

BEAULIEU "NEWS 16"

PROFESSIONAL SINGLE/DOUBLE SYSTEM
16 mm SOUND CAMERA





Marcel Beaulieu

For a period of time now, many excellent professional 16 mm movie cameras have been marketed... and, aiming to "replace" any one of them would be pretentious and vain.

Taking into account constructive advice and suggestions from numbers of professionals (documentary motion picture, TV newsfilm and free-lance cameramen), we noted the unquestionable need for a camera based on new concepts and the increase in mobility for news, documentary and production cameramen. This had to be accomplished without any loss of picture quality.

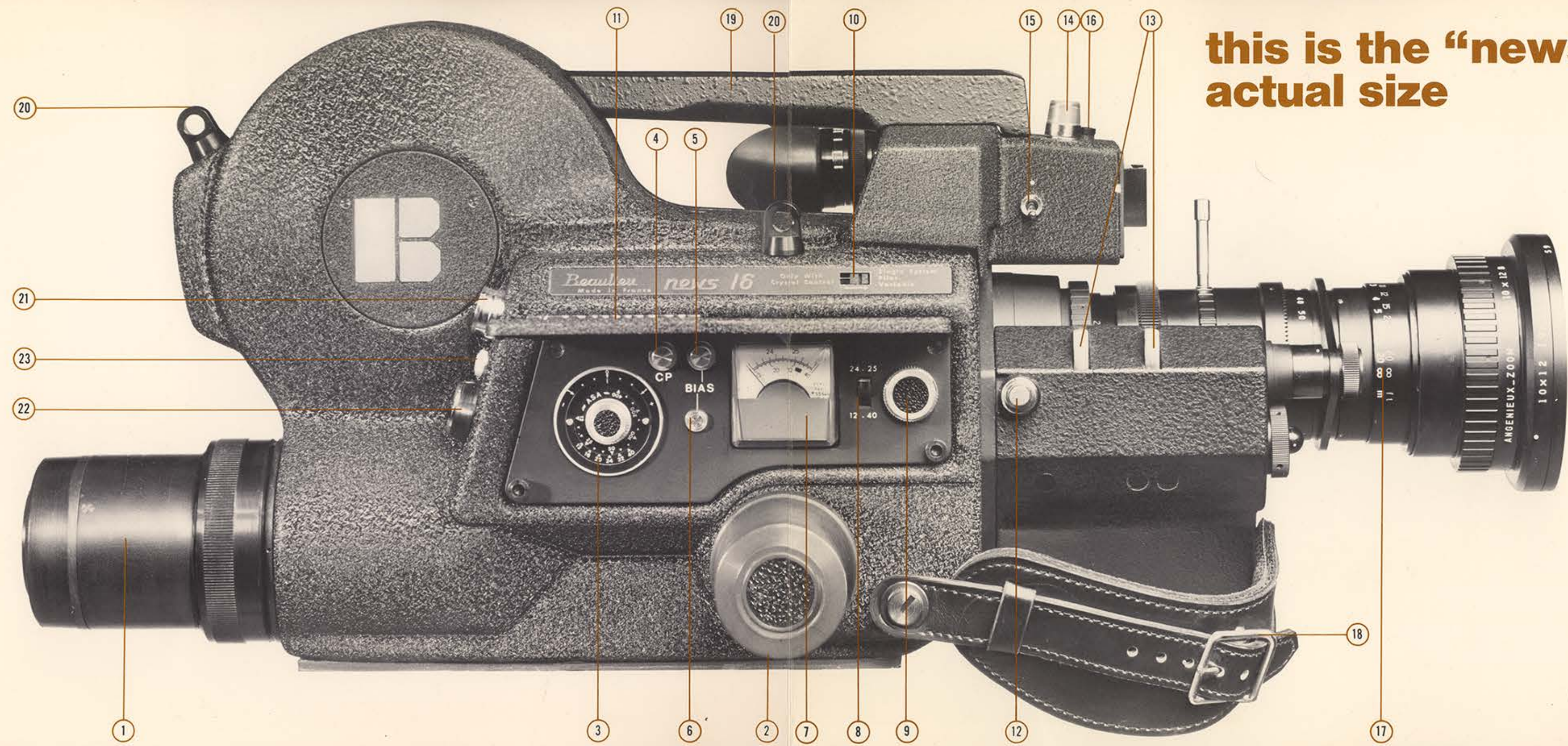
Three years of research and development went into the design and construction of the "News 16" camera. Continually, we were confronted with necessary refinements and related increases in weight.

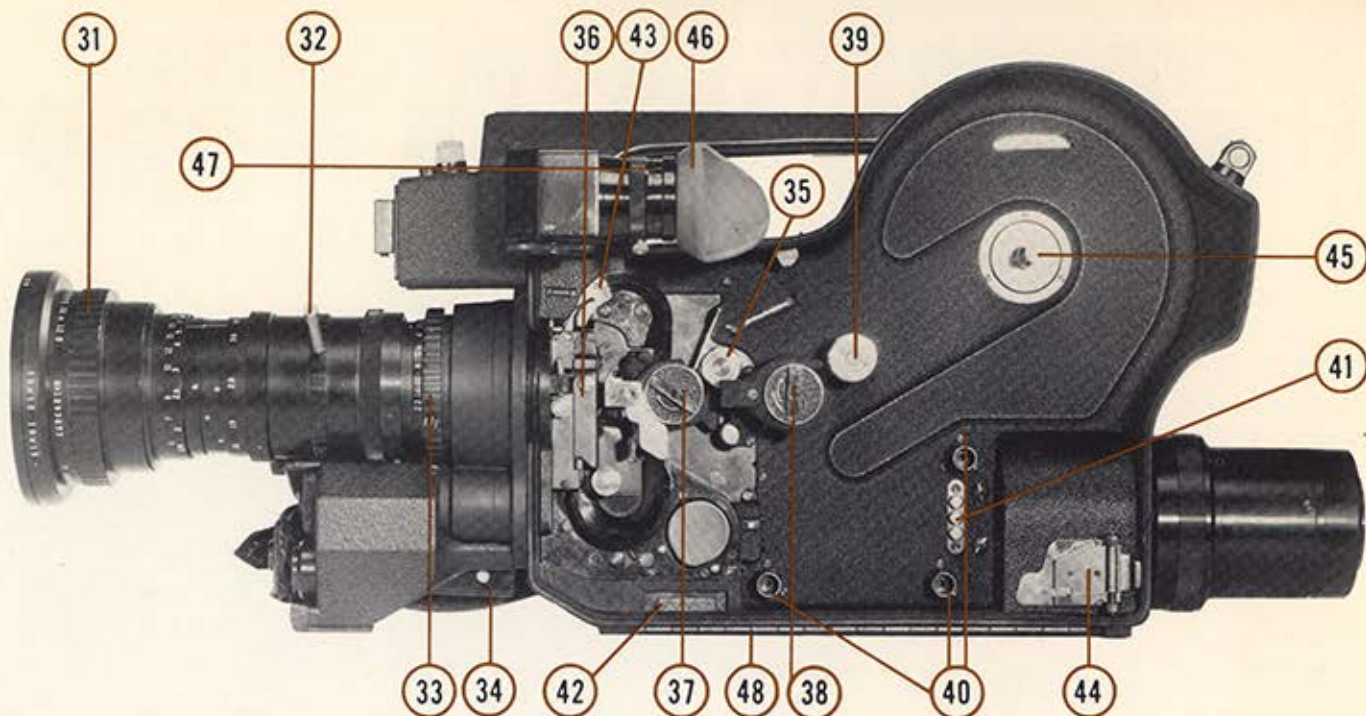
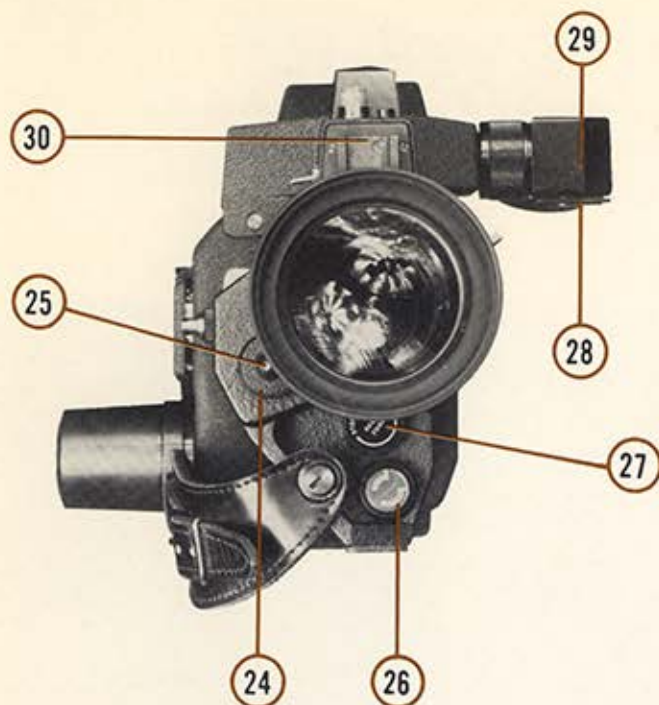
We believe that with the "News 16" we have overcome the problems of designing a truly compact yet independent motion picture camera that can be operated by one man.

The "News 16" is designed to record pictures and sound of the highest quality, and yet free the cameraman from time and attention consuming adjustments. This freedom permits the cameraman to fully concentrate on the most valuable aspect of his job: looking for scenes and choosing angles.

M Beaulieu

**this is the "news 16"
actual size**





- ① NiCad "High-speed" battery-pack (1.2 Amp/hr)
- ② Interchangeable motor
- ③ ASA sensitivity setting (12-400 ASA)
- ④ Battery check
- ⑤ Bias check (single System sound recording)
- ⑥ Bias adjustment pot
- ⑦ Two-scale tachometer
- ⑧ Filming speed range change-over switch
- ⑨ Filming speed adjustment knob
- ⑩ Sound recording mode slide-switch
- ⑪ Scribbling pad
- ⑫ Self-locking release button
- ⑬ Power-zoom control fingertip push-buttons
- ⑭ Camera running indicator light
- ⑮ Indicator light ON/OFF switch
- ⑯ Automatic diaphragm momentary cut-out switch

- ⑰ Interchangeable Angenieux zoom lens
- ⑱ Wrist-strap
- ⑲ Carrying handle
- ⑳ Strap eyelets
- ㉑ External power input & remote control socket (DIN)
- ㉒ Camera to amplifier/tape-recorder connection socket (LEMO)
- ㉓ Earphone jack

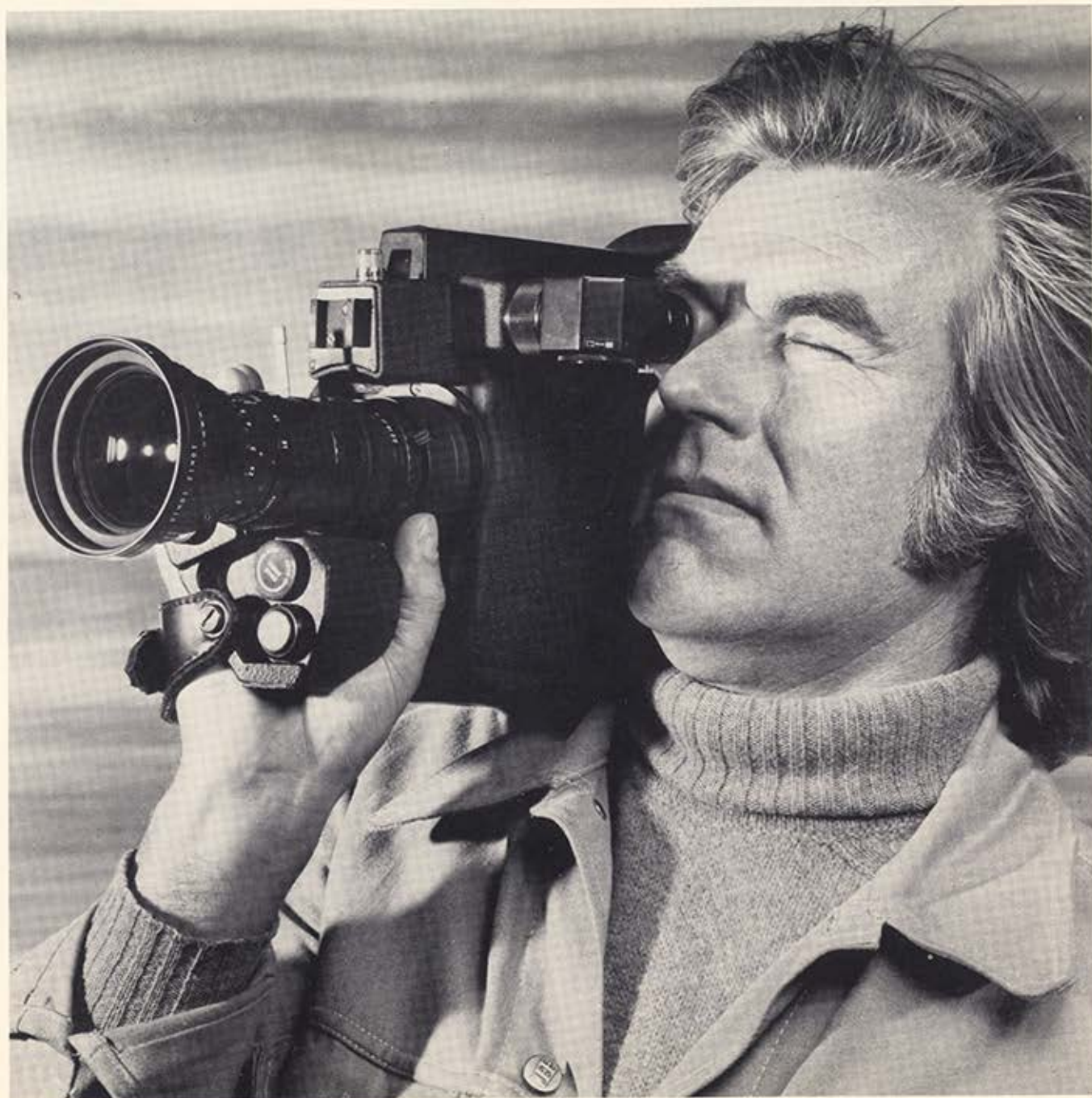
Front

- ㉔ Electric zooming speed adjustment knob "Prefocus" control push-button
- ㉕ (Simultaneously opens the diaphragm to its widest aperture and sets the lens at its "telephoto" position)
- ㉖ Automatic diaphragm cut-out knob
- ㉗ Power-zoom manual override knob
- ㉘ Eyepiece shutter (for remote control operation)
- ㉙ Viewfinder (swivels 180°)
- ㉚ Accessory-shoe

- ㉛ Focusing ring
 - ㉜ Zooming manual control lever
 - ㉝ Diaphragm manual control lever
 - ㉞ Power ON/OFF & safety-catch trigger-switch
 - ㉟ Upstream roller
 - ㊱ Film pressure plate
 - ㊲ Upstream sprocket
 - ㊳ Downstream sprocket
 - ㊴ Downstream roller
 - ㊵ Silent & sound module attachment sleeves
 - ㊶ Sound module connection terminals
 - ㊷ Double system sound-modules connecting plug
 - ㊸ Loading lever
 - ㊹ Fold-away film trimmer
 - ㊺ Coaxial feed/take-up spindles
 - ㊻ Rubber eyecups
 - ㊼ Eye-piece (± 5 diopters eyesight correction)
 - ㊽ Tripod screw (3/8" - 16)
- The film chamber lid provides a footage counter.*

the "news 16" is a "one hand" camera

The design of the "News 16" permits the cameraman to see the events that are taking place outside of the finder viewing field.



instantly ready to "capture" the event



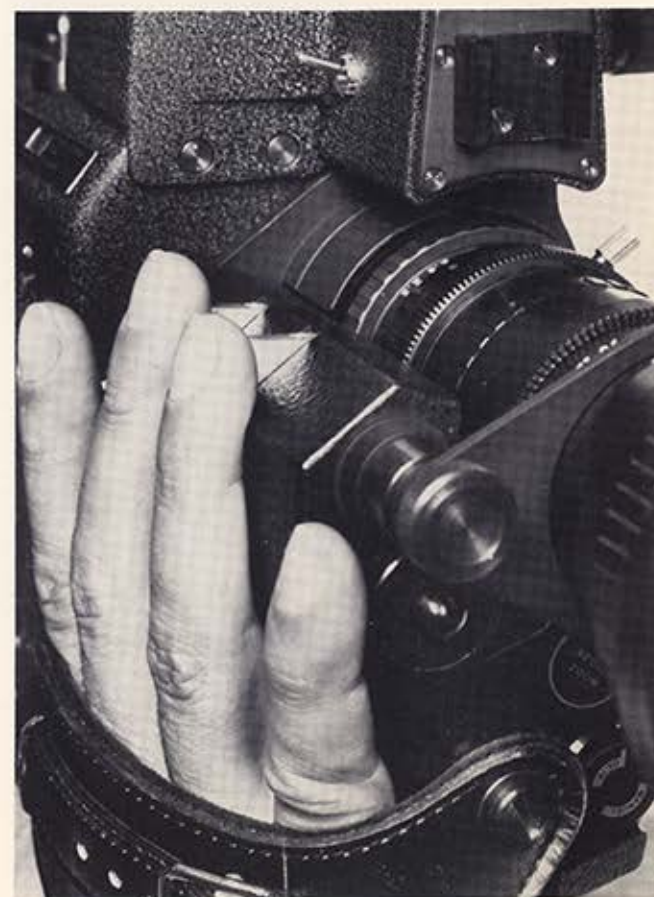
The "News 16" camera is light, compact, quiet and remarkably easy to operate. Carried in the left hand, with lens facing backwards, it can be instantly raised to the shoulder. When in shooting position, the cameraman's right hand follows the shape of the camera.

The "News 16" is well balanced, and designed to fit the contour of the right hand. Holding the camera in the right hand, resting it flat on the shoulder and against the cheek, you have an ideal tripod which insures image steadiness. With the camera in shooting position, lens scales are easily seen and read by the cameraman's left eye.

Merely holding the camera in shooting position turns the power on by depressing the three-

position trigger-switch (including a position for remote control operation) with the web of the thumb.

Camera controls are conveniently located. The forefinger fits on the release button (a self-locking button), while the second and third fingers fit on the power zoom fingertip controls. The left hand remains free for focusing, or other uses (i.e. holding a microphone, etc.)



the "news 16" viewfinder swivels 180°

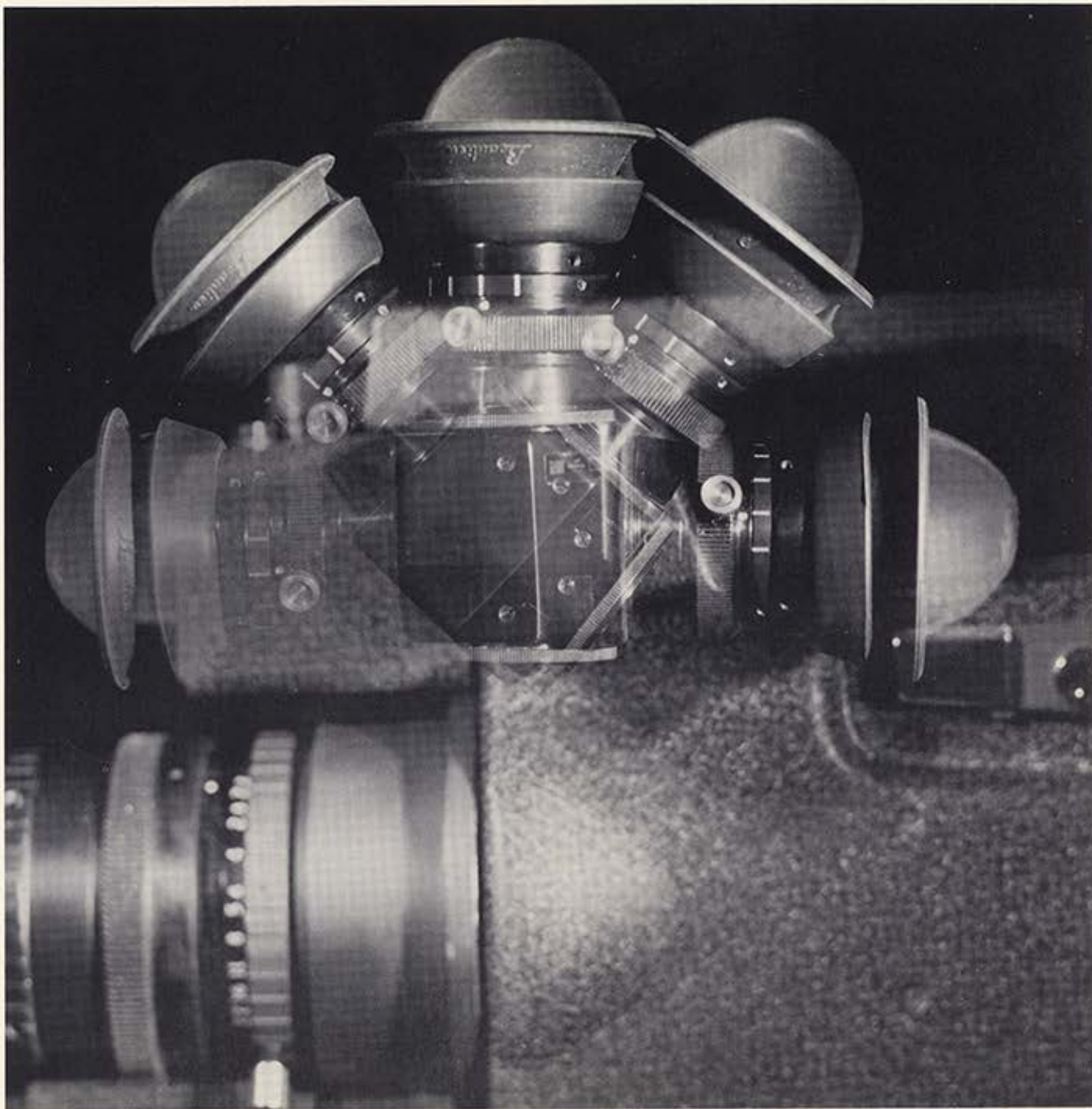
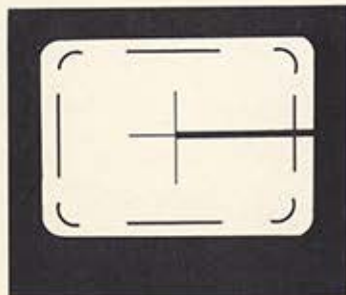
● The viewfinder of the Beaulieu "News 16" camera provides a 22 X magnification and is interchangeable (a lefteye viewfinder is also available). In addition, the viewfinder swivels 180° for normal, top and rear viewing.

The eyepiece features an eyesight correction within ± 5 diopters, and accepts two rubber eyecups for more comfortable viewing.

The focusing screen incorporates a TV pattern and a crosshair for centering and location of image.

The viewfinder can be closed by means of the viewfinder shutter to prevent extraneous light from entering the viewfinder (when operating the camera by remote control).

Note: The camera always stops with the **shutter closed** in viewing position.



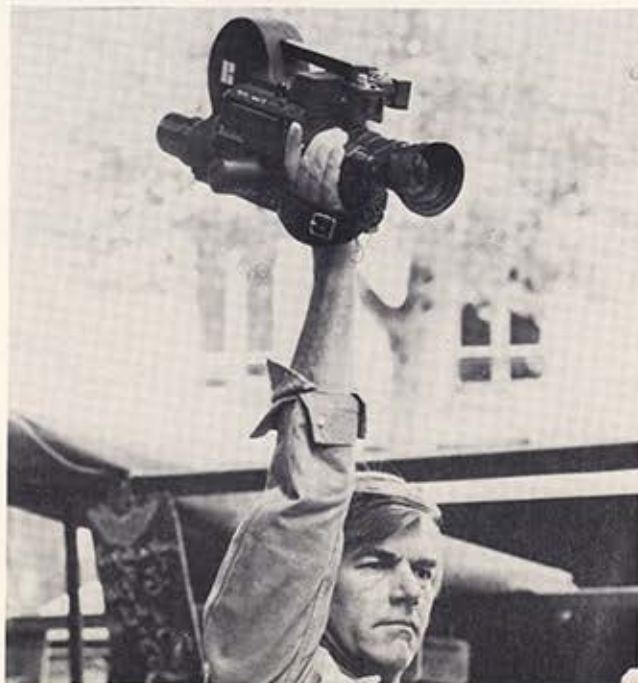
to suit varying shooting situations



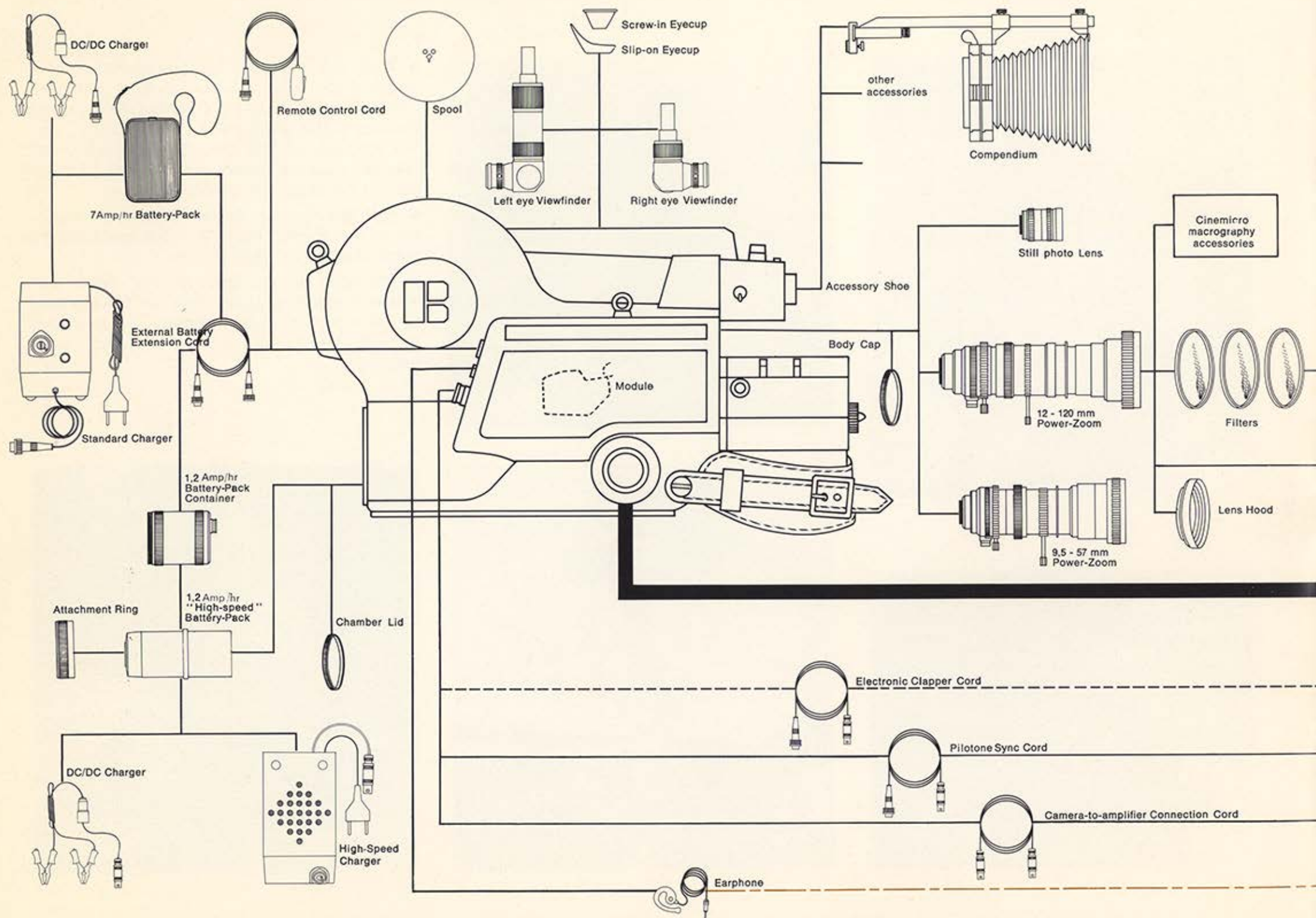
- With the eyepiece turned upwards, it is possible to shoot at ground level with the camera resting flat on the ground (the camera features a flat base-plate). Additionally, with the eyepiece turned upwards, the cameraman can also hold the camera in a concealed fashion against his chest for candid filming.

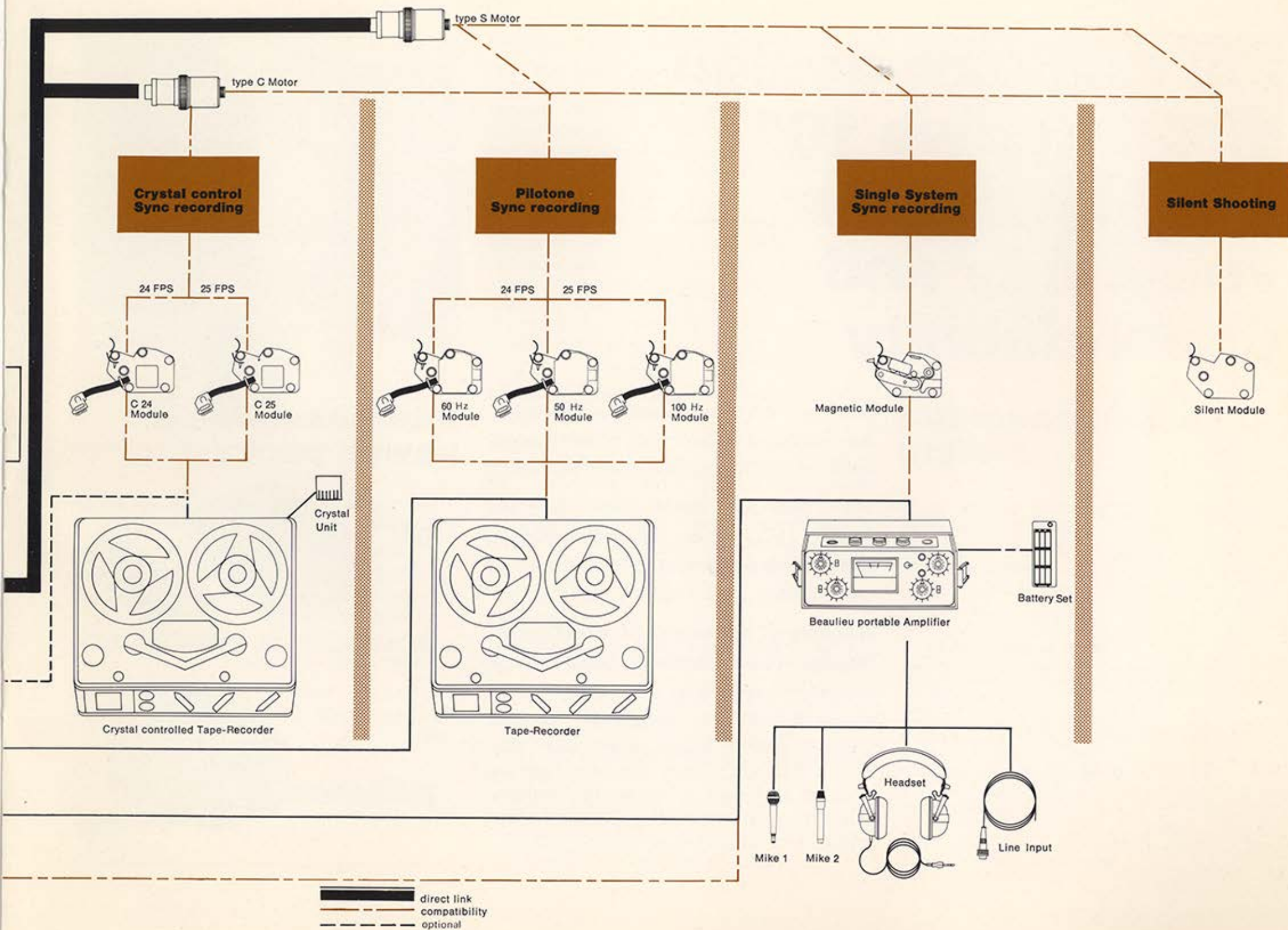
- With the eyepiece turned forward, the cameraman can shoot, incognito, those events taking place directly in back of him.

- The light weight factor of the "News 16" makes it easier to shoot with the camera held at arm's length (over a crowd, for example) or with the camera carried by hand, while walking.



that is the Beaulieu "news 16" system



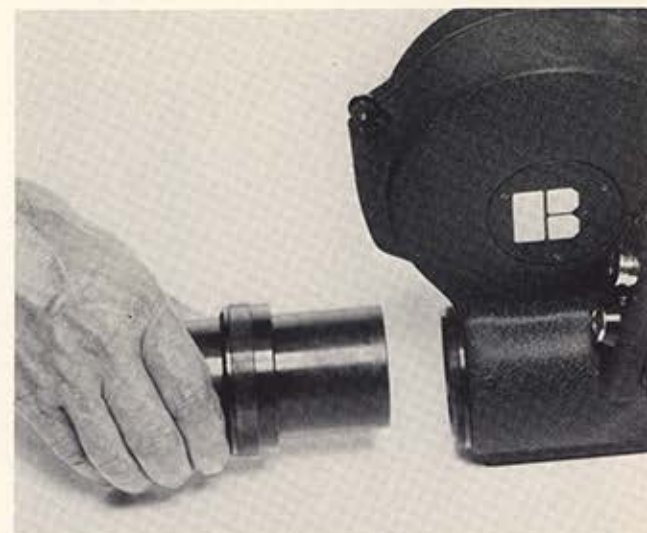


the modular design of the "news 16" permits greater versatility and dependability

The key parts of the Beaulieu "News 16" are interchangeable (i.e. power supply units, motor drive, lenses, sound modules).

The modular construction of the "News 16" enables the cameraman to build up his equipment to his own sound and filming specifications as required.

A number of refinements have been incorporated into the "News 16" camera which increase its versatility. These refinements include: automatic diaphragm control, variable electric zoom speed and "Pre-Focus" control. They are with manual override in order to allow the cameraman to give his self-expression "full rein".



interchangeable power packs

Power supply units for a news camera system should meet the following requirements:

- Capacity must be sufficient for adequate using times,
- Dependability must be assured under severe climatic conditions,
- Recharging must be accomplished within a short period of time.

The Beaulieu "News 16" camera has available two power packs which satisfy these requirements.



Beaulieu "High Speed" battery pack

The Beaulieu "High Speed" battery pack features a 1.2 Amp/hr capacity. Running time depends upon the motor drive and recording system selected. With the "High Speed" battery pack powering the camera, using time ranges from 30 to 50 minutes (i.e six to ten 200' loads) at 24/25 FPS.

The Beaulieu "High Speed" battery pack is self-contained in the camera body. Nevertheless, it can also be kept in the cameraman's pocket to be protected against the cold, when operating under severe climatic conditions. In this mode, it is fitted in a container connected to the camera by means of a cord.



Beaulieu "High Capacity" battery pack (7 Amp/hr)

The Beaulieu "High Capacity" battery pack is especially useful when field recharging of the "High Speed" battery pack is not possible. Carried across the cameraman's back (or, at the belt), the "High Capacity" battery pack is connected to the camera by means of a power cord and features 6 times more using time.



Recharging :

To recharge the above battery packs, several chargers are at the cameraman's disposal :

- "High Speed" charger for recharging "High Speed" battery pack. Charger features a protective device against damage by overload (80 % of battery capacity, within 40 minutes).
- Standard Charger.
- DC/DC Charger for recharging from 12 volt batteries (car, boat, aircraft, etc.)



interchangeable motors

There are two motors which can be selected according to the system in use, thus affecting battery running time.

Motor drive speed is regulated by an electronic governor, and monitored on the camera's tachometer scale.

a) Standard Motor (Type S)

With this motor attached to the camera, a fully charged "High Speed" battery pack provides filming times ranging from 50 minutes (silent shooting and Pilotone system) to 45 minutes (single system).

Provides for accurate speed control.

This motor is not suitable for use with crystal control system.

b) Crystal Controlled Motor (Type C)

This motor is suitable to many filming situations, especially variable speed and crystal controlled. With this motor attached to the camera, a fully charged "High Speed" battery pack provides filming times ranging from 35 minutes (silent shooting, double system recording) to 20 minutes (single system), used in conjunction with the crystal module.



interchangeable lenses

The "News 16" camera comes with one of the following zoom lenses:

- an Angenieux 12-120 mm, or
- an Angenieux 9.5-57 mm.

The "News 16" accepts any "C" mount lens, providing that its diameter is not greater than the original zoom lens.

Although the lens is the most likely part of a camera to damage, the "News 16" camera has been designed so that the lens is protected by

a special cradle device and a judicious distribution of the fulcra.

The "News 16" zoom lenses are fitted with an electric zooming system and an automatic diaphragm (both with manual override).

Variable speed electric zooming

With the "News 16", focusing and zooming can be done simultaneously. The cameraman's right hand controls the electric zooming, while his left hand remains continuously free to do the focusing. This is an important advantage, especially if many events are taking place in the film scene while zooming.

Zooming speed is adjustable (from 3 seconds



to 25 seconds with the Angenieux 12-120 mm zoom lens) by means of the knurled zooming speed adjustment knob located in front of the lens cradle.

Zooming can be varied while filming, when special effects are desired. Whatever the zooming speed may be, the electric zooming system provides instant start/stop.





Automatic diaphragm system

The "Reglomatic" (Beaulieu patent) is an automatic system: a servo-motor continuously controls the iris aperture according to thru-the-lens light-metering. The automatic diaphragm of the "New 16" is with manual override. To manually control the diaphragm, merely disengage the "Reglomatic" by turning the dial switch (#26).

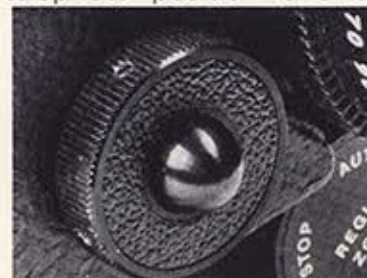
This system can be momentarily cut-out, as long as a button on the foretop of the camera body is held down. This momentary cut-out is particularly convenient when panning or when too bright or reflecting subjects enter the field of view.



Automatic pre-focus control

To do the sharpest focus, the depth of field should be the shallowest possible, and the image in the viewfinder should be as bright as possible.

Fingertip pressure on the Pre-Focus control button rapidly zooms the lens to its maximum telephoto position and opens the diaphragm



to its maximum aperture.

interchangeable sound modules

The "News 16" is suitable to most standard sound recording systems. It accepts six different sound modules that can be quickly installed or removed (by actuating three thumb-screws). These sound modules are intended for Single System and Double System (Pilotone and Crystal Controlled) sound recording.

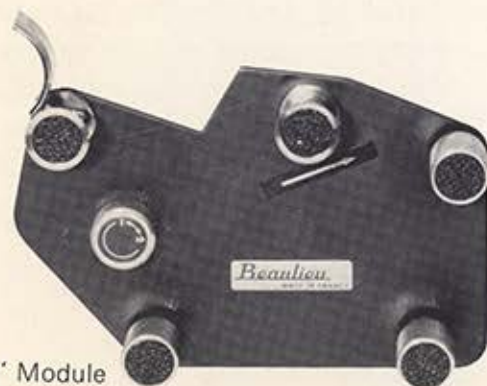
The "News 16" comes with a "silent module" as standard equipment.



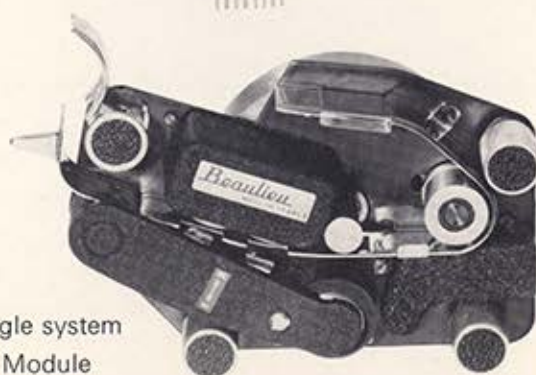
Pilotone Module



Crystal-pilot Module



"Silent" Module



Single system
Module

1) double system

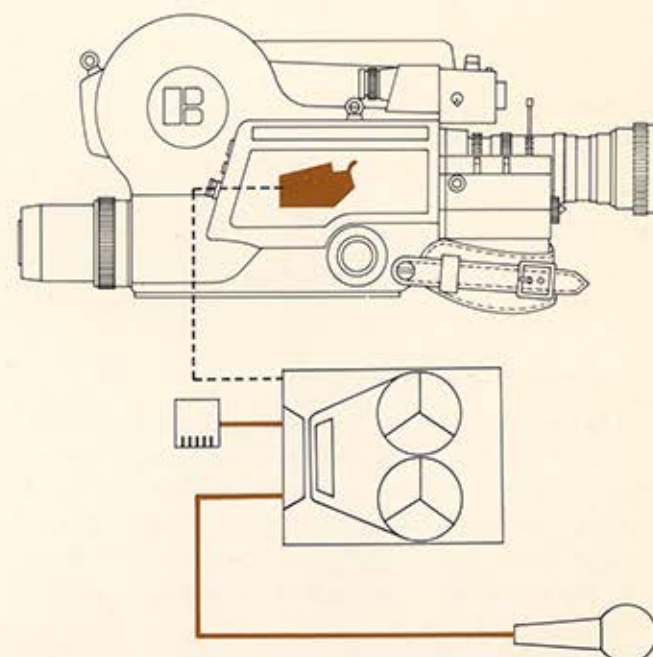
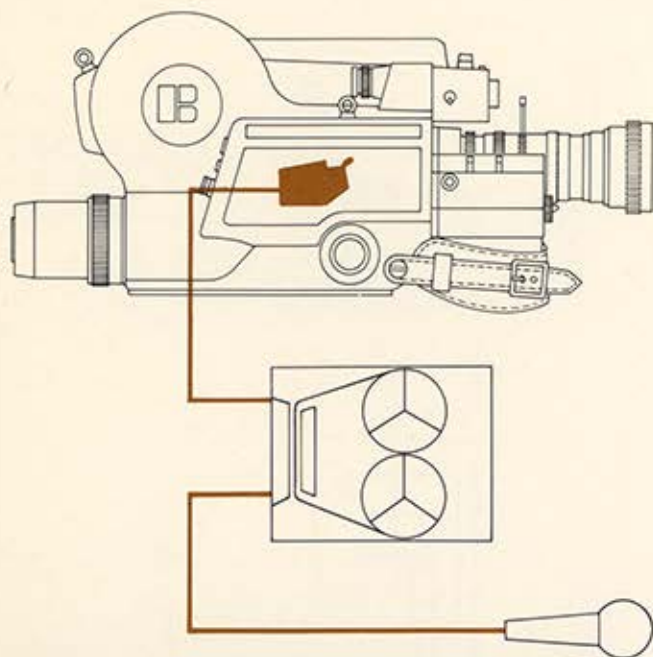
A means by which picture and sound can be recorded separately yet simultaneously and still be resolved in synchronization. There are two systems available:

a) Pilotone System

A tone is generated and recorded by the tape recorder (Nagra, Uher, Stellavox, etc.) so that the relationship between camera and recorder speed can be resolved accurately.

The "News 16" accepts three interchangeable Pilotone modules:

- 50 Hz sound module for 25 FPS
- 60 Hz sound module for 24 FPS
- 100 Hz sound module for 25 FPS



b) Crystal Controlled System

With this system, both the camera and tape recorder require crystal controls. With crystals controlling the speeds of the camera and tape recorder so precisely, sync generators and cables are no longer necessary to maintain synchronization thus permitting the cameraman greater freedom.

The crystal of the sound module provides a very accurate and even speed for the Type C motor (2 interchangeable crystal controlled sound modules are available: C 24 for 24 FPS operation and C25 for 25 FPS operation).



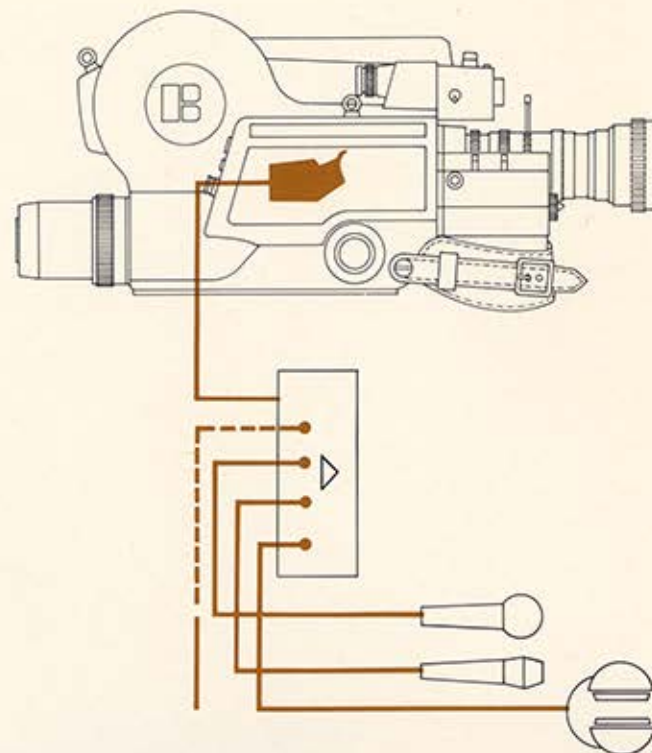


2) single system

Single system, also called sound on film (SOF), is a way of recording picture and sound simultaneously on the same piece of film. This is accomplished by recording sound on magnetic striped film with the single system sound module while the camera is running.

The Single System Sound Module incorporates two magnetic heads (recording and playback). It is connected to the advanced Beaulieu Amplifier that features:

- 2 mixable mike inputs.
- 1 line input of sound signal (from a recorder, etc.).
- 1 headset output (switchable for direct or playback monitoring).



the "news 16" camera has been specifically designed for ease of operation



a) Film Threading

The "News 16" camera incorporates two very simple self-loading systems: semi-automatic (single system only) and fully automatic (all other modes of operation). With either system, you merely cut the film leading edge (by means of the fold-away film trimmer), insert the film leading edge into the film transport mechanism, and then depress the loading lever. Several interlock devices prevent misloading of the film.

The camera is ready for operation within less than one minute.

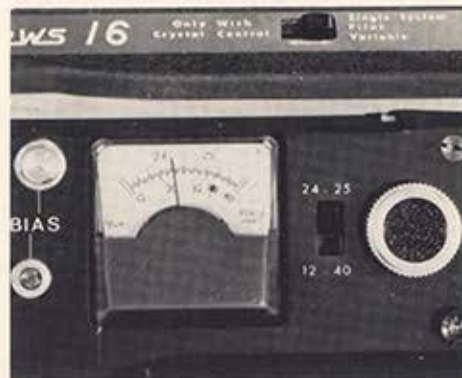
b) Film Running Indicator Lights

The "News 16" camera is equipped with two film running indicator lights: one externally located, the other internally located.



As soon as the camera starts, the external film running indicator light turns on (unless it has been switched off for candid filming). This external light serves as a warning to the soundman that sound recording may be started.

When only 15 feet of film remains of a 200' load, the external light goes off and a signal light comes on inside the viewfinder, thus warning both the cameraman and soundman that it is time to finish.



c) Footage Counter

The footage counter is located on the film chamber lid, and indicates the amount of footage still available. The footage counter is graduated both in feet (200 ft.) and in meters (60 m) and automatically resets when loading the camera.



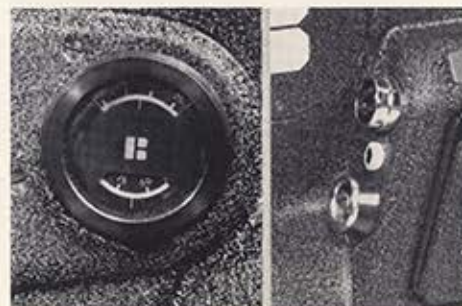
d) Memo Pad

The back-side of the control panel cover serves as a writing pad for memo notations.



e) Film Sensitivity Setting

Ranges from 12 to 400 ASA (correction ± 1 f/stop by $1/3$ f/stop).



f) Filming Speed Adjustment

Filming speed adjustment is performed by means of two slide-switches (crystal mode slide-switch and filming range change-over switch) and one adjustment knob.

Filming speed is shown on a double-scale (12-40 and 24/25 FPS) tachometer.

g) Remote Control

The "News 16" can be operated by remote control (either by line or radio transmitter).

"news 16" technical specifications

Specifications :

- Format: 16 mm.
- Film: 200' (60 m) day light-load spools (« B" wind).
- Dimensions:
 - overall height: 8 1/2" (21.5 cm).
 - overall width: 10" (24.5 cm).
 - overall length (1): 20 1/4" (51.2 cm).
- Weight (1) + (2): 16 lbs approximately (7.170 kgs).
 - (1) with Angenieux 12-120 mm Zoom lens.
 - (2) crystal control module attached.

Technical data :

Lens :

"C" Mount Lens Interchangeability.
Choice of two Power Zoom lenses — an Angenieux 9.5-57 mm or an Angenieux 12-120 mm — with basic unit.

Diaphragm:

Fully automatic settings provided by a servo-motor (REGLOMATIC - Beaulieu patent).
Correct exposure check (by means of the meter needle in the viewfinder).

This automatic device can be disengaged.

Zooming:

Electric Power Zoom.

Variable zoom range from 3 to 25 sec. (using an Angenieux 12-120 mm Zoom lens) and from 3 to 18 sec. (using an Angenieux 9.5-57 mm Zoom lens). Instant start/stop.

Automatic pre-focus control:

Fingertip pressure on the pre-focus control button instantly zooms the lens to its maximum telephoto position and — at the same time — opens the diaphragm to its maximum aperture. The camera operator is instantly provided with the shallowest possible depth of field required for ultra critical focusing.

Viewfinder :

Reflex.

Optical construction: 14 elements and 4 prisms.

22 × magnification.

"Divided grain" focusing screen.

TV frame etched onto focusing screen.

Eye-piece: rotates 180° for viewing from above and rear.

Eyesight correction: ± 5 Diopters.

2 rubber eyecups.

A left eye viewfinder is also available.

Shutter:

Guillotine type.

Always stops in viewing position.

Frame exposure time at 25 fps: 1/60 sec.

Speeds:

Fixed by means of an electronic governor.

Tachometer provides speed check.

2 position speed-range converter:

- 24-or 25 fps position (steadiness variations: ± 2 %

W/type S motor

& ≤ ± .05 % W/type C motor & Crystal module).

- 12-40 fps position (for variable speed).

Exposure meter:

Cds Photo Cell.

ASA sensitivity setting (12-400).

Setting correction (± 1 f/stop).

Camera loading:

Co-axially mounted reels.

Self-threading.

Built-in film trimmer.

Film transport:

Electrical (Motor is interchangeable).

Film guide:

Made of chromium-plated brass.

Stainless steel removable pressure plate.

"Sapphire" corundum edge guides.

Footage counter:

Graduated both in feet (200 ft) and in meters (60 m)

Indicates amount of footage still available.

A signal light glows inside the viewfinder when there is only 15 feet of film left of a 200' load.

Automatically resets when loading the camera.

Release:

Self-locking button switch.

Camera always stops with the shutter in closed position.

A film running indication is provided by an orange light on top of the camera. It goes off when the end of film signal light comes on. It can be switched off for candid filming.

Electrical data

Supply:

Screw-in NiCad interchangeable accumulator (9.6 volts,

1.2 Amp/hr.) High speed recharge (in 30 minutes).

Or external 7 Amp/hr

Power supply:

Switch & Safety — by means of 3 position trigger:

- Normal filming position.
- Off and safety catch.
- Continuous filming (mainly for remote control).

Motor:

Interchangeable.

A knurled knob at the extremity of the motor shaft allows manual drive for maintenance.

Regulation:

Feedback electronic governor.



Sync-sound recording capabilities

The camera comes with a silent module as standard equipment.

In addition, six different sync sound recording modules are also available for use with the "News 16" camera.

- 1 Single System Module*.
- 3 Synchro-Pilot Modules (60 Hz for 24 fps; 50 and 100 Hz for 25 fps).
- 2 Crystal control Modules (C 24 for 24 fps; C 25 for 25 fps).

* Single system sound recording is achieved in combination with the Beaulieu Single System amplifier. (See below for Amplifier specifications).

Beaulieu single system amplifier Specifications and features :

Inputs :

2 mikes ($Z \leq 5 K$)

1 line: $Z = 100 K \Omega - Z = 500 K \Omega$

(depending on the wiring in the line cord plug).

Inputs are mixable.

Sensitivities: Mikes $\geq 0.2 mV$

Line $\geq 100 mV$

$\geq 1 V$ (depending on the wiring in the line cord plug).

Outputs :

- 1 output for recording (to be connected to camera $Z \leq 500 \Omega$)

- 1 output for headphone $Z > 500 \Omega$
(switchable "monitoring/direct" listening-in).
(an earphone can be plugged in parallel onto the camera socket).

Power supply :

13.5 V. DC (9 penlite batteries, 1.5 V each).

Consumption: 30 mA.

Switching-on :

By both OFF/ON switch and plugging in the camera-amplifier cord.

Dimensions: (with case)

- Height: 150 mm (5 7/8 inch, approxi.)
- Length: 190 mm (7 1/2 inch. »)
- Width : 95 mm (3 3/4 inch. »)
- Weight: 1.270 kg (2.8 Lbs approxi.)
(without batteries)

Sound track :

Two positions (slide-switch selection).

- Large band position: 40 - 14,000 Hz (3 dB)
- Narrow band position: 165 - 3,000 Hz (3 dB)

Distortion :

0.78 % at 100 Hz

0.75 % at 1,000 Hz

0.72 % at 10,000 Hz

+ 6 dB level with regard to V. U. zero level.

"Non attenuated" noise sound ratio :

$\geq 54 dB$ ("non-shorted" inputs).

V.U. zero level :

- 12 dB with regard to tape saturation.

Modulation :

Automatic/manual Control
(slide switch selector)

Wow and flutter :

Less than 0.3 % "attenuated peak".

Correction :

- C.C.I.R. mode.

Bias :

HF signal. 60,000 Hz $\pm 3 \%$

Distortion $\leq 2 \%$.

List of accessories

- Right eye viewfinder.
- Left eye viewfinder.
- Screw-in Rubber eyecup.
- Slip-on Rubber eyecup.
- Angénieux 9.5 - 57 mm Zoom lens.
- Angénieux 12 - 120 mm Zoom lens.
- Filter holder (series 9).
- Filters (series 9).
- 1.2 Amp/hr "high-speed" Battery-pack + attachment ring.
- 7 Amp/hr Battery-pack + Leather Case.
- External Battery Extension Cord.
- 1.2 Amp/hr Battery-pack Container.
- Battery-pack chamber lid.
- "High speed" Charger for 1.2 Amp/hr "High speed" Battery-pack.
- Standard Charger for 7 Amp/hr Battery-pack.
- DC/DC Charger.
- Remote Control Cord with switch.
- Type "S" Motor.
- Type "C" Motor.
- "Silent" Module.
- Pilotone Module (3 types: 50, 60 and 100 Hz).
- Crystal-pilot Module (2 types: C25 for 25 FPS, C24 for 24 FPS).
- Single system Module.
- Camera to Tape-Recorder Connection Cord.
- Electronic Clapper Cord.
- Camera to Amplifier Connection Cord.
- Beaulieu Amplifier.
- Mike + cord.
- Headset.
- Earphone.
- Line Cord.
- Metal Case for camera + Accessories.

Specifications are subject to change without notice.



Beaulieu

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