



# MOTOR-DRIVE E

INSTRUCTIONS

The ETR Motor Drive E has been specifically designed and developed as an integral accessory in the Zenza Bronica ETR System of Photography. It provides the photographer with complete motorized film winding and shutter cocking operations, which leaves the user free to concentrate on the subject. Furthermore, when used in combination with another important ETR accessory, the AE Finder E, there is complete automatic exposure control, which totally frees the photographer to concentrate on his subject and allows him total creative control.

To get best results, please read this instruction manual carefully before using the equipment. Thoroughly familiarize yourself with its controls and operation before loading your first roll of film, and your pleasure in using the Motor Drive E on the Zenza Bronica ETR (or ETR-C) will even be greater.

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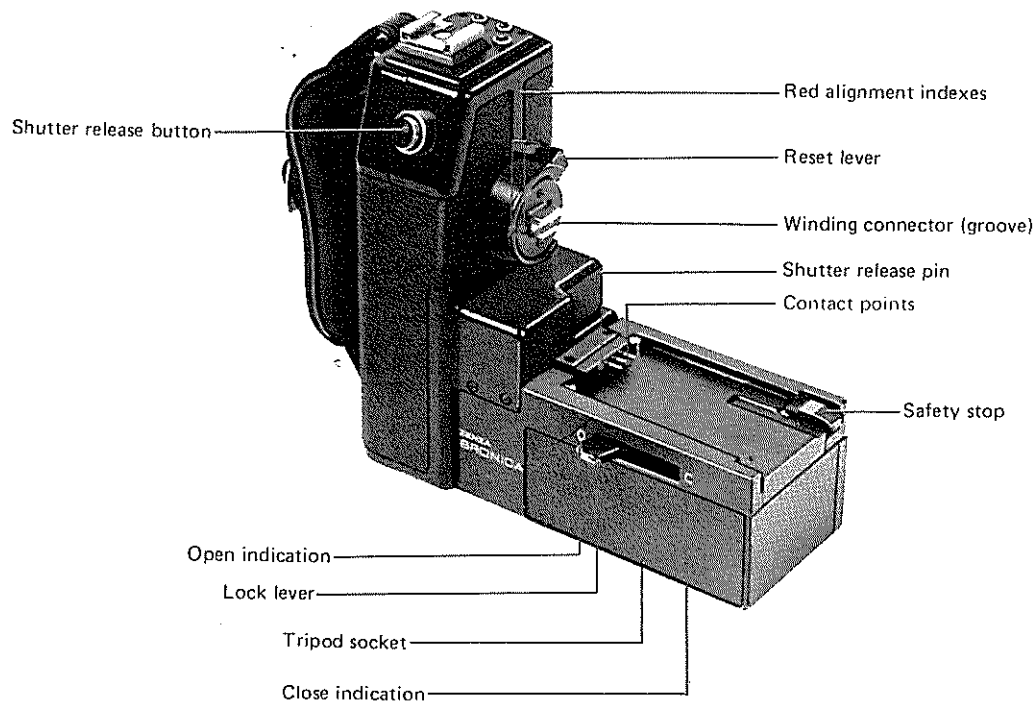
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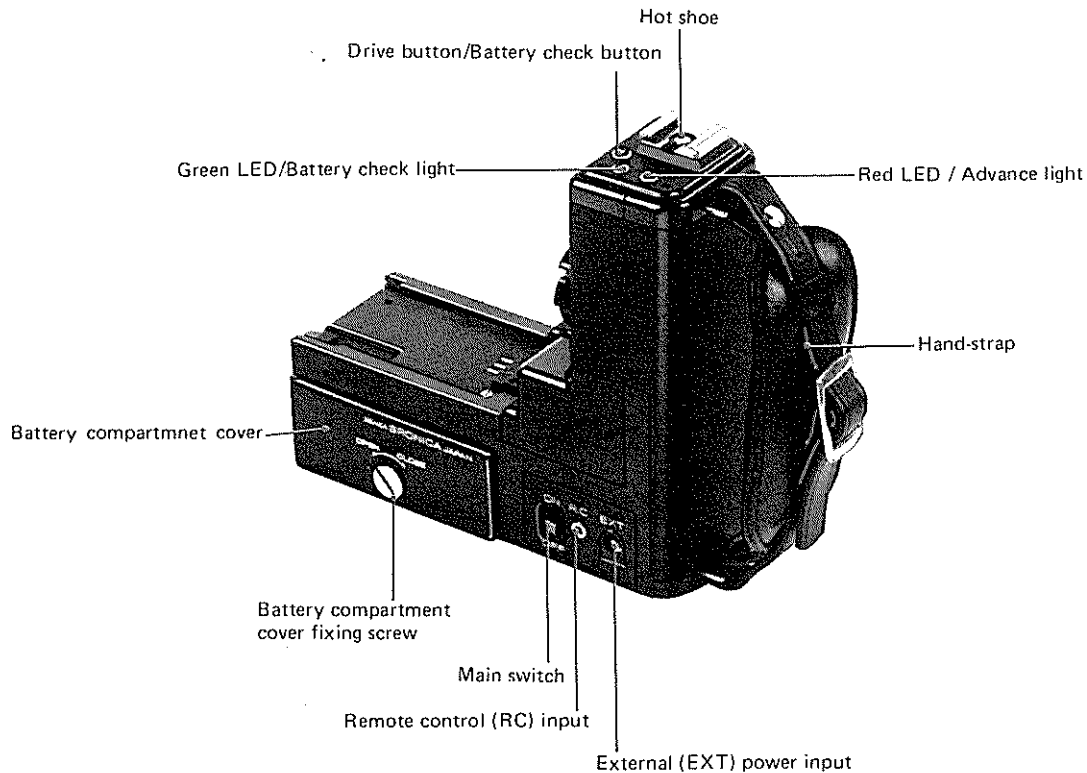
## Specifications of the Motor Drive E

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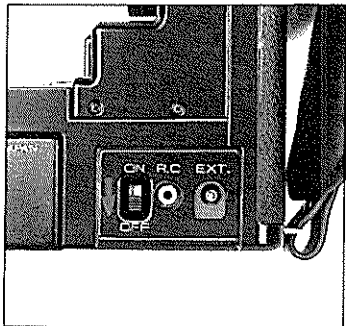
For use with	Zenza Bronica ETR and ETR-C cameras.
Firing rate	Continuous shooting at approximately one frame per second with the fastest shutter speed setting; single frame exposure also possible.
Shutter speeds	May be used with all shutter speed settings of the ETR and ETR-C cameras, even with AE Finder E attached.
Power source	Eight AA size alkaline manganese or eight NiCd batteries in battery compartment.
Working voltage	12 volts (with eight AA size dry batteries). Can also be used with large capacity DC power sources at 9V to 12V (4A) on EXT input.
Number of frames possible	15 frames with 120 roll film and 30 frames with 220 roll films. Approximately 100 rolls of 120 roll films can be exposed with fresh alkaline batteries in one continuous shooting session.
Other features	Shutter release button; battery checking system; start-mark advancing system; remote control terminal; external power terminal; hot shoe; and quick release mount.
Dimensions	165mm wide x 149mm high x 70mm deep
Weight	910 grams (without batteries)

## Nomenclature

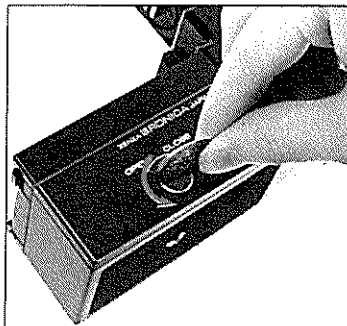




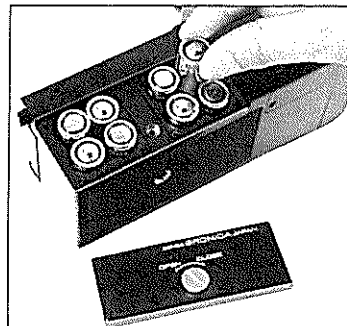
## 1. Loading the Batteries



(1) First, switch OFF the main switch of the Motor Drive E. (The battery compartment is built into the Motor Drive.)



(2) Hold the Motor Drive E and battery compartment cover firmly and turn the cover fixing screw, with a coin or similar article, in the OPEN direction (counter-clockwise) until it comes off.

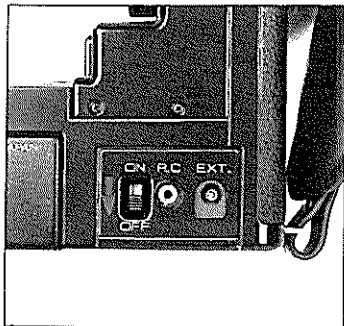


(3) Insert eight AA size alkaline manganese or NiCd batteries into the battery compartment with their plus (+) and minus (-) polarity indications coinciding to similar indications in their individual compartments.

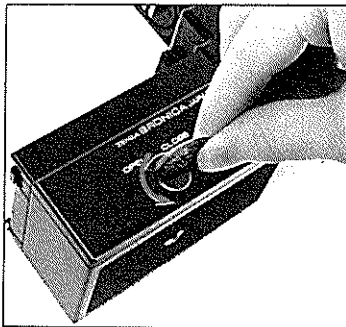
\*Never insert batteries with polarities reversed.

Please do not use Black-Manganese batteries since their electric characteristic does not fit in with the characteristic of the Motor Drive E.

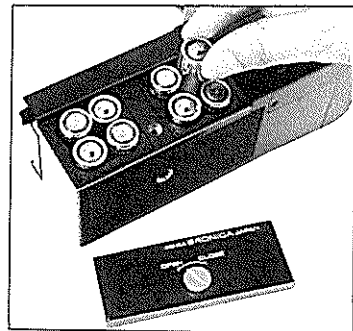
## 1. Loading the Batteries



(1) First, switch OFF the main switch of the Motor Drive E. (The battery compartment is built into the Motor Drive.)



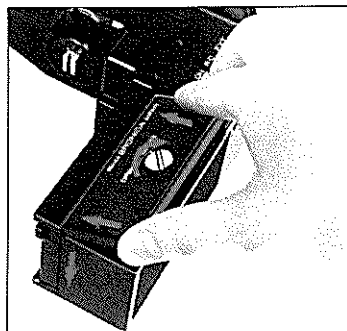
(2) Hold the Motor Drive E and battery compartment cover firmly and turn the cover fixing screw, with a coin or similar article, in the OPEN direction (counter-clockwise) until it comes off.



(3) Insert eight AA size alkaline manganese or NiCd batteries into the battery compartment with their plus (+) and minus (-) polarity indications coinciding to similar indications in their individual compartments.

\*Never insert batteries with polarities reversed.

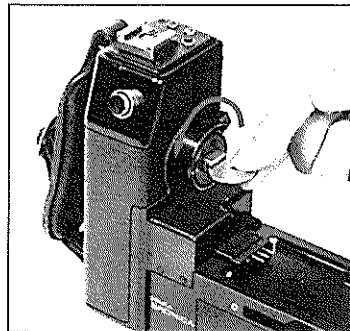
Please do not use Black-Manganese batteries since their electric characteristic does not fit in with the characteristic of the Motor Drive E.



(4) After loading the batteries, insert the battery compartment cover into place, by coinciding protrusions at the upper end of the cover to notches on the body. Then revolve the fixing screw in the CLOSE direction (clockwise), with a coin, etc., while pressing the cover in place at the same time.

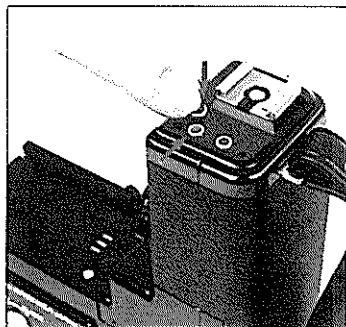
(5) Always switch OFF the main switch of the Motor Drive E, when it is not being used, in order to conserve battery power. When not being used for long periods, take the batteries out of the battery compartment. The batteries will fall out when the equipment is tipped slightly, after removing the battery compartment cover.

## 2. Checking motor Drive E Operation



(1) Turn the winding connector in the counter-clockwise direction until a clicking sound is heard. (Use a coin, etc., for this purpose, if necessary.) Then, align the red alignment indexes, which will place the winding connector groove parallel to the Motor Drive E base.





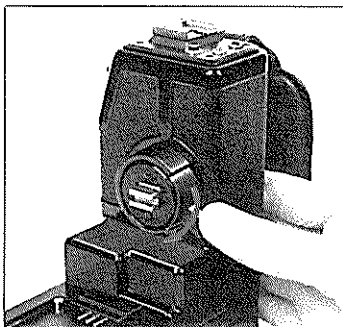
(2) Switch OFF the main switch, which will cut off power to the equipment. Depress the drive button and check whether the battery check (green LED) lamp lights up, as the drive button also doubles as the battery check button.

Should the green LED lamp not light up or should it go out immediately, when the drive button is depressed, the battery power should be considered exhausted and the batteries should be exchanged. (Make sure the batteries are inserted correctly.)

\*The battery check button should not be depressed for more than two seconds.

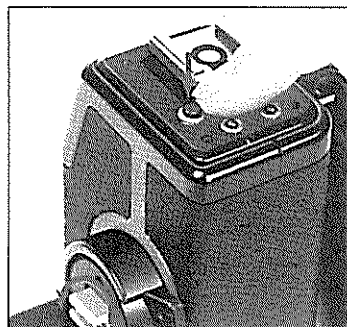
(3) Switch ON the main switch and power will be supplied to the Motor

⑥ Drive E.



(4) Check Shutter Release Action. Depress the shutter release button. The red LED lamp should light up for about 0.2 second and the release pin should protrude for a very brief instant.

\*Should the release pin not protrude, in the above case, depress the reset lever strongly and press the shutter release button once more. The action of the release pin should be checked once more in this manner.

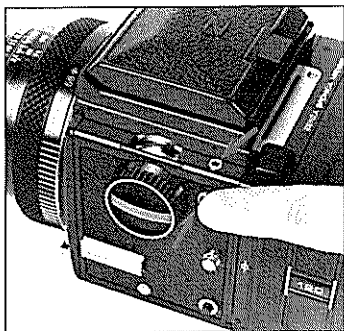


(5) Revolution of the Winding Connector.

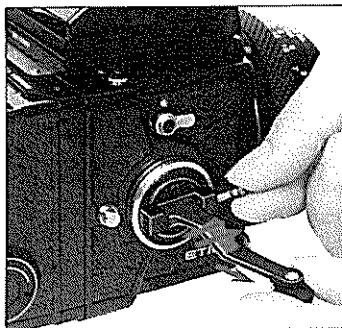
Depress the drive button. Motor advance should take place, with the winding connector revolving in the counter-clockwise direction. Then, switch OFF the main switch. Power supply will be cut off and revolution of the winding connector should stop.

### 3. Attaching the Motor Drive E to the Camera Body

(The following operations should take place with the main switch OFF.)

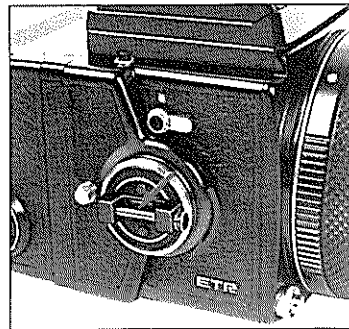


(1) First, depress the battery check button on the camera and check whether there is sufficient power for operations. If not, exchange for a new battery.



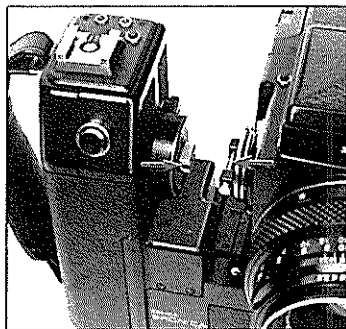
(2) Next, take off the film winding crank on the camera. Grip the film winding crank's attachment rod, at the end with the groove, and pull it out until it stops, which will permit the winding crank to be taken off. Finally, push the attachment rod back in fully.

(3) Set the multiple exposure lever in the horizontal position. The shutter speed dial can be set at any speed, but not on T (time). To remove any clockwise-play in the shaft, turn the shaft anti-clockwise until the attachment rod is parallel with the base of the camera, or in

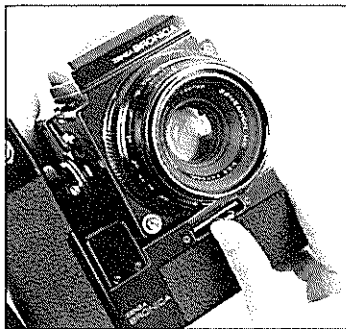


otherwords in a horizontal plane. It is most important that there is no clockwise-play in the attachment rod as this could cause malfunctioning of the Motor Drive.

(4) Revolve the winding connector on the Motor Drive E in the counter-clockwise direction until a clicking sound is heard and then align the red alignment indexes. This will place it in position for coupling with the attachment rod on the film winding shaft of the camera body.



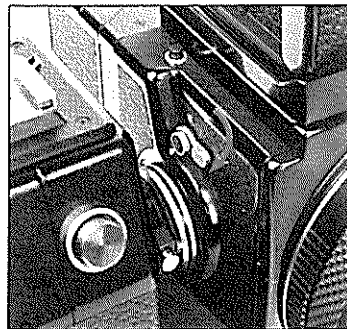
(5) Slide the lock lever to the open (O) indication. Then, insert the tripod mounting shoe on the base of the camera in the open grooved section or Quick Release tripod mount of the Motor Drive E while, at the same time, coinciding the attachment rod on the film winding shaft to the groove of the winding connector.



(6) When the camera body is inserted fully into place, the safety stop will spring up and lock the camera body. Please confirm that the safety stop is working at this time.

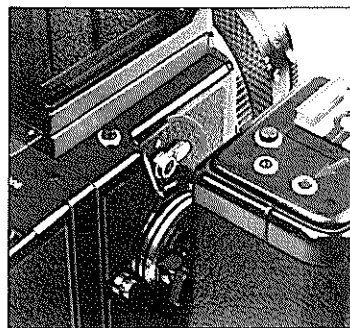
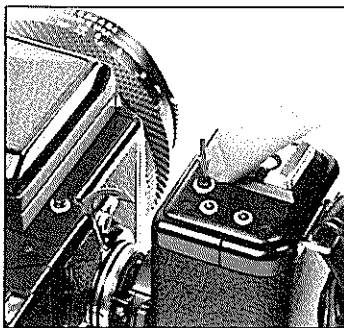
Next, slide the lock lever fully in the direction of the close (C) indication while pushing the camera body towards the hand grip end. The Motor Drive E and camera body will now be securely connected.

#### 4. Checking Operations



(1) Set the camera for multiple exposures and shift the time exposure lever on the lens so that the letter "A" is exposed. Set the shutter speed dial for one second.

## With the Motor Drive E Attached to the Camera (without Loading Film)



(2) When the shutter release button is depressed, in this case, the shutter will be released, the red LED lamp will light up for about 0.2 second, the shutter will close down after one second and the film winding shaft will turn one complete revolution and stop. However, if pressure is maintained on the shutter release button, the next shutter release action will take place promptly. Confirm that the red LED lamp is not continuously illuminated in the latter case.

(3) Depress the drive button. The film winding shaft will turn once and the action will then stop. Confirm that the red LED lamp stays illuminated in this case.

(4) Flip the multiple exposure lever (to the vertical position) and press the drive button. Confirm that the film winding shaft revolves without advancing the film. Switch OFF the main switch.

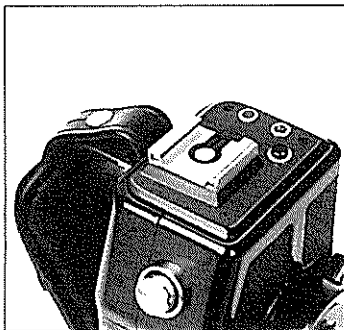
(5) Set the multiple exposure lever for multiple exposures once more (i.e., place lever in horizontal plane). Then, switch ON the main switch and press the drive button. The film winding operation will take place and the red LED lamp will stay illuminated. Switch OFF the main switch.

\*Repeat the above checking operations until you are familiar with the operations taking place.

## 5. Loading Film

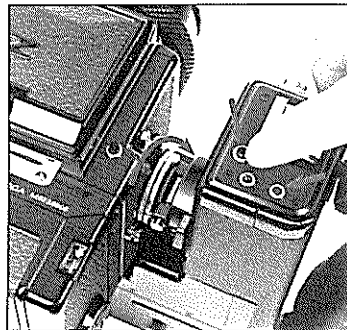


(1) In principle, film loading is the same as that for the camera itself, as explained in "Film Loading" on page 8 of the instruction manual. However, when the Motor Drive E is attached to the camera body, close the back cover after aligning the starting point, or arrow mark, on the leader to the start-mark ▼ on the film holder. Then, switch ON the main switch of the Motor Drive E.

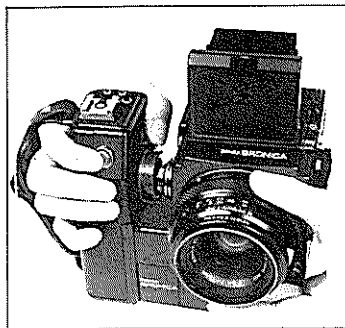


(2) Depress the drive button, when the main switch is ON, and the film will be advanced until it stops to place the first frame into position for taking the picture. The red LED lamp will stay illuminated in the above case but will go off when the picture is taken or when the main switch is turned OFF.

## 6. Operations



(1) Switch ON the main switch, flip the multiple exposure lever (i.e., orient it vertically) and depress the drive button. The motor action will take place, advancing the film to the first frame where it will stop. The red LED lamp will stay illuminated, in this case, indicating that all preparations for photography have been completed.



(2) Point the camera at the subject and depress the shutter release button.

Depressing the shutter release button for each frame (quickly lifting your finger before the action is repeated) will give you single frame exposures. Keeping your finger on the shutter release button will give you continuous shooting action, with the shutter being released and the film advanced repeatedly while the button is depressed.

(3) The shutter release (picture-taking) operation can be repeated approximately 15 times with 120 roll film and 30 times with 220 roll film. When the above number of operations are completed, further motorized operations will not take place when the shutter release button is pressed. Therefore, check the exposure counter to see whether the required number of frames have been exposed.

(4) Depressing the drive button will wind up the remainder of the film.

To stop further motorized operations, turn OFF the main switch.

\*The next roll of film can be inserted in the film holder, without any changes, if the camera and Motor Drive E are not separated.

#### Multiple Exposures

Refer to the item on the "Multiple Exposures" in the instruction booklet for BRONICA ETR page 23.

#### Firing Rate

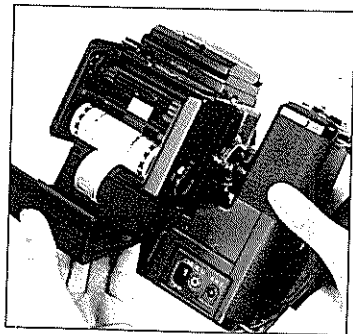
One-frame is advanced, with the fastest shutter speed setting, within one second when new batteries are used.

When a slower shutter speed is employed, the time for advancing one frame is delayed by the time of the shutter speed so employed. For instance, when the shutter speed of one-second is employed, the time necessary for advancing one frame will be within two seconds.

The same is true in case of using with the AE finder E attached. Namely, the frame-advancing time changes in accordance with the brightness of the subject.

When the battery-power is greatly reduced, the film-winding speed becomes slower down to about two seconds for one-frame even at the fastest shutter speed.

## 7. Film Unloading

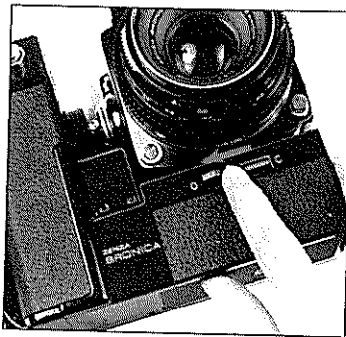


(1) Upon exposing all the frames on the film, depress the drive button. The film will be advanced freely and then, switch OFF the main switch after 5 or 6 seconds. Always switch OFF, in the above case, as otherwise, the operation will continue until battery power is completely exhausted.

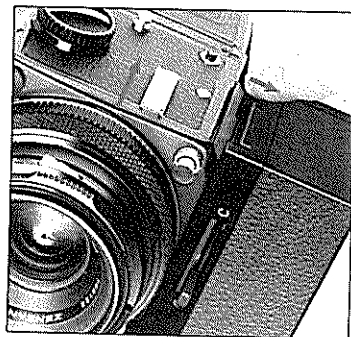
If further pictures are being taken with a fresh roll of film, in this case, simply follow instructions in "Film Loading" of the camera's manual.

\*The groove of the winding connector and attachment rod of the film winding shaft can be oriented at any position, in this case.

## 8. Detachment of the Motor Drive E

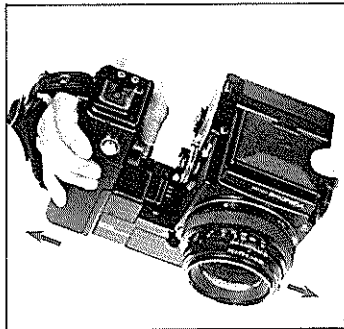


(1) First, switch OFF the main switch and then move the lock lever to the open indication side, which will loosen it.

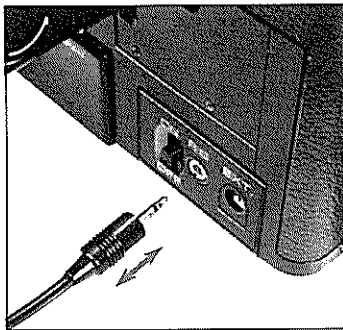


(2) Next, push the safety stop down while, at the same time, pulling the camera body away from the Motor Drive E with a slight lifting action.

## 9. Remote Control Operations



(3) Since the shutter will be cocked on the camera body, do not press its shutter release button while detaching it from the Motor Drive E.

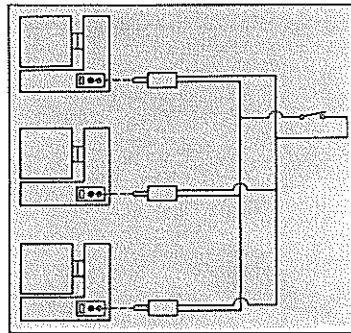


(1) Remote control shutter release operations will be possible by utilizing remote control equipment with a 2.5mm mini-plug matching the remote control (RC) input on the Motor Drive E.

Remote control equipment which can be utilized, in this case, are various equipment already available for 8mm movie cameras, such as remote control extension cord, wireless remote control equipment, self-timer, intervalometer, etc., which are available in most photographic equipment stores.

Please check operation of the equipment before actual use with the Motor Drive E.

For proper operation, the resistance of the remote control extension cord must not exceed 1 ohm.



### Simultaneous Multiple Photography

Plural synchronized exposures can be realized to connect the plural number of cameras, using the remote-control (R.C.) jacks for Motor-Drive E.

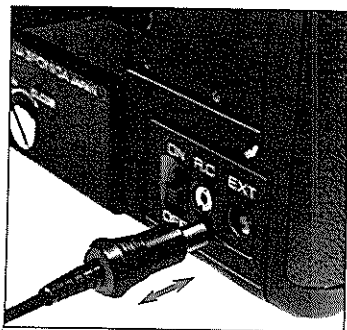
The connecting diagram is shown in the above figure.

When the power is turned ON:

When connecting the R.C. jacks for the plural synchronized exposures, the ground sides (external) of one R.C. jack must be connected also to the ground sides of other jacks (cords), and the same is true with the hot sides; because the ground side of the R.C. jack, the negative (—) side of the EXT jack and the camera body are in contact as negative with one another (their electrical potentials are the same).



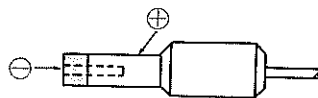
## 10. Choice of External Power



Inserting the plug of an external power into the EXT jack on the Motor Drive E will switch the power supply to the Motor Drive E from the internal battery power (eight AA size batteries) to the external power. See that the polarity marks (+ and -) of the plug are not mistaken when using such equipment.

Incidentally, NiCd batteries cannot be recharged while placed in the battery compartment of the Motor Drive E.

The following type of plug should be purchased for use with the external power, in the above case, since it is not supplied by Zenza Bronica.



\*Plugs used for transistor radios and taperecorders on the market.

\*Conditions of the External Power

Voltage	DC 12V
Current	4A

The cable from the external power to the Motor Drive E should, as noted below, be as short and thick as possible.

Examples:

Cable of 0.3 sq.mm area —  
Less than 2 meter length

Cable of 0.75 sq.mm area —  
Less than 5 meter length

## 11. Pointers on the Use

- (1) Always clean all exposed contact points before attachment, as otherwise there will be faulty contact, leading to improper operations.
- (2) See that the exposed contact points are not short-circuited with a metal object.
- (3) When using the flash synch socket on the camera body, always cover the hot shoe on the accessory with its protective cover. Also, when using the hot shoe of the Motor Drive E, please cover the flash synch socket of the camera with its cover, too. Otherwise, you may receive an electric shock from the uncovered contact.
- (4) Do not use the shutter release button and/or the cable release socket on the camera body, when the Motor Drive E is attached, as otherwise the camera will be damaged. Also never apply Safety Lock of the shutter release button.
- (5) Do not press the battery check button for more than 2 seconds.
- (6) Do not detach the camera body, AE Finder E, lens, etc., with the main switch of the Motor Drive E switched ON.
- (7) When storing the Motor Drive E in a gadget bag, etc., be sure that the drive button is not being depressed.

## of the Motor Drive E

(8) Do not use at over 13 volts when utilizing external power.

(9) When used at temperatures below zero degree Centigrade, the Motor Drive E may not operate properly due to battery deterioration at these temperatures. Therefore, keep the equipment warm (inside the coat, etc.) for proper use.

(10) Do not carry the equipment attached to the camera body for long trips but carry them separately. When carrying the camera with the Motor Drive E attached, however, always use the neck strap on the camera for supporting the equipment.

(11) During rest periods or between actual shooting sessions, always switch OFF the main switch in order to decrease battery consumption.

(12) When the equipment is not being used for long periods, always take the batteries out of the battery compartment. Keeping the batteries in during long periods of storage can lead to leakage of the chemicals and result in poor contacts.

(13) Batteries with leakage and/or corrosion problems should be discarded immediately and the battery compartment should be cleaned out thoroughly, especially the contact terminals.

(14) Always clean the contact points of the batteries and battery compartment with a soft cloth or paper, before inserting new batteries.

(15) Do not store the equipment in locations which are subject to high temperature and/or are excessively damp.

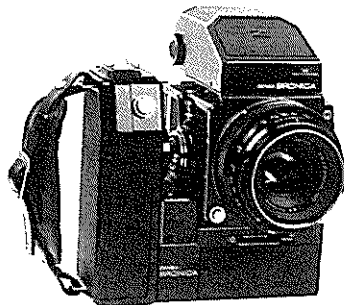
(16) Do not store the equipment with chemicals, such as naphthalene, etc., but include silica gel (disiccant) in the container.

(17) Do not wipe the lacquer exterior surface or leatherette covering with solvents, such as alcohol, thinner, etc., which can cause damage.

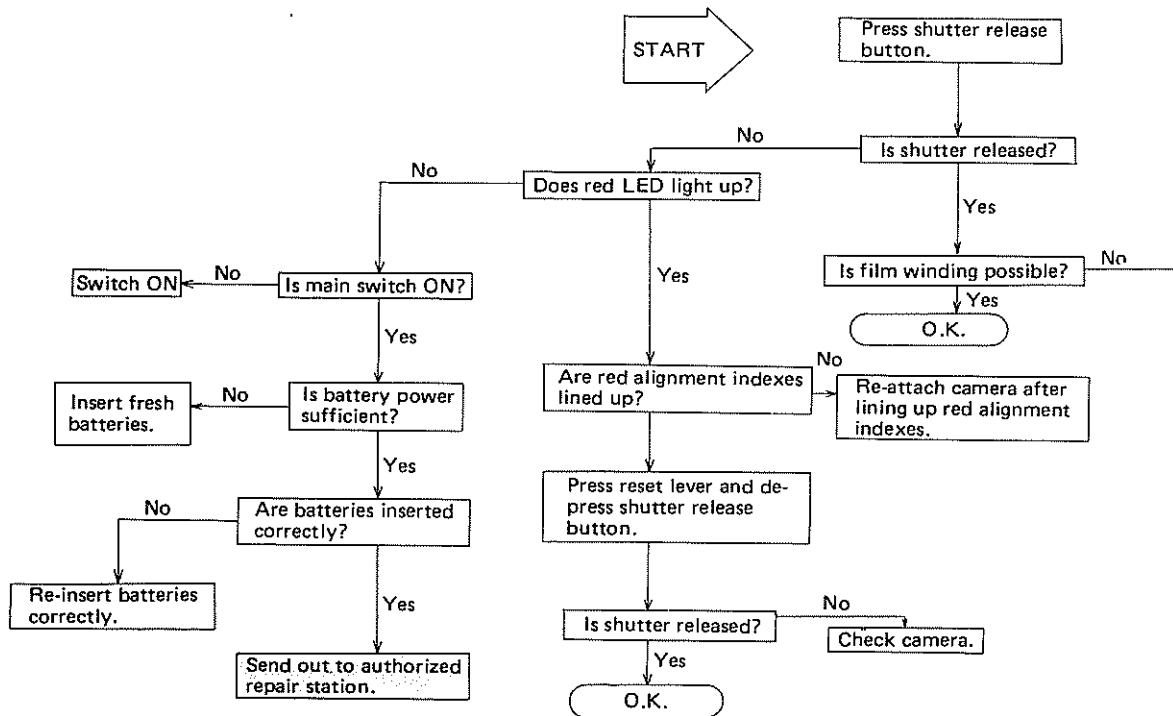
The exterior surfaces should only be wiped lightly with a silicon cloth or a soft cloth.

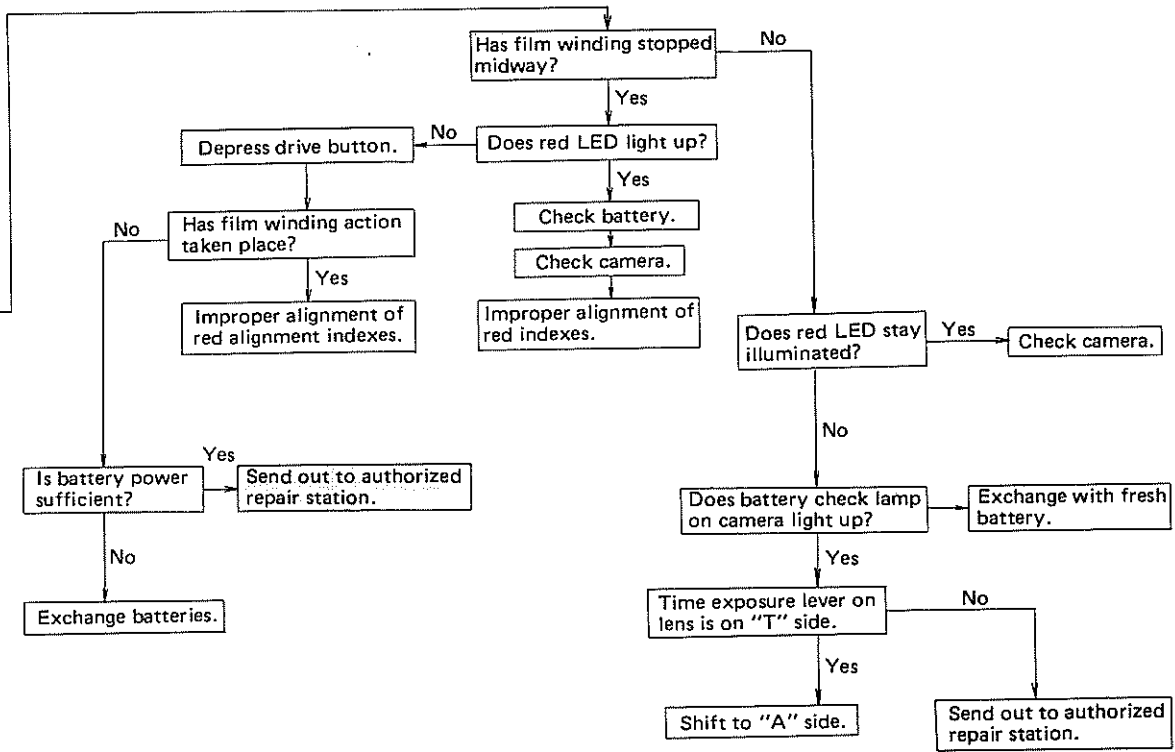
(18) It is highly recommended to bring both your ETR camera and Motor Drive purchased to Bronica distributor or authorized Bronica service stations and to have them thoroughly checked for optimum performance of the equipment.

(19) In case of electronic photography, set the shutter speed within a range of 1/30 to 1/500 second.



## 12. Troubleshooting





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