

A Classified Bibliography on Holography and Related Fields

By JOHN N. LATTA

This Bibliography is the fourth published in the SMPTE Journal. The first three (Jour., April 1966; August 1966; April 1967) comprehensively covered the literature through December 1966. This Bibliography differs from the others in that the coverage has been broadened to include topics that are related to holography.

A contribution submitted by John N. Latta, Dept. of Electrical Engineering, University of Kansas, Lawrence, Kansas. (This Bibliography was received on January 22, 1968.)

An additional feature of this Bibliography is that all references are classified. There are 32 classifications, listed below. All references to articles are first listed under classification I (Holography and Related Fields) with bold-face numerals following each reference to denote under which classifications that reference appears. References to books are listed under categories 2-4.

Each of the 32 categories is listed separately with its corresponding references. Space considerations, however, prohibit publishing all 32 classifications at once.

Because classifications 1-4 contain all references, they are published below. The subdivided list of references under the remaining classifications (5-32) will be published in a later issue of the Journal. The second group, when published, will provide a quick reference list for those interested in a particular area relating to holography.

The body of holographic literature is increasing rapidly. Approximately 500 references are included below, many of which were published from January through December, 1967. Holography is now finding its way into numerous applications as evidenced by some of the references. The widespread interest in this new field makes an up-to-date bibliography valuable.

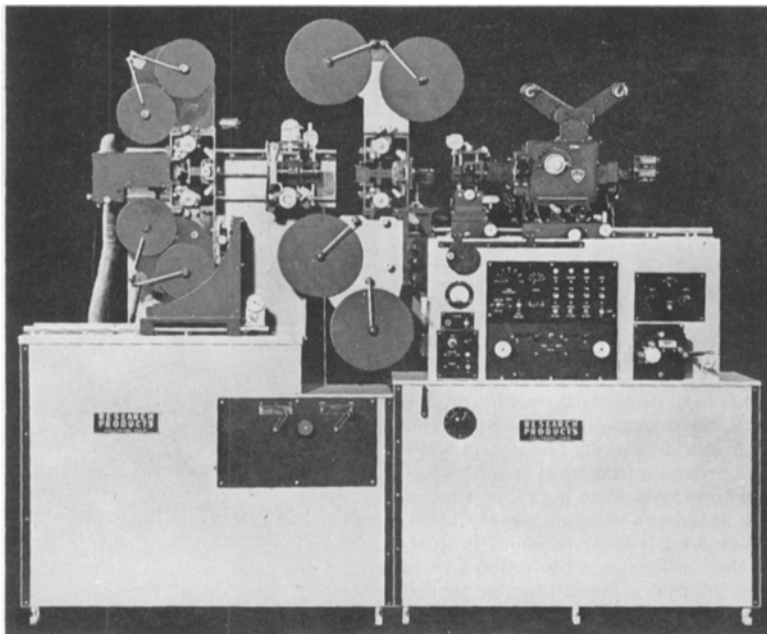
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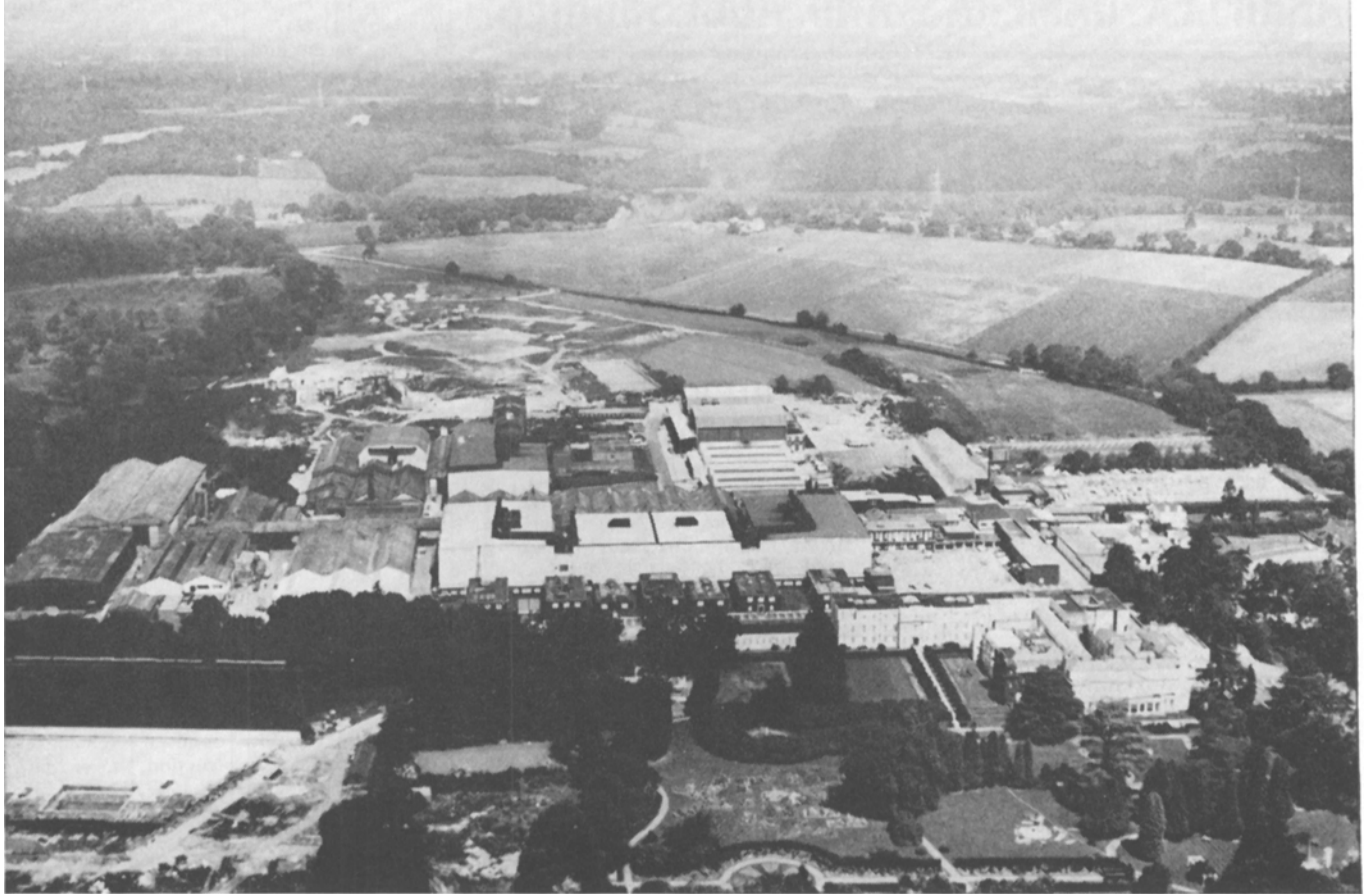
List of Categories

1. Holography and Related Fields
2. Books — Non-Optical
3. Books — Optical
4. Books Discussing or About Holography
5. Survey Articles on Holography
6. General References in Holography
7. Theory of Holography
8. Holographic Images and Their Properties
9. Properties of the Hologram
10. Experimental Procedures and Techniques in Holography
11. Computer Generated Holograms and Spatial Filters
12. Types of Holograms
13. Color Holograms
14. Incoherent Light Holograms
15. Pulsed Light Holograms
16. Polarization Holography
17. Non-Optical Holograms
18. Holographic Displays
19. Holographic Recording Media
20. Holographic Copying
21. Holographic Interferometry
22. Holographic Microscopy
23. Integral Photography — Holography
24. Holography Applications and Equipment
25. Optical Information Theory
26. Optical Fourier Transform and Transfer Function Theory
27. Optical Information and Data Processing
28. Optical Information Storage
29. Optical Recognition
30. Optical Spatial Filtering
31. Zone Plates
32. Articles Related to Holography

1. Holography and Related Fields

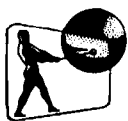
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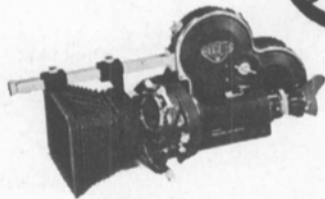


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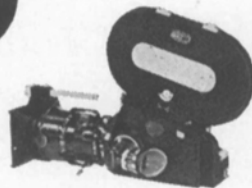
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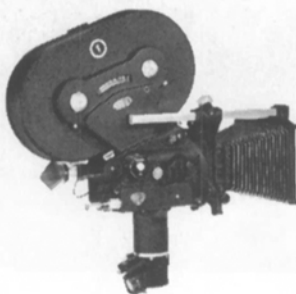
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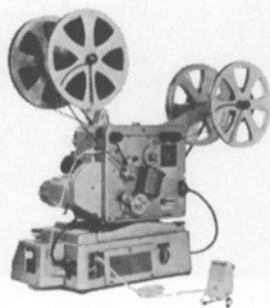
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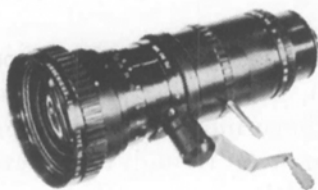
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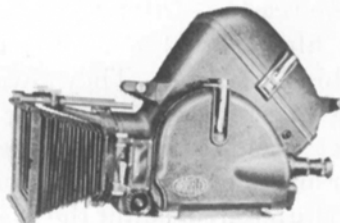
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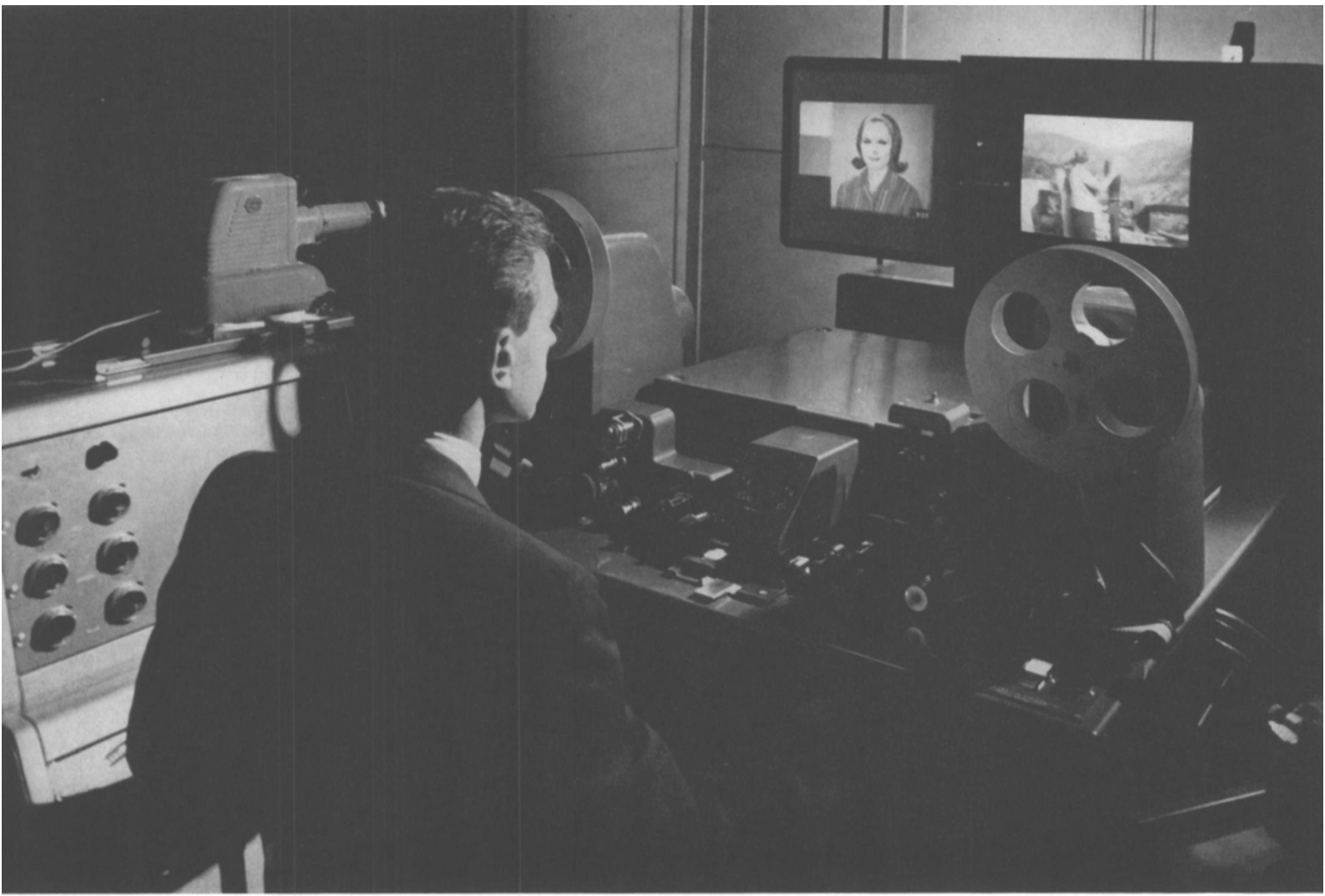
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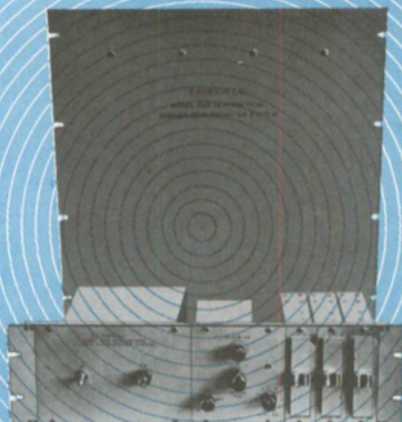
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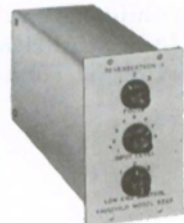
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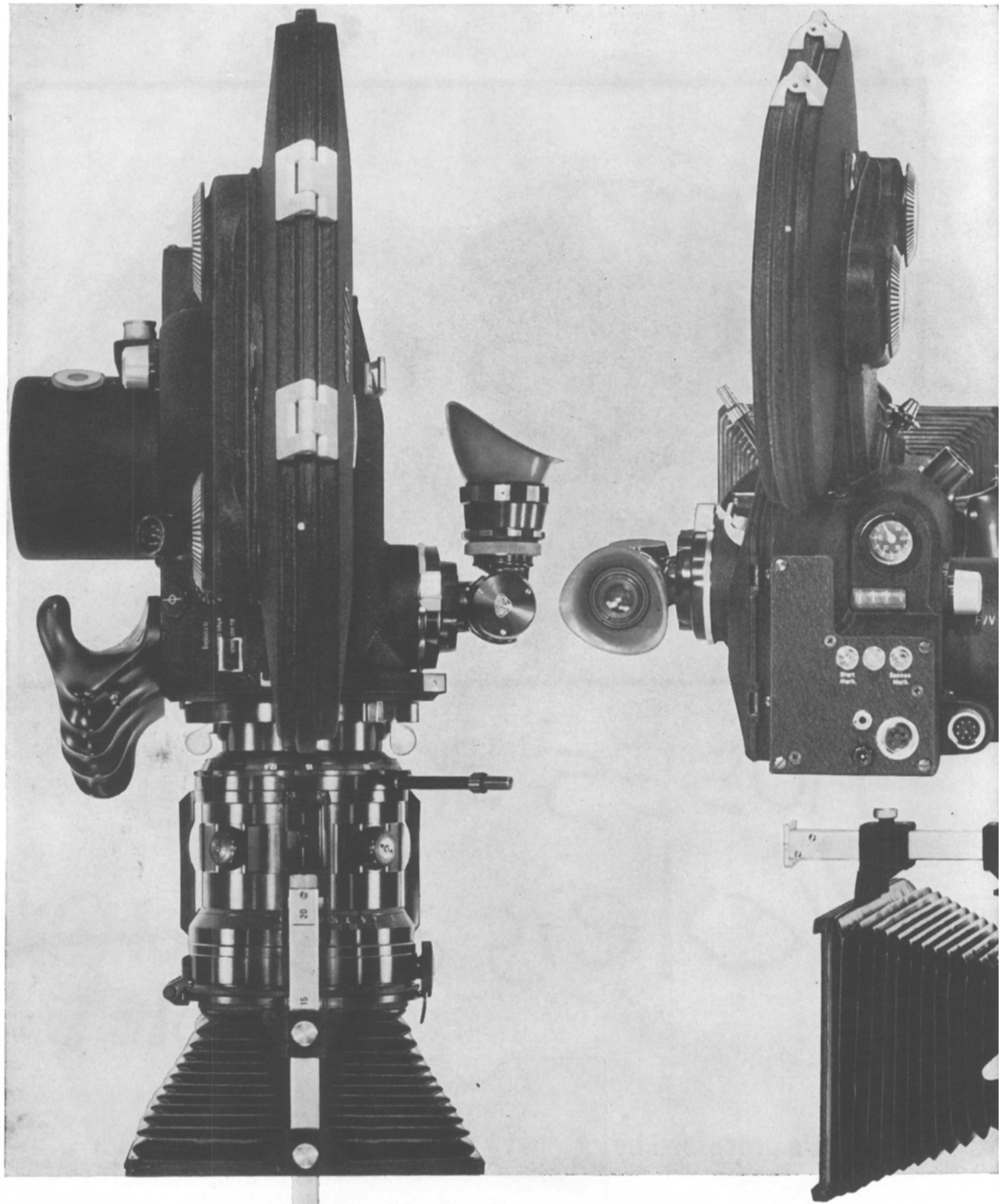


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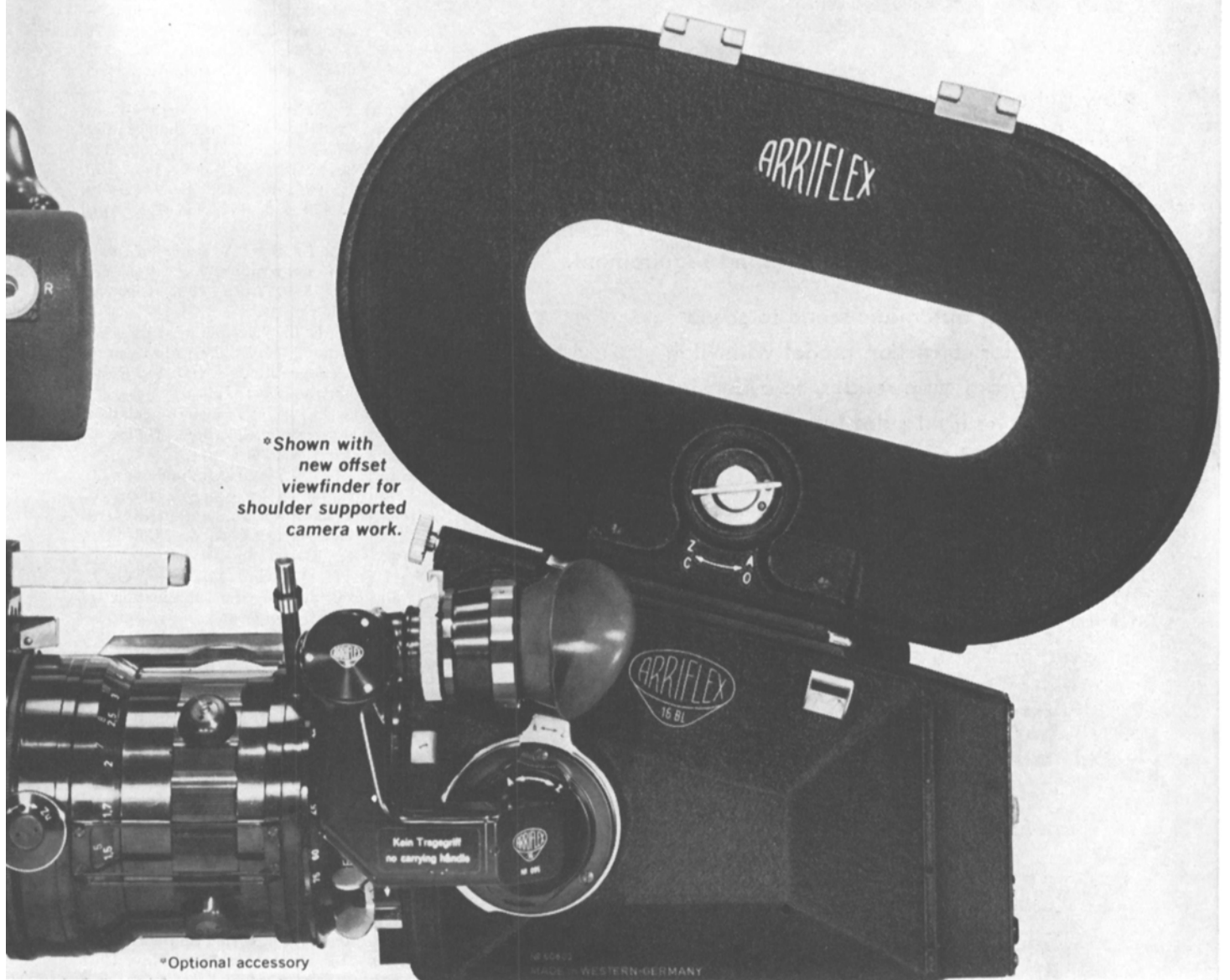
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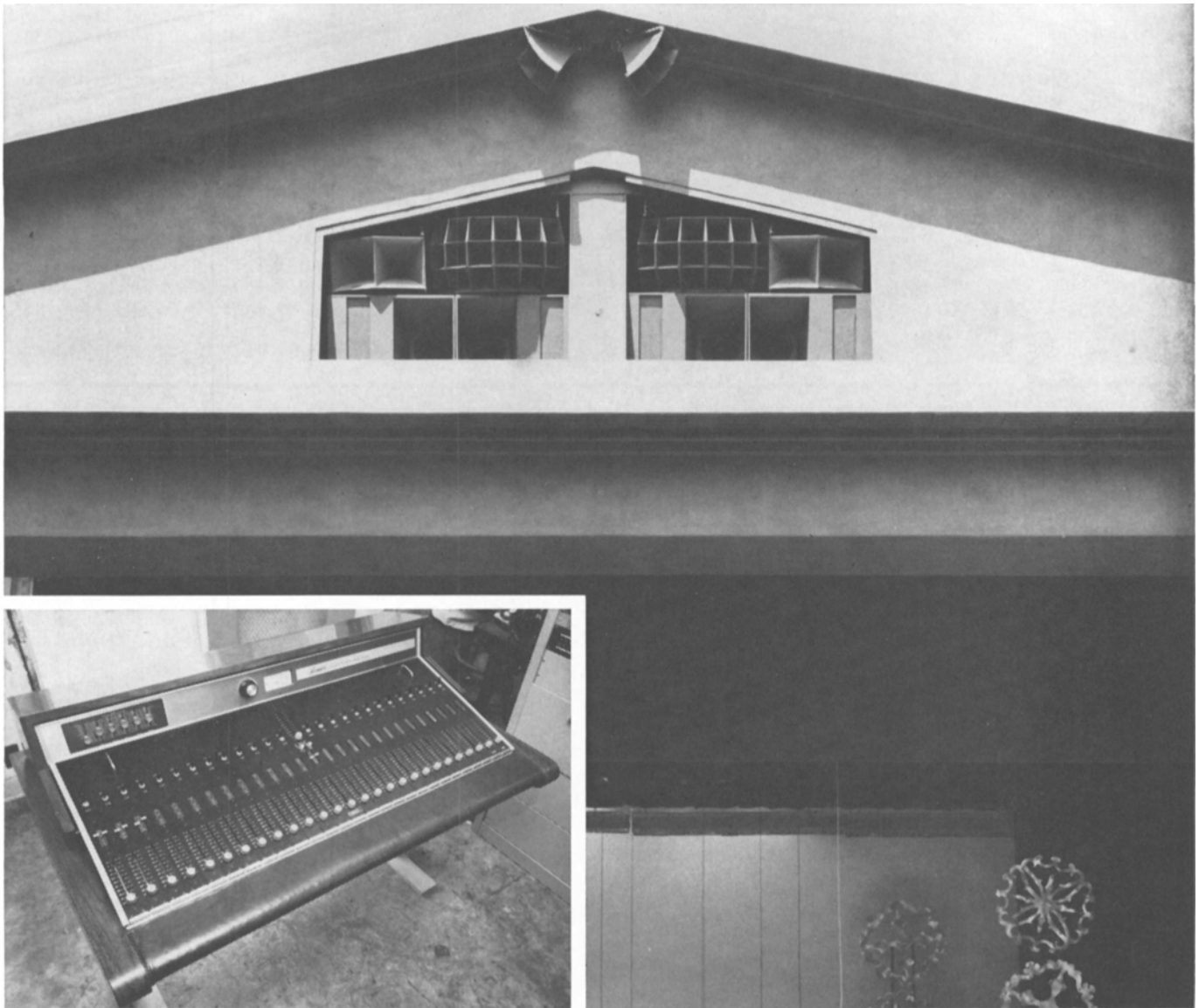
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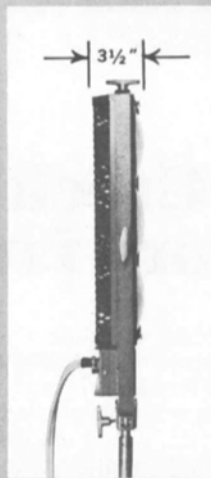
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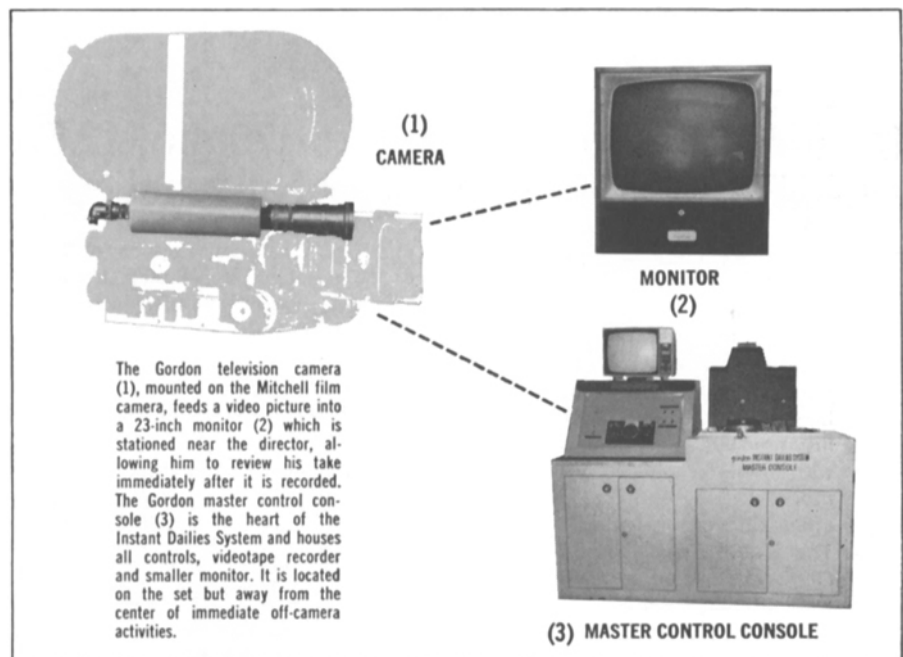
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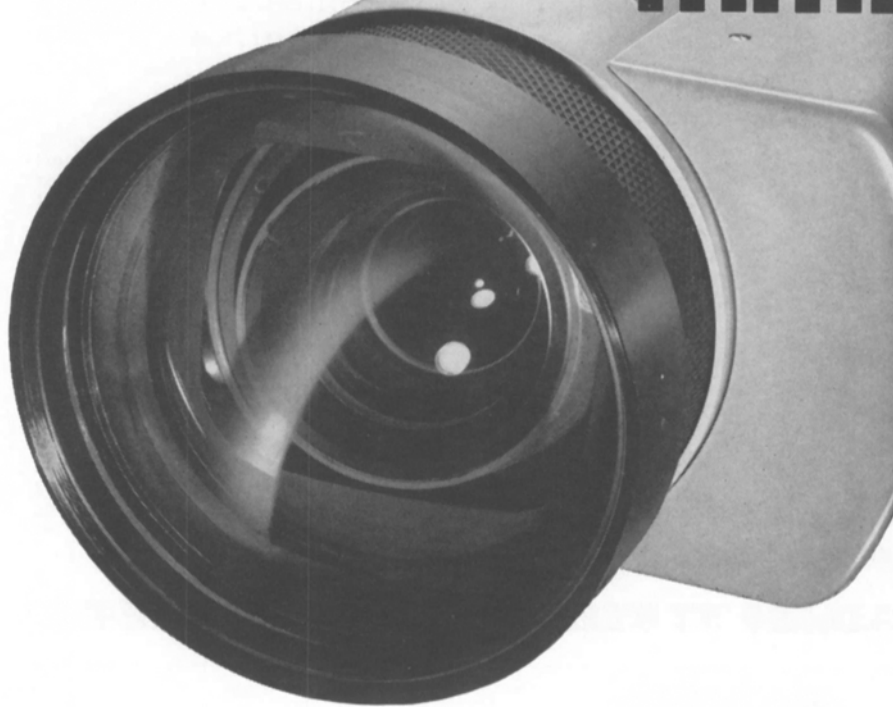
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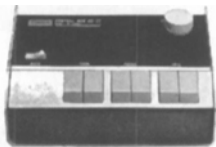
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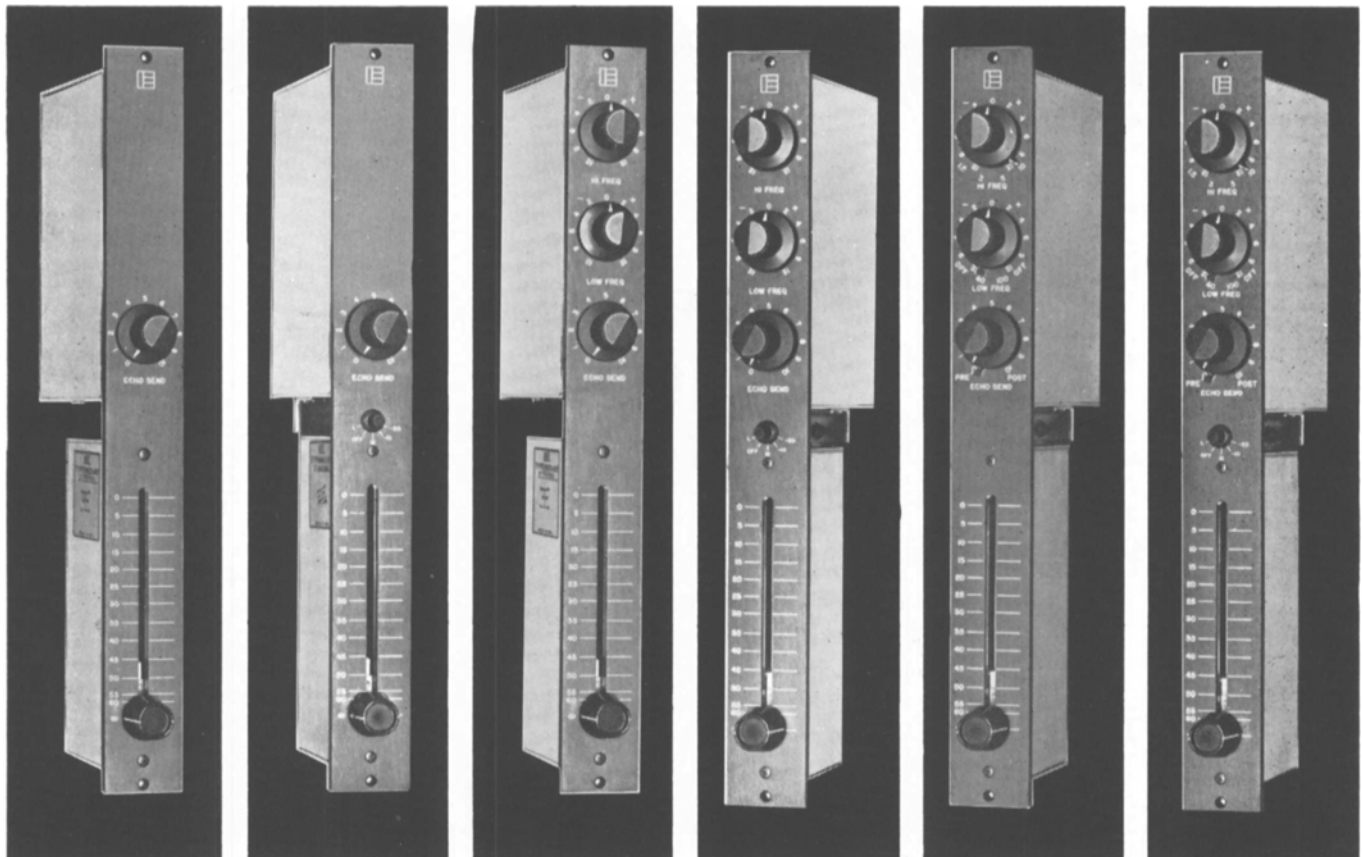
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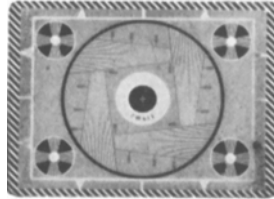
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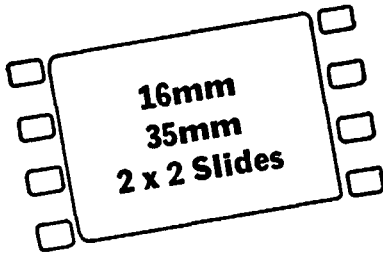
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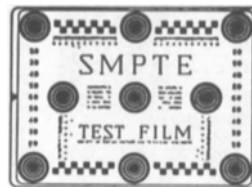


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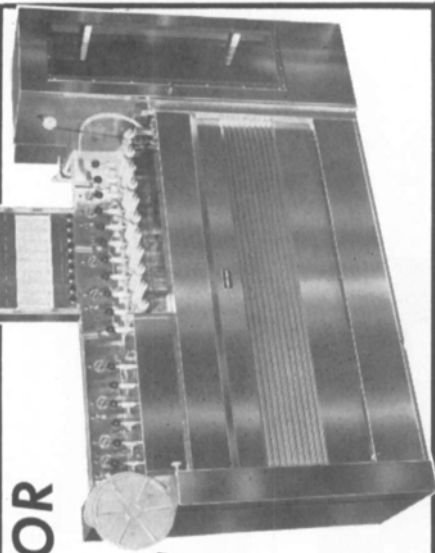
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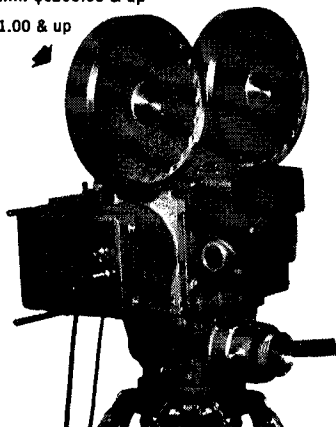


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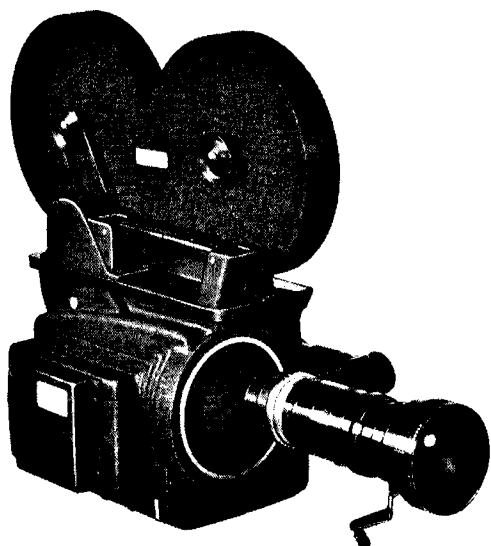
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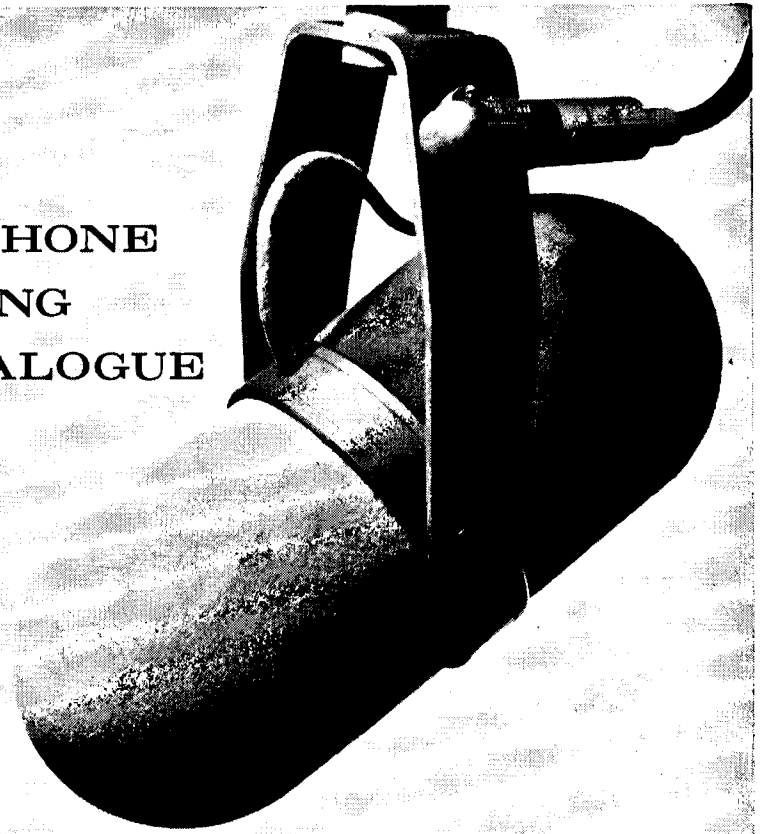

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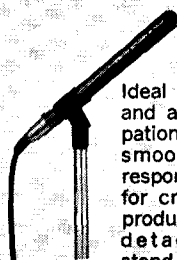
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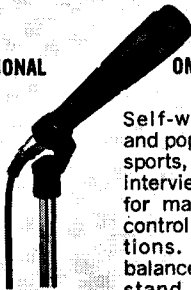
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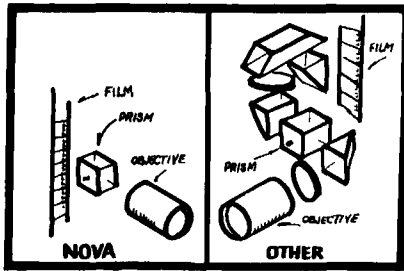
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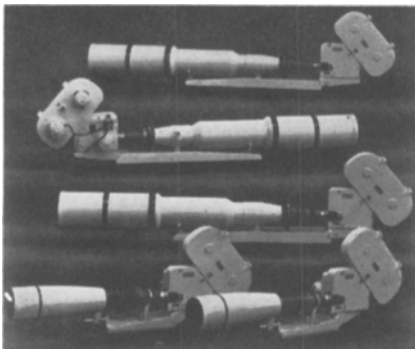
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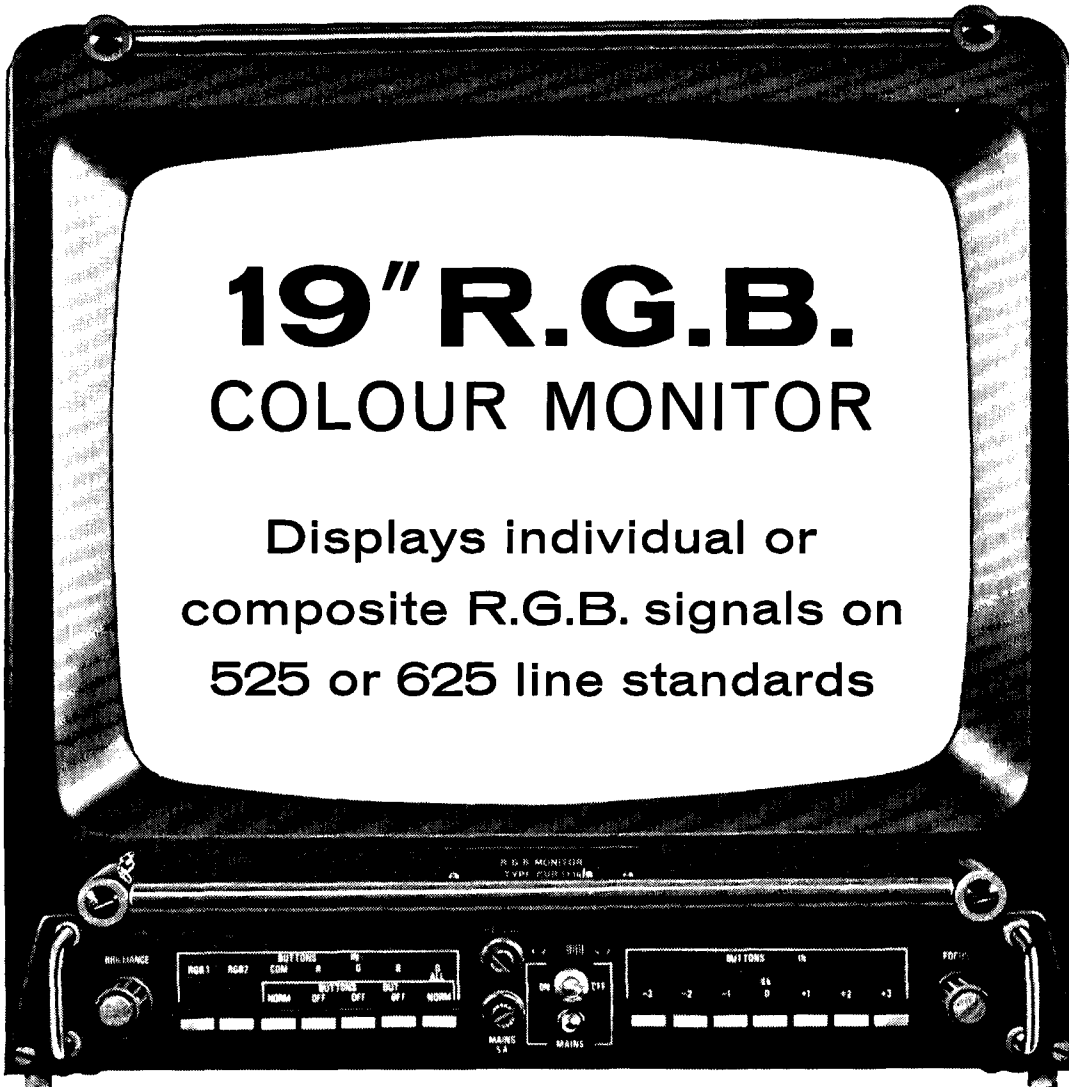
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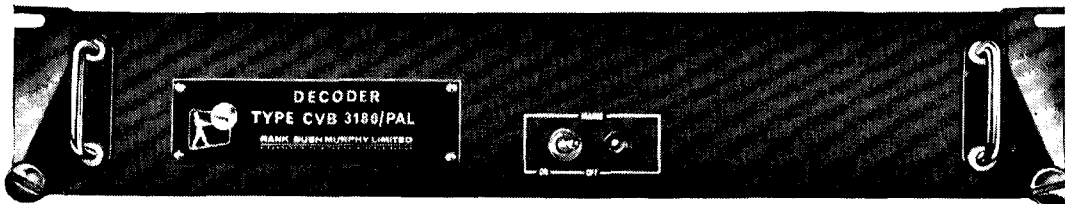
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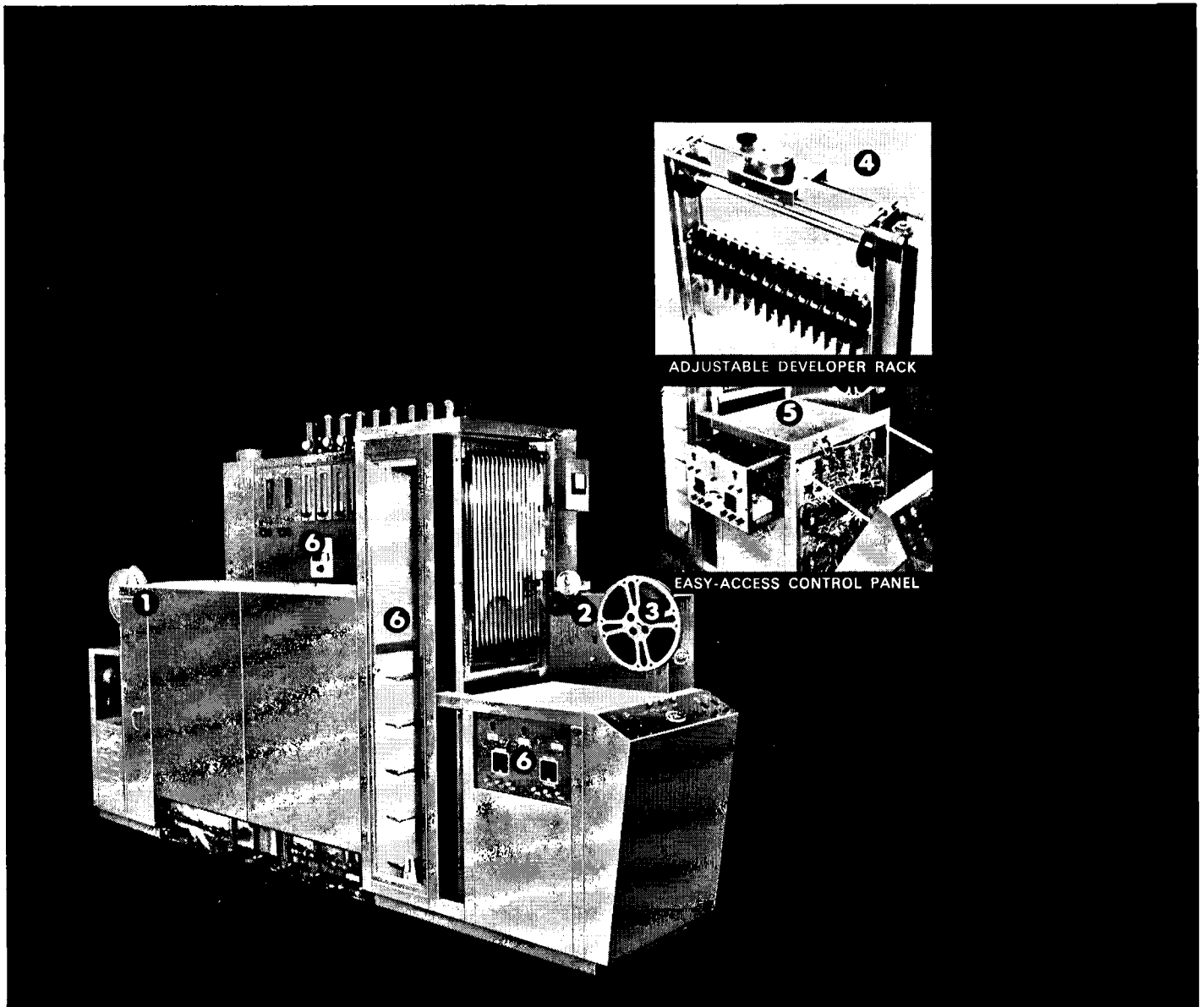
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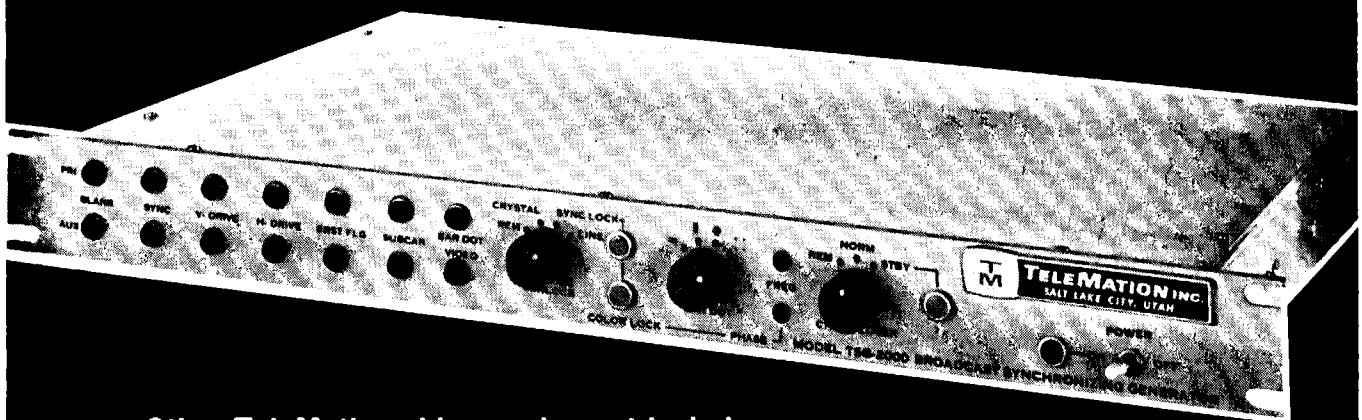


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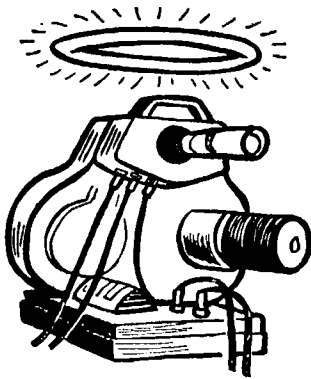
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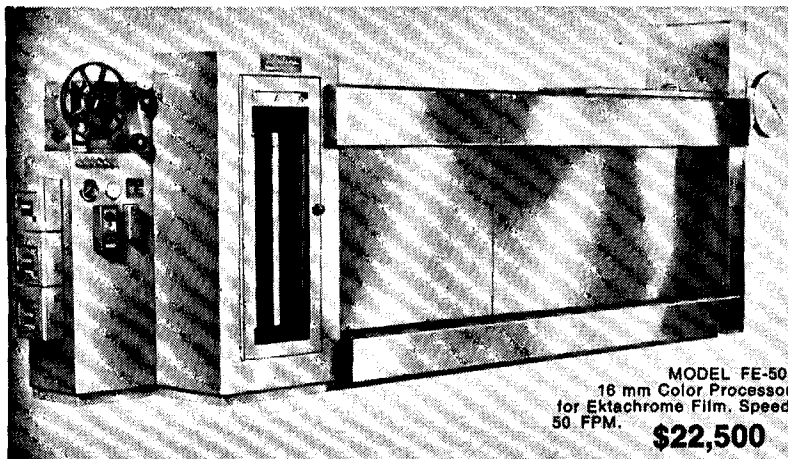
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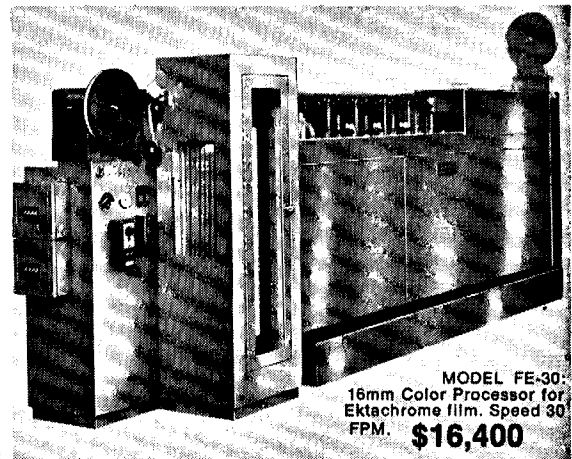
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TV Stations: WAPI-TV, WHP-TV, WMAL-TV, WXYZ-TV, WWL-TV, WMAR-TV, WJXT-TV, KETV-TV, WTOP-TV, WEAT-TV, WCKT-TV, WAVE-TV, WAVY-TV, KTVI-TV, WCPQ-TV, KTAR-TV, WSYR-TV.



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Measurement of Noise in Video Systems

By RUDOLF FELDT

Introduction

Noise in video systems cannot be measured by means of a simple voltmeter because of the blanking and sync pulses which are essential elements in these systems. A wide variety of special methods and measuring equipment has been developed to measure video noise — including oscillogram scanning, and the use of an oscilloscope to measure the peak value of the noise signal. Most of these techniques have inherent weaknesses, but a recent measurement technique has been developed. This is a video noise meter which permits "objective" measurements of noise, quickly and easily.

In all communication systems, noise has a major effect on the quality of transmission. Measurement of SNR, therefore, is practiced on a large scale. In television systems, the significance of noise is perhaps even greater because of the very large bandwidth of the TV channels and be-

cause the transmitted signals are, by their very nature, pulses, i.e., similar in characteristics to the noise signals. Until recently, no completely satisfactory method was readily available for measurement of video noise.

Measurement of noise in a video system cannot be achieved by means of a simple voltmeter because of the presence of the blanking and sync pulses (vertical and horizontal), which are required for the operation of the transmission system. The amplitude of these operational signals is several orders of magnitude larger than that of the noise, and, therefore, would make any direct measurement impossible (Fig. 1a). Because of this problem, a number of methods and techniques have been developed; however, these have serious limitations.

Noise Measuring Method According to RCA

Noise voltage, which is contained in a line or in the full picture, is displayed on the screen of an oscilloscope. This oscillogram is scanned by means of the photocell through a horizontal slot. This scanning is accomplished by shifting the oscillogram in vertical direction by means of a dc voltage, which is the so-called "displacement voltage." The current in the photocell is a measure for the distribution frequency of the amplitudes. The displacement

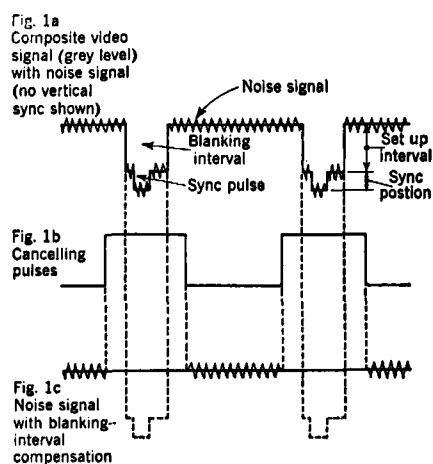


Fig. 1

voltage, which is required to reduce the current in the photocell in both directions to 60.7%, corresponds to twice the rms value of the noise voltage. The accuracy of this method is quite satisfactory. The requirements for the oscilloscope are rather demanding. Major disadvantages are the complexity of the operation and the rather small measuring range, which at the best amounts to 60 dB.

A contribution submitted by the author, Rudolf Feldt, Rohde & Schwarz Sales Co., 111 Lexington Ave., Passaic, N.J. 07055, first on August 11, 1967, and, in a slightly expanded version, on October 12, 1967. The earlier version was presented by the author in April 1967 at the NAB Conference in Chicago and published in the *Proceedings of the 1967 NAB Engineering Conference*.