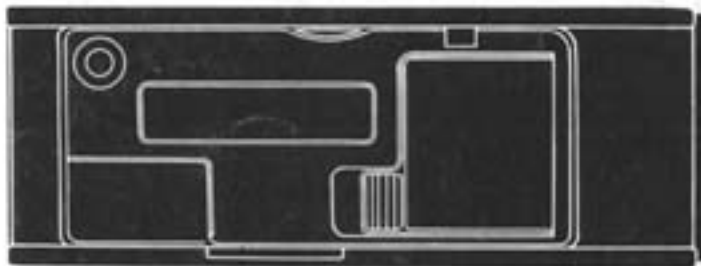




MINOLTA

MULTI-FUNCTION BACK

OWNER'S MANUAL
BEDIENUNGSANLEITUNG
MODE D'EMPLOI
MANUAL DE INSTRUCCIONES



Multi-Function Back on X-700
with Auto Electroflash 280PX
and Motor Drive 1



Attaching your compact Multi-Function Back cordlessly in place of the Minolta X-700's regular back opens up an amazing variety of programmed automatic operations, all simply set by pushing six keys and referring to a liquid-crystal display.

A highly accurate quartz clock and auto calendar through the year 2099 let you imprint the time in hours, minutes, and seconds, or the date in any order of year/month/day you prefer; other modes imprint any number through 99 99 99 or the consecutive number of each frame in a series. Data is automatically imprinted by LEDs in the lower right corner each time a frame is taken; a data-imprint switch also has positions for no imprinting or for manual imprinting before or after exposure if desired. Six film settings let you vary data exposure in accordance with film type and personal preference.

The Multi-Function Back's camera-control modes can be used alone or in combination for automatic time-lapse sequences and timed long exposures. The interval of shutter releasing can be set from one second up to 100 hours and the number of frames at any desired value (both modes normally require using Auto Winder G or Motor Drive 1). Accurately-timed long exposures from one second up to several hours are also possible. When used in interval mode together with the Minolta Auto Electroflash 280PX and Power Grip 2, the Multi-Function Back gives a signal to automatically turn the power grip on one minute before and off immediately after exposure, thus saving battery power.

Before using your Multi-Function Back for the first time, please read this manual all the way through so that you will be able to operate the unit correctly and realize its full potential right from the start.

CONTENTS

NAMES OF PARTS	1
BATTERIES	2
INSTALLING THE BACK	5
DATA EXPOSURE (Film Setting)	6
DATA-IMPRINTING MODES (Function I)	8
SETTING DATA AND COMMANDS	10
CAMERA-CONTROL MODES (Function II)	12
EXAMPLES OF CAMERA-CONTROL OPERATION	14
SUMMARY OF KEY FUNCTIONS	16
TECHNICAL DETAILS	17
CARE AND STORAGE	19
THE X-700 SYSTEM	80

NAMES OF PARTS

- ① Flash-charge-control connection (shown capped)
 - ② Imprint indicator
 - ③ Control panel
 - ④ Control-panel cover
 - ⑤ Liquid-crystal display
 - ⑥ Data-imprint switch
 - ⑦ Manual-imprint button
 - ⑧ Instruction label
 - ⑨ Hinge pins
 - ⑩ Release pin
 - ⑪ Film pressure plate
 - ⑫ Data imprinters
 - ⑬ Camera-contact pins
 - ⑭ Battery-chamber cover
-
- Ⓐ Function I key
 - Ⓑ Function II key
 - Ⓒ Camera-control start key
 - Ⓓ Mode-selector key
 - Ⓔ Film-setting/digit-selector key
 - Ⓕ Number-changing key

BATTERIES

Use one type of battery from the following:

- Two 3v lithium (CR 1/3N or equivalent)
- Four 1.55v silver-oxide (Eveready S-76, EPX-76, or equiv.)
- Four 1.5v alkaline-manganese (Eveready A-76 or equiv.)

Insert batteries as follows:

1. Using a coin or similar object, unscrew and remove the battery-chamber cover inside the Multi-Function Back (A-1).

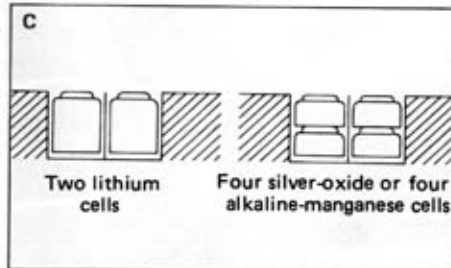


2. After wiping the terminals with a clean, dry cloth, hold the batteries by their edges and insert them plus (+) side down into the chambers (B, C).
3. Replace the battery-chamber cover by inserting the two tabs into the slots beneath the top edge of the chamber (D); then screw the cover back on (A-2).



CAUTIONS

- To avoid leakage or bursting, do not mix battery types or old and new batteries.
- If batteries are inserted with terminals reversed, the unit will not function properly and battery leakage or bursting may occur.



When batteries are inserted, the Multi-Function Back is set as follows:

- Data-exposure duration is set at film setting 2 (♦♦).
- Time mode is displayed and starts running from 00 00 00.
- Date is set at January 1, 1981.
- Count mode is set at 00 00 00 and starts advancing by one each time shutter is released.
- All other modes are set at 00 00 00.



Battery check

If the batteries have been inserted correctly, the liquid-crystal display will come on within ten seconds. To check whether battery capacity is sufficient, set the data-imprint switch at "MAN." and press the manual-imprint button (before loading film) to make sure that the display does not start blinking on and off continuously. Thereafter, the unit automatically monitors battery capacity once each hour and each time data is imprinted. When battery power drops to a level almost insufficient for operation, the display will begin to blink on and off to indicate that new batteries should be inserted as soon as possible. When the batteries are completely exhausted, the display will be blank.

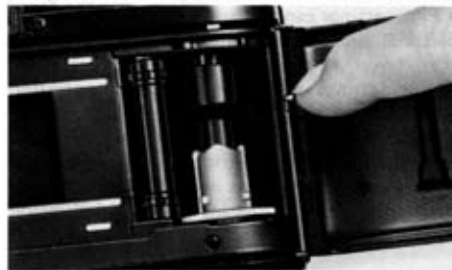
Cold-weather operation

Since batteries tend to lose power as temperature drops, always use fresh batteries and keep a spare set with you when using the Multi-Function Back in cold weather. For sustained cold-weather use (approx. 0°C or lower), it is recommended to use lithium or silver-oxide batteries. Battery capacity will be restored when temperature returns to normal.

INSTALLING THE BACK

The Multi-Function Back can be used only on the Minolta X-700. Install the back as follows:

1. Open the camera's regular back and push down on its release pin to remove it (A).
2. Insert the Multi-Function Back's lower hinge pin into the camera's lower eyelet. Then push down on the release pin, align the upper hinge pin with the upper eyelet, and release the pin (B).
3. Before loading film, close the back and check whether the electrical contacts mate properly. To do so, turn the camera's main



switch on and set the Multi-Function Back's data-imprint switch at "AUTO"; then press the camera's operating button to see whether the imprint indicator lights up.

NOTE

• If the Multi-Function Back does not open or close smoothly when you first use it or after some use, or if it does not connect properly electrically with the camera, return it to the nearest authorized Minolta service facility. Do not attempt to repair it yourself by bending the camera-contact pins or otherwise.



DATA EXPOSURE (Film Setting)

The data-imprinting time must be set according to the film's sensitivity to LEDs. First determine the correct film setting from the table at right, then:

1. Press the **FI** key.
2. Press the **MODE** key repeatedly until only diamonds appear in the display.

♦♦
3. Press the **♦** key repeatedly until the display contains the desired number of diamonds. If there are too many diamonds, continue pressing until the cycle starts over.
4. Press the **MODE** key to return the display to normal.

NOTES

- Data exposure will automatically be set at ♦♦ when batteries are installed.
- In film settings 5 and 6, wait until the red imprint indicator goes out before you advance the film. When using Motor Drive 1 or Auto Winder G to advance the film, do not use a shutter speed faster than indicated in the table at right.
- When using films not listed in the table or when boosting a film's speed, take test photographs or contact the nearest Minolta service facility to determine the correct film setting.
- Film settings can be varied in accordance with personal preference. Choosing a lower setting (i.e., fewer ♦'s) will shorten imprinting time; higher settings will have a longer imprinting time.
- As a reminder of the film setting for films you often use, remove the appropriate stickers from the enclosed sheet and place them in the open spots next to the instruction label inside the control-panel cover.

♦	Ektachrome 160/160P/200/200P/400, Kodacolor 400, High Speed Infrared, Fujichrome 400, Fujicolor 400, Sakuracolor 400, Agfa CNS 400		
♦♦	Ektachrome 64/64P, Kodacolor II, Fujicolor FII, Sakuracolor II, Agfacolor CNS, Agfacolor 80S, Vericolor II Pro, Sakurapan SSS, Lightpan Color II		
♦♦♦	Kodachrome 64, Ektachrome 50P, Fujichrome 100, Sakurachrome 100, Agfachrome 50S/50L/64P/100P, Agfachrome CT21, Tri-X Pan, Technical Pan Film 2415, Sakurapan SS, Ilford HP5, HP5 Auto Winder, Isopan, Agfapan 100/400		
♦♦♦♦	Kodachrome 25/40, Agfachrome CT18, Ilford FP4, Neopan SS/400, Lightpan SS		
♦♦♦♦♦	Plus-X Pan, Agfapan 25	1/30	Maximum shutter speed with motor drive or winder
♦♦♦♦♦♦	Panatomic-X, Neopan F	1/2	

DATA-IMPRINTING MODES (Function I)

The types of data that can be imprinted in Function I are shown in the table on the next page. To select one of the six data-imprinting modes, first press the **F I** key, then press the **MODE** key repeatedly until the desired mode is displayed. The FI display cycle is:

TIME → DATE I → DATE II → DATE III →
NUMBER → COUNT → Film Setting
(♦'s only; no imprinting) → TIME →

If the data-imprint switch is set at "AUTO", the displayed data will be imprinted whenever the camera's shutter is released. When it is set at "MAN.", data can be imprinted before, during, or after exposure by pushing the manual-imprint button. When no data imprinting is desired, turn the switch off. (The display will remain on, and FII modes will still operate when the switch is off.)








Data is imprinted by LEDs as six figures (in three pairs) in the lower right-hand corner of the frame. The data may be difficult to read if imprinted on a bright or red area of the picture.




Name	Displayed Data	Imprinted Data	Remarks
TIME	15 36 24	15 36 24	<ul style="list-style-type: none"> * Clock operates on 24-hour time (i.e., 8:00 PM = 20:00), accurate to within ± 15 sec./month at normal temperatures. * When setting, seconds digits will revert to "0" as soon as key is pressed fifth and sixth time. (If desired, seconds digits may be set at other values.) * Clock starts running as soon as key is pressed seventh time. * Clock will not operate if set at more than 23 hrs., 59 min., or 59 sec.
	hours, minutes, seconds		
DATE I	80 08 30	80 08 30	
	year, month, day		<ul style="list-style-type: none"> * Auto calendar from January 1, 1901 to December 31, 2099 * Can be reset only in Date I position * Should not be set at more than 12 months or 31 days
DATE II	08 30 80	08 30 80	
	month, day, year		
DATE III	30 08 80	30 08 80	<ul style="list-style-type: none"> * Any number from 00 00 00 to 99 99 99 can be set. * Number remains unchanged until reset or batteries are replaced.
	day, month, year		
NUMBER	12 34 56	12 34 56	
	any desired number		
COUNT	COUNT 00 00 26	00 00 26	<ul style="list-style-type: none"> * Can start at any number * Advances one unit each time shutter is released, regardless of mode
	consecutive numbering of frames		

SETTING DATA AND COMMANDS

































Set data for imprinting and commands for controlling the camera as follows:

1. Select the desired function and mode.
2. Press the  key. Six diamonds will appear in the display; the far left diamond will be blinking, indicating that the corresponding digit of the display is ready to be set.
3. Press the  key repeatedly until the desired number appears.
4. Press the  key again to move to the next digit to the right; then set it by pressing the  key. (If it is unnecessary to change a particular digit, press the  key repeatedly until the diamond corresponding to the next digit you want to change starts blinking.)
5. Repeat the above process until all six digits are set as desired; then press the  key once more (i.e., seventh time) to start the clock or calendar, or to store data for other FI modes and commands for FII modes. On the seventh push of the  key, the diamond display will revert to the

previously set number corresponding to the film setting. If the  key is pressed again, the setting cycle starts over.



Examples of Data Setting

Changing TIME from 15:36:24 to 07:15:00		Changing DATE from Dec. 26, 1979 to May 30, 1981	
   ... until H·M·S appear.	***** 15 36 24	   ... until Y·M·D appear. (Cannot be set in M·D·Y or D·M·Y mode)	***** 79 12 26
 Blinking ♦ indicates first digit can be set.	***** 15 36 24	 Far left ♦ blinks.	***** 79 12 26
 X 9 (1 → 0)	***** 05 36 24	 X 1 (7 → 8)	***** 89 12 26
 Second ♦ blinks,  X 2 (5 → 7)	***** 07 36 24	 Second ♦ blinks,  X 2 (9 → 1)	***** 81 12 26
 Third ♦ blinks,  X 8 (3 → 1)	***** 07 16 24	 Third ♦ blinks,  X 9 (1 → 0)	***** 81 02 26
 Fourth ♦ blinks,  X 9 (6 → 5)	***** 07 15 24	 Fourth ♦ blinks,  X 3 (2 → 5)	***** 81 05 26
 Fifth digit changes to "0".	***** 07 15 04	 Fifth ♦ blinks,  X 1 (2 → 3)	***** 81 05 36
 Sixth digit changes to "0".	***** 07 15 00	 Sixth ♦ blinks,  X 4 (6 → 0)	***** 81 05 30
 Clock starts running.	***** 07 15 00	 Calendar begins operating.	***** 81 05 30
		 Changes to M·D·Y.	***** 05 30 81
		 Changes to D·M·Y.	***** 30 05 81

CAMERA-CONTROL MODES (Function II)

The Multi-Function Back has three modes — INTERVAL, FRAMES, LONG EXPOSURE — usable alone or in combination to control the X-700's shutter. The modes are explained in the table at right, and examples of their use are given on page 14. Setting of the modes and operation of camera control are as follows:

1. Press the **F II** key to change the display to Function II.
2. Press the **MODE** key repeatedly until the mode you wish to set is displayed; then set the mode in the same way as for DATE mode (see p. 11).
3. Set the other FII modes as desired. In order for Function II to operate, FRAMES must be set at 00 00 01 or higher. INTERVAL and LONG EXPOSURE should be set at 00 00 00 if you do not wish to use them.
4. If you wish to have data imprinted automatically each time a shutter-release signal is given to the camera, set the data-imprint switch at "AUTO". Data from the most recently displayed — not the most recently set — FI mode will be imprinted. If you do

not wish to have data imprinted, turn the switch off.

5. Check that the camera (as well as motor drive and flash if being used) are set as desired.
6. Press the **S** key to start camera control. (If an FI mode was displayed, press the **F II** key first.) The first shutter-release signal will be given to the camera within one second after the **S** key is pressed.

NOTES

- Camera-control settings in effect can be reviewed at any time during FII operation by pressing the **MODE** key.
- If you wish to cancel camera control before or during operation, press the **FI** key. FII operation can also be stopped temporarily by turning the camera's main switch off. However, operation may resume as soon as the switch is turned on again.
- If your head is not shielding the eyepiece from light during FII operation, use the camera's eyepiece cap.

INTERVAL	interval of shutter releasing	00 01 30 00
<ul style="list-style-type: none"> • Set at 00 00 00 or desired value (up to 99 hrs., 59 min., 59 sec.). • FRAMES must be set at more than one. • Use Auto Winder G or Motor Drive 1. (Manual winding is also possible if INTERVAL is long.) • INTERVAL must be greater than shutter speed plus winding time; if not, FII operation will stop. If speed likely to be set by camera in P or A mode or speed you set in M mode is less than 1/2 sec., set INTERVAL at at least 2 sec. 		
FRAMES	number of pictures to be taken	00 00 25
<ul style="list-style-type: none"> • Set at 00 00 01 or higher. • When set at more than one frame, use Auto Winder G or Motor Drive 1. • Winder and motor drive will automatically stop at end of film. If film is changed and back is closed within INTERVAL setting, operation will continue (without having to press S key again). If back is still open when next signal is given, FII operation will be cancelled. 		
LONG EXPOSURE	control of time exposures	00 00 130
<ul style="list-style-type: none"> • Set at 00 00 00 or desired value. (If camera batteries become exhausted before set time has elapsed, shutter will close. With fresh lithium battery in camera, maximum long-exposure at 20°C is approx. 6 hrs.; with other battery types, approx. 3 hrs.) • Set mode/shutter-speed selector of camera at "B"; if not, operation will not be as intended and film may be wasted. • When used with INTERVAL mode, LONG EXP. must be less than INTERVAL. 		

EXAMPLES OF CAMERA-CONTROL OPERATION

The following combinations of FII mode operation are possible (**I**: INTERVAL setting; **F**: FRAMES setting; **L**: LONG EXPOSURE setting):

Interval + Frames (with winder or motor drive)

- * A series of **F** frames taken at **I** Intervals, with shutter speed controlled by camera (set **L** at 00 00 00)
Ex: A 30-frame traffic-survey sequence taken at 10-sec. intervals (TIME)

Long Exposure + Frame(s) (with tripod; mode selector at "B")

- * One frame, with duration of exposure **L** controlled by back.
Ex: A 1-hr. 45 min. exposure of star movement (DATE)

Long Exposure + Interval + Frames (with tripod and winder or motor drive; mode selector at "B")

- * A series of **F** frames taken at **I** intervals, with **L** exposure duration.
Ex: A 15-frame sequence of 10-min. exposures starting at 30-min. intervals of jet flight patterns over a residential area at night. (TIME)

Frame(s) only

- * A series of **F** frames taken continuously (at speed of winder, or motor drive at "Lo" or "Hi")
Ex: A 10-frame sequence of a juggling act. (COUNT)
- * One frame (**F** = 00 00 01) taken as soon as **S** key is pressed (Serves as electronic shutter-release for preventing camera movement, especially in photomicrography and tripod-mounted photomacrography)
Ex: A twice-life-size photograph of a caterpillar (taken with bellows) (NUMBER)

Capitalized words in parentheses give suggested data-imprinting mode.



SUMMARY OF KEY FUNCTIONS

- F I** **Function I key**
 * Displays data-imprinting function
 * Cancels camera-control function
- F II** **Function II key**
 * Displays camera-control function
- MODE** **Mode-selector key**
 * Selects FI mode for display and imprinting, shifting in following cycle each time it is pressed:
 TIME → DATE I → DATE II → DATE III → NUMBER → COUNT → Film Setting (♦'s only; no imprinting) ...
 * Selects displayed camera-control mode, shifting in following cycle each time it is pressed:
 INTERVAL → FRAMES → LONG EXPOSURE ...
- ♦** **Film-setting/digit-selector key**
 * When FI display is in film setting position, selects correct number of ♦'s
 * In other FI display positions and

FII display positions, selects the digit to be set (blinking ♦ indicates position)

- 0 ~ 9** **Number-changing key**
 * Increases number by one each time it is pressed
- S** **Camera-control start key**
 * If FII is on display, starts camera control

Data-imprint switch

- AUTO** * Data from currently displayed (or, in FII operation, most recently displayed) FI mode is imprinted automatically each time the camera's shutter is released.
- OFF** * No imprinting of data (display remains on; FII modes still operate)
- MAN** * Manual imprinting of data before, during, or after exposure by pressing manual-imprint button

TECHNICAL DETAILS

Type: Quartz-crystal/microcomputer-controlled interchangeable back for data imprinting, and camera/strobe control with Minolta X-700

Camera connection: Cordless by 3 built-in spring-loaded electrical contact pins

Input and display: Data to be imprinted and camera-control commands set by 6 keys and displayed by liquid-crystal-display (LCD) panel

Data imprinting: By light-emitting diodes (LEDs), 6 figures in 3 pairs (each 0.65mm high and 1.1mm wide) in lower right corner of frame; choice of 6 modes: 24-hour time (hours, minutes, seconds) accurate to ±15 sec./mo. at moderate temperatures, date in year/month/day or month/day/year or day/month/year form (with automatic calendar adjustment through Dec. 31, 2099), any selected number through 99 99 99, consecutive numbering of frames to same maximum; data-imprint switch with positions for auto imprint each time shutter released, no imprint (display remains on), or imprint at any time by pressing button; 6 imprint exposure settings selectable

Camera control: Choice of 3 modes plus combinations: shutter release at intervals from 1 sec. through 99 hr. 59 min. 59 sec., number of frames to be taken from 1 through 999,999, shutter opening and closing for long exposures from 1 sec. through 3 to 6 hr. depending on type and condition of camera power cell; automatic/manual data imprinting also possible simultaneously if desired

Electronic-flash control: Connected with Power Grip 2 by cord from socket provided; in interval mode automatically gives signal to turn power grip on to charge Auto Electroflash 280PX 1 min. before exposure and off immediately after

(Motorized film-advance units for X-700: Auto Winder G, Motor Drive 1)

Power source: Two 3v lithium batteries (CR 1/3N or equivalent), four 1.55v silver-oxide (Eveready EPX, S-76, or equiv.), or 1.5v alkaline-manganese (Eveready A-76 or equiv.) cells; respective life at moderate temperatures: 27, 29, and 7 months or more, as determined by standard Minolta test method

Operating temperature range: -10°C to 50°C

Storage temperature range: -20°C to 55°C

LCD-panel life: Approx. 5 yr. with display on continuously

Others: Automatic battery check every hour and each time data imprinted; LCD panel blinks at 2Hz when power sources need replacement; LED above control panel flashes at instant data imprints.

Dimensions (HxLxD): 53 x 138 x 31mm (2-1/16 x 5-7/16 x 1-1/4 in.)

Weight: 85g (3 oz.)

Specifications subject to change without notice

CARE AND STORAGE

- The Multi-Function Back is designed for use at temperatures between -10°C and 50°C . If the unit becomes colder or hotter than this, operation may be unsatisfactory.
- Longer response time below 0°C and diminished contrast above 50°C may make the display difficult to read. At even higher temperatures the whole LCD may turn black.
- Do not press on or damage the liquid-crystal display window.
- Never attempt to disassemble the unit. Any repairs necessary should be undertaken only by an authorized Minolta service facility.
- The unit should never be placed or left in the glove compartment or other places in a motor vehicle, or elsewhere, where it may be subject to temperatures higher than 55°C or lower than -20°C . Particular care should be taken not to leave the unit in sunlight or

near sources of heat such as stoves, strong lights, etc. Do not store it in humid places or near corrosive chemicals.

- The unit's body (except pressure plate) may be wiped with a silicone-treated cloth to clean it. Do not allow alcohol or chemicals of any other kind to touch its surface.
- When the unit is stored, place it in its original packaging and put it in an airtight container with an appropriate amount of dehumidifying agent, such as silica gel.
- The life of the liquid-crystal display is approximately five years. When the contrast decreases and the display becomes difficult to read, have the panel replaced by an authorized Minolta service facility.