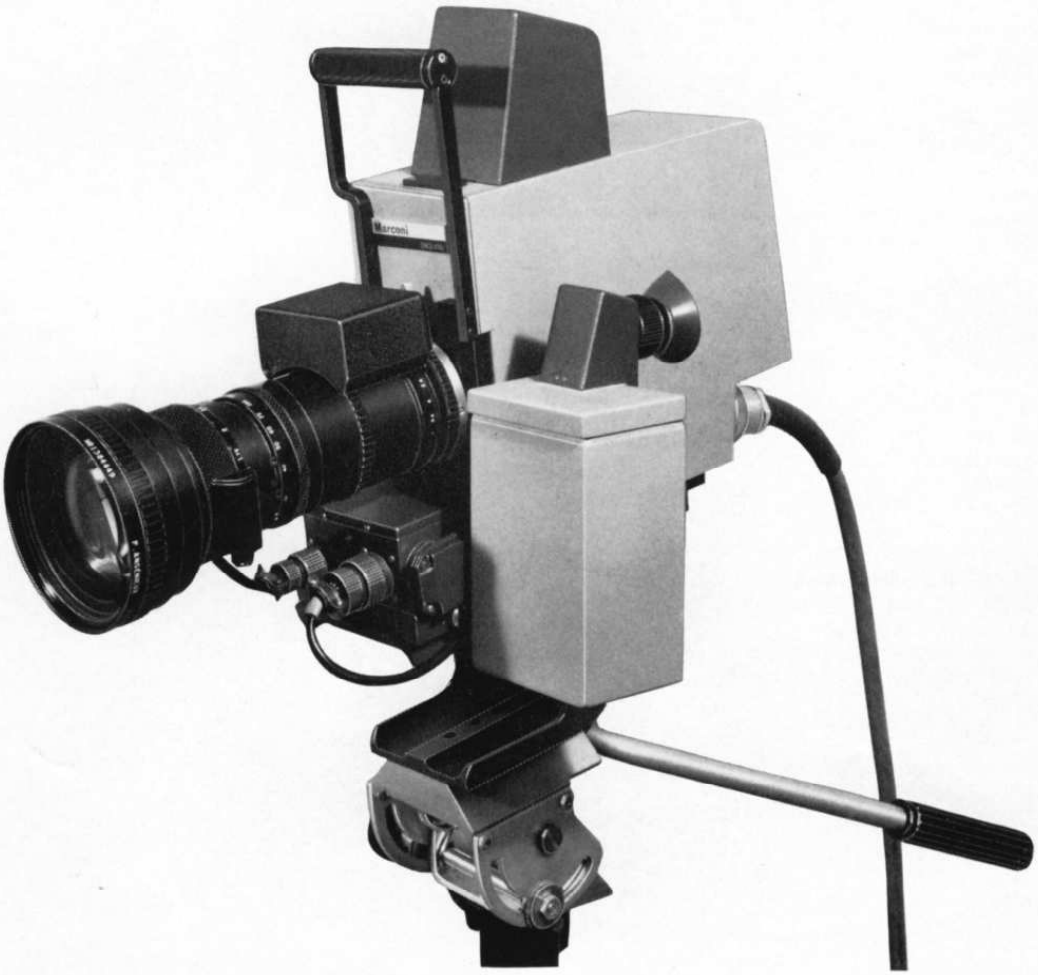
Marconi Broadcasting Systems

Mark VIII Portable Camera B3250



Features

Lightweight and robust

13mm camera cable

Camera to auxiliary pack separation up to 50m

Sharp, bright viewfinder

1in lead oxide tubes

Tripod mounting with 7in viewfinder

Automatic line-up

Full talkback facilities

Cue lights

Alternative carrying positions

Description

The Mark VIII Portable Camera is designed for hand-held or tripod applications in situations which preclude the use of a full-sized unit. It is a companion unit to the Mark VIII Automatic Camera and can be connected to a normal Mark VIII Camera Control Unit via Mark VIII (13mm) cable.

The camera is designed to produce high-quality pictures in order that they can be inter-cut with pictures from other studio cameras without degradation of picture quality.

The Mark VIII features of automatic line up and automatic colour balance are retained. These facilities are particularly important for portable cameras which are sometimes subjected to very rugged treatment.

The camera has been designed to be ergonomically suitable to a wide range of cameramen and to ensure operator comfort in all applications. Two alternative mounting positions are provided to meet these needs.

A range of lenses is available, lens changes being made by a quick release coupler. A filter wheel turret is incorporated.

The camera is designed to be operated in a variety of modes, some of which are as follows:

a) Hand held with a 6:1 lens and 1in viewfinder, with the auxiliary pack mounted on a trolley or situated on the ground.

b) Hand held with 10:1 lens, and 1in viewfinder, with the auxiliary pack mounted on a trolley or situated on the ground.

c) Lightweight tripod mounting with a 6:1 lens, with auxiliary pack mounted on a trolley or situated on the ground.

d) Lightweight tripod mounting with 10:1 lens, with the auxiliary pack mounted on a trolley or situated on the ground.

e) Hand held with a 6:1 lens and the auxiliary pack carried by cameraman.

f) Hand held with 10 :1 lens, and the auxiliary pack carried by cameraman.
g) Mounted on a studio head and pedestal with a 7in viewfinder.

Camera Head

This unit contains the optical assembly, three 1in lightweight scanning yokes and several printed boards containing the necessary scan circuits, tube supplies, and amplifiers. The camera head is connected to the auxiliary pack via a T1889 (13mm) Mark VIII cable. A quick release connector is provided at the head to facilitate camera cable changing. Up to 50m (150ft) of camera cable may be used between the camera head and the auxiliary pack.

The camera head is designed to be showerproof, but for long exposure to inclement weather a plastic cover is recommended.

The yokes use printed scanning coils and are extremely accurately made, in a similar manner to Mark VIII yokes.

The camera fits onto a special frame which rests comfortably on the shoulder and gives extra support at the midriff. Two alternative mounting positions (see photos) are possible.

The camera is fitted with a cue light which may be switched off for crowd operation. A strong carrying handle is fitted.

The Auxiliary Pack

This unit is robust and of lightweight alloy construction. It is designed primarily to be used on its own portable trolley.

The trolley is fitted with large cushion tyres and is capable of being used over rough surfaces. The auxiliary pack houses the camera power supply and printed boards, most of which are standard Mark VIII camera boards. Two 34-way camera cable sockets are fitted to the unit, one to the auxiliary pack and the second to the CCU. A separate socket is provided to connect a Mark VIII 7in viewfinder. A 75 Ω auxiliary video output is also provided for an additional monitor for a commentator or trolley pusher. The auxiliary pack may also be carried on a harness by the cameraman or his assistant and connected to the camera head by a short cable.

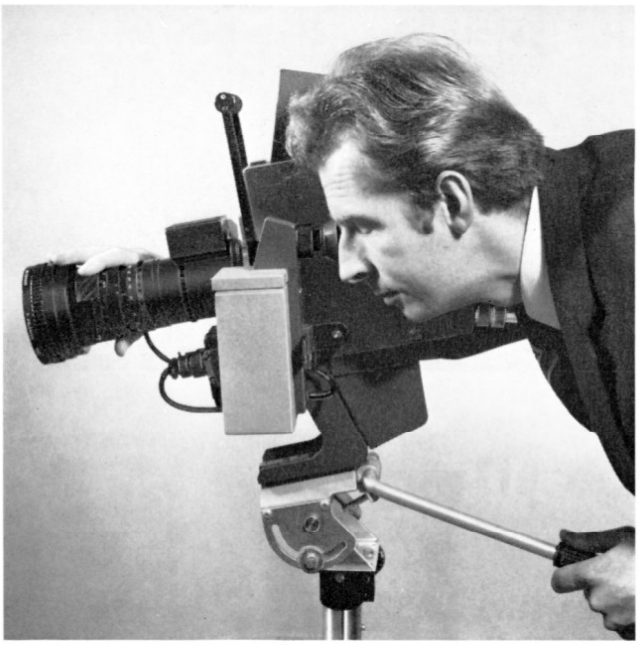
1in Viewfinder

The viewfinder is a removable unit using a high definition 1in tube with an optical magnifier to obtain the required apparent image size.

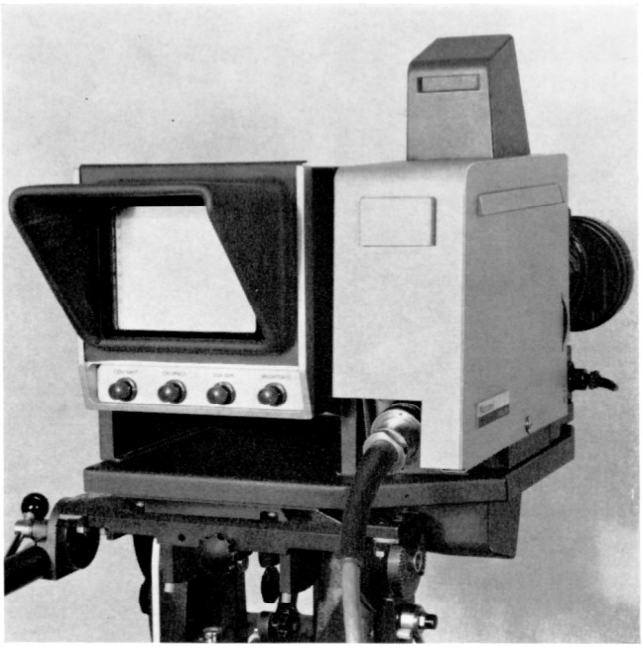
The resolution is such that the tube will resolve 625 scanning lines and provides the cameraman with a clear, crisp display. A cue light is fitted.

Brightness and contrast controls are available to the cameraman and a built in crispening circuit provides picture enhancement.

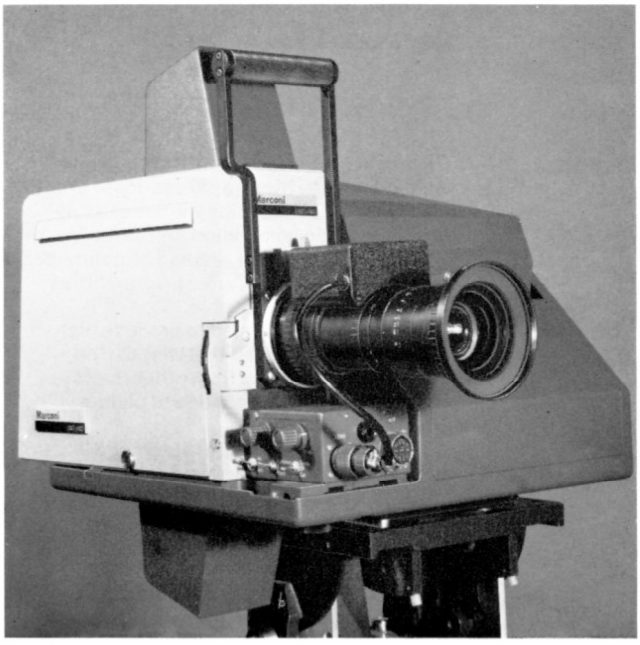
The viewfinder may be attached to either the left or the right hand side of the camera, in the latter case enabling the camera to be used on the left shoulder.



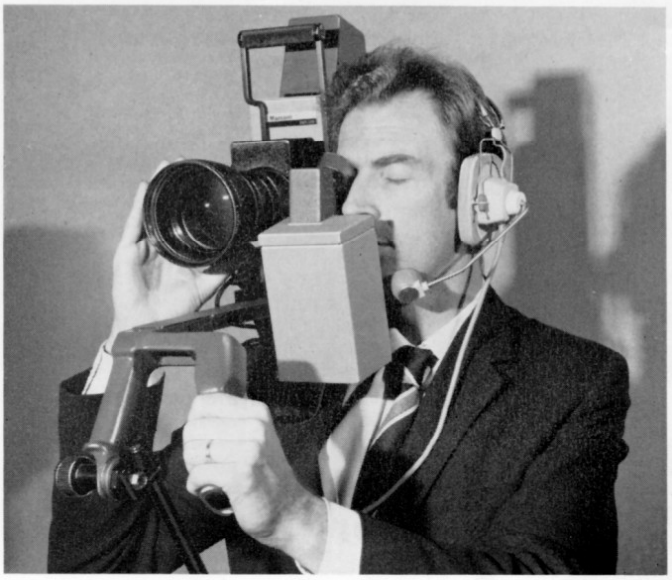
Camera and 1 inch viewfinder mounted on lightweight tripod and head.



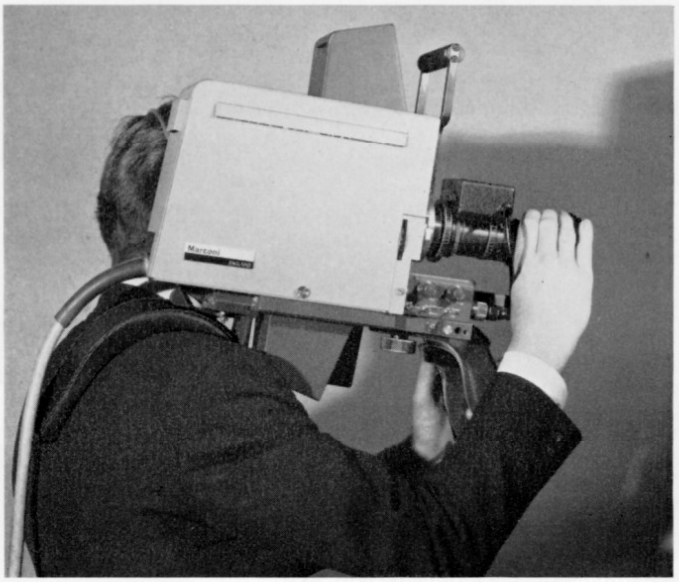
Camera and 7 inch viewfinder mounted on a standard Vinten Mark V head.



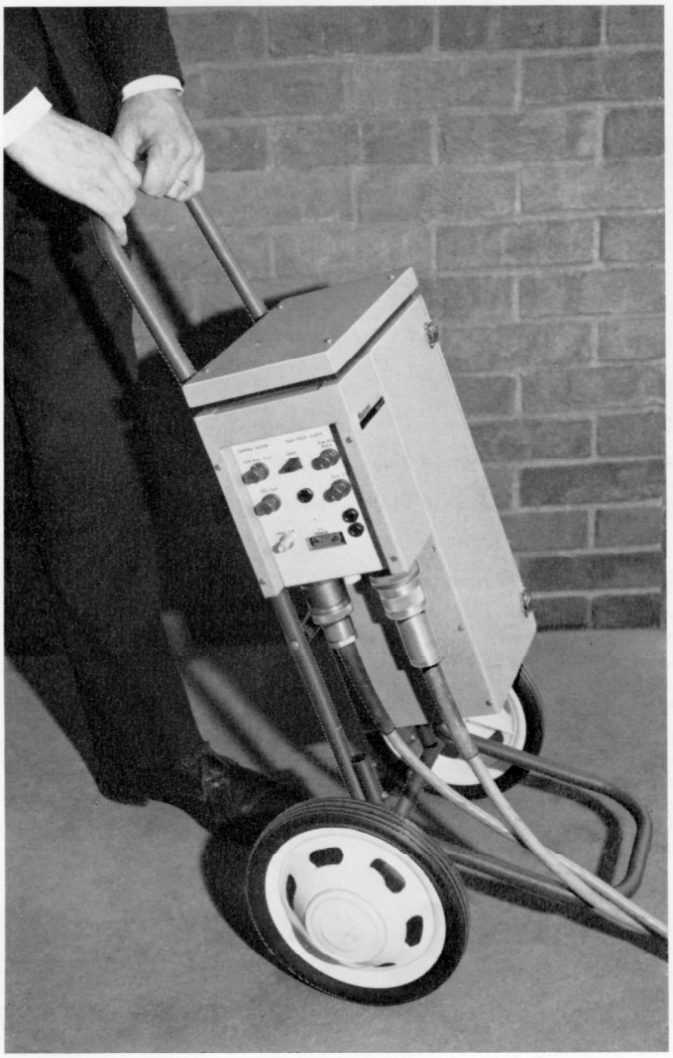
Camera and 7 inch viewfinder mounted on a standard head, showing camera controls.



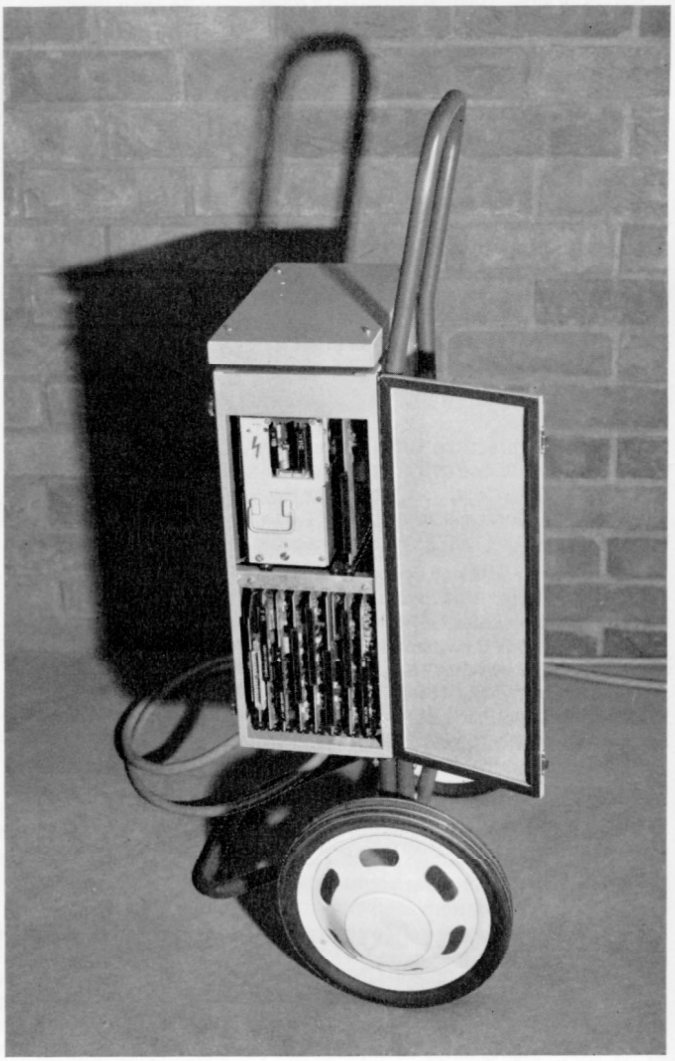
Camera rear mounted with 10:1 zoom lens.



Camera forward mounted with small lens.



Auxiliary Pack trolley mounted.



Auxiliary Pack interior.

Data Summary

Systems
Systems CCIR 625 lines, 50 field/s 2 :1 interlaced or EIA lines 60 field/s 2 :1 interlaced.

Power Supply
Transformer tapped for 105–125V and 210–250V in 5V steps, 48–60Hz.
Cannon EP4 connector.

Inputs
Mixed blanking 1·5–6V, bridging input. BNC connector (return loss 30dB to 625T pulse and bar).
Mixed sync same as for mixed blanking.
Colour step sync same as for colour step output.
Remote video 1V composite signal, bridging input, BNC connector.
Test input 0·7V signal, bridging input, BNC connector.
Audio input (for dream effects) 0dB, XLR connector.

Outputs (all on BNC connectors)
2 × (G, R, and B) gamma corrected video signals, 0·7V across 75 Ω.
Colour step waveform adjustable from 2V to 15V for different waveform monitors, high impedance.
Colour step sync.
Picture monitor video 0·7V non-composite signal 75 Ω.
Waveform monitor video 0·7V non-composite signal 75 Ω.
Waveform monitor sequence (parade) relay earth.
Chroma key video G–R–B signal 0·7V into 75 Ω.
Commentator's monitor output on auxiliary pack 0·7V into 75 Ω.

Sensitivity
800 lux (75ft candles) lens iris *f*/2·8 incident on a white chip of 60% reflectance, 0·7V output will be obtained with a peak signal to r.m.s noise ratio of 45dB. Noise is measured in a 5MHz bandwidth with aperture correction and gamma switched off. Under these conditions a typical depth of modulation of at least 30% should be obtained. Fully exposed pictures down to 110 lux (10ft candles).

Resolution
With aperture correction, 100% modulation depth can be obtained at 5MHz in each video channel. Under these conditions the frequency response will be within 0·5dB to 5MHz up to 300m (1 000ft) of camera cable.

Registration
50ns accuracy in Zone 1, 100ns in Zone 2, and 150ns in Zone 3 (with average tubes). Zone 1 is an ellipse whose major and minor axes are equal to 80% of picture height and width. Zone 2 is outside Zone 1, but within a circle of diameter equal to picture width, and Zone 3 is the remainder.

Geometry
Overall distortion less than 0·25% of picture width in Zone 1, less than 0·5% in Zone 2, and less than 1% in Zone 3.

Aperture Corrector
Vertical aperture corrector up to 1·5MHz to a maximum of 12dB is provided.
First horizontal corrector peaking at 6·25MHz adjustable to a maximum level of 12dB at 5MHz.
Second horizontal corrector peaking at 3·125MHz to a maximum level of 6dB above the level set by the first horizontal corrector.
The aperture corrector control adjusts vertical and second horizontal corrector simultaneously.

Gamma Correction
Preset laws either 0·4, 0·45, 0·5, or 0·55, selected by links. Gamma correction may be switched off and also between any two of four laws.

Gain Control
Master gain selected from CCP or OCP to either −3, 0, +3, +6, +9, or +12dB.
Auxiliary control panel has four ranges on red/blue control.

Warming Up
Rehearsal quality pictures 5 min after switch on over the range +10° to +45°C.

Camera Cable
The following type can be employed up to a maximum length of 900m (3 000ft) between the auxiliary pack and the CCU.
B.I.C.C. Type T1889 13mm, 34-way.
B.I.C.C. Type T1854 (Mark IV) 17·5mm, 34-way.
The T1889 13mm cable is used between the auxiliary pack and the camera head up to a maximum distance of 45·5m (150ft).

Pick-up Tubes
Philips XQ1070 Plumbicons or P8022 one inch light bias Leddicons.

Lenses
Angenieux 10×16 T11.
f/2·0, 47°–4·7°, m.f.d 1·5m (5·0ft)
Angenieux 6×13D2.
*f*2·2–*f*3·0, 59°–10°, m.f.d 0·6m (2ft)

Talkback Facilities
Cameraman's facilities, same as for standard Mark VIII camera except that Production Talkback, Programme Audio, and CCU talkback are all heard in the cameraman's left ear.

Ambient Temperature
i) Storage −20°C to +60°C (less tubes).
ii) Equipment may be switched on without damage over the range −20°C to +45°C.
iii) No change in performance data will occur at ambient temperature variations of ±10°C with respect to the temperature during the line-up procedure, within a range of −10°C to +40°C.

Ordering Information

When ordering please state :
1) Length of camera cable required.
2) Television standard and system employed.
3) A.C supply voltage on which equipment is to operate.
4) Type of zoom lens required.
5) If a colour coder is required (Coder 3373 recommended for PAL or NTSC).
6) The type of cabinet in which the control unit will be mounted.
7) If spares are required.
8) If a friction head and tripod are required (state camera application, i.e. lightweight or standard).
9) If test charts are required.
10) If additional handbooks are required.
11) If headsets and headphones are required.
12) If auxiliary control panels are required. (Not recommended for studio operation.)
13) If pick-up tubes are required.
14) If carrying cases are required.
15) If 7in. viewfinder and mounting are required.
16) If trolley and shoulder mount are required.
17) If training is required.
18) Any further items of equipment needed such as picture and waveform monitors, sync gens, communications unit etc.
19) Distance of operational control panel from CCU if over 15m (50ft).

Dimensions

	Height	Width	Length	Weight
Camera head	426mm (16·75in)	106mm (4·2in)	368mm (14·5in)	6·0kg (13·5lb)
1in viewfinder	213mm (8·4in)	103mm (4·0in)	110mm (4·35in)	1·1kg (2·5lb)
7in viewfinder	191mm (7·5in)	203mm (8·0in)	270mm (10·6in)	5·5kg (12lb)
Auxiliary pack	458mm (18in)	167mm (6·6in)	305mm (12·0in)	8·0kg (17·5lb)
Camera control unit	356mm (14in)	483mm (19in)	556mm (21·9in)	36·3kg (80lb)
Power supply	133mm (5·25in)	483mm (19in)	483mm (19in)	27·3kg (60lb)
OCP	206mm (8·1in)	89mm (3·5in)	105mm (4·1in)	
ACP	206mm (8·1in)	89mm (3·5in)	105mm (4·1in)	

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