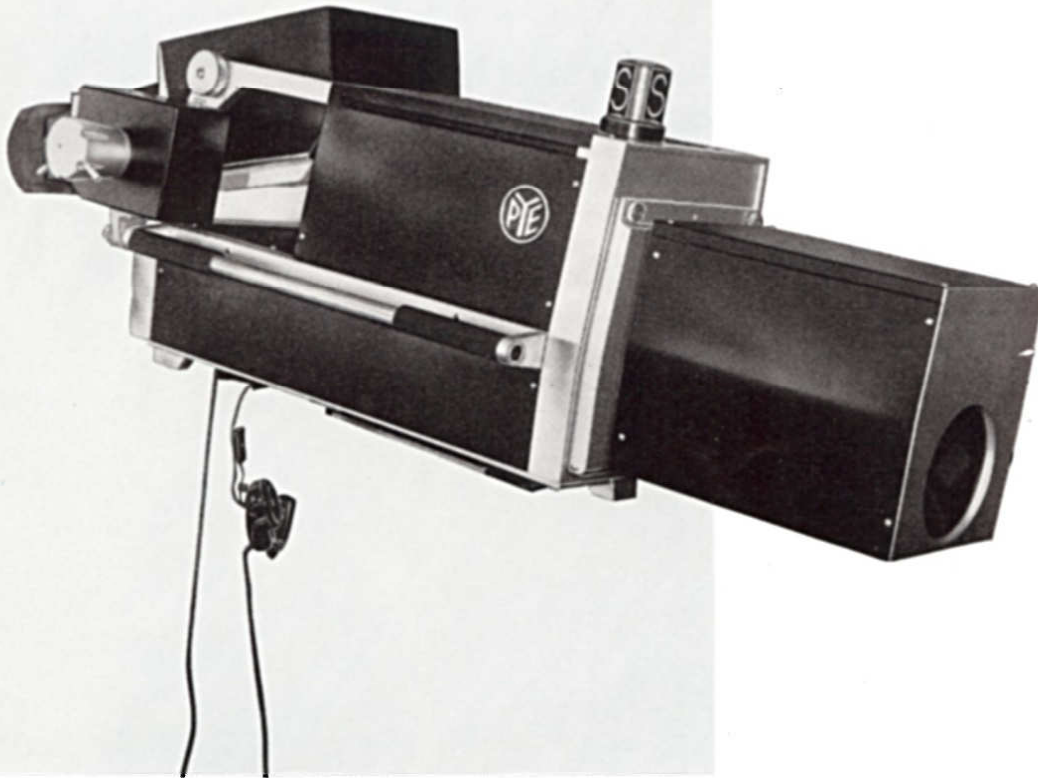


Vidicon & Plumbicon Cameras



FEATURES

Full broadcast quality camera using Plumbicon or Vidicon tubes

All solid-state, with modular construction

Unique setting-up and remote operating facilities

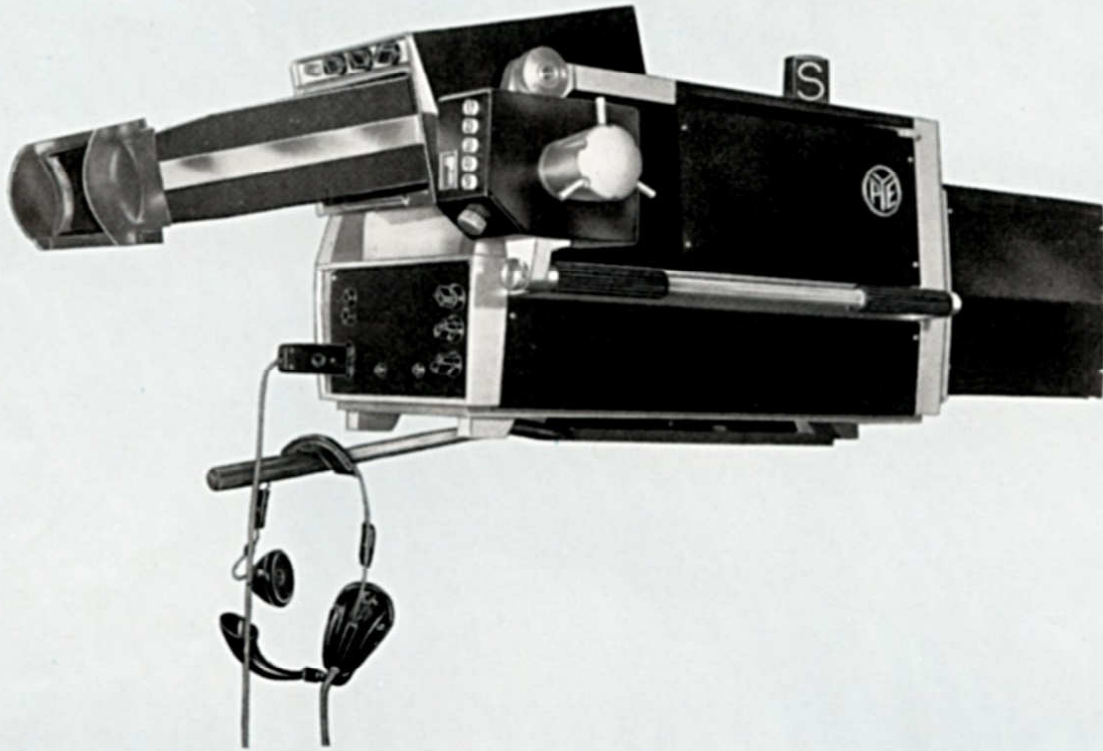
New solid-state Range 70 camera featuring analogue pulse check system. This enables camera operation from pick-up tube to outgoing line to be instantly checked and any misadjustments pinpointed. Pulse check facility on joy stick unit permits remote checking and operation.

Cameras are designed for Plumbicon or separate-mesh Vidicon. A caption camera version is also available.



RANGE 70

CAMERA



FEATURES

Designed to take zoom lenses with standard zoom base which can be either servo or manually controlled. Adaptors available to take standard fixed focal length lenses.

Built-in testing by means of pulses inserted at various points providing instant checking of the complete video channel. When all is correct the brightness of each test pulse displayed on the picture monitor is the same.

5-way filter wheel operated from rear of camera for multiple filter use.

Tilting/Detachable viewfinder, 7 inch (18 cm) diagonal screen.

Zoom rate control on panning handle. Focus and zoom shot-box controls may be placed in a variety of positions to suit the camera man, e.g. low on the camera or high beside the viewfinder.

Alternative small camera head, less viewfinder, is available for caption scanning and similar applications.

CONTROL UNITS

FEATURES

Standard camera control units and engineering control units which may be rack-mounted or re-arranged to suit the layout requirements of the customer.

Modular construction, small standard size plug-in printed boards used in camera as well as C.C.U. and E.C.U.

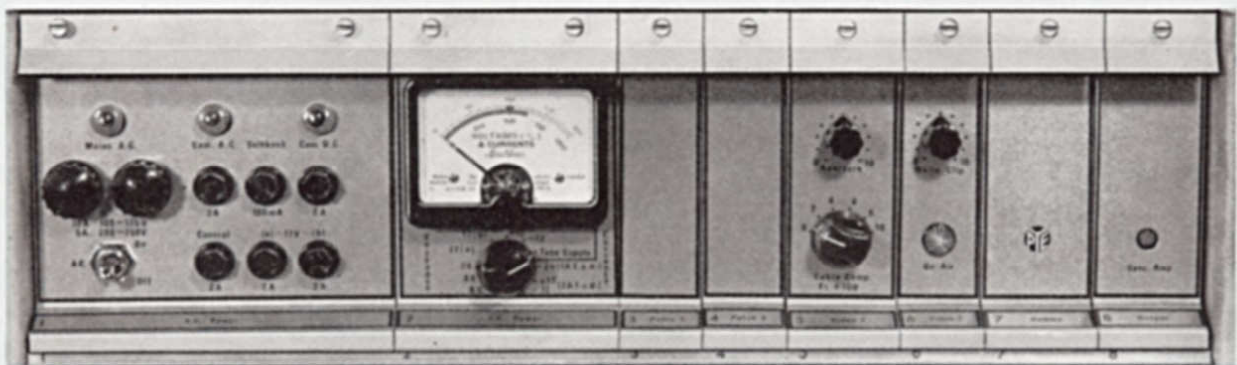
A single type of control unit has been designed to drive alternative camera heads (Image Orthicon, Vidicon, Plumbicon, live pick-up, or Telecine) with suitable changes of some unit modules.

Remote joy-stick facilities available.

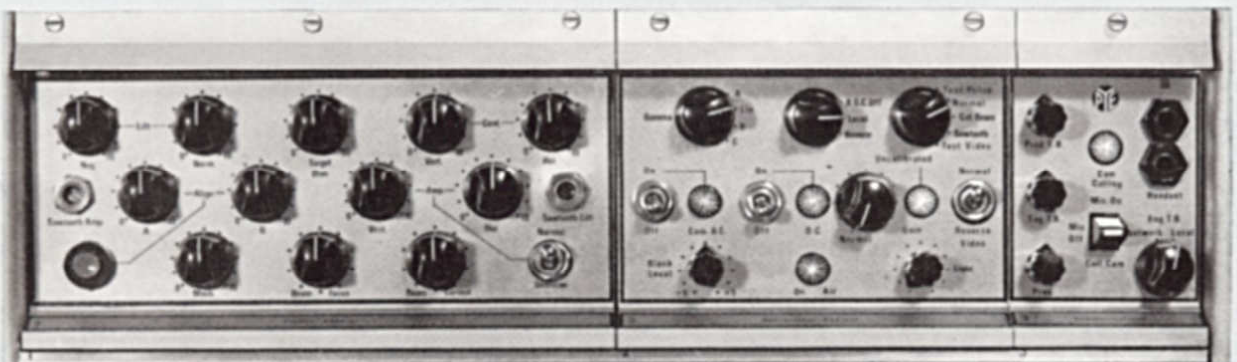
Separate channels with individual volume controls at both camera and E.C.U. end for programme sound, production talk-back and engineering talk-back. These services are brought out from the E.C.U. in a manner allowing flexible adaption to different talk-back systems.

Accessory unit available for up to 2,000 ft. (600 m) of cable.

Small space requirements—front area: 19 inch (48 cm) \times 5 $\frac{1}{4}$ inch (12.8 cm).



Camera Control Unit

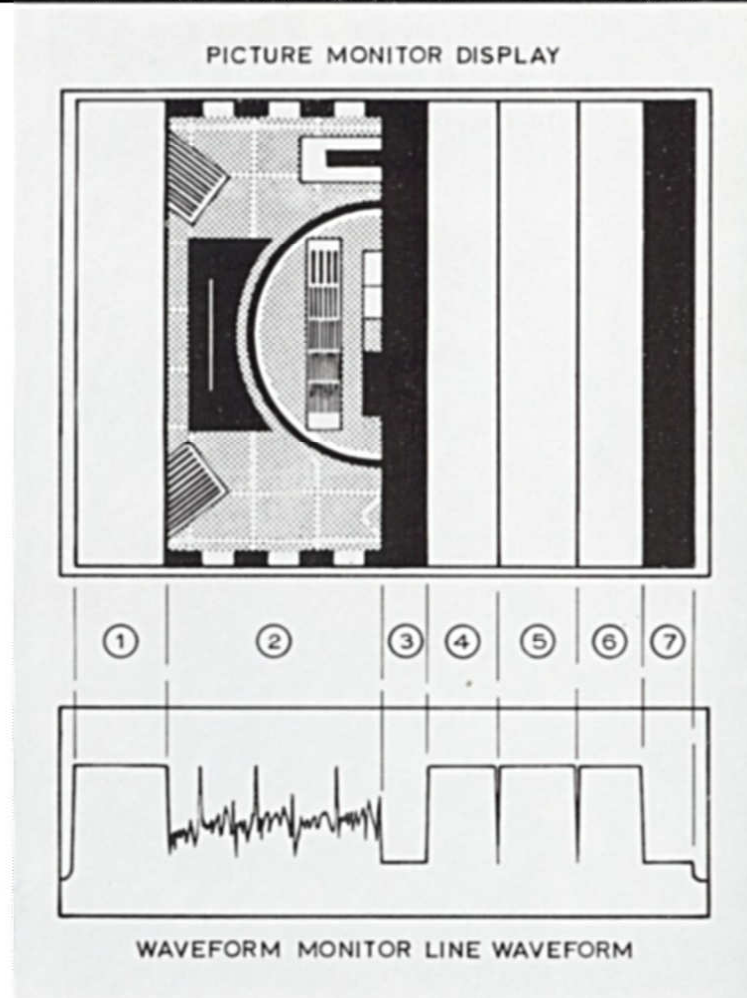


Engineering Control Unit

ANALOGUE PULSE CHECK

When the channel is correctly set-up all peak white pulses should be the same brightness on Picture Monitor or of same amplitude on Waveform Monitor. The peak white and black areas of the optical strip can be compared with the white and black pulse strips as an indication of exposure and contrast range.

Serious changes of pulse level, or loss of one or more pulses, indicates instantly the section of circuit in which misadjustment or failure has occurred.



When Test Pulses are selected a series of pulses appear across the screen as follows:

- (1) Peak white pulse injected at input of Head Amplifier.
- (2) Portion of target near centre of picture is unblanked presenting a vertical strip of optical picture.
- (3) & Signal from blanked target
- (7) presenting tube black level.

- (4) Peak white pulse injected at input of the camera control unit processing amplifier (i.e. at camera control unit end of camera cable).
- (5) Peak white pulse injected after blanking mixer and before the gamma correction stage.
- (6) Peak white pulse injected on output line from the camera control unit (on monitoring output only).

JOYSTICK CONTROL



JOYSTICK REMOTE CONTROL

FEATURES

Controls :

- Coarse and Fine Iris Control
- Black Level
- ON/OFF Switch
- Gamma Correction
- Function Switch
- Video Reversal
- Emergency Gain

Joystick controls have been in use for some time. Pye have applied new thinking to this very important item and unique results are obtained with the unit illustrated.

A novel arrangement allows full range of lens iris control with "vernier or bandspread" adjustment. End to end movement of the joystick within its slot provides adjustment over two lens stops, and rotation of the edgewise determines the range of iris setting. Should lighting conditions dictate a wide change of iris positions, simultaneous movement of joystick and edgewise is not apparent in the picture, thus completely smooth operation is obtained. This type of operation has not previously been available.

Rotation of the joystick knob adjusts the picture black level.

Because it is common practice in modern studios for one operator to control a number of camera channels, the analogue pulse check facility is made available on the joystick unit. Thus all the facilities for checking misadjustments, are available. The gain control is provided for emergency operation in unusually poor light conditions, e.g. Outside Broadcast programmes. A warning light shows when this additional 6dB gain control is operated since gamma and black level tracking will no longer be correct.

SPECIFICATION

SYSTEMS	625 lines 50 frames, 525 lines 60 frames, 405 lines 50 frames.
OPTICAL	
Lenses	Standard range of zoom lenses. Adaptor for lens on TV88 mounting.
Filters	Five filter positions are provided on a filter turret between the lens and the image plane. One or two filters can be accommodated together at each position. Filter diameter $2\frac{1}{4}$ inches (5.7 cm), total thickness (double filter) $\frac{1}{8}$ inch (3 mm). Filter turret operation by rear knob control.
Format	Plumbicon 0.79 in. (20 mm) diagonal. Vidicon 0.625 in. (16 mm) diagonal. Aspect ratio 4 : 3.
VIDEO CHANNEL	
Frequency Response	K rating 0.5% Pulse/bar ratio 0.98–1.02 KT rating 4% Pulse/bar ratio between 0.85–1.0. Overall figures with up to 1000 ft camera cable but lens cable tolerance.
Signal to Noise Ratio	Better than 42dB unweighted p.p. signal to r.m.s. noise for a linear channel of 5MHz bandwidth, and 300 nano-amp signal current.
Gain	Sufficient to give 0.7 vp.p. video output for Vidicon or Plumbicon signal current of 100 nano-amps, with 6dB of gain in hand.
Amplitude Linearity	Non linearity less than 2%. Differential Gain distortion less than 5% for any duty cycle. (Gamma circuits inoperative).
Aperture Correction	Continuously adjustable cosine law corrector. with crossover frequencies matched against roll-off characteristics of coverage tube in camera yoke.
Gamma Correction	Four preset transfer characteristics selected by switch on Engineering Control Unit, normally (a) Blackcrush. (b) Linear. (c) and (d) Blackstretch.
Stability	Black level within $\pm 1\%$; white level clipper within $\pm 2\%$; overall video gain within ± 1 dB; for extended periods after a 30 minute stabilising period and including mains changes up to 5%.
Low Frequency Response	Tilt less than 0.25% per m.s.
Hum and Spurious Signals	60dB below 1.0V p.p output.
Polarity	Positive or negative video switched at Engineering Control panel or joystick remote control. Separate preset adjustment of negative video lift.
White Clipper	Adjustable between 90% and 120% peak white.
Black Level Control	By adjustment of gain referred to a peak white clamp giving a range which moves picture black from 40% of peak white to 40% below system black level, while maintaining picture white constant.
Pedestal	A pedestal of 5% of peak white may be added to the main video output by an internal link.
Outputs	Two independent outputs either of which can be 0.7V p.p. non-composite, or 1.0V p.p. composite. Synchronising pulses selected by internal link, negative.
Isolation between Outputs	Greater than 50dB at 10KHz, 38dB at 3MHz, and 30dB up to 5.5MHz.
CAMERA SCANS	
Picture Geometry and Scanning Linearity	Within $\pm 1\%$ in the central circular portion of the raster having a diameter equal to picture height. Within $\pm 2\%$ in the remaining areas. Differential velocity error not greater than 2% in the central circular area.
Amplitude Range	Horizontal and Vertical : minimum range $\pm 10\%$ of normal amplitude.
Centring range	Horizontal and Vertical : $\pm 10\%$ of width or height from mid-position.
Overscan Amplitude	Horizontal and Vertical Set at 5%.
Stability	Within $\pm 1\%$ of picture width and height after a 30 minute stabilising period, and including mains changes up to 5%.
Directions	Horizontal and Vertical Scans independently reversible from the camera position.
VIEWFINDER	
Display Size	$4\frac{7}{8} \times 3\frac{5}{8}$ inches (12 x 9 cm).
Brightness	200 ft. lamberts peak white.

SPECIFICATION

Picture Sources

Switchable at viewfinder to show (a) Picture from own camera. (b) An external source. (c) A mixture of (a) and (b). Provided that the external source is at standard level there is no change in amplitude when switching.

Amplifier Gain

Adjustable by contrast control from zero to sufficient to give 200 ft lamberts highlights with 6dB gain in hand.

Detail Emphasis

Continuously variable up to 10dB boost.

Black Reference

By line clamping.

Geometry and Scanning Linearity

Within $\pm 1\%$ in the central portion of the raster having a diameter equal to picture height. Within $\pm 2\%$ in the remaining areas. Differential Velocity error not greater than 2% in the circular central area.

Scan Amplitude Range

Horizontal and Vertical minimum range $\pm 10\%$ of normal amplitude.

Scan Centring Range

Horizontal and Vertical $\pm 10\%$ of width or height from mid-position.

Scan Stability

Within $\pm 1\%$ of picture width and height after a 30 minute stabilising period, and including mains changes up to 5%.

CAMERA CABLE SUPPLIES AND PULSES

Power

BICC Mk. IV with quick release couplers maximum length 1000 ft (300 m). (Accessory unit to permit up to 2000 ft to be used).

System Waveforms

100–125 volts or 200–250 volts a.c. 40–65 HZ, 150 VA approximately.

Negative going complete sync. and complete blanking between 1.5 and 5 volts p.p. into 75 ohms, with bridging out connectors. (Camera Vertical and Horizontal drive pulses are internally generated from complete sync.)

DIMENSIONS & WEIGHTS

Camera (Less zoom lens)

Length : $26\frac{3}{4}"$ (68 cm) over Viewfinder. Height : 15" (38 cm) + $3\frac{5}{8}"$ (8.4 cm) cue lamp. Width : $14\frac{1}{4}"$ (36.2 cm) over handles. Weight : Camera only 80 lb (35.3 Kg). Viewfinder 13 lb (5.9 Kg).

Camera Control Unit

Width : 19" (48 cm). Height : $5\frac{1}{4}"$ (13.6 cm). Depth : 17" (43 cm) over connectors. Weight : 50 lb (27.6 Kg).

Engineering Control Unit

Width : 19" (48 cm). Height : $5\frac{1}{4}"$ (13.6 cm). Depth : 9" (23 cm) over connectors. Weight : 17 lb (7.6 Kg).

Joystick Remote Control

Width : $2\frac{3}{4}"$ (7 cm). Height : $8\frac{3}{8}"$ (22.2 cm). Depth : $3\frac{1}{2}"$ (8.9 cm) + 3" (7.6 cm) over Joystick Control. Weight : 2 lb (0.91 Kg).

TYPE NUMBERS

Cameras

Plumbicon Viewfinder Camera 525/625 lines. 842118/00; 405 lines, 842118/01; 405/525/625 lines, 842118/02. Vidicon Viewfinder Camera 525/625 lines, 842119/00; 405 lines, 842119/01; 405/525/625 lines, 842119/02.

NOTE : 1 Board is changed in Viewfinder for 405 operation.

Plumbicon Caption Camera 405/525/625 : 842110/00. Vidicon Caption Camera 405/525/625 : 842111/00.

Rack Mounted

Camera Control Unit including power unit : 846370/00.

Rack Mounted

Engineering Control Unit : 844432/00 and 2 ft cable to C.C.U.

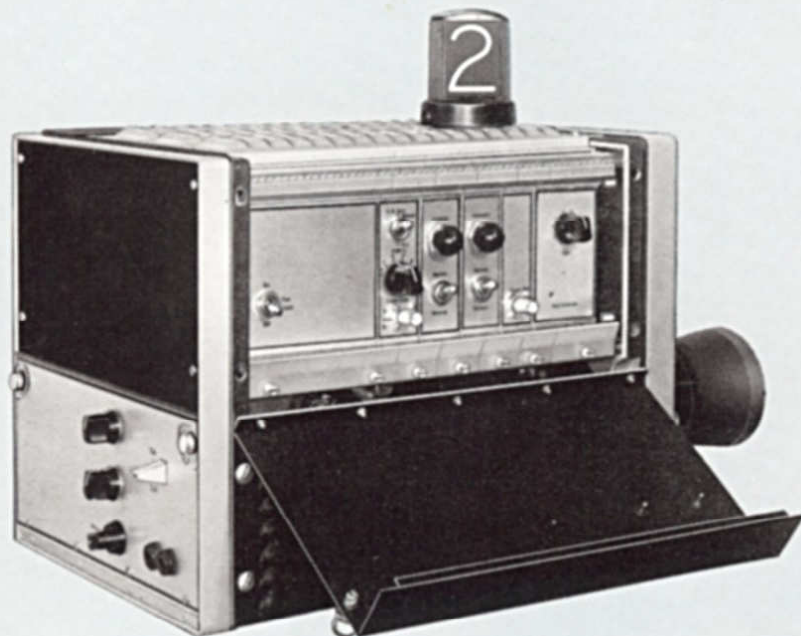
ASSOCIATED ITEMS

(To Customer's order)

Lenses

Camera Cable, length as required	...	...	...	...	750586
Cable CCU to ECU, length as required	...	...	...	...	AG26312
Joystick remote control	...	...	...	...	844679/00
Cable CCU to Joystick, length as required	...	...	...	...	AG26313
Extension box for 2000 ft camera cable	...	...	...	...	842639/00
Headset for Camera and Control Positions	...	...	...	...	EA19746
Visor Facepiece moulding	...	...	...	...	BG21000
Viewfinder Visor Assembly...	...	...	...	...	AG27698
Viewfinder Hood	...	...	...	...	AG27699
Waterproof cover	...	...	...	...	EA19873
Shot Card Holder AG27477 and Illuminator	...	...	...	...	AG27906
Cue lamp with numeral identity	...	...	...	...	AG2756/1-7

SYSTEMS



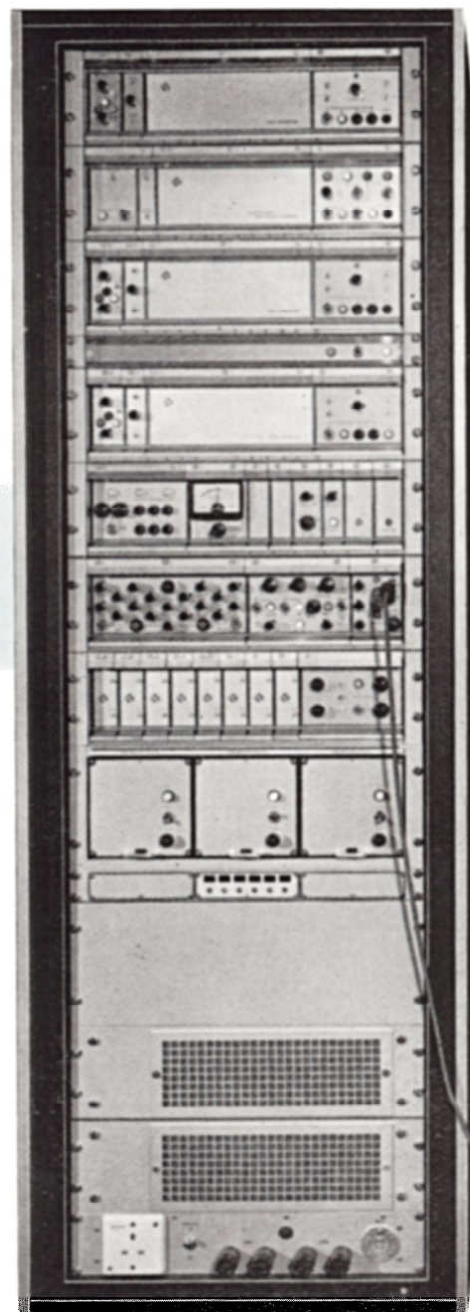
VIDICON-PLUMBICON CAPTION CAMERA
showing modules in I.S.E.P. construction

The advantages of the new Range 70 presentation are fully realised when all the associated items are also provided in this new design. A Range 70 rack is illustrated which shows the neat, compact, modular construction effected by the I.S.E.P. design.

The rack includes the Camera Control Unit and Engineering Control Unit for Orthicon, Vidicon or Plumbicon Camera Chains.

Also included are the Range 70 Sync Pulse Generators, Distribution Amplifier, Sync Slaving Unit and a variety of Audio and Supply Control Units.

Finished throughout in black and polychromatic silver.



PYE TVT LIMITED : CAMBRIDGE : ENGLAND

TELEX 81103

TELEPHONE CAMBRIDGE 45115

Printed in England

G.C.C. 79595



Supplied by
PYE TVT LIMITED
Cambridge, England
For and on behalf of
PYE LIMITED

Owners of the Trade Mark 'Pye'