

eclair ACL



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THE ECLAIR ACL CAMERA

INTRODUCTION

Your new ECLAIR ACL has been conceived to reduce to the minimum the weight and size of a 100% professional camera whilst retaining a very low noise level.

The characteristics which have given the Eclair cameras their world-wide reputation have been retained :

- snap-on magazine
- high efficiency reflex viewfinder with a field of view greater than the image
- mounts for all lenses (C, CA ECLAIR, etc.)
- silent mechanism
- crystal controlled brushless motor
- definition and steadiness to the highest professional standards
- exceptional portability

SUMMARY OF CONTENTS

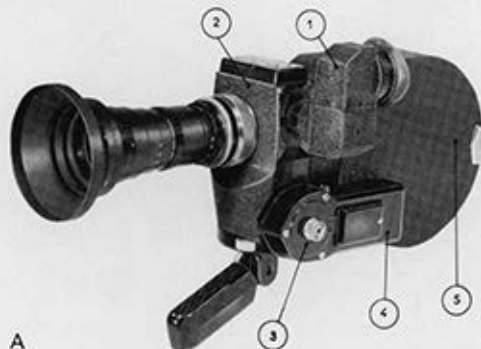
- 1 / TECHNICAL CHARACTERISTICS**
- 2 / ESSENTIAL PRECAUTIONS**
- 3 / THE CAMERA :**
 - a) The reflex mirror, the ground glass, the viewfinder
 - b) Mounts and lenses
 - c) Gelatine holder
 - d) Shutter
 - e) Mechanism plate
- 4 / ELECTRONIC MODULE**
- 5 / MOTOR**
- 6 / SYNCHRONISATION AND THE PILOTONE MODULE**
- 7 / BATTERY AND CABLES**
- 8 / BATTERY CHARGER**
- 9 / 200 FOOT MAGAZINE**
 - a) threading the film
 - b) mounting to the camera
- 10 / STARTING THE CAMERA**
- 11 / ACCESSORIES**
- 12 / AFTER SALES SERVICE**
- 13 / LIST OF REPRESENTATIVES**
- 14 / ALPHABETIC INDEX**
- 15 / PARTS LIST**
 - CIRCUIT DIAGRAMS A-B-C-D**
 - PHOTOGRAPHS A-P**

2 ESSENTIAL PRECAUTIONS

- a) For reliability only use the Eclair 12 volt battery MIBAC and the supply cable MIBLE.
- b) When cleaning the aperture plate only use a match stick or toothpick (never a metal object) after ensuring that the mirror and shutter are cleared from the aperture.
- c) Check that the side pressure guide operates correctly.
- d) Always put the protective covers of the lens mount, the aperture plate and the magazine nose in place when the camera is not being used.
- e) After filming at a low temperature never take the camera into a warm atmosphere unless it has been placed in a sealed plastic bag with the minimum volume of air. Allow 1-2 hours for the camera to warm up.
- f) Only use an air syringe for cleaning the optical surfaces in order to avoid any possibility of scratching.
- g) To assure the lowest noise level
 - check the loop each time a magazine is mounted
 - use new film
 - only load the magazine a short while before it is to be used.

The camera contains two main units :

- a) The mechanism plate (E-34) on which is mounted the claw mechanism (E-41), the oscillating mirror (B-11), the plane shutter (E-38), the magazine drive shaft (E-43), the prism/ground glass and the aperture plate (E-42),
- b) The camera body (A-2) which is the support for : the lens mounts (B-12), the gelatine holder (D-30), the viewfinder (A-1), the magazine lock (E-35) and safety catch (E-36), the camera electronic module (E-44) and the motor (A-3) with its associated electronics (A-4).



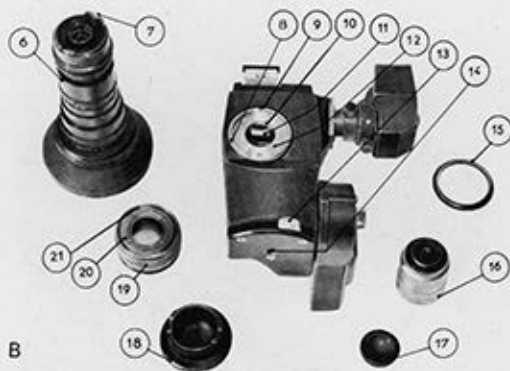
3 / 1. The Reflex mirror - the Ground Glass - the Viewfinder.

The reflex image is achieved with an oscillating mirror (B-11) moving at half camera speed which transmits the image formed by the lens onto the ground glass during the descent of the film. The reflecting surface of the mirror is glass stuck to a magnesium support and the complete unit weighs less than 3 grams.

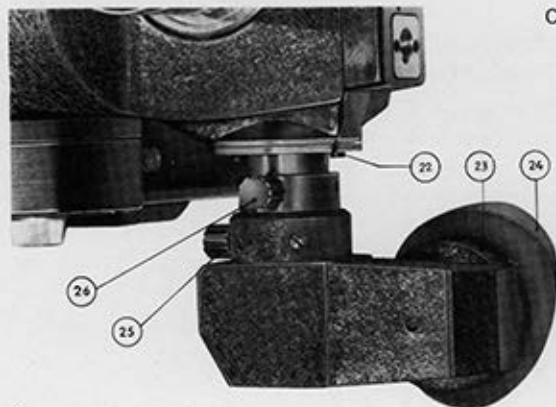
The ground glass is engraved on the entry face of the prism and the condensing lens is stuck to the exit face. The standard ground glass is engraved with the 16 mm frame (10.2 × 7.4 mm). The complete assembly is attached to a support which is adjustable for height.

The viewfinder provides an exceptionally bright image which allows precise and easy focussing with the fastest films.

As on the ECLAIR NPR 16, the ground glass gives a field of view greater than the recorded image which eliminates the possibility of the intrusion of microphones, etc. into the picture.



B



C

Prism ground glass units with alternative engravings can be supplied against special order and easily mounted in the camera by Eclair agents.

3.2 Diopter adjustment.

- Open the eyepiece shutter by turning the ring anti-clockwise.
- Mount a lens and adjust to the shortest focal length.
- Adjust the diaphragm to darken the ground glass.
- Release the knurled button (C-26) the viewfinder will slide away from the camera.
- Gripping the button, slide the vertical part of the viewfinder towards the camera until the ground glass becomes sharp.
- Lock in position with the button.

The viewfinder will rotate through 360° parallel to the camera after releasing the button (C-25).

To level the image in the viewfinder, attach the

camera to a support which has been levelled. Place a vertical line in front of the camera and rotate the viewfinder until the line is parallel with one side of the engraved frame of the viewfinder. Lock the button (C-25).

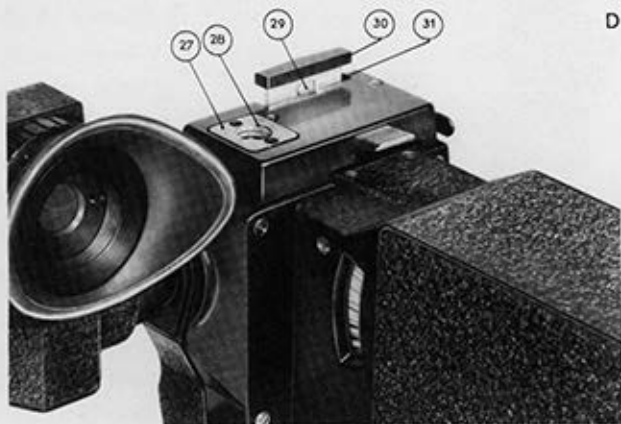
N.B. Whatever the position of the viewfinder the image within the frame corresponds with the image recorded on the film.

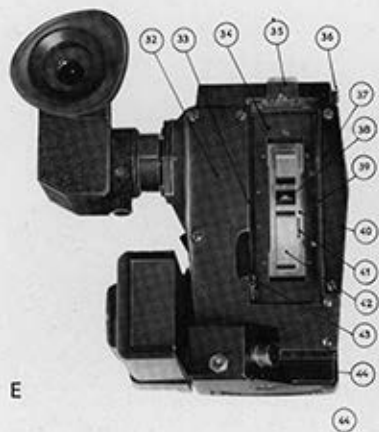
3.3 Mounts and lenses.

The ACL has been designed to use both « C » mount (B-16) lenses and also other professional mounts such as Eclair « CA » (B-6), Nikon, Arriflex, etc., therefore for the latter mounts the mechanical back focal distance is greater than 17.52 mm.

The mount is in the form of a flange (B-12) on which the internal thread (B-10) is for " C " mounts and the external (B-8) for the Eclair TS mounts (B-20). The orientation of the lens is ensured by the slot at the top of the flange (B-9).

- Mounting a " C " mount lense :
 - a) Remove the protective cap (B-17).
 - b) Remove any dust from the flange with your finger.
 - c) Screw in the lens.





• Mounting an Eclair " CA " mounted lens :

- a) Remove the protective cap (B-17) and the guard ring (B-15).
- b) Remove any dust from the flange with your finger.
- c) Locate the TS-CA mount (B 20) ensuring that the locating pin (B 21) enters the slot (B-9) of the flange.
- d) Screw up the retaining ring (B-19).
- e) Position the lens so that the slot (B-7) in the CA mount is vertical.
- f) Push the lens into the TS mount and lock by turning the lens clockwise

As you will have noticed the Eclair " TS " mount is exceptionally robust with a large locating diameter and contact face. The use of lens supports with this mount is not necessary.

It is strongly recommended that you fit each one of your zoom lenses with a " TS " mount to prevent the deterioration of the lens stops after repeated locking in place on the camera.

3 / 4. Gelatine holder.

Each ACL is equipped with a gelatine holder (D-30) which is positioned between the " C " mount and the reflex mirror.

The location provides the following advantages :

- a) It is not necessary to change filters at each lens change.

- b) It is possible to check the presence and type of gelatine through the viewfinder.
- c) It eliminates the requirements for filters for each lens diameter.

The above advantages are accompanied by a slight alteration in the optical back focal distance.

Fitting a gelatine to the holder :

- a) Pull out the gelatine holder.
- b) Open the holder by pressing the button (D-29).
- c) Place a 2" square gelatine in the holder and close it.
- d) Cut the gelatine closely to the shape of the holder with a razor blade.
- e) Replace the holder in the camera chamfered side forward.
- f) The correct positioning of the holder can be verified by checking that the aperture is concentric with the " C " mount.

N.B. Always film with the holder in place (with or without a filter) to avoid the possibility of fogging the film.

Never place two gelatines in the holder.

A wallet containing 5 gelatine holders is available as an accessory.

3 / 5. The Shutter

Contrary to reflex cameras in which the mirror acts as a shutter, the ACL has a plane shutter, of large diameter, placed just in front of the film with an opening of 175° .

The plane shutter which cuts the image in the direction of the smallest dimension gives a perfect exposure and maximum definition. The exposure time is $1/52$ of a second at 25 frames per second and $1/48$ of a second at 24 frames per second.

3 / 6. The Mechanism Plate

The complete silent mechanism is mounted on the mechanism plate which greatly reduces the time required for the annual overhaul and cleaning which we would strongly recommend is always carried out by one of our agents.

- The claw movement is controlled by an excentric and a fixed cam and rendered positive by the use of a counter cam.
- The four drive shafts run in self-lubricated bearings and the camera mechanism should NEVER be lubricated.
- The aperture plate of hard chromium-plated steel has, on the left, a fixed guide (E-33) which is the edge reference for the film, and a spring-loaded guide (E-39), on the right, which maintains the film against the fixed guide. The hole (E-40) just above the claw slot (E-41) is provided for a future film marking system.
- The two guides (E-32 and E-37) position the magazine nose on the mechanism plate.

THE ELECTRONIC MODULE 4

The module forms a flat base for the camera body and consists of:

- The Jaeger socket for power supply to the camera (F-46).
- The on/off test switch (B-13).
- Two Cannon sockets for the motor power supply (I-59) and for the accessories (F-47).
- The stabilized 5 volt supply (Reference voltage).
- The clapper electronics and lamp.
- The Souriau socket for electric connection between the camera and accessories.
- The potentiometer for photocell adjustments (F-45).
- The clapper switch (F-51).

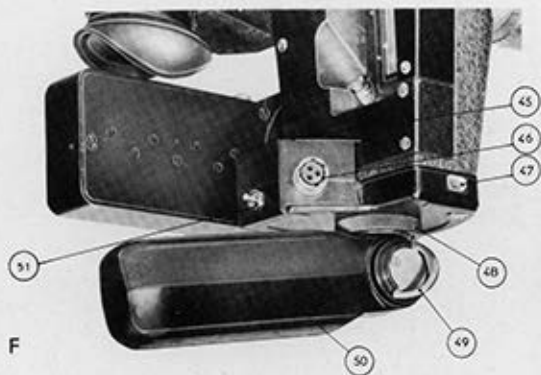
The diagrammatic layout (A) and the circuit diagram (B) illustrate the complete layout and wiring of the camera electronics.

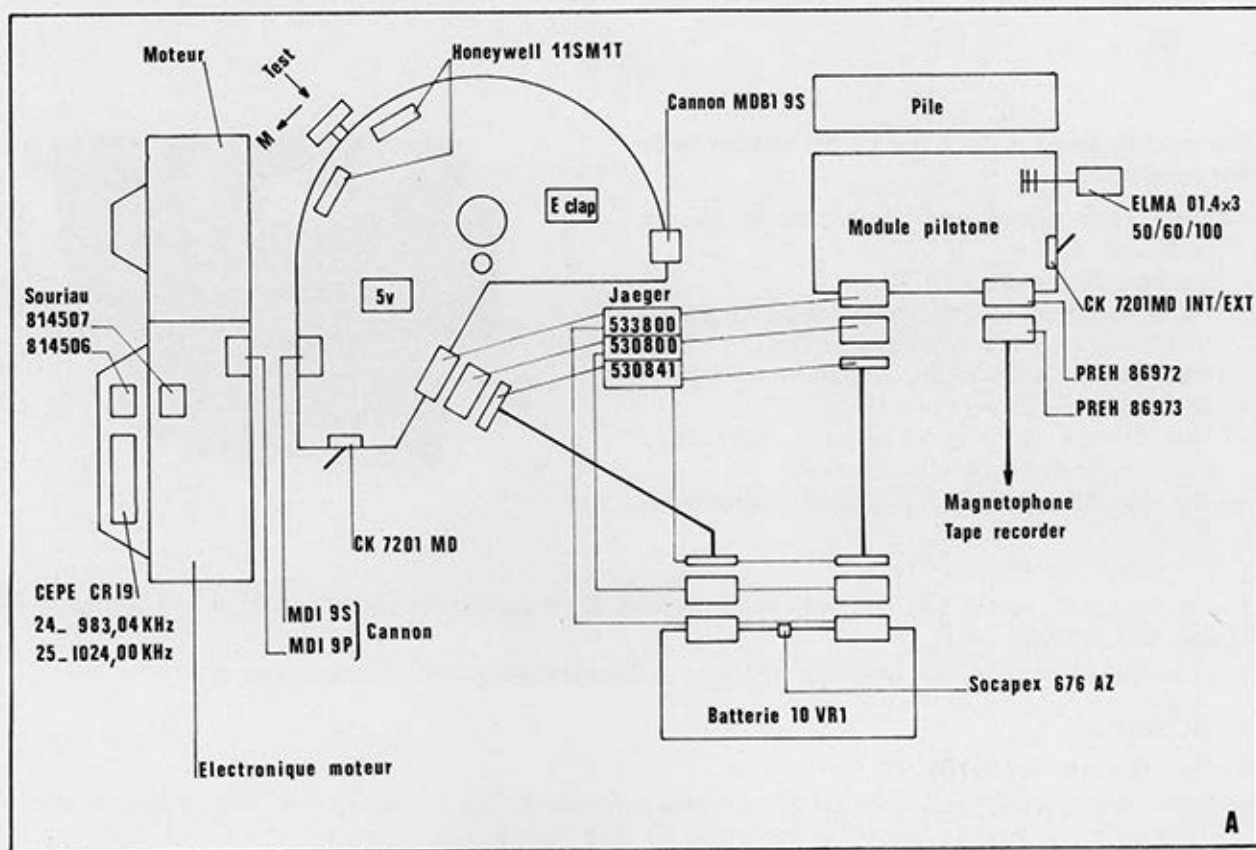
The flat base of the module is provided with the standard tapped hole for tripod mounting.

FUNCTIONS

a) On/off switch (B-13).

This is a double action switch which operates successively the accessory test circuit (without starting the camera) and power supply to the motor to start the camera.





b) The clapper switch (F-51).

In the central position this switch provides no clapper and to left or right an automatic clapper. Moving the switch from center to left or right will give a manual clapper.

The clapper provides :

1 / fogging of the film for 0.3 seconds at each start.

2 / supply of an 8 volt signal to the battery for 0.3 seconds (BLOOP) if the pilotone module is connected to the battery and the recorder, this signal triggers a 1 Kc signal on the recording tape.

c) The running signal.

A 12 volt signal available from the Jaeger socket supplies the pilotone module and ensures that the module only produces a 12 volt signal when the camera is running.

This signal can also be used to start a sound recorder from a distance.

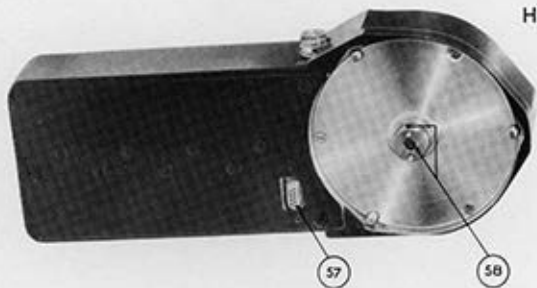
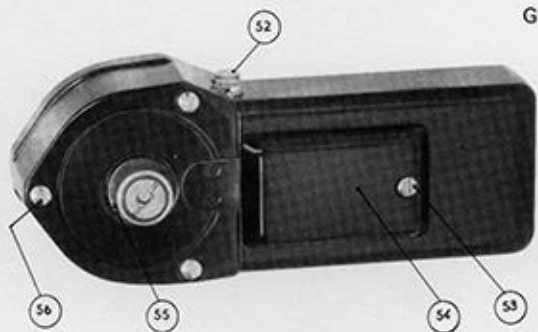
THE MOTOR 5

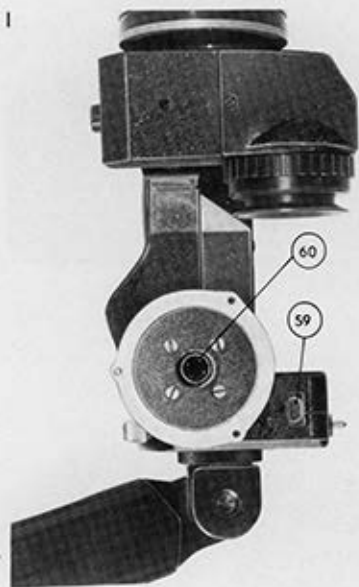
This brushless motor (A-3), which was developed for space applications, has a very high efficiency (0.8 amp. consumption at 12 volts to drive the camera at 68 °F (20 °C)) and has permitted a weight reduction not only in the camera but also in the battery (1.1 lbs - 500 gms with a life of one hour).

The incorporated electronics (A-4) control the speed at 24 or 25 frames per second dependant on the frequency of the crystal used. The crystal is located under the small cover (G-54) on the motor. To change speed undo the screw (G-53) and slide back and lift the cover. Disconnect the Souriau plug and place the alternative crystal in place. The speed is engraved on the cover of the crystal unit.

Changing the motor.

- a) The motor is easily dismantled from the camera by undoing, with a coin, the three captive screws (G-56) and pulling it out along its drive axis.





b) To replace the motor proceed as follows :

- position the two holes in the rubber drive block (I-60) vertically by turning the magazine drive axle (E-43).
- position the two drive spigots on the motor axle vertically.
- Align the Cannon Plug (H-57) on the motor with its socket on the camera (I-59) and push the motor into place along its drive axis.
- Tighten the three screws (G-56) and check that the drive is correctly engaged by turning the knurled knob (G-55) on the motor.

OPERATION

The motor will only operate when it is attached to the camera.

When the operating speed is not guaranteed (flat battery) the lamp (G-52) on the motor will light up.

SYNCHRONISATION AND THE PILOTONE MODULE **6**

The ACL servo controlled crystal motor permits filming with a synchronous double system with no connecting cable between the recorder and the camera. The recorder must be equipped with a crystal the output of which corresponds to the standard used when transferring the sound to 16 mm or 35 mm magnetic film, i.e. 50, 60 or 100 cycles. The pilotone function is incorporated in some recorders (e.g. Nagra IV and Perfectone EP6 A II) and the Eclair pilotone will provide the capacity to recorders having no crystal.

ECLAIR Pilotone Module (circuit diagram A).

a) Power supply :

By a separate dry cell battery plugged into the module or by the 12 volt camera power supply by using two MIBLE cables to connect the camera, battery and pilotone module.

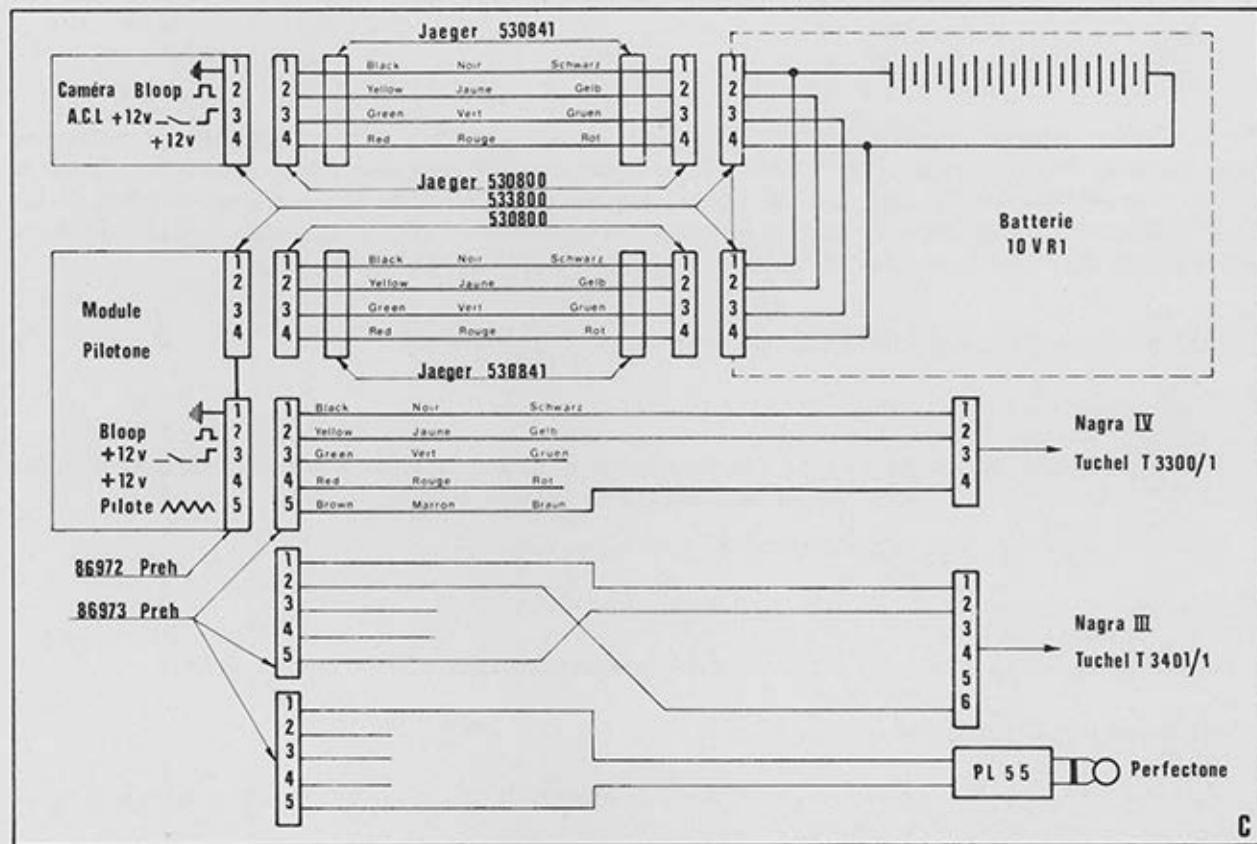
A switch allows the choice of INTernal or EXTernal power supply.

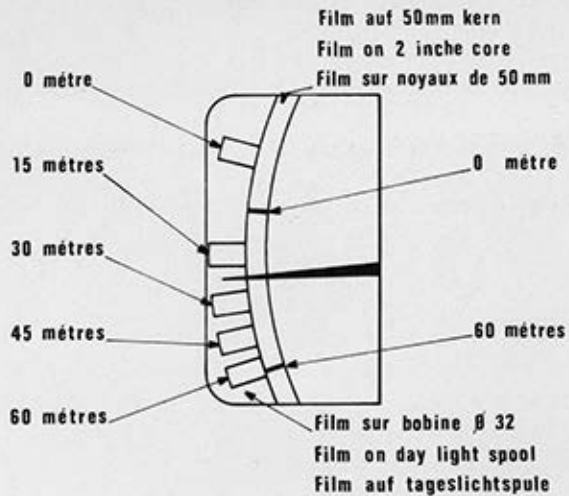
b) Frequency :

A three-position switch allows the choice of the frequency required (50, 60 or 100 cycles).

Sound Recorder Connection (circuit diagram C).

Connect the five-pin socket to the recorder using the cable MODUL. If the pilotone module is connected through the camera the following signals are available :





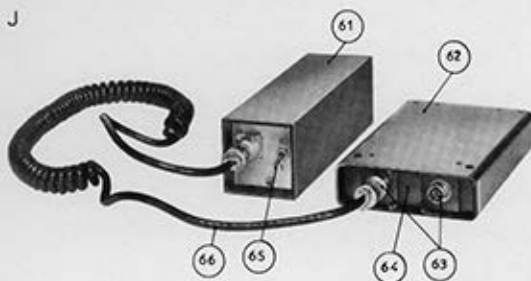
D

- pins 1 and 2 BLOOP (supply of a 1 Kc signal to the recorder).
- pins 1 and 3 running signal which can be used to start the recorder.
- pins 1 and 4 12 volt supply.
- pins 1 and 5 pilot signal (automatic or manual) ; cutt off during the bloop of 0.3 seconds.

If the pilotone module is supplied by a dry cell battery only the pilot signal is obtainable (on pins 1 and 5).

N.B. The MODUL cable is available in versions for Nagra III, Nagra IV and Perfectone recorders.

THE BATTERY AND CABLES 7



The low torque of the camera and the output of the motor have allowed the choice of a low power battery (1 Amp. hour) which at 68 °F provides power for approximately 2400 feet of film. The battery is a Saft type VR 1 ten-cell cadmium nickel which is enclosed in a polyurethane box.

The connections with the camera and the pilotone module can be made from either of the Jaeger 4-pin sockets (J-63). The central Socapex socket (J-64) is intended for the high speed charger which will be available in 1971.

The battery is equipped with a shoulder strap although its small size will allow it to be slipped into a coat or trousers pocket (see circuit diagram C).

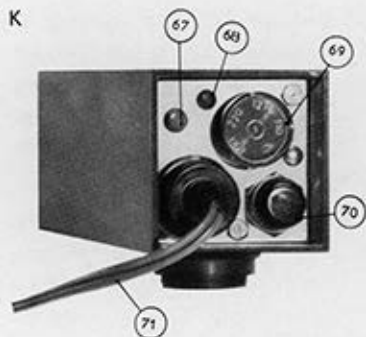
Cable (J-66).

One type of cable only is required for connecting the camera, the battery, the pilotone module and the standard charger. It is fitted with two Jaeger plugs.

N.B. To plug in a Jaeger plug hold the cable clamp of the plug horizontal and push into place, it locks automatically.

To remove the plug pull on the ridged ring.

8 BATTERY CHARGER



CHARACTERISTICS

Dimensions : 7" × 2" × 2" (175 × 50 × 50 mm).

Power Supply : AC 50 or 60 cycles 115/127/220/240 volts.

Weight : 1.6 lbs (650 grammes).

Control Lamp : in the AC supply circuit.

Safety : Fuse in the supply circuit (20 mm × 5 mm; 0.25 amps).

Charge : 100 mA for 14 hours.

Maintenance Charge : 20 mA indefinitely.

TO RECHARGE A BATTERY

- a) Pull out the voltage selector (K-69) and position the correct supply voltage to the red spot (K-68).
- b) Plug the cable (K-71) into the power supply - the lamp (K-67) will light up (if not, check the fuse K-70).
- c) Position the switch (J-65) to position " C " charge.
- d) Connect the charger (J-61) to the battery using the camera cable (J-66) at one of the Jaeger sockets.
- e) Allow 14 hours for the charge.
- f) If you do not intend to use the battery immediately position the switch (J-65) to " E " maintain. The battery will remain fully charged, in this condition, indefinitely.

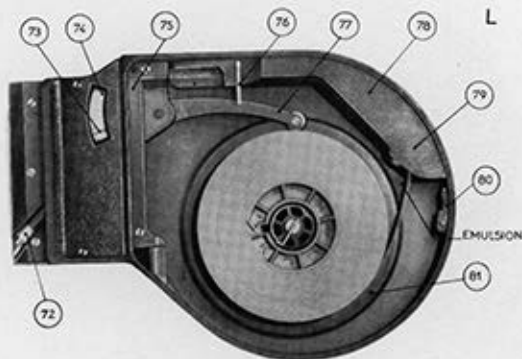
N.B. If the battery has not been totally used before charging, the time for charge may be reduced by approximately 1/4 hours per 200 ft (60 m) of film shot.

THE 200 FOOT (60 METER) MAGAZINE 9

The snap-on co-axial magazine is designed to take 200 ft reels on a 2" (50 mm) core or 100 or 200 ft (30 or 60 meter) daylight loading spools.

You can use double perforation films wound with the emulsion in or out, and single perforation films emulsion in (B winding) or emulsion out (A winding).

The magazine is composed of a supply side on the left (viewfinder side), and a take-up side on the right, connected by lightproof guide.



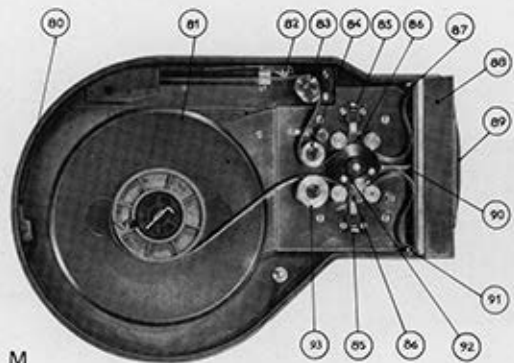
9 / 1. Loading the film.

To load a film on a 2" (50 mm) core, with the magazine on its side, nose to the left, proceed as follows :

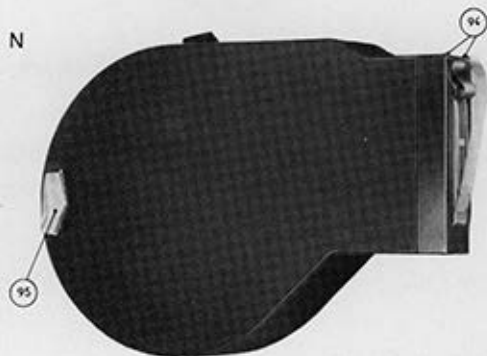
A. SUPPLY SIDE

- Turn the supply lid latch anti-clockwise (the latch covers the magazine number) and lift on the part of the latch that projects over the edge of the magazine. At the same time pull the lid backwards to clear it from the magazine.
- Lift the counter-arm (L-77) which locks up automatically.
- Holding the film reel in the left hand position the end of the film between the two rollers (L-79) at the entry of the guide.

NOTE. The emulsion must be towards the exterior of the magazine between these rollers.



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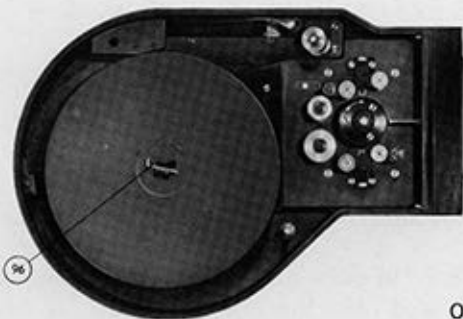
- d) Push approximately 6" (15 cm) into the guide.
- e) Place the core onto the support flange (L-81).
- f) Replace the lid.
 - 1 / Insert the spring strip, at the left of the lid, into the magazine body (L-75).
 - 2 / Push the lid down and forward to locate it in the body and turn the catch clockwise to lock the lid.
- g) The counter-arm (L-77) drops into place automatically as the catch (L-76) is released by the lid.

B. TAKE-UP SIDE (this can be loaded in, preferably shaded, daylight)

Turn the magazine and lay it on its side with the nose (M-88) to the right

- a) Remove the lid.
- b) Pass the film between the rollers (M-82 and M-83).
- c) Place the end of the film into the upper film guide

- (M-87) of the nose, if necessary press on the pressure guide (M-89).
- d) Pull the film through sufficiently to introduce it into the lower film guide (M-91).
 - e) Pull 20" (50 cm) of film into the magazine.
 - f) Open the two guide shoes (M-86) by pressing simultaneously the two catches (M-85).
 - g) Place the film between the sprocket (M-92) and the upper guide shoe (M-86). Check that the perforations are engaged and push the guide shoe toward the sprocket, it locks automatically.
 - h) Place the film between the sprocket and the lower shoe.
 - i) Adjust the loop size by pulling the film, outside the magazine until the loop is level with the magazine locking tongues (N-94).
 - j) Close the shoe against the sprocket.
 - k) Spread the film equally in the magazine nose (M-90).
 - l) Wind the film on to the core and place it on the flange (M-81).
 - m) Replace the lid.



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9 / 2. Loading a daylight loading spool to the magazine.

- a) Pull and lift the flange catches (O-96) on the supply and take-up sides.
- b) Remove the flanges (M-81).
- c) Load the film as for a core load.
- d) Lock the spools in place with the catches, ensuring that they are pushed firmly home.

N.B. In order to ensure the lowest noise level check that the spools are not warped and that they are firmly locked onto the axle (see 9 / 2. d, above).

9 / 3. The Counter (L-74).

As already noted, the counter arm comes into operation automatically. The pointer (L-73) indicates the amount of unexposed film remaining. If you do not intend to use the magazine at once place the protector on the nose.

9 / 4. Mounting the magazine on the camera.

Before snapping-on the magazine check the loop and ensure that the aperture plate (E-42) is clean and the side pressure guide is working correctly.

- a) With the magazine tilted backwards (Photo P) place the lower part of the magazine nose at the bottom

of the aperture plate, the magazine drive shafts (E-43 and L-72) are aligned.

- b) Pivot the magazine on its lower locating points and push it home. The lock operates automatically and a sharp click indicates that the magazine is firmly in place.
- c) Push the safety catch (E-36) inwards. This will ensure that the magazine will not be accidentally released by a knock on the lock release lever.

N.B. The lock is so designed that the magazine will remain on the camera during all transport conditions.

9 / 5 To remove the magazine.

- a) Slide the safety catch (E-36) outwards.
- b) Hold the magazine at the top with one hand and camera body with the other.
- c) Press the lock release lever (E-35) with the index finger.
- d) Pull the magazine down and back to clear it from the camera.



10 STARTING THE CAMERA

After having placed a lens and the magazine on the camera and adjusted the viewfinder :

- a) Attach the battery to the camera with the cable MIBLE.
- b) Adjust the mirror to the viewing position using the knurled knob on the motor.
- c) Set the clapper switch to the required position.
 - central : no clapper.
 - to the left or right : automatic clapper.
manual clapper is operated when the switch is moved from the center to a side position.

The clapper duration is 0.3 seconds.

- d) Starting the camera :
 - 1 / Push the button (B-13) in, which closes the test circuit (see page 12).
 - 2 / Slide the button (B-13) to the left (towards the motor), which closes the motor circuit and starts the camera.
The button locks in place.
- e) If the lamp (G-52) on the motor body lights up, the battery is flat.
- f) To stop the camera push the button (B-13) to the right. The switch returns to the OFF position.

N.B. If you are using daylight loading spools, run approximately 3 feet (1 meter) of film before starting filming.

11.1 FITTING THE HANDGRIP.

- a) Unscrew the knurled ring (F-48).
- b) Screw the handgrip into the hole (B-14) provided at the base of the camera.
- c) Position the handgrip to your requirements and lock it in that position by screwing up the knurled ring (F-48).
- d) To adjust the angle of the handgrip unscrew the lock (F-49).

N.B. When placing the camera in the carrying bag position the handgrip as shown in the photograph F.

11.2 THE CARRYING BAG.

Small, light and flexible, the bag provides the necessary protection during the transport of your camera.

It will contain :

- The camera, ready to film, with a zoom lens (10×12), viewfinder, handgrip and 200 ft (60 meter) magazine.

- Two batteries.
- Battery charger.
- A second magazine.
- 5 or 6 cans of film.
- cables, filters, lens shield, etc...

11.3 THE TRANSPORT CASE.

The case is made from aluminium alloy and is constructed to withstand the severest transport conditions: Air freight, rail, etc...

The transport case will take the carrying bag and also contains a compartment filled with soft plastic foam which can be cut to receive additional accessories or removed to allow transport of additional cans of film.

11.4 GELATINE HOLDER WALLET.

Designed for 5 gelatine holders, the wallet allows you to have in your pocket a set of filters to cover conditions that might be encountered during filming.

12 AFTER SALES SERVICE

12 / 1. SPARES

The spares catalogue shows the ACL in the form of exploded diagrams that show the location of all the components that go to make up the camera.

12 / 2. MAINTENANCE MANUAL

The manual contains all the necessary mechanical and electrical information for the repairs or overhaul of the ACL.

12 / 3. INSPECTION AND REPAIR TOOLKIT

A full set of tools is available for the work necessary to keep the ACL in tip-top condition.

N.B. The above three items are available, on request, to all ACL users who have at their disposal a repair workshop for the cameras.

You will find in this booklet the addresses of all the Eclair representatives who will supply any technical assistance you might require and who hold stocks of essential spare parts.

LIST OF REPRESENTATIVES 13

	NAME AND ADDRESS	PHONE	CABLE		NAME AND ADDRESS	PHONE	CABLE
EUROPE				ITALY	A.T.C. INTERNATIONAL 14 Via Spinazzola 00164 RCME	53.76.290	
BELGIUM	A.R.C. 134, rue Th.-Decuyper 1200 BRUXELLES	71.32.17		ICELAND	ICELAND FALCON FILMS P.O. Box-735 REYKJAVIK	18.27.5	ROR
DENMARK	OLE BRUUN CORPORATION 27, Blokken 3460 Birkerød COPENHAGUE	81.39.03	OLEBRUUN	NORWAY	TELEFILM PRODUCTION 13 Bjerneveien Stemdal OSLO	69.71.85	TELEFILM
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ALPHABETIC INDEX 14

	page		page
Accessories	29	Dioptry adjustment	6
Accessory mount	11	Electronic module camera	11
After Sales Service	30	Exposure time	10
Alphabetic index	33	Eyepiece shutter - viewfinder	6
Aperture plate	10		
		Film winding - single perforation	23
Battery	21	Films - type usable	3-23
Battery output	21	Filming speed - change of	15
Battery charge conditions	22	Filming - synchronous	17
		Filters	8
Cable-camera power supply	21		
Carrying bag	29	Gelatine - cutting to size	9
Charger - High Speed	21	Gelatine holder	8
Charger - Standard	22	Ground glass - special	6
Changing film speed	15	Ground glass - standard	5
Changing motor	15		
Circuit diagrams	12-13-18	Handgrip	29
Clapper - automatic	14	Handgrip adjustment	29
Clapper - manual	14		
Claw - movement of	10	Inspection tools	30
Consumption of camera	21		
Control electronics	11	Lamp - speed control warning	16
Counter	26	Lenses	7
Crystal - changing of	15	Locking of magazine	27
Crystal control	15		

	page		page
Loop - checking	4	Power supply - camera	21
Loop - division of	25	Precautions - essential	4
Loop - setting in magazine	25		
		Reflex oscillating mirror	5
Magazine - film loading	23	Reflex system	5-28
Magazine - lock release lever	27	Representatives - list of	31
Magazine - mounting to the camera	26		
Magazine - removal	27	Shutter - plane	10
Maintenance	30	Signal - camera running	14
Maintenance handbook	30	Speed control motor	15
Mechanism plate	10	Starting the camera	28
Mirror - viewing position	28	Switch ON/OFF	11-28
Mirror - oscillating reflex	5	Switch ON/OFF - test position	11
Motor - brushless	15	Synchronisation	17
Motor - changing of	15		
Mounts - lens	7	Tape recorder - connections	17
Mount - TS	7	Tape recorder - switching on from distance ..	14
		Technical characteristics of camera	3
Output - battery	21	Transport case	29
Overhaul - annual	10	Tripod - camera attachment	11
Pilot frequency	17	Viewfinder	5
Pilotone - module Eclair	17	Viewfinder orientation	6
Pilotone - signal	14	Warning lamp - speed control	16

PARTS LIST 15

- A 1 VIEWFINDER
- A 2 CAMERA BODY
- A 3 MOTOR
- A 4 CONTROL ELECTRONICS
- A 5 MAGAZINE

MOUNTS AND LENSES

- B 6 CA LENS MOUNT
- B 7 CA MOUNT SLOT
- B 8 TS MOUNT THREAD
- B 9 TS MOUNT LOCATION SLOT
- B 10 C MOUNT THREAD
- B 11 OSCILLATING MIRROR
- B 12 LENS MOUNT PLATE
- B 13 ON/OFF SWITCH
- B 14 CAMERA-TRIPOD MOUNTING
- B 15 TS MOUNT GUARD RING
- B 16 C MOUNT LENS
- B 17 C MOUNT PROTECTIVE CAP
- B 18 TS/CA MOUNT PROTECTIVE CAP
- B 19 GROOVED RING TS MOUNT
- B 20 TS MOUNT
- B 21 TS MOUNT LOCATION TONGUE

VIEWFINDER

- C 22 VIEWFINDER MOUNTING FLANGE
- C 23 EYEPIECE SHUTTER RING

- C 24 RUBBER EYEPIECE
- C 25 LOCKING BUTTON FOR VIEWFINDER POSITION
- C 26 LOCKING BUTTON DIOPTRY ADJUSTMENT

CAMERA BODY

- D 27 ACCESSORY MOUNT
- D 28 ACCESSORY MOUNT THREAD
- D 29 GELATINE LOCKING BUTTON
- D 30 GELATINE HOLDER
- D 31 GELATINE HOLDER SLOT
- E 32 LEFT MAGAZINE GUIDE
- E 33 FIXED FILM GUIDE
- E 34 MECHANISM PLATE
- E 35 MAGAZINE LOCK
- E 36 MAGAZINE LOCK SAFETY CATCH
- E 37 RIGHT MAGAZINE GUIDE
- E 38 SHUTTER
- E 39 SIDE PRESSURE GUIDE
- E 40 HOLE FOR FILM MARKING SYSTEM
- E 41 CLAW
- E 42 APERTURE PLATE
- E 43 MAGAZINE DRIVE SHAFT
- E 44 ELECTRONIC MODULE
- F 45 POTENTIOMETER
- F 46 CAMERA POWER SUPPLY SOCKET
- F 47 ACCESSORY POWER SUPPLY SOCKET
- F 48 HANDGRIP ATTACHMENT NUT

- F 49 HANDGRIP LOCK
- F 50 HANDGRIP
- F 51 CLAPPER SWITCH

MOTOR - CONTROL - ELECTRONICS

- G 52 BATTERY CONDITION WARNING LAMP
- G 53 QUARTZ COVER RETAINING SCREW
- G 54 QUARTZ COVER
- G 55 MOTOR FREE WHEEL
- G 56 MOTOR RETAINING SCREWS
- H 57 CANNON PLUG, MOTOR POWER SUPPLY
- H 58 DRIVE SPIGOTS
- I 59 MOTOR POWER SUPPLY PLUG
- I 60 RUBBER DRIVER

BATTERY AND CHARGER

- J 61 BATTERY CHARGER
- J 62 BATTERY
- J 63 JAEGER POWER SUPPLY SOCKET
- J 64 SOCAPEX HIGH SPEED CHARGER SOCKET
- J 65 « CHARGE-MAINTAIN » SELECTOR
- J 66 CAMERA-BATTERY CABLE
- K 67 « POWER-ON » INDICATOR LIGHT
- K 68 POWER SUPPLY MARKER SPOT
- K 69 POWER SUPPLY SELECTOR
- K 70 0.25 AMP. FUSE
- K 71 POWER SUPPLY CABLE

MAGAZINE

- L 72 MAGAZINE DRIVE SHAFT
- L 73 COUNTER POINTER
- L 74 COUNTER
- L 75 MAGAZINE BODY
- L 76 COUNTER ARM LOCK
- L 77 COUNTER ARM
- L 78 FILM GUIDE
- L 79 ROLLERS AT FILM GUIDE ENTRY
- L 80 COVER LOCK CATCH
- L 81 FLANGE
- M 82 FILM POSITIONING ROLLER
- M 83 FILM GUIDE ROLLER
- M 84 SPROCKET ENTRY ROLLER
- M 85 GUIDE SHOE CATCH
- M 86 GUIDE SHOE
- M 87 UPPER FILM GUIDE
- M 88 MAGAZINE NOSE
- M 89 PRESSURE PAD
- M 90 LOOP SEPARATOR
- M 91 LOWER FILM GUIDE
- M 92 DRIVE SPROCKET
- M 93 SPROCKET EXIT ROLLER
- N 94 MAGAZINE LOCATION TONGUES
- N 95 COVER LOCK
- O 96 SPOOL LOCK

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