Colour Television

SINCE June 1958 Marconi's have been operating the medical colour televison unit which they manufactured for Smith Klein and French Laboratories Ltd. Day-to-day operation under a wide variety of conditions tests equipment and techniques very fully. The equipment has, therefore, been well proved in service, and operating experience has led to the incorporation of certain improvements.

Production of colour equipment (in the absence of a public service on 405-line or 625-line standards) is necessarily small, but designs are continually being reviewed with the result that a complete range of more advanced equipment is available from the Marconi Company than from any other single source.

The diagram overleaf shows a typical camera channel with associated synchronizing pulse and test equipment. The camera can be either:

3-Image Orthicon Camera Channel Type BD 848

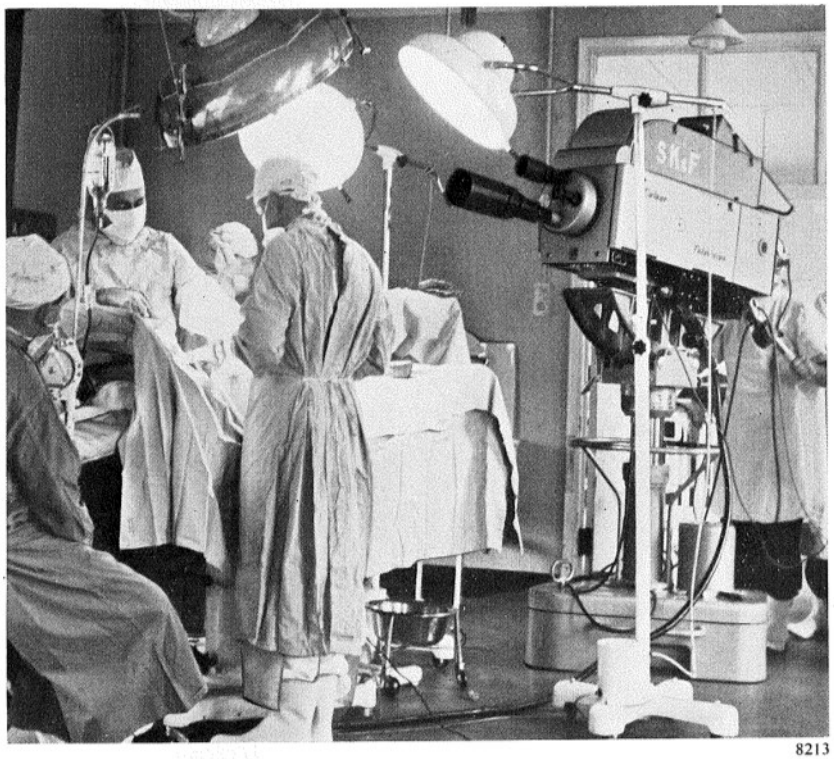
This camera has a tilting, removable 8 in. (20·3 cm) viewfinder, a single camera cable and very much improved ventilation and access than earlier models. A special cradle head and power-elevated pedestal make the handling of this camera as simple as that of a monochrome camera.

3-Vidicon Telecine Channel Type BD 874

This channel consists of a pedestal mounting 3 vidicon assemblies at 48 in. (122 cm) above ground level, suitable for use with the Type BD 872 Moving-mirror or Type BD 923 Pellicle Multiplexer.

3-Vidicon Studio Camera Type BD 877

This new camera has an advanced yoke design permitting critical alignment. The overall dimensions are similar to those of a single image orthicon camera and all facilities associated with studio work are incorporated.



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The 3-image orthicon camera in use for demonstration of a surgical operation to medical students at a remote position.

Pulse Generating Equipment

In an NTSC-type colour television system, colour information is impressed upon a sub-carrier which is related to line frequency, in the same manner as line frequency is related to field frequency in a monochrome system. This is in order to reduce interference from the sub-carrier to a minimum.

Crystal Oscillator Type E/TAD 3188 is a stable frequency source which is used to provide the colour sub-carrier. All other derived frequencies are related to the sub-carrier frequency.

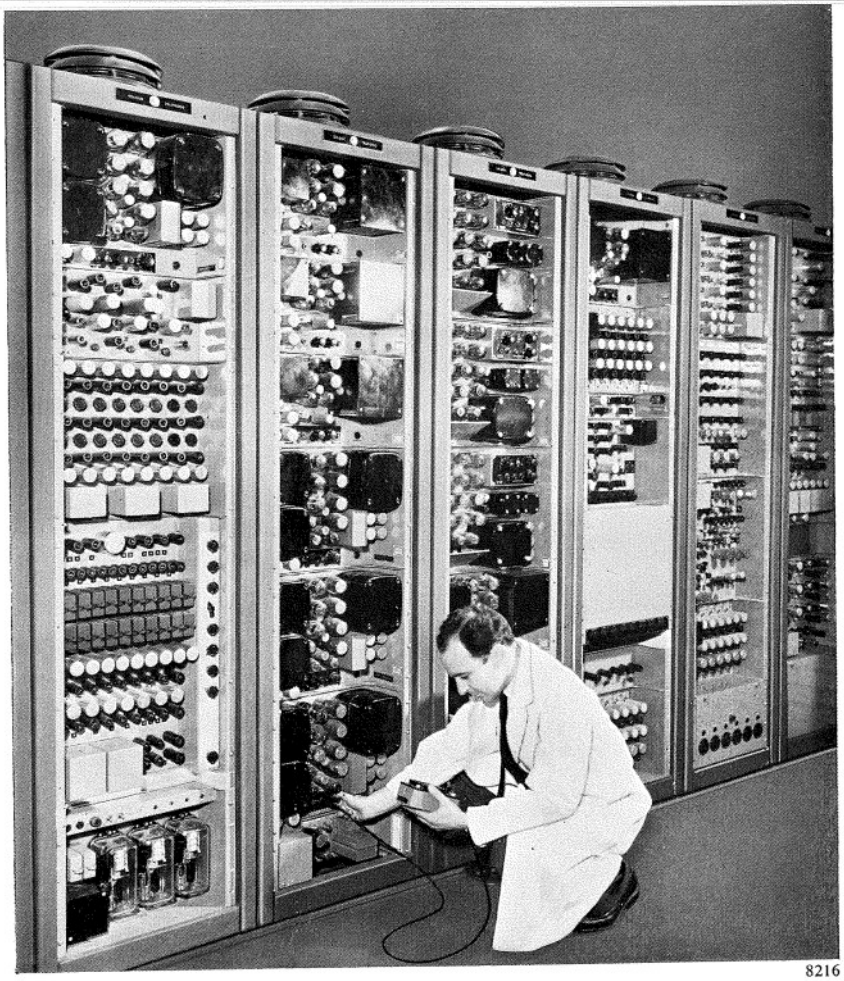
High-frequency Counter Type E/TAD 3315 is a divider unit employed to obtain the required odd-half-line relationship between the sub-carrier frequency and the line frequency. The unit divides the sub-carrier frequency by the appropriate ratio.

Burst Gating Pulse Generator Type E/TAD 3478. In order to synchronize the local sub-carrier generator in a colour receiver, a burst of sub-carrier of fixed phase is provided on the transmitter colour signal. This unit defines the envelope of the sub-carrier burst.

Synchronizing Pulse and Burst Mixer Type E/A 5138 generates a signal carrying all the synchronizing information required in the colour equipment. Representing 'black', this signal is useful in mixing and fading colour signals.

Colour Sub-carrier Frequency Generator Type BD 927

Combines the functions of a crystal-controlled master oscillator generating the sub-carrier, and the HF counter circuits which reduce this to drive the main synchronizing generator.



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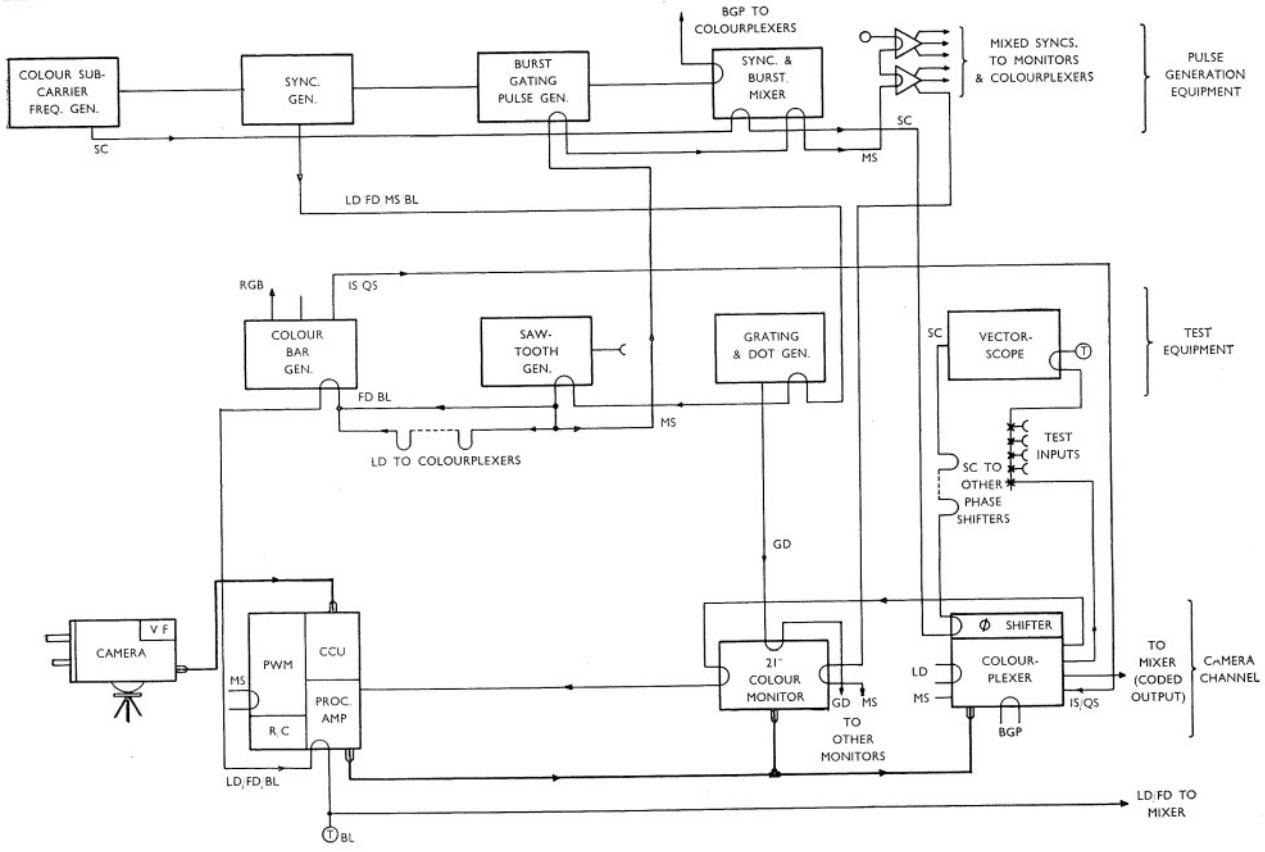
Rack-mounted colour television units.

Key to diagram below.

BGP = Burst Gating Pulse
BL = Blanking
FD = Field Drive
LD = Line Drive
GD = Grating and Dot
IS = Special I
MS = Mixed Syncs.
QS = Special Q
RGB = Red Green Blue
SB = Sync. and Burst
SC = Sub-carrier



Burst Gating Pulse Generator Type BD 924

Produces the pulse which determines the duration and timing of the colour burst.

Sync. and Burst Mixer Type BD 925

Mixes sub-carrier and mixed syncs. under the control of the burst gating pulse.

Colour Bar Generator Type BD 880

The level of the red, green and blue outputs are accurately established to equal amplitude by a gating circuit which obviates calibrating pulses and greatly accelerates setting-up procedure.

A colour projection monitor in use. 8215

Colourplexer Type BD 926

This unit incorporates automatic carrier balance, and has two coded outputs and a special I and Q output.

Vectorscope Type BD 899

Type BD 899 is a new design which matches the rest of the Mk. IV series and also serves as a conventional oscilloscope. A calibrated delay line is used for phase measurements by the 'hull-deflection' technique giving 0·1° accuracy. The case size matches the 14-inch (36 cm) monochrome monitors.

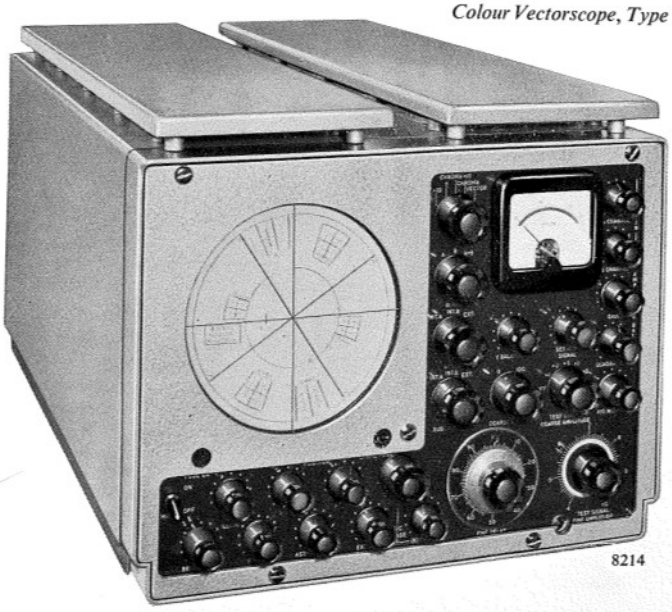
21-inch (53 cm) Colour Monitor Type BD 875

This is available in a mobile form with metal casework size 31 in. (high) × 27 in. × 27 in. (79 × 69 × 69 cm) and weighs 330 lb (150 kg). It will accept RGB, or coded or RF input (if required). Alternatively a wooden console is available in several styles and finishes.

Medium-screen Projector Type BD 876

Three Schmidt optics are used with special attention given to registration. Pictures from 3 ft × 3 ft (91 × 91 cm) at 6 ft lamberts or 8 ft × 6 ft (244 × 183 cm) at 1·5 ft lamberts screen brightness can be obtained in colour – or somewhat brighter on monochrome. These monitors have excellent corner definition and maintain adjustment for long periods. They are regularly used for demonstrations to audiences of 100 or more people.

Colour Vectorscope, Type BD 899.



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Large-screen Projector Type BD 607

A larger unit is available giving very high definition right out to the corners and with screen brightness of 14 ft lamberts at 6 ft × 4½ ft (183 × 137 cm) or 3·5 ft lamberts 12 ft × 9 ft (366 × 274 cm). As a monochrome projector one or three tubes can be used giving 2 or 5 ft lamberts at 12 ft × 9 ft (366 × 274 cm) screen size, respectively.

Special Effects Generator Type BD 855

An electronic switch of great effectiveness has been developed for colour use and is incorporated in a simple special effects unit having horizontal and vertical wipe, pointer and 'inlay' facilities.

Marconi

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The control pulpit of a complex closed-circuit television installation at the new rolling mill of the Steel Company of Wales.