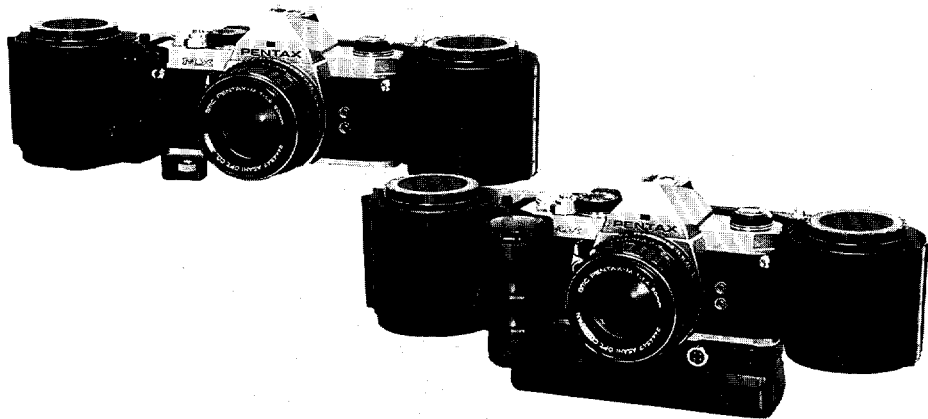


# PENTAX



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## BULK FILM MAGAZINE MX

Bulk Film Magazine MX was designed exclusively for use with the Pentax MX. Enabling the MX to shoot up to 250 exposures of precut bulk film before requiring reloading, it is a highly useful tool for sequential and interval photography, as well as for long shooting sessions. It was principally designed for use with the MX in combination with Motor Drive MX along with Power Pack M or other power sources. It may also be used without the motor drive, however, by attaching an accessory coupler unit to the base of the camera.

Bulk Film Magazine MX has many uses in creative, industrial and scientific photography. It is handy for making road and pedestrian traffic surveys, weather and astronomical observation, aerial observation, medical and dental photography and other scientific uses. It is also handy for fauna and flora studies, artistic studies in motion, sports photography, copy work and hundreds of other photographic applications.

In addition to Bulk Film Magazine MX, these instructions also cover the accessory film cartridge loader (for preloading film cartridges) and the coupler unit.

- Data MX, Dial Data MX and Winder MX may not be employed when using the MX with the film magazine attached.

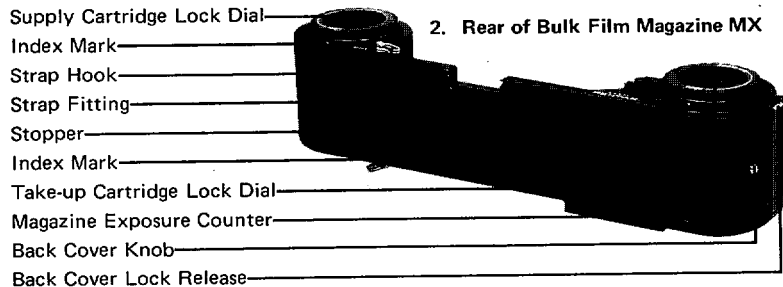
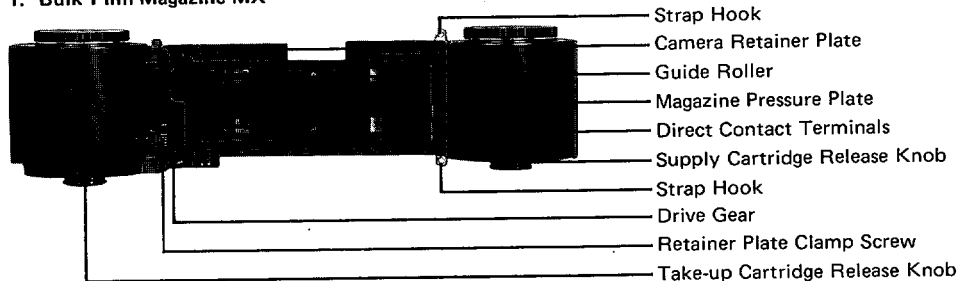
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<b>Film Capacity:</b>	Up to 250 exposures (approximately 10 meters) cut from 100 foot (30.5 meter) bulk film rolls and loaded in special film cartridges.
<b>Exposure Counter:</b>	Subtractive type; automatically resets for next roll.
<b>Other Features:</b>	Simplified camera retainer plate for easy mounting; safety-lock back cover release (tripod mounts to camera body when using film magazine).
<b>Standard Accessories:</b>	Film cartridges (two), coupler (for use without motor drive) cartridge loader with accessory load spool.
<b>Overall Size and Weight:</b>	(Bulk Film Magazine MX) 290 x 81.5 x 66mm; 1,012 grams (w/two film cartridges) (MX + Bulk Film Magazine MX + Coupler) 290 x 99 x 94.5mm; 1,710 grams (w/batteries) (MX + Bulk Film Magazine MX + Motor Drive MX + Ni-Cd Battery Pack) 290 x 119 x 94.5; 2,109 grams (w/batteries) (MX + Bulk Film Magazine MX + Motor Drive MX + Battery Grip M) 290 x 239 x 94.5; 2,344 grams (w/batteries) * Camera measurements are with M50mm f/1.4 standard lens

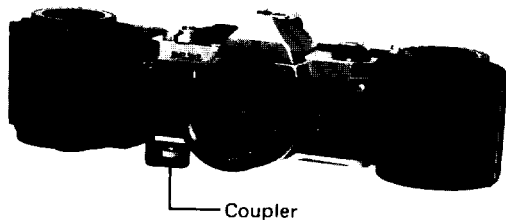
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## DESCRIPTION OF PARTS

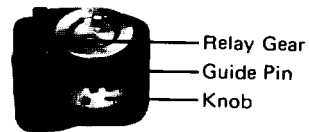
### 1. Bulk Film Magazine MX



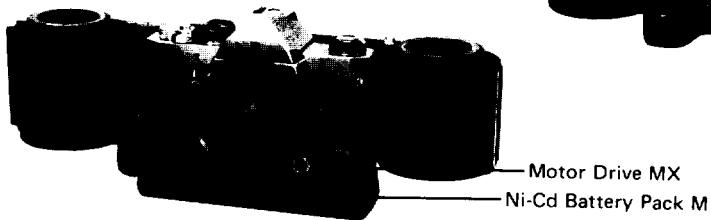
**3. MX + Bulk Film Magazine MX**



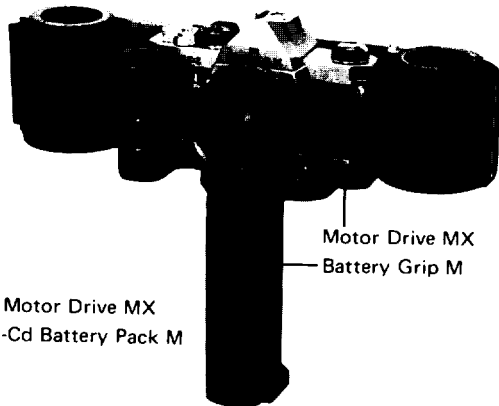
**4. Coupler**



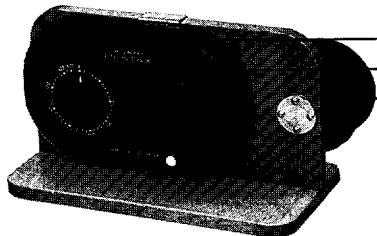
**5. MX + Bulk Film Magazine MX + Motor Drive  
MX + Ni-Cd Battery Pack M**



**6. MX + Bulk Film Magazine MX + Motor Drive  
MX + Battery Grip M**



### 7. Cartridge Loader



Counter Index

Winder Handle

Load Spool

Sprocket

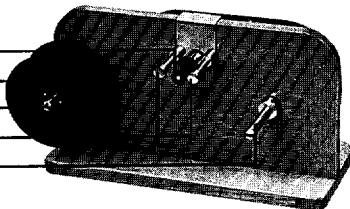
Load Spool

Load Spool Shaft

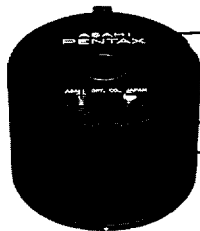
Film Holder

Take-up Spool Shaft

### 8. Opposite Side of Loader



### 9. Film Cartridge



Inner Casing

Release Button

Guide Pin

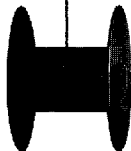
Outer Casing

Index Mark

### 10. Sections of Film Cartridge



Outer Casing



Cartridge Spool



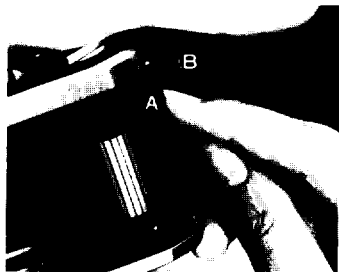
Guide Pin

Release Button

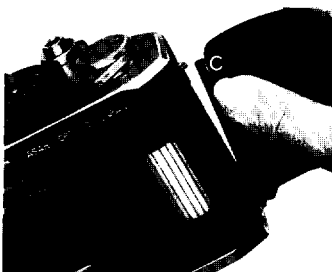
Inner Casing

## ATTACHING THE BULK FILM MAGAZINE

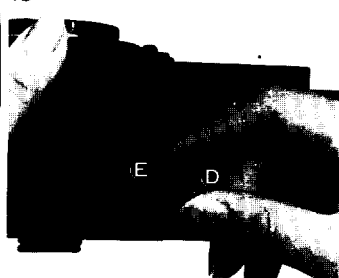
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12



13



Removing the MX back cover

**Fig. 11** Open the MX back cover **A**. Then, depress the back-cover-removing pin **B** which is inset in the back cover hinge and lift the hinge shaft out of the eye-hook at the top. Next, lift the bottom of the hinge shaft out of the eye-hook at the bottom.

**Fig. 12** To replace the cover, reverse the above procedure. First, insert the shaft into the eye-hook at the base of the camera. Then, depress the back-cover-removing pin **C** and align the top of the shaft with the eye-hook at the top. Let go of the pin to spring the hinge shaft into place.

**Figs. 13** Loosen the retainer plate clamp-screw **D** at the base of the camera retainer plate and pull the retainer plate out so that the screw fitting hits flush against the indentation **E** in the side of the magazine.

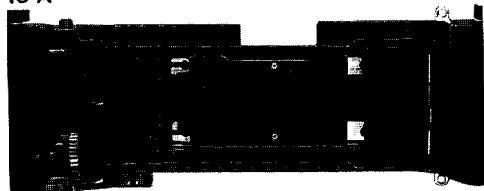
**Fig. 14** Fit the take-up side of the camera beneath the camera retainer plate so that the strap fitting protrudes freely from the recessed part of the retainer plate.



14

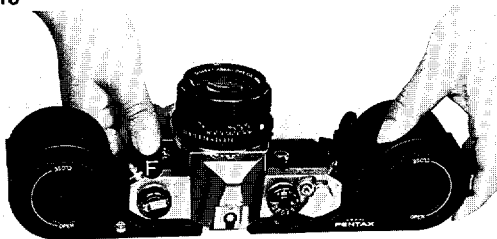


15-A

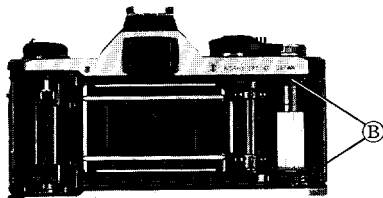


**Fig. 15** Then, align the light-tight grooves of the camera body (B of Fig. 15B) with the top and bottom light seal rims of the film magazine (A of Fig. 15A).

16

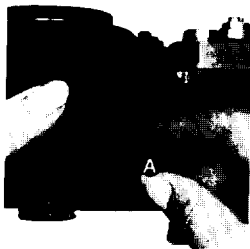


**Fig. 16** After checking that everything is aligned properly, push the film-rewind side of the camera (F) down into the other side of the magazine until the camera locks in place with a click.

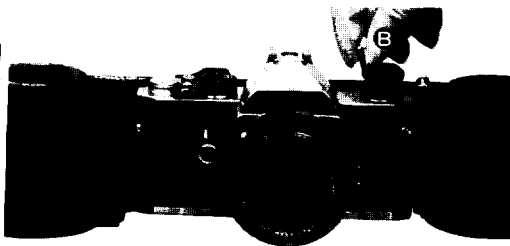


15-B

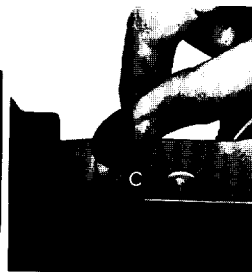
17



18



19



**Fig. 17** Tighten the retainer plate clamp-screw **A** so that the camera retainer plate is braced firmly between the camera and the take-up side of the magazine. Then, check that the base of the camera is flush with the base of the film magazine; also pull slightly on the film-rewind side of the camera to check that it is secured properly.

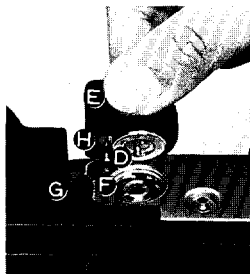
**Fig. 18** To detach the film magazine from the camera, loosen the retainer plate clamp-screw. Then, lift up on the film rewind lever **B** and pull slightly toward you. The camera will now come loose on the film rewind side.

MX + Bulk Film Magazine without motor drive

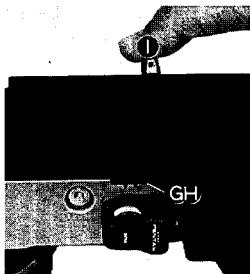
**Fig. 19** Remove the film transport coupler cap **C** of the camera by rotating it counter-clockwise with a coin. (Set the cap in a safe place to avoid losing it).

**Fig. 20** Align the guide pin **D** of the coupler unit **E** so that the pin will insert into the hole of the film transport coupler **F**. Then, enmesh the teeth of the film magazine drive gear **G** with the relay gear **H** of the coupler unit. Next, tighten the coupler knob to lock the coupler in place.

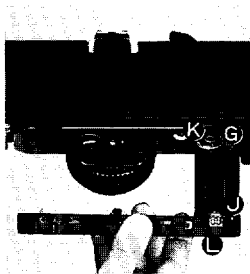
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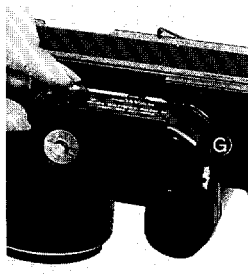
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22



23



**Fig. 21** Cock the camera's rapid wind lever ① and check whether or not the gears ⑥ ⑦ are enmeshed and rotating properly.

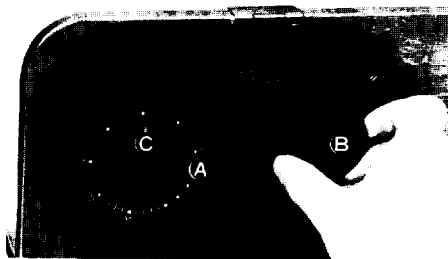
**MX + Bulk Film Magazine MX + Motor Drive MX**

**Fig. 22** Hold Motor Drive MX flush with the base plate of the camera and insert the motor drive's film transport coupler into the camera's film magazine drive gear of the motor drive ① properly enmeshes with the drive gear of the film magazine ⑥ . At the same time, the direct contact terminals ④ of the film magazine should match up with the direct contact terminals of the motor drive ⑤ .

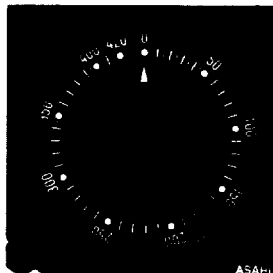
**Fig. 23** For instructions on use of the motor drive, refer to the **Motor Drive MX Instruction Manual**. Assembly is always easier if the bulk film magazine and the camera are assembled before attaching the motor drive. Fig. 23 shows Motor Drive MX with Ni-Cd Battery Pack M. No matter which power source you are using, however, always check that the bulk film magazine drive gear ⑥ rotates freely and that the take-up spool release knob at the base of the magazine rotates to ascertain that film will advance properly.

## LOADING THE FILM CARTRIDGE

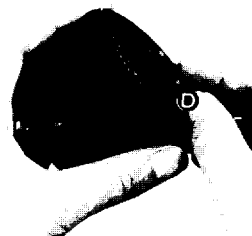
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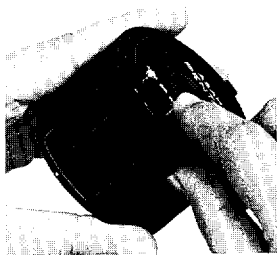
Bulk Film Magazine MX holds up to a maximum of 10 meters of bulk film which is pre-cut from 100 foot (30.5 meter) bulk film rolls. After cutting, the film is loaded into a film cartridge and inserted into the magazine. As not all camera stores carry bulk film, special arrangements for purchase are often necessary beforehand with the store or directly with the film manufacturer.

**Preliminaries:** The following up to Fig. 32 may be performed either in daylight or in a darkroom. In addition to the bulk film canister, you will need the film cartridge loader along with its accessory load spool and two film cartridges.

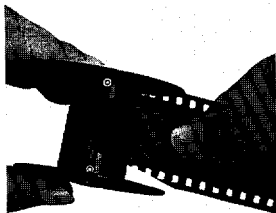
**Fig. 24** Set the exposure dial (A) of the cartridge loader by pulling out the winder handle (B) and turning the dial until the desired number of exposures (plus five frames as a leader) is aligned with the triangular index pointer (C).

**Fig. 25** The exposure dial is a subtractive type which features illuminated numerals for easy loading. Numerals are indicated in 5-frame gradations running from 420 to 0. The numerals 420, 250 and 0 are illuminated in yellow; while the numerals 400, 350, 300, 250, 200, 150, 100 and 50 are illuminated in green.

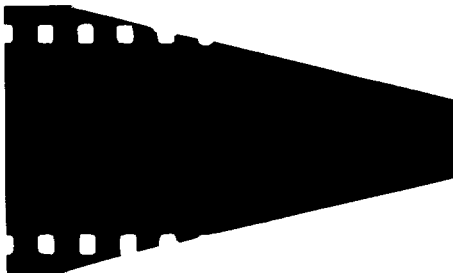
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28



29



**Assembling and disassembling the film cartridge:**  
**Fig. 26** To open the film cartridge and disassemble it, press the round release button **D** on top of the cartridge and turn it counter-clockwise until the opening of the inner casing aligns with the same of the outer casing. Then, lift the inner casing out of the outer casing and remove the cartridge spool.

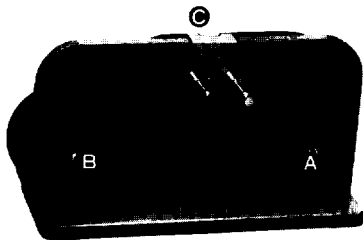
**Fig. 27** To reassemble the film cartridge, place the cartridge spool inside the inner casing and give the guide pin a half turn clockwise until the cartridge locks closed with a click.

**Triming the film end:**

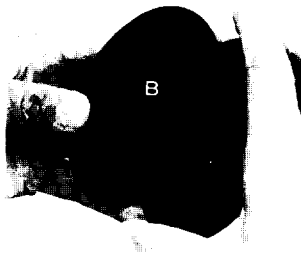
- Actual trimming of the end of the bulk film roll must be performed with the room completely dark. It may be practiced with the light on, however, using an old 20- or 36-exposure film roll as follows.

**Fig. 28** Cut the film end as shown in Fig. 29 and insert it into the slot of the cartridge spool with the emulsion side (curled side) of the film facing the spool.

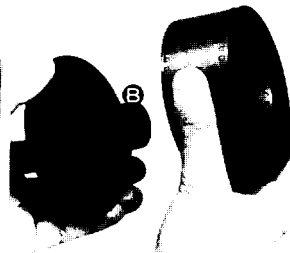
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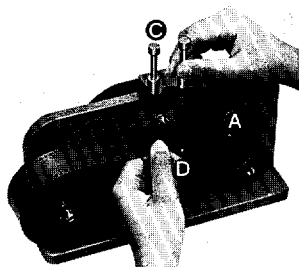


**Fig. 30** Now, turn the cartridge loader around so that the sprocket side faces you and place the film cartridge spool **A** on the right shaft of the cartridge loader.

**Fig. 31** Separate the load spool **B** by turning one of the flanges counter-clockwise. Then, raise the film holder section of the loader **C** so that the guide pins are upright (see Fig. 33).

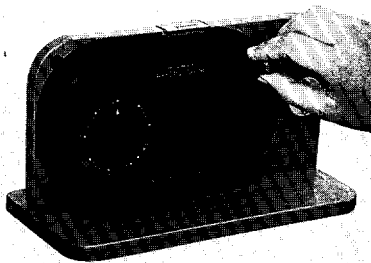
**Cartridge loading: To be performed in a dark room**  
**Fig. 32** Remove the bulk film from the can. If the film is supplied prerolled on a spool, you will not need the accessory load spool **B**. If it is not, remove the core filler from the center of the film roll and hold the film so that its leader comes out clockwise from the top of the roll. Then, insert the film onto the shaft of the load spool and reassemble the load spool by putting it together and turning the flanges clockwise. Next, place the loaded spool on the shaft on the left side of the cartridge loader (Fig. 30).

33



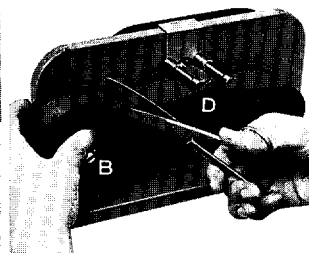
**Fig. 33** Trim the end of the actual bulk film roll as shown previously in Fig. 29. Then, pass the end of the film over the sprocket **D** and insert it into the slot of the cartridge spool **A**. Make sure that the film perforations have enmeshed properly with the sprocket by feeling the sprocket teeth with your fingers. Then, lower the film holder **C** so that the guides hold the film against the sprocket.

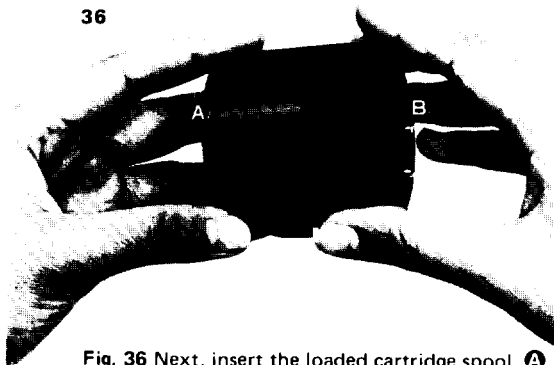
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**Fig. 34** Turn the cartridge loader around again so that the winder side faces you and wind the winder handle clockwise. The counter will stop turning automatically when the preset number of frames have been wound onto the cartridge spool.

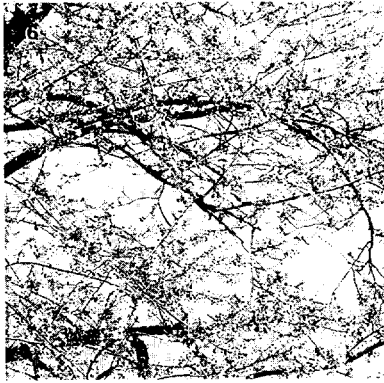
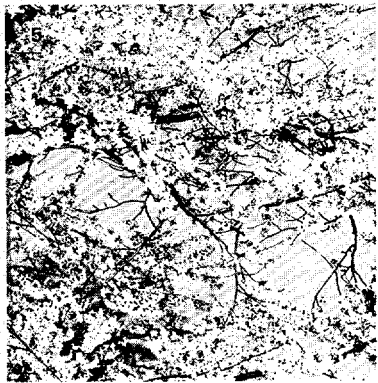
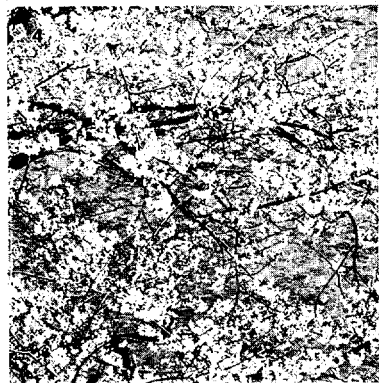
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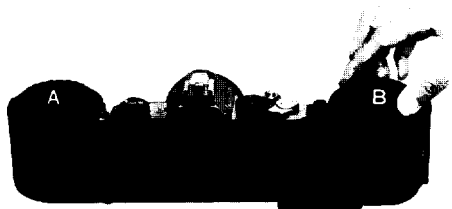
**Fig. 36** Next, insert the loaded cartridge spool **A** into the inner casing of the film cartridge. Then, align the openings of both casings and insert the inner casing into the outer casing. Close the cartridge to make it light tight by rotating the guide pin **B** on top until it locks closed. Replace the film remaining on the load spool into the black paper and put it into the film canister. Retape the canister to keep it light tight. Next, trim the end of the film protruding from the loaded film cartridge in the manner shown in Fig. 29 for loading into the film magazine.





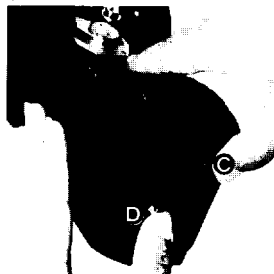
## LOADING THE FILM CARTRIDGES INTO BULK FILM MAGAZINE MX

37



(A darkroom is not necessary for the following)  
**Fig. 37** Turn the supply cartridge lock dial **A** so that OPEN aligns with the white index dot. Do the same with the take-up cartridge lock dial **B**.

38

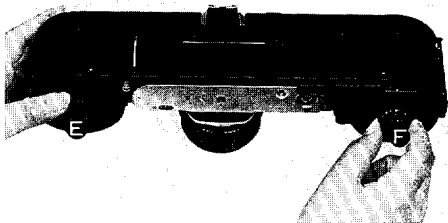


**Fig. 38** Lift the back cover lock release **C** with your finger nail and open the back cover by lifting the knob **D**. Hold the back cover firmly so that it does not drop when it detaches from the film magazine as shown in Fig. 39.

39

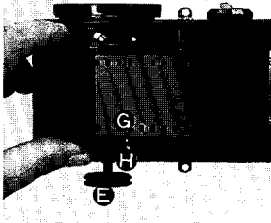


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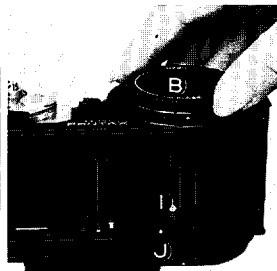


**Fig. 40** Pull out the cartridges release knobs **E** **F** on both ends at the base of the film magazine.  
**Fig. 41** Insert the loaded film cartridge (supply cartridge) into the supply chamber of the film magazine by aligning the white dot at the base of the cartridge **G** with the white dot at the base of the magazine **H**. Then, push in the cartridge release knob **E** to lock the cartridge in place.

41

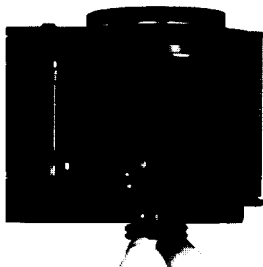


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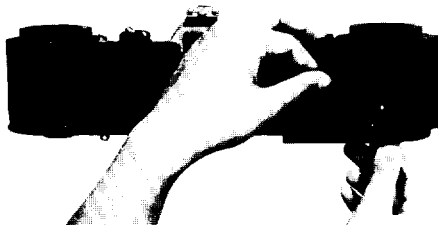
**Fig. 42** Next, insert the take-up cartridge into the take-up chamber of the magazine by aligning the white dots **I** , **J** in the same manner as above and lock in place by pushing in the take-up cartridge release knob **F** (Fig. 40). Then, open the cartridge by rotating take-up cartridge lock dial **B** so that CLOSE aligns with the index dot.

43



**Fig. 43** Rotate the take-up cartridge release knob so that the slot in the take-up cartridge spool is in the middle of the opening ready to receive the film leader.


44



**Fig. 44** Pull out about 25cm of the film from the supply cartridge and insert the leader into the take-up cartridge so that it catches in the slot.

45



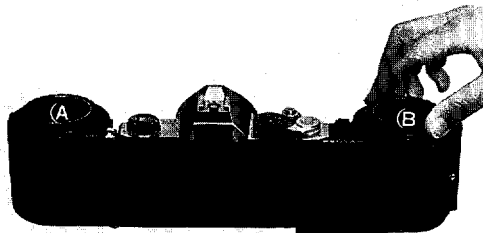
**Fig. 45** Give the take-up cartridge release knob  two turns clockwise to take up slack and secure the film leader on the take-up spool. Then, close the cartridge by turning cartridge lock dial ( B of Fig. 42) so that OPEN aligns with the white index dot.

46



**Fig. 46** Replace the back cover by inserting the end of the cover into the slot on the edge of the supply spool chamber and closing the cover so that it locks in place. Check that both ends of the back cover have caught properly so that it does not fall off and will be light-tight when you advance the film.

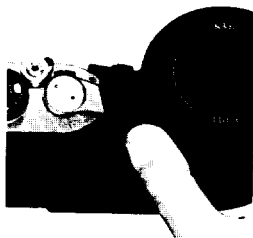
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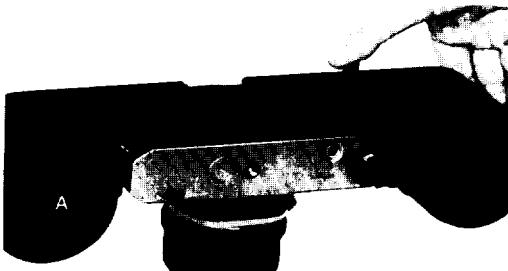
**Fig. 47** Next, turn both the supply cartridge lock dials **A** and the take-up cartridge lock dial **B** so that **CLOSE** aligns with the white index dots at the base of both dials. (The cartridges are now opened inside the magazine so that the film will take up smoothly.)

- As there is no provision for indicating the type of film loaded in the bulk film magazine, it is helpful to make a note of the type of film inside.

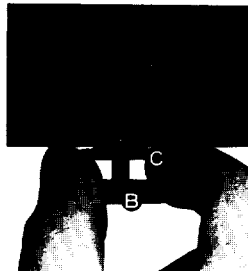
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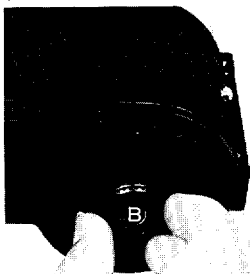
## BLANK EXPOSURES

**Fig. 48** Five blank exposures must be made with the camera's rapid wind lever when using the film magazine without the motor drive. As the lever will hit against the stopper atop the film magazine when advancing film, the lever must be wound twice to advance the film one frame (thus, advance the lever 10 times and release the shutter 5 times to make 5 blank exposures).

**Fig. 49** Check that the supply cartridge release knob **A** rotates clockwise as you advance the film; otherwise, the film is not advancing properly.

**Fig. 50** To set the film-magazine exposure counter for the number of frames loaded in the magazine, pull out the take-up cartridge release knob **B** on the bottom of the magazine and rotate the rollet ring **C** clockwise until the appropriate number aligns with the index. Set the same number of frames on the exposure counter as you did on the

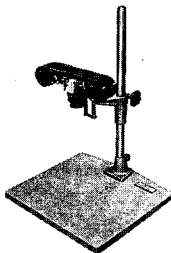
51



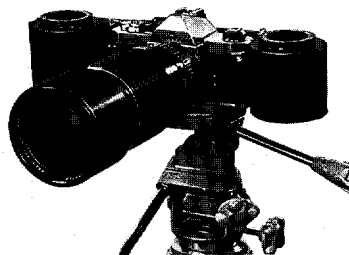
52



53



54



film cartridge loader (Fig. 25), minus the five frames previously used as a leader. (This will give you the exact number of frames left in the magazine). Then, push in the take-up cartridge release knob when finished.

**Fig. 51** Turn the take-up cartridge release knob **B** clockwise to take up any slack remaining in the film.

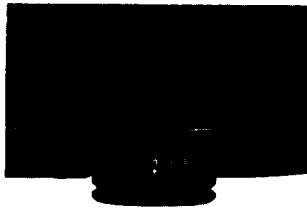
Shooting: MX + Bulk Film Magazine MX  
(without motor drive)

**Fig. 52** Wind the film advance lever twice to cock the shutter and release it when ready to shoot. For handheld shooting, hold the camera as illustrated, using the fastest possible shutter speed to lessen the chance of camera movement.

**Fig. 53** For copy work, exposures can be made easily if the MX and the bulk film magazine are attached to either Copy Stand III or Copy Stand III P.

**Fig. 54** If shooting with a tripod, attach the tripod to the tripod socket of the camera.

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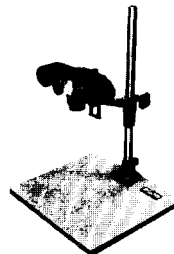
56-A



56-B



57



At the end of the film roll:

**Fig. 55** When the preset number of frames has been used up the film counter will indicate zero.

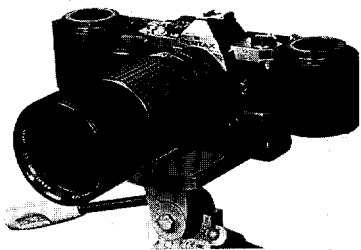
Shoot an additional 5 blank exposures, however, so that all of the exposed portion of the film winds fully into the take-up cartridge (otherwise, the last exposures will be ruined when you remove the back cover). Next, turn both of the cartridge lock dials until OPEN aligns with the white index dots and open the back cover (Fig. 37). Then, remove the take-up cartridge by pulling out the take-up cartridge release knob. (This need not be

done in a darkroom as the cartridge is light tight as long as you do not open it.) Send the cartridge off for development as described on pages 26 and 27.

Shooting: MX + Bulk Film Magazine MX + Motor Drive MX

Load the film cartridge as previously described and make 5 blank exposures. In this instance, use the motor drive trigger release button to make blank exposures. Next, set the bulk film magazine





exposure counter to correspond with the total number of frames loaded in the film magazine (minus the 5 frames used for a leader) and set the motor-drive exposure counter to zero.

- At the end of the film roll, even though the exposure counter has reached zero, continue making exposures until film advance ceases automatically. (The guide roller inside the bulk film magazine also serves as an automatic film end detector which stops the magazine exposure counter from advance when there is no film in the magazine.)

**Fig. 56** For horizontal handheld shooting with the motor drive attached, hold the camera as indicated in Fig. 56A to prevent camera movement; for vertical shooting, hold it as indicated in Fig. 56B.  
**Fig. 57** For copy with the motor drive attached when using Copy Stand III or Copy Stand III P, attach the Ni-Cd Battery Pack M to the motor drive before mounting it to the copy stand; otherwise, without the battery pack attached, the camera/motor drive assembly will hit against the mount of the copy stand.

**Fig. 58** If you use a tripod when shooting with the motor drive, select one that is extremely sturdy and stable to offer assurance against camera movement.

## FILM

### Purchasing and Developing Bulk Film

As explained previously, bulk film is not often stocked by ordinary camera stores. Development service is also not available at all places. Make pre-arrangements with your camera store or directly with the film manufacturer for purchase and development of bulk film.

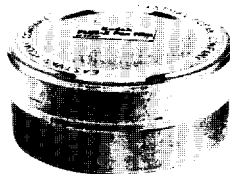
While sealed in the film can, bulk film is influenced by temperature but not by moisture, so only precautions against excessive heat are required. Once the can has been opened, however, moisture can also adversely affect the film. In high temperature and high humidity regions, it is advisable to develop film within 1 or 2 weeks after shooting. Unnecessary temperature and humidity problems may be avoided by loading only as much film in the bulk film magazine as will be used within a reasonably short time.

Removing a partially used film roll for development:

Film may be removed from the magazine before it has been completely used as follows.

**Fig. 60** Check first the reading of the exposure counter of the bulk film magazine and make

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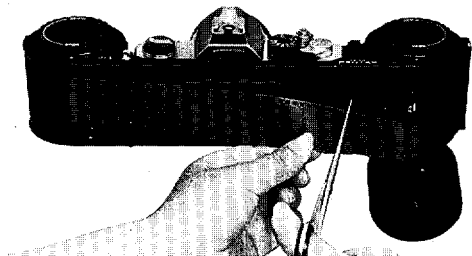


60



a record of both the number of exposed frames and the number of frames remaining. Then, make five blank exposures so that all of the exposed frames wind completely into the take-up cartridge (If this is not done the last five exposure will be ruined by light when you remove the back cover). **Fig. 61** Turn both cartridge lock dials so that OPEN aligns with the white index dots on both sides of the magazine. Then, open the back cover and remove the take-up cartridge as described previously. Cut the film in half with a pair of sissors just in front of the cartridge and send the cartridge off for development.

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**Fig. 62** Remove the supply cartridge from the supply side of the magazine, then, write the type of film loaded inside the cartridge and the number of unexposed frames remaining on a piece of paper, and tape the paper to the cartridge for future reference (Store in a dry, cool place until further use).

**Changing film types loaded in the magazine:**

As film cartridges are used in sets of two, purchase extra cartridges for times when you wish to alternate the types of film loaded in the magazine. To change film, turn the cartridge lock dials to OPEN and remove both cartridges from the

62



magazine as described in Figs. 60 – 62. After loading the new film in the supply cartridge as you did with the previous cartridge, load the new cartridges in the magazine.

**Developing Film**

It is also useful to have extra cartridges on hand while others are being sent out for development. If you do not want to send a cartridge out, remove the film from the cartridge in a darkroom. Then, wrap it so that it is light-tight in black paper and send it out for development in an empty bulk film can (Tape the can tightly and mark "BULK FILM FOR DEVELOPMENT").



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