

KONICA

ZOOM



MODEL II

INSTRUCTION BOOKLET

KONISHIROKU appreciates your selection of its superb KONICA ZOOM 8 home movie camera. Your KONICA ZOOM 8 Model II is equipped with a fast V—HEXANON zoom (adjustable focal length) lens through which the viewing image is also seen by means of a fixed semi-transparent mirror. This single lens reflex arrangement eliminates parallax completely, and permits correction of focusing adjustment while shooting, as well as full monitoring of the subject-matter during "zooming." The built-in exposure meter's needle is visible in the viewfinder field, so exposure adjustments can be effected while shooting is in progress. Another useful feature of this advanced camera is the rewind mechanism which, in conjunction with the aperture blackout, enables you to make fade-ins, fade-outs and lap dissolves without the slightest trouble.

CAUTIONS

- Before loading film for actual shooting, adjust viewfinder eyepiece to match your own eyesight. For this adjustment, make use of a distinct object at some distance from the camera.
- Focusing can be done with greatest ease and accuracy by extending the focal length of the lens to maximum ($f = 32\text{mm}$).
- When "zoom" shots are intended, always adjust focus beforehand at maximum focal length ($f = 32\text{mm}$).
- When camera speed of 48 frames per second is desired, connect remote control unit (furnished as extra accessory) to obtain higher driving voltage of 10.5V (three extra dry cells in series).
- When laying away your KONICA ZOOM 8 for any length of time, remove batteries from battery chamber.

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PRINCIPAL FEATURES

Film : The KONICA ZOOM 8 Model II uses spool-wound double-8 (25feet of 16 millimeter film), either monochrome or color, which is reloaded to expose both halves and give 50feet of 8millimeter film for projection

Specially Designed Zoom Lens :

The V-HEXANON $f/2$, $f=12$ to 32mm, super anastigmat which gives superb definition comprises 8 elements in 4 groups. Continuous change of focal length from $f=12$ to $f=32$ mm and vice versa provides "zoom" effect

Reflex Viewfinder :

Utilizes the main lens, and therefore completely eliminates parallax. Accurate framing is therefore assured even at the closest ranges

Cross-Coupled Exposure Meter :

Actuated by the light reflected by the subject matter gives indication by needle visible in the viewfinder field. Once the exposure meter is pre-set to the speed (ASA rating) of the film in use, foolproof exposure adjustment is effected merely by zeroing in the meter needle to the fixed index mark

Choice of Camera Speeds :

Four shooting speeds are available— 16, 24 and 48frames per second as well as single frame exposures. When using

the fastest speed (48 frames per second), the battery voltage must be boosted to 10.5volts by connecting the remote control unit

Electric Motor Drive : Eliminated bothersome winding of clockwork spring from time to time, and ensures smooth, steady running. Four penlight (UM-3) batteries of 1.5volt each are contained in the battery chamber to provide a power source of 6volts (series connection)

Battery Check : Voltage of batteries can be checked at any time by pressing the battery check button and watching the exposure meter needle (used as voltmeter for this purpose).

Film Rewind Mechanism : By watching the frame counter while turning the film rewind knob, it is possible to back-track on exposed portion of film for making double exposures and lap dissolves.

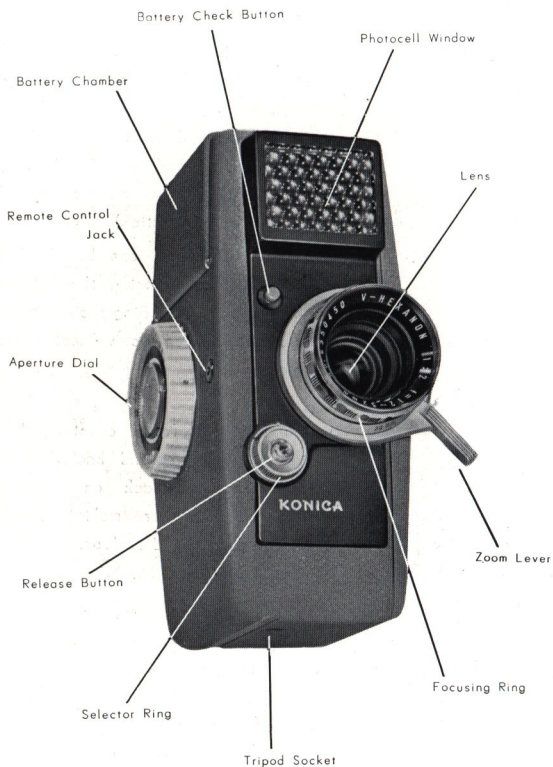
Aperture Black-Out : Complete closing of aperture is provided to facilitate fade-in, fade-out and lap dissolve

Filters : Screw-in type, 37.5mm diameter, screw pitch 0.5mm

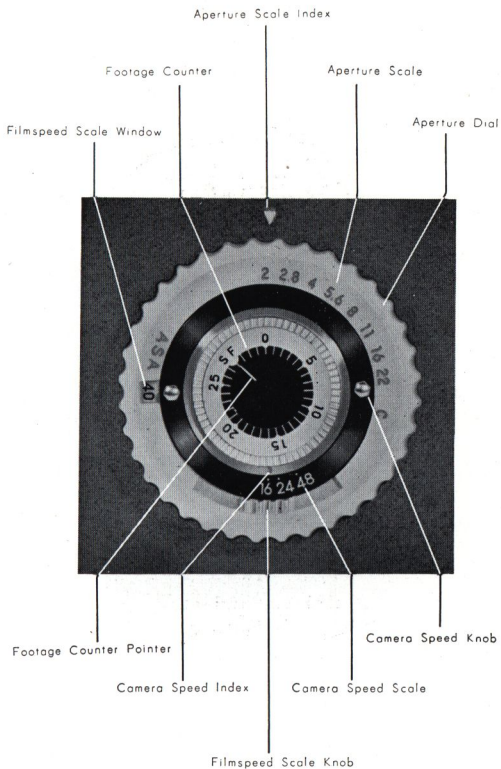
Lens Hood : Special lens hood is of the slip-over type, 42mm diameter

Dimensions and Weight : 154×105×82mm 1,160grams

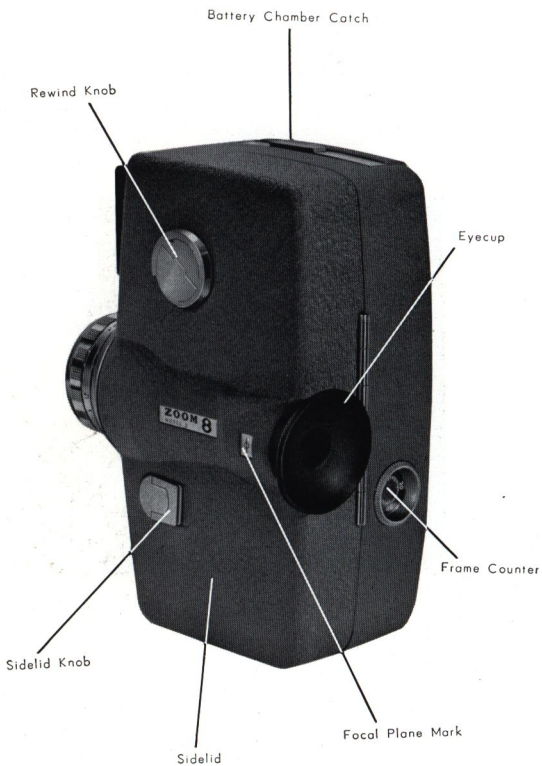
NOMENCLATURE— I



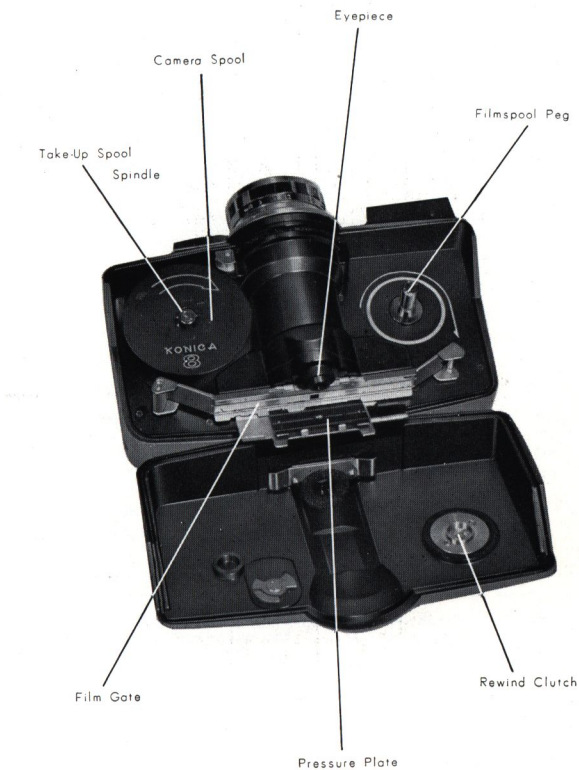
NOMENCLATURE—2



NOMENCLATURE—3



NOMENCLATURE—4



8 MILLIMETER CINE FILM



8mm SAKURA COLOR
Multi-layer, reversal type
color film

Basic color temperature :
5900°K

Filmspeed Rating :
ASA 10 (daylight)

Enjoyment of home movies is enhanced several times over by reproduction in full-toned natural color, while color is often indispensable for scientific and technological camera work. 8mm SAKURA COLOR reversal is ideal.

8mm SAKURA FILM

Reversal
Panchromatic, reversal
type film

Filmspeed Rating :
ASA 40 (daylight)
ASA 32 (tungsten)

Because in projection the tiny images imprinted on 8 millimeter film are subjected to enormous magnification the grain must be of extreme fineness. 8mm SAKURA FILM reversal fully meets this exacting requirement, and gives exquisite tone gradation.



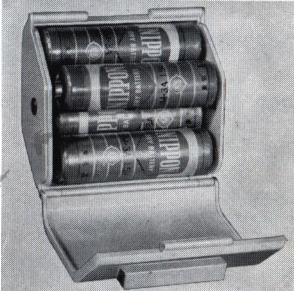
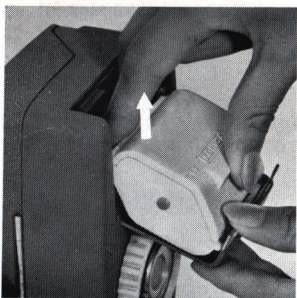
KONISHIROKU PHOTO IND. CO., LTD.

The KONICA ZOOM 8 Model II uses spool-loading, double-8 cine film. This type of film is available everywhere, in either monochrome or color, in such brands as the 8mm SAKURA FILM and 8mm SAKURA COLOR. These are reversal films which are converted during processing into positive film for projection without printing. This film comes wound on a metal spool, and 25feet of this 16mm strip is available for shooting, while about 3feet of both ends serve as protective leaders. One side of the film is used first, then it is reloaded in the camera for exposing the unused side. The film is split in half after processing, thus providing 50feet of 8mm film for projection. One double-8 roll of film should provide 4 minutes 10 seconds of projection time if run at 16 frames per second.

When loading, reloading and unloading, always avoid direct sunlight and other illumination. Work in shade or subdued light.

INSERTING BATTERIES

The power source of the KONICA ZOOM 8 Model II consists of four standard penlight (UM-3) batteries connected in series to give 6volts. To load camera with batteries, do as follows:



- ① Open battery chamber by pulling catch toward "O". Hook fingertip on bottom of battery holder, and remove.
- ② Open battery holder, and insert four penlight cells in manner indicated on holder, seeing that polarity is correct.
- ③ With the polarity indication \ominus KONICA \oplus upward and matching the indication on the inner side of the battery chamber cover, fit battery holder onto cover, catch side first.
- ④ Close battery chamber cover, and lock by pushing catch toward "L".

Battery Check

When the battery check button is pressed while sighting through the viewfinder, the meter needle will, after being deflected downward, swing up and come to a stop above the fixed index mark if there is adequate power available. If needle points to below middle of the fixed index mark, prepare for replacement of batteries.

- Keep battery check button depressed for at least 3 seconds, making sure that meter needle steadies at a given level.

LOADING FILM

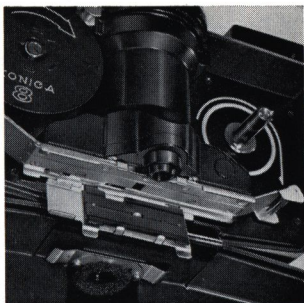
- When loading, reloading, or unloading film, always avoid direct illumination; work in shade or under subdued lighting. Keep dust and lint from entering the camera, and always check film gate to see that it is absolutely clean.

- 1 Erect sidelid knob and turn toward the left (counterclockwise) to open. Release pressure plate and keep open.

- 2 Unpack fresh spool of film. Keep can and carton because these are necessary when sending in the exposed film for processing. Hold spool in right hand, the four-prong hole side up. Fold outward (toward glossy side of film) about 1/3 inch of the end of the film.

- 3 Remove empty spool from the camera, and hold in the left hand, the three-prong hole side (blue side) up. Insert folded end of film in slit of empty spool core, and wind onto this spool about two turns of film, tightly, and with the emulsion side (light, non-glossy side) facing inward.

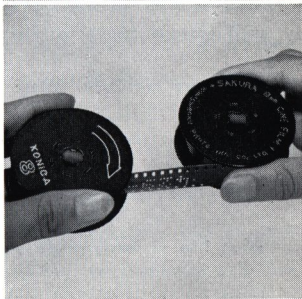
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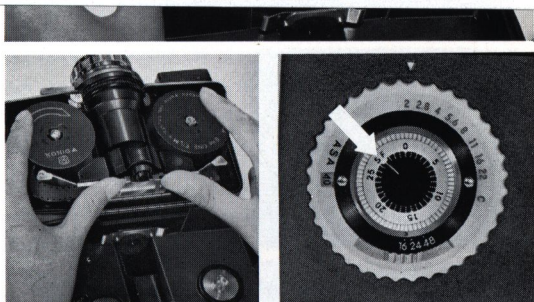
3



- 4 Keeping the film spool held in the right hand from unraveling, fit onto film spool peg (marked red) in upper part of the camera interior. While applying finger pressure, pull on take-up spool to play out some film from the film spool.
- 5 Fit film over the film gate, then place take-up spool on take-up spool spindle (marked blue). Holding both spools, take up all slack, then return pressure plate to closed position by applying thumb. Close sidelid, and turn knob to lock.
- 6 Adjust footage counter so that pointer indicates "S" (start). Attach lens cap, then push release button to run camera until footage counter pointer indicates "25" (meaning there are available 25 feet of unexposed film). In this way the fogged protective leader portion of the film is taken up, and the camera is now ready for shooting. When film is being properly run through the gate, the frame counter on the back of the camera will rotate.

CAUTION

The rewind knob for back-winding of film can only be operated when the aperture control wheel is at C. When the aperture control wheel is at C, the claw has retracted and the film can be wound back without danger of tearing the sprocket holes of the film.



The footage counter indicates the amount of film remaining for exposure, and shooting can be done until "O" is reached. After this point, do not attempt to take pictures. Close lens and run camera until footage counter indicates "F" (finish) to take up trailing protective length of film. Run camera until frame counter stops moving.

When one side of the 25-foot roll of film has thus been exposed, the film is reloaded for exposure of the remaining side (see section on film reload).

CAMERA SPEED SCALE

Three filming speeds are indicated on the camera speed scale of the KONICA ZOOM 8 Model II. They are : 16, 24, and 48, the number of frames exposed per second. For the highest speed of 48 frames per second, it is necessary to use the remote control unit to increase the battery voltage to 10.5volts.



16 Frames



24 Frames



48 Frames

16 frames per second (approximately $1/35$ second shutter speed)
This is the standard speed for 8 millimeter home movie cameras and projectors. For all normal shooting, use this speed.

24 frames per second (shutter speed approximately $1/50$ second)
At this speed, subject motion is reduced in speed by a third; and good results can be obtained when reproducing objects in rapid motion, athletes or dancers in action, flowers and foliage fluttering in the breeze, and waves breaking on rocks. With film used at a faster rate, the available shooting time is reduced to two-thirds that of normal.

48 frames per second (shutter speed approximately $1/100$ second)
High speed shooting results in slow motion reproduction, useful for study of form in various sports. Projection time is three times of shooting time. To obtain this speed, the remote control unit must be plugged in to raise battery voltage to 10.5 volts.

Single-frame exposure (shutter speed approximately $1/35$ second)
Single frame shots can be made by turning the selector ring at base of the release button to the yellow mark, and pressing the button. The blooming of a flower can be reproduced in a single sequence by fixing the camera and making single frame exposures at regular intervals ranging from several hours to several days. Animations of cartoons, dolls, and titles also call for single-frame shooting.

- When a complete roll of film is exposed a frame at a time, continue running the camera for up to ten seconds after the end protective trailer has been taken up. This is necessary to eliminate all slack in the take-up spool, which could cause fogging during reloading and unloading.

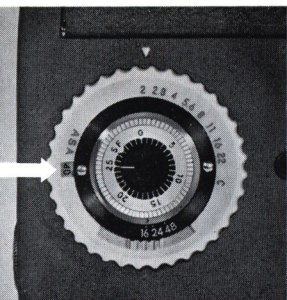
COUPLED EXPOSURE METER

The built-in exposure meter of the KONICA ZOOM 8 Model II is accurately cross-coupled with filmspeed, camera speed, and aperture setting to provide proper exposure when the meter needle, visible in the viewfinder field, is brought into alignment with the fixed index mark by adjusting the aperture ring.

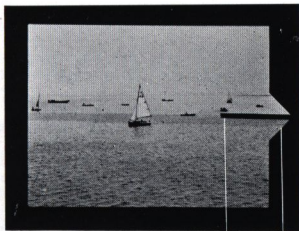
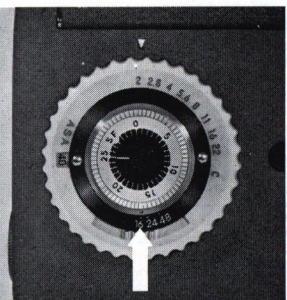
- 1 As soon as the camera is loaded with film, turn filmspeed scale knob to obtain the speed rating (ASA number) of the film in the filmspeed scale window.

- 2 Turn camera speed scale to desired filming speed.

- 3 Sight subject-matter through viewfinder, and turn aperture ring to bring meter needle against the fixed index mark (triangular notch). The aperture is thus automatically adjusted to give correct exposure.



■ The filmspeed scale is graduated thus : 10•20•40 80 160 The dots between 10 and 20, 20 and 40 indicate ASA 16 and ASA 32 respectively.



Meter Needle

Fixed Index Mark

■ When using exposure meter to obtain correct exposure setting, be sure that strong light from outside the picture angle does not play upon the photocell window. When photographing a human figure against a bright background, move up close to the subject and use only the light reflected by the subject itself, making sure that shadows are not thrown to reduce brightness. When more than half of the picture consists of sky, obtain correct exposure setting by aiming camera at foreground two or three yards from camera position. In these cases, the meter needle during actual shooting may move beyond the fixed index mark. This is quite intentional, so no correction should be made.

■ The exposure meter coupling ranges of the KONICA ZOOM 8 Model II vary with filmspeed ratings and camera speeds. At standard camera speed of 16 frames per second, the range is from $f/2$ to $f/22$ with film of ASA 40; from $f/2$ to $f/16$ with ASA 10 film in use.

FOCUSING AND SIGHTING



Eyesight Adjustment The ground glass focusing screen of the KONICA ZOOM 8 Model II is of special fine-grain finish to give extreme sharpness of definition. Therefore, the eyepiece should be first adjusted to match your own eyesight. To adjust eyepiece, remove eyecup, open sidelid, set distance scale at infinity(∞), push zoom lever upward to obtain maximum subject magnification, then turn eyepiece while sighting some distinct distant object. Eyepiece matching with eyesight can also be effected by watching the grain of the ground glass screen while turning the eyepiece.

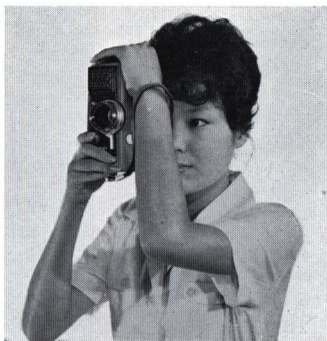
Focusing To focus, sight subject-matter through viewfinder and turn focusing ring at front end of lens barrel to obtain sharp image on the ground glass focusing screen. Accurate focusing can be effected with ease by zooming up to maximum magnification and by fully opening up the aperture.

Sighting Because the viewfinder of the KONICA ZOOM 8 Model II is of the single-lens reflex type there is absolutely no parallax (viewing error due to distance between lens and viewfinder optical axes), and the subject-matter is faithfully shown on the viewfinder screen, exactly the same as in the final reproduction. Consequently, accurate framing is possible, and title making as well as copying and animation work are performed with exceptional ease.

Viewfinder Black-Out The viewfinder can be completely blocked out by turning the eyecup 90 degrees. Black-out is necessary when operating the camera by remote control, or when shooting without sighting through the eyepiece to keep strong light or reflections from entering the camera through the open eyepiece. Black-out of the eyepiece is an added precaution when carrying the camera bare outside its carrying case.

Focal Plane Mark The focal plane mark(\ominus) indicates the position of the film, and is used as the starting point when measuring distance to the subject by means of a tape measure.

SHOOTING



Set filmspeed scale to ASA rating of film in use, and camera speed scale at desired number of frames per second. Focus while sighting the subject, then turn aperture dial to bring meter needle into alignment with the fixed index mark. Hold camera truly upright, then gently press the release button. The camera will immediately start running, and shooting is in progress.

The electric motor driven **KONICA ZOOM 8 Model II** will run smoothly and quietly, and excellent results can be obtained with hand-held shooting. However, jerks and camera movements are annoying when the finished film is screened. Exercise special care to keep camera steady, and use tripod or other stable support when using long focal lengths.

Length of Sequence (Cut) The length of a shot, from the time the release button is pressed up to its release, is known as a sequence or cut. Normally, a number of sequences or cuts are combined to make up a scene. A cut should not be shorter than about five seconds (about a foot of film)

"Panning" Shooting while slowly rotating the camera about its vertical axis is known as "panning." This is best done on a tripod with a rotating and tilting mount. However, the action can be simulated by hand grip. About ten seconds at least should elapse for a 90-degree sweep, either for "panning" or "tilting." When during the sweep there are changes in light value, correct by keeping the meter needle in alignment with the fixed index mark.

Continuous Shooting When it is necessary to keep the camera running with the release button locked in position, depress the button then turn selector ring clockwise to red mark. Button will then remain depressed even with finger pressure removed. To stop, turn selector ring counter-clockwise to original position.

Zooming



“Zooming” “Zoom” shots are of two types, “zoom-up” by increasing the focal length and bringing the subject toward the camera (by increased magnification), and “zoom-back” by decreasing focal length, and apparently backing away from the subject. The KONICA ZOOM 8 Model II is capable of continuous change of focal length between $f=12\text{mm}$ and $f=32\text{mm}$ (magnification shift from 1 to $\times 2.7$). Although the zoom lever scale is marked “12”, “20” and “32”, these are reference marks and any setting desired may be used. There is no change of the high resolving power of this special lens, so the size of the subject-matter can be changed at will without shifting the camera itself.

■ When “zooming-up” from $f=12$ toward $f=32$ to increase the size of the subject image, first adjust focus at $f=32\text{mm}$ (maximum magnification). The reason for this is that because depth of field is greater at $f=12\text{mm}$ there is the possibility of poor focusing as the focal length is increased and the subject becomes bigger. Make it a rule to focus at maximum focal length setting.

Fade-In and Fade-Out Fade-in is the technique of starting a sequence in darkness and gradually increasing the picture brightness to optimum point. Fade-out is the reverse of this procedure. These effects are used at the start and end of a motion picture. Because the KONICA ZOOM 8 Model II is equipped with aperture black-out, it is easy to fade in from complete darkness with the aperture fully closed, to optimum brightness by gradually opening up the aperture to proper exposure setting. Time for fade-in or fade out should be from 3 to 5 seconds.

Fade-In



Fade-Out



Lap Dissolve

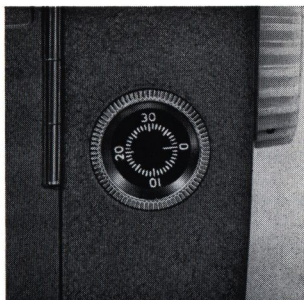


Lap Dissolve By overlapping fade-in and fade-out it is possible to avoid abrupt shifts from one sequence to another. To make lap dissolves, fade-out a sequence, then rewind that portion of film for fading in. The KONICA ZOOM 8 Model II is provided with a film frame counter indicating each frame. Consequently, it is a simple matter to wind back the exact number of frames used in fading out or fading in.

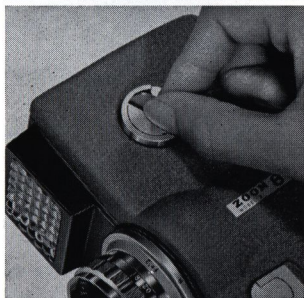
Film Rewind To wind back exposed film, do as follows :

- ① Set without fail aperture ring at clicking position. (approximately "C"). Turn the frame counter dial at back of camera, setting "O" at index mark.
- ② Erect rewind knob (if stiff, turn a little toward arrow, then erect). Turn rewind knob in direction indicated by arrow. The frame counter dial will indicate accurately the number of frames rewound. One complete revolution of the frame counter means 16 frames (1/2 foot) or $2\frac{1}{2}$ seconds of running time at 16 frames per second. Upon completion of rewind of desired length of exposed film, do not forget to fold down rewind knob.
- ③ The footage counter should be set back half a graduation for every 40 frames wound back, and a full graduation for every 80 frames.

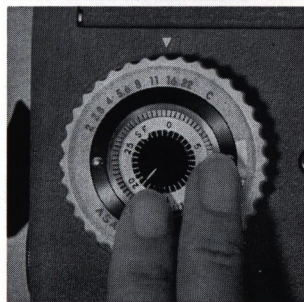
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2



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Choice of Proper Focal Length

Monotony is avoided in a motion picture by appropriate combination of long shots, close-ups and medium shots: These different shots are also used to convey the sense of the picture to the viewer and to create illusions of space and speed. Because the KONICA ZOOM 8 Model II is provided with 2.7 times shift in focal length it is possible, without changing the camera position to obtain different picture sizes.

Long Shots These should be avoided as much as possible since the small size of the 8millimeter film does not permit precise recording of minute detail. Try to incorporate long shots in medium and close shots of the subject.

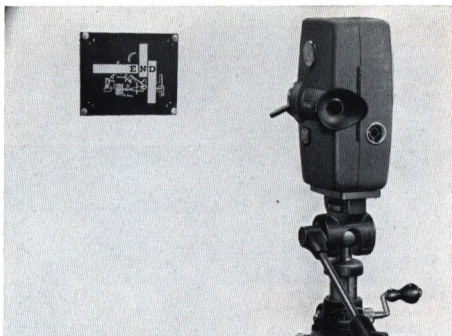
Semi-Long Shots are shots that fall between long and medium.

Medium Shots Fairly close range shots, say of full-length human subjects.

Semi-Close-Ups In terms of portraits, the semi-close-up would refer to half-length pictures.

Close-Ups Full reproductions, say, of a face or head.

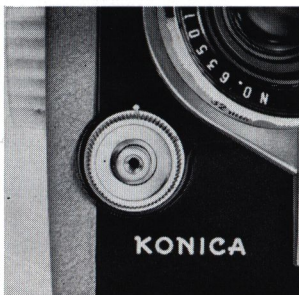
Title Making



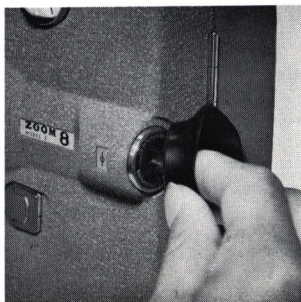
Title Making Because parallax is eliminated by the single-lens reflex type viewfinder of the KONICA ZOOM 8 Model II, it is a simple matter to reproduce titles accurately with the lettering precisely centered without the use of special equipment. When using the built-in exposure meter to determine exposure adjustment, use a standard reflecting screen instead of the title board, measuring the brightness at close range. The title board should be about a foot wide. The main title should be somewhat longer than the subtitles, while the end title should be brief. It is possible to obtain any number of frames accurately by referring to the frame counter.

Cable Release To attach cable release, merely screw in end of cable onto screw socket at center of the release button.

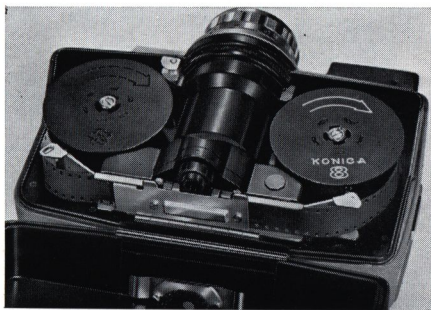
Release Lock By turning the selector ring at base of release button in clockwise direction to red mark, the release button can be locked. This is a safety device to prevent accidental running of the camera.



Eyecup Removal The eyecup can be removed by pulling. To attach to eye piece, match the two protruding pips with the slots on the eyepiece and press on.



FILM RELOAD



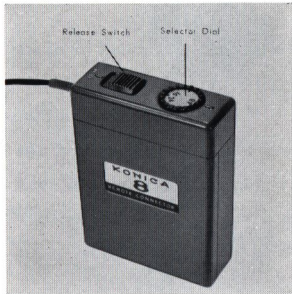
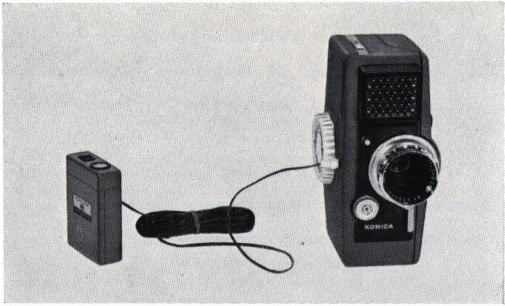
After one side of the 25-foot roll of film has been exposed, and the film has been taken up onto the take-up spool, the footage counter will be indicating "F". Open sidelid. Film will be wound onto camera spool. Holding film so that it does not unwind, remove this spool and fit on feed spool (red), the four-prong hole side (red lettering side) up. Thread film in same way as when first loading. Close sidelid, then run camera to expose remaining 25 feet of film.

- When both sides of film and all 50 feet have been exposed, the film is wound onto its original spool. The camera spool always remains with the camera.

REMOTE CONTROL UNIT

There are two uses for the remote control unit, furnished as a separate accessory. One is remote control, from a distance, of the KONICA ZOOM 8 Model II. The other is as a booster battery unit for 48 frames per second high speed shooting.

- 1 Fit plug at end of remote control unit cord securely in remote control jack of the camera.
- 2 Shift release button of camera to continuous running position (by pressing button and turning selector ring clockwise to red mark).
- 3 When not in use keep selector dial of the remote control unit at blue mark.
- 4 When disconnecting remote control unit from camera, first return release button to normal position (by unlocking from continuous running position) before removing cord plug from remote control jack.



When using 48 frames per second, load remote control unit with three(3) penlight batteries (in the manner indicated inside battery compartment).



Remote Control Operation

At 16 or 24 frames per second For remote control at these speeds, set selector dial on remote control unit at either "16" or "24" as desired. In this case it is not necessary to load the remote control unit with batteries. Press the release switch of the remote control unit for operating the camera. If the remote control unit release switch is pulled in direction of arrow, continuous running can be obtained.

At 48 frames per second Load remote control unit with three(3) penlight batteries (in the manner indicated inside battery compartment). Turning remote control unit selector dial to "48" connects these batteries and the batteries contained in the camera in series to give a total of 10.5volts, and remote control at 48 frames per second is possible by operating the control unit release switch.

Hand-Held 48 Frames per Second Operation Keeping camera release button in normal working position, hook up remote control unit. Set unit selector dial at "48" and pull unit release switch toward arrow. Then pressing the release button of the camera will cause it to run at 48 frames per second. In this case, the remote control unit can be carried out of the way in one's pocket.

DISPOSITION OF EXPOSED FILM

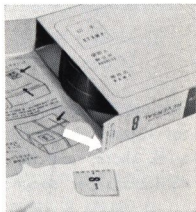
Exposed film should be promptly removed from camera and placed in its can which should be marked with tape to distinguish it from new, unexposed film.



When forwarding exposed film to laboratory for processing, remove tape and place can in original carton.



Also tear off removable portion of carton to permit nailing as printed matter.



Print name and address on labels, tie carton with piece of string provided then mail.





Remote Control Unit This unit is used for remote control (up to 15feet distance) permitting self-photography and other trick shots, and for boosting battery power to 10.5 volts for 48 frames per second operation.

Wide Angle Converter This auxiliary lens, when fitted over the zoom lens of the KONICA ZOOM 8 Model II, changes the focal length range to from $f=6\text{mm}$ to $f=16\text{mm}$, permitting shooting at distances down to 20centimeters. This attachment separates into two sections, and when the aft section alone is used, super-close-up photography of a subject field of 6×8 millimeters becomes possible. This converter, therefore, has extremely wide application.

Telephoto Converter This auxiliary lens, when attached to the zoom lens of the **KONICA ZOOM 8 Model II**, shifts the focal length range to from $f=18\text{mm}$ to $f=50\text{mm}$ (equivalent to 600mm telephoto in the case of a 35-millimeter miniature camera). Both the wide-angle and telephoto converters do not affect the $f/$ value, while focusing and sighting are done in the normal way.

Microscope Attachment For mounting the **KONICA ZOOM 8 Model II** on any standard microscope. Specimen can be watched through single-lens reflex viewfinder while shooting is in progress. The aft section of the microscope adapter can be used also for close-up and super-close-up photography.

Lens Hood Special slip-over type hood, 42mm diameter (for both standard lens and wide-angle converter.)

Filters Special screw-in type filters, 37.5mm diameter, 0.5mm thread pitch.

- ✓ SL 39 (ultra violet); SY 44 (yellow 0)
- ✓ SY 48 (yellow 1); ✓ SO 56 (red 1)

Accessories Furnished with **KONICA ZOOM 8 Model II**

| | |
|--------------------|--|
| Camera Spool | |
| Battery Case | |
| Lens Cap | |
| Wrist Strap | |

DEPTH OF FIELD TABLE

V-HEXANON F2 $f=12\sim 32\text{mm}$

circle of confusion= $1,25/100\text{mm}$

$f=12\text{mm}$ (in feet)

| Feet F NO. | 3 | 4 | 6 | 8 | 12 | 30 | ∞ |
|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|
| 2 | 2'08" ~3'04" | 3'05" ~4'09" | 4'09" ~8'01" | 5'11" ~12'05" | 7'09" ~26'09" | 12'03" ~ ∞ | 20'07" ~ ∞ |
| 2.8 | 2'07" ~3'07" | 3'03" ~5'02" | 4'05" ~9'05" | 5'04" ~15'11" | 6'10" ~53'01" | 10'01" ~ ∞ | 14'09" ~ ∞ |
| 4 | 2'06" ~3'10" | 3'01" ~5'11" | 4'00" ~12'05" | 4'09" ~28'00" | 5'09" ~ ∞ | 7'10" ~ ∞ | 10'05" ~ ∞ |
| 5.6 | 2'04" ~4'04" | 2'09" ~7'03" | 3'06" ~21'11" | 4'01" ~ ∞ | 4'09" ~ ∞ | 6'01" ~ ∞ | 7'05" ~ ∞ |
| 8 | 2'01" ~5'05" | 2'06" ~11'03" | 3'00" ~ ∞ | 3'04" ~ ∞ | 3'10" ~ ∞ | 4'07" ~ ∞ | 5'03" ~ ∞ |
| 11 | 1'11" ~7'10" | 2'02" ~38'02" | 2'07" ~ ∞ | 2'09" ~ ∞ | 3'01" ~ ∞ | 3'06" ~ ∞ | 3'10" ~ ∞ |
| 16 | 1'08" ~33'11" | 1'10" ~ ∞ | 2'00" ~ ∞ | 2'02" ~ ∞ | 2'04" ~ ∞ | 2'06" ~ ∞ | 2'08" ~ ∞ |
| 22 | 1'05" ~ ∞ | 1'06" ~ ∞ | 1'08" ~ ∞ | 1'09" ~ ∞ | 1'10" ~ ∞ | 1'11" ~ ∞ | 2'00" ~ ∞ |

(F2 12)

$f=20\text{mm}$ (in feet)

| Feet F NO. | 3 | 4 | 6 | 8 | 12 | 30 | ∞ |
|---------------|-----------------|-----------------|-------------------|---------------------|---------------------|----------------------|----------------------|
| 2 | 2'11" ~3'01" | 3'10" ~4'03" | 5'06" ~6'07" | 7'02" ~9'01" | 10'02" ~14'08" | 20'04" ~57'07" | 61'04" ~ ∞ |
| 2.8 | 2'10" ~3'02" | 3'09" ~4'04" | 5'04" ~6'10" | 6'10" ~9'07" | 9'07" ~16'02" | 18'00" ~91'01" | 43'10" ~ ∞ |
| 4 | 2'10" ~3'03" | 3'07" ~4'06" | 5'02" ~7'03" | 6'06" ~10'06" | 8'09" ~19'00" | 15'04" ~74'10" | 30'09" ~ ∞ |
| 5.6 | 2'09" ~3'04" | 3'06" ~4'08" | 4'10" ~7'11" | 6'00" ~12'00" | 7'11" ~24'10" | 12'11" ~ ∞ | 22'00" ~ ∞ |
| 8 | 2'07" ~3'06" | 3'04" ~5'01" | 4'06" ~9'02" | 5'05" ~15'03" | 6'11" ~46'02" | 10'04" ~ ∞ | 15'05" ~ ∞ |
| 11 | 2'06" ~3'09" | 3'01" ~5'08" | 4'01" ~11'05" | 4'10" ~23'04" | 6'00" ~ ∞ | 8'04" ~ ∞ | 11'03" ~ ∞ |
| 16 | 2'04" ~4'03" | 2'10" ~7'00" | 3'07" ~19'08" | 4'02" ~200'10" | 4'11" ~ ∞ | 6'04" ~ ∞ | 7'09" ~ ∞ |
| 22 | 2'02" ~5'01" | 2'07" ~9'10" | 3'01" ~151'02" | 3'06" ~ ∞ | 4'00" ~ ∞ | 4'11" ~ ∞ | 5'08" ~ ∞ |

(F2 20)

f = 32mm (in feet)

| F NO. \ Feet | 3 | 4 | 6 | 8 | 12 | 30 | ∞ |
|--------------|-----------------|-----------------|------------------|------------------|-------------------|-------------------|---------------|
| 2 | 2'11" ~3'01" | 3'11" ~4'01" | 5'09" ~6'03" | 7'07" ~8'06" | 11'01" ~13'01" | 24'07" ~38'06" | 132'04" ~∞ |
| 2.8 | 2'11" ~3'01" | 3'10" ~4'02" | 5'08" ~6'04" | 7'05" ~8'08" | 10'09" ~13'07" | 22'11" ~43'06" | 94'07" ~∞ |
| 4 | 2'11" ~3'01" | 3'10" ~4'02" | 5'07" ~6'06" | 7'03" ~9'00" | 10'03" ~14'06" | 20'10" ~53'11" | 66'03" ~∞ |
| 5.6 | 2'10" ~3'02" | 3'09" ~4'04" | 5'05" ~6'09" | 6'11" ~9'05" | 9'08" ~15'09" | 18'07" ~79'03" | 47'04" ~∞ |
| 8 | 2'10" ~3'03" | 3'08" ~4'05" | 5'02" ~7'02" | 6'07" ~10'03" | 9'00" ~18'03" | 16'00" ~∞ | 33'03" ~∞ |
| 11 | 2'09" ~3'04" | 3'06" ~4'08" | 4'11" ~7'08" | 6'02" ~11'06" | 8'02" ~22'08" | 13'07" ~∞ | 24'02" ~∞ |
| 16 | 2'08" ~3'06" | 3'04" ~5'00" | 4'07" ~8'10" | 5'07" ~14'04" | 7'02" ~38'03" | 10'11" ~∞ | 16'08" ~∞ |
| 22 | 2'06" ~3'08" | 3'02" ~5'06" | 4'02" ~10'09" | 5'00" ~20'06" | 6'03" ~∞ | 8'10" ~∞ | 12'02" ~∞ |

(F2 32)

| | |
|----------|--|
| M E M O | |
| | |
| | |
| | |
| LENS No. | |

11/16/61 NX Navy #830. LENS: V-HEXANON 1:2, f = 12 to 32-mm
 Serial No. 6361095.

KONICA



KONISHIROKU PHOTO IND. CO., LTD.

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