

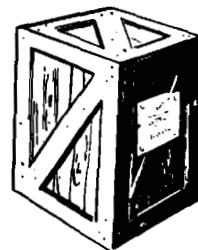
C13.10,260) is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, at a price of 75 cents.

Design of Experiments Course, a 10-page brochure describing a practical course in applied statistics for scientists and engineers, is available from Westinghouse Electric Corp., Westinghouse Bldg., Pittsburgh, PA 15222. The brochure was prepared by Westinghouse Learning Corp., Training Development Dept. The illustrated brochure describes the VISTEX (Visual Instruction With Structured Text) method which combines film lectures, texts and problem material into a flexible, self-instructional program. The brochure gives a detailed description of the course which includes information on the latest cost-saving techniques in the design and analysis of experiments and tests. Previous training in statistics is not required.

Hope Reports, 58 Carverdale Dr., Rochester, NY 14618, has announced a special service to purchasers of more than one copy of the full report, *AV-USA 1969*. Recognizing that a number of organizations will require more than one copy of the full report additional reports are being made available at a price of \$25 for the second and third copies after the initial purchase of the report at the single copy price of \$85. The fourth and additional copies can be purchased at a price of \$10. A description of *AV-USA 1969* and three other Hope reports, including single copy prices, appears on p. 950 of the October 1970 issue of the *Journal*.

The Clearinghouse for Scientific and Technical Information, formerly a part of the National Bureau of Standards, has been transferred to the newly established National Technical Information Service in the Department of Commerce. The new service has been established "to simplify and increase public access to Federal publications and data files of interest to the business, scientific and technical communities," the announcement stated. It is expected that NTIS will expand considerably the range of services presently available through the Clearinghouse. Each year some 50,000 titles have been added to the Clearinghouse publications and more than two million copies of reports are sold. Peter F. Urbach, formerly Deputy Director of Clearinghouse, has been appointed Deputy Director of NTIS by Secretary of Commerce Maurice H. Stans.

Educational Communications Foundation, 3150 Spring St., Fairfax, VA 22030, is a new research institution created to conduct practical inquiry and research into new methods for applying audio-visual equipment and materials in education and in measuring the impact of such methodology on the learning process. It will disseminate information on the use of the new media in areas of teaching and communication, through seminars, papers, visual presentations and various publications. The Board of Directors is composed of representatives of the fields of education, government and industry. Harry McGee has been appointed Acting Executive Director.



new products (and developments)

.....
Further information about these items can be obtained direct from the addresses given. As in the case of technical papers, the Society is not responsible for manufacturers' statements, and publication of these items does not constitute endorsement of the products or services.

Film and Magnetic Stock Sampler #1 is a product of ALRE Films, Inc., 565 Fifth Ave., New York, NY 10017, a new firm devoted to the production of educational materials to assist the new filmmaker. The staff is made up of professional motion-picture makers who have taught in the field. Film and Magnetic Stock Sam-

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Article Number:	#RZ-9015
Lens description:	22.5~90mm 1:1.5
Number of lens element:	15, hard-coated
Focusing range:	5 feet or 1.5 meters to infinity
Maximum outside diameter:	120.0mm
Mounting type of the lens:	C-mount Flange focal distance=17.526mm (0.690")
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Control Box and Control Cable	attached.



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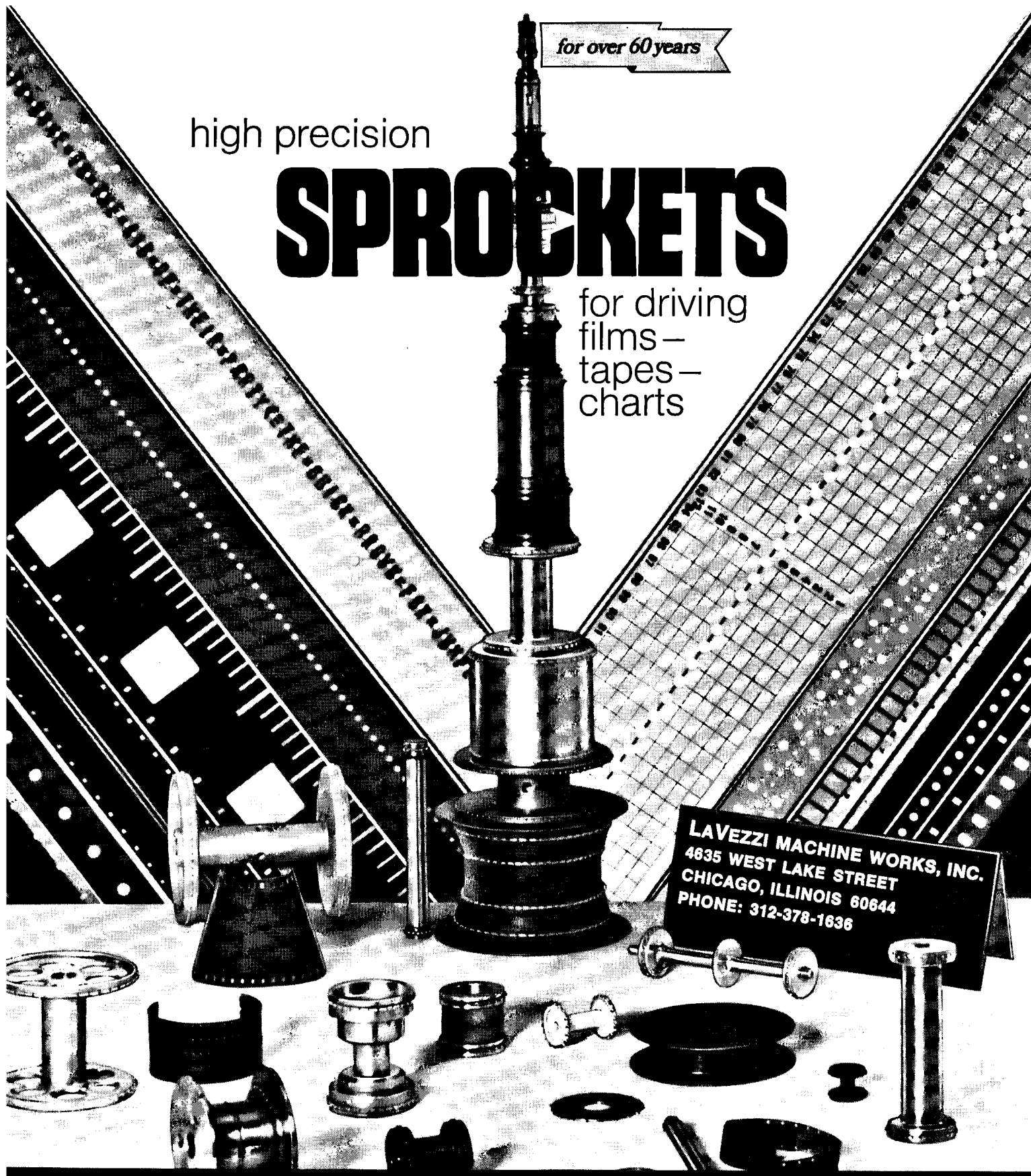


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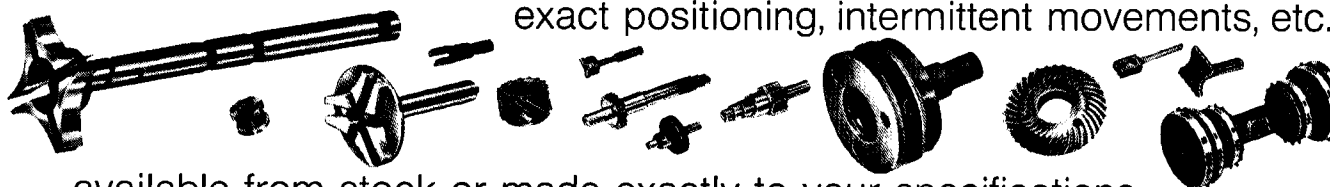
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pler #1 was developed because it was recognized that students would find it helpful if all the main film and magnetic film types were in one package where they could see and feel them and compare them with one another. The samplers are priced at \$5.00 each (\$4.00 in lots of 10 or more).

ALRE Films has also produced a series of films on Kodak 16mm Film Characteristics on 14 Kodak film stocks. A 100-ft roll of each 16mm film was used in studio conditions under 3,200-K light to film a model against a gray background with a large gray scale and color charts. The films were exposed at the correct exposure and then at over and under to three stops

in half-stops. To compare grain characteristics, exposure latitude, color latitude, or any other factor of one film against another, a print of the stocks can be spliced together and projected for visual comparison. The films are available in two versions — one with no printer corrections and the other with printer corrections to show how a laboratory can correct for over- or underexposure.

Three new 16mm black-and-white camera reversal motion-picture film stocks designed especially for sports photography and government and industrial applications have been introduced by the Photo-

graphic Products Div., 3M Company, Box 3050, Dept. PhO-9a, St. Paul, MN 55101. The films are available in speeds for almost any lighting condition. Type CR 64 has a medium speed of ASA 64 (50 tungsten) with fine grain and wide latitude to protect against over-space and under-exposure. Type CR 160 is a high-speed (ASA 160 (125 tungsten)) film designed for over-cast conditions or night photography. It provides fine picture detail and wide exposure latitude. Type CR 250 has a speed of ASA 250 (160 tungsten) for indoor situations or where exceptional speed is needed. It can be pushed to ASA 1250.



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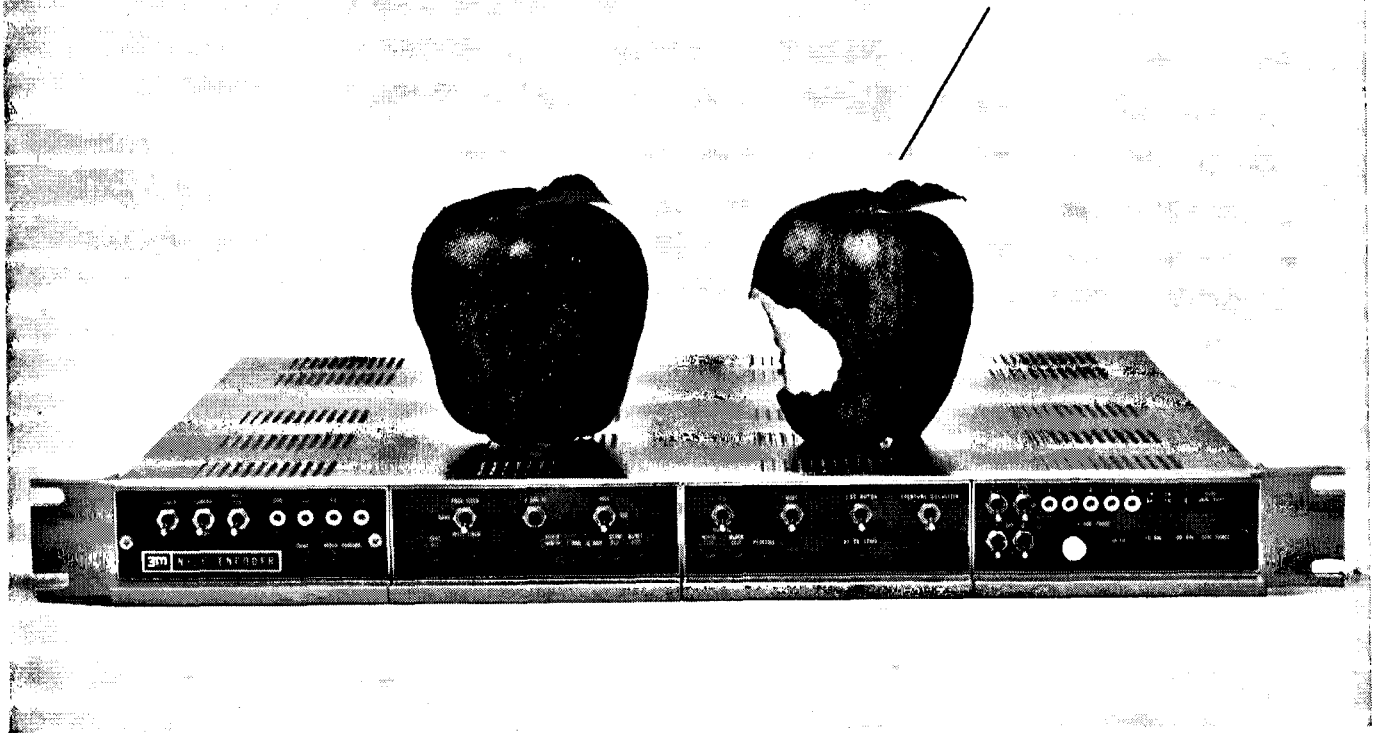
Eastman Ektachrom R Print Film 5389/7388, a new reversal color print film, has been announced by Eastman Kodak Co. It is available in 16mm and 35mm widths in the same sales lengths and at the same prices as Eastman Ektachrome R Print Film 5388/7388 which it will eventually replace. The new film is like its predecessor except for the added advantage of its ability to produce a silver soundtrack. Also announced was a change in the sales length and packaging of both the 35mm and 16mm Eastman Clear Leader 5980/7980. The 35mm size will be reduced from 1,015-ft rolls to 1,000-ft rolls and the 16mm size will change from 1,220-ft rolls to 1,000-ft rolls. Price per foot will remain the same. The new packaging consists of the individual rolls on 3-in cores placed in a plastic bag and inserted in an off-white die-cut corrugated folder.

Another recently announced change is that of the name of Eastman Plus-X Negative Film 4231 to Eastman Plus-X Negative Film 5231. The emulsion designation PXN remains unchanged.

A new lightweight 70mm film reel and shipping case has been announced by Bruce Industries, Inc., 1528 W. 178 St., Gardena, CA 90247. The case is of rugged construction for transcontinental and intercontinental shipment and savings of up to 200 lb per picture have been reported. The set, consisting of reel and shipping case, is priced at \$30.

The **Hedén Electronic Remote Controls** for zoom lenses have been introduced by Hedén Engineering Co. of Sweden. The controls are designed for television cameras (broadcast and closed-circuit) and for 35mm and 16mm motion-picture cameras. The system consists of two independent motors, one for varying the degree of magnification, i.e., the zooming as such, and the other for remote control of the focus of the unit. The motors can be seen in Fig. 1, above and below the lens barrel. They can be used inside a blimp for filming with synchronous sound. Each of the two motors has its own independent control box. Figure 2 shows the zooming con-

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A COUPLE OF FEATURES
THAT OTHER PRODUCTS DON'T



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Another unique fact is that the 3M Color Encoder considers smaller, lower cost cameras as well as the big expensive ones. A method of input clamping is used on video signals that eliminates low frequency hum and noise and other unwanted effects on the matrix. If you have access to an SMPTE color test film (hand test over colored bolts of cloth) you can determine whether your camera needs clamping. If it does, you're in clover with this 3M Encoder.

The 3M Color Encoder is compatible with all 3-tube and 4-tube cameras, meets all applicable FCC and EIA specs. There's also a 2F notch filter in the horizontal aperture equalizer to prevent noise beyond camera frequency response.

Luminance enhancement at the flick of a switch assures a sharp picture even if registration is not perfect. With a 4-tube camera, enhancement is from the luminance tube. The green channel is used for enhancement in 3-tube cameras. Switching is on the front panel, as are **all** operation and setup controls, including notch filter.

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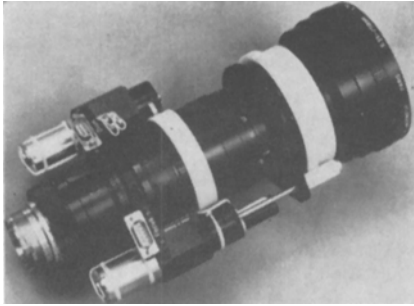


Figure 1

control unit mounted on the panning lever of the camera tripod. Zooming speed is adjusted in advance within the wide range of 2 s to 2 min. As shown by Fig. 2, release of

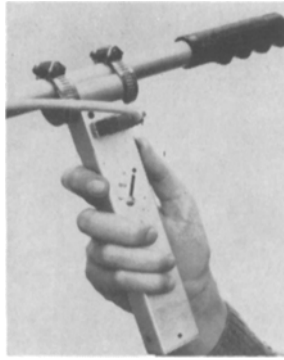


Figure 2

the zooming operation is easily achieved on cue by the cameraman.



Figure 3

Figure 3 shows the control box for remote control of focus. This device permits the camera assistant to control the focus at a distance from the camera without interfering with the free movement of camera and camera operator. According to the announcement, the electronics of the control unit together with the motor unit form a complete servo system. The control units make it possible to work with a closer graduation of the scale drum than the scale of the lens. Take-up agreement between scale drum and lens is extremely accurate. Backlash is held to $\pm 0.5^\circ$, making closer graduation of the scale possible. However, access to an optical bench or collimator is necessary for exact calibration. All movements are smooth and variations are compensated for electronically.

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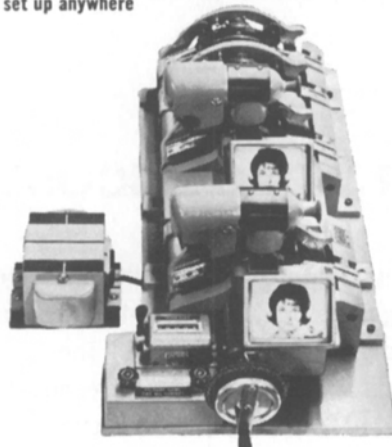
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MODEL P-4-F A four sprocket 16mm synchronizer with picture on first sprocket and magnetic film (edge and center track) reading heads on second, third and fourth sprockets. Permits editing of picture and three sound tracks

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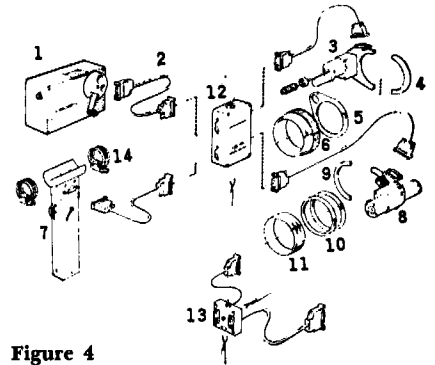
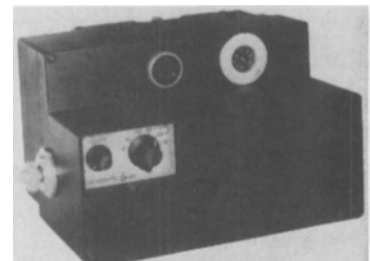


Figure 4

Figure 4 is an exploded view of the inter-connections of the diverse components which form the complete zooming and remote focusing system: (1) focus control unit; (2) connecting cord; (3) focusing motor unit; (4) retaining ring; (5) support ring; (6) gear rim; (7) zoom control unit; (8) zoom motor unit; (9) retaining ring; (10) collar ring; (11) gear rim; (12) distributor unit; (13) distributor unit (blimp); and (14) lock strap.

The complete zooming unit is priced at \$538. The complete remote focusing unit is priced at \$578. Inquiries should be addressed to: Olof Lindstedt & Co., Aktiebolag, Prytzgatan 4, Box 30, 431 21 Mölndal, Sweden.

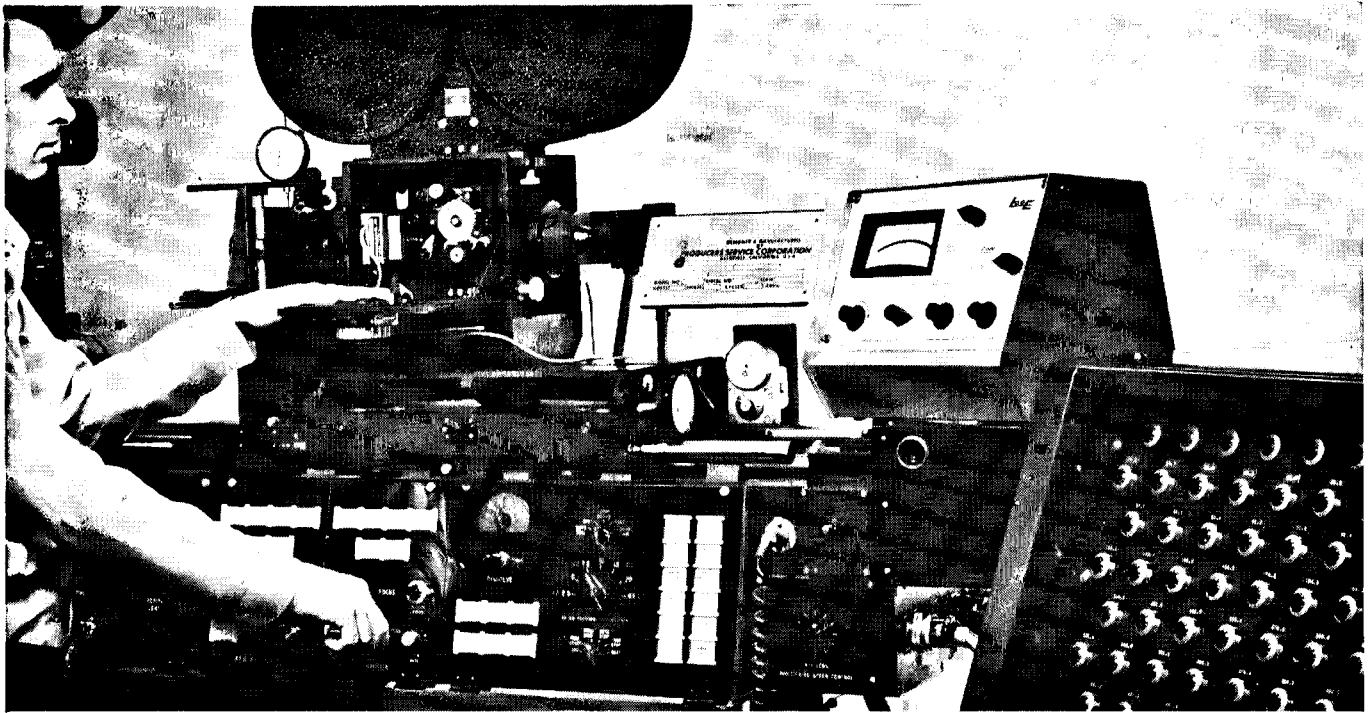


A crystal-controlled dc motor designed to drive the BNC studio camera from a 24- to 36-V battery pack has been announced by Cinema Product Development Co., 2044 Cotner Ave., Los Angeles, CA 90025. Fea-



DEPT. 8MA-11-0

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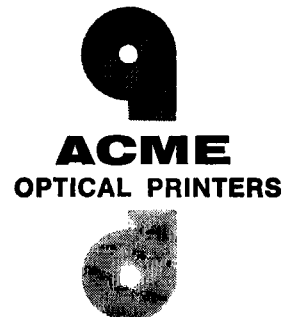
Now! Acme Printers offer you precise focusing electronically

No longer is it necessary to rely on the human eye for sharp focus. Acme Optical Printers now enable you to achieve perfect focus in a fraction of the time required for less reliable focusing with manual methods. How? With the electronic Focatron, now available as optional equipment on all Acme models and as a retrofit for existing Acme Printers.

The Focatron takes all the guesswork out of focusing. A probe installed in the optical path takes a precise reading of image sharpness which is then transmitted to the readout unit. Accuracy within $\pm .0005''$ is possible. Focusing time is reduced as much as 85%.

Electronic focusing is another of the many advancements in optical printers brought to you by Acme. It is an important contribution to the total Acme system that gives the operator complete control at

all times, adding to the capability and dependability that have made Acme Printers first choice with professionals the world over. There's an Acme Printer and accessory for every need; step contact, step reduction, blow up, laboratory duplication and special effects. Sale or lease. Brochure on request.



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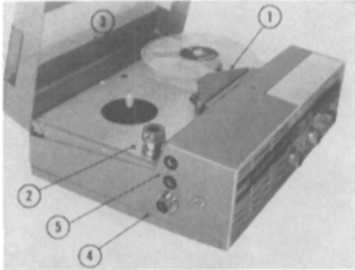
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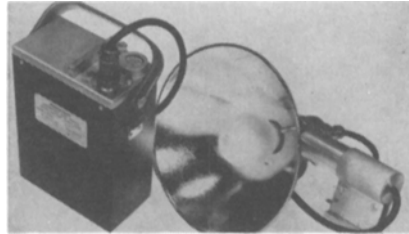
State _____ Zip _____

tures include a direct drive motor which eliminates right-angle gears and sleeve bearings. It is quieter than a multiduty motor and has a maximum torque output of 300 oz-in. The motor provides speeds ranging from 12 to 32 frames/s forward and reverse. At 24 and 25 frames/s motor speed is extremely accurate over an operating temperature range of 0 to 140 F. A beep tone sounds whenever the motor is not in sync. Price of the new motor is \$4,000.



The UHER 1000/N Neo-Pilot Tape Recorder, an advanced development of the UHER 1000 Report pilot designed specifically for sound/film synchronization, has been announced by Cinema Beaulieu, a division of Herculite Corp., 14225 Ventura Blvd., Sherman Oaks, CA 91403. Tape head adjustments are directly accessible through apertures in the suspension-type head cover. The Stroboscopic Speed Indicator (2) is directly connected to the feed reel turntable brake to provide improved tape tension control and to hold the tape

transport inoperative unless the tape is threaded around the strobe unit. The tape speed adjusting screw is accessible through an aperture in the top plate (3) to eliminate the need for removal of covers to make the adjustments. The sync-signal input jack is provided with male terminals (4) and a separate mixer with a 4.4-V load across 600Ω (5). A new motor which develops greater torque and a maximum stability motor control board has been installed. The price of \$1,156.50 for the system includes the microphone.



A portable battery pack, the New Frezzi Model 800 LL, has been announced by General Research Laboratories Div., Frezzolini Electronics Inc., 7 Valley St., Hawthorne, NJ 07506. The battery pack weighs 7 lb, 14 oz, and measures 5.62 by 8.75 by 3 in. It can be used with all portable battery-operated professional motion-picture light heads or 28-V dc professional motion-picture camera motors. Model 800 LL has a fully automatic built-in solid-state charger. A color-coded dc voltmeter continuously monitors the output during filming. Model 800 LL is avail-

able in four versions — with a lighthouse at a price of \$695; without a lighthouse at \$660; for 110/220 charging with lighthouse at \$735 and for 110/220 charging without lighthouse at \$700.

A new super-8 sound movie system called Mark I has been introduced by Synchronex Corp., 635 Madison Ave., New York, NY 10022. The system consists of a camera, sound recording unit and projector. Features include automatic exposure control, a fixed focus, 12–24mm f/1.8 zoom lens and a built-in Type A filter. The recording unit is equipped with an automatic level control which sets the proper recording volume and an earphone allows the user to monitor the sounds being recorded. Sound is recorded on tape while the picture is being taken. It is then transferred to a magnetic strip applied to the developed film. This is done in the Synchronex laboratory with special equipment. The projector features completely automatic reel-to-reel self-threading. It will accommodate reels holding up to 400 ft of film. The system is priced at \$320. The projector is available separately at a price of \$169.95 and the camera and sound recording unit together are priced at \$139.95.

A lightweight (3.5-lb) nickel-cadmium battery for Arriflex 16BL cameras has been announced by Arriflex Corp. of America, Box 1050, Woodside, NY 11377. The new



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"Close-up" because the C-77 zeroes right in on the sound source, isolating the sound you want from surrounding noise. It's the most uniformly directional microphone on the market.

The Sony C-77 comes complete with windscreen, shock mount, and an ingenious pocket-size boost/monitor amplifier which lets you hear where you're aiming.

The C-77 is available at select Superscope Special Application Products dealers for just \$495.00 including all required accessories. For the dealers' names, as well as complete details and specifications, please write: Special Application Products Division, Sony/Superscope, 8150 Vineland Avenue, Sun Valley, California 91352.

SONY SUPERSCOPE



battery is rated for 12 V 2.5 Ah. When fully charged it can operate the camera for about 1200 ft of film. A specially designed miniaturized charger is built into the case with the battery. A fully discharged battery can be recharged within 10 to 12 h. It is priced at \$184.

The Vivitar 98PM Macro, a super-8 camera with the ability to focus upon objects actually touching the lens, has been announced by Ponder & Best, 11201 W. Pico Blvd., Los Angeles, CA 90064. The camera focuses from infinity down to zero lens-to-subject distance without attachments by means of the 7.5-to-60 mm f/1.8 Vivitar

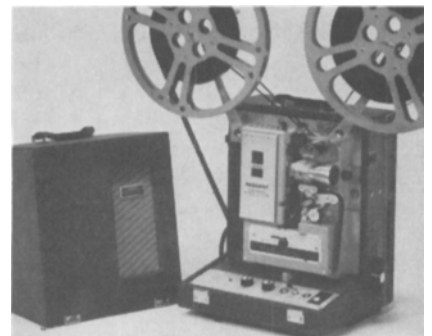
Cine Macro zoom lens which has two focusing ranges—infinity to 4 ft and a macro range of 4 ft to zero. Other features include a CdS exposure meter system, a steel shutter wheel bearing, 25× viewfinder with microdiaphragm focusing and a new, nearly friction-free tension guide and claw movement. The Vivitar 98PM is priced at \$269.95. Two other super 8 cameras, the 98P and 94P, are available without the zero focusing.

Other products announced by Ponder & Best include the E-Series enlargers, featuring universal or non-interchangeable condensers. The firm also announced Vivitar Models 151, 160 and 180 UL-approved flash units and six new Vivitar tripods.

The tripods all have safety-grip handles and utilize push-pull leg locks for quick changing of tripod height.



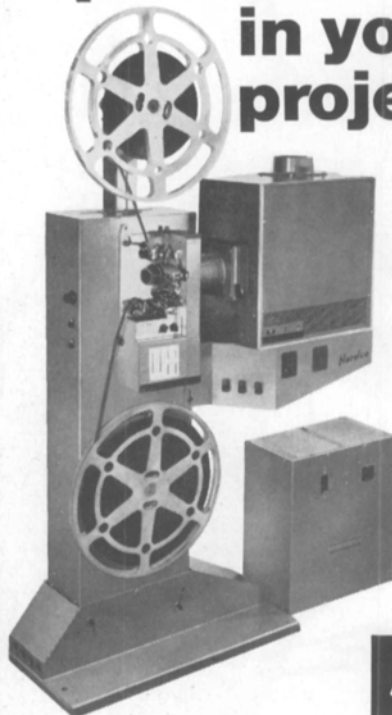
A new monochrome camera, Model AVC-3210, for use in closed-circuit TV and videotape recording, has been announced by Sony Corp. of America, Video Products, 47-47 Van Dam St., Long Island City, NY 11101. The camera incorporates a 2:1 interlace sync generator which allows video recordings to be made in slow motion or stop motion and permits switching, fading and wiping operations without the need for an external sync generator. The camera weighs 7 lb, 8 oz. It is priced at \$450.



The Kodak Pageant 16mm sound movie projector, Model AV-12E6, has been announced by Eastman Kodak Co., 343 State St., Rochester, NY 14650. The projector has a lifetime exciter lamp coupled with a solid-state solar-cell circuit breaker to provide clean, noise-free sound pickup. It has also a solid-state, 8-transistor, high-fidelity amplifier. Frequency response ranges from 30 to 20,000 Hz and the "music power" rating is 12 W. It is equipped with a detachable heavy-duty, well-baffled speaker measuring 11 by 6 in. A 40-ft cord is included. The projector has separate microphone and phono inputs that permit use as a portable public address system. Other features include a permanent prelubricated mechanism with rubber shock mounting for quiet operation and a special pulldown tooth made of super-hard tungsten. The projector is equipped with a 2-in, f/1.6 Kodak projection Ektanon lens. Price of the Kodak Pageant projector is \$650.

The HFE Calibration Stroboscope, Model 10, is a cine shutter tester designed for the testing and calibration of cine cameras and projectors of all types by High Frequency Engineering Co., 123 Santa Maria

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The new Norelco FP-16mm projector brings big theatre performance to any auditorium because it's built to the same rugged standards of performance demanded by professional motion picture theatres. Provides a brighter, clearer, steadier screen image.

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And that's useful life, because the DSF is as bright at the end of its life

as it was at the beginning. There's no darkening with age as in the PS52.

And its 3200° K color temperature is there right from the beginning. And it's still there 250 hours later. Constant.

The DSF has low-noise construction. There are no loose parts to resonate when used with SCR dimmers.

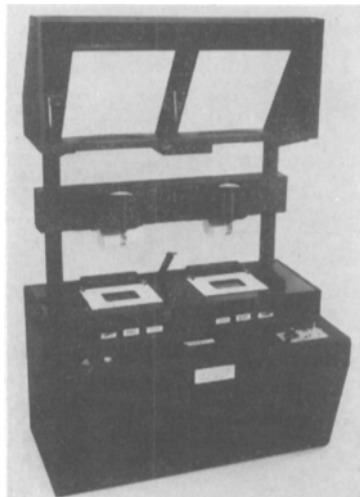
With all these advantages, the DSF is more than a replacement.

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Ave., Portola Valley, CA. 94025. The bench-top instrument provides serial flashes of less than 1-ms duration at rates of 8, 16, 24 and 32/s as well as continuously variable 8- to 35-Hz rate generator activating a probe-mounted xenon flashtube. Cameras operated at frame rates of 48 and 64 frames/s are synchronized through the use of the 24- and 32- flash/s settings. The instrument is priced at \$247.



Cellomatic, a process that creates animation from still photography by means of a dual light optical system, has been announced by Cellomatic Production Corp., 1546 Broadway, New York, NY 10036. The dual light unit (Cellomatic SM-4569) al-

lows projection of composite images by superimposing one light source over the other, thus permitting a smooth change from picture to picture. A 1000-W quartz iodine lamp projects color images. Transparency size is 4 by 5 in. Dimensions of the Cellomatic unit are 54 in high, 35 in wide and 19 in deep. It weighs 80 lb. Self-contained and manually operated optical effects include round iris, horizontal wipe, variable dissolve, horizontal crawl, vertical crawl, superimposition and split screen. These may be used individually or in combination to create animation with still transparencies. Lease arrangements are made through Cellomatic Productions Corp. Sound and film editing services are also available. The Cellomatic unit is priced at \$9,200.

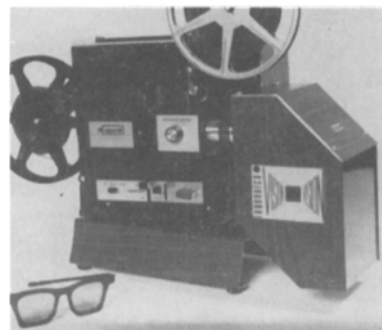
An acoustic valve which permits speaking voices to be heard clearly through headsets and helmets in noisy conditions and, if necessary, simultaneously with radio-telephone communications, has been introduced by Amplivox Communications Ltd., Beresford Ave., Wembley, Middlesex, England. The valve works on mechanical principles so that transducers or power supplies are unnecessary. It gives various degrees of attenuation of nonvocal sound down to almost complete silence. The valve system is incorporated in the firm's Sonovalve headset and Helmgard helmet, both available in ear defender and radio-telephone versions. The headsets are intended for situations where head protection is not required, such as air traffic

control, radar and control rooms. The helmets provide a high degree of head protection and have built-in spring-type suspensions for correct articulation of the contoured earshell containing the valve.

The valve comprises acoustic filter elements protected by a grille with attenuation control provided by an adjustable open/closed switch encased in a padded earshell. When closed, the valve acts as a complete ear defender; when open it enables speech to be heard through special acoustic elements which filter out sound not in the speech frequency bands. Prices range from £6 6s to £49.

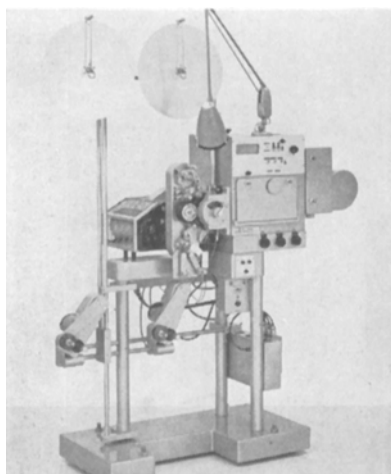
The Pro-Stand, a lightweight stand weighing 2.75 lb and extending to 108 in, has been announced by Berkey-ColorTran, Inc., 1015 Chestnut St., Burbank, CA 91502. The stand is designed to allow the legs to expand from a 31-in base to a 46-in base. A solid tip is provided for added strength to prevent the "chewing" effect of the on and off action of mounting lights. Other features include Nylon-tipped brakes to provide a non-slip secure grip. The stand is priced at \$36.

A new microphone called Environ which can accept or reject background sounds by means of a switch controlled by the user has been announced by Ingenuics, Inc., 16000 Industrial Dr., Gaithersburg, MD 20760. The microphone has a pair of dynamic cartridges coupled through a distance-discriminating network in the housing. In the Super Omni mode, both near and far sounds are picked up. When switched to the Noise Cancel mode sounds from sources more than 3 ft away are rejected while sounds originating a few inches from the microphone are picked up. The microphone is priced at \$189.



A new Invision projector, Model IN467, designed to show 8mm and super 8 movies in 3D, has been announced by Ingenuics, Inc., 16000 Industrial Dr., Gaithersburg, MD 20760. The Invision system converts motion into depth through special projection techniques. Any existing movie can be projected by the Model IN467 projector and, by using polarized glasses, can be seen in 3D on a metalized screen. The projector has three speeds in forward or reverse, self-threading and automatic rewind with 3D in all projector modes. The same projector can also show films as two-dimensional. It is priced at \$289.

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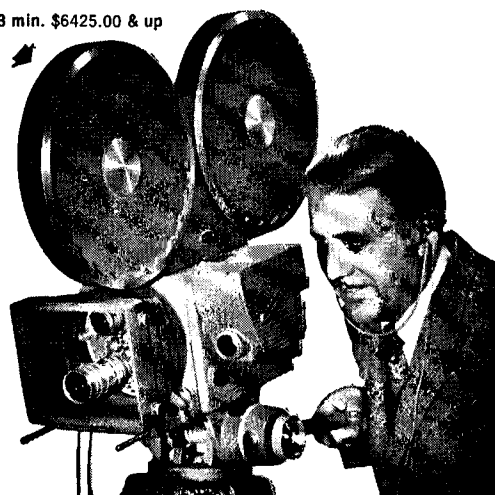
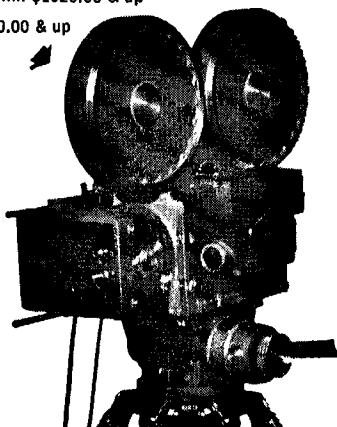
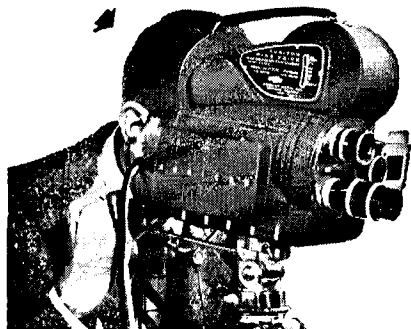


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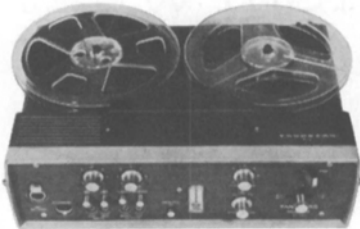
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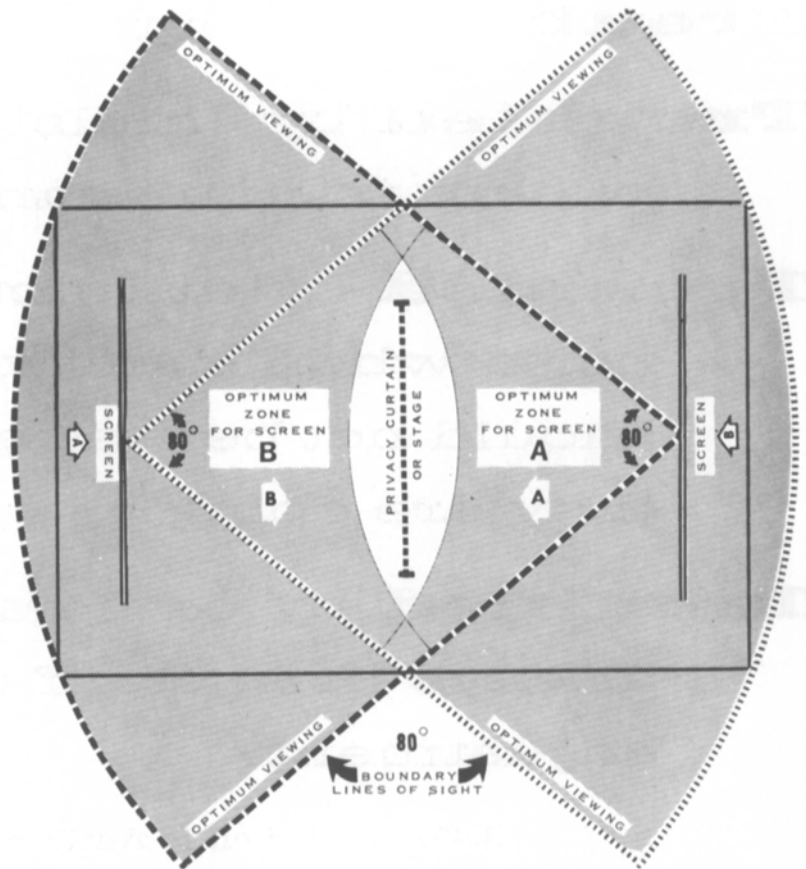
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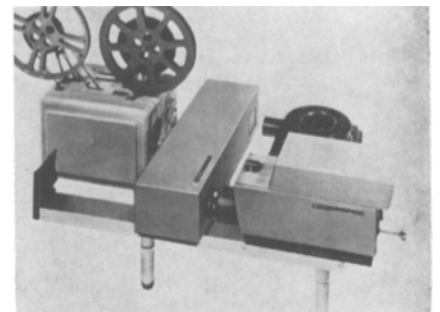


A modified "theater-in-the-round" optical system which intercepts light from a projector and converts it into two identical images has been developed by Duet Cinema Associates International, 1515 Lilac Lane, Mt. View, CA 94040. The "butterfly" viewing zones (shown above) are created from a single projector. Audiences view screens (A) and (B) from their respective, facing loge sections. A curtain or stage at center

provides privacy. Wide screens with a 2.5 : 1 ratio are used. No seat is too close to the screen and standard seating and ramping are eliminated. Possible applications include multipurpose facilities in shopping centers, hotels, etc., and cinemas of 600 seats or less. The system, called Duet Optical Systems has been granted U.S. Patent No. 3,293,807 and some foreign patents.

Two new projection screens, the Hervic/Zeus and the Hervic/Zenith, have been announced by Hervic Corp., 14225 Ventura Blvd., Sherman Oaks, CA 91403. The screens are made of a fungus- and mildew-resistant silver lenticular surface. Features include a heavy-duty tubular frame construction and heavy-duty tripod legs supplied with an easy opening automatic hand/foot control. A positive-action spring roller allows a smooth, wrinkle-free, screen return. Variable screen height is made possible by a pressure-locking handle rather than a pin locking device. The Hervic/Zeus comes in two sizes, 40 by 40 in, and the Hervic/Zenith in 63 by 63 in and 71 by 71 in sizes. Prices range from \$45 to \$105.

A color film chain adaptor, Model VCR-1, designed to provide a practical means of projecting motion-picture and slide images into the Sony DXC-5000 color video camera for transfer to videotape, has been announced by Sony Corp. of America, Video Products, 47-47 Van Dam St., Long Island City, NY 11101. The VCR-1 accommodates both a motion-picture and slide projector and has a separate telop



input for 4 by 5-in title cards. It can be operated with most 8mm and 16mm motion-picture projectors. Projector outputs are selectable by switch. The color camera can be mounted on the film chain adaptor or removed from it in seconds making it possible for a single Sony DXC-5000 to double as studio camera and film chain camera. The VCR-1 is priced at \$1,200.

A three-tube photoconductive color film telecine has been introduced by Rank Precision Industries Ltd., Broadcast Div., Watton Rd., Ware, Hertfordshire, En-

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gland. The system consists of 16mm Uni-plex equipment capable of extension to full multiplex format by adding an additional 16mm or 35mm film projector and a 60-slide projector. The system design features an "in-line" format rather than the usual "island" approach. The camera head and control unit have been specially designed and built for the new telecine. All film loading operations can be carried out from one side. Two fixed angle moving mirrors in the multiplexer and two lamps ensure a continuous light source in each projector.

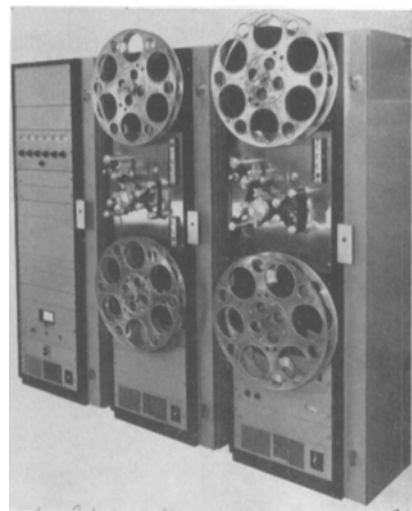
The Inconel Calibration Slide, a 3.25- by 4-in crossed-step gray scale slide, developed to help achieve the best possible reproduction of color films through broadcast telecine chains, has been made available by Eastman Kodak Co. The Calibration Slide, originally restricted to Kodak technical representatives, was made available following a station-by-station survey which revealed that many of the film test slides in general use for generating the test signals needed to evaluate telecine chains had become discolored through use and age. Also, some stations positioned their light modulators in the slide projector of the multiplexed telecine. The telecine chains were, therefore, adjusted to optimize only the output of the slide projector, although motion-picture films used in the other projectors usually represent considerably more broadcast time and more critical subject matter. To correct this, the new Inconel light modulator has been specially packaged for mounting at the field

lens—the only common point of focus for all film projection sources.

The new field lens test slide is made of glass on which seven progressively denser steps of Inconel alloy are deposited in two parallel rows. The waveform produced by this gray scale is a simple pattern of crossed steps whose levels are easily noticed. The operator can then adjust his controls to correct transfer characteristics and to adjust projector color balance and inter-channel tracking. The new slide is available from regional offices of the Eastman Kodak Motion Picture and Education Markets Div. in Atlanta, Chicago, Dallas, Los Angeles, New York and San Francisco. It is priced at \$105.

An automatic phase correction switch for the 3-phase camera motor has been developed by L. M. Devices, Box 327A, Cove Rd., Putnam Valley, NY 10579. The system has been designed to eliminate the need for a continuous check of the direction of the motor's drive when the camera is moved from one location power source to another or an extension cable is added. The correction switch is connected between the camera and the power line. If the phasing is incorrect it automatically reverses the two phases. The presence of all three phases is indicated with three pilot lights. The correction switch operates at 230 V, 3-phase, 10 A, 50 to 60 Hz. Measurements are 5.25 by 8.25 by 5.75 in. It is priced at \$160. The correction switch is also available as a unit incorporating volt, ampere and frequency meters and a

meter-selector switch. This model has been designed especially for location use where the power source for camera and lighting is a 3-phase generator. It measures 6 by 8.5 by 8 in. The price is \$328.



A high-speed duplicating system for motion-picture soundtracks has been introduced by Electro Sound Inc., 725 Kifer Rd., Sunnyvale, CA 94086. The Model 8500 system permits up to five prints to be recorded simultaneously from the master at a film speed four times that normally used. A master film transport controls the operation of up to five slave film transports with synchronous operation by selsyn drive motors which are electrically interlocked. The film transports were designed specifically for 70mm film. Different versions, including 35mm, have been constructed on the same basic structure. One version is a convertible machine capable of handling both 70mm and 35mm. The Model 8500 utilizes an electronics rack containing reproduce and record amplifiers and a bias generator, a master film transport and up to five slave film transports. A typical system (shown above) is priced at \$33,000. Other configurations and combinations are available at lesser and greater prices, depending upon individual requirements.

The Itek Recording Densitometer, Model RD-2, which provides automatic readout and plotting of black-and-white film densities, has been announced by Itek Optical Systems Div., 10 Maguire Rd., Lexington, MA 02173. The density measurements are obtained across a 5-in-wide scan of the film sample by means of a motorized continuous-scan unit. The system is capable of making measurements over a range of 0 to 4.0 density units with an accuracy of ± 0.02 . Light passing through the 0.05-mm-wide aperture energizes a solid-state regulated dc photometer. Characteristic curves, scene density spread or image density measurements are automatically plotted on individual preprinted sensitometric charts. Roll film sizes from 16mm to 9.05-in wide and up to 1000 ft in length can be accommodated. Scan speeds of 15 and 45 s can be used in analyzing materials for process

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control. The densitometer is of all-solid-state construction. The viewing panel measures 9.5 by 10 in within an overall frame of 13.5 by 18.5 by 30.75 in. The instrument weighs 75 lb. The price is \$9,975.

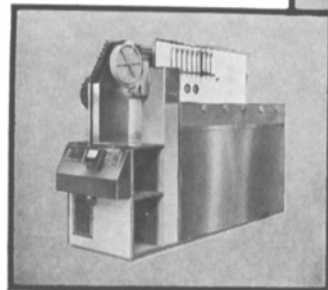
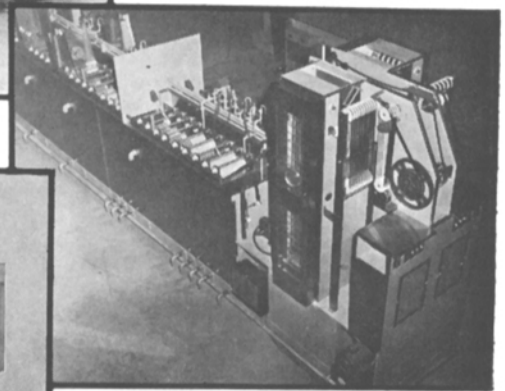
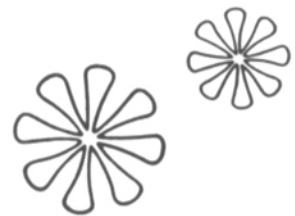
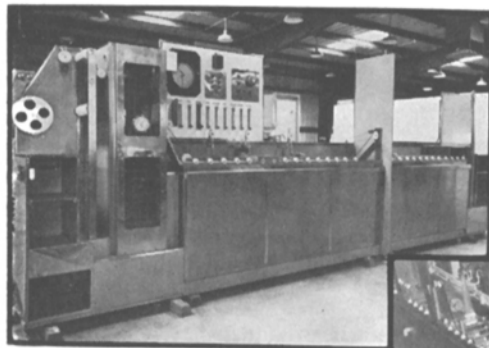
A new camera tube called EBS (electron bombarded silicon), which uses a solid-state diode array target for sensitivity, ruggedness and resistance to damage from high-intensity light, has been announced by Westinghouse Electric Corp., Electronic Tube Div., P.O. Box 284, Elmira, NY 14902. The EBS tubes are compatible with existing SEC tube cameras (*Journal*, p. 1167, Nov. 1967) and the operation is similar except for the use of the EBS target. The target consists of an array of discrete P-type silicon diodes diffused into one side of an N-type silicon wafer. Target thickness is about 0.0005 in. The diode pattern is a regular matrix with interdiode spacings of less than 0.001 in. The complete tube consists of a fiber optic faceplate, photocathode, electrostatically focused image section, EBS target and a magnetically focused and deflected reading gun. The photocathode is deposited as a coating on the inner surface of the fiber optic faceplate. The photocathode emits electrons in direct proportion to the incident light. The electrons are accelerated by a high electrostatic potential from the photocathode toward the target and are electrostatically focused by the image section so that they strike the target in a pattern corresponding to the original scene.

The WX-31792 EBS camera tube provides high sensitivity over a broad spectral range. Its photocathode employs an S-20 photosurface deposited on a dark-clad fiber optic faceplate with a useful area 25 mm in diameter. Peak quantum efficiency ranges from 15% to 20% within the wavelength interval of 4200 to 4600 Å.

A computer-matched routing switcher, Model VS-700, designed for use in television stations and studios and sophisticated closed-circuit installations, has been announced by Ampex Corp., 401 Broadway, Redwood City, CA 94063. The switcher can be linked to a studio or station computer for automated operation and can be programed manually from a pushbutton or thumb-wheel control panel. It is intended for use in routing audio, video and pulse sources from videotape recorders, cameras, sync generators and other studio equipment to any number of destinations, such as videotape recorders, studios, master control systems, microwave transmitters and telephone lines. The switcher is controlled by binary coded logic. Each basic switcher system contains 128 crosspoints for 16 input and eight output matrices or any variation required. More basic units can be added for infinite expansion of the system. A companion, balanced, solid-state audio switcher, Model AS-700, is electrically arranged to follow the same signal flow and logic organization as the video switcher and can be operated independently of the VS-700.

Hum Stop Coil, Model HSC-1, announced by Audio-Video Engineering Co., 65 Nancy Blvd., Merrick, NY 11566, is a specially wound toroid video coil designed to eliminate hum and other interference in

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video lines caused by ground-loop currents. It can be used for field pickups to eliminate hum between the remote truck and the input to the telephone company's transmission equipment. It can also be used in the studio to eliminate hum in long lines between buildings and over distances within the plant where hum interference is experienced. The device is flat from dc to 6 MHz and can be used for color as well as black-and-white transmission. It is priced at \$110.

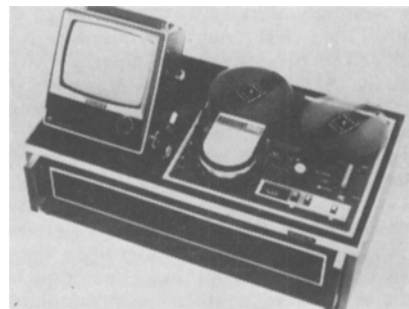
The new TV tape editing machine, designed by Electronic Engineering Co. of California, 1601 E. Chestnut Ave., Santa Ana, CA 92701, in conjunction with RCA Corp., for use with the RCA TR-70 videotape recorder has been installed in the NBC studios at Burbank, Calif. The system incorporates a number of new features which achieve a significant reduction in editing time. Improvements include automatic sequencing, more exact frame synchronization and "user engineered" controls. A time code is recorded on the cue track which can be "read" at either playback or rewind speed. The editing system searches the tape at rewind speeds in either direction for any selected time.

A paper on "A Proposed Standard Time and Control Code for Videotape Editing" by Bonney, Kloba and Pargee, of Electronic Engineering Co., appears in the March 1970 issue of the *Journal* as one of a group of papers on the overall subject of videotape editing.

A new series of miniature videotape recorders and players called Instavision has been announced by Ampex Educational and Industrial Products Div., 2201 Elk Grove Village, IL 60007. The system described as "the smallest cartridge-loading video recorder and/or player to date" will include a choice of recorder/players operating on batteries or household current in color or black-and-white. The Instavision line, designed by the Ampex Educational and Industrial Products Div. and manufactured by TOAMCO, the company's joint venture company with Toshiba in Tokyo, Japan, is intended especially for closed-circuit TV and home recording and playback markets.

The recorder/player uses 0.5-in videotape enclosed in a circular plastic cartridge 4.6 in in diameter and 0.7 in thick. The basic instrument weighs less than 16 lb including batteries and measures 11 by 13 by 4.5 in. It permits slow motion and stop action recording and elementary editing. Two independent audio channels permit flexibility in audio recording, including stereo playback. Rewind or fast forward controls advance the complete tape in one minute. Video resolution is 300 lines for monochrome. Color resolution is compatible with standard color television receivers. SNR is 42 dB. Prices for Instavision recorders and players (available in mid-1971) will be about \$800 for a monochrome player, \$900 for a monochrome recorder/player or color player and \$1,000 for a color recorder/player. Also available for recording will be a monochrome cam-

era priced at about \$400. The camera weighs 5 lb, including a zoom lens and electronic viewfinder. The viewfinder, a miniature TV receiver, permits precise scene framing, viewing of what exactly is being recorded and pushbutton replay of recordings. A trigger control built into the pistol-grip handles enables one person to operate both camera and recorder.



A compact, simplified Videocorder videotape recorder, Model TAV-3610, has been announced by Sony Corp. of America, 47-47 Van Dam St., Long Island City, NY 11101. The machine has a built-in monitor/receiver and provides an hour of monochrome recording and playback on 0.5-in tape. Features include stop action and audio-after-video recording capability. Provision for an optional RF modulator that enables playback through regular TV sets is included. The recorder is controlled by two numbered buttons and a single lever. Automatic gain control for both video and audio eliminates manual recording adjustments. The TAV-3610 is priced at \$995.

The Stellavox Model Sp 7 Portable Synchronous Tape Recorder has been announced by Gotham Audio Corp., 2 W. 46 St., New York, NY 10036. It provides four tape speeds, 3.75, 7.5, 15 and 30 in/s and plug-in head assemblies for any track configuration. Features include sync capability with Neopilot for mono and Synchronotone for stereo sync recording. Other features include reels up to 10.5-in diameter, internal powering for two FET condenser microphones, remote controlled Start/Stop, internal quartz synchronizer and electronic clap-stick. All electronic sub-assemblies are potted plug-in units and mechanical subassemblies can be easily removed for replacement. A specially designed capstan motor is 2 in high and also serves to open and close the capstan pressure rollers electrically without it being necessary to open the recorder's cover. The price range is from \$1,498 (for the basic unit, mono version) through \$1,672.

An extra-length, extra-time helical tape designed especially for use with portable video recorders with limited recording capability has been announced by 3M Company, 3M Center, St. Paul, MN 55101. Known as Scotch 363, the tensilized 0.5-mil polyester tape permits 50% more recording time over standard tapes. Instead of 20 min, 30 min of recording time is accomplished with the new tape. The tape is available on 4.5-in and 7.5 styrene plastic reels.

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A new color comparator for referencing TV control room monitors has been announced by MacBeth Corp., Div. of Kollmorgen Corp., Box 950, Newburgh, NY 12550. Called the MRC-65, the device is designed to permit the adjusting of control room monitors so that the chromaticity of the white corresponds to the chromaticity of D_{6500} . Basically, the MRC-65 supplies a spectrally correct reference light of the proper intensity within a controlled environment so that the monitor's outputs can be visually matched to it. The principle involved in the development of color matching instruments is described in a paper, "Color Calibrator for Monitors in Television Studios," by C. L. Sanders, W. Gaw and G. Wyszecski of the National Research Council of Canada, Division of Applied Physics. The paper appears in the June 1968 issue of the *Journal*.

In use, the MacBeth comparator is held against the monitor's face over the proper portion of the test pattern. A diffused sample of the monitor's output, surrounded by the correct light sample, can be seen through the unit's eyepiece. The two light samples are then brought into visual agreement through appropriate adjustments of the monitor's output. The reference illuminant produced by the MRC-65 closely matches the chromaticity coordinates of CIE Illuminant D_{6500} . Features include special glass filters, a voltage-regulated power supply and a long-life light source. The light source and optical system are housed in a lightweight compact unit connected to the power supply by a 10-ft coil-cord. The power supply operates from any 110-V 60-Hz outlet. Price of the unit is \$335.

A monochrome video camera, Model AVC-3000, incorporating an automatic sensitivity control, has been announced by Sony Corp. of America, 47-47 Van Dam St., Long Island City, NY 11101. Specially developed circuitry and a 0.67-in separate-mesh vidicon are used to produce a high-resolution picture. All-solid-state design provides ruggedness and reliable operation. The camera has a "C" mount for lens interchangeability and a UHF connector for video signal output. The camera is 3.75 in wide, 3.75 high and 9.875 in long. It weighs 4 lb, 13 oz. Applications include industrial closed-circuit, surveillance and basic recording systems. It is priced at \$250.

A remote control pan and tilt mounting for closed-circuit TV cameras, called Model V300PT, has been announced by Vicon Industries Inc., 13 Stepar Pl., Huntington Sta., NY 11746. An operator at a central point can press a button that will enable him to scan an area through 360° plus straight up or straight down. The unit operates indoors or outdoors over a wide range of temperatures. It is constructed of heavy-duty aluminum and steel and has counterbalancing weights and springs and roller bearing support throughout. It will support a load of up to 40 lb. The price is \$575.

The Cris-Pic TV Image Impressor, Model CP-1, a composite video signal processing device which provides increased horizontal

resolution, has been announced by Kalart Victor Corp., Plainville, CT 06062. The unit connects between a closed-circuit signal source, e.g., a TV camera or videotape recorder and the TV image viewing screen which may be TV monitors or TV projectors. In operation, Cris-Pic impresses a spike onto the signal in a direction opposite to that of the video signal to provide increased emphasis at the signal transition point. The amplitude of the spike is proportionate to rise time so that picture fidelity is maintained. The spikes are impressed on both the leading and the lagging edges of the video signal. Power consumption is less than 10 W and bandwidth capability is 20 Hz to 15 MHz. The Cris-Pic is 13 in wide, 11 in deep and 5.5 in high. It weighs 10 lb and is priced at \$675.

A TV camera tube with built-in stop-action capabilities has been reported by RCA Corp. It is a small vidicon-type device that can take and store for later playback single electronic "snap-shots" or "stills" of continuous programing being transmitted by the tube. The still picture is electronically stored inside the tube itself and can be immediately relayed to a TV monitor or kept intact inside the tube for several days. The target of the new tube, called a silicon storage vidicon, is a silicon wafer about one inch in diameter containing 600,000 photosensitive diodes that collectively provide the electronic signals that make up the video picture when the vidicon is in the picture-taking mode. In normal use they are scanned sequentially by a low-

velocity electron beam and the output is amplified to provide the TV picture signal.

In the new storage tube the diodes are electronically isolated from each other by a silicon dioxide layer having 600,000 holes to permit the electron beam to reach the individual diodes. This silicon dioxide insulator is the key to the storage technique. The first step in storing a picture is to scan the entire silicon target with a high-velocity beam that erases the previous picture. Next, a picture is optically placed on the target in the conventional manner and the target is then scanned with a somewhat lower-velocity electron beam for several TV frames, building up electron charge in the silicon dioxide which stores the picture. To read out the stored picture, the target is scanned by a beam of still lower velocity at the same time that a small light bulb outside the tube illumines the target. The electron current flowing through each diode during the read cycle is determined by the amount of charge stored at each point on the silicon dioxide during the write cycle. Once a picture is stored in the target, it can be displayed on a TV screen for several minutes before the "read" electron beam gradually erases the picture. However, a picture can be stored for over a month before it is read out for display.

The Setchell Carlson Model DEM911 UHF/VHF TV receiver and RF demodulator has been announced by SC Electronics, Inc., 530 Fifth Ave., N.W., St. Paul, MN 55112. The unit provides a composite video signal and a separate audio signal to assure

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good monochrome and color picture quality. Features include Automatic Fine Tuning (AFT) with "defeat" switch, all-solid-state circuitry and Setchell Carlson Unit-Ized plug-in circuit modules for ease of maintenance. It is priced at \$279.

Four new monochrome video monitors have also been announced. All major operating controls are located on the front panel for ease of operation. Front-panel screwdriver adjustments are provided for vertical linearity, height and focus to prevent accidental misadjustment. The power supply is regulated for stable operation and prevents faster size or brightness deviations due to line voltage fluctuations. The 10-in monitor is priced at \$189; the 16-in model at \$239.95; and the 19-in model at \$254.95 and the 23-in model at \$298.95.

The Broadcast Synchronizing Generator, Model 601, intended for master color sync generation or single line pulse distribution systems, has been announced by Control Concepts Corp., 411 N. Stonestreet Ave., Rockville, MD 20850. The time base oscillator of the new generator provides subcarrier stability by using a high-temperature quartz crystal in an actively driven, proportionally controlled oven which eliminates the gross phase/frequency transient characteristic of a thermostatically controlled oven. The aging rate of the oscillator is reported as better than one part in 10^6 per year, thus necessitating recalibration only once every three years.

Intended also for complete pulse fanout and subcarrier regeneration in single line pulse distribution systems, Model 601 will lock to a composite color signal or remote CW subcarrier. The remote lock circuitry utilizes a digital timing window to place incoming sync within a 105 ns interval and accomplishes tight lockup via the phase-locked subcarriers. Model 601 is priced at \$2,550.

Vidifont, a new generation television display system for nontheatrical use, has been developed at CBS Laboratories Electronic Systems Department. The system operates in real-time and is capable of producing on command any of several desired type fonts, sizes, mixes or logotypes and word-by-word color. Vidifont is an electronic keyboard entry television characters generator consisting of a main logic drawer with a separate power supply unit. The logic drawer provides space for the basic set of electronic circuit modules and up to seven option modules. The system employs the CBS News 36 type font which has resulted in characters with extremely high resolution. The newly designed 28 television line upper case font is matched by a lower case font allowing a readable mixture of upper and lower case when desired. A detailed description of Vidifont was given in a paper by S. N. Baron ("A Graphic Quality Character Generator for Television Titling") which was presented at the Society's 108th Technical Conference in New York.

An Electronic Titling Generator, Model TCG-225, designed primarily for titling and news flash requirements in broadcast CATV and closed-circuit applications, has been introduced by TeleMation, Inc., 2275 South West Temple, Salt Lake City, UT

84115. It produces alphanumeric characters in video format for display over television systems. The TCG-225 is compatible with any 525-line, 60-Hz or 625-line, 50-Hz broadcast system. Characters may be mixed, supered, keyed or wiped in the same manner as any other video source. A keyboard, the TKB-207, provides for the selection of 64 characters including upper case alphabetical characters, numbers, commonly used punctuation marks and other symbols. Information can be prepared in advance and stored on paper tape or on a disc memory or it can be entered as program video while being typed. The TCG-225 is priced at \$2,995. The TKB-207 Keyboard is priced at \$795.

A magnetic tape evaluator for testing 1- and 2-in videotapes has been announced by Recortec, Inc., 162 S. Whisman Rd., Mt. View, CA 94040. The new machine, called VTE, is a desktop device for cleaning and testing tapes. It tests tape longitudinally at 120 in/s to provide an indication of tape length, number of edge damages and number of tape surface defects. Testing is performed by writing longitudinally across the full width of the tape. Nine individual read heads downstream from the record head pick up the signals from the tape and check the amplitude level of each tape. If the amplitude falls below a threshold level in each channel, this is registered as a dropout. The dropouts at the tape edges are displayed as an indication of edge damages. Price of the unit is \$12,500.

System IV/70, a new computer display processing system designed for data entry and retrieval to and from data bases and computer systems, has been announced by Four-Phase Systems, Inc., 10420 North Tantau Ave., Cupertino, CA 95014. Up to 32 video displays can be connected to and controlled by a System IV/70 computer which, in turn, communicates with the central computer facility. The system is reported to be the first to use an all semiconductor main frame memory. The cabinet which houses the CPU, memory and power supply is 17 in wide, 10.5 in high and 21 in deep. The entire System IV/70 CPU is built in 12 MOS/LSI chips on a 8-by 10-in plug-in card. The 12 chips which make up the CPU contain over 75,000 electronic components. A combination of 16 terminals priced at \$980 and 6K CPU would result in a per terminal price of \$1450. A complete 32-terminal system with a 24K CPU, disc drive, communications interface and printer would cost \$1,950 per terminal.

The TV Dolly-Lite, 200-lb unit on wheels which provides a mount for a TV camera and monitor, a platform for a VTR unit and five integral quartz lamps and a microphone input on an extension boom, has been announced by TV Dolly-Lite Systems, 321 N. California St., Lodi, CA 95240. The unit has a simplified control panel for operation of equipment mounted on the unit. It can be rolled through any 32-in doorway. The TV Dolly-Lite accepts all TV cameras except the large RCA studio color camera. It accepts VTRs except for the Ampex 7800 series. The price is \$2,495.

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The Autocue 700, a closed-circuit TV prompting system, is produced by Autocue Ltd., 82 Chelsea Manor St., London S.W. 3, England, and distributed in the United States by Cellomatic Productions Corp., 1546 Broadway, New York, NY 10036. The prompting unit is designed for all makes of cameras where silent prompting is required. The script can be typed on standard typewriters and Autocue 700 reflects the script image directly in front of the camera lens. Alterations can be made during rehearsals or live transmissions. Reverse phase (black on white—white on black) is incorporated. Plug-in facilities for studio monitors are provided, also a facility for last-minute insertions of late news. The system is duplicated for reliability during transmission. There is easy access to cameras, monitors and controls and a manual script control is provided. Autocue 700 is available for lease through arrangement with Cellomatic Productions Corp.

The Master Intervalometer, a device which automatically programs cameras, lights and other auxiliary equipment in correct sequence for special motion-picture applications such as time-lapse studies, animation and tilting, data recording, etc., has been announced by Arriflex Corp. of America, P.O. Box 1050, Woodside, NY 11377. Time intervals from 3 s to 1.75 h and time exposures from 1 s to 11 s can be pre-set. The instrument was specifically designed to operate in connection with Arriflex animation motors but it can also be used for other applications requiring the pulsing of instruments at predetermined time intervals. It is self-contained in a rugged instrument case with all controls located on the front panel. It is priced at \$796.

The Photo-Sonics 16mm-1W instrumentation/documentation camera with speeds from 24 to 800 frames/s has been announced by Instrumentation Marketing Corp., 820 South Mariposa St., Burbank, CA 91506. Daylight-loading magazines with capacities ranging from 200 to 1200 ft require less than a minute to load. The film transport has eight pulldown pins and four registration pins. Other features include modular electronics, runout switch, press-to-operate switch, "C" lens mount, dual timing lights, footage indicator and 115-V ac motor and heater. The price of \$8,600 includes a 200-ft magazine.



The X-L meter, designed specifically for use with high-speed rotating prism cameras, has been announced by Photographic Analysis Co., 190 Alps Rd., Wayne, NJ 07470. Using a probe which is inserted in the camera, the meter reads light as the film in the camera sees it. When the given frames/s and the film speed are entered on the dials, the meter indicates the correct *f*-stop. Given the frames/s, film speed and *f*-stop on the dials, the meter shows if

the light is sufficient or not. The meter can also read footcandles directly from the dials. The instrument has a film speed range of ASA 50 to 1600; frames/s, 100 to 26,000; diaphragm, *f*/1.0 to *f*/32; light, 0.25 to 250 fc. It is priced at \$345.

A new rotating reflector prism system for repetitive laser Q-switching, described as 27% faster than previously developed rotating reflector systems, has been introduced by National Research Development Corp., P.O. Box 236, Kingsgate House, 66-74 Victoria St., London S.W. 1, England. The Q-switch was developed at the National Physical Laboratory in England to form part of a laser source system for laboratory and industrial applications in situations where specialized equipment for high-speed photography is not available. It is in the form of a silica prism rotated mechanically by an air turbine. The light beam enters and leaves the prism by the end faces which are rotating in their own planes. Speeds of up to 250,000 r/min have been achieved. A developmental model has external dimensions of 60 by 60 mm. It uses a pentagonal prism which gives pulse rates up to 20 kHz. Maximum beam diameter passed by the prism is 4 mm. The unit has been used in high-speed holographic recording.

The Cine/Strip Processor, a small (9 ft long and 5 ft high) processor for continuous processing of Kodacolor film, has been announced by Pako Corp., 6300 Olson Memorial Hwy., Minneapolis, MN 55440. It is available in two models. The 70-2KO processes and dries prespliced rolls of 120, 220, 126, 35mm, 46mm and 70mm Kodacolor at a rate of 120 ft/h. The 35-4KO handles 126 and 35mm film at 240 ft/h. Both models are for darkroom operation. Features include built-in control of time, temperature, turbulence and chemical strength to assure continuous processing; a continuous circulation-filtration system is used to increase solution life and insure uniform quality. A new cradle-drive, low-tension transport system keeps the film moving smoothly through the processor with virtually no chance of film breakage. The processor includes a forced air dryer thermostatically controlled for uniform drying. An adjustable exhaust system keeps humidity at a safe level. Model 70-2KO and Model 35-4KO are each priced at \$6,850.

A new laminar flow, clean fume hood, Model 242XP, has been announced by Agnew-Higgins, Inc., P.O. Box 857, Garden Grove, CA 92642. It is a vertical laminar flow type hood equipped with HEPA filters effective on dust particles 0.5 μ m in size and larger. It is equipped with a front cover which allows the worker to perform work through a 9-in slot across the front of the work chamber. A curtain of air is formed at this point to prevent dust particles in the room outside to reach the work. The entire work chamber, including the work surface and the exhaust duct behind, is fabricated from polypropylene. Model 242XP is 4 ft wide. It is priced at \$2,210. A 6-ft version, Model 262XP, is also available at a price of \$2,400.