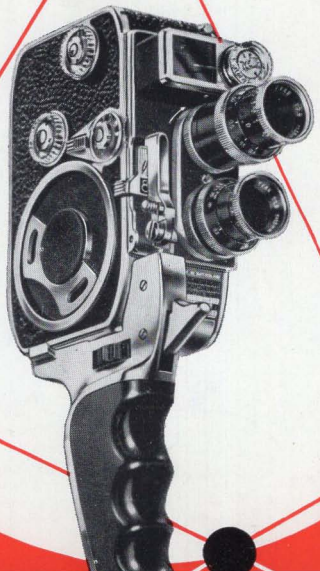
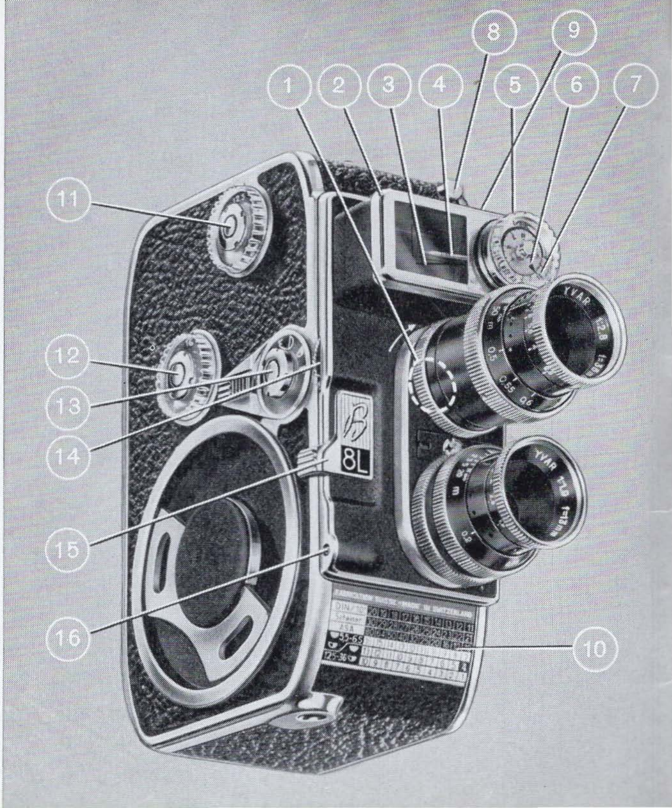
Bolex paillard

CAMERA B8L

INSTRUCTIONS MANUAL





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The built-in lightmeter of the B8L « Compumatic » camera consists of :

— a **photo-electric selenium cell** (1) fixed on a rocking lever behind the lens; it transforms into electrical energy the amount of light exposing the film, which varies in intensity according to diaphragm setting;

— a **highly sensitive galvanometer** (2) controlled by a cell which activates a **mobile indicator** (3) that is seen in the camera viewfinder ; the movements of this indicator are, therefore, controlled by the various diaphragm settings ;

— an **adjustable guide-mark** (4) that also appears in the viewfinder and which is controlled by the **setting knob** (5). This device simultaneously takes into account film sensibility, focal length of lens, variable shutter setting and filming speed.

By placing the **cell behind the taking lens,** Paillard have solved the problem of making the field angle of the lens and the field angle of cell identical. Owing to this ingenious solution, the lightmeter :

— computes with mathematical precision the light exposing the film through the lens ; the exposure is not distorted by shadow or light zones outside the picture area : the cell measures exactly what the lens « sees », and under an angle exactly equal to the focal length of the lens, that is, from 8° for 36 mm tele lenses up to 49° for 5.5 mm wideangle lenses ;

— gives precise exposures with any « D » mount lens, whatever its focal length and maximum aperture ;

— automatically takes into account any optical attachments : computes the amount of light admitted by filters ; covers the same field of view as the Hyper Kern-Paillard, Hyper Cinor, or anamorphic lenses ;

— keeps all the features of the camera : 7 filming speeds, turret with interchangeable lenses, variable shutter, etc. ; allows the use of films of any standard sensibility ;

— is protected against shocks and the risk of deterioration, for it is exposed to the light only for the time necessary to compute the exposure. It retracts automatically when the camera is started. The galvanometer is shockproof.

Mechanically speaking, the Paillard-Bolex lightmeter is of simple design and, when used, requires but four operations. No. 1 is only necessary when the operator wishes to make full use of the many advantages of the B8L.

1. Adjusting of galvanometer guide-mark whenever necessary.
2. Positioning of cell.
3. Setting of diaphragm.
4. Running the camera.

1. Adjusting of galvanometer guide-mark

First of all, the position of the red guide-mark (4) has to be determined in accordance with :

a) film sensibility ;
b) lens focal length ;
c) variable shutter setting ;
d) filming speed.

This is a preliminary operation which has to be repeated only when one of the four settings mentioned above is to be modified.

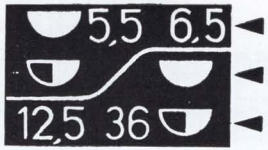
Thus, the operator who always uses a certain film, at a certain speed, with open shutter, and standard or tele lenses, only needs to set the galvanometer guide-mark once.

To set the galvanometer guide-mark, consult the table (10) fixed to the lower part of camera. Readings are as follows :

a) **The film sensibility** in DIN, Scheiner and ASA degrees appears in the 3 upper lines (white figures on black ground). Sensibility of Kodachrome film and of other films of same sensibility is printed on red ground.
The 3 white lower lines give index numbers that correspond to every film sensibility. These figures vary with the focal length of the lens and the opening angle of the variable shutter.

b) **The focal length of the lens** should only be taken into account to allow for the difference in cell illumination when either a wide-angle (5.5 to 6.5 mm) lenses or any other lens (12.5 to 38 mm) is used. Lenses with « Hyper » wide-angle attachments are considered as wide-angle lenses. The focal length is shown, as well as

c) **the opening angle of the variable shutter,** in the left hand column (white figures on black ground). The meaning of these figures is the following:



1st line : wide-angle *lens; variable shutter* open.

2nd line : { wide-angle *lens; variable shutter* half-closed
standard or tele *lens; variable shutter* open

3rd line : standard or tele *lens; variable shutter* half-closed

d) Thus, an *index number* appears at the intersection of the column corresponding to the film sensibility and of the line corresponding to the lens used and to the variable shutter opening chosen. This number also appears on the galvanometer guide-mark setting knob (5) which has to be in front of **the filming speed.**

Index numbers 1, 4, 7, 10, 13, and 16 on the table appear also on the mobile disc (6) of the setting knob ; intermediary numbers are indicated by strokes.

The filming speeds of 16, 32, and 64 f.p.s. are to be found on the fixed outer ring (7) of the setting knob ; the speeds of 12, 18, 24, and 48 f.p.s. are indicated by strokes.

To rotate the mobile disc (6) of the setting knob, pull out the transparent milled disc and turn it in the required direction. The mobile disc (6) is locked in position when the setting disc is released.

Some examples of galvanometer guide-mark setting

a) Colour film 10 ASA (= 21° Scheiner or 11/10 DIN).
Lens : focal length between 12.5 and 36 mm.
Variable shutter open ( ).

Index number: 4. (This being the most frequent case, the number is engraved on a red ground and is the only red sign on the mobile disc (6) of the setting knob.)

DIN/10°	20	19	18	17	16	15	14	13	12	11
Scheiner	30	29	28	27	26	25	24	23	22	21
ASA	80	64	50	40	32	25	20	16	12	10
5,5-6,5	16	15	14	13	12	11	10	9	8	7
	13	12	11	10	9	8	7	6	5	4
12,5 36	10	9	8	7	6	5	4	3	2	1

Table

Setting knob
Desired speed :
16 f.p.s.

b) Colour film 10 ASA (= 21° Scheiner or 11/10 DIN).
Lens : focal length between 5.5 and 6.5 mm.
Variable shutter half-closed ( ).

Index number: 4.

DIN/10°	20	19	18	17	16	15	14	13	12	11
Scheiner	30	29	28	27	26	25	24	23	22	21
ASA	80	64	50	40	32	25	20	16	12	10
5,5-6,5	16	15	14	13	12	11	10	9	8	7
	13	12	11	10	9	8	7	6	5	4
12,5 36	10	9	8	7	6	5	4	3	2	1

Table

Setting knob
Desired speed :
24 f.p.s.

c) Black-and-white film 19/10 DIN (= 29° Scheiner or 64 ASA).
Lens : focal length between 12.5 and 36 mm.
Variable shutter half-closed ( ).

Index number : 9.

DIN/10°	20	19	18	17	16	15	14	13	12	11
Scheiner	30	29	28	27	26	25	24	23	22	21
ASA	80	64	50	40	32	25	20	16	12	10
5,5-6,5	16	15	14	13	12	11	10	9	8	7
	13	12	11	10	9	8	7	6	5	4
12,5-36	10	9	8	7	6	5	4	3	2	1

Table

Setting knob
Desired speed :
18 f.p.s.

Note

The black triangle of the mobile disc (6) must always be situated within the limits of the thick black half-circle of the fixed outer ring (7).

Because of this, index numbers 1 and 13 in front of 32 f.p.s. are border-line cases.

Should the index number given by the table and the filming speed be outside said limits, it is always possible to close the variable shutter by half.

Example : Black-and-white film 17/10 DIN (= 27° Scheiner or 40 ASA), 5.5 mm lens. With open variable shutter, the index number 13 — which does not admit a filming speed lower than 32 f.p.s. — is obtained. If the variable shutter is closed by half, the index number is brought down to 10 and it is possible to film at 16 f.p.s.

2. Positioning of cell

The photo-electric cell is placed behind the lens by pushing the trigger (8) home; the cell is now able to compute the exposure.

The cell must be operated before every take where the illumination is to be measured.

3. Setting of diaphragm

Set the viewfinder knob (11) in preference to 12.5, whatever the focal length of the lens, in order to place the indicators in a plainly visible position. The two black frames engraved on the viewfinder front lens correspond to the field of the 25 mm (large frame) and 36 mm (small frame) lenses. Field adapters for 5.5, 6, and 6.5 mm focal lengths, for fixing in front of the viewfinder, are available (see « Accessories », p. 12).

Frame the scene to be taken.

Turn lens diaphragm ring until the mobile indicator (3) of the galvanometer is superposed on the guide-mark (4), the two being looked at through the viewfinder.

Note. When setting the diaphragm, take care not to cover the lens inadvertently with the hand, even partially.

4. Running the camera

When the camera is started, either by the realase knob or a cable, the cell retracts automatically and uncovers the taking window.

For single frame exposures, set the galvanometer knob as follows :

12 f.p.s. if the speed control is set to 12 f.p.s.
16 f.p.s. if the speed control is set to any speed between 16 and 64 f.p.s.

Checking the galvanometer adjustment

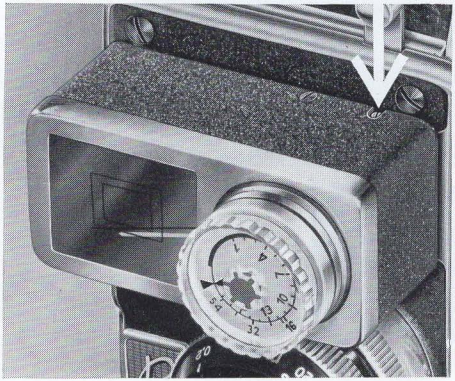
The galvanometer, equipped with a shockproof device, is carefully adjusted at the works. Nevertheless, it is prudent to check the adjustment from time to time and to correct it, should this be necessary. The Paillard-Bolex B8L camera has the advantage of permitting this correction which is preferably carried out by a dealer or, should it be necessary, by the owner himself. In this latter case, the owner should proceed very carefully.

Proceed as follows :

— Cover the lens or, if no lens is mounted on the camera, the opening of the turret by means of the front plug.

— Hold camera vertically (normal shooting position).

— Bring black triangle of the mobile disc (6) exactly in front of the identical black triangle on fixed ring (7) (see figure).



The galvanometer indicator (3) must be superposed exactly on the red guide-mark (4).

If this should not be the case, *slightly* turn the screw (9), accessible through the galvanometer housing, *by means of a fine screwdriver.*

4-stop release selector (14)

According to the effect desired, filming can be intermittent, continuous, or in single-frame exposures. These different possibilities are controlled by the release selector, which is also used to lock the camera.

1st stop *Locked camera*

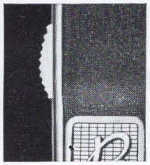
Normal position when the camera is not in use.

2nd stop *Single-frame exposures*

Used for titling, cartoons, scientific films, and trick effects, especially extremely accelerated scenes.

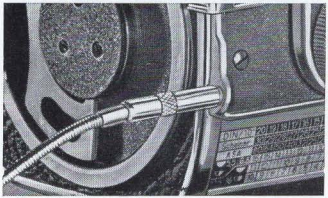
3rd stop *Intermittent running*

Normal filming position. Camera runs only as long as the release is pushed down.



4th stop *Continuous run lock*

After the camera has been started on intermittent running, push the selector right down. The camera will run as long as the motor spring unwinds. Used mainly for self-filming.



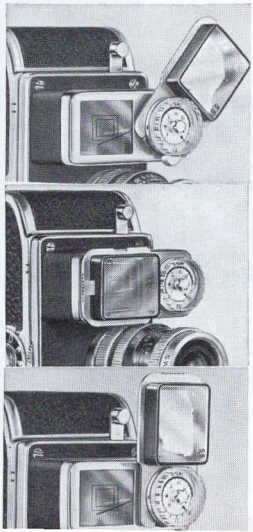
Cable release

Screw the release cable into the hole (16). As with the front release, the release selector determines the way of functioning.

Accessories

Field adapters, for fitting onto viewfinder

There are three field adapters, which correspond to the 5.5, 6, or 6.5 mm focal lengths.



Parallax corrector prisms, for fitting onto viewfinder

Four types of parallax corrector prisms are available, supplied in pairs, for the exact framing of close-ups. For 25 and 50 cm or 1 and 2 feet (30 and 60 cm).

These seven attachments have the same look and are fixed in the same way onto the viewfinder :

— Place lens holder between setting knob and housing of galvanometer, at an angle of approximatively 45°.

— Then bring down the lens over the viewfinder window.

Focal lengths and distances are engraved on the lenses and appear therefore in the viewfinder.

It is possible to leave a lens permanently on the camera, even if it is not used. Just hold it vertically ; and it will be kept in place by a catch.

Variable shutter

The B8L camera is equipped with a variable, or « variable blade », shutter.

The camera shutter is a thin metal plate which, when rotating, admits the light during a fraction of a second to expose the film. When fully open, the variable shutter is shaped like a half-moon and gives, at 16 f.p.s., an exposure time of 1/38th second.

If the opening angle is reduced, the film exposure time is reduced proportionnally without changing the filming speed.

Filming speed	*Shutter open*	*Shutter half-closed*	*Shutter closed*
12 f.p.s.	1/29 sec.	1/58 sec.	o
16	1/38	1/76	o
18	1/43	1/86	o
24	1/58	1/116	o
32	1/76	1/152	o
48	1/116	1/232	o
64	1/152	1/304	o

Single-frame exposures
Speed control knob set to :

12 f.p.s.	1/29 sec.	1/58 sec.
16-64	1/38	1/76

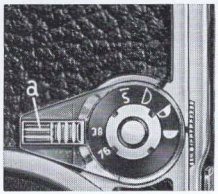
Obviously, the exposure time is cut by half if the shutter control knob is so turned that the indicator is half way between the half-closed and the closed shutter position. In this case, the exposure time is about :

1/150 sec. at 16 f.p.s.
1/300 sec. at 32 f.p.s., etc.

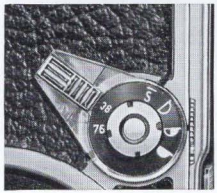
Variable shutter control

On the B8L camera, the shutter is adjusted by means of a lever that can be locked in the fully open and half-closed shutter positions by means of the striped cursor (a).

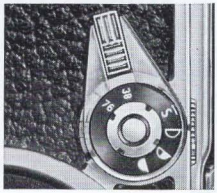
The figures on the lever correspond to exposure times at 16 f.p.s. with shutter open and half-closed.



Lever locked in open shutter position



Lever locked in half-closed shutter position



Lever unlocked

Advantages of the variable shutter

The variable shutter allows the operator to realize with ease, and without using a totally-closing iris diaphragm or the camera diaphragm, one of the best known cinematographic effects : *the fade.* A fade-in is made by progressively lighting up a scene, a fade-out, by closing the scene with a slow darkening.

The variable shutter also permits a classic photographic effect : if the diaphragm is opened wide and the exposure time cut down proportionally and simultaneously, the depth of field of the lens is considerably diminished ; thus giving *sharp or blurred back- or foregrounds at will,* without using a grey filter.

If the *light is particularly strong* (reflections from snow or water), the variable shutter can be adjusted to let in only enough light to correctly expose the film, thus rendering it unnecessary to close the diaphragm right down or to use a grey filter.

Finally, the variable shutter can give, when filming, *increased picture sharpness of moving objects.* This is particularly true for films shot at 32 f.p.s. and more (slow motion). On the other hand, if the film is being shot at 16 f.p.s. or less, it is not advisable to use the variable shutter to increase the picture sharpness, for the movements would seem jerky when projected. Picture sharpness is highly appreciated when films are projected on large-size screens.

How to make a fade ?

For fades at the end of a scene (*fade-out*), smoothly turn the lever of the shutter from the open to the closed position. When this latter is passed and the lever is pushed towards « S » (stop), the camera stops automatically. This dispenses the operator from synchronizing the movements of his hands — one controlling the release, the other the shutter lever.

The average length of a fade at 16 f.p.s. is 2 seconds, i.e. 32 frames. In this case, the number of completely unexposed pictures between the closed shutter position and the stop (S) position is approximatively 10.

To start a scene with a fade (*fade-in*), place the shutter lever in the stop (S) position, release the camera and push the shutter lever smoothly to the open shutter position; then, continue the shooting.

Note

The possibility of diminishing the exposure time with the variable shutter does not do away with the need for taking the usual care to ensure maximum steadiness of the camera whilst it is running.

MEMORANDUM

P. 1 — Use of the lightmeter

1. Place against the desired speed, indicated on the control knob of the galvanometer, the index number that corresponds to the film sensibility, the lens focal length, and the opening angle of the variable shutter.
2. Position the cell by pushing the trigger home.
3. Set lens diaphragm so that the mobile indicator is superposed on the guide-mark of the galvanometer.
4. Run the camera.

P. 13 — The variable shutter

cuts down the exposure time without reducing the filming speed, and so :

— permits fade-ins and fade-outs ;

— allows the depth of field to be varied ;

— improves the picture quality under strong light ;

— improves picture sharpness when filming moving objects.

PAILLARD LTD.

Sainte-Croix (Switzerland)

ME 122/85 Anglais

Imprimerie Centrale Lausanne S. A.

Printed in Switzerland