
ABSTRACTS OF PAPERS FROM OTHER JOURNALS

Signal Processing of the Compact-Cassette Digital Recorder, N. Sakamoto, T. Kogure, M. Shimbo, and H. Komae, *Journal of the Audio Engineering Society*, 32:647, September 1984.

The signal-processing techniques for compact-cassette digital recording are of interest to those concerned with consumer audio equipment. A cassette digital tape recorder using a metal-evaporated tape has been developed together with a high-density ferrite head having 12 tracks of 120- μm track width and 0.3- μm gap length per channel. Specially designed digital signal-processing circuits include circuits for signal generation, modulation, error correction, and signal control. The digital modulation scheme called FEM-4 is a new and key item of the design. The practical design and system concepts are outlined.

Companded Predictive Delta Modulation: A Low-Cost Conversion Technique for Digital Recording, Robert W. Adams, *Journal of the Audio Engineering Society*, 32:659, September 1984.

A digital recording system is described that employs a type of A/D converter other than the 16-bit linear PCM converters commonly in use. The conversion process, called companded predictive delta modulation, differs from adaptive delta modulation in that the input signal is dynamically (in both amplitude and spectrum) adjusted by a voltage-controlled amplifier and then passed through a fixed (non-adaptive) delta modulator. Dither is added to provide a white noise floor and minimize low-level distortion. Instead of a simple integrator, the delta modulator uses a second-order feedback filter, which substantially increases its dynamic range. Since delta modulators have low sensitivity to bit errors, the error-correction circuitry is relatively simplified. A convolutional error-correction code was chosen.

MAC: The Video Coding System for DBS, Richard Morcom and Gordon Drury, *BKSTS Journal*, 65:602, November 1983.

This paper is primarily concerned with signal coding techniques suitable for application to direct broadcast satellite (DBS) systems. The signal coding scheme referred to as multiplexed analog components (MAC) is an attempt to carry over the philosophy of the trend towards digital component processing to the field of new broadcasting systems such as DBS.

Role of the Consulting Engineer in Quality Assurance, D. G. Mann, *IEE Proceedings — A*, 131:389, August 1984.

The consulting engineer has a unique position of authority and influence at the center of the majority of engineering projects undertaken in the manufacturing, construction, and service industries worldwide. The quality of materials, equipment, and services is a high-priority consideration for the consultant, particularly when he is involved in engineering project management. The "quality" of his own consulting services is also of paramount importance. This paper discusses the impact of the quality assurance concept on the consulting engineer's activities and examines some of the challenges and problems which the QA philosophy poses for the consultant in his task of looking after the client's overall interests.

The 2010: An Integrated Optical Mass Memory System, Paul J. Neumeier, *Imaging Technology*, 10:162, August 1984.

This paper presents an overview of the 2010, an optical mass memory system that integrates a patented image control system and optical scanning and digitizing technologies to control up to 25 million images in a single unit. The 2010 allows digital output of user-requested page images to high-resolution video display terminals, paper, or computer output microfiche.

Disk Storage: Magneto-Optics Leads the Way, Masud Mansuripur, *Photonics Spectra*, 18:59, October 1984.

A certain class of amorphous rare-earth/transition-metal alloys has proved extremely suitable for magneto-optical recording applications. Gadolinium-cobalt, gadolinium-iron, and terbium-iron are among the best-known members of this class. The rare-earth and transition-metal components of the alloy are both magnetic, and their magnetization vectors are perpendicular to the disk surface. When the composition is properly chosen, the media exhibit hardness in the vicinity of room temperature and, under normal conditions, stray magnetic fields are incapable of erasing the recorded data.

Laser Unequal Path Interferometer Configurations by Grating Splitting at the Fourier Plane, G. Molesini, G. Pedrini, and F. Quercioli, *Optical Engineering*, 23:646, September/October 1984.

Simple interferometric configurations are considered in which the beam splitter is made of a diffraction grating placed at the Fourier plane of the source system. Under coherent illumination, interference patterns are produced that account for the phase difference between the source wavefront and the back-reflected probe wavefront. A practical laser unequal path interferometer setup is presented, along with calibration results from comparison with well-established interferometric configurations.

Iterative Image Enhancement Procedure with Dynamic Range Constraints, John A. Saghri and Andrew G. Tescher, *Optical Engineering*, 23:675, September/October 1984.

An extension to image processing of Van Cittert's iterative restoration technique for one-dimensional data is presented. A particular advantage of the algorithm given here is the ability to satisfy amplitude constraints. It is useful for presentation of high dynamic range imagery in a limited display environment.

Producing 3D Depth-Compressed Images (in Russian), N. K. Ignatiev, *Tekhnika Kino i Televiznaya*, p. 5, June 1984.

The capacity of the parallax-panorama to transform 3D images in depth is considered. The paper shows how depth-compressing makes easier image fixation under conditions of the limited depth resolution in lenticular-lens shooting systems. Formulas to establish optimum shooting conditions are given.

Principles of Designing Release Print Wear Monitoring Devices (in Russian), N. G. Kiselev, *Tekhnika Kino i Televiznaya*, p. 3, July 1984.

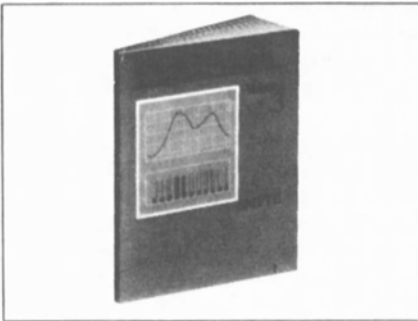
Release print wear monitoring devices are reviewed and comparisons are made. The optical spatial filtering method is shown to form the basis for the optical configuration of these devices. The influence of the release print phase relief on scratch signal detection reliability depending on the scanning spot size is theoretically evaluated, and transmission monitoring circuits are comparatively estimated. Some parameters of the information processing unit are considered.

Stereophonic Sound in Television Broadcasting (in Russian), Yu. A. Kovalgin and V. V. Odnol'ko, *Tekhnika Kino i Televiznaya*, p. 25, July 1984.

This paper deals with stereophonic systems intended for TV program sound, considers the block diagrams of sound channels, and some features of designing TV receiver acoustic systems as well as a method for further improvement of TV stereophonic sound based on the ABC stereo system application.

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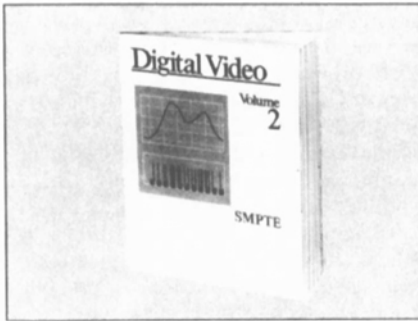
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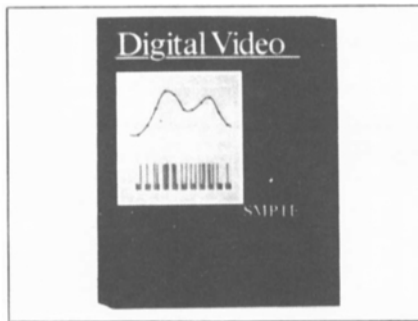
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Videolaryngoscopy Using a Low Cost Home Video System Color Camera, Eiji Yanagisawa, *Biological Photography*, 52:9, April 1984.

Videolaryngoscopy-videographic recording of the laryngeal examination using a video camera and a flexible fiberoptic or a rigid telescope is a valuable office procedure. It allows excellent visualization and documentation of the physiological and pathological conditions of the larynx. It is of great value for teaching, voice analysis, permanent records, and patient education. One of the main drawbacks, however, is the cost of color video cameras. This paper describes a method of performing videolaryngoscopy using a low cost HVS color camera.

Progress in the Development of the Future Digital Video Recording Format, W. Habermann, *EBU Review*, p. 62, April 1983.

The CCIR Recommendation that defines the digital studio interface gives the foundation for the development of a recording format for digital video signals. Discussions of working parties of the EBU and the SMPTE have progressed to the point where an opinion can be expressed on the limiting values to be adopted for the principal characteristics of the format. It is apparent that this severely restricts the range of possible variations and, hence,

that the mechanical arrangement of the tracks has already been determined very broadly.

The final bit-rate of the data to be recorded on the tape, the sharing of this data among the various tracks, and the way in which it should be arranged within the tracks remain to be decided. All these factors are closely related to the choice of a channel code and an error-protection system for the image signal and the ambient sound signal. While defining the format, particular attention must be paid to the conditions set by the need for compatibility in VTRs operating with half the bit-rate of the studio machine.

Technical Parameters of a Future Single-Sideband Transmission System for HF Broadcasting, G. Gröschel, *EBU Review*, p. 234, October 1983.

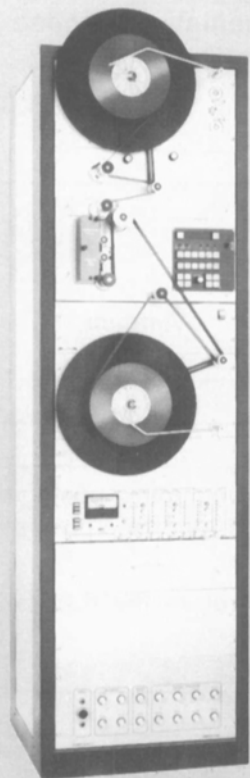
The reasons are explained for preferring certain fundamental parameters for a single-sideband (SSB) broadcast transmission system: the equivalent power of the transmitted sideband and the degree of carrier reduction. The influence of these parameters on the peak transmitter power and its power consumption are explained. The adjacent channel interference occurring in the future SSB system is derived using a mathematical model. Modifications to the model needed for cal-

culating the RF protection ratios between signals transmitted using different modulation methods are described. Also examined is the influence of various factors on the RF protection ratio as a function of the spacing between channels during the transitional period between DSB and SSB transmission, and in the final phase when only the latter system will be in use.

The EBU Parallel Interface for 625-Line Digital Video Signals, M. J. Stickler, *EBU Review*, p. 102, June 1984.

To implement the 4:2:2 digital television standard recommended by CCIR Rec. 601, an interface to interconnect equipment complying with the standard must be defined. The EBU therefore set up a joint ad-hoc group under working parties G and V to undertake this task, which culminated in the publication of document Tech. 3246 describing the parallel digital interface. This article examines the factors considered in the design of an interface: signals to be conveyed, a comparison between the serial and parallel configurations, associated cables and connectors, and practical applications. The reasons for the choices are given, but not a detailed description of the interface itself. It concludes with a review of the results obtained from experiments with prototypes of the interfaces.

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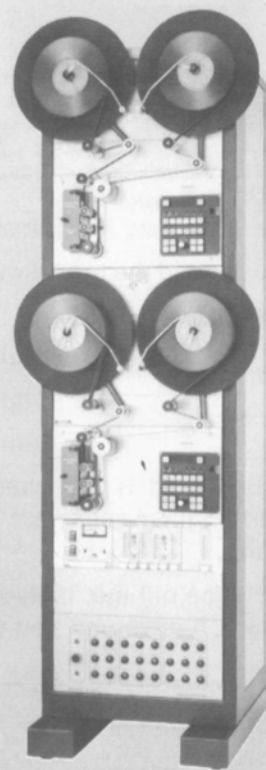


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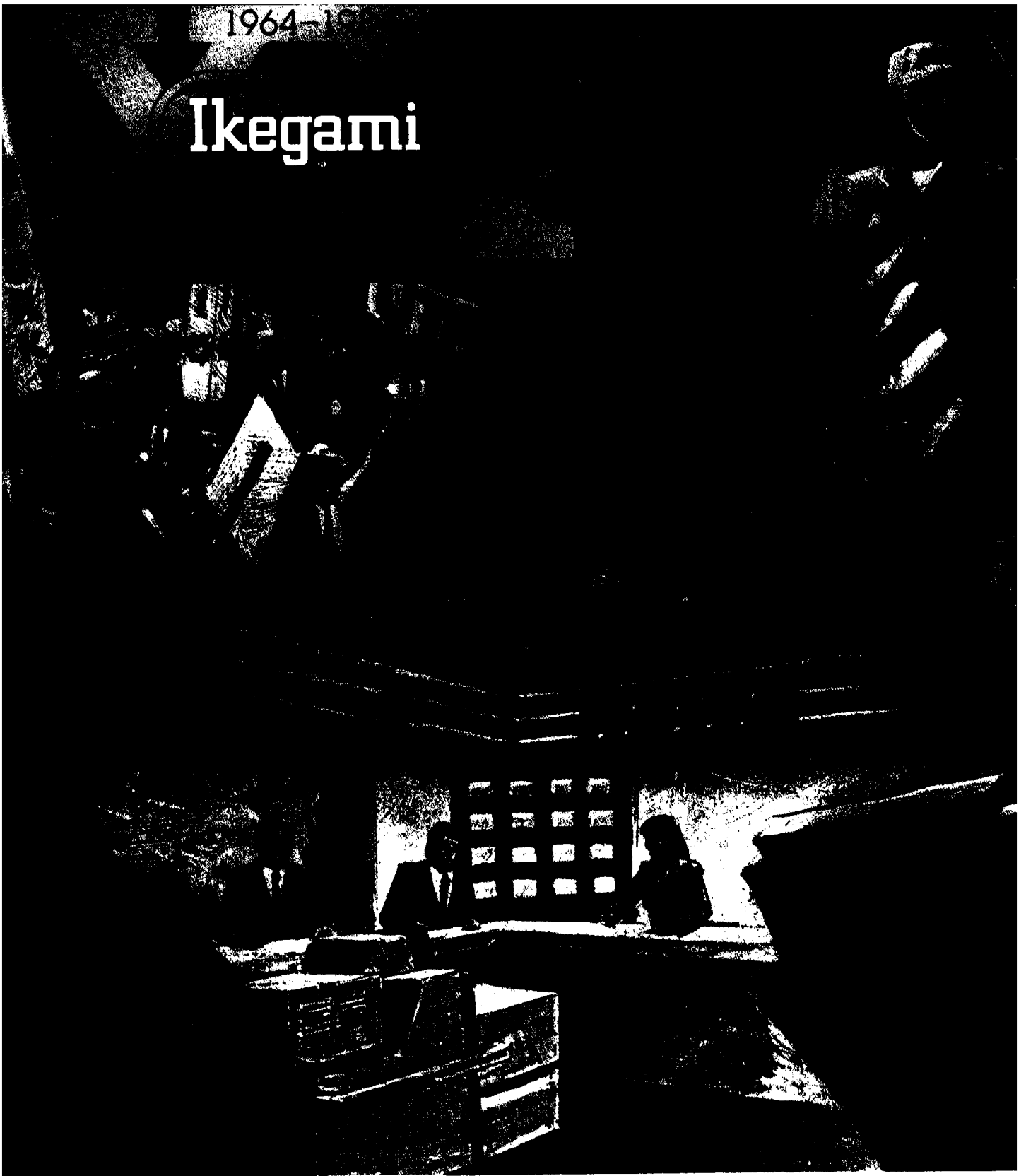
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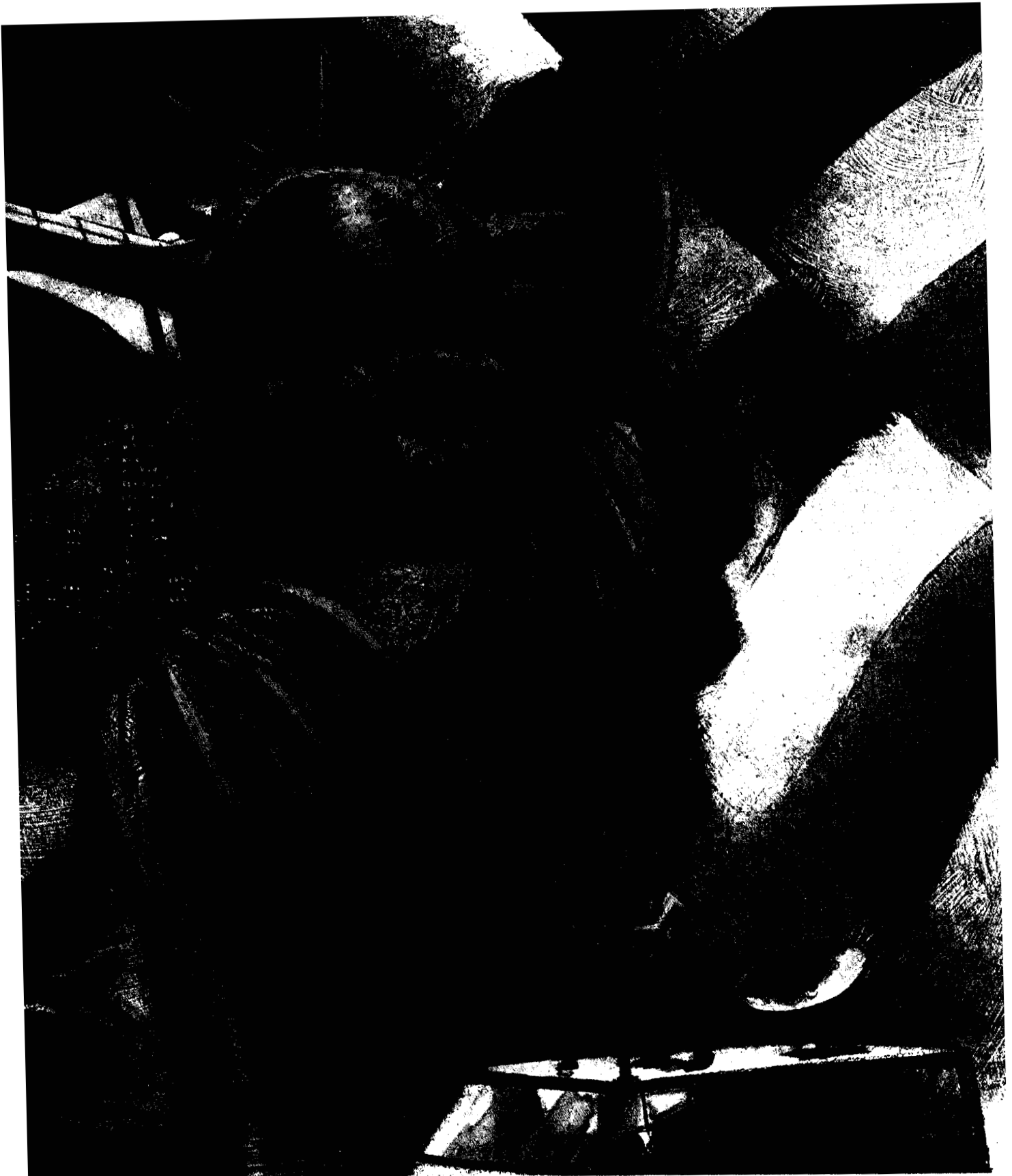
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