

MINOLTA XL-401/601



OWNER'S MANUAL

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With your light, compact, and unusually versatile Minolta XL-401 or 601 movie camera, you can take auto-exposure movies under most existing-light conditions without the need for special lighting equipment, while enjoying the usual super-8 advantages.

Besides these, however, you enjoy many further advanced Minolta features outlined on pages 6 and 7. Among these are 4X or 6X zooms, macro capability, a built-in self-timer and intervalometer, and bright, clear reflex viewing and focusing.

Your XL camera has an electromagnetic shutter release and can be used with a number of Minolta Autopak-8 D system accessories for even greater versatility.

Before using your camera for the first time, please read this manual all the way through—or at least far enough to cover your own filming needs—while loading batteries and film, handling and acquainting yourself with your camera and its parts and features. In this way, you can take good movies and begin to realize the potential of your XL-401 or 601 right from the start.

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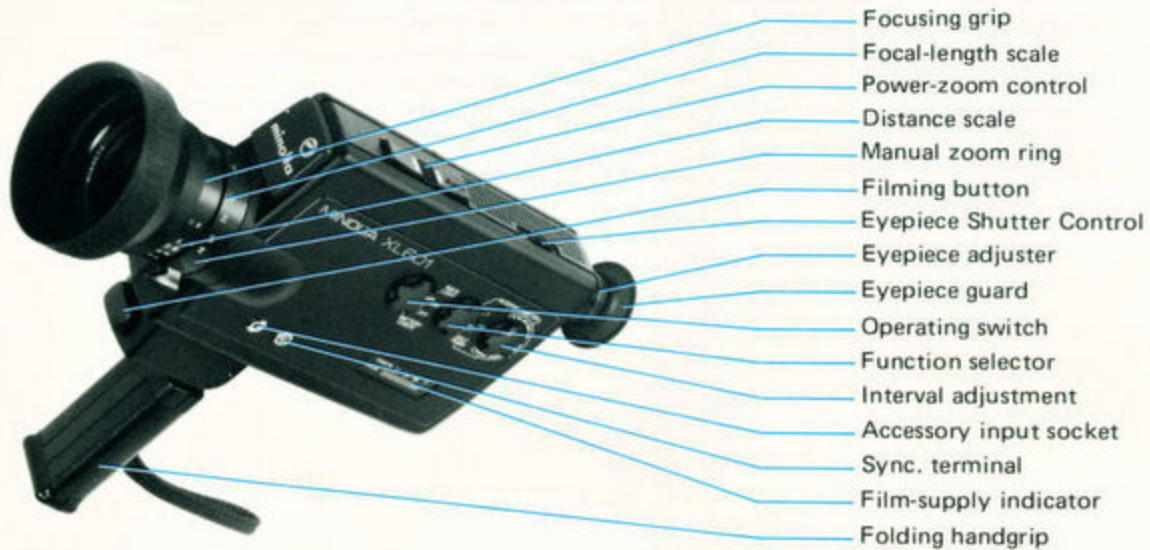
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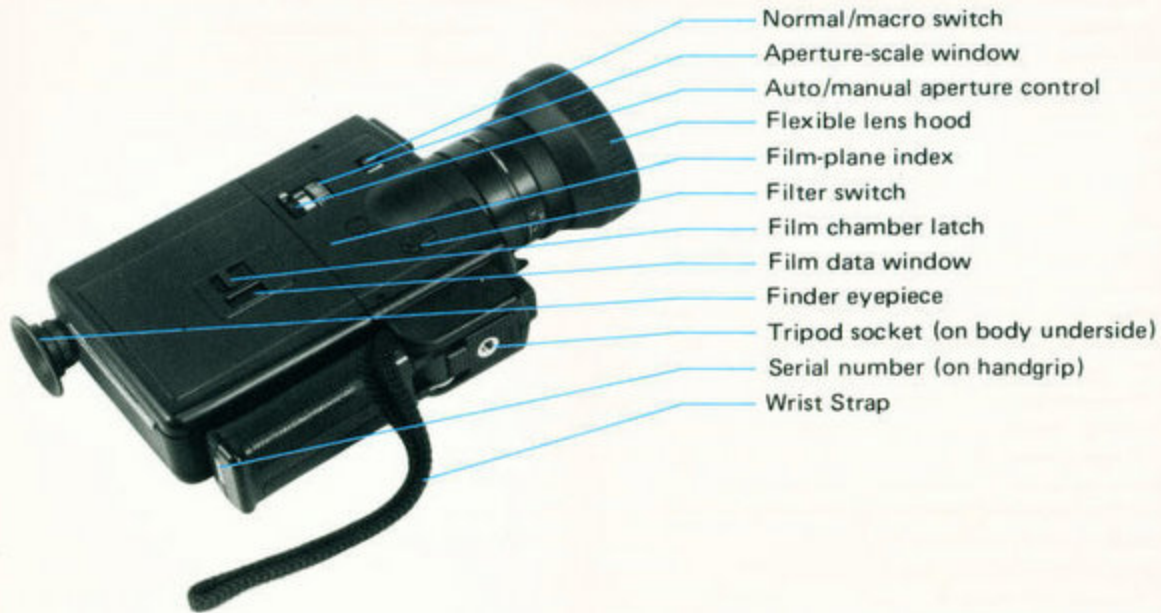
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NAMES OF PARTS

4





MAIN FEATURES

Top-convenience Super-8 type

Your Minolta XL-401 or 601 gives you the familiar Super-8 system advantages: Simply clicking the film cartridge into position loads the camera and automatically sets it for proper exposure with ASA 40/160 and ASA 160 type G film.

Dim existing-light (XL) capability

Your new XL Camera lets you enjoy the fun and ease of movies without special lighting equipment under conditions where they were impossible before. The extra fast lenses, wide 220° sector shutter, and special light-saving meter and finder systems team up with high-speed film for striking results. Ordinary room light or streets or lighted signs at night, stage scenes, twilight views-yes, even candle-lit birthday parties-etc., become exciting subjects to record, quite effortlessly.

Four and six-times power/manual zoom

At the touch of your finger, the coated Rokkor lens on either XL camera zooms between wideangle and telephoto to increase the exciting filming possibilities with these cameras. The XL-401 offers a four times zoom from 8.5

to 34mm, and the 601 a full 6 times zoom 7.5 to 45mm.

Macro-filming capability

With the XL-401 or 601, the simple flick of a switch enables focusing near or down to the surface of the lens itself for striking, screen-filling extreme close-ups of subjects as small as a postage stamp.

Built-in intervalometer

In addition to ordinary single-frame capability, the your camera contains a variable timer that will make unmanned single-frame exposures at intervals from 0.5 to 60 sec. This feature allows fascinating time-lapse sequences of flowers opening, etc., as well as time/movement studies and comic effects. And built-in X sync. enables doing these also with electronic flash.

TTA metering with adjustable fully automatic or manual exposure control

Whether in dim existing illumination, or in bright outdoor conditions, the your minolta XL camera will control exposure for you automatically. A sensitive CdS cell meters scene

brightness through the lens aperture for greatest accuracy, and the exposure-control mechanism adjusts the aperture continuously to provide correct exposure. Switch allows giving one and a half extra stops of exposure automatically for backlighted situations etc. Aperture can also be selected manually by means of a dial.

Bright, clear reflex viewing and focusing

Thanks to the reflex viewfinder in your camera, you see the subject as it clear and bright through the camera's taking lens, with none of the parallax problems of separate viewfinders. Focusing is clear and positive with a split-image spot in the center of the viewfield. Eyepiece adjusts to suit your vision.

Information-center viewfinder

Besides an accurate view of the scene you are filming, an underexposure warning, safe-run/battery-check indicator, manual-setting signal and a film end signal are visible as you look through the finder. All necessary filming information is thus at your disposal without taking your eye from the eyepiece.

Advanced electromagnetic shutter release for added versatility

The camera's electromagnetic shutter release permits using the camera with the optional remote-control cord, with such Minolta Auto-pak-8 D system accessories as intervalometers P and S, and eliminates annoying "white frames."

Useful run light

A red LED light above the lens on the front of each model shines whenever the camera is filming, automatically cuing your subjects when to start and stop action.

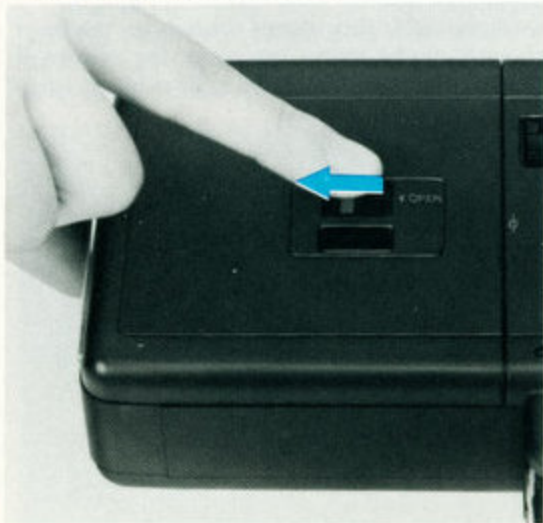
Convenient selftimer

The selftimer delays the start of filming for approx. 10 sec. and automatically films for approx. 10 to 20 sec. Allowing the photographer to "get in the picture."

PREPARATION

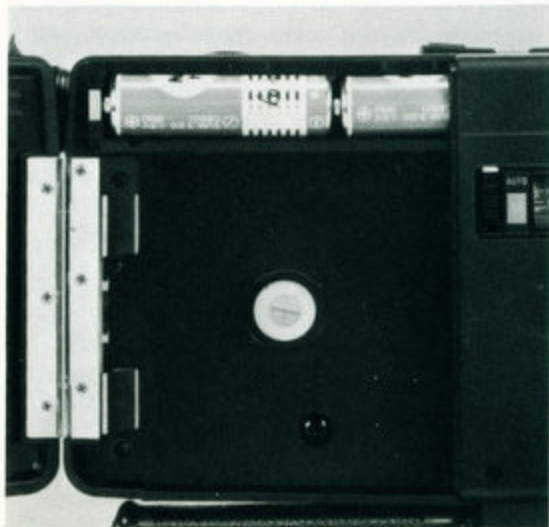
Batteries and power

Your camera's shutter release, film transport, exposure system, and zooming motor are all powered by two 1.5-volt AA-size (penlight) batteries. The alkaline-manganese or sealed carbon-zinc type of battery is recommended. For best results and service life, use fresh batteries of as high quality as possible.



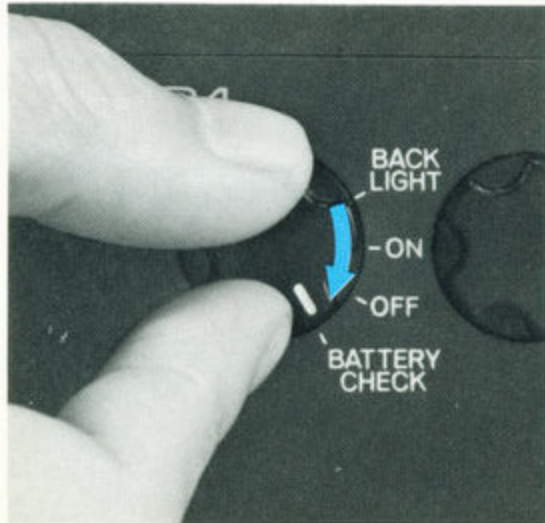
How to install batteries

Slide the latch toward the back of the camera and open the film-chamber cover. Insert both batteries with the positive (+) pole toward the back of the camera as shown in the diagram printed inside the compartment. If the batteries are inserted incorrectly, the camera will not function.



Checking batteries

Battery power should be checked after inserting them and from time to time, particularly before going on trips or taking important movies. To do so, turn the operation switch to battery check position. If the battery check lamp in the viewfinder lights (see p. 14), batteries are serviceable.



At normal filming speed approximately seven cartridges can generally be exposed over a relatively short period of time with a fresh set of alkaline batteries at 20°C (68°F). At lower temperatures, over longer periods, or with other battery types, performance will drop considerably.

CAUTION:

To conserve battery power, the operating switch should always be kept at OFF when the camera is not in use.

Batteries should be removed when the camera is not to be used for two weeks or longer. This is particularly important in tropical areas.

Inserting and removing film cartridges

To insert

1. Slide the latch away from the lens and open the cover of the film compartment.
2. Angle the cartridge into the camera from the rear as shown. Then push down on the rear edge of the cartridge until it seats flat in the compartment with a click.
3. Close the compartment cover and push on it until it clicks locked. Looking into the film-data window, you can see whether and with what kind of film the camera is loaded.

To remove

Open the cover as above and remove the cartridge by lifting it out of the compartment from the back.



Types of film and lighting

Simply inserting the cartridge sets this camera for proper exposure with the following films:

- Type G color film having an exposure-index rating of ASA 160.
- Black-and-white or "Outdoor-Indoor" Type A color film having a daylight rating of ASA 25 or 100* and a tungsten index of ASA 40 or 160, respectively.

Films other than these are not recommended for use with this camera. For best color balance, note important filter-setting information below.



Existing-light filming



"Existing light" indicates the light that is usually present indoors at night in homes and public buildings, at stage shows, etc., outdoors at twilight, after dark on lighted streets, with lighted buildings or signs, and so on. Existing light also includes daylight indoors as well as artificial light present in scene.

For filming in existing light, make sure your camera is loaded with film having a tungsten or unfiltered exposure rating of ASA 160, since dim-light filming is impossible with slower films. You are now ready to film under most existing-light conditions without special movie lights. Simply focus and shoot, after setting the filter switch for best color balance as indicated below:


With Type G film, installing film cartridge automatically removes the filter, so manual filter setting is unnecessary. This film is recommended for use in all types of lighting conditions and especially for fluorescent dominated scenes.

* (based on exposure through the built-in filter mentioned in the specifications)

With Type A film, however, you should set the filter switch according to the type of light you are shooting in, as follows:

- If a scene is mainly lighted by ordinary tungsten light bulbs, flames, or other "warm" light sources, set the filter-switch  symbol to the index.
- If the dominant lighting of the scene is from daylight, fluorescent tubes, carbon-arc spot- or floodlights, turn the switch  symbol to the index.



- When the scene is illuminated by more than one type of light and you are not sure which type predominates, the  symbol setting is preferred.
- If existing-light conditions are too dim for movies and the underexposure signal (see p.14) appears at the lower left in the finder frame, you can use supplementary lighting as explained in more advanced filming section (see p. 30).

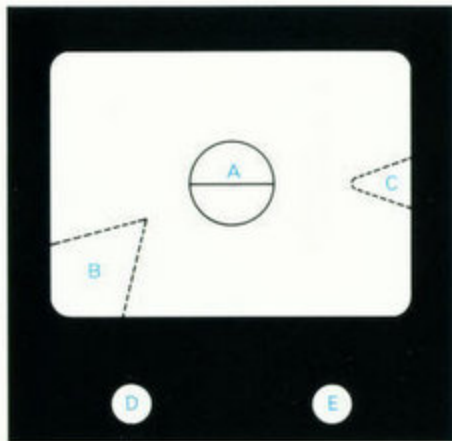


Viewfinder indications

Besides giving you a bright, accurate view of your subject, your XL camera's viewfinder provides essential filming-control information continuously as you film:

In the center of the finder frame, you can see the split-image spot used for accurate focusing as described on page 16.

Underexposure warning is given by a black pointer that appears in the lower left of the frame when light is too dim for proper expo-



sure. If this appears, your movies may be too dark, and you should increase the light falling on the scene (see p. 30) or change to the faster film if you are using the slower type.

Whenever the camera is set to manual exposure control, a black pointer can be seen protruding into the frame from the right to warn you that exposure is not being set automatically.

Located just below the viewfinder frame on the left is a red film-end signal.

This will light approximately 10 seconds before the film cartridge is exhausted.

A green safe-run signal is located just below the viewfinder frame on the right. When the light blinks it confirms that film transport is proceeding normally. This light is also used as a battery-check indicator.

- A. Split-image spot
- B. Underexposure warning
- C. Manual-setting signal
- D. Film-end signal
- E. Safe-run signal/battery-check indicator

NOTE

The film-end signal and the film supply indicator are designed for continuous use of one whole cartridge at a time. If their operation is interrupted by removing and replacing the film cartridge or by changing types of film at mid-roll they will not work properly.

Eyepiece shutter control

For remote or unmanned operation or when the camera is set on a support and used without viewing, be sure to close the eyepiece shutter. You can accomplish this by sliding the eyepiece shutter control, located on the top of the camera towards the lens. This will prevent unwanted light from entering through the eyepiece and affecting the meter cell or exposure when the eyepiece is not being shielded by the cameraman's head as it normally would be.



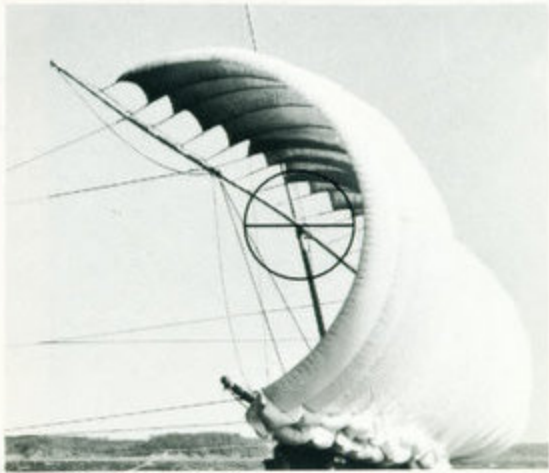
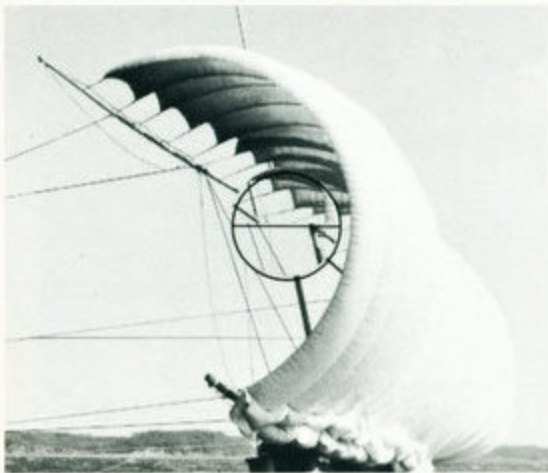
Focusing and depth of field

To focus a subject visually with the XL-401 or 601, zoom the lens manually to the maximum tele focal length (34 or 45mm, respectively) until the viewfinder image is at its largest.

Then while looking into the viewfinder, turn the focusing grip clockwise or counterclockwise until the upper and lower images in the split-image spot are exactly aligned with no broken lines between them.

The XL-401 and 601 cameras have minimum film-to-subject distance of 1.2 and 1m (4 and 3.5 ft.) respectively. When the lens is zoomed to the telephoto extreme at these distances, many titles and other close-ups can thus be filmed very simply without accessories.

For closer filming near or down to the surface of the lens, use the camera's macro capability (see p. 25).

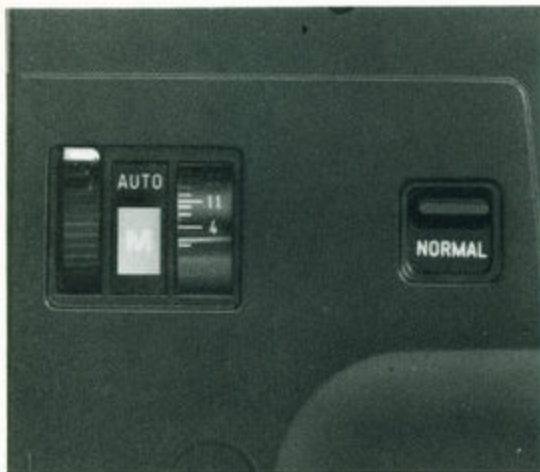


The distance range that will appear sharp behind and in front of the focused point is called depth of field and depends upon the distance set, the light conditions, and the focal length the lens is zoomed to. Accurate focusing is particularly important at low light levels, at longer focal lengths, and with relatively close subjects, since depth of field is at its least under these conditions.

Auto/manual aperture control

Automatic operation

The control index is set to AUTO for usual operation. At this setting, the camera's EE system sets the aperture continuously and automatically in accordance with metered light for proper exposure as determined by the operating switch setting (see p. 21); the aperture being automatically set is indicated by the needle in the aperture-scale window.



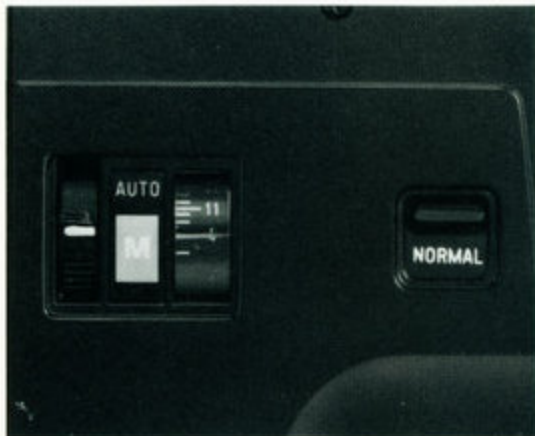
Manual operation

To switch the system over to manual-aperture mode, rotate the control as far as it will go toward the bottom of the camera. Any aperture can then be set on the scale by rotating the control upward so that the index is beside the blue area marked with an M.

Manual aperture control is used for electronic flash exposures (see p. 28) and may be useful for special single-frame applications. It may also be used in more advanced filming to

override the meter and keep exposure uniform at a given level regardless of changes in background brightness due to zooming or panning, entrance of large bright or dark areas or light sources into the field of view, and so on.

A signal appears in the viewfinder (see p. 14) to remind you when aperture control is set on manual. To resume normal auto-aperture-control filming after manual operation, do not forget to return the control to the AUTO setting.



Spot-lighted performances

Like all XL cameras, the metering system built into your XL-401 or 601 reads light and dark areas in a scene and provides proper exposure for average subjects. For this reason, you will want to use your camera's manual mode to avoid subject overexposure, as in Example A, when filming spotlighted performances.

To do this, zoom the lens to its most telephoto position until the spot-lighted subject covers a major part of the frame. Then, after observing the position of the needle in the aperture scale window, follow the instructions on p. 16 to manually set the aperture to that reading. The lens may then be zoomed to any focal length with the aperture set for proper exposure for the spotlighted subject, as in Example B.

A



B



Film-supply indications

As you film, a red tape will slowly advance across the window of the film-supply indicator from "START" to show how much film you have exposed, 1/4 of a cartridge, 1/2 a cartridge, etc. When there is no more unexposed film left, the red tape will reach all the way to "F" (finish) and the red film-end signal will light in the finder.

- See note on page 15 about installation of partially used cartridges in these cameras.



Pre-filming checklist

For better movies without false starts, run through the following checklist each time you get your camera out for some normal filming:

1. Turn the function control to battery check position and observe lighting of green BC light in viewfinder to make sure your batteries are all right.
2. Check to be sure you have enough film remaining or load a new cartridge; ASA 160 for existing light, ASA 40 for outdoor operation.
3. Make sure the filter switch is properly set for the dominant lighting on your scene.
4. With the aperture control set at AUTO, move your hand back and forth in front of the lens to confirm that the aperture-scale needle is moving in accordance with brightness changes.
5. If you wish, depress the filming button briefly to see that the shutter is releasing properly.
6. Adjust focal length, visual angle, and focus.
7. Assure that the underexposure signal is not visible in the frame.

NORMAL FILMING

How to support the camera

Since an unsteady camera generally produces unsatisfactory movies, be sure to support your camera positively and properly. It should be held in the most comfortable way with both hands; steadying your arms against your body and the camera against your face gives added support. Generally one hand will hold the handgrip and operate the filming trigger, while the other will be used to steady the camera and operate zoom or other controls. For best stability use of a good, sturdy tripod intended for movie filming is recommended wherever practicable.



Filming and exposure

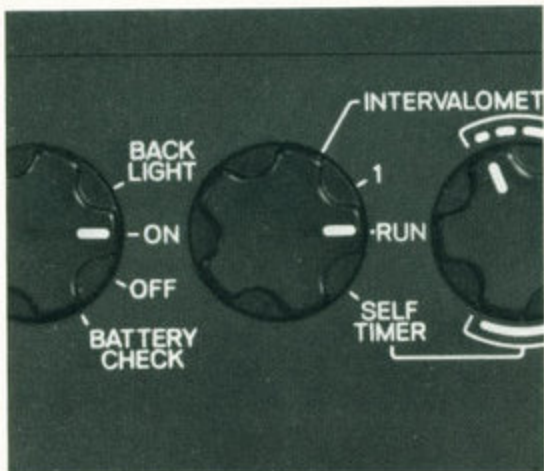
When the operating switch index is set to OFF, battery current is switched off, and filming cannot be done. This is the position the switch should be kept in to conserve battery power and prevent accidental filming whenever the camera is not in active use.

Normal auto filming ("ON" setting)

To film with normal automatic exposure control, turn the operating switch to align the index with "ON", the function selector to "Run". If the exposure warning signal protrudes far into the frame at the lower left, the scene is too dark for proper exposure. You should thus adjust conditions affecting exposure (see p. 30) until the pointer withdraws from the frame. If only the extreme tip of the pointer can be seen in the frame, however, you may film if you do not mind slight under exposure. If the finder is clear and the pointer cannot be seen at all in it, the camera will

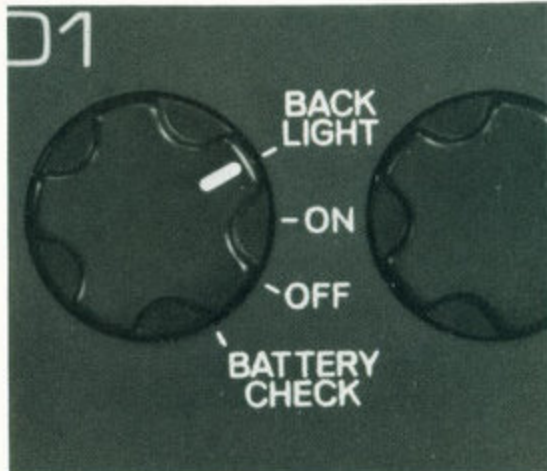
automatically control the aperture for properly exposed movies when you push the filming button.

To avoid fooling the meter cell, producing general underexposure of a scene, keep electric bulbs and other bright direct points of light out of the picture area. If this is unavoidable, the effect can often be improved by using the backlight correction described below.



Backlight correction

To provide more exposure for shadow areas when filming against the light, turn the operating switch to align the index with "BACK-LIGHT". This backlight correction adjusts the system to give 1.5 EV more than (that is, three times) the normal automatically set exposure continuously as you film. Be sure to return the index to the "ON" position when you resume filming with normal lighting.



Run light

When filming begins, the red run light on the front of the camera will blink continuously until the trigger is released. This acts as a convenient cue to let your subjects know when scenes begin and end. Particularly if you plan to edit your film, it is advisable to have them wait at least a second or two after the run light comes on before starting a significant scene or action.

NOTE

- When a film cartridge is exhausted it will sometimes stop in such a way as to cause the run light to continue blinking. This is normal and the run light will operate in the usual way with the next cartridge.
- The run light will blink irregularly during single frame operation.



Zooming

The focal length of your XL 401 or 601 camera's Zoom Rokkor lens can be changed continuously between wideangle (i.e., 8.5, or 7.5mm, respectively) and telephoto (i.e., 34, or 45mm, respectively) for zoom effects up to a respective four, or six diameters. Zooming can be done by motor while filming or manually, and the setting at any time is indicated by the index of the focal-length scale on the manual



zoom ring.

The power zoom control is used to zoom by motor power (approximately five seconds from one extreme to the other). Pushing the "TELE" side of this while the camera is filming zooms the lens toward the telephoto range, making your subject appear closer; while depressing the "WIDE" side widens the lens' angle of view, making your subject appear to be farther away.

The manual zoom ring can be used for



especially slow or fast zooms or to set the lens at any focal length desired before starting zooms or for non-zoom scenes.

When planning a zoom scene, it is best to focus at the telephoto extreme before beginning to film it.

Depth of field at the shorter focal lengths (i.e., wide extreme to about "normal" 13mm) is relatively great, making it less necessary to set focus distance precisely, particularly under bright conditions.

Remember, however, that the relatively shallow depth of field at longer focal lengths (i.e., about 20mm to telephoto extreme) makes accurate focusing essential.

Careful focusing is particularly important under dim existing-light conditions.

MORE ADVANCED FILMING

Macro filming

The XL-401 and 601 cameras have built-in macro-filming capability which allows focusing and photographing subjects near to or as close as the surface of the lens itself. To use this:

1. Snap the normal/macro switch toward the bottom of the camera so that "Macro" can be seen.
2. Focus by turning the manual zoom ring until the subject images in the finder split-image spot are aligned with no broken lines between them, as in normal focusing.



Maximum and minimum dimensions of the subject field that can be photographed at the macro setting are 58.8 x 79.9mm and 16.3 x 22.6mm (2-5/16 x 3-1/8 and 5/8 x 7/8 in.) with the XL-401. With the 601 model, they are 118.1 x 159 and 21.4 x 29.7mm (4-5/8 x 6-1/4 and 13/16 x 1-3/16 in.), respectively. Film-to-subject distance ranges are given on p. 36.

Precise focusing is essential, since depth of field is extremely shallow at macro distances.

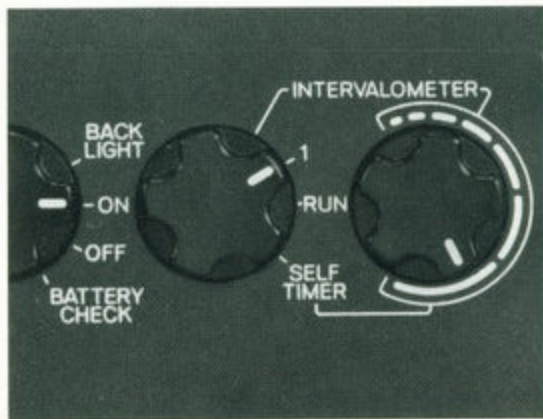


Single-frame photography

The single-frame provision on your camera enables you to expose just one frame at a time for animated titles, cartoons, etc., time-lapse photography, and trick and special effects.

General instructions for single-frame use are:

1. Attach the camera to a tripod or similar firm support.
2. Set the function selector to "1".
3. Make sure focus and exposure are correct.
4. Release the shutter. This can be done with the filming button, but use of the accessory



remote-control cord (see p. 33) instead is strongly recommended to prevent camera movement. The cord is plugged into the accessory input socket for use.

CAUTION:

Be sure to close the eyepiece using the eyepiece shutter whenever the eyepiece is not being shielded by the cameraman's head as in normal operation (see p. 15).



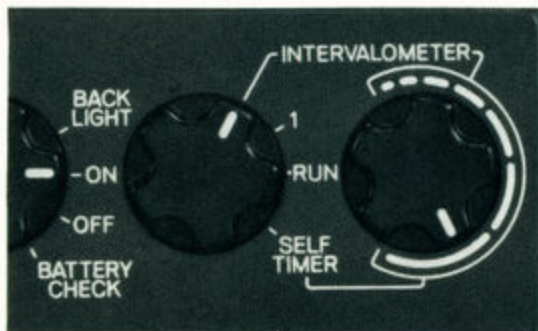
Built-in intervalometer

This is a miniaturized variable-interval timer that releases the camera shutter at rates from about 0.5 through 60 seconds between single-frame exposures, enabling ultra-slow (for greatly speeded-up action) or time-lapse filming. A variety of applications includes comic effects, work and motion analyses, observation of animals and plants, and recording progress of various operations. To use the built-in intervalometer:

1. Preferably with the operating switch at OFF or without film in the camera, set the function selector switch to "INTERVALOMETER".
2. Turn the interval adjustment dial to the position that results in the desired interval between exposures. The shortest interval will be produced when the dial is rotated as far as it will go counterclockwise; the longest, when it is turned all the way clockwise. The arcs of various lengths around the dial between these two positions may be used as references for setting intervals desired.
3. Start filming with the intervalometer by turning the operating switch from the OFF position with film in camera.

The following table suggests approximate inter-exposure intervals appropriate to various purposes:

Purpose	Filming interval in seconds	Remarks
Analysis of work	0.5-2	
Blooming of flowers: Morning glory	5	Blooming takes about 15 min.
Dandelion	30	Blooming takes about 60 min.
Surveys of traffic	0.5-30	
Movement of clouds	0.5-15	



The following table indicates filming and projection times when the intervalometer is used:

Filming interval in seconds	Filming time required to produce 10 seconds' projection time at 18 fps	Time required to expose a full 50-foot cartridge of film
0.5	1 minute 30 seconds	30 minutes
1	3 minutes	1 hour
2	6 minutes	2 hour
4	12 minutes	4 hour
8	24 minutes	8 hour
15	45 minutes	15 hours
30	1 hour 30 minutes	30 hours
60	3 hours	60 hours

CAUTION:

Be sure to close the eyepiece whenever the eyepiece is not being shielded by the camera-man's head as in normal operation (see p. 15).

Because of the additional power consumed, only about one film cartridge per set of batteries can be exposed when using the intervalometer to expose it all.

Electronic-flash filming

The X-sync. terminal provided on your camera enables you to use electronic-flash ("strobe") lighting for individual single-frame exposures and for time-lapse filming intervals sufficiently long to allow proper recycling between exposures. The flash sync. cord is plugged into the camera's sync. terminal. Automatic aperture control is not suitable for making flash exposures. The proper aperture is generally determined by dividing a guide number for the flash and film in use by the flash-to-subject distance. Then the lens is set at this value by using manual aperture control (see p. 18).



Self-timer

The self-timer built into your camera delays filming for 10 sec approx. allowing the photographer the freedom to become a part of the photographed subject. Filming time can be adjusted from 10 to 20 sec. approx. by turning the interval adjustment dial.

To operate it:

1. Attach the camera to a tripod or suitable support.
2. With operating switch at OFF, turn function selector to "SELFTIMER".



3. Turn the interval adjustment dial to the position that results in the desired filming time. The shortest will be produced when the dial is rotated as far as it will go counterclockwise; the longest, when it is turned all the way clockwise. The arcs of various lengths around the dial between these two positions may be used as references for setting filming times desired.
4. Start the self-timer by turning the operating switch to ON position. The run light will come on and, after delay, blink continuously to signal filming.

CAUTION:

Be sure to close the eyepiece using the eyepiece shutter whenever the eyepiece is not being shielded by the cameraman's head as in normal operation (see p. 15).

NOTE

Be sure to move the function selector back to the run setting after using the selftimer. The selftimer will begin its delayed filming cycle again when the operating switch is moved to "OFF" and back to "ON" setting.

Additional lighting

To improve the color quality of your movies and obtain more even lighting in an average-size room, you may want to provide additional light. An effective and inexpensive way to do this is with a photo flood and reflector of the type that can be purchased at most camera stores.

The photo flood may be used for direct lighting when the subject area is considerably darker than the surrounding area or for softer and often more pleasing light, it may be

reflected or "bounced" from a nearby surface. To do this move the photo flood so that it points toward the surface you wish to bounce from, such as a wall or ceiling. Such surfaces should be generally be as light and as neutral in color as possible (e.g., mat white), since dark ones will not reflect enough and colored ones will affect the balance of light falling on the subject.

A common problem in filming indoors is subject backlighting. This happens when the camera's built-in metering system is overly



influenced by a light source in the background that is considerably brighter than the light falling on the subject area. The result is subject underexposure, as illustrated in Example A.

With the addition of one photo flood bulb aimed at the room's white ceiling to reflect ("bounce") the diffused light on the subject, as shown in Example B, the photographer increased the amount of light falling on the subject, filling in shadows and making the scene more life-like as in Example C.



Length of scenes

The length of individual scenes will naturally vary with conditions and effects desired. Too many short scenes will be difficult to view and, may be confusing and distracting. For a normal, easy-to-watch effect, there should be long, medium, and short scenes, and they should generally not be shorter than five to ten seconds. Consider the time needed for the scene to achieve its effect on the screen to determine how long you should shoot; shots to set the scene (show the locale) or record simple action, for example generally require less time than detailed close-ups, or subtle or complicated action. Nearly any movie benefits from careful editing and can be done more conveniently from longer scenes than from ones that are too short.

Panning

Moving the camera while filming is called panning, and your movies will probably be more satisfactory if you use this technique sparingly. It can be used to advantage to follow a moving subject by keeping it centered in the viewfinder. When used to cover a panorama or extended subject, it is most important to move

the camera smoothly and not too fast (at least 15 to 20 seconds should generally be taken to cover a 90° angle), perhaps filming for a few seconds with the camera stationary before beginning and after ending the pan. A cine tripod with pan head will help you make better pans.

Zooming

Like pans, zooming the lens while filming (either very fast or slow manually, or smoothly with the power control) can be used to give life and motion to non-moving scenes or to create useful or impressive effects. Remember, however, that this technique can become annoying or tiresome if used too often.

Titles

Besides title cards, shots of local signboards, road signs, clocks, posters, and other printed materials — particularly close-ups — can serve as titles in your film. These can be used to add humor or interest as well as to set the stage for or identify scenes.

Close-ups

Including portraits and close shots down to about 1.2m (4 ft.) in your films from time to time will add variety and make them more interesting. But don't forget to focus carefully for them and to refocus for normal distances after shooting them.

Using extremely close macro shots, e.g., of flowers, small objects, etc. from time to time can add a striking professional touch to your films.

OPTIONAL ACCESSORIES

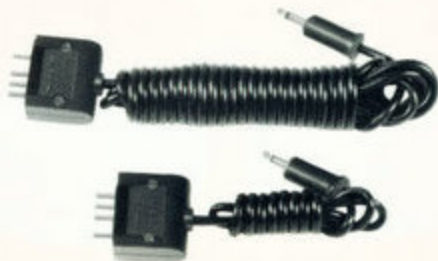
Remote-control cord

This 3m (10 ft.) cord serves with the electromagnetic shutter release system in place of a cable release as well as for positive, unfailing remote control. It plugs into the socket provided on the camera and is used to avoid camera movement in single-frame and tripod filming. A built-in lock device enables continuous-run filming.



Connecting cords

Long and short types, 30cm (11-13/16 in.) and 3m (10 ft.) respectively, enable properly connecting various Minolta Autopak-8 D series accessories with the XL-401 or 601 for greatly expanded versatility.



Filters

UV

This absorbs excessive ultraviolet rays in black-and-white or color filming of mountain snow, or other distant scenes. It may be kept attached to protect the lens.

ND

This is used to prevent overexposure when filming under bright conditions. It decreases light from the scene by two stops (that is, four times).



Intervalometer-S

This is a high-quality unit capable of actuating exposure at a broad range of intervals from 0.2 second to 10 minutes.

More versatile than the Intervalometer-P, this unit can be used for sampling (a series of continuous-run scenes filmed for a certain duration at regular intervals) and indent sampling (a series of time-lapse sequences filmed for a certain duration at regular intervals) as well as time-lapse work and motion analyses, studies of animals and plants, traffic and meteorological studies, etc.

Intervalometer-P

This separate intervalometer is a kind of precision repeating timer that plugs into the remote input socket of the XL-401 or 601 via a connecting cord and enables ultra-slow or time-lapse filming at precise preselected intervals from 0.5 to 60 seconds between single-frame exposures. The variety of applications for this accurate, heavy-duty unit includes work and motion analyses, meteorological and other scientific studies.

Your camera should be examined and cleaned from time to time in normal use. When it has been exposed to dust, dirt, or corrosive conditions (such as salt spray), it should be cleaned as soon as practicable after such exposure. It should be kept and stored under proper conditions. If you take good care of your camera, it should serve you well for many years.

Care after use and from time to time

Gently whisk dust, salt particles, or other loose, dry matter off the lens and barrel with a ball-bellows lens brush.

If the lens is still not clean, wipe it with a circular motion from the center outward with a soft, clean cotton cloth or special photographic lens tissue.

For stubborn stains, place one drop of lens-cleaning fluid on lens tissue-NOT directly on lens surface-and swab lens gently with the tissue or cotton. When cleaning the lens, never rub hard, and make sure there are no particles of dust or dirt on the lens which could scratch it when wiped.

Other external parts of the camera can be wiped with a silicon-treated cloth.

Clean the film gate with a soft brush from time to time. Dirt on the film gate and aperture may be visible in projected pictures and may cause mechanical malfunctions in the camera.

Storage precautions

Store your camera in its case when not in use. The operating switch should of course be turned off.

When the camera is to be unused for more than two weeks, be sure to remove the batteries from the battery chamber.

Do not store your camera where the temperature or humidity are high or near salts or corrosive chemicals.

When storing your camera for an extended period, it is best to place the case containing it into an airtight container (such as a heavy or double plastic bag) along with a small bag of a drying agent (such as silica gel).

TECHNICAL DETAILS

- Type: XL type movie camera using Super-8 film cartridges
- Lenses: XL-401: 8.5-34mm (4X) f/1.2 Zoom-Macro Rokkor, 13 elements in 12 groups
 XL-601: 7.5-45mm (6X) f/1.7 Zoom-Macro Rokkor, 13 elements in 11 groups
 Each camera has swing-in element enabling photomacrography and 46mm threaded filter mount.
- EE system: Through-the-aperture servo-meter system incorporating high-sensitivity CdS cell, mirror shutter, and bridge circuit; backlight adjustment to provide +1.5 EV more than normal setting
- Films usable: Super-8 cartridges of Outdoor-indoor Type A color (or black-and-white) film having daylight film-speed ratings of ASA 25 or 100 and tungsten ratings of ASA 40 or 160, or Type G color film with a rating of ASA 160; filmspeed setting automatically made when cartridge loaded.
- Shutter: Rotary type with 220° sector opening and speed of 1/29.5 sec. at a fixed 18 fps and single frame; X sync. at single frame.
- Drive system: One electric micromotor for film transport, shutter operation, and power zoom while filming
- Power source: Two AA-size (penlight) 1.5v dry cells, alkaline-manganese (Eveready E 91 or equivalent) or sealed carbon-zinc cells recommended
- Focusing: XL-401 and 601: respectively, 1.2 and 1m (4 and 3.5 ft.) to infinity by distance scale or split-image spot; macro range, film-to-subject distances of 9.4 (lens-surface position) to 43cm (3-11/16 to 16-15/16 in.) and 10 (close to lens-surface position) to 116cm (16-7/8 to 3-15/16 in.), respectively, by manual zoom ring and split-image spot
- Viewfinder: Single-lens-reflex type, with split-image focusing spot; LED safe run/battery check and film-end signals and mechanical underexposure warning and manual setting signals visible while viewing; +1 to -4 diopter eyepiece adjustment
- Film-supply indicator: Moving-tape type, automatic return when cartridge removed

Others: Electromagnetic shutter release actuated by filming button, built-in intervalometer and selftimer; remote input and pc sockets; built-in No. 85 filter (for using Type A film in daylight) positioned by manual switch; backlight adjustment to continuously give 1.5 EV more exposure than normal auto setting; manual aperture control

Dimensions: 42 x 121 x 187 mm (1-5/8 x 4-3/4 x 7-3/8 in.)

Weight: 710g (25 oz.)

Accessories Filters: UV, ND, etc.; remote-control cord; intervalometer-S, intervalometer-P, available: 30cm (11-13/16 in.) connecting cord-S; 3m (10 ft.) connecting cord-L

We hope that you'll enjoy your Minolta XL-401 or 601.

If you have any questions, ask your Minolta dealer. He is knowledgeable in all aspects of photography, and he can help you with all of your photographic needs.

Specifications subject to change without notice

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Minolta MINOLTA MASTERS PHOTOGRAPHY

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