



3 in. Image-orthicon Colour Camera Channel Type BD 848

WITH THIS CAMERA, good quality colour pictures can be obtained at light levels of approximately 250 ft candles (2500 lux). It is suitable for studio or outside broadcasts and is designed on the same lines as the very successful Mark IV black-and-white camera. The design philosophy in both these cameras has been to produce circuits which are so stable that in normal operation only two controls need be used, namely, those concerned with panning and tilting.

Features

Minimum of controls.

Camera is fitted with a tilting viewfinder.

Control unit is interchangeable with that used on the three-vidicon colour camera.

Use of prisms in the optical system reduces secondary images and improves resolution.

Latest circuit design of amplifiers enables a flat response to be obtained over the whole frequency range.

Switch provided to remove power from the image orthicon tubes during camera warm-up, or extended 'off-air' periods.

PRINCIPLE OF OPERATION

Light enters the camera through one of four taking lenses, (one of which is fitted with a quick release fitting for a zoom lens) and forms an image at the field lens which is mounted inside the turret. An optical relay system follows, and the final image is formed at a distance which allows a light-splitting

system of prisms and mirrors to be interposed. The light is divided by two prisms, mounted as a 'V' having a surface deposit which allows only green light to pass straight through whilst deflecting blue and red light to opposite sides. Front-silvered mirrors are then used to bring the three paths back into line which, after further shaping of the spectral response by filters are finally focused onto the photo cathodes of the 3 in. image orthicons.

The use of prisms in the optical system marks a step forward from the older system using dichroic mirrors and gives a reduction in secondary images and improved resolution.

The light input to the camera is remotely controlled by an iris incorporated in the optical system.

The tilting viewfinder employs an 8½ in. (22 cm) rectangular tube and the angle at which the unit is mounted may be adjusted over a wide range to facilitate operation at different camera heights. A composite processed signal is applied to the viewfinder from the camera control unit. By a two-position switch the camera operator can either select the Green only signal or the output to the mixer which may be the Red, Green or Blue signal dependent on the selection made by the camera control unit operator. Turret controls are normally operated from the rear of the camera, the focus control being incorporated in the panning handle.

CIRCUIT

The output from each image orthicon is fed to a separate head amplifier in which the latest circuit techniques are used to obtain a flat response over the whole frequency range from 50 c/s to 10 Mc/s. No 'high peaker' control is needed, as correction is made automatically, relieving the operator of yet another control. Each head amplifier is provided with an input for test waveform application. Separate controls for adjusting the height and width of the picture will be located at the camera control panel. Thus the Green controls may be adjusted as a reference followed by the separate Red and Blue controls.

The provision of individual as well as common controls, coupled with deflection yokes made to an extremely close tolerance enables a very high degree of registration of the three component images to be obtained.

9051



To reduce any tendency to drag, the single multi-core cable is brought away at the camera centre of gravity.

OPERATING CONSOLE

The complete console comprises two separate studio consoles mounted adjacently; one containing the camera control unit and camera control panel, and the other the picture and waveform monitor and remote control panel. The panels are edge-illuminated for operation under low ambient light levels.

The camera control unit contains the electronic circuits for processing the signal, such as black-level clamp, gamma correction, aperture correction and clipping circuits, and includes the following controls which are brought out to the front panel:

Line and field shading, linear and parabolic, for each tube.

Master lift, and lift for each tube.

Gamma correction.

Waveform input selection to the picture and waveform monitor.

Picture input selection to the picture and waveform monitor.

The camera control panel contains the image orthicon control for the Red, Green and Blue channels, the meter for checking focus current and negative camera voltages, and the power supply unit providing the negative voltages for focus regulation and align generators. Focusing potentials and currents are stabilized to a very high order to reduce focussing drift over long periods.

The remote control panel is mounted beneath the picture and waveform monitor and includes the iris control transmitter, the



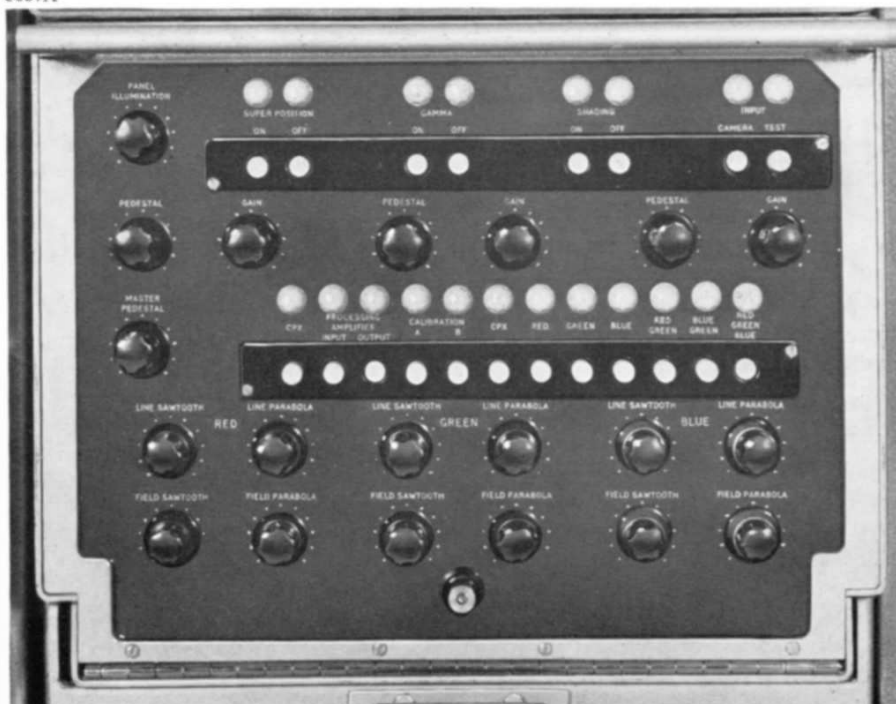
Operating console for the BD 848 Image-orthicon Colour Camera channel.

communications amplifier and the centring supply unit. In the event of power failure, communications can be maintained by switching to an external 12V or 24 V battery.

Data Summary

Power input: 100–125 or 200–250 V (in 5 V steps), 50 or 60 c/s, single-phase a.c.
Consumption: 2 kVA.

8687A



Close-up of camera control unit.

Marconi

*The Marconi Company Limited
 Marconi House, Chelmsford, Essex
 Telephone: Chelmsford 3221 · Telex: 1953
 Telegrams: Expanse Chelmsford Telex*