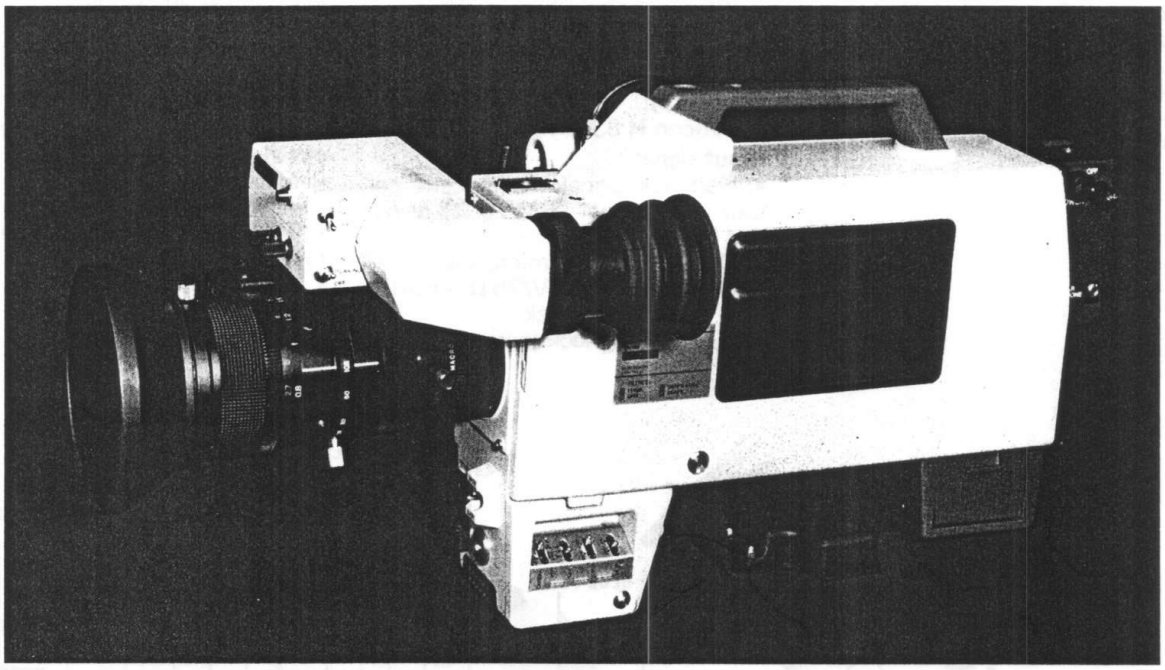
THOMSON-CSF

TTV 1601

MICROCAM MK1



FEATURES

- Monobloc, portable, self-contained, miniature, light and sturdy, broadcast type colour camera especially fitted for Electronic News Gathering (ENG).
- Can be used either with a portable video tape recorder to record the event on the spot, or with a small mobile transmitter for live transmission.
- Easy to use : many automatic features.
- 3 versions : SECAM, PAL and NTSC. To switch from one version to another, only two printed circuits have to be changed.
- Low power consumption : operates on batteries.
- Three lead oxide or Saticon tubes of 17 mm (2/3").
- Self-contained 3.8 cm (1.5") camera monitor.
- Interchangeable lenses.
- Lightweight : chassis made of aluminium.
- Small size : concentration of controls and automatic facilities.
- As easy to use as a 16 mm cinema camera.
- A number of optional devices can be added to this camera to extend its use to outside or studio production : power supply, synchronization, monitoring, remote control and sound.

USE

Light and easy to operate outside, the TTV 1601 monobloc microcam is mainly intended for Electronic News Gathering (ENG). However, adding a few optional devices, it can be used for "EFP" outside production or in a studio.

With the TTV 1601 the operator can cover the event either recording with a portable video tape recorder or using a portable transmitter for live transmission, because the camera can be associated either with the TTV 3900 or TTV 3905 3/4" VTR or with the TRE 3706 transmitter (1.43 GHz or 2.5 GHz).

On-site editing and immediate transmission of the program to the TV center are performed via an especially designed light O.B. vehicle.

When used outside or in studio, the camera is remote controlled for power supply, synchronization and operation from a control box through a multilead cable (12.5 mm o.d.). The maximum length of the cable is 250 m. For longer lengths (up to 3000 m), an optical fiber connection is workable (9 mm o.d.).

DATA SUMMARY

ELECTRICAL

Supply

- 10.5 V to 17 V D.C.
- Overall consumption (at 12 V) :
  - ⩽ 23 W (SECAM or PAL)
  - ⩽ 21 W (NTSC).

Power is supplied to the camera either from a battery or from the mains. Belts with two manually switchable nickel-cadmium batteries (capacity : 2.5 AH, weight : 1.3 kg) are available, allowing independent operation for two hours.

Power can be also be supplied from the battery of the video tape recorder (e.g. TTV 3905 P/S or TTV 3710 (BVH 500) VTR).

- A picture is obtained within 4 s from the stanby position.

Television systems

- 625 lines - 50 fields - SECAM or PAL.
- 525 lines - 60 fields - NTSC.

Pick-up tubes

- Three 17 mm (2/3") tubes.
- Plumbicon XQ 1427 R, G, B (PHILIPS).
- Saticon H 8397 A (HITACHI).

Input signals

- Gen-lock signal : composite colour video signal (1 V/75 Ω) or coded black signal.
- Omnidirectional micro sound.
- Outside video : 1 V/75 Ω, - 60 dB.
- VTR battery check.
- VTR sync. check (aerial).

Output signals

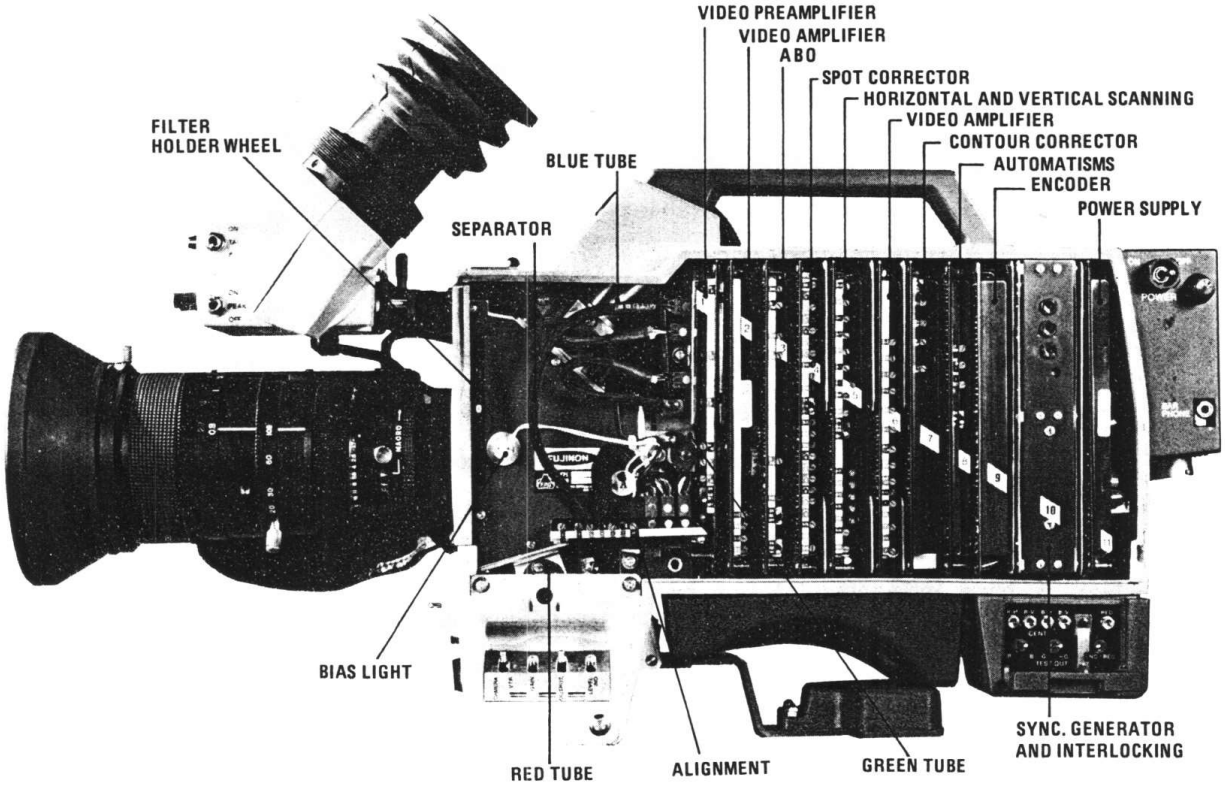
- Three coded video 1 V/75 Ω.
- R, G, B or R-B, B-G video control : 1 V/75 Ω.
- Test output : R, G, B, mixed sync. and high impedance mixed blanking.
- Audio control.
- VTR on/off.
- VTR standby.

Controls

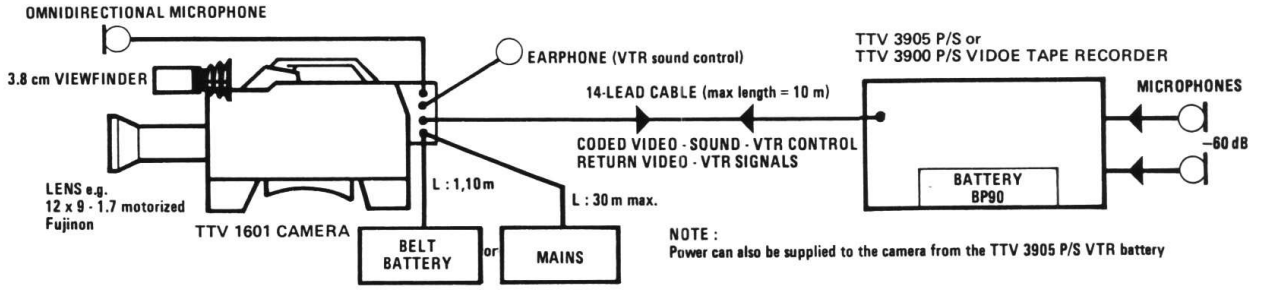
- Camera on/off, stanby, VTR stanby.
- Bar pattern on/off.
- Selection of control output.
- Overall gain 0, + 9, + 18 dB.
- Black/white balance on/off.
- Hatching on/off.
- VTR on/off.
- Aerial control light on/off.
- Switching external video on viewfinder.
- Horizontal and vertical framing control for red and blue channels.
- Overall black level adjustment.
- Viewfinder : brightness, contrast, peaking (by switching).

Signalling

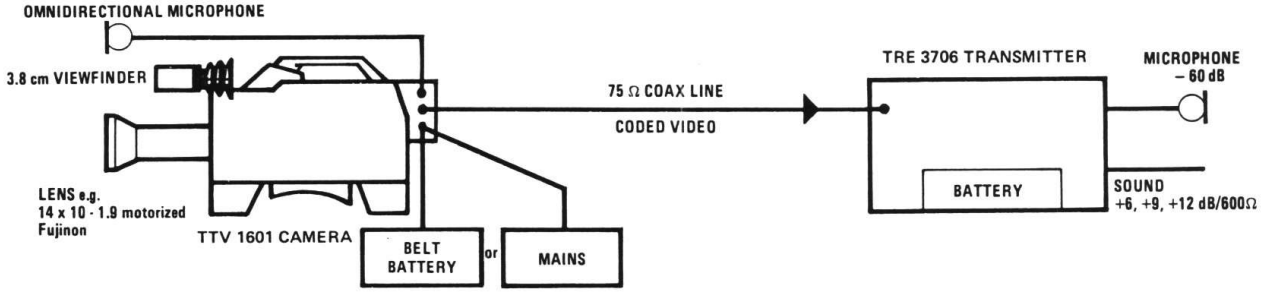
- In front of the viewfinder : aerial.
- Inside the viewfinder :
  - Through LEDs :
    - aerial or VTR synchronism (cut out at end of tape)
    - black/white balance
    - run down battery : 11.2 V ± 0.2 V.
  - Through mixing with the viewfinder video signal :
    - video level (hatching)
    - iris.



ENG SYSTEM : CAMERA + VTR



ENG SYSTEM : CAMERA + TRANSMITTER



Functions :

- Sync. generator with gen-lock : The camera can be synchronized by an external coded video signal ; horizontal phase adjustment :
  - SECAM : - 4 + 1 μs
  - PAL : - 2 + 1 μs

  Subcarrier phase adjustment under PAL : 0° to 360°.
- Test sawtooth generator.
- SECAM, PAL or NTSC encoder with built-in bar pattern generator : white : 100 %, colour : 75 %.
- Automatic functions :
  - Iris : operates at peak or mid-range value.
  - Balance :

  - black : automatic closing of the iris and storage in digital memory,
  - white : automatic start-up of the iris automatism and storage in digital memory. The surface taken into consideration is a circle whose diameter is 80 % of the height (10 % of white is sufficient),
  - white/black balance : stored in a digital memory for 5 days (auxiliary battery fully charged).

  - ABO (Automatic Beam Optimizer) : automatic adjustment of the beams up to 10 times the normal illumination level.
  - Flare compensation.
  - Black level adjustment.
- **Video frequency processing**
  - Omnidirectional contour correction with comb filter, crispening and black clipping.
  - Masking.
  - Spot corrector : line and field, sawtooth and parabola.
  - Gamma adjustable from 1 to 0.45.
  - White clipper.

Performances

- Sensitivity : EIA pattern. Reflection rate : 60 % on white :
  - illumination : 1200 lux at 3200° K
  - amplitude of R, G, B video signals (output control) : 0.7 V
  - relative aperture : ⩽ F : 2.8
  - maximum sensitivity : 50 lux at F : 1.4 and + 18 dB.
- Signal-to-noise ratio
  - as measured with a ROHDE and SCHWARTZ, UPSF type, BN 1203/2 noisemeter or equivalent
  - measuring conditions : gamma 1 - without correction - H and V blanking, 100 kHz high-pass filter - shutter on

  5 MHz low-pass filter
  black level : 100 mV
  - on the Y channel :

  SECAM/PAL : 48 dB
  NTSC : 52 dB
- Modulation rate
  - 90 % of the scanner tube modulation rate and a minimum of 30 % at the center at 4 MHz (320 TV lines)
  - 100 % modulation rate at 4 MHz with contour correction on the green channel.
- Geometry : ⩽ 1.5 % over the whole picture area.
- Registrations controls :
  - zone 1 : a circle whose diameter is equal to the height : ⩽ 40 ns.
  - zone 2 : a circle whose diameter is equal to the width : ⩽ 80 ns.
  - zone 3 : outside zones 1 and 2 : ⩽ 200 ns.

OPTICAL

- A bayonet mount ensures quick attachment of the lens :
  - FUJINON lens :

  A 12 x 9 BRM 2 A F : 1.7
  - FUJINON lens :

  A 14 x 10 BERM 2 F : 1.9
  - ANGENIEUX lens :

  15 x 9.5 D1 F : 1.8
  - CANON lens :

  J 13 x 9 B F : 1.6
  - SCHNEIDER lens.

  All these lenses have an automatic iris, electric zoom and manual focusing.
- 4-position filters :
  - closed
  - 3200° K
  - 5600° K
  - 5600° K + neutral D = 0.6
- Three-colour separator :

  F : 1.4 prism with infra-red filter and built-in bias light compatible with the plumbicon and saticon scanning tubes.

REMOTE CONTROLLED VERSION FOR OUTSIDE OR STUDIO PRODUCTION

The connection is done in two ways depending on the distance between the station and the camera.

SHORT DISTANCE (UP TO 250 M)

Optional devices :

- A control box, including :
  - a mains power pack (117 V - 220 V - 240 V, 50 Hz or 60 Hz) supplying power to the whole system. The front panel of this power pack consists of a setting plate with controls to operate the camera.
  - an interlocking rack that processes the external colour video signal and the camera coded video signal to provide necessary information for controlling the camera so as to obtain automatic phasing as a function of the cable length. Phase control of the camera is achieved by manual adjustment of the horizontal phase (- 2, + 1 µs) and the subcarrier phase (0 - 360°).
- An operating facilities rack including :
  - cable correction in 50 m sections
  - sound processing and switching : intercom, narrator, program return
  - aerial signalling.
- A remote control console

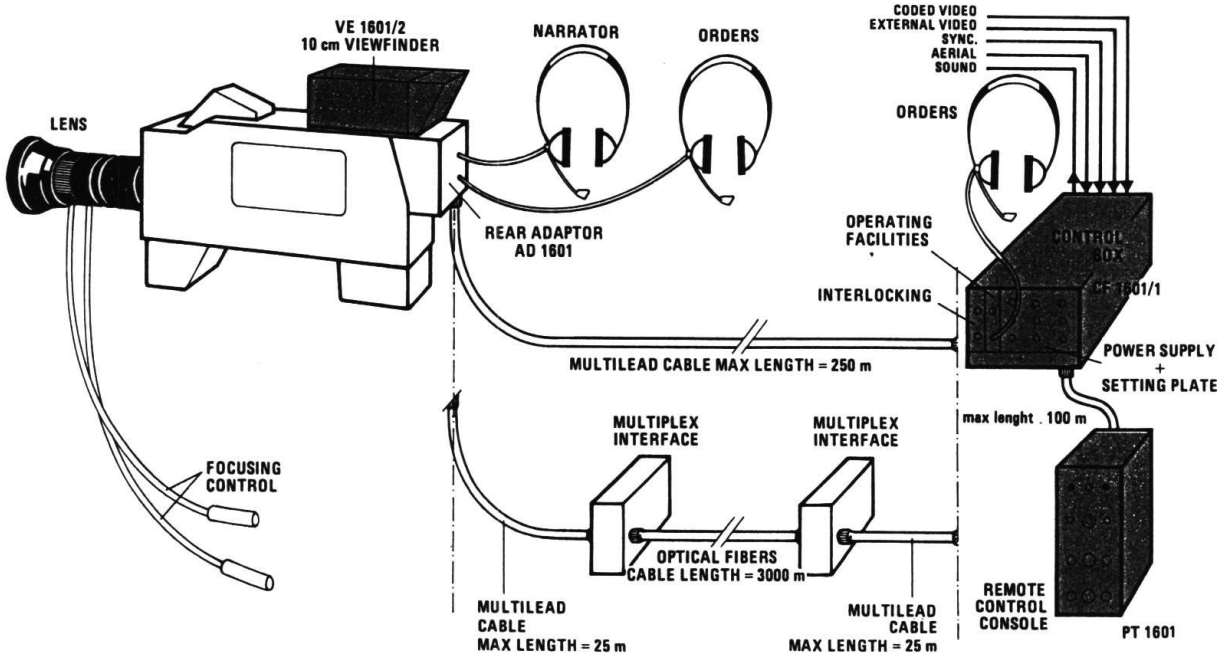
The console will be connected to the control box via a multilead cable (maximum length : 100 m). Available controls are :

- overall black
- R and B partial black
- black balance
- iris
- manual/auto iris
- overall gain 0, + 9, + 18 dB
- partial R and B gains
- white balance
- bar pattern on/off (test)
- aerial signalling.

- An adaptor at the rear of the camera.
- A medium-size 10 cm viewfinder replacing the 3.8 cm viewfinder.
- The lens can be equipped with manual zoom and focusing control for rear camera operation.

LONG DISTANCE (UP TO 3000 M)

The connection uses an optical fibers cable both ends of which are connected to multiplex interface boxes. Thus, the liaison is a "transparent" system. It is easy to switch from a short distance multilead cable connection to a long distance connection using optical fibers and conversely.



VIEWFINDER CHARACTERISTICS

- Format on tube : 2.3 x 3 cm.
- Usual brightness : 150 foot-lamberts (500 nits).
- Center resolution : 400 lines.
- Peaking on : + 6 dB at 4 MHz.

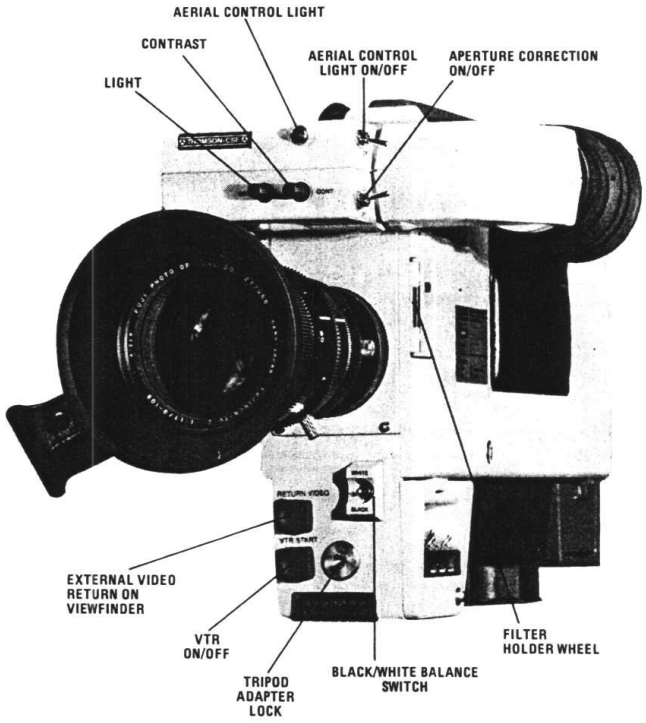
Any of the 3 following videos can be visualized :

- internal luminance video,
- monitor video,
- external video.

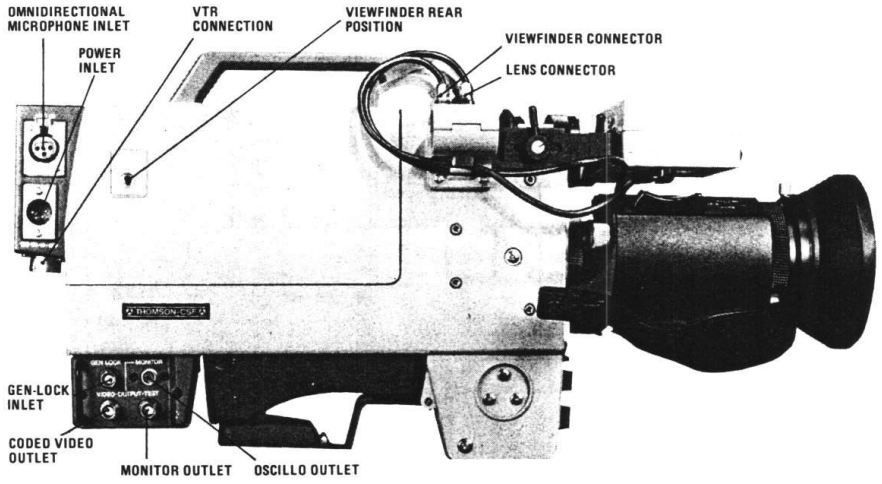
The viewfinder can be fixed at the rear of the camera.

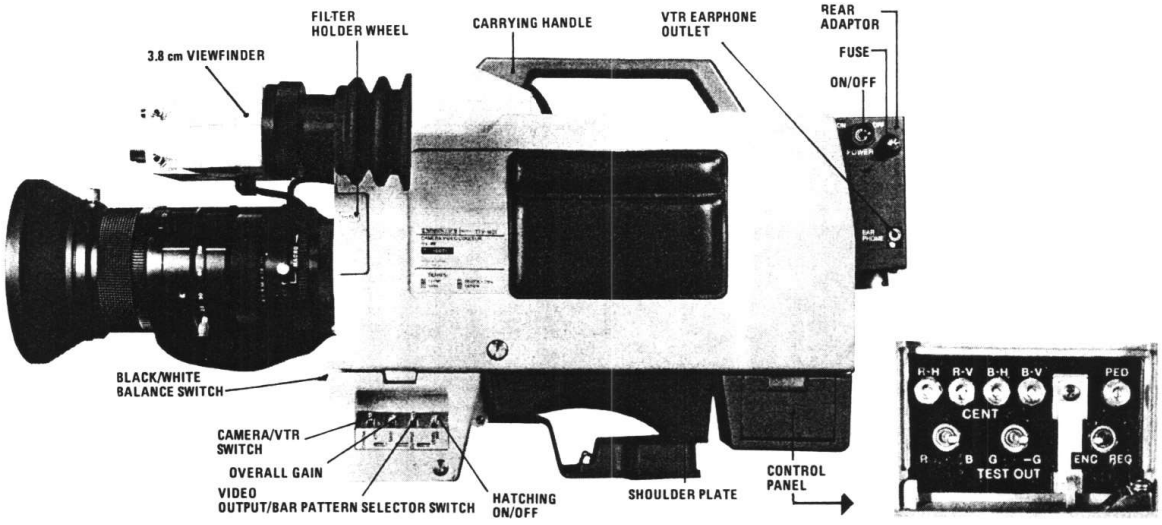
ENVIRONMENT

- Temperature operating range : from - 20°C to + 45°C.
- Shelf : from - 30°C to + 60°C.

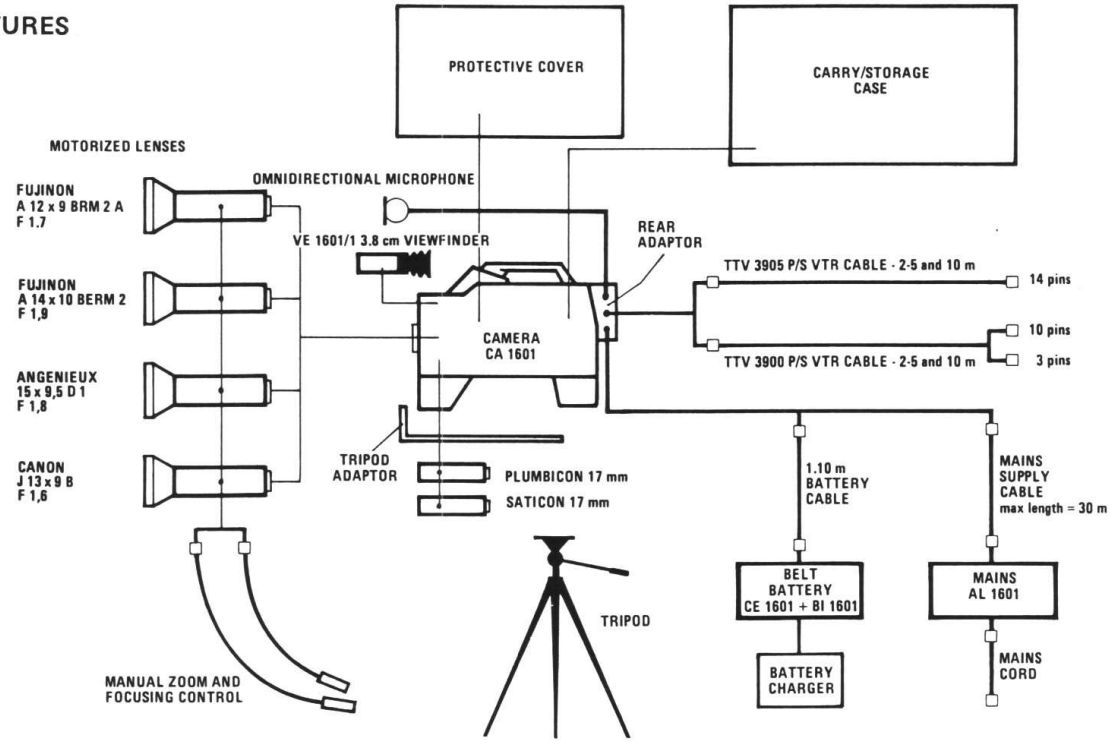


DESCRIPTION

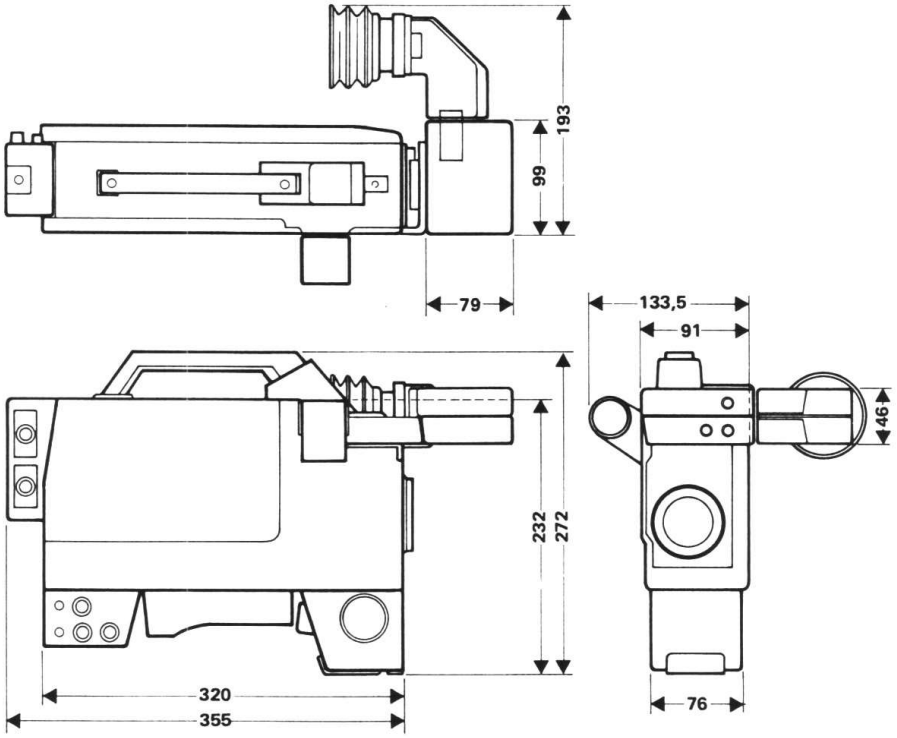




FEATURES



MECHANICAL CARACTERISTICS



WEIGHT (WITHOUT LENS) : 5.95 KG

The information contained herein is subject to confirmation at time of ordering.

THOMSON-CSF

DRT 647/05/79

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