	1	1.5	1	Absorbs ultra-violet rays which results in a clear image.
SY-44	Y1	Light Yellow	1.5	1.3	1.5	1.2	Gives a clear image of sky and background in natural contrast.
SY-48	Y2	Yellow	2.0	1.5	2.0	1.5	Shades down reds and yellows. Good contrast. For general use.
SO-56	YA3	Amber	4.0	3.0	4.0	2.0	Brings out cloud effect. Strong contrast.
SR-60	R1	Red	8.0	4.0	6.0	3.0	Gives greater contrast. For perfect infra-red photography with infra-red film.
G-55	PO0	Yellowish Green	2.5	2.0	4.0	3.0	Gives natural contrast with panchromatic film.

\*B type panchromatic films: Konipan S, SS, Plus X, Double X and Veri-Chrome. \*C type panchromatic films: SSS class films and Tri-X.

FOR COLOR	Color	Conversion ratio for color temperature *Dekamired value	Exposure Magnification	Classification of color film	Effect of Filters
L-1A	Light Violet	0	1	Daylight type of Tungsten	Absorbs ultra-violet rays to prevent bluish appearance on background. Adjusts natural color balance. Used for lens protection.
O-85A	Orange	+12	2	Tungsten type	Conversion filter for tungsten type color film in daylight.
O-80A	Dark Blue	-12	2.5	Daylight type	Conversion filter for daylight type color film under artificial light.
B-82C	Blue	-4.0	1.5	Daylight type	Absorbs reddish color when photographs are taken before 9 A.M. or after 3 P.M. in daylight.
O-81B	Amber	+4.0	1.5	Daylight type	Absorbs bluish color when photographs are taken in cloudy or shadowy conditions.

(+)Reduction of color temperature. (-)Increase of color temperature.



## Interchangeable Lenses Exclusive for Bronica EC



### Nikkor 40mm F4

Lens construction...10 elements in 8 groups  
Angle of view .....90°  
Aperture stops .....4, 5.6, 8, 11, 16, 22.  
Diaphragm .....Fully automatic diaphragm  
Minimum focus .....27cm (10.5 in.)  
Filter size .....90mm screw-in type  
Weight .....430 grams



### Nikkor 50mm F2.8

Lens construction...8 elements in 7 groups  
Angle of view .....77°  
Aperture stops .....2.8, 4, 5.6, 8, 11, 16, 22.  
Diaphragm .....Fully automatic diaphragm  
Minimum focus .....33cm (13 in.)  
Filter size .....77mm screw-in type  
Weight .....450 grams



### Nikkor 75mm F2.8

Lens construction...5 elements in 4 groups  
Angle of view .....55°  
Aperture stops .....2.8, 4, 5.6, 8, 11, 16, 22.  
Diaphragm .....Fully automatic diaphragm  
Minimum focus .....60cm (1.9 ft.)  
Filter size .....67mm screw-in type  
Weight .....230 grams



### Zenanon 100mm F2.8

Lens construction...6 elements in 4 groups  
Angle of view .....43°  
Aperture stops .....2.8, 4, 5.6, 8, 11, 16, 22.  
Diaphragm .....Fully automatic diaphragm  
Minimum focus .....98cm (3.2 ft.)  
Filter size .....67mm screw-in type  
Weight .....360 grams



### Nikkor 105mm F3.5

Lens construction...4 elements in 3 groups  
Angle of view .....41°  
Aperture stops .....3.5, 4, 5.6, 8, 11, 16, 22, 32.  
Diaphragm .....Fully automatic diaphragm  
Provided with manual  
stop-down device  
Shutter speed .....1-1/500 sec.  
Seiko SL shutter #0  
Synchro selector (M-X)  
Built-in self timer  
Minimum focus .....1.2m (3.9 ft.)  
Filter size .....67mm screw-in type  
Weight .....540 grams



### Zenanon 150mm F3.5

Lens construction...5 elements in 4 groups  
Angle of view .....28°30'  
Aperture stops .....3.5, 4, 5.6, 8, 11, 16, 22.  
Diaphragm .....Fully automatic diaphragm  
Minimum focus .....2m (6.5 ft.)  
Filter size .....67mm screw-in type  
Weight .....550 grams



### Nikkor 200mm F4

Lens construction...5 elements in 5 groups  
Angle of view .....21°  
Aperture stops .....4, 5.6, 8, 11, 16, 22, 32.  
Diaphragm .....Fully automatic diaphragm  
Minimum focus .....3.3m (10.8 ft.)  
(1.85m to 3.7m when close-up lens is used.)  
Filter size .....67mm screw-in type  
Lens hood.....Built-in hood  
Weight .....550 grams



### Zenzanon 300mm F4.5

Lens construction...6 elements in 5 groups	Minimum focus .....4m (13.12 ft.)
Angle of view .....14°36'	Filter size .....82mm screw-in type
Aperture stops.....4.5, 5.6, 8, 11, 16, 22, 32	Lens hood.....Built-in hood
Diaphragm .....Fully automatic diaphragm	Weight.....1,900 grams



### Nikkor 400mm F4.5

Lens construction...4 elements in 4 groups	Minimum focus .....5m (16.4 ft.)
Angle of view .....11°	Filter size .....122mm screw-in type
Aperture stop .....4.5, 5.6, 8, 11, 16, 22	Lens hood.....Built-in hood
Diaphragm.....Fully automatic diaphragm	Weight.....3,300 grams



### Nikkor 600mm F5.6

Lens construction...5 elements in 4 groups	Minimum focus .....11m (36 ft.)
Angle of view .....7°	Filter size .....122mm screw-in type
Aperture stops.....5.6, 8, 11, 16, 22	Lens hood.....Built-in hood
Diaphragm.....Fully automatic diaphragm	Weight.....3,800 grams



### Nikkor 800mm F8

Lens construction...5 elements in 2 groups	Filter size .....122mm screw-in type
Angle of view .....5°30'	Lens hood.....Built-in hood
Aperture stops.....8, 11, 16, 22, 32, 45, 64	Weight.....4,200 grams
Diaphragm.....Manual	
Minimum focus .....19m (62.3 ft.)	



### Nikkor 1200mm F11

Lens construction...5 elements in 2 groups	Filter size .....122mm screw-in type
Angle of view .....3°40'	Lens hood.....Built-in hood
Aperture stops.....11, 16, 22, 32, 45, 64	Weight .....5,000 grams
Diaphragm.....Manual	
Minimum focus .....43m (141 ft.)	