



BOLEX C8 CAMERA

INSTRUCTION MANUAL



Foreword

You have just acquired a Paillard-Bolex C 8 cine camera. The name of Paillard-Bolex is considered the world over as a hallmark of technical perfection and precision craftsmanship. Before leaving the factory, your camera was checked over and adjusted with meticulous thoroughness.

Like any other precision instrument, your camera should be treated with the utmost care. Always remember that any one of the countless Paillard-Bolex distributors the world over will be glad to advise you as to how to get the best out of your Bolex C8.

Every Paillard-Bolex C 8 Motion picture camera carries a serial number engraved engraved on it's base, where the carrying-strap is fitted. This number should be quoted in all correspondence with your dealer. If your camera needs overhauling or repairs these should only be done by a Paillard-Bolex authorised agent, as the makers' guarantee is automatically forfeited if such work is carried out by other persons. In the event of your contemplating a trip abroad, it will be a wise move to ask your dealer for a list of Pilllard-Bolex distributes in all countries, since they alone are in the position to offer you faultless service.

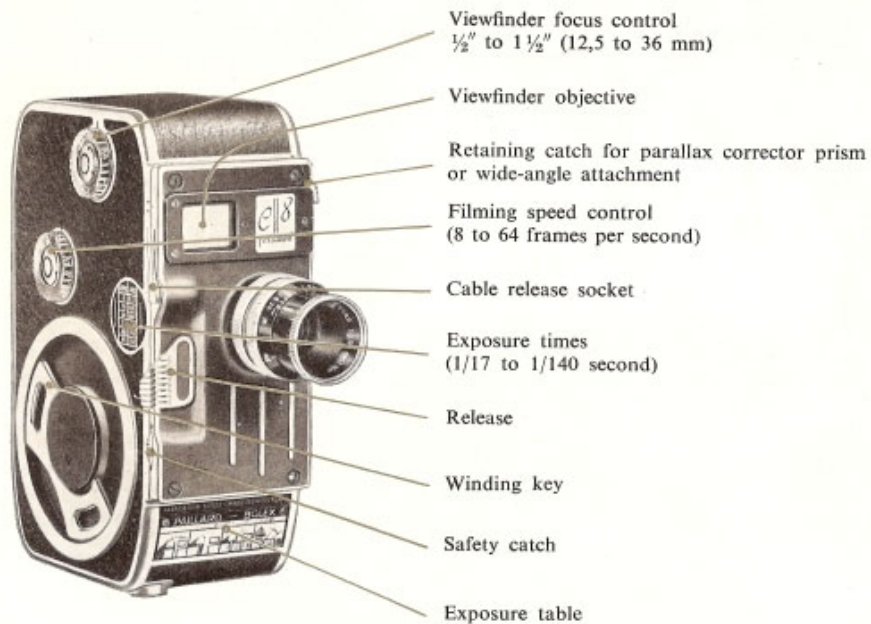


Fig. 1

Viewfinder eyepiece
 Footage counter
 Lid fastening ring
 Interchangeable lenses

Edge corresponding to the position of the film inside the camera (film plane)

All 8 mm lenses with standard type mounts can be used on the Bolex C 8 camera.

Thread : 15,88 mm = $\frac{5}{8}$ "

Lens seat to film plane distance $T = 12,29$ mm

Maximum length of threaded section $L = 4,3$ mm

The distance T corresponds to the distance between the film plane (P) and the face of the camera on which the lens rests when screwed into position.

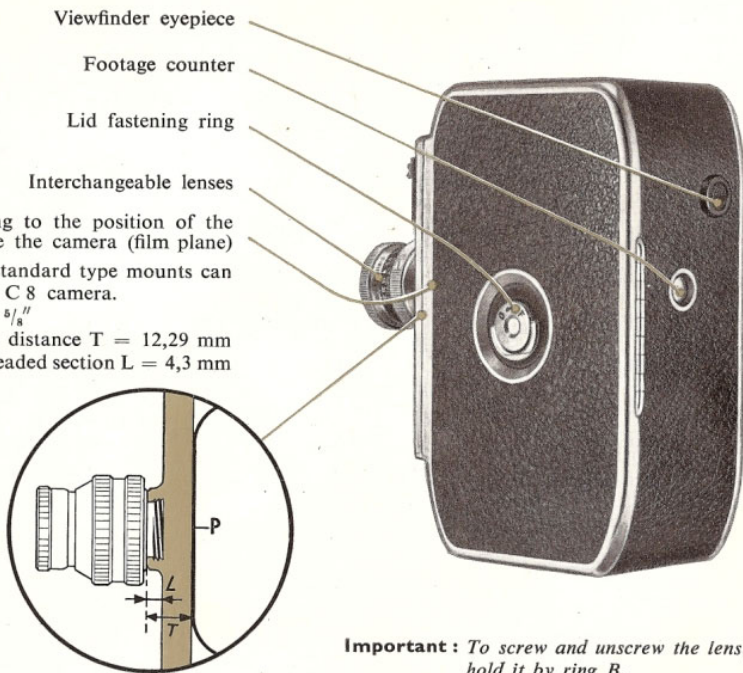


Fig. 2

Important : To screw and unscrew the lens, hold it by ring B.

INSTRUCTIONS FOR USE OF PAILLARD-BOLEX C 8 CINE CAMERA

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The Bolex Cine-Guide, on sale at all good photo and cine equipment stores, contains all essential information on how to shoot good movies.

EQUIPMENT

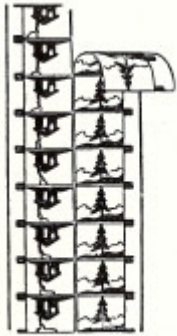
The standard equipment of the Bolex C 8 camera comprises the following items:

- a) 1 lens
- b) 1 empty Lake-up spool
- c) 1 short cable release
- d) 1 instruction manual
- e) 1 depth of field chart per focusing mount lens supplied with the camera



Before using your camera, we strongly recommend that you read through this manual very carefully from cover to cover

A thorough prior acquaintance with the purpose and use of the various controls will save the beginner many false starts and will help him to get good results right from the outset



8 mm FILM

Capacity. The Bolex C 8 camera is designed to take "double" 8 mm film on 25-ft. Spools.

Leader. In reality, unexposed 25ft. spools of double-8 mm film contain somewhat over 33ft. of film, due to the fact that a length of leader about 4ft. long is allowed for at each end, so that the camera can be loaded and unloaded without fogging the film. The leaders are removed after development, and the film is finally returned as a single strip of ordinary 8mm film, 50 feet (i.e. 2 x 25 ft.) in length yielding about 4 minutes' screening time.

Choice of film. There are several different types of double-run 8 mm black-and-white or colour film available on the market. Each category is determined by the speed of the emulsion and the figures in which this speed is expressed are used as a reference when consulting exposure tables or meters.

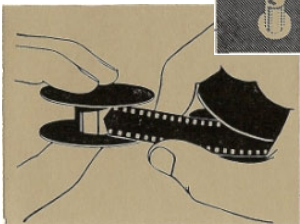
Black-and-white film. Depending on the lighting conditions, the movie-maker has, generally speaking, a choice between either:
a film of medium speed (22 degrees Scheiner, or 10 ASA), for outdoor shots in daylight, or a film of higher speed (28 degrees Scheiner, or 40 ASA), for outdoor shots in poor light and more especially, for indoor shots.

Colour film. Double-run 8 mm colour film is manufactured in two types :

- a) for use in daylight.
- b) for use in artificial light with flood-type lighting.

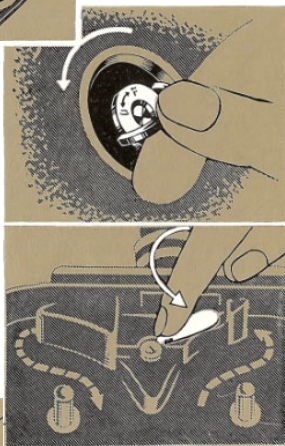


The camera should be loaded in shade, to avoid any risk of fogging the edges of the film.



LOADING

Winding



Lift up the hinged winding key and wind up the motor fully by turning the key in a clockwise direction. The camera can also be wound by turning the key back and forth.

Do not attempt to wind further after the check.

To open the camera

Lift up the hinged semicircular ring on the camera lid and turn it to the left (towards 'O').

To open the pressure-pad

Lay the open camera down with the lid towards you, and open the pressure-pad by moving the lever, as shown in the sketch.

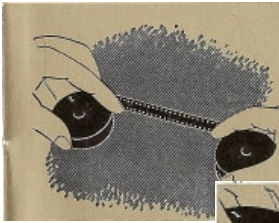
Then remove the take-up spool from the camera.

Readying the film

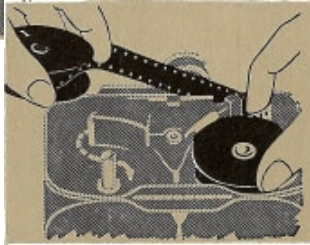
Place the full spool in the palm of the right hand, holding it in such a manner as to prevent the film from coming loose and unwinding.

Slip the end of the Film into one of the slits in the core of the empty spool, which should be held in the left hand, with the side marked 'I' uppermost.

Then wind 2 or 3 turns of film onto the take-up spool by turning the latter in a clockwise direction, keeping both spools held firmly.



Now move the full spool away from the take-up spool until a length of about 6 ins. of film has been unwound. Insert the index finger of the left. and right hand behind the film, as shown in the sketch.



To insert the film in the camera

spool onto its spindle and insert the film into the with the left index finger. side of the film must be turned towards you and the towards the lens. Slip the take-up spool onto its *regardless of the position of the notches.*

Slip the full gate, guiding it The dark, shiny light side spindle

Final check-up

When the spools take-up spool by



and film are in in place, turn the hand in order to **tighten up the film.**



drawn correctly through the camera.

Lastly, clone this lid of the camera again and fasten it, by turning the catch toward 'F'.

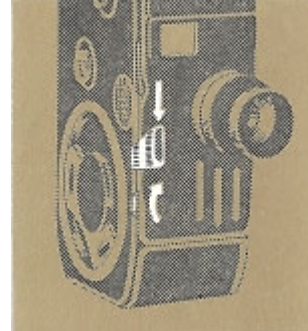
OPERATION



Intermittent running
How to hold the camera



2nd position



Continuous running

1st position

The film passes in front of the lens and registers the picture as long as the finger is kept pressed on the release button. The motor stops as soon as the pressure ceases.

Push the release button downwards with the left index finger.

Push the release button down and turn the milled wheel slightly in and upwardly direction.

OPERATION



Use of cable release intermittent running

For perfectly stable shots and self-filming

Set the sliding mask opposite the lower marking (this position is determined by a stop).
Screw the cable release into the socket thus uncovered.



Use of cable release Single exposure

For trick effects, cartoon films and so on

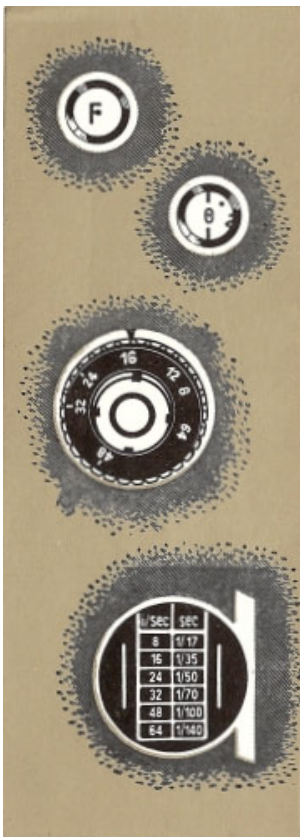
Set the mask opposite the upper marking, and screw in the cable release.



Safety catch

Makes it impossible to start the motor when the camera is not in use

Turn the milled wheel in an upwardly direction.



MAIN PARTS

Footage counter

The footage counter automatically indicates the amount of film that has been exposed. The part of the scale between 'F' (feet) and 'O' corresponds to the length of the leader. Therefore, start filming only when the figure 'O' appears under the coloured dot.

Note: The counter automatically returns to the starting point when the pressure-ever is operated in the course of loading or unloading the camera.

Audible end-of-film signal

An audible warning signal is heard when the counter registers 25 ft. (7,5 m).

Speed control

The speed control enables the filming speed to be varied between 8 and 64 frames per second, even while shooting is in progress. The normal filming speed of 16 frames per second corresponds to the projection speed for silent films. Films shot at a slower speed (8 frames per second) produce an illusion of accelerated motion on the screen, while films shot at higher speeds (say 64 frames per second, for instance) produce a slow-motion effect.

Exposure time and filming speed

Continuous running : The exposure times corresponding to filming rates between 8 and 64 frames per second are shown on the table on the side of the camera.

Frame-by-frame shots

The exposure time is approximately:

1/17th second when the speed control is set to 8 frames per second

1/25th second in all other positions.

Viewfinder

The built-in viewfinder is used for framing the scene to be shot. The focal length corresponding to the field to which the viewfinder is set is indicated by the number of the scale which appears opposite the fixed marker line. **The viewfinder is continuously adjustable to match the field covered by lenses** of focal length 1/2", 1" and 1 1/2" (12.5, 25 and 36 mm). A field corresponding to that of a 1/4" (6.5 mm) or 1/5" (5.5" mm) can be obtained by slipping a wide-angle attachment onto the front of the view-finder.

In order to adopt the viewfinder to suit: the eyesight of movie-makers who have to wear glasses, the eyepiece of the C 8's view-finder can be replaced by a special eyepiece comprising a lens of the appropriate power. Inquiries about filling such an eyepiece should be made to the Bolex general agent through the usual dealer, at the same time specifying the strength required in diopters.

Parallax correction

No parallax correction is needed at distances between 5 ft. and infinity. To obtain accurate framing at closer distances, one of the sets of corrector prisms (supplied separately as accessories) should be used (see p. 20).

The prism mount is held fast in the front grooves of the viewfinder by a catch, which must be lowered in order to remove the prism.





INVERTING THE SPOOL

Avoid opening the camera in too strong a light, as otherwise there is a risk that the film may be partly fogged.

When the double 8mm film has passed through the camera once, the spool must be turned over, allowing the other half of the film to be exposed. As soon as the footage counter reaches the 25 ft. (7,5 m) mark, the motor should be allowed to run until 10 'clicks' of the audible warning signal have been counted, so as to make sure that the trailer is fully wound onto the take-up spool.

The camera may then be opened, the 2 spools taken out and inverted, and the camera reloaded, the full spool being placed on the upper (film feed) spindle, with the side marked 'II' uppermost.

When the film has been fully exposed, the original Paillard—Bolex spool supplied with the camera, now on the upper spindle, will be empty again.

UNLOADING

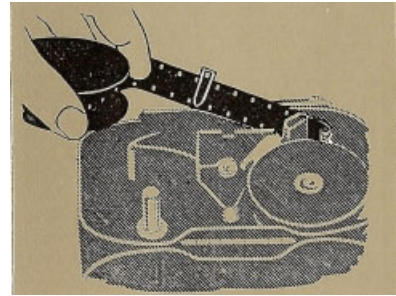
At the end of the spool

As soon as the film, trailer included, has run through for the second time, the camera should be opened and the exposed spool should be stowed away again in its box.

When spool is only partly exposed

If it is wished to remove a partly exposed spool from the camera, say for the purpose of shooting a sequence with a film of different speed or with colour film, the following procedure should be adopted :

- a) Check the reading on the footage counter, and subtract it from 25 ft (7,5 m) in order to obtain the amount of film still unexposed.
- b) Open the camera in a darkroom.
- c) Open the pressure pad by means of the lever, and withdraw the two spools together, taking care not to scratch the film.
- d) Place the spools one on top of another and put them in a light- and airtight box.



It is a good idea to put a marker on the film (such as a paper clip or a thin strip of adhesive tape), as this will help one to locate the last frame occupied. To facilitate reloading, this marker should be slipped on the film near the rubber guide.

Note: Since the leader has already been wound onto the spool, shooting can begin again as soon as the film is back in the camera, irrespective of whether the letter F appears on the counter instead of O. To allow for this, however, 4 ft (1.25 m) should be subtracted from the amount of unexposed film ascertained as explained in paragraph a) above. Shooting must therefore be stopped when the figure thus obtained appears under the coloured clot on the footage counter.



$f = \frac{1}{4}" (6,5 \text{ mm})$



$f = \frac{1}{2}" (12,5 \text{ mm})$



$f = 1" (25 \text{ mm})$



$f = 1 \frac{1}{2}" (36 \text{ mm})$

LENSES

("D" Mount - Distance from lens mount to film 12.29 mm)

Standard lenses (focal length $1/4''$ 12,5 or 13 mm)

These lenses belong to the most current category, and are suitable for use in the majority of circumstances.

Wide-angle lenses (focal length $7/32''$ to $1/4'' = 5,5$ to $6,5$ mm)

These lenses are used in cases when the movie-maker wishes to shoot a wide general view of the scene in which the action is taking place, or when obstacles in the way prevent him from moving back far enough to obtain a good view of a given subject (such as a monument or other building, or an indoor scene).

It is also possible to turn a standard $1/2''$ lens into a wide-angle lens by adding a **Hyper-Cinci-wide-angle attachment** (your usual dealer will be pleased to advise you in this connection).

This attachment halves the focal length of the lens, and doubles its held of view, turning it into a $1/4''$ lens.

Telephoto lenses (focal length $1''$ or $1\ 1/2'' = 25$ or 36 mm)

These lenses are used to obtain near or close-up views of subjects of all kinds, such as sporting events, wild life scenes, architectural details and so on, which have to be shot from some distance away.

$1''$ or $1\ 1/2''$ telephoto lenses are in most general use for 8mm movie work. However, long-focus lenses designed for use on 16 mm motion picture cameras can also be used by adding a 'BAGOM' adapter ring. In using a telephoto lens, care should be taken to ensure that the camera is kept perfectly steady, preferably by setting it up on a tripod.

Owing to the additional brightness generally prevailing in distant views the diaphragm should be stopped down one half or one stop lower than the setting one would use on a normal-focus lens.

The following filters will be found useful as a means of reducing the effect of atmospheric haze :

Wratten 1A	for Kodachrome	Orange	for black-and-white film.
Anso UV-I6	for Anso Color		
Agfa UV-K 29 C	for Agfacolor		



SHOOTING

The various operations entailed in shooting a film should be carried out in the following order :

1. Wind up the motor.
2. Select an appropriate shooting angle, and adjust the field of the viewfinder according to the amount of subject matter which is to be included in the scene.
3. Check that the viewfinder setting corresponds to the focal length of the lens.
4. Set the diaphragm and focusing controls on the lens.
5. Adjust the filming speed as required.
6. Make sure that the camera is being held quite steady; then start shooting, by pressing on the operating control.
7. Keep a check on the length of the ' take '.

Winding

One complete winding of the motor suffices to expose about 7 feet of film, corresponding to 34 seconds' running time at 16 f.p.s. However it is advisable to wind up the motor after every take, no matter how short. The operator will thus avoid the disagreeable surprise of finding that the motor has stopped in the middle of a take, or that pressure on the Starting button produces no response. It often occurs that movie-makers miss the chance of a good shot by neglecting this simple precaution.

Selecting the lens to be used

Determine the best framing by looking through the eyepiece at back of camera.

Once the viewfinder held is set, fit a lens of corresponding focal length.

Exposure table

Correct exposure of the film has a determining influence on picture quality. As a guide for the novice, the exposure table attached to the front bottom of the camera body indicates the diaphragm stops which should be used under the lighting conditions most usually met with, assuming that the film is being shot at a rate of 16 frames per second. The position of the subject and the speed of the film are also taken into account.

The data marked in black apply to black-and-white film, and those marked in red apply to colour film. Reading from left to right, the four illustrative diagrams relate to the following conditions respectively:

1. Overcast sky
2. Hazy sunshine
3. Clear, sunny weather
4. Brilliant sunshine

The figures in the small squares in the middle of the pictures relate to distant views, and those in the large squares at the bottom, to close-up subjects.

Example: For outdoor shots on a sunny clay, with a colour film of exposure index 22-23 Scheiner, 10-12 ASA.

Nearby subject	in the shade	use diaphragm stop 4
	partly lighted	use diaphragm stop 5,6
	fully lighted	use diaphragm stop 8
Distant subject	fully lighted	use diaphragm stop 11





Exposure meters

Photoelectric exposure meters help the movie-maker to determine the diaphragm stop which should be used under various lighting conditions. They are suitable for both black-and-white and colour films. Depending on the model, they measure either incident or reflected light. Exposure meters, which are highly delicate instruments, are usually carried as a separate unit for utmost convenience in use.

Setting the diaphragm

The amount of light which, after passing through the lens, reaches the film, is limited by the aperture of the diaphragm. The smallest number on the scale corresponds to the widest setting of the diaphragm.

The graduations on the diaphragm scale are known as 'stops'. When the diaphragm is closed by one stop (e. g. by altering the setting from $f : 5.6$ to $f : 8$), the amount of light reaching the film is halved. Conversely, opening the diaphragm by one stop (e. g. from $f : 8$ to $f : 5.6$) doubles the amount of light admitted. Opening the by two stops quadruples it, and so on.

In determining the correct stop to use, three main factors must be taken into account :

- the intensity of the lighting
- the speed of the film
- the filming rate.

Focussing

If you have a "Fix-Focus" lens, the shortest distance at which pictures will be sharp is shown on the scale opposite each diagram setting (f-stop). If you have a lens fitted with the "Visifocus" or "Compass" depth-of-focus scale, you will find it most convenient to begin by setting the diaphragm, and then to place the "∞" sign opposite the last orange dot on the "Visifocus" scale, or the end of the white line on the "Compass" scale. The other end of the dotted scale or line then shows the shortest distance at which subjects will still be sharply focussed (for instance 0,60 m in the case of a 12.5 mm lens with the diaphragm set to f : 8).

When shooting very near close-ups, the lens must be focussed to the exact distance between the subject and the film itself.

This distance must be reckoned from the film plane (see Fig. 2).

To alter the filming speed

Adjust the speed control according to the effect which it is desired to obtain. The normal filming rate is 16 frames per second. This corresponds to the rate at which silent projectors are normally run.

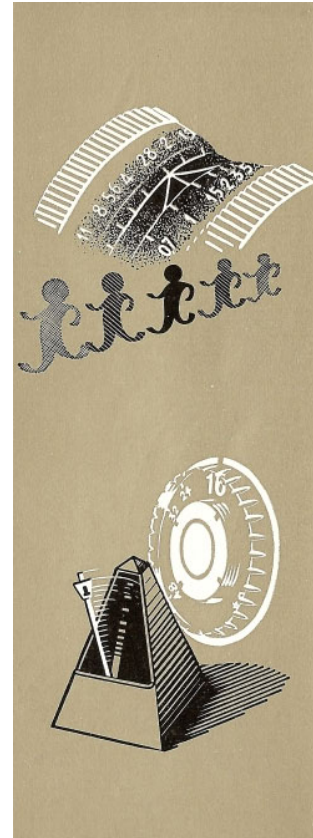
Note: Do not forget that altering the filming speed also alters the rate of exposure of the film. Thus this rate, which amounts to 1/35th second at 16 frames per second, will be doubled at 8 frames per second, whereas at 64 frames per second it will be reduced to a quarter of its normal value, i.e.

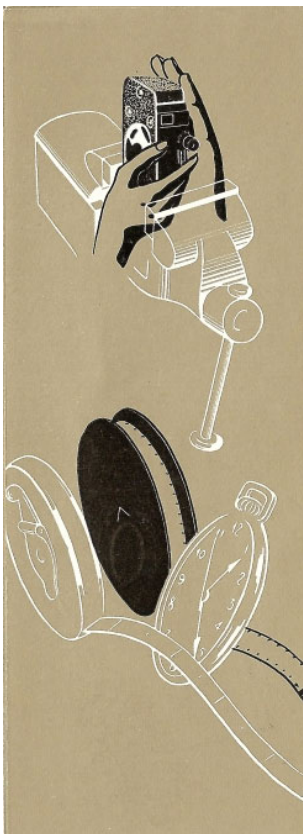
to 1/140th second. In such cases the diaphragm setting should be readjusted to compensate for this variation.

E.g.: filming rate 16 frames per second, set diaphragm to 5,6

filming rate 3 frames per second, set diaphragm to 8

filming rate 32 frames per second, set diaphragm to 4





Stability of camera

The camera should always be held absolutely steady while shooting is in progress.

The slightest jolting of the camera will be amplified many times over when the film is projected, making the subject appear to dance about on the screen. Hold the camera pressed fast against the cheek or forehead, if possible leaning the elbows at the same time against some stable object (such as a wall or tree-trunk). Aim the camera slowly and smoothly, without jerking and without rocking the body.

Length of scenes

The length of a take depends on the amount of action involved in the scene, and must be determined by the movie-maker. An average take usually covers about 16" of film at 16 frames per second, which corresponds to a duration of some 5 to 8 seconds.

Although the length of a take can be prolonged somewhat if the action demands this, sequences of exaggerated length tend to detract from the interest of the scene.

It is always possible to shoot lengthy action scenes while remaining within reasonable limits. This can be done very easily by merely altering the shooting angle an/or distance for each take.

For comprehensive advice on how to shoot first-rate movies, see the Bolex Cine-Guide, edited by Pallard.

ACCESSORIES FOR FILMING

Filters

You can impart heightened contrast to your Elms by using filters:

For black-and-white film: orange, yellow, red, green and grey Paillard-Bolex filters available.

For colour film: Kodak Wratten 1 A., Ansco UV-16 and Agfa UV-K 29 C correction filters.

Kodak Wratten 80 and 85, Ansco 10 and 11, and Agfa K 69 and K 19 conversion filters.

Lens hoods

These attachments serve to protect the lens from side reflections. They should always be used when shooting backlighted scenes.

BAGOM adopter ring

This ring makes it possible to use Kern-Paillard lenses intended for the Bolex H 16 on the C 8. When used for shooting 8 mm films, such lenses produce the same effect as 8 mm lenses of the same focal lengths.





Parallax corrector prisms

When slipped in the grooves in front of the viewfinder, these corrector prisms permit perfect framing of extreme close-ups.

They are available in sets of two:

PRISM for distances of 10" and 20" (25 and 50 cm)

PRIFT for distances of 1 and 2 ft. (30 and 60 cm)

Wide-angle attachment for viewfinder

When slipped onto the front of the viewfinder (which must be set to 12,5) the wide-angle attachments adapt the field of the viewfinder to correspond with that of a 7/32" (5,5 mm) or 1/4" (6,5 mm) lens, according to the model :

7/32" (5,5 mm) viewfinder attachment Code : VELBE

1/4" (6,5 mm) viewfinder attachment Code : VEBEL

The wide-angle attachment or prism is maintained in position by a catch, which must be pushed down in order to remove the accessory.

Cable releases

Apart from the 8" cable release supplied with the camera, two longer cable releases are available separately as accessories :

Length 20" (50 cm) Code : DECAB

Length 40" (100 cm) Code : DECBE

Tripod

For utmost stability when filming, and to avoid shooting pictures that jump about on the screen, the use of a tripod is strongly recommended. The Bolex Movie Tripod is light, sturdy and easy to manipulate. Designed especially for Bolex cameras.

Code: PODOM

Carrying bag: Code: PODUS

Camera Handle :

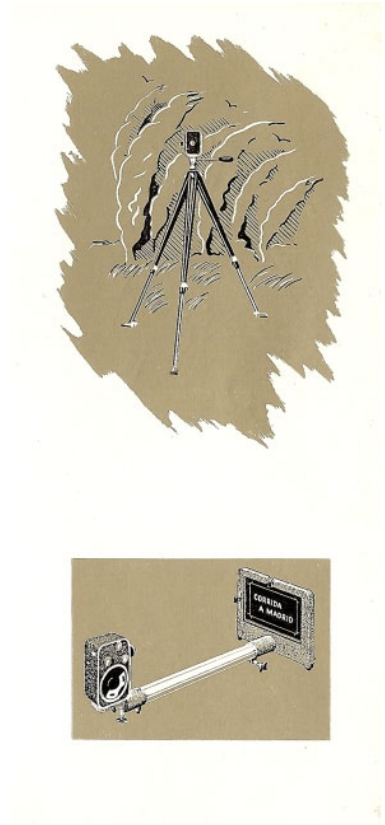
Less bulky than a tripod; helps you to hold your camera really steady.

Code: POFRA

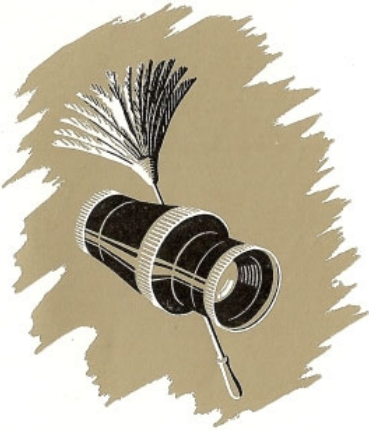
Movie Titler

When you have shot a few films, you will wish to "edit" them, or in other words to split them up into scenes and takes, rearrange them and mount them together by splicing, and also to make them more attractive by adding titles. For this latter purpose, you will need the Bolex 8 mm Movie Titler invaluable.

Code: TIHUI



UPKEEP



Lenses

All the outer surfaces of the lenses should be kept absolutely clean. To clean them, use the special soft tissue-paper sold in photo stores. The lenses should not be constantly rubbed, as this might damage the anti-reflex coating.

Put the dust-caps on the lenses between scenes, and when the camera is no longer needed, stow them away from damp in their Paillard-Bolex cases. Especial care should be taken to avoid getting dust or fingerprints onto the glass surfaces (perspiration is harmful to glass).

Camera

The interior of the camera, in which the entire film transport mechanism is housed, must be kept absolutely clean.

A certain amount of gelatine and dust is generally left in the gate and on the pressure-pad after some length of film has been run through.

Such deposits should be removed, as follows :

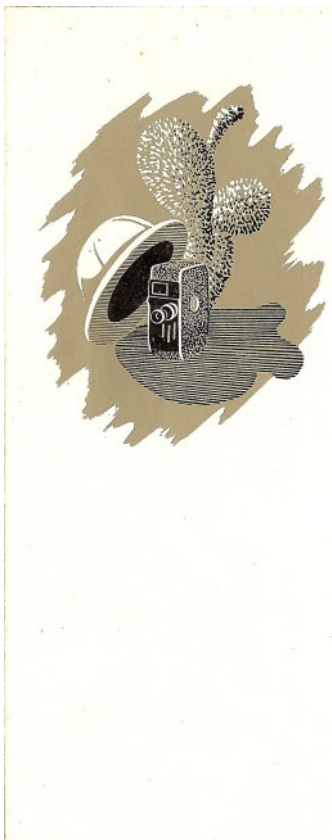
- a) Open the pressure-pad.
- b) Withdraw the pressure-pad by pulling it towards you.
- c) Using a clean cloth twisted around the end of a small wooden stick, clean the pad and gate gently, particularly around the taking aperture. If the gelatine deposit is 'tacky' and hard to remove, moisten the cloth slightly, wiping off the place carefully afterwards to ensure that it is dry.
- d) Put the pressure-pad back in place by pushing it well home.
- e) Push the control lever forward to close the pressure-pad.

Lubrication

Like a high-quality watch, the Bolex C 8 camera rarely needs to be lubricated. When new, it contains a reserve of grease and oil sufficient to last for 2 or 3 years. When this length of time has elapsed, it is advisable to turn the camera in for fresh lubrication to the nearest Paillard-Bolex distributor.

Under no circumstances should any attempt be made to dismantle the camera mechanism, as the makers guarantee is automatically forfeited if this is done.





Use and care of camera in tropical climates

Certain precautions must be taken to protect both camera and film against heat and damp when living or travelling in tropical regions.

Airtight boxes (tropical pack) for storing film spools are available on the market. The film should only be left in the camera proper for the amount of time required to expose it.

The camera and all its accessories should be cleaned thoroughly and frequently. The leather lining and carrying cases should be treated with a special protective chemical (such as Septatan, Tymol and so on).

To prevent hot, moist air from condensing and giving rise to bacterial growths in or on the equipment, the latter should not be stowed away in its various cases between takes, but should be freely exposed to the air.

On the other hand, when the equipment is to be left unused for some time, particularly during the monsoon season, it should be protected by putting it away in airtight tins, into which a suitable desiccating agent (such as silica gel, calcium chloride, Sova beads and so on) has been placed. These chemicals should not be used too liberally, however, in order to avoid excessive drying, which might damage the leather or the film. A relative humidity of 35 to 40 % is quite acceptable. Care should be taken to avoid dropping any of the chemical onto the equipment.

PAILLARD-BOLEX M8

Motion picture projector

For 8mm film. Equipped with a high quality lens, available in focal lengths of 20mm, 25mm and 34mm.

Supplied in two version:

Model M 8 for A.C. or D.C. power supplies, 110-125 volts: OCTEM. Model M 8 R for A.C. power supplies, 110-250 volts (with built in resistance and voltage selector): OCTAR

Silent running.

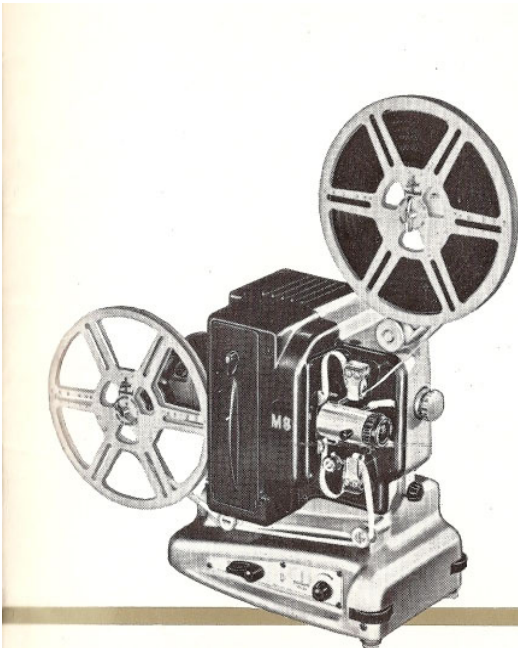
Leatherette carrying case: GOVAL.

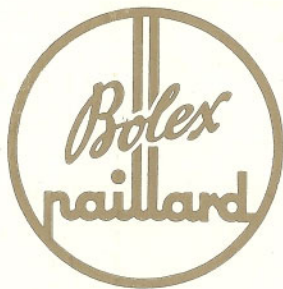
Precision-built, handsomely-styled and simple to use, the Bolex M 8 operates with unfailing efficiency under all conditions, and shows 8mm black-and-white or colour films to best advantage.

Add sound to your films, and show the result, with help of the Bolex synchroniser. This ingenious device ensures perfect synchronization of the picture and the accompanying sound track, registered and played back on tape recorder.

Code: SYMAT

Table: Code: SYTAB

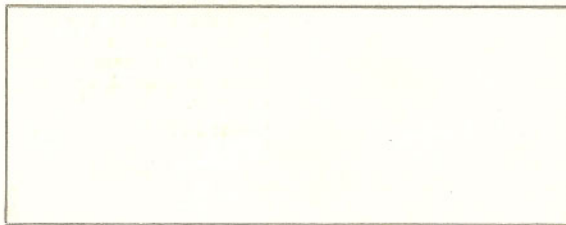




Manufacturers :

PAILLARD LTD.

Ste-Croix (Switzerland)



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Printed in Switzerland