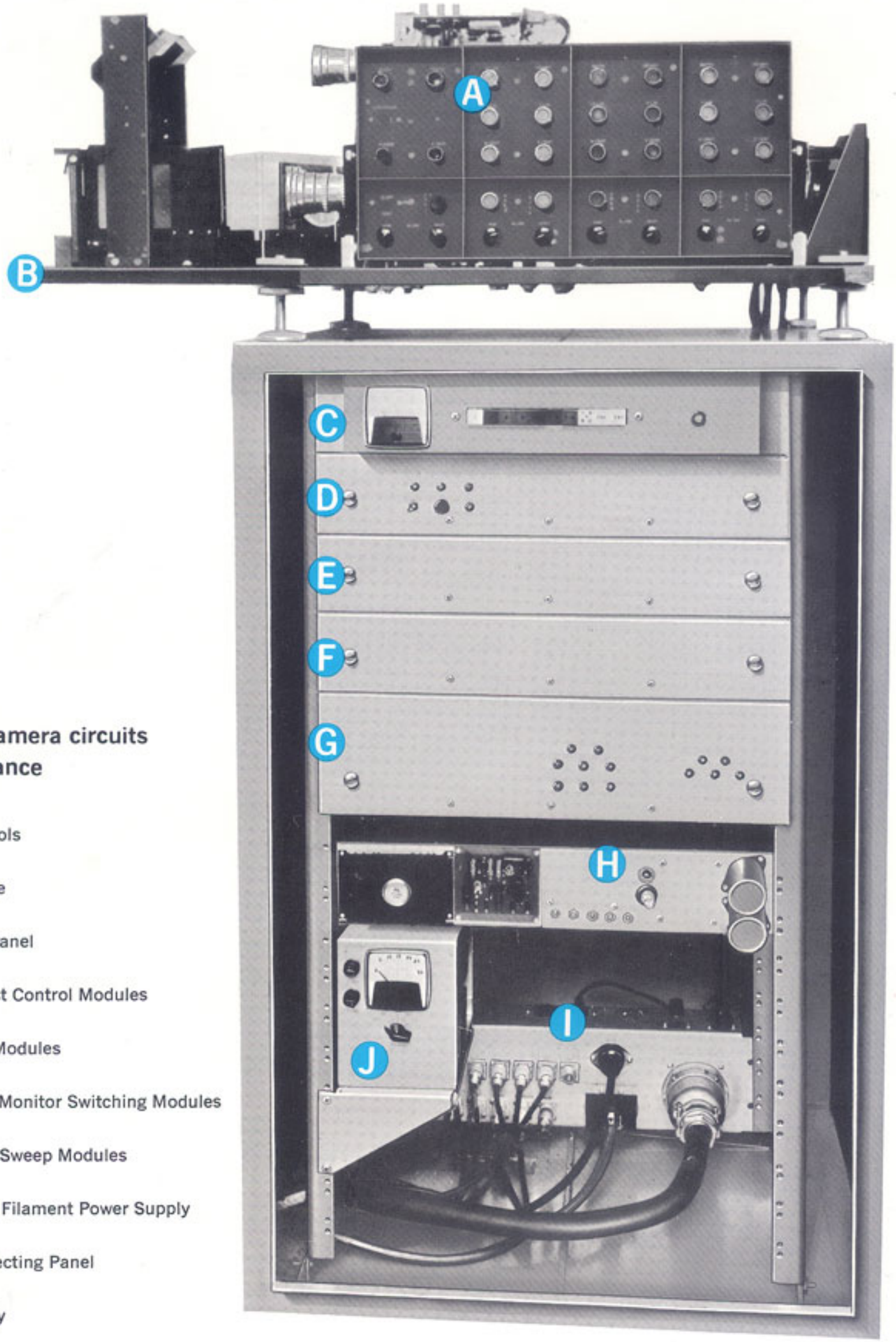


General Electric's new PE-240-A/B. Television's only 2nd generation 4-vidicon color film system.



Easy access to camera circuits for fast maintenance

A. Registration Controls

B. ¾" Thick Bed Plate

C. Monitor Selector Panel

D. Automatic Contrast Control Modules

E. Video Processing Modules

F. Video Processing, Monitor Switching Modules

G. Power Supply and Sweep Modules

H. Vidicon Regulated Filament Power Supply

I. System Interconnecting Panel

J. 24 V. Power Supply

The PE-240-A/B—General Electric's new version of TV's most accepted color film camera

The most widely accepted color film camera on the market has now been improved. General Electric has redesigned its famous PE-24—and replaced it with the new PE-240-A/B.

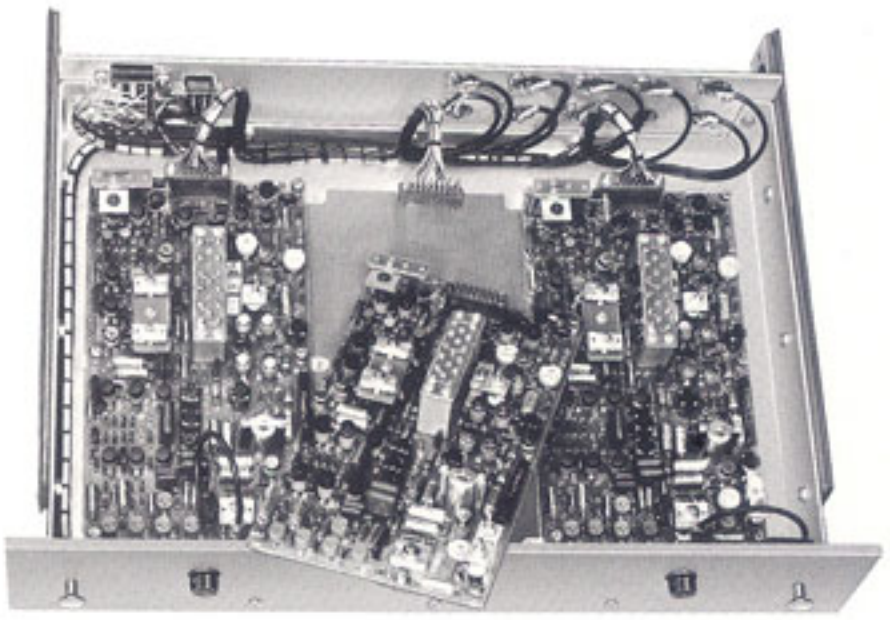
The 4-vidicon transistorized film camera assures you of a consistently sharp, detailed picture—for both color and monochrome reception. It's essentially a universal camera—for use in color film systems and monochrome film systems.

It consists of two main sections: The four-vidicon camera, type PC-16-B, and a remotely located monitoring and control position.

The PC-16-B is essentially four monochrome vidicon cameras with common sweep and power supplies, but separate video processing. All the circuitry necessary to produce four fully corrected video signals is contained in the camera head and pedestal. The registration control panel provides all controls needed to register the camera. The monitor selector panel allows switching between the video signals for the various displays needed during registration.

The new PE-240-A/B features these benefits for your operation:

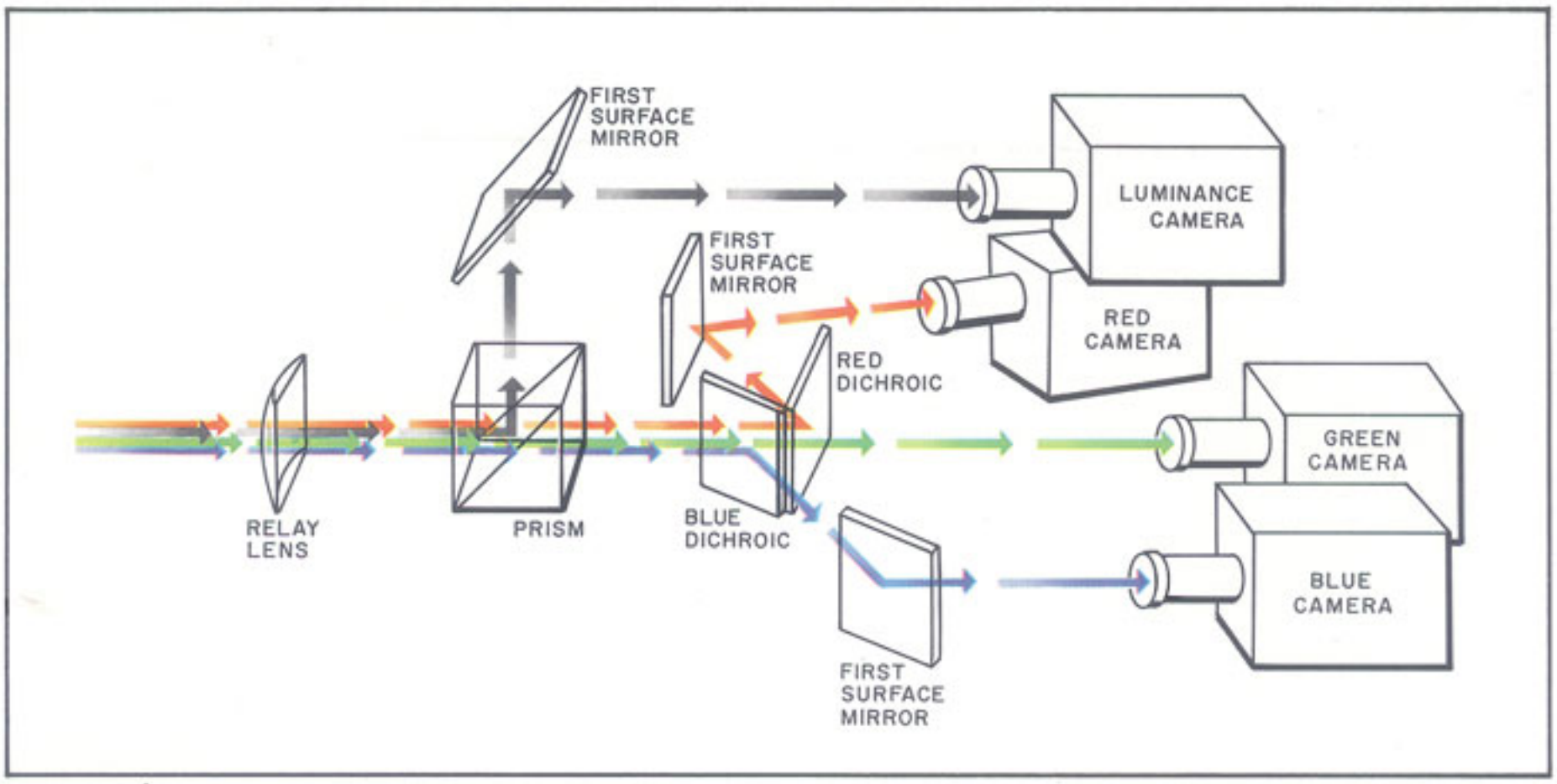
- Elimination of registration and resolution problems in monochrome—same problems greatly reduced in color.
- Focus and sweep yoke assemblies give precise operation. The focus coils are in series. Supplied from a single source—and regulated to better than one part per thousand.
- High focus field and wide bandwidth give extremely high resolution for luminance channel.
- Special low-noise pre-amp circuitry gives clean noise-free pictures.
- Gamma adjustable in all four channels assures over-all tracking of three color channels.
- Enhancement achievable with automatic contrast control further compensates for variable film density.
- Video reversal in W channel allows use of reverse monochrome film.
- Master black level controls allow compensation for black variations in film materials.
- Optimum registration stability is provided by a common horizontal and vertical sweep amplifier for all vidicons.
- Precision adjustments on all 4 cameras give easy roll, vertical and horizontal yaw, and tilt for proper adjustment.
- All circuitry is accessible—doors are easily removed—drawers are pull-out design—and all components are handily mounted on one side.

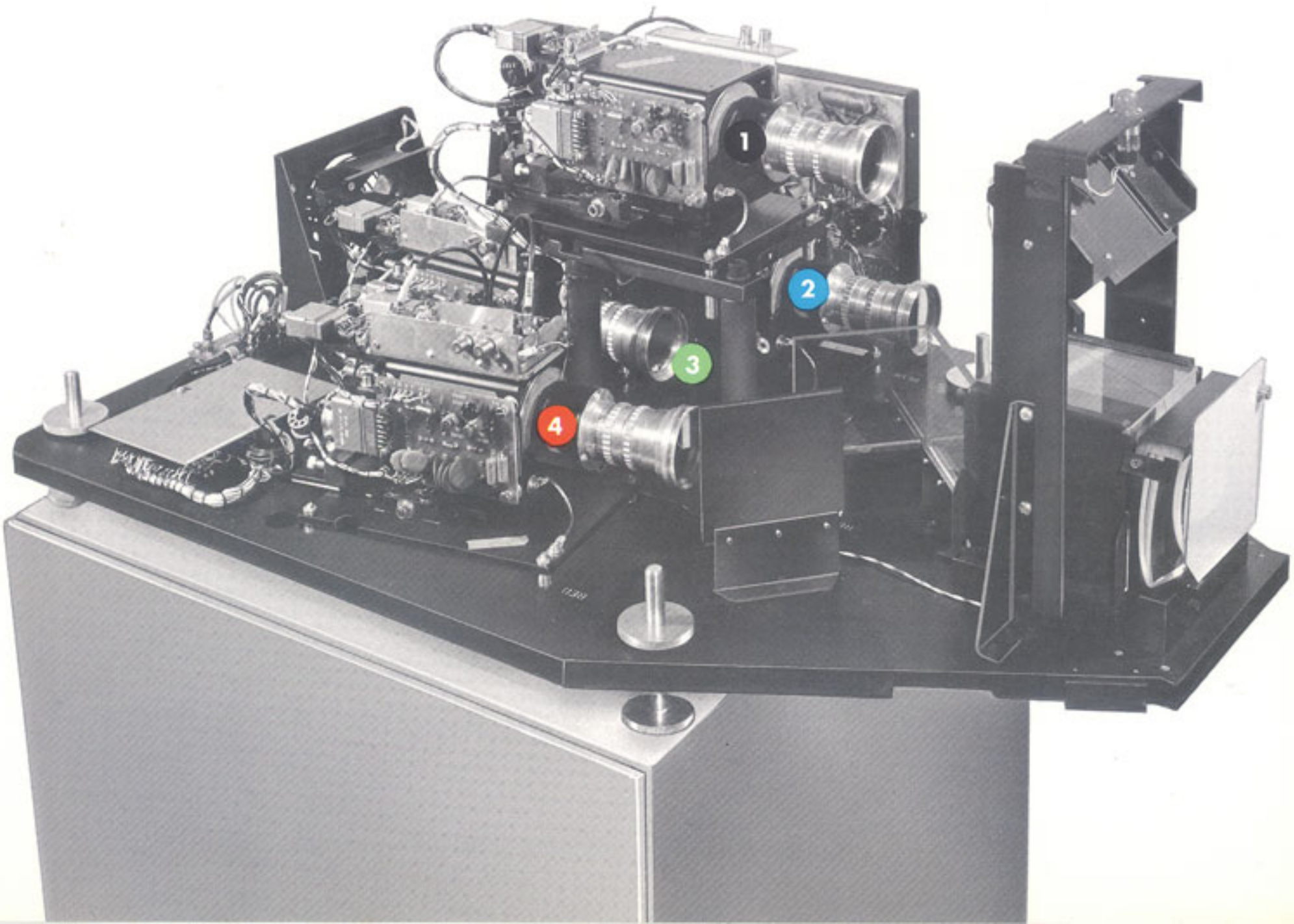


This is the second drawer from top in the PE-240-A/B's lower cabinet. It shows 3 out of 4 transistorized plug-in video processor modules.

- Precise optical alignment results from positioning and deflection gages supplied with the camera.
- Wave form and voltage is easily measured at virtually every point in every circuit.
- Plug-in modules are easily removed for testing and maintenance.

G-E 4-V light path pattern to vidicons.





The PE-240-A/B's simple, but precise light path is a key factor in the camera's amazing performance.

Here's a brief explanation of the PE-240-A/B light path.

The pictures for all projectors are matched in size and focused at the center of the field lens. The light is split by selective optical filters into four paths—and then re-imaged by the individual camera lenses onto the faces of the four vidicons.

Special low-noise figure pre-amplifiers are mounted directly on each deflection assembly. This makes for the shortest possible lead length and lowest noise pick-up.

The resulting video signal is amplified to a high enough value that it may safely be sent to the video processing modules. These are mounted in the drawers in the pedestal which supports the optical bed—and on which the camera heads are mounted.

The following takes place:

A. The signal is further amplified—eventually supplying .7 volt peak-to-peak non-composite into 75 ohms for transmission to the encoder.

B. Remote gain control results from use of a cadmium sulfide cell and remotely-controlled light source.

C. Aperture correction is provided—and gives continuously variable correction up to 6 db peaked at 4.5 mc.

D. The signal is then clamped and system blanking is added. The blanking adjustment on the TC-62-B camera control panel adjusts the black clipping point.

E. Adjustable gamma correction is provided along with white clip.

F. H blanking and H clamp pulses are produced and properly phased using H sine as a reference.

G. V blanking is reconstructed from V-drive.

H. H and V blanking are then mixed and added to the video signal.

The 4 video signals are then sent to the TV-112-A encoder where they are transformed into the FCC color signal.

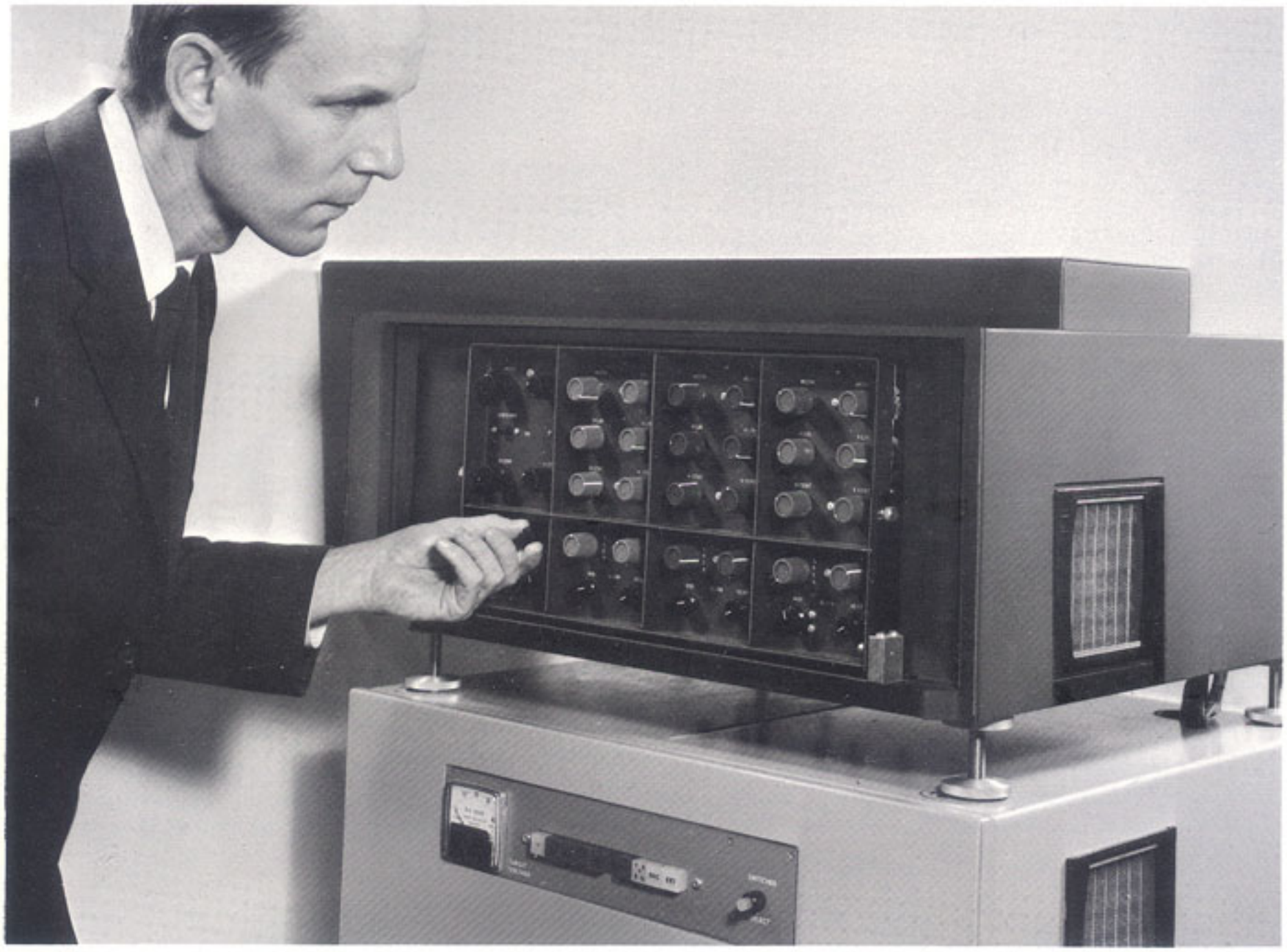
Both color and monochrome outputs, correctly phased, are alternately available at the encoder output. A switch (color-mono) on the TC-63-B remote selector panel allows switching between color and monochrome film material. Other switches on the TC-63-B panel allow even further control of the encoder.

System pulse timing has been advanced because of the added delay experienced in the encoder—caused by the reduced bandwidth characteristics of the I and Q channels in the color system. It also compensates for the camera cable length. This then is accomplished by going to a sine wave H timing distribution system.

The sine wave is produced in the drive converter and sent to the sweep generator and video processor—where H drive pulses and blanking pulses are regenerated.

This is the PE-240-A/B Camera head showing the 4 cameras: 1. luminance vidicon. 2. blue vidicon. 3. green vidicon. 4. red vidicon.

The new PE-240-A/B can be controlled at the camera or at a remote location.



The registration control panel (Top) contains the following controls for all four cameras: width, height, H centering, V centering, focus, H align and V align. H linearity, V linearity and skew have red, green and black controls. And there is a single switch to remove all centering, and also a single switch to actuate 30-cycle square wave focus rook.



The TC-62-B remote control panel contains the following controls for all 4 cameras: beam, target, focus, gain, pedestal and shading (H-saw, H-parabola, V saw, V parabola). The black master control serves as master pedestal. And a single switch turns off all shading. An exposure control determines the position of neutral density disks in front of each projector.



The TC-63-B remote monitor selector panel contains these controls:

TEST POSITIONS
- 3—Optional test signals to camera (SW)
- 1—Optional test signal to color monitor (SW)

PICTURE MONITOR
- Difference signal (3-Color Channels) (SW)
- Individual channel signals (4-Channels) (SW)
- Sum of the four signals (SW)
- Encoder (SW)
- External (SW)

OSCILLOSCOPE
- Sequential display, separate (SW)
- Sequential display, superimposed (SW)
- Encoder (SW)
- Picture monitor output (SW)

ENCODER
- Camera or color bar (SW)
- Normal or tied inputs (SW)
- Three or four channel operation (SW)
- Color or monochrome line outputs (SW)
- Encoder chroma level (Control)

AUTOMATIC OPERATION
- Automatic black level threshold (Control)
- Automatic exposure threshold (Control)
- Automatic or manual contrast (SW)
- Automatic or manual exposure (SW)
- Automatic detection four channel or one channel (SW)
- Positive or negative film (SW)

METER
- Individual channel target voltages

System Make-Up

PC-16-B	Color film camera
TC-62-B	Remote control panel
TC-63-B*	Remote monitor selector panel
TV-112-A**	Encoder
7781894G1	Camera cable to remote control panel, 50 ft.
7782054G1	Camera cable to remote monitor selector panel, 50 ft.
7499G80G1	Encoder cable to remote control panel, 50 ft.
.....	Monochrome picture monitor
.....	Waveform monitor
.....	Rack or console for remote control position

*Occupies 3½" Rack space **Occupies 5¼" Rack space

Accessories:

TV-110-A/B/C	Color light control, neutral density disk kits
.....	Color picture monitor
PF-11-C	Pneumatic multiplexer (color)
.....	Monochrome monitor and rotating mount for use at camera location.

Specifications

Electrical:
Power output: 110/117/125 volts a-c, 50/60 cycles 230 watts (approximately) less encoder and monitors.

Signal Output:
1—Monitor, color composite
1—Monitor, monochrome composite
2—Line, composite
2—Line, composite or non-composite

Performance:
System response: essentially uniform so as to give an encoded signal output whose line resolution is determined by the FCC system and for the luminance channel exceeds 600 lines at the center and 500 lines in the corners prior to encoder.

Geometric distortion:
Less than ± 2% of picture height.

Operating Conditions:
Humidity: 95%
Altitude: 7500 feet
Temperature: 0°C to 40°C operating range

Vidicon Compliment:
3 type 7038
1 type 8572

Mechanical, Camera Head:
Length: 36 inches including main camera optics plate, plus 2 inches for rear handle.

Width: 22 inches
Height: 58 inches (includes dust cover)
Weight: 350 pounds (approximately)
Optical Center: 48 inches from floor