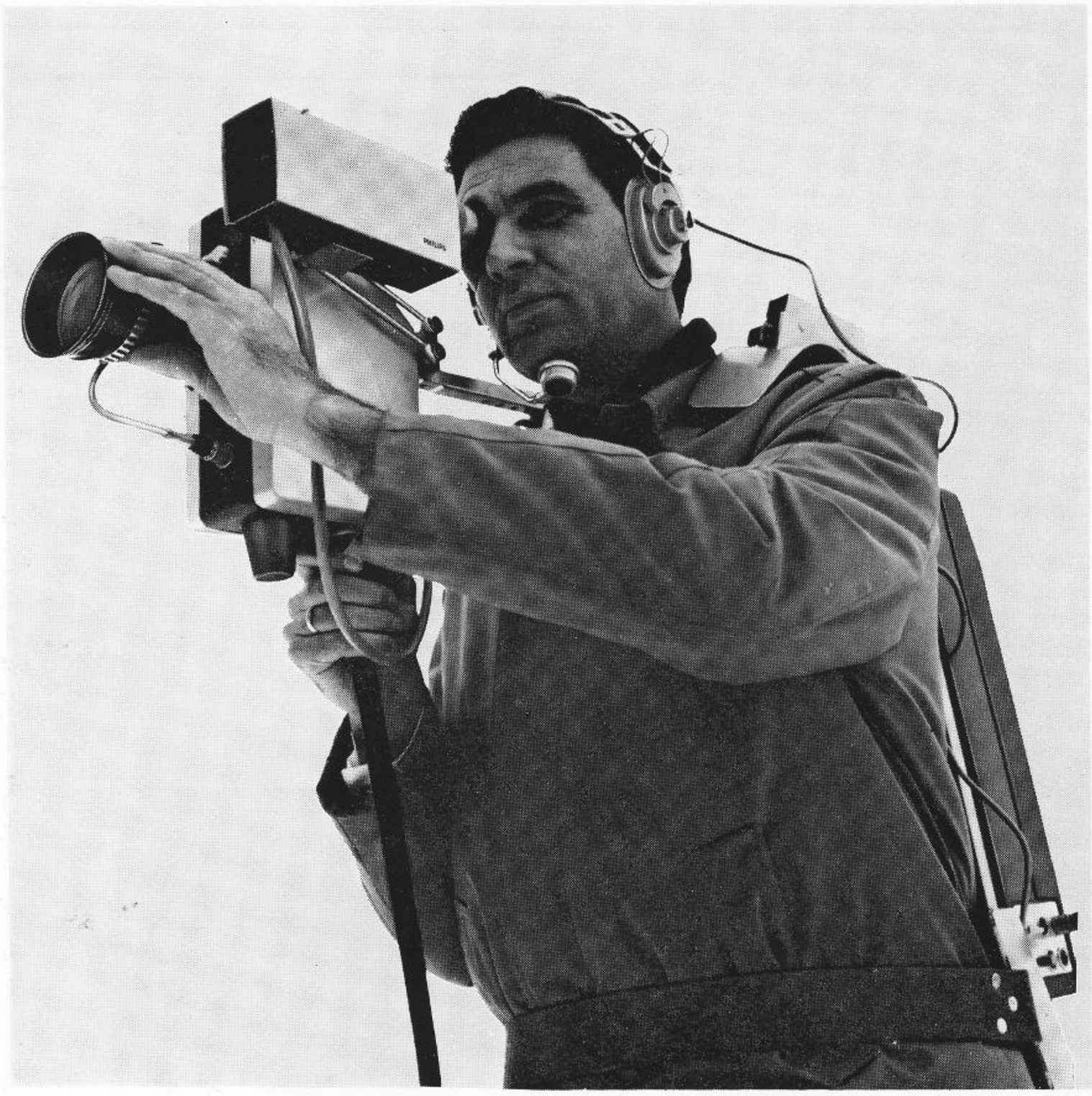
PHILIPS

BROADCASTING EQUIPMENT

Plumbicon* Colour Television Camera Chain, Type LDK13



Lightweight construction

Three tube camera with integrated ''contours from green'' principle

Easy conversion from PAL to NTSC systems

New $\frac{5}{8}$ in electrostatically focused Plumbicon* tube

Operates up to 1000 metres from CCU

The design of this portable colour television camera was made possible by the development of a new $\frac{5}{8}$ inch Plumbicon* tube. The equipment consists of a very small lightweight camera, an intermediate unit and a camera control unit, the latter being the standard CCU of the Plumbicon* Studio Colour Camera Chain, Type LDK3. Small size and low weight—camera including lens 4·5 kg, $3\frac{1}{2}$ inch viewfinder 2 kg, interconnection cable ($1\frac{1}{2}$ m) complete with plug and socket $1\frac{1}{2}$ kg, intermediate unit 6·8 kg and carrying belt 3 kg—make this camera equipment particularly suitable for use in outside broadcasting for on-the-spot covering of various events.

** Registered trade mark*

It is equally suitable for application in the medical field, not only for televising surgical operations but also in conjunction with optical instruments in microscopy and endoscopy.

The interconnection cable between camera and intermediate unit may have a length of several metres, so that in outside broadcast work the intermediate unit can be carried as back-pack by an assistant, or the cameraman may lay it down and move about with the camera proper within a certain area. Two types of electronic viewfinder have been designed for this camera, the $3\frac{1}{2}$ inch reflex type and a 1 inch direct viewing type which weighs 1 kg.

The intermediate unit is connected to the CCU, which will normally be located in an outside broadcast van, by means of a single camera cable with a maximum length of 1000 metres.

The CCU provides PAL or NTSC coded colour signals with or without sync pulses, as well as a gamma corrected RGB signal triplet for external use.

The Camera

The Camera is built into a cast aluminium alloy housing having deep drawn aluminium covers with snap locking. The housing is fitted with a facility for tripod mounting. The

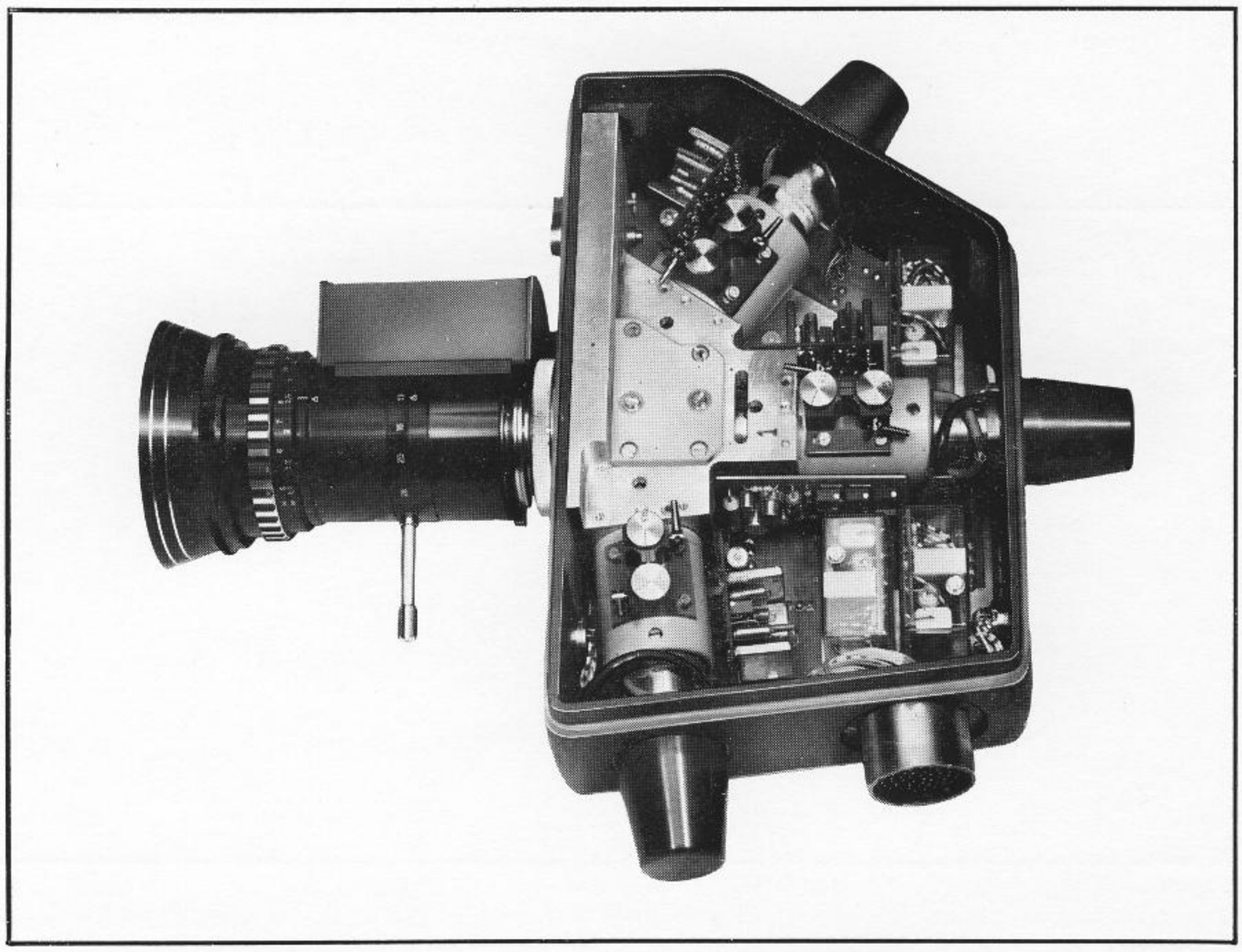
camera contains the pick-up section comprising the colour splitting prism, the three camera tubes with associated deflection units, and the first video preamplifier of each colour channel. The remaining circuitry normally housed in a camera is accommodated in the intermediate unit.

The whole pick-up section is incorporated in a dust-free cast aluminium block fixed to the front of the camera housing, to which the lens is also mounted by means of a quick-locking bayonet device. This design results in outstanding optical precision and stability.

The camera is equipped with a specially designed Schneider zoom lens type Variogon, *f*/1·6, 13 to 65 mm, with servo-controlled iris and manually controlled focus and zoom. The new more efficient colour splitting prism employed is preceded by a $\lambda/4$-filter to reduce objectionable effects due to incident, polarised light. A four-position filter wheel is arranged between lens and prismatic colour splitter. A cap filter is not required because the lens iris can be completely closed.

The miniature $\frac{5}{8}$ inch Plumbicon tubes are electrostatically focused. Apart from the overall picture sharpness achieved this method of focusing obviates the need for focusing coils in the deflection assemblies, so that these are considerably reduced in size and weight. The deflection units have vernier controls for optical focusing and picture rotation.

The electrical units of the camera are of the plug-in type. The video preamplifiers which employ thin film techniques, apply the primary colour signals with an amplitude of 200 mV to the intermediate unit.



The Intermediate Unit

The circuitry of this unit is mounted on plug-in printed boards. It includes: pulse generation, horizontal scanning, scan failure, protection, focusing, video amplification, cable length correction, test signal generation, intercommunication and signalling. The video amplifiers have an output signal level of 0·7 V. The test signal generator provides a line sequential sawtooth signal that can be fed to the camera preamplifiers via a signal current source in the camera. The unit also carries a module extender to facilitate service measurements. It is further fitted with a blower for forced-air cooling. This unit which can be combined with a carrying belt for use in outside broadcasting work is connected to the CCU by means of a single camera cable.

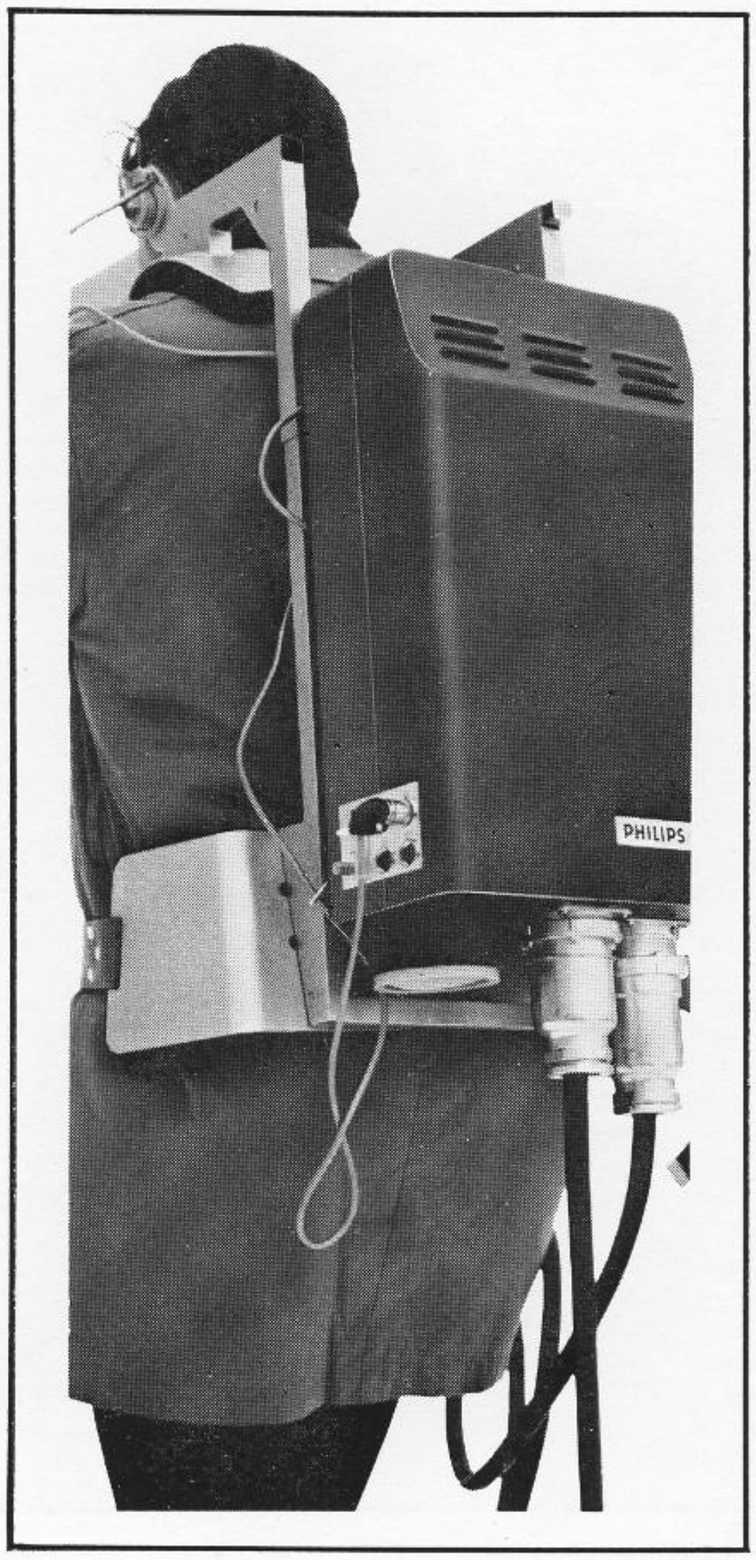
The Camera Control Unit

The camera chain uses the standard CCU of the LDK 3 Plumbicon Studio Colour Camera Chain. This unit consists of : Local Control Unit, Electronics Unit and Power Supply Unit. These are connected by cables at the rear and can be either in a 19 inch rack or in three separate cabinets.

The Local Control Unit includes a pull-out drawer with operational controls on the front panel, and setting up and colour registration controls on the top panel, and the Colour Waveform Monitor Type LDK 4910.

The Electronics Unit comprises modules for: video processing, including contour enhancement, encoding, pulse generation and timing, vertical scanning, focusing and beam alignment, picture switching, test signal generation, communication, signalling and remote control.

The Power Supply Unit consists of modules containing the regulated power supply for the camera chain. Voltage supplies for video and scanning circuits have been separated to minimise interference. All power supplies for the camera are automatically adapted to the various lengths of camera cable used.



Specification details subject to change without notice

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Printed in Great Britain. E/TN Issue 1