FIELD OR STUDIO

Image Orthicon Camera Equipment

Image Orthicon Camera Types 2014 *and* 2028.

Features

CAMERA CHANNELS

- ★ Units of lightweight construction.
- ★ Suitable for field and studio use.
- ★ Suitable for any system. Switchable version for 625-line and 819-line systems.

CAMERAS

- ★ Designed for local or remote operation.
- ★ Only one cable connection to camera required.
- ★ Extremely sensitive pick-up tube.
- ★ Electronic viewfinder incorporated.
- ★ Swivelling viewfinder hood.
- ★ 4-lens turret with rotary switch selector.
- ★ Lenses quickly fitted to turret.
- ★ Focus control movement identical for all lenses.
- ★ Meter indication of iris setting on camera and control unit.
- ★ Focusing and fingertip iris controls on both sides of camera.
- ★ Extended focus range-switch for extreme close-ups.
- ★ Locking focus control with variable turning resistance.
- ★ A preloaded filter disc is included with provision for masks in place of filters.
- ★ Built-in air extractors with silent operation.

CAMERA CONTROL UNITS

- ★ Contain all the controls for setting up a complete video picture.
- ★ 9-inch (23 cm) picture tube for picture monitoring, and 3-inch (7·5 cm) tube for monitoring waveforms.
- ★ Separate pulse-driven EHT supply for picture tube.
- ★ Internal calibration voltage available for checking levels.
- ★ Peak White Limiter prevents overloading of circuits and distortion of waveforms.
- ★ Compensation for different lengths of camera cable.

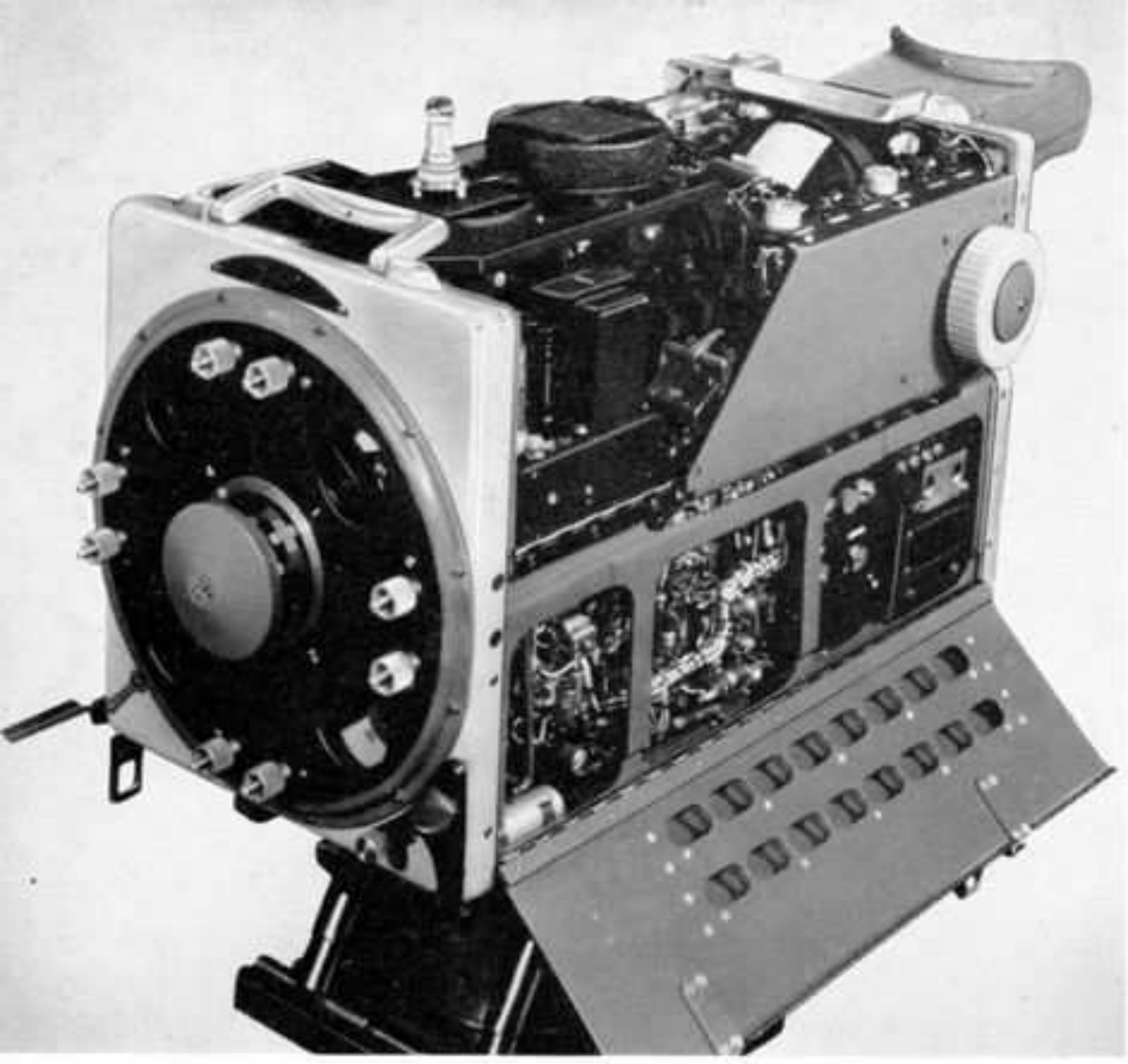
POWER SUPPLY UNITS

- ★ Provide all d.c. requirements for the respective camera channels.
- ★ Supplies are electronically stabilised within close limits.
- ★ Switched meter to check input and output power supplies.

Uses

Compactness and lightness of weight make the respective cameras and their associated units, as detailed for the various systems in the Specification which follows, particularly suitable for field use; at the same time, high precision of engineering detail has resulted in equipment suitable for studio work.

All television systems are provided for by appropriate combinations of equipment. The 625-line equipment is suitable for 525-line application without modification, and a switchable



Camera with inspection covers removed. The twin fan assembly and cue lamp are mounted on top of the electronic viewfinder chassis. The arrow indicates the operational lens to the artiste.

625-line and 819-line channel is available for use in areas where rapid interchange from one system to the other is necessary.

Each camera is so designed that it can be set up in a few moments, and it has a large range of viewing angles and exceptionally high sensitivity, making it eminently suitable for use in difficult situations and under indifferent conditions of lighting.

Iris setting can be controlled either at the camera or at the camera control unit. When a remote control unit is connected into the channel at the camera control unit, turret changing and focusing can also be controlled away from the camera position, enabling the cameraman to give undivided attention to the framing and composition of fast-action pictures. Alternatively the camera can be set up at a suitable location and left unattended.

When a single camera channel is used, its associated control unit provides a video signal complete with blanking and synchronising pulses which can be fed to line or to the transmitter. For multi-channel working using a Pye Mixing Unit, the camera control units deliver a blanked video signal without synchronising pulses, these being added in the mixing unit itself.

Description

CAMERA CHANNEL EQUIPMENT

With the exception of the 405-line system, an Image Orthicon Camera channel consists of—

1. Image Orthicon Camera.
2. Camera Control Unit (in which a picture monitor is incorporated).
3. Power Supply Unit.
4. The requisite interconnecting cables.

In the case of the 405-line system, the camera control unit is subdivided into a control unit and a separate picture monitor.

A Remote Control Unit may be connected into any camera channel at the camera control unit as required.

IMAGE ORTHICON CAMERAS

Each Image Orthicon camera employs Elektron metal pressings to provide a light but strong construction and contains the following units :

Image Orthicon deflection yoke assembly with Head Amplifier.
Image Orthicon Supply and Distribution Unit.
Viewfinder.
Servo Amplifier.

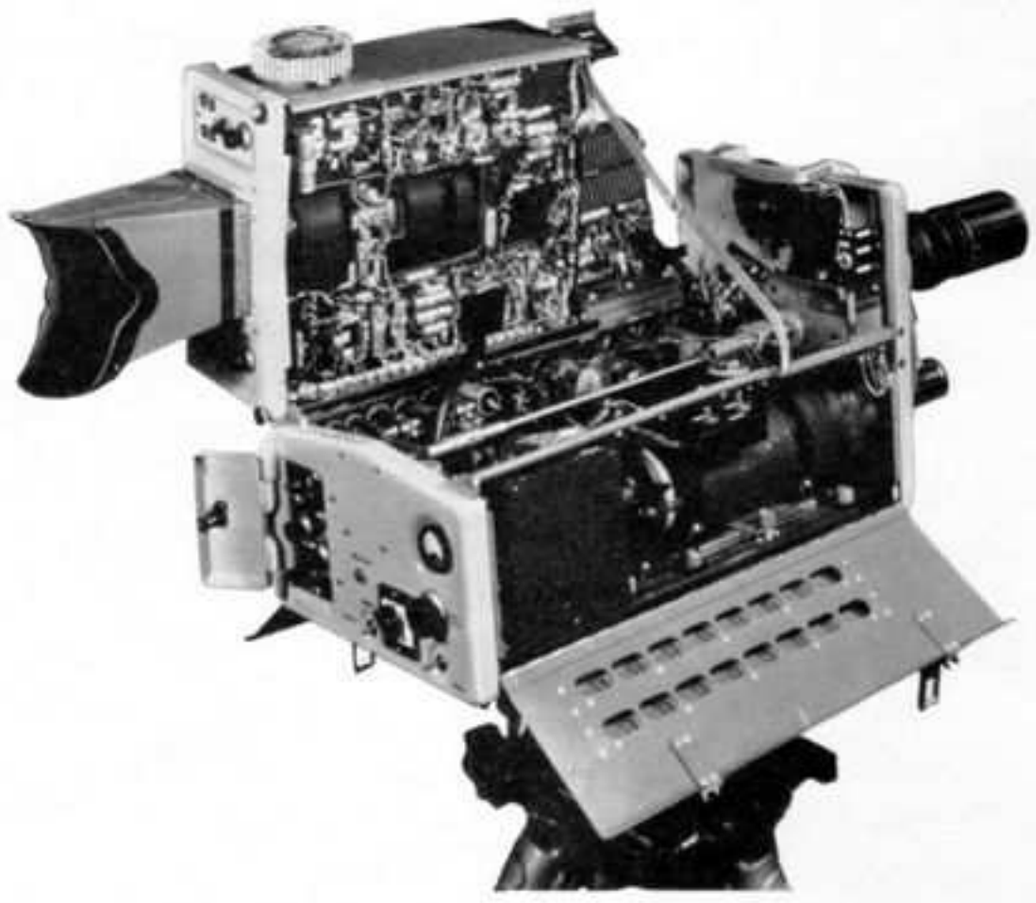
These units can be serviced without removal from the camera, but can all be removed if desired.

By releasing three knurled screws and the plugs of the interconnecting cables the tube assembly can be slid out for changing the tube. When in position in the camera the head amplifier is completely accessible, but may be removed by the release of a single screw. The viewfinder and servo unit both swing upwards and outwards from the side of the camera. Flying leads on these units then enable servicing and adjustments to be carried out with power cables connected. With the units in this position all normal servicing can be achieved on any part of the camera. However, in the event of a major repair being necessary, the viewfinder may be completely removed by releasing one knurled screw and the interconnecting lead plug, while the servo unit may also easily be taken out by removing three screws and one interconnecting lead plug.

A four-lens turret is provided, on which a range of wide and narrow angle lenses may be mounted together, suitable for any programme. The turret is strongly constructed and has a peripheral ball-race to withstand the strain imposed by the largest lenses. Four plates are provided to cover the apertures in the turret when the lenses are not in place.

Lens changing is accomplished by a motor drive on the turret which is controlled by a switch selector at the rear of the camera. The operation of the switch sets the motor in motion and the turret rotates until the selected lens is brought into position opposite the pick-up tube, where it stops and is automatically locked. The time taken to change from any lens to one adjacent to it is 1·25 seconds, and from any lens to the one on the opposite side of the turret 2·5 seconds. To keep changing time to a minimum the mechanism is so arranged that when an adjacent lens is selected the direction of rotation of the turret is such that the required lens moves automatically into position by the shortest route.

Lenses may be fitted to the turret in a matter of seconds, locating pins and large knurled nuts ensuring rigid mounting. A turret plate assembly is supplied to counterbalance the weight of heavy lenses. Focusing is accomplished by positioning the Image Orthicon pick-up tube assembly in the camera. The special

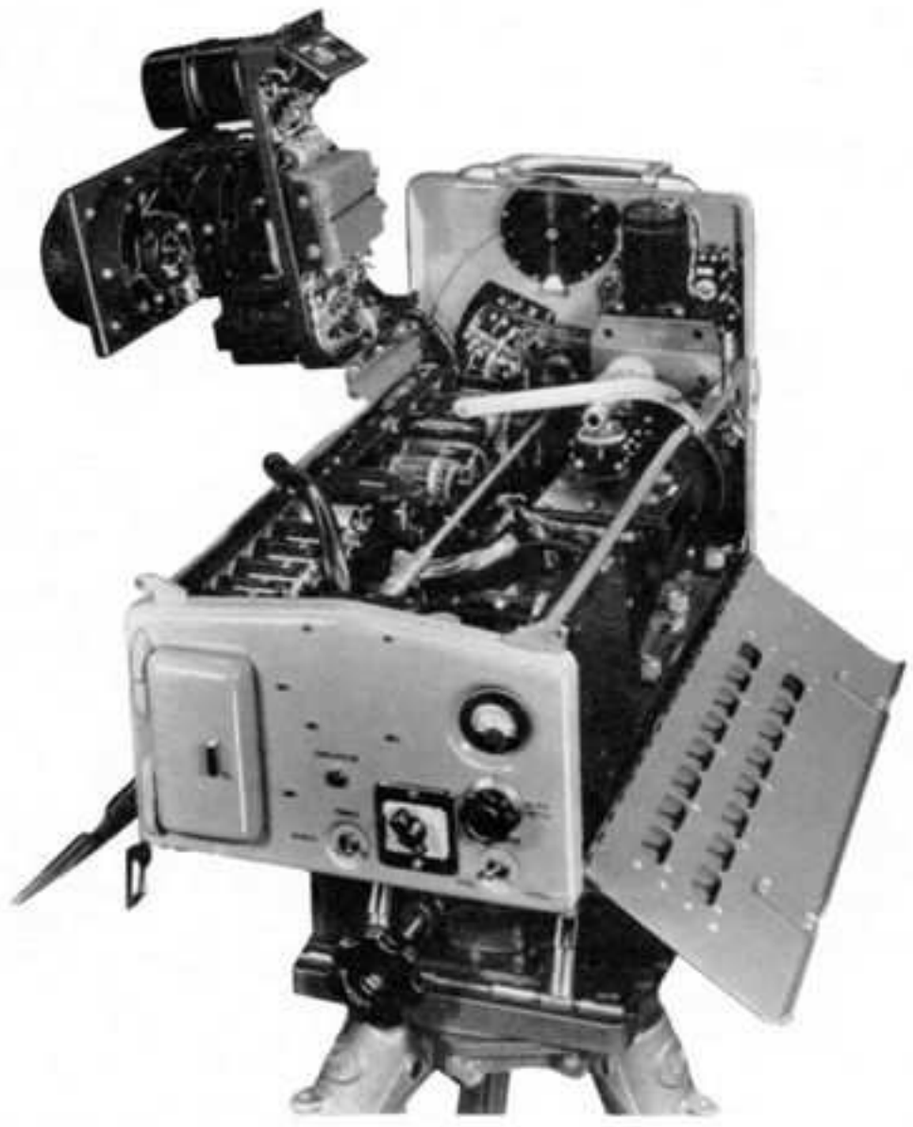


The viewfinder chassis is shown raised for inspection. The flexible cable form permits the unit to be operated in this position.

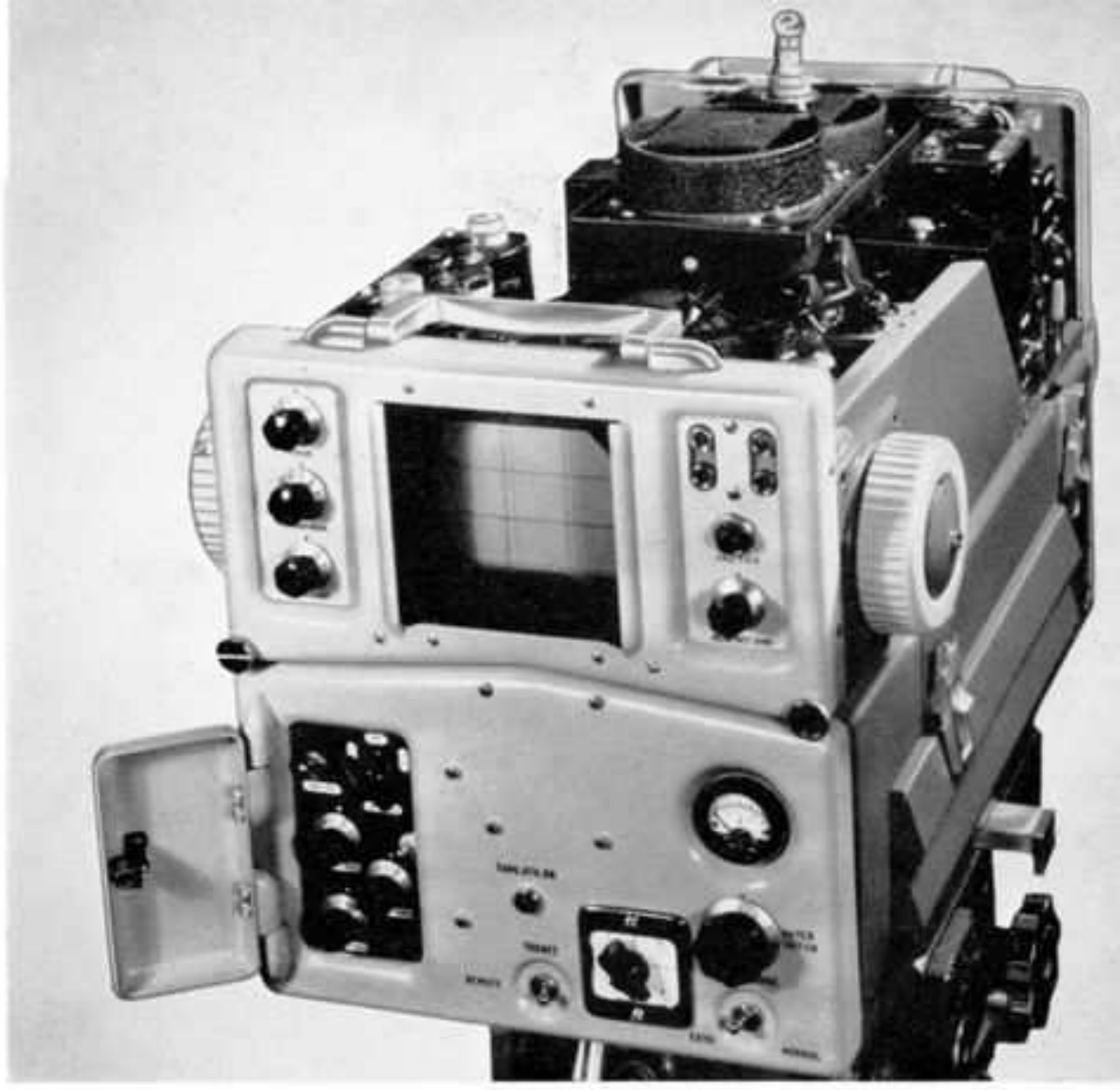
carriage designed for this purpose is fitted with roller bearings, and provides a very smooth, easy lateral motion, at the same time ensuring the utmost rigidity in all other directions. The Image Orthicon assembly is actuated by a servo mechanism which follows the setting of the focus control potentiometer.

A focus range switch is provided for normal or extended ranges. With the switch at NORMAL the focusing range is from infinity to a distance where a 9-inch (23 cm) diagonal just fills the screen for lenses having a focal length up to 12 inches (31 cm). For lenses of 12 inches (31 cm) to 24 inches (61 cm) focal length the close-up distance will vary from 6½ feet (2 m) to 24½ feet (7·5 m). Resistors fitted into each lens mount automatically come into circuit as soon as the lens is brought into the viewing position, and these are so chosen that the full rotation of the focus control knob produces the necessary movement of the pick-up tube for that lens. This arrangement produces the same focusing knob movement for all lenses from close-up to infinity, and irrespective of the lens in use, the "feel" of the control remains the same. When the focus range switch is set to EXTENDED, the lens resistors are cut out of circuit and a full 2¼-inch (5·75 cm) movement of the image orthicon carriage is obtained for all lenses, thus facilitating unusual effects using extreme close-ups. Focusing may be performed at either side of the camera according to the preference of the cameraman, a switch on the rear panel selecting either Right-hand, Left-hand, or REMOTE. Full range is covered with a 300° movement, and the control and tube assembly will remain stationary when left in any position, irrespective of camera angle. A small lever under the focusing knob actuates a friction clutch, and is set by the operator to provide the desired amount of friction on the control, or may be set to lock the control when required.

The lens iris aperture is normally adjusted from the camera control unit where the picture monitor is available to determine the best setting. A lever key on the panel controls a small motor in the camera which operates the opening and closing mechanism. The setting is registered automatically on a meter adiacent to



The viewfinder has been disconnected and removed and the servo unit raised for inspection. Note protruding knurled disc controlling filter at rear of front panel.



Rear view of camera with top panel and viewfinder hood removed. Note large focus control with two iris control switches above for finger-tip operation.

the control by the movement of an accurately shaped cam which is individual to each lens assembly. This cam, together with the way in which it is operated, obviates the necessity for lenses to be specially made with identical angular rotations of the iris ring. A feature of this arrangement is that the iris change mechanism disengages as the lens is moved away from the viewing position, and thus when returned the lens will have the same iris setting as it had when previously used, irrespective of the setting of the control for the previous lens in use.

Although the iris settings are normally controlled from the camera control unit, thereby relieving the cameraman, they may be set at the camera if desired. Push-button switches are mounted on each side of the camera so that they can be operated by the fingertips without taking the hand from the focusing knob. A meter on the rear panel indicates the iris setting as on the camera control unit.

A flat-ended 5-inch (13 cm) cathode ray tube is employed in the viewfinder enabling the operator to see a picture similar to that which is being produced by his camera. The use of an electronic viewfinder eliminates the possibility of incorrect focusing or aiming due to misalignment between camera and viewfinder, and also provides the operator with a clear picture when working at a low light level. The tube produces a black and white picture, the size of which is increased by a special lens. A neutral colour filter with engraved composition lines helps to improve the contrast when viewed under high external lighting conditions. The camera can be operated without the viewfinder, the closing of a switch completing the circuits when the viewfinder unit has been removed.

A cue light is fitted at the top of the camera, and another inside the viewfinder to enable the operator to know when his camera is on or off the air, although he may be looking into the hood continuously. The top cue light can be switched off from the inside of the unit should it be desirable that the performers remain unaware that the camera is "alive."

The meter on the panel is normally used as an iris setting indicator. It may, however, be used for test purposes when required.

potentiometer serves as volume control for both services simultaneously.

The talkback system operates from a d.c. supply which is switched on with the a.c. power, and the camera and control unit operators can then speak to each other as soon as the camera cable is connected.

Miniature valves are used in this unit and forced ventilation maintains an even temperature throughout, thus avoiding troubles due to 'hot spots'.

The control unit for the 405-line system provides the same facilities except that—

1. A two-position talkback switch in conjunction with 'split' headsets provides the following facilities when the camera channel is working with one or more other channels through a mixing unit :

   Producer's talkback to one earpiece exclusively. To the other earpiece—

   Switch to TALKBACK : Omnibus talkback, with audio programme superimposed at the Producer's option.

   Switch to CAMERA : Communication with camera man only, with audio programme superimposed at the Producer's option.

   When the camera channel is working independently, communication between control unit and camera is maintained continuously with the switch in the CAMERA position.

2. The picture display for monitoring is provided by the following separate unit.

PICTURE MONITOR Type 2376B

While this Picture Monitor has been designed primarily for operating in conjunction with Image Orthicon camera channels, it may also be employed as a picture monitor at any desired point in a 405-line television transmission system provided that the necessary video, horizontal and vertical drive pulses and a.c. inputs are available.

The timebases are of a driven type, the operation being initiated by separately applied drive signal inputs of standard level, negative-going. Thus the video input to the unit may be either composite or non-composite, of standard polarity, i.e. white positive.

Camera Control Unit type 2309 *showing grouped, easily identified pre-set controls.*

Camera Control Unit type 2309. *The monitor and camera controls in the top panel recess are identified on the underside of the raised cover.*

The unit provides a display from which the picture quality of the input signal may be evaluated, a video amplifier of level response being employed, together with linear timebase generators and a tetrode picture tube with an aluminised screen. The picture tube is circular, of 9-inches (23 cm) diameter, giving a picture size of 6·4 × 4·8 inches (16 × 12 cm).

The signal from the video amplifier modulates the control grid of the picture tube, black level clamping being applied at this point.

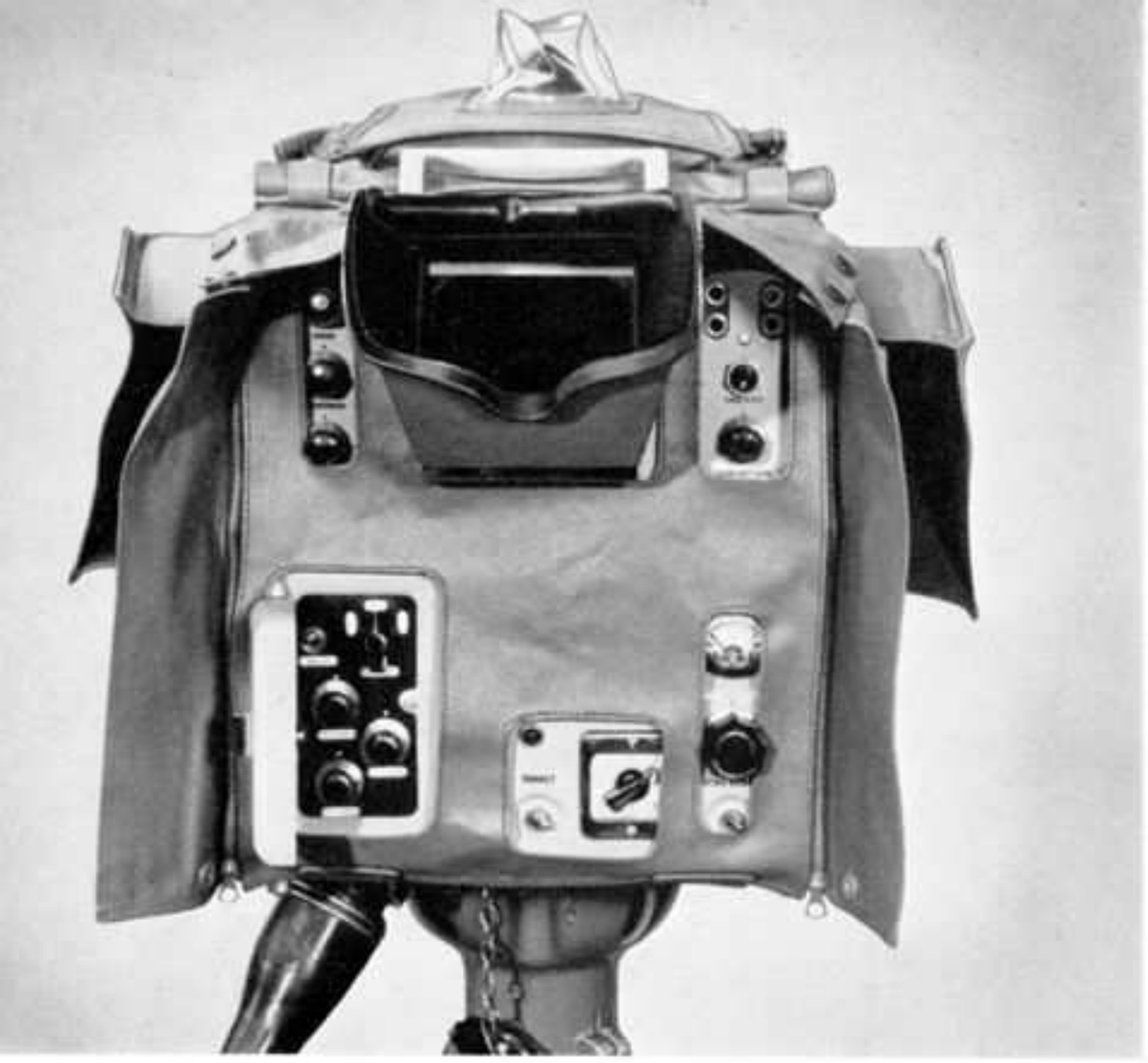
Complete power supply circuits are included in the unit, the input when the unit is operated as part of a camera channel being at 180 V, derived from the camera control unit.

Housed in a lightweight metal case fitted with folding carrying handles, the unit is self-contained and transportable. Detachable panels are fitted on both sides of the case, permitting ready access to all components. The picture-tube escutcheon is easily removed by releasing four knurled-headed screws, thus permitting the tube to be withdrawn from the front of the case.

All operating controls and the 'Mains' and 'On Air' indicating lights are arranged around the picture-tube escutcheon on the front panel. Connections to the unit are made by means of an 8-contact chassis-mounting plug fitted on the rear panel. The mains 'On/Off' switch, the operational fuses, and an air-extractor fan are also mounted on the rear panel.

POWER SUPPLY UNITS

Each Power Supply Unit provides in a compact and convenient form all the d.c. requirements for the camera control unit and the camera. Some of the supplies are electronically stabilised within close limits and having a very low output impedance are thus eminently suitable for circuits with variable current characteristics. Tube heater requirements are met by transformers



The waterproof cover allows adequate access to all operational controls.

An adjacent switch enables it to be used for checking the multiplier anode voltage or the focusing current, or to be used as a voltmeter in conjunction with a test lead which can be plugged into the socket provided in the camera.

Built into the camera immediately behind the turret is a filter plate into which are screwed three light-filters. These as supplied with the camera consist of two neutral colour filters (one having 1 per cent. light transmission and the other 10 per cent.), and a yellow filter. Any of these can be selected by the cameraman and be brought quickly into use by operating an external thumb control on the top of the camera. A fourth aperture in the filter plate can also be fitted with a filter or a mask if required. For effects purposes, extra rings fitted with masks cut to any desired shape can be inserted in place of the filters, and horizontal and vertical scans may be reversed separately by means of switches.

Two intercommunication telephone headsets may be plugged in for listening to programme and instructions from the Producer. A volume control is provided, and also a signalling key to call the control unit operator who can bring into operation a circuit giving independent conversation between the two operators.

Special precautions are taken to ensure a constant current in the focusing field coil of the Image Orthicon tube, and two silent extractors maintain a stream of cool air circulating through the camera.

Provision is made for remote control facilities, permitting the focusing and turret mechanisms to be controlled from any convenient location such as the camera control unit position, or a central camera control desk.

The viewing hood supplied slips easily into position on the viewfinder and has a vertical swivelling movement designed to compensate for the tilting of the camera during transmission. The amount of crouching and stretching necessary by the cameraman is thus considerably reduced.

A wedge-plate is secured to the underside of the camera case to facilitate the rapid mounting of the camera on a tripod, a mobile pedestal, or a remotely controlled pedestal. The 37-contact connector is protected by a screw-on plug cover which is secured to the camera case by a short chain. A C-spanner is provided to tighten the input connector or the plug cover when either is in place. A small kit of tools and a supply of camera oil and grease are also provided.

Adjacent to the wedge-plate are a cable-hook for supporting the 37-way cable to the control unit, and a 240 V a.c. power take-off socket for plugging in a diascope or a soldering iron. A bracket for holding an identifying letter or numeral is secured to each side of the camera case.

CAMERA CONTROL UNITS

Each camera control unit contains all the necessary circuits and controls for the correct operation and composition of a blanked video signal with or without synchronising pulses as desired.

The control units for the 625/525-line systems and for the 625/819-line systems each contain a 9-inch (23 cm) and a 3-inch (7·5 cm) cathode ray tube which provide the means of completely monitoring the picture and waveforms. For the 405-line system, the control unit contains a 3-inch (7·5 cm) waveform monitor tube only, the picture monitor tube being in the separate picture monitor unit described later.

In the 525/625-line and the 625/819-line versions, the picture signals received from the camera are mixed with blanking pulses from the pulse generator and a special clamp circuit at this point inserts a d.c. component giving a black level reference. A gain control in the video amplifier provides a means of setting the amplitude of the output signal.

The various potentials required for the camera tube are set from the front panel of the unit and the lens iris may also be operated from this position. A meter on the panel indicates the iris setting.

A peak white limiting circuit is incorporated to prevent overloading and its attendant distortion.

Separate rectifier units provide the high voltage supplied for the two cathode ray tubes, thus ensuring that both monitoring facilities will not fail together as the result of an EHT fault. Frequency distortion introduced by the camera cable is corrected in the control unit, a switch selecting the amount of compensation employed, according to the length of cable in use.

Three timebase frequencies are available on the waveform monitors: one at half line frequency for examining horizontal waveforms, one at half field frequency for vertical waveforms, and the third a sweep triggered by the leading edge of the vertical driving pulse for examining the make-up of the vertical component of the composite sync. The first two may be changed to horizontal speed and vertical speed if preferred by readjustment of the sync control inside the unit. A removable green plastic filter is provided to improve contrast between the trace and its background under conditions of strong lighting; there is also an edge-lit perspex window having reference lines to facilitate setting the picture and sync levels correctly. A push-button switch on the front panel enables a waveform of power supply frequency and known amplitude to be set up on the tube for calibration purposes. Corner diagonals are engraved on the plastic safety screen in front of the picture monitor tube to assist in centring and achieving correct aspect ratio.

A three-position intercommunication key in conjunction with 'split' headsets provides the following facilities:

Key to NORMAL :	Producer's talkback to control unit and camera.
Key to MULTIPLE :	Omnibus talkback.
Key to CAMERA :	Two-way speech on private line between control unit and camera.

In all positions the programme is heard in one earpiece, whilst the other is used for intercommunication purposes. A double

Camera Control Unit type 2318 (405 *line system only*).

in the individual units, the a.c. power being fed from the power supply unit to the camera control unit and thence to the camera (and, in a 405-line camera channel, to the separate picture monitor). All power transformers are designed for low leakage, so reducing stray magnetic fields to a minimum.

The a.c. supply for the camera is selected from either 244 V or 254 V taps on a transformer in the power unit by a relay which is operated automatically by the setting of the camera cable-compensation switch in the control unit. The 244 V tap is selected for cable lengths up to 500 feet (150 m), and the 254 V tap for cable lengths from 500 feet (150 m) to 1,000 feet (300 m).

The a.c. power input taps are selected by a switch on the front panel, a meter indicating the correct setting. This meter may also be switched to read the various output voltages from the unit, and the main currents. Standard cartridge type fuses are fitted throughout, and all electrolytic condensers are of the plug-in type.

Specification

IMAGE ORTHICON CAMERAS

Systems.

Type 2014 : 525 and 625 lines.
(The unit will work on either system without modification.)
Type 2014E : 525, 625 and 819 lines.
(Changeover from the 625-line to the 819-line system and vice versa is accomplished by switching.)
Type 2028 : 405 lines.

Scanning Linearity. Less than 2% departure from the ideal.

Pick-up Tube.* Image Orthicon, types 5820, 5826, or P807.

Viewfinder Tube. Mullard type MW13/35 or 5FP4A (American).

Turret. 4-position, motor operated.

Lenses.* See separate page for standard range.

Video Output. .

Types 2014 and 2014E : 0·25 V p-p (white positive) into 75 ohms.
Type 2028 : 0·5 V p-p (white positive) into 75 ohms.

Working range of illumination incident on scene : Pick-up Tube type 5820.

Minimum 0·5 foot-candle (with *f*3·5 lens),
Minimum for first grade results—10 to 20 foot-candles.
Maximum—Bright sunlight.

* Supplied as extra items.

Connectors. To control unit, 37-contact B.I.C.C. plug mark IIIB. Power take-off, Films and Equipments type EP-4-17S.

Dimensions†	*Case*	*Overall*
Height	14 inches (37 cm)	18 inches (46 cm)
Width	12 inches (31 cm)	15½ inches (40 cm)
Length	22 inches (56 cm)	25 inches (64 cm)

Weight.† 105 lb. (48 kg) approximately.

Finish. Light and dark blue enamel with black anodising and chrome plating.

Part Nos.

For 525/625-line systems	842014
For 625/819-line systems (switchable) ...	842014E
For 405-line system	842028
Each unit includes :	
1 Viewfinder Tube, Mullard type MW13/35, or 5FP4A (American)	860128
1 Viewing Hood	733339
4 Lens Cover Plates	407381
1 Viewfinder Tube Protection Plate...	736951
1 Telephone Headset (for 525/625-line systems)	741243
1 Telephone Headset (for 405-line system)	741244
1 Turret Balance Assembly	737468
2 Camera Identification Plates ...	711607‡
1 C-spanner	711812
1 Filter Ring Key	407008
1 Servo Potentiometer Key	740200
1 Set of Allen Keys	711363
1 Wedge Plate (secured to the underside of the camera case)	733383

Full complement of valves, mating connector for power take-off socket, and a supply of camera oil and grease.

CAMERA CONTROL UNITS Types 2309 and 2309E

Systems.

Type 2309 : 525 and 625 lines.
(The unit will work on either system wihout modification).
Type 2309E : 525, 625 and 819 lines.
(Changeover from the 615-line to the 819-line system and vice versa is accomplished by switching.)

† Excluding lenses and viewfinder hood.

‡ A letter or numeral as required, to be specified by the user.

Picture Monitor type 2376*B is used in conjunction with Camera Control Unit type* 2318 (*above*).

Part No. 842376B *Part No.*

The unit includes Mullard Picture Tube type MW22/22 ... ... 860266 and full complement of valves and mating connector.

POWER SUPPLY UNITS

A.C. Supply.

For 525/625/819-line systems, type 2356C : 85–125 V or 170–250 V, 47–70 c/s.

For 405-line system, type 2369B : 170–250 V, 47–70 c/s.

Range and voltage tappings selected by rotary switch.

Power Consumption : 1,100 watts approximately.

Connectors. Input : Films and Equipments type EP-4-14S.
Output : Pye 20-contact chassis-mounting socket.

Dimensions.	*Case*	*Overall*
Height	11¼ inches (29 cm)	12¼ inches (31 cm)
Width	10 inches (26 cm)	10½ inches (27 cm)
Depth	23 inches (59 cm)	26 inches (66 cm)

Weight. 89 lb (40 kg) approximately.

Finish. Light and dark blue enamel with chrome plating.

Part Nos.

For 525/625/819-line systems : 842356C
For 405-line system : 842369B

Each unit includes full complement of valves and mating connectors.

Accessories

REMOTE CONTROL UNIT Type No. 3336

The Remote Control Unit has been designed for use with an Image Orthicon camera channel, and is suitable for any system. It is employed when it is desired to use an unattended camera in a fixed position, the camera having previously been set up and aligned on the area to be covered.

The following facilities are provided by the unit :

1. Selection of any one of four lenses on the lens turret of the camera by means of pushbuttons.
2. Return of control of the lens turret to the camera by means of a further pushbutton.
3. Control of optical focus by means of a potentiometer.

A 240 V a.c. supply is fed to the unit from the camera control unit, to which connection is made by means of an 8-way cable terminated by plug-in connectors. When the turret switch on the camera is set to REMOTE, the pressing of one of the four lens-selection pushbuttons on the Remote Control Unit causes the 240 V a.c. supply to be routed to the camera via the camera control unit, to actuate the lens-turret motor. The pushbuttons are interlocking, the pressing of any one releasing any other which is already in the depressed position. A fifth pushbutton marked CAMERA releases any lens-selection pushbutton already depressed, and transfers lens-selection back to the camera position.

Each of the five pushbuttons has an associated neon lamp which is energised when the pushbutton connected to it is in the depressed position. A sixth neon lamp indicates that the a.c. supply is available at the unit.

The focus potentiometer provides for remote operation of the camera focusing servo-motor. This control is effective only when the focus selector switch on the camera is set in the REMOTE position.

The unit is housed in a small metal case, and is light in weight. An accessory facia panel with securing screws is available for mounting the unit on a control panel in an outside broadcast vehicle.

Input Connector. Films and Equipments 8-contact chassis mounting plug type EP-8-14S.

Overall Dimensions.

Height	4½ inches (12 cm)
Width	10⅛ inches (26 cm)
Depth	6 inches (15 cm)

Weight. 3½ lb (1½ kg) approximately.

Finish. Light and dark blue enamel.

Part No. 843336. Includes mating connector. *Part No.*

Accessory facia panel kit 740198

CABLES *Part No.*

Camera cables (camera to control unit) :	
25 feet (7·5 m)	843226
50 feet (15 m)	843227
100 feet (30 m)	843190
200 feet (60 m)	843191
Sync cable (control unit to synchronising pulse generator)	846064*
Mixer cable (control unit to mixing unit)	~~843179*~~ 846069*
Control unit cable (power supply unit to... control unit)	843180*
Power cable (power supply unit to a.c. supply)	843181*
Monitor cable (control unit to picture monitor, 405-line system)	846026*
Remote control cable (remote control unit to control unit)	
For 525/625/819-line system	846093*
,, 405 ,, ,, ...	846065*
T-JUNCTION (to enable a camera channel operating as part of a multi-channel set-up to be disconnected without breaking the sync line ...	733614

LENSES As required; see separate page.

EXTRA MOUNT FOR FILTERS OR MASKS 301428

WATERPROOF CAMERA COVER WITH CASE 711320

SPARES KITS *Part Nos.*

Kit of valves for type 2014	844825
,, ,, ,, ,, ,, 2028	844823
,, ,, ,, ,, ,, 2039	844733
,, ,, ,, ,, ,, 2318B	844834
,, ,, ,, ,, ,, 2376B	844838
,, ,, ,, ,, ,, 2356C	844731
,, ,, ,, ,, ,, 2369C	844832
Kit of selected components for type 2014 ...	844826
,, ,, ,, ,, ,, 2028 ...	844824
,, ,, ,, ,, ,, 2039 ...	844732
,, ,, ,, ,, ,, 2318B ...	844833
,, ,, ,, ,, ,, 2376B ...	844837
,, ,, ,, ,, ,, 2356B ...	844730
,, ,, ,, ,, ,, 2369C ...	844831

* These cables can be made up using the mating connectors supplied with the units, in lengths specified by the user.

Input Picture Signal Level. Approximately 0·25 V p-p.

Input Picture Signal Polarity. White positive.

Output Picture Signal Level. 1·4 V p-p into 75 ohms (1·0 V p-p without syncs).

Output Picture Signal Polarity. White positive.

Bandwidth of Transmission Circuits. Flat within ±0·5 dB to 7 Mc/s.

Bandwidth of Picture Monitoring Circuits. Flat within ±1·0 dB to 7 Mc/s.

Low Frequency Response. Less than 2% tilt measured on 50 c/s square waveform.

Scanning Linearity. Less than 2% departure from the ideal.

Bandwidth of Waveform Monitor Circuits. To R.T.M.A. specification.

Picture Tubes.

Picture Monitor : Mullard type MW22/22
Waveform Monitor : Mullard type DG7/36.

Picture Dimensions. 6·4 × 4·8 inches (16 × 12 cm).

Maximum Length of Camera Cable. 1000 feet (300 m).

Connectors.

To camera : 37-contact B.I.C.C. socket mark IIIB.
To power supply unit : Pye 20-contact plug.
Syncs In : Pye 8-contact plug.
Syncs Out : Pye 8-contact socket.
To mixing unit : Pye 12-contact socket.
To remote control unit : Films and Equipments 8-contact socket type EP-8-17.
Video Out : Two coaxial sockets type SO-239.

Dimensions.	*Case*	*Overall*
Height	16¼ inches (41 cm)	17¼ inches (44 cm)
Width	10 inches (26 cm)	10½ inches (27 cm)
Depth	23 inches (59 cm)	26 inches (66 cm)

Weight. 63 lb (29 kg) approximately.

Finish. Light and dark blue enamel with chrome plating.

Part Nos.

For 525/625-line systems 842309
For 625/819-line systems (switchable) ... 842309E
Each unit includes :
1 Telephone Headset 741243
and full complement of tubes, valves, and mating connectors.

CAMERA CONTROL UNIT *Type* 2318*B*

System. 405 lines.

Input Picture Signal Level. Approximately 0·5 V p-p.

Input Picture Signal Polarity. White positive.

Output Picture Signal Level. 1 V p-p into 75 ohms (0·7 V p-p without sync).

Output Picture Signal Polarity. White positive.

Bandwidth of Transmission Circuits. Flat within ±0·2 dB to 3·5 Mc/s.

Bandwidth of Picture Monitoring Circuits. Flat within ±0·2 dB to 3·5 Mc/s.

Low Frequency Response. Less than 2% tilt measured on 50 c/s square waveform.

Bandwidth of Waveform Monitor Circuits. Flat within ±0·5 dB to 1·5 Mc/s, and —3 dB at 1·75 Mc/s.

Waveform Monitor Tube. Mullard type DG7/5.

Maximum Length of Camera Cable. 1000 feet (300 m).

Connectors. As for types 2309 and 2309E, except—
To remote control unit : Pye 12-contact socket.
To monitor (additional connector) : Pye 8-contact socket.

Power Unit type 2356 *for use with the* 525/625/8/9 *line camera equipment. A similar unit type* 2369 *is used with the* 405 *line equipment.*

Dimensions.	*Case*	*Overall*
Height	11¼ inches (29 cm)	12¼ inches (31 cm)
Width	10 inches (26 cm)	10½ inches (27 cm)
Depth	23 inches (59 cm)	26 inches (66 cm)

Weight. 49 lb. (22 kg) approximately.

Finish. Light and dark blue enamel with chrome plating.

Part No. 842318B

The unit includes :
1 Telephone Headset 741244
and full complement of valves and mating connectors.

PICTURE MONITOR Type 2376B

System. 405 lines.

Input Signal. Video, composite or non-composite; 0·5–2 V p-p; white positive.

Sync Inputs. Horizontal and vertical, 2 V p-p; negative-going.

Input Impedance. 75 ohms ±5%.

Input Signal Connector. Pye 8-contact chassis mounting plug (incorporating connections for a.c. supply).

Video Response. Flat within ±0·5 dB to 3·5 Mc/s.

Scanning Linearity. Less than 2% departure from the ideal.

Picture Dimensions. 6·4×4·8 inches (16×12 cm).

Picture Tube. Mullard type MW22/22.

A.C. Supply. 170–250 V 47/70 c/s. Voltage tapping selected by selector plug.
Power consumption : 200 watts (drawn from the control unit as part of its total power consumption when the monitor is connected into a camera channel).

Power Input Connector. See Input Signal Connector above.

Dimensions.	*Case*	*Overall*
Height	11½ inches (29 cm)	12 inches (31 cm)
Width	10 inches (26 cm)	10 inches (26 cm)
Depth	23 inches (59 cm)	24 inches (61 cm)

Weight. 45 lb (20 kg) approximately.

Finish. Light and dark blue enamel.