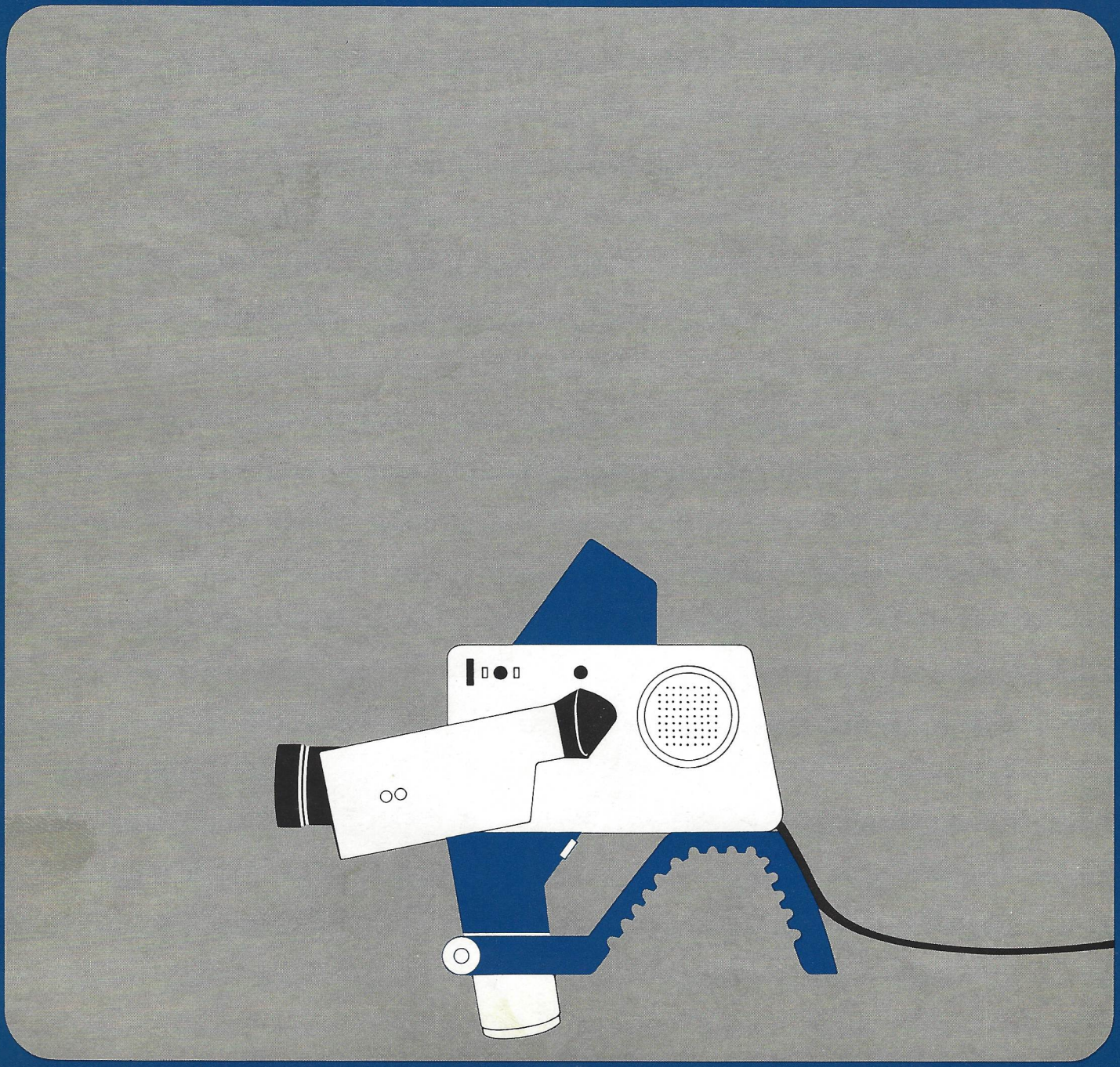
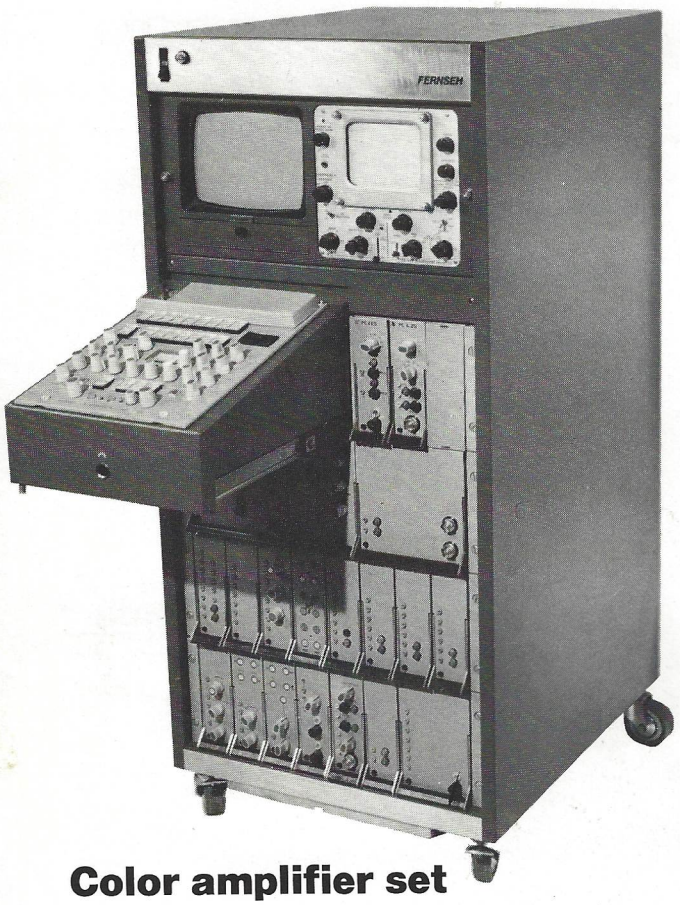
Fernseh KCR-40 Hand-held Color TV Camera



Components of the KCR-40



Color amplifier set

The amplifier set is of the proven plug-in unit construction. This type of construction greatly facilitates operation and maintenance. The plug-in units can be mounted in standard 19-inch racks.

Intermediate amplifier

The intermediate amplifier features three identical channels for the white, red, and blue input signals. The input stage permits changeover of the sensitivity in five definite stages of between —6 dB and +6 dB. It is followed by a variable gain amplifier, a cable equalizer, a spurious signal compensator, a peak white limiter, and an output stage.

Matrix

In this novel linear matrix the luminance, red, green, blue (Y,R,G,B) signals are derived from the white, red, and blue signals and the signal corrections are made for achieving the required color reproduction. The matrix makes it possible to adjust optimum color mixing curves electronically. The coefficients of the matrix can be easily altered by interchangeable plug-in boards.

Main amplifier

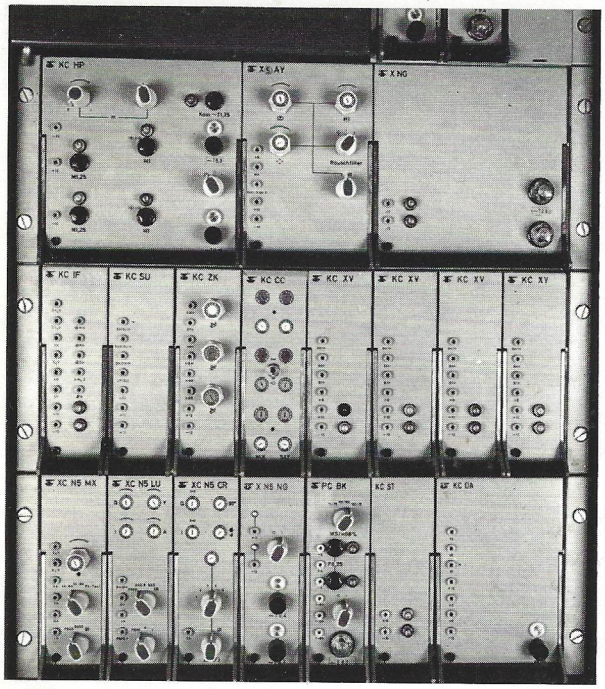
The four signals luminance, red, green, and blue appearing at the output of the matrix, are then fed to each one of the four main amplifiers. Here, the most important operating adjustments, such as gamma and black level, become effective. The advantageous operating characteristics of a four-channel picture source are thus obtained. The main amplifiers are of the same type and are identical. Varying delay times are thus eliminated, and quick replacement or interchange is possible without alteration of the transmission characteristics. The amplifiers feature the following circuits among other things: Black-and-white coupling, gradation correction, mixing-in of contour correction, variable gain amplifier for color matching, blanking stage, peak white limiting, an output stage with additional test outputs.

Pulse shaper

The pulse shaper generates, from the supplied blanking and sync signals, all the pulses needed for camera operation. It also generates horizontal and vertical-frequency sawtooth and parabolic signals for shading compensation.

Signal switcher

The test signal switcher enables the selection of the standardized camera signals (white, red, green, blue) and of the difference signals generated in a mixer stage (white-red, white-blue).

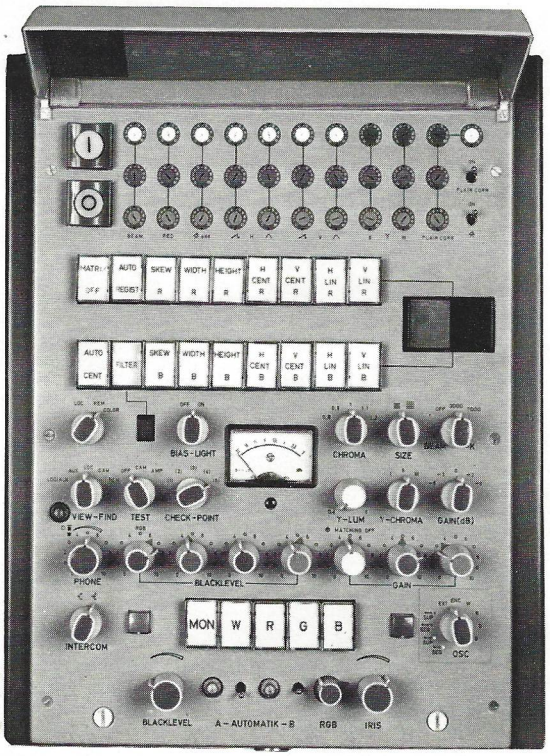


Camera control unit

The control unit includes: the high-voltage Generator unit for the Plumbicon® operating voltages, the camera Power Regulator device for automatic control of the camera supply voltage including the isolating transformer, and the Power switching unit for remote on/off control of the camera chain and various relay circuits.

Power supply unit

The power supply unit supplies regulated dc voltages (+12 V/5A and —12 V/5A) for the total camera chain.



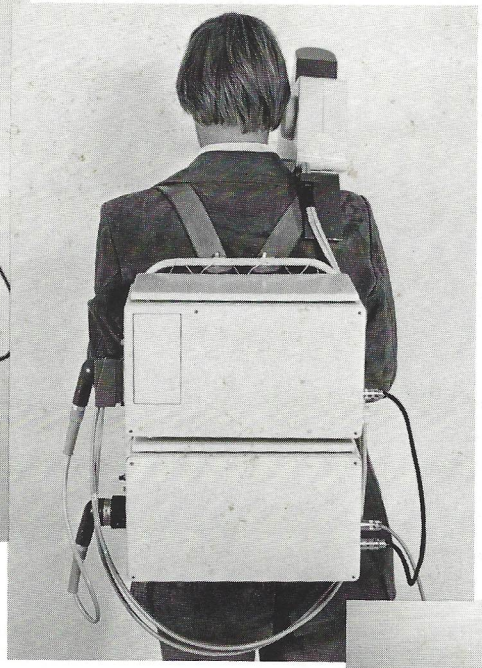
Set-up control unit

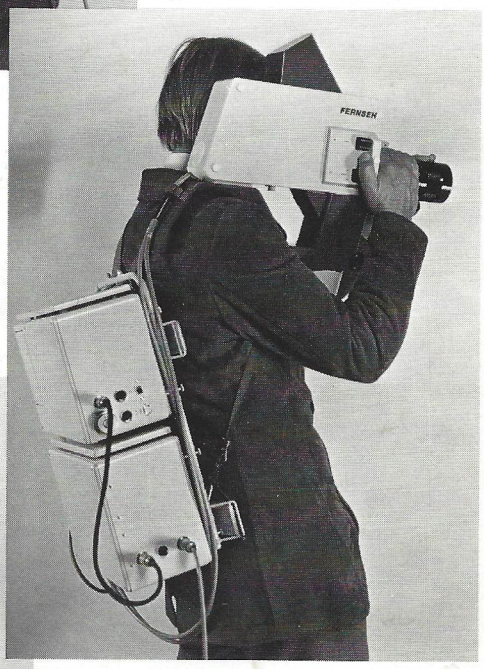
All controls needed for the operation of the camera are in the set-up control unit. Controls for non-recurring adjustments such as in the case of tube replacement, are on the upper third of the panel under a cover. On the middle third of the panel are two rows of buttons for the selection of the individual Registration correction (width and height, horizontal and vertical centering, horizontal and vertical linearity). Other controls for the adjustment of the camera are in the lower third of the panel.

Color encoder XC CD 404

Also included is a modular, plug-in NTSC Encoder providing 4 composite color outputs for line feeds and monitoring.

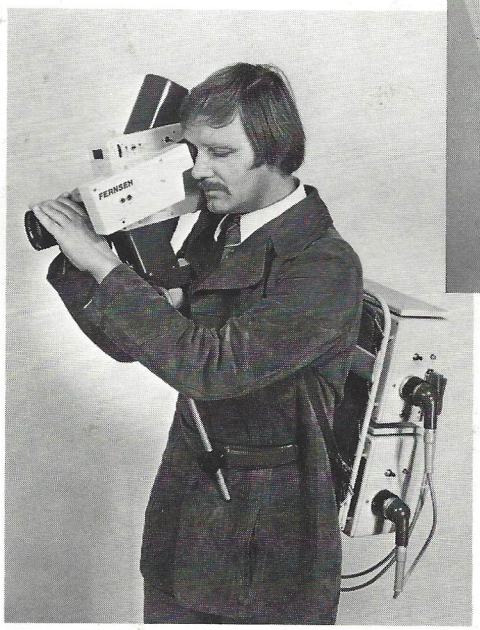






The most versatile of hand-held cameras

The KCR 40 is designed to be adapted to critical customer requirements. The camera system will operate over multi conductor cable from the standard KCU camera electronics or it can operate in a coaxial cable made as pictured here. The coax adapter is the lower unit on the back pack and is connected to the back pack electronics by a short length of multi-conductor cable and to the CCU by coaxial cable. There is also a self contained version wherein the coax cable adapter is replaced by compact processing and synchronizing electronics and a battery pack if required to allow completely independent operation in conjunction with a portable VTR.



Technical Data

System:	3-Tube Separate Luminance	(Plumbicon® Tubes)
Dimensions:	Back-Pack Height: 9.2″ Width: 16.0″ Length: 5.6″	Camera without lens Height: 18.5″ Width: 7.6″ Length: 12.0″
Weight:	Back-Pack 11 lbs.	Camera with lens and viewfinder 15 lbs.
Power Supply:	117/220 V $^{+\ 5\%}_{-10\%}$ 60/50 Hz	approx. power consumption 650 VA (without monitor and oscilloscope)
TV-Standard:	525/625 lines	U.S. standard or CCIR
Frequency Response:	Luminance channel Red channel Blue channel	±0.5 dB up to 5 MHz —1 dB up to 3 MHz —4 dB up to 3 MHz
Pulse Response:	60/50 Hz 15.6/250 kHz	≤2% ≤1%
Differential Gain:		≥0.95
Gain Control:	Vernier control for each channel Coarse control in 5 steps	±40% —6 dB, —3 dB, 0 dB, +3 dB, +6 dB
Black-Level Adjustment:	Separate control for adjustment of each channel (Y, R, G, B) Master control for adjustment of R, G, B	—20% + 30% at $\gamma=1$ ±5% at $\gamma=1$
Sensitivity:	Reflection coefficient for white=60%, at 75 ft. candles, color-temperature 3000 K	Aperture F2.8
Resolution:	Depth of modulation when transmitting 400 lines	with aperture correction: adjustable 100%
Signal to Noise Ratio:	Measured at $\gamma=1$ and 40% level, sensitivity and resolution as stated above.	≥45 dB, unweighted
Registration Accuracy:	Within a circle of 0.9 of the picture height	≤40 nsec deviations
Raster Geometry:	Deviations without faults of lens	≤±0.5% (zone 1)
Ambient Temperature:	Permissible ambient temperature	—20° to +45° C
Stability:	No disturbing alteration of the transmission characteristics over the range of ±10° C anywhere	Color registration and color matching are maintained with such accuracy that under normal studio conditions no readjustment is required.

Robert Bosch Corporation Fernseh Division

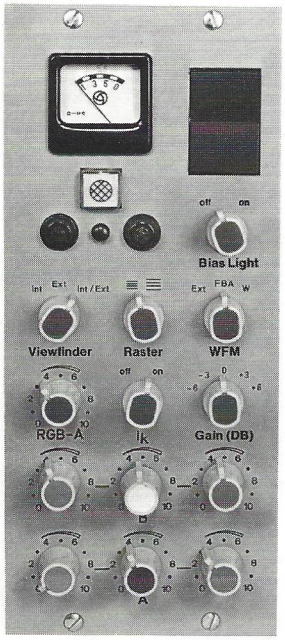
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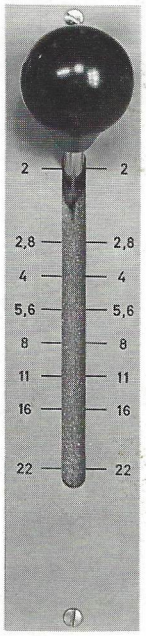
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Special accessories for the KCR-40

The modular construction of the camera permits units to be added or replaced, making possible the adaptation of the camera to a particular application.



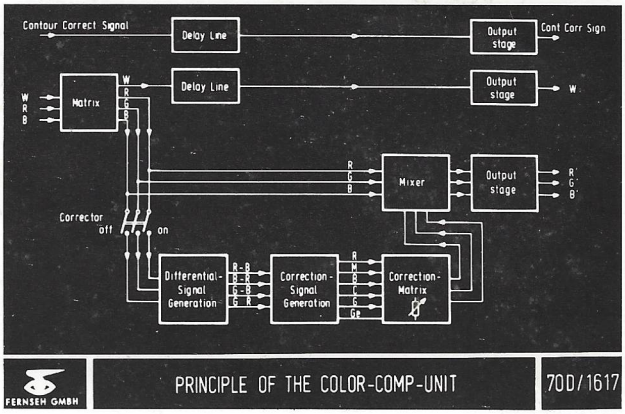


Contour corrector

The vertical and horizontal aperture corrector with noise suppressor yields particularly sharp pictures. Using the comb filter principle, only that part of the video spectrum containing video information is aperture-corrected. This greatly improves the S/N ratio.

Color corrector

This unit can be interchanged with the linear matrix. Like the linear matrix, it allows the color reproduction of the camera to be changed electronically. However, in contrast to the linear matrix, the influence is not linear. This makes it possible to limit the effect upon the color reproduction of the camera to smaller areas than is possible by linear matrixing.



Dark desaturation unit

This unit is connected after any type of picture source and it affects the composite video signal in the frequency range of the color carrier. It reduces the saturation in the shadows of the picture source, eliminating slight tinges which are present in the shadow areas.

B/W balance "Autocolor"

"Autocolor" enables the automatic black and white balance of the amplifiers to be adjusted, guaranteeing optimum color reproduction, during changing color temperature condition such as a late afternoon baseball or football game.

Registration correction unit "Autoregist"

With the help of a simple test-pattern the unit automatically corrects centering, width, linearity, and skew both in horizontal and vertical directions. Dynamic correction of the centering fuction (autocentering) according to picture content is possible during normal operation of the camera. Centering errors are corrected continually. "Autoregist" is also available where extremely long-term stability is needed, such as in fully automatic studios.