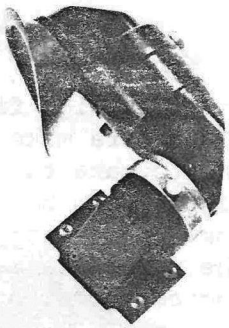
Viewing

Viewfinder

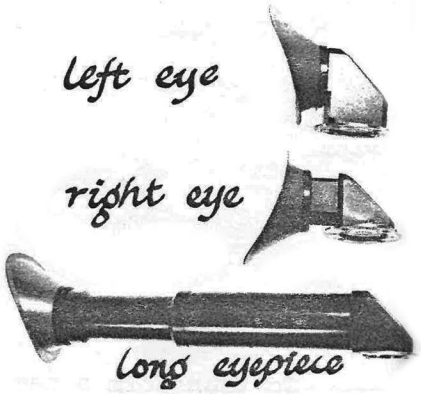
The interchangeable viewfinder is a completely independent part of the camera; there are three different versions:

- In the single position version, the eyepiece is integral to the viewfinder itself; the viewfinder is fixed in position relative to the cameraman's shoulder, but the eyepiece portion swivels over 360°. Upright image is obtained manually.
- A second single position version, with bayonet attached eyepiece allowing the use of right, left, or long eyepieces, is also fixed in position relative to the cameraman's shoulder. Rotating eyepiece, and manual upright image.
- The third type also has a bayonet attached eyepiece; the entire viewfinder moves to allow shoulder / eye adjustment of the camera, and the eyepiece rotates over 360°. Automatic upright image.

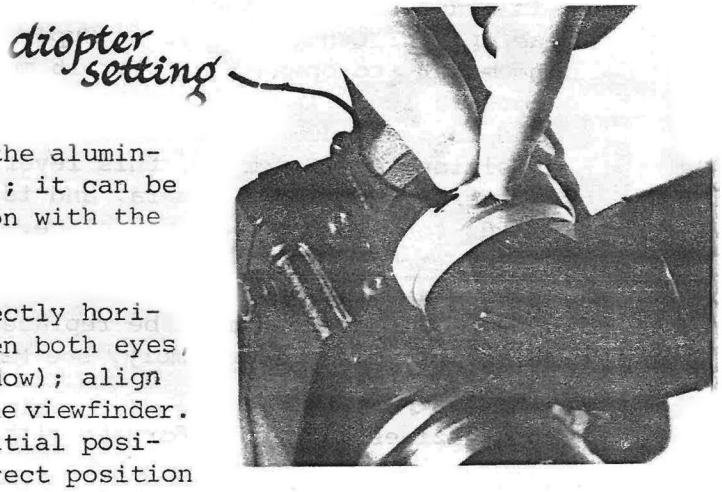


single position viewfinder

The interchangeable eyepiece for use on bayonet equipped viewfinders exists in three executions: left eye, right eye, and 20 cm. long for tripod use.



The eyepiece shutter is actuated with a small knob below the rubber eyecup.

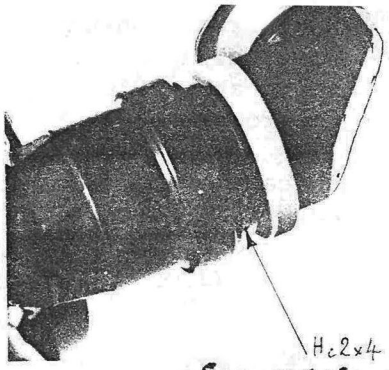


The dioptric setting is adjusted by turning the aluminium diopter ring on the viewfinder (see pic.); it can be set to ±5 diopter, and is locked into position with the knurled screw fitted into it.

With manual upright image adjustment, a perfectly horizontal image can be obtained as follows: open both eyes, and fix them upon a vertical line (eg. a window); align the two images by sliding the knob right of the viewfinder. The setting will be correct, whatever the initial position of the camera on the shoulder. The correct position is fixed into place by tightening the same knob. Click stops indicate the eyepiece position at vertical and horizontal.

The eyepiece friction can be adjusted to individual preference as follows

With an Allen wrench, release the blocking screw (Hc 2 x 4); insert the Allen wrench into the opening below the screw, and turn the friction ring until the desired friction is obtained. Then tighten the blocking screw.

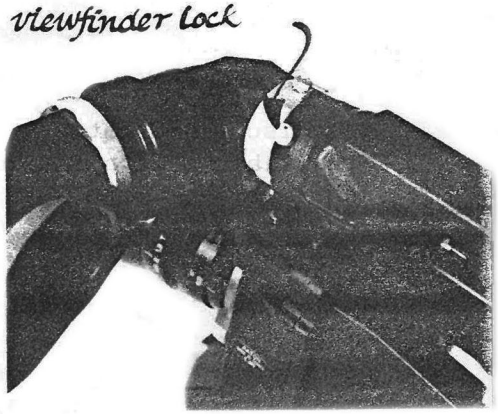


for setting eyepiece friction

All three eyepieces are fitted with 4 openings allowing an 'over-ride' of the automatic upright image in cases of unusual camera positions.

When installing the long eyepiece on the viewfinder, fit it into place protruding forward from the camera body parallel to the lens; when the eyepiece is brought into normal viewing position, the image will be upright.

viewfinder lock



On adjustable viewfinders, the viewfinder angle relative to the camera body can be set:

Loosen the friction screw on the upper handgrip (see pic.); set the eyepiece up or down to the chosen level; then tighten the screw.

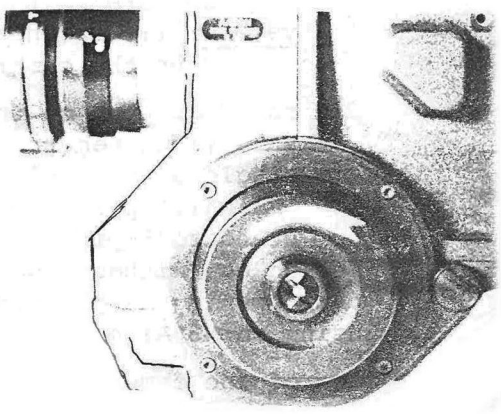
Viewing Screen

To replace the standard 16 mm screen with a Super 16 screen, see Maintenance, p. 27

Mirror

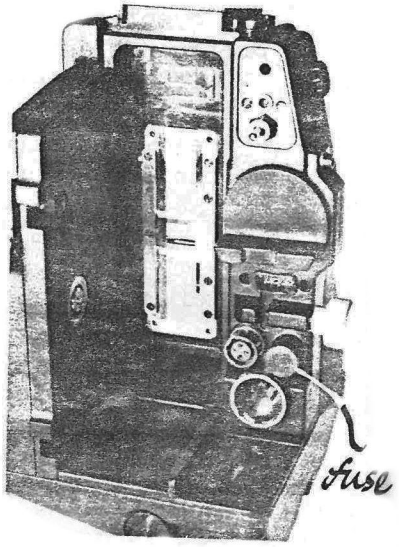
The rotating mirror is very wide, maximising high speed shutter action; it opens at 180° for 50 cycle HMI lighting at 25 fps, and 60 cycle HMI lighting at 24 fps. (On option: 187° closed / 173° open for 50 cycle HMI at 24 fps).

The mirror stops automatically in viewing position; it can be moved manually for gate inspection by actuating the inching knob on the motor. If the mirror has been inched out of viewing position, it is advisable to inch it back to viewing position before starting the motor up again; this avoids undue effort on the mirror gears.
Always inch counter-clockwise (see pic.)



The current consumption of the camera with a 12 volt (nominal) power supply is from .9 to 3.2 amps (at +45°C and -20°C respectively). The voltage tolerance is from 10 to 16 V.

In case of power overload or polarity reversal (for example crossed wires when running the camera from an automobile battery) there is a fuse protection (Jahnichen 272005 - 5 amperes) on the PBX battery holder pic.)



Batteries

The small clip-on Aäton battery (12 V 1.4 Ah, selected cells) drives an average of 5 magazines in normal weather conditions.
In cold weather, it is advisable to keep the battery in a warm place (above 10° C -- a shirt or jacket pocket, for example) using the 54LL cable connected to the battery holder.

Battery Charger

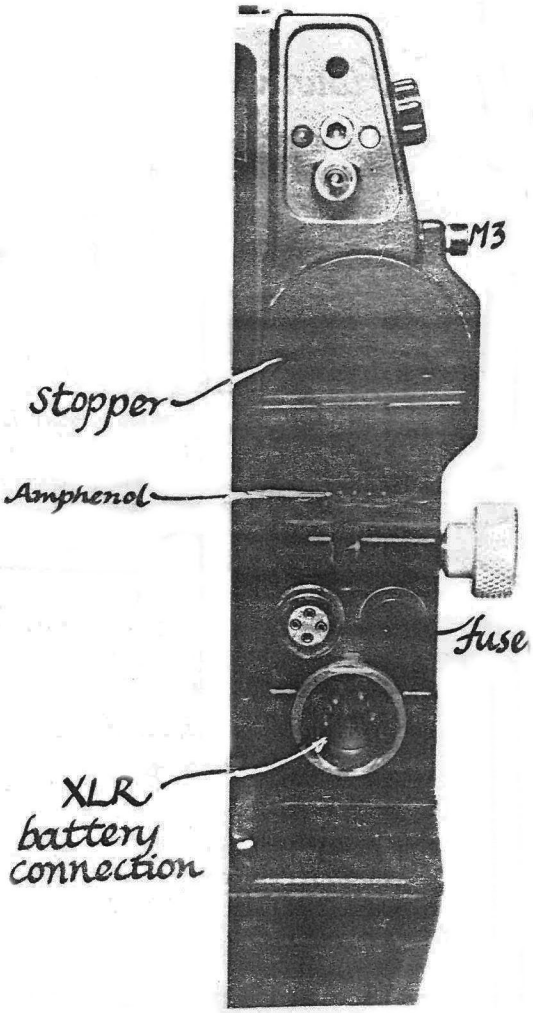
A discharged battery can be recharged in five and a half hours at a rate of 300 mA. This will cause no harm to the battery as long as the surrounding temperature is above 5° C. The built-in timer cuts the charger off after five and a half hours.

Plug the charger into mains -- 110 to 240 V.
Plug battery into charger: green lamp lights up.
Press button to set timer (very important).
After 5 1/2 hours, charge stops, green lamp goes out

PBX battery/video holder

The PBX universal battery/video holder contains the following connectors:

- Standard XLR: pin 1: ground
  pin 4: + battery
- Jaeger J4: pin 1: ground
  pin 2: TV sync
  pin 3: external signal from Atelen TV bar elimination accessory
  pin 4: + battery
- Amphenol: (for pin allocation, see Maintenance)
  This plug delivers electronic signals for remote on/off, TV sync, tachometry, etc.



There are two diodes on the PBX:

- red: warning signals; the same red diode function appears in the viewfinder (see p. 7)
- yellow: lit up when the camera is running, off when the camera is off.

The round opening on the PBX constitutes a holder fo

- VR30 video camera (see option R, p. 14)
- single system relay connector
- 'Falbala' pilotone generator (equipped with a standard 5 pin female Tuchel connector)

During use without the three aforementioned accessories, this opening is plugged with a cover held into place using an M3 Allen screw.

One of the camera's two on/off switches is on the PBX (the other is on the front handgrip). For the functions of this switch, see speed control, p. 6.

Speed Control

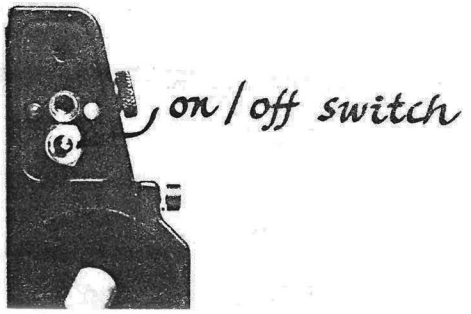
The motor is driven by electronic circuits housed in the camera base, which is interchangeable on location.

Manual drive

The inching knob on the motor can be used to drive the camera manually for gate inspection. Push the thumb against the knob, and turn counter-clockwise. Remember to inch the mirror back to viewing position before starting the motor.

Start up

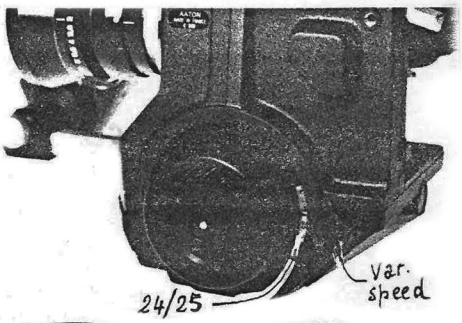
Actuate one of the two on-off switches (one on the PBX battery holder, the other on the front handgrip) by pushing it away from the camera body; centre position is off; the fugitive position (towards the camera body) provides single shot.



Crystal speed

To avoid unfortunate mishaps, it is advisable to chec the camera speed before using a camera for the first time. As well as the variable speeds (see below), the camera has 2 crystal speeds: 24 and 25 fps (precision: ± 1/4 frame over 10 minutes, i.e. 1 magazine).
To obtain crystal speed:

- Set the speed knob to the white dot situated between 20 and 28 fps
- Set the screw located on the epoxy circuit inside the motor ring at the desired speed: 24 or 25 fps. (To do this, the motor ring and rubber inner ring must be removed; don't forget the rubber ring when re-assembling! See pic.)



Variable speed

Variable speeds of 6, 12, 16, 18, 20, 28, and 32 (36) fps are obtained by adjusting the speed knob to the desired setting.

Single shot

Single shot is obtained by pressing the on/off switch (either on handgrip or battery holder) to the fugitive position. Maximum cadence is 1 fps; exposure: 1/4 sec. The Lemo plug on the front of the electronic base can be used for connection with an intervalometer.

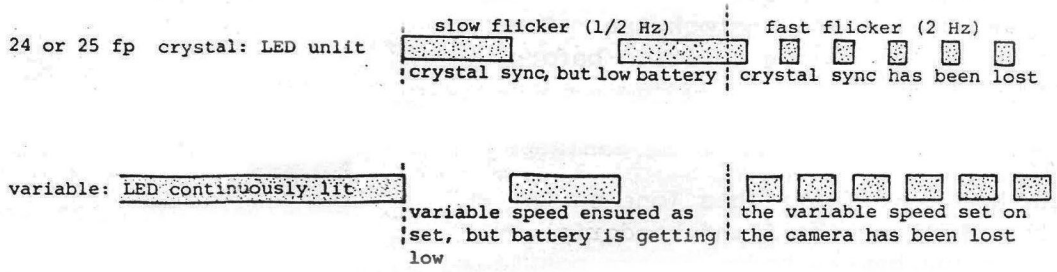
Speed control diodes

When the camera is running, whatever the set speed, the external yellow diode is lit.

The external red diode and the red diode in the viewfinder have the following functions:

- lit: the camera is running at the set variable speed.
- out: the camera is running at the set crystal speed.
- slow flicker (1/2 Hz): the battery is low (below 10.5 V), but sync is not lost.
- fast flicker (2 Hz): the camera is not running at the set speed.

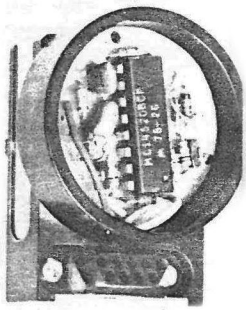
Red warning LED function



Pilotone & External sync

Falbala

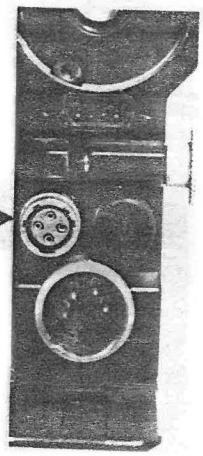
Using an accessory circuit plugged into the PBX Amphenol socket (See pic.), a 50 Hz / 60 Hz pilotone signal can be obtained; it is derived from the 2400 Hz crystal reference.



Falbala accessory 50/60 Hz pilotone

Atelen

The 4 pin Jaeger socket on the PBX connects to the Atelen accessory, which delivers an external master frequency derived from a video signal, mains, or pilotone, to the camera. This allows automatic elimination of the TV bar, and of flicker generated by HMI lights.



Jaeger 4

Magazine

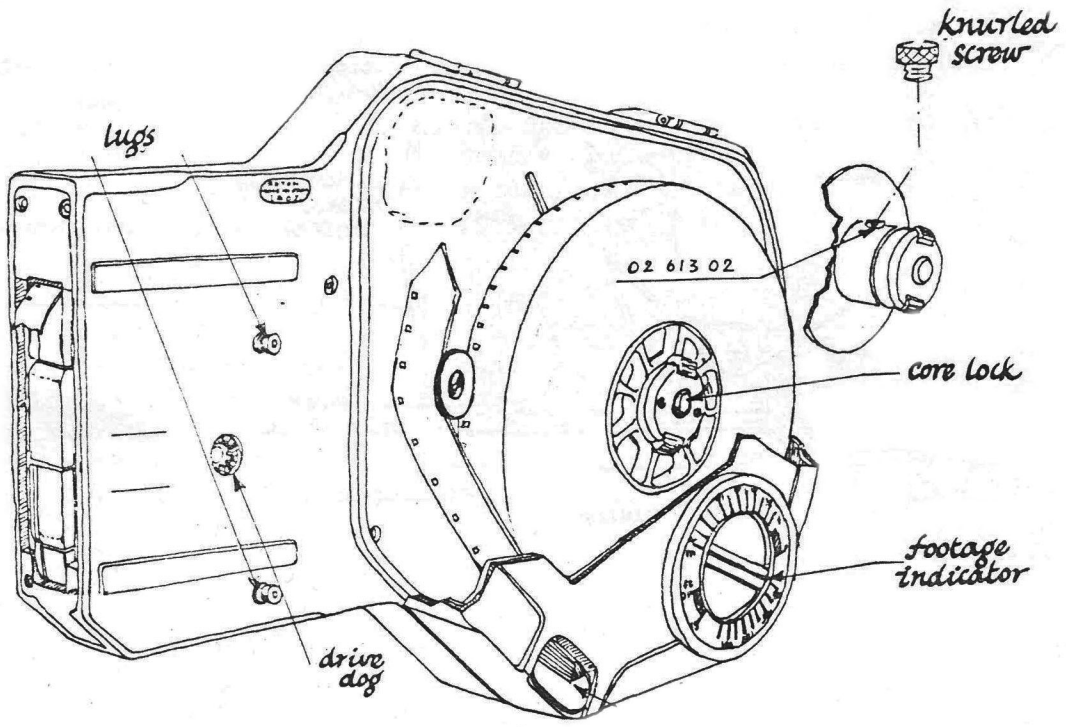
The coaxial magazine takes 120 m. double perforation 16 mm stock on 50 mm cores, emulsion in or out; and B winding single perforation stock emulsion side in.

Before putting a magazine on the camera, it is always advisable to make sure the aperture plate is clean, and the lateral film pressure bar moves freely.
For a check on the lateral pressure bar, see Maintenance p. 38

Loading feed compartment

Lock the footage counter by turning the indicator counter-clockwise.
Unfasten lid lock by turning it downwards.
Open lid (which is fixed onto the magazine for ease of handling in the charging bag).
Squeeze the core-lock mechanism inwards with thumb and forefinger on either side.
Place the roll of film over the core holder, and press on the center to lock the core into place.
Thread 10 cm of film into the left/right passage, and ensure that the film passes outside the idler roller.
Lock the lid, making sure the film is not caught in so doing.
Unlock the footage counter by turning it clockwise.
The indications correspond to film on a 50 mm core.

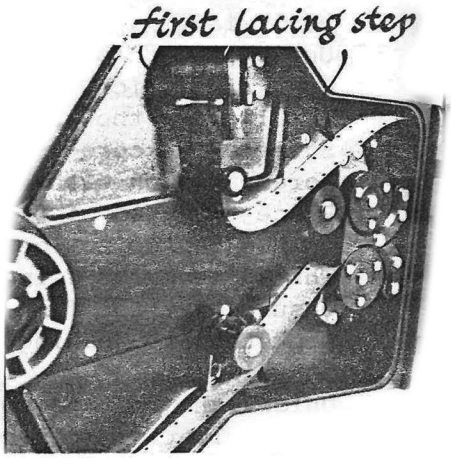
For 30 m. daylight reels:
- To remove the core holder, loosen screw 02.613.02 with knurled screw in place near left/right passage.
Lift the core holder; place the 30 m. reel on spindle; check that the head of the small screw (02.613.02) does not protrude.
The knurled screw can then be put back into place.

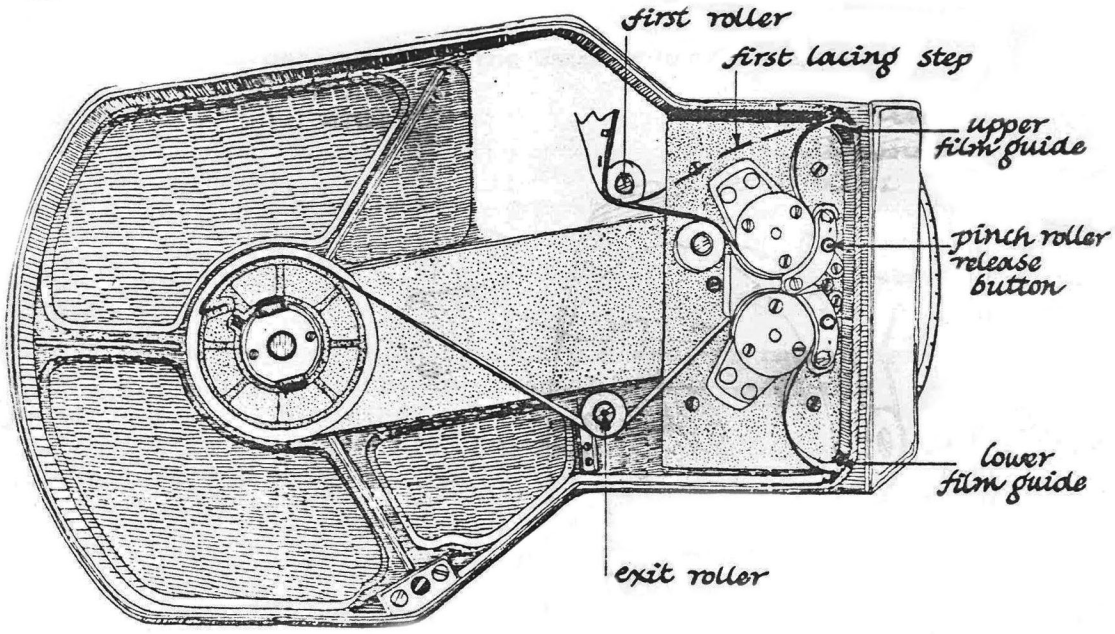


Threading the take-up compartment

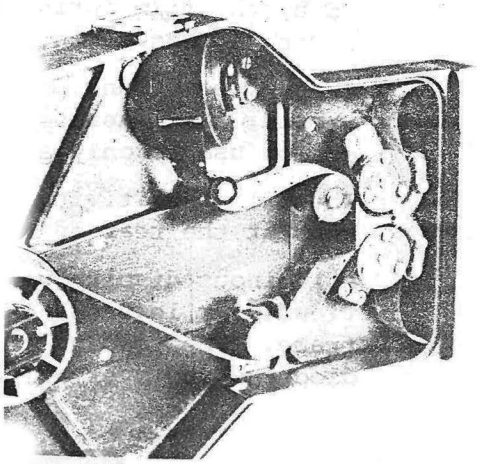
Remove the lid, which lifts off at about 140°.
Open both pinch rollers by pressing the aluminium release buttons.
Pull through the film which appears in the left/right passage slot.
Introduce the end of the film into the upper film guide, passing below the first idler roller; it will appear outside the magazine nose.
Re-introduce the film into the lower film guide, and pull through about 50 cm.
Thread the film around the upper sprocket wheel, making sure the perforations engage with the sprockets; close the upper pinch roller.
Thread the film around the lower sprocket wheel.
Adjust a taut length of 15 visible perforations to form the loop outside the magazine nose; then push the pinch roller back into position without pressing on the aluminium release button; when the pinch roller is in the correct position, you will hear a noticeable click.
Attach the end of the film to the take-up core, passing below the exit roller (the movement of which should be free; if not, see Maintenance p. 43.
Make this length of film taut by rotating the core around the core holder.
Lock the core into place by pressing the center button (very important: forgetting to do this can result in film jams, because the film is not taken up correctly.)

A routine inspection at this point: check that both rear pressure plates move freely. If they appear sticky, see Maintenance p. 42





Rotate the spool manually to make sure the sprocket wheels are running correctly; the loop will be large near the upper sprocket wheel, and small near the lower sprocket wheel.
To distribute the loop evenly, rub the fingers down the film outside the nose, and then push the film two perforations upwards.
To put the lid back on the magazine, make the hinges meet at about 120°; check that the rubber gasket is well in position ensuring light tightness.
Press the lid down firmly, and then lock it down.
The lock should slide into position easily; if not the gasket may be preventing it from closing correctly.



For single-system lacing, refer to the special diagram inside single system magazine cover.

Putting the magazine on the camera

Holding the magazine by the back, rest it on the magazine brace; slide the magazine into the camera body.
When it is in place, a noticeable click indicates that the magazine lugs are held by the lock mechanism, and that the drive clutch has engaged into the drive dog.
If, when the camera runs, the sprocket wheels remain immobile, see Maintenance p. 40

Changing magazines

Hold the camera with left hand around the viewfinder; push the magazine lock lever with the left thumb.
Holding the magazine with the right hand, pull it backwards.
The aperture plate is now visible, and should be carefully cleaned if necessary.