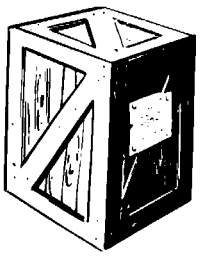
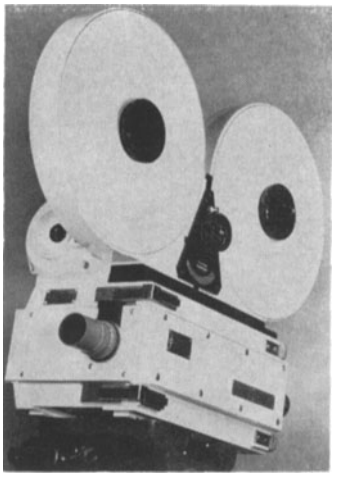


new products

(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.

The WF-30 Fastax 16mm high-speed camera has been announced by Wollensak Optical Co., 850 Hudson Ave., Rochester 21, N. Y. Produced after nearly two years of research and development, one version of the camera incorporates an RFI (Radio Frequency Interference) protected oscillograph for high-speed oscilloscopic recording. The camera has a 1200-ft capacity, darkroom loaded, "T" core magazine. The variable speed range is controlled by a solid state loop servo device for rapid acceleration and regulated operational velocity



within ± 4% of the preselected rate. The lens is a rotating prism-sector shutter combination. Through-the-lens viewing is provided for picture composition and focusing. Features include timing markers, electrical interlocks, "ready" lights, speed indicators, footage counter and, standard 115 v a-c 60-c power input. The camera can also be used with most of the Fastax bayonet-type lenses.

A rapid automatic film titling unit, developed by Eastman Kodak Co. in cooperation with Xerox, Inc., and Photomechanisms, Inc., for Melpar, Inc., is part of a complex, electronic, ground data-handling system for the Convair B-58 Weapons System. Installed at Convair, Fort Worth, Texas, the equipment is used to title negatives of aerial photographs immediately after processing at rates from 15 to 25 ft/min. The data-handling system employs a battery of cameras linked electronically to instruments in the aircraft. When photographs are taken of radar screens in the aircraft and of the terrain as observed in reconnaissance flights, a binary time code is recorded on the margin of the film as well as in the data block of flight information recorded on magnetic tape. This binary code relates each photograph or group of photographs to corresponding information on the magnetic tape. Later, an electronic editing instrument searches for the film time-code that corresponds to that on the tape. When coincidence is found, the information on the proper section of the tape is converted to letters and numbers, held in a memory unit, read out, and placed on the film as a title.

In titling, a cathode-ray tube is used to put images onto the light-sensitive surface of a rotating xerographic drum. The image is then developed and electrostatically transferred to the film emulsion surface where it is fixed by chemical vapor. The equipment accommodates three film sizes; 9½-in., 70mm and 35mm.

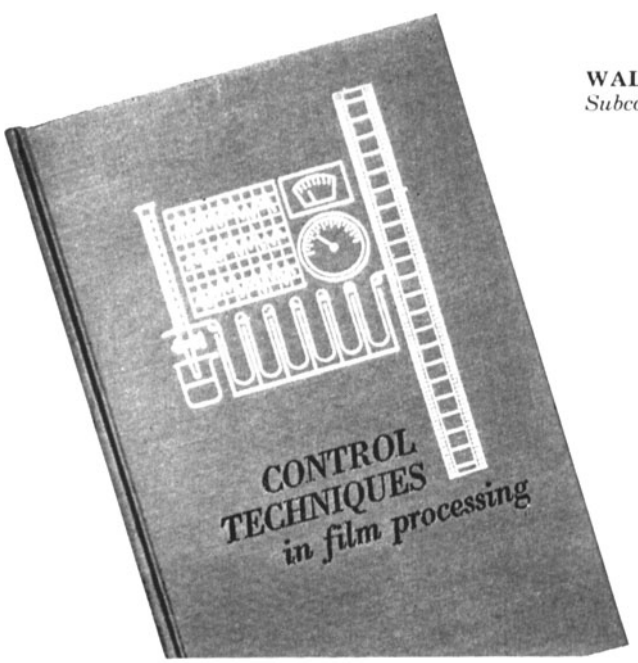
an SMPTE publication

CONTROL TECHNIQUES IN FILM PROCESSING

Prepared by a Special Subcommittee of the Laboratory Practice Committee of the Society of Motion Picture and Television Engineers

WALTER I. KISNER
Subcommittee Chairman

Foreword by E. H. REICHARD
Chairman, Laboratory Practice Committee



CHAPTERS

1. Introduction
2. General Principles
3. General Aspects of Motion-Picture Film Processing
4. Mechanical Evaluation and Control
5. Instruments for Photographic Control
6. Control Strips and Sensitometric Curves
7. Sensitometric Control of a Standardized Process
8. Chemistry of Film Processing
9. Chemical Analysis and Control
10. Economic Considerations in Establishing a Process Control System

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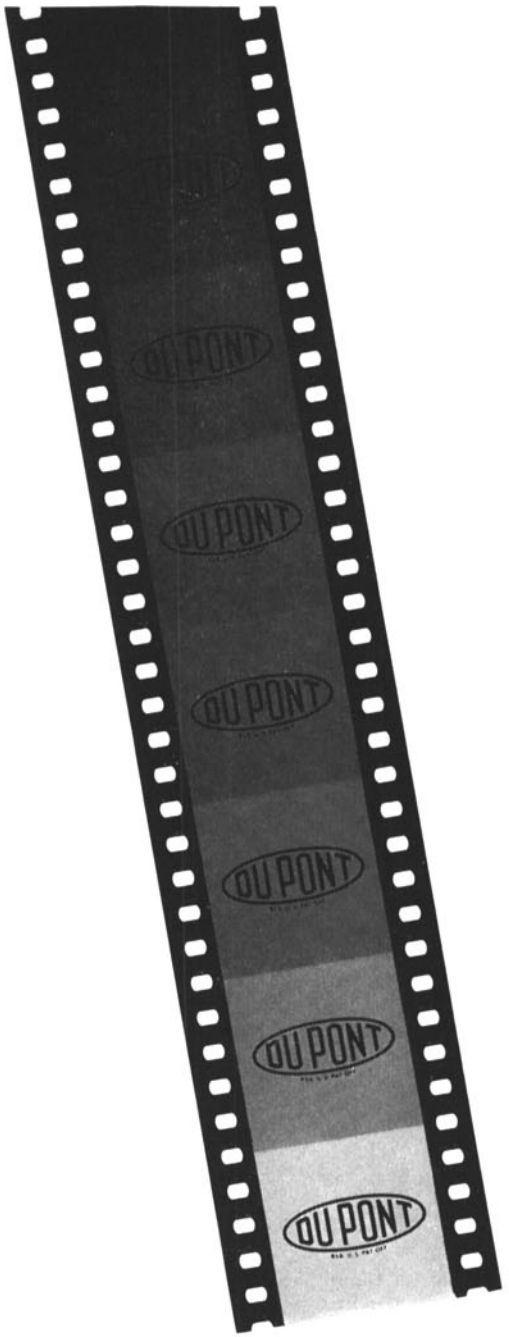

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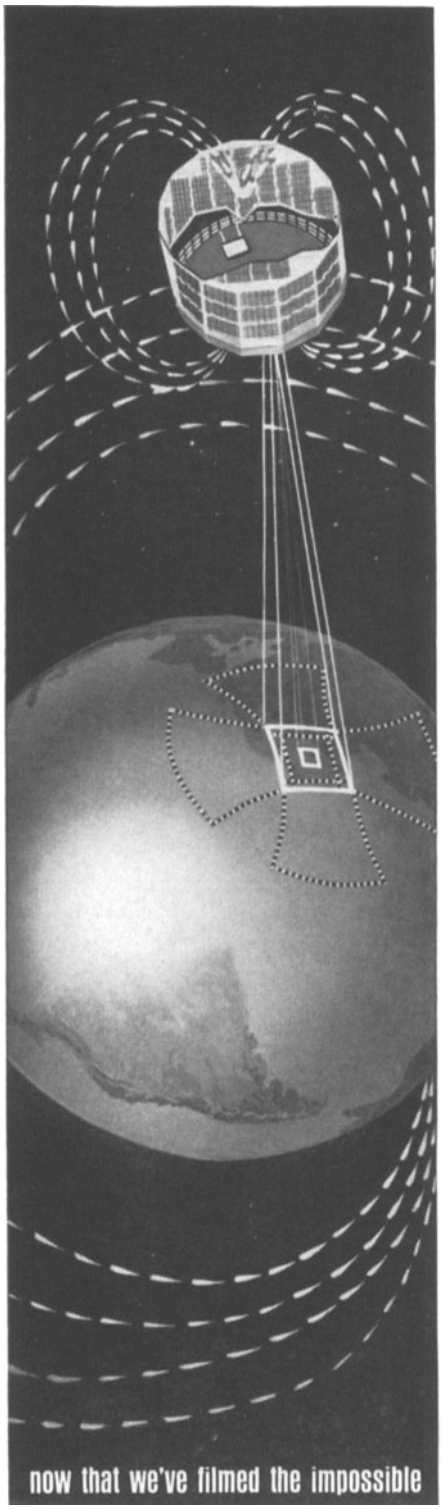

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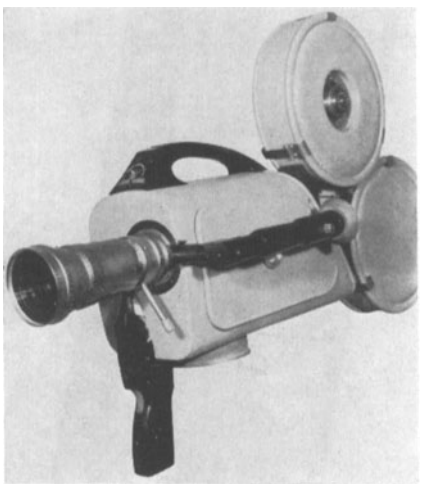
An ultra-high-speed Kerr cell camera system designed for hypervelocity particle ballistic range and other multiple station applications has been announced by Electro-Optical Instruments, Inc., 2612 East Foothill Blvd., Pasadena, Calif. The system, designated KSC-20, is designed with few operating adjustments, capacity for multiple station use from one master control center and capability for use with an accessory spark gap source. It will be made available at a lower cost than the firm's more sophisticated KSC-51/A Kerr cell camera system.

The control unit panel is designed to permit operation of as many as five separate stations or modules at the same time. The Kerr cell shutter of the new system is driven from a module identical to that used in the KSC-51 system. Optical and electrical characteristics summarized in the announcement include the following: Exposure time range, 20 nanoseconds to 10 μsec. Shuttering pulse amplitude, 25 kv. Transmission characteristics, open, 0.12 to 0.25 and closed, approximately $10.^{-6}$ Resolution, 1:10,000. Kerr cell aperture, 0.50 in. × 1 in. (small end).

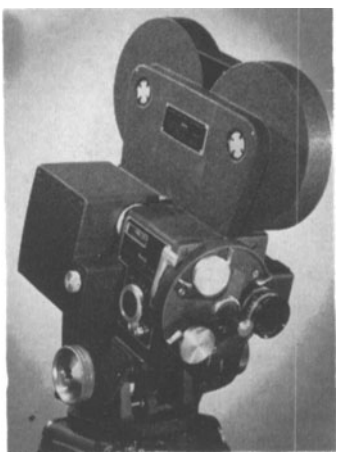


The Sinmor, a 16mm professional sound camera, manufactured by Andrè Debrie Mfg. Corp., College Point 56, N. Y., is designed for practicality and easy handling with components that can be removed and disassembled by non-specialists. Available as either a TV (25 frames/sec) or motion-picture (24 frames/sec) camera, the 21-lb unit can be positioned on the photographer's shoulder or it can be used with a specially designed tripod. Feed (400 or 1000-ft) and take-up (400-ft) magazines are separate, each having its own footage counter; the 400-ft magazines are interchangeable.

The film is pulled past the lens, by high-precision pins, through a "V" channel (Debrie patent) shaped to ensure steadiness and sharp focus. Only one drive motor, which operates from a-c or batteries, is required. The camera is designed to use variable-focus lenses, standard mount, type C Zoom-Angènieux with direct finder to eliminate parallax.

Three magnetic heads provide erasing, recording and control reading of the recording. Advance of sound in relation to the picture is 28 frames ± ½ frame (IEC Recommendation). The magnetic recording amplifier has eight transistors (two for power) and is armored. The recording curve extends from 60 to 8000 cycles and harmonic distortion is less than 1% (CCIR Standard). Measured peak-to-peak, wow is 4% or less and flutter is 3% or less, according to the manufacturer's specifications.

The camera is connected by a 6-ft cable to a control box which contains a start and stop switch for the recording amplifier; amplifier feed by four standard cells; voltmeter for control of the cells; earphone jack connection; potentiometer; and push-button control to permit the operator to listen directly to the sound takes. The camera is priced at $4750.



The Kodak Reflex Special, a 16mm professional camera introduced by Eastman Kodak, has a full-scale variable shutter and is equipped with a reflex viewfinder for viewing through the taking lens while the camera is being operated. A mirrored surface on the shutter reflects the image into the finder. The camera weighs about 24 lb and is of modular construction. The standard drive, a synchronous motor operating at 24 frames/sec, can be interchanged with a variable speed motor, or with a drive unit designed for time/motion studies. Incorporated in the mechanism is a device called a space gate which is designed to prevent binding or scratching of the film by providing clearance of 0.007 in. between aperture plate and pressure pad. The camera is equipped with a 400-ft magazine which can be used with 100-ft or 200-ft rolls of film. Optional equipment includes a 1200-ft magazine. A buckle trip device is incorporated to turn off the camera automatically if the film should not feed properly. A neon monitor light in the remote hand-operating switch shows when power is being delivered to the drive motor. Lenses ranging from 10mm to 150mm, including a 25mm f/1.4 Ekton, are available as optional equipment. The unit, which is priced at $1895, is designed so that some future date it can be equipped with a magnetic sound recording system, according to plans announced by the manufacturer.

Recently announced additions to portable processing equipment produced by Rapromatic, Inc., Oak Drive, Syosset,

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The HFC Professional Power Rewind is ready to go to work for you the moment the pressure is applied to the foot pedal control. This power unit is extremely quiet in operation with a V belt drive and has a handle to disengage the motor when the operator uses the hand rewind to film back. Other outstanding features include . . .

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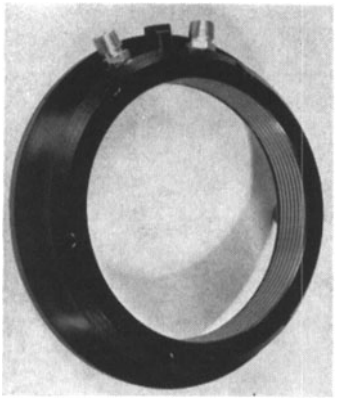
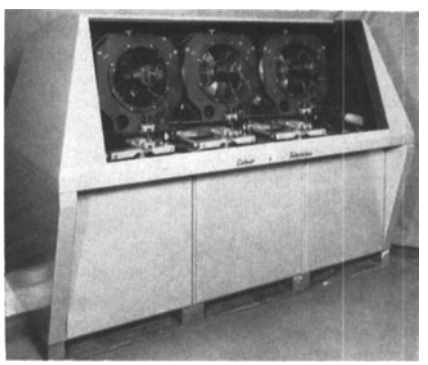
L. I., N. Y., include the 470, a combination 16mm/35mm/70mm processor; the 100A, a combination 16mm/35mm processor; and the 410 Washer-Dryer, a companion unit for the firm's portable machines for saturated web processing, a system based on the use of chemically saturated paper material. (*Jour.*, New Prod., p. 229, Apr. 1960.)

The 470 is contained in a carrying case, the dimensions of which are 19 by 19 by 9 in. The 30-lb unit has a 400-ft capacity, operates on normal house current (110 v 60 cycle) or it can be manually operated. Average processing time is said to be 50 ft/min. The manually-operated 100A, which weighs 8 lb with overall dimensions of 12 by 17 by 4 in., has a film capacity of 100 ft. The Washer-Dryer, contained in a case measuring 19 by 19 by 9 in., and weighing 26 lb, is said to be capable of drying rates of up to 25 ft/min with prehardened emulsions to commercial retentivity standards. The unit is equipped with a 110 v a-c 50-60-cycle motor which requires approximately 1 amp; a 600-w heater; and a 2-gal static wash tank and squeegees.

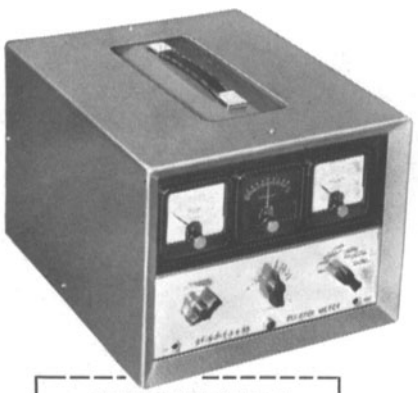
A liquid heat-reducing filter for 35/70mm motion-picture projectors, consisting of two Vicor plates with a liquid between them and a hollow outer rim for circulation of cooling water, is said to minimize or almost eliminate lens focus drift by absorbing the long wave infrared which, otherwise, would heat the lens elements. Announced by D & F Products, Inc., 1350 No. Highland Ave., Hollywood 28, as the result of studies undertaken jointly with the Motion Picture Research Council before the Council was disbanded, the device is $\frac{7}{8}$ in. thick with a free opening of $5\frac{1}{2}$-in. diameter to accomodate the beam of any existing arc lamp (mirror or condenser type) used for 35mm or 70mm projection. Field tests have shown that temperatures in the center of a projector gate may go as high as 1600 F. By using the heat filter it is said to be possible to reduce this temperature by at least 30 to 40%.



The Colortran Heat Filter, designed for use with incandescent as well as arc lamps, is a product of Natural Lighting Corp., 630 South Flower St., Burbank, Calif. The filter is constructed of heat-resistant glass covered with a specially developed coating. Tests conducted by the firm are reported as demonstrating absorption of up to 90% of heat rays produced by a light source. The filter is available in a range of sizes up to 20 in. in diameter.



A television projector which projects a 12 by 9-ft color picture onto a screen at a distance of 25 ft has been developed by the Colour Television Laboratories of Marconi's Wireless Telegraph Company Ltd., Chelmsford, Essex, England. The projector accepts separate red, green and blue signals, or a composite coded signal. Video amplifiers with bandwidths of 10 mc/sec feed 5-in. cathode-ray tube projectors, one for each color channel, operating at 50 kv E.H.T. The tubes were specially designed by the English Electric Valve Co. and are associated with Schmidt in-line optical systems, each consisting of a concave glass reflector with an aspherical glass corrector plate which focuses the picture in a flat plane. The three projectors are mounted side by side. Because the center projector is



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The Flutter Meter measures those components which are commonly described as "Wow" and "Flutter" resulting from speed variations in sound recorders and reproducers. This instrument is equally suitable for use with machines employing perforated film, tape, wire or disc records.
Type 1740 is of entirely new design. More compact, lighter in weight and costing considerably less than earlier Gaumont-Kalee Flutter Meters, but with the same high performance and facilities.

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Operating carrier frequency 3,000 c.p.s. ± 5%
Minimum Input signal 50 mV R.M.S.
Input. Impedance 1 Megohm
Input amplifier bandwidth —3 dB at 2,500 & 3,500 c.p.s.
Effective limiter range ± 10 dB
Meter scaling—"Peak wow" O to ± 1% (centre zero)
"Wow" and "Flutter" 0 to 1% and 0 to 0.2% R.M.S.
Crossover frequency 20 c.p.s.
"Flutter" meter response —3 dB at crossover —3 dB at 200 c.p.s.
"Wow" meter response —3 dB at crossover —1 dB at 0.5 c.p.s.
C.R.O. output frequency response level down to zero frequency —3 dB at 200 c.p.s.
3,000 c.p.s. oscillator output level 5V R.M.S. into 0.5 Megohm 100 mV R.M.S. into 500 ohms
Accuracy Meter presentations ± 2% f.s.d.
Power consumption 35 watts
Mains 100/150v. and 200/250v. single phase 45/60 c.p.s.

Dimensions: Height 10½" 26.04 cm. Width 12¼" 31.12 cm. Depth 14¾" 36.47 cm.
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Compagnia Commerciale di Cinematografia, Milan.
Dept. Posts and Telegraph, Dublin.
Egyptian State Broadcasting.
E.M.I. Research Laboratories.
Garrard Engineering and Manufacturing Co. Ltd
Magnavox Corporation of U.S.A.
Marconi Wireless.
Ministry of Supply (U.K.)
Ministry of Transport and Civil Aviation (U.K.)
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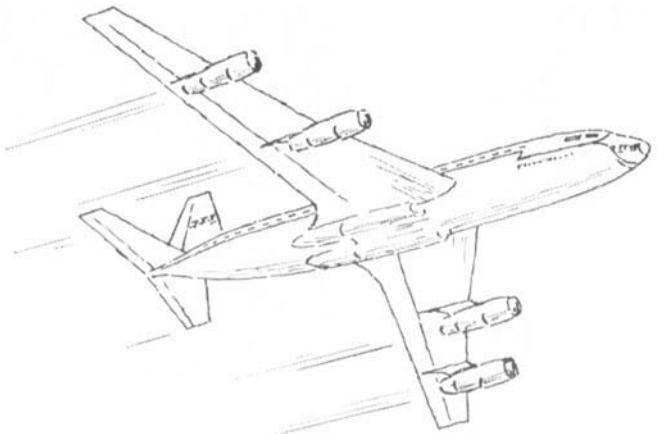

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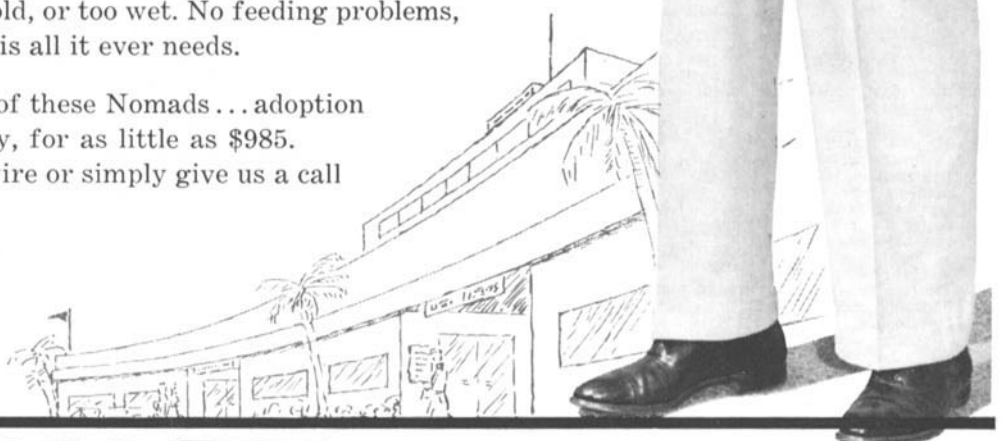

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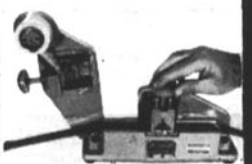
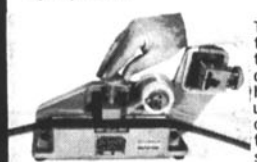
Now, with no fuss, mess or waste, it is possible to splice, repair, butt-splice, or strengthen splices on all types of film—positive, negative, magnetic — even duPont Cronar or other bases.



The cutting arm, shown in operating position, is used by pressing the chrome button for cutting both sides of the film simultaneously. The film, has been registered on pins in the horizontal channel. The cutting blade is easily replaced.



The splicing tape is registered on precision pins and held in place until automatically applied to the film by swinging the arm over and pressing the chrome button, cutting the adhesive and applying it — in perfect register to the film.

Model 35 for 35mm, Model 16 for 16mm—$295

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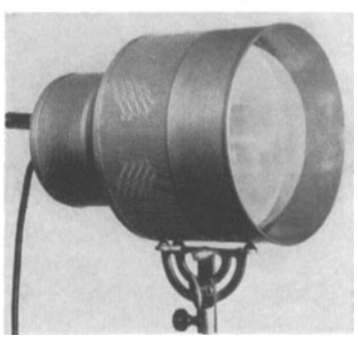
the only one on the normal to the screen, an electronic correction waveform is applied to each of the outside cathode-ray tubes to avoid keystone distortions of the picture. The firm reports that the projector, first demonstrated in April at the Television and Film Techniques Convention sponsored by the British Kinematograph Society and the Television Society, has been ordered for use in hospitals for display of televised operations and also for certain defense applications.



The ColorTran Cine-Queen and the ColorTran Super-Eighty are two new pieces of lighting equipment announced by Natural Lighting Corp., 630 S. Flower St., Burbank, Calif.

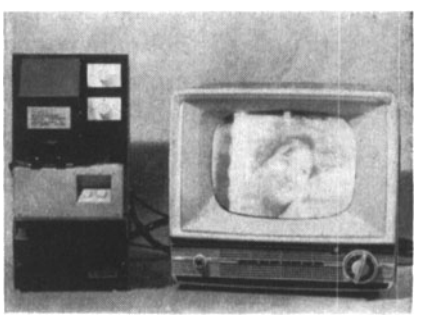
The Cine-Queen (top) is a high-intensity a-c/d-c wide flood using the new General Electric 1500-w lamp. No ColorTran converter is needed because of the preboosted filament construction of the lamp. 1500 foot candle intensity is obtained at 10 ft, with even coverage of a 2½ × 4-ft area.

The Super Eighty (bottom) is a lightweight flood using the R-80 1500-w reflector lamp. When powered by a ColorTran Converter it will illuminate a 7 in. circular area with 940 foot candles at 10 ft. Weight is only 9½ lb. Price of the Super-Eighty is $56. Accessories are available.

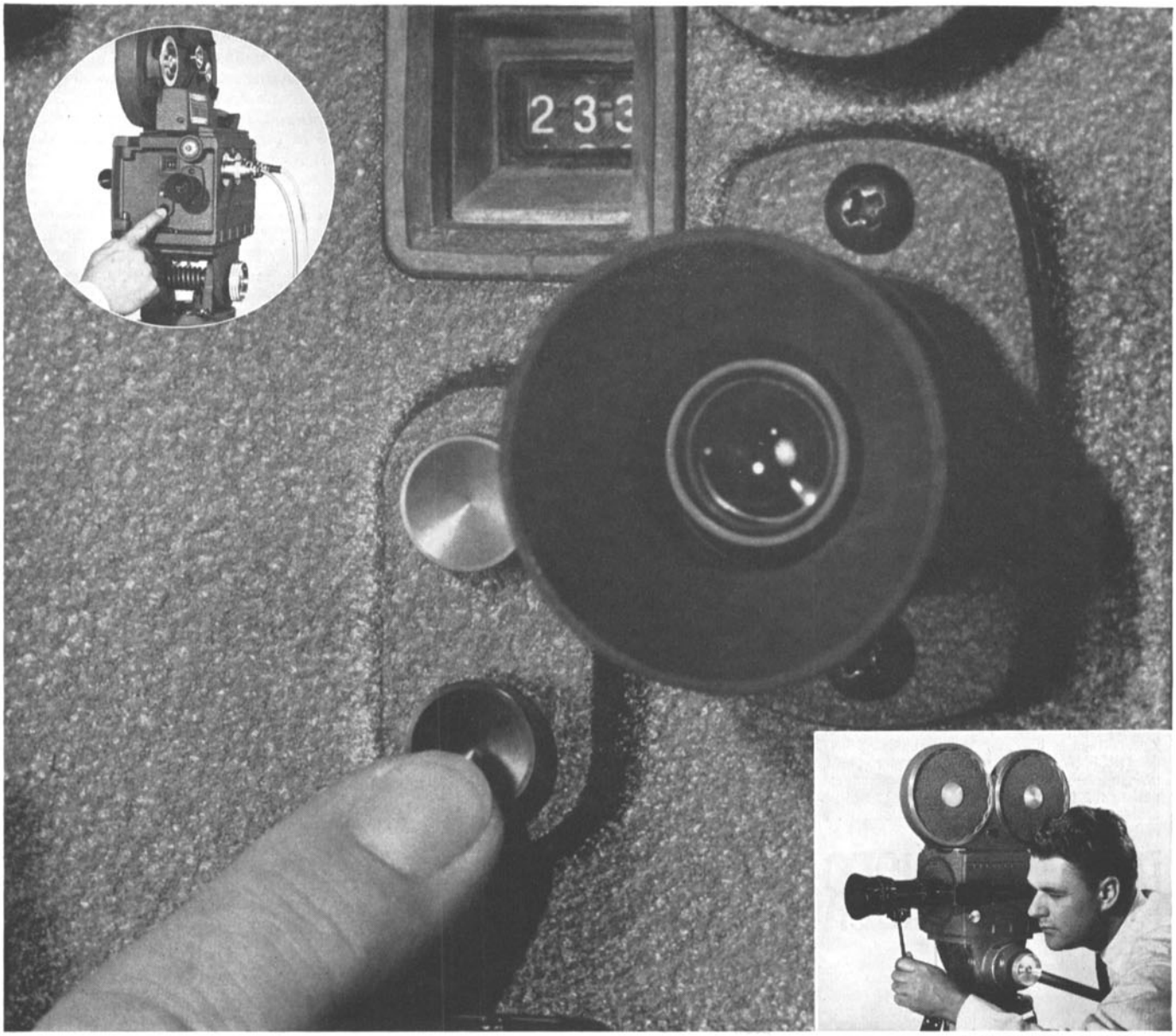
A 16mm sound projector, Model 535 Filmosound, announced by Bell & Howell, 7100 McCormick Rd., Chicago 45, weighs only 29 lb and is equipped with a Super Proval 2-in. *f*/1.6 lens for added brightness. Used with the firm's Proximity lamp with built-in reflector the machine is said to project a sharp, clear picture even in a room that is not completely darkened. The lightness in weight has been achieved by the use of magnesium castings, miniaturized electrical components and a case made of glass fiber. Modular construction makes possible easy removal for repair or replacement of individual components. A five-position knob turns the projector on and off and activates the forward, reverse and rewind operations. The price is under $600.

Two remote-controlled, automatic-threading 8mm movie projectors, Touch-Tronic Models 265 and 380, have been announced by Bell & Howell, 7100 McCormick Rd., Chicago 45. Both models have the 3-button (forward, reverse and still) hand unit and 10-ft cord that enables operation from a comfortable distance. Manual controls are also provided. Model 380, which offers variable speed from 14 to 24 frames/sec, is priced at about $184.95. The 265 is priced at about $139.95.

Two CW power tubes which provide convenient and powerful signal sources over the 50 to 60 kmc range have been developed by Bell Telephone Laboratories, Murray Hill, N. J. A 50-mw backward wave oscillator and 0.5-w traveling wave tube, both with permanent magnet circuits, are used to provide versatile signal sources for general laboratory use. The backward wave oscillator operates in the frequency range from below 45 to over 60 kmc. It gives a minimum of 50 mw from 50 to 60 kmc and the output power fluctuates less than 2 db over the same range. The traveling wave tube is a helix-type tube that provides more than ½-w of power from 50 to 60 kmc. The low-level gain is 40 to 50 db and midband and shows a slope of about 6 db across the 50 to 60 kmc band. Power from either tube is said to extend the range of measurements possible at 50 to 60 kmc and to permit the use of levelers, ratio meters and similar devices.



A 16mm motion-picture reversal viewer which can produce a positive image on a television receiver from negative film by electrically reversing the negative image signal into a positive signal is described in *Japanese Motion-Picture Engineering*, pp. 34–37, No. 108, April/May 1961. The device, developed by NHK (Japan Broadcasting Corp.), consists of a projector system which transports 16mm motion-picture film continuously and projects successive still images by means of a rotating prism system. The optical system includes a device for adjusting light intensity to correspond with the density of the negative film. A vidicon camera is operated in source-sync and random interlace with scanning frequencies of 15, 75, kc for horizontal, 50 or 60 cycles/sec for vertical and resolution of more than 350 lines for horizontal and 250 lines for vertical.



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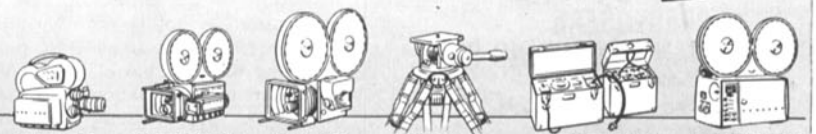

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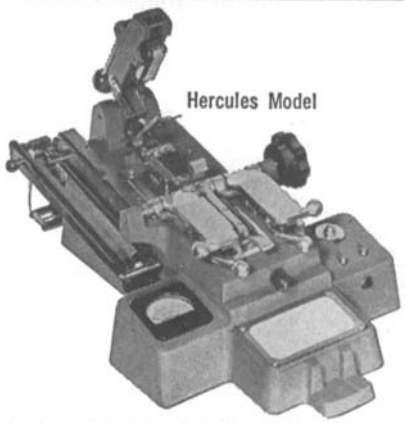

Newly modified Presto-Splicer butt-welds motion picture film, microfilm, acetate, mylar, Polyester, safety-base, paper . . . or any other kind of tape or film . . . AND INTERMIXES ANY OF THESE MATERIALS making a failure-proof, invisible weld that is literally the strongest part of the tape. Every splice you make will be a cleaner splice . . . a stronger splice . . . a PERMANENT splice, with

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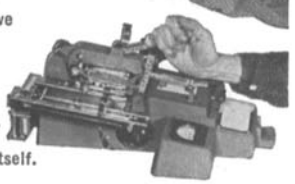
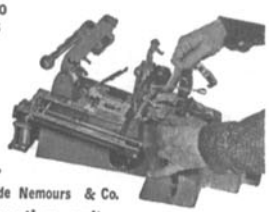


Use the trimmer to remove the surplus tape. The entire procedure is so simple, so positive, that no special training is needed for your existing personnel.



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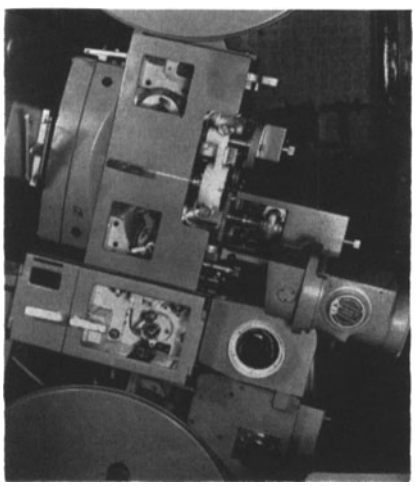
A device for viewing a still photograph as a positive image from 35mm negative is a product of Canon Camera Co., Inc., 312 Shima-Maruko-cho, Ohta-ku, Tokyo. The device is connected on one side to the antenna terminals of the TV receiver and on the other to a 110-v power source. The device also magnifies the image.

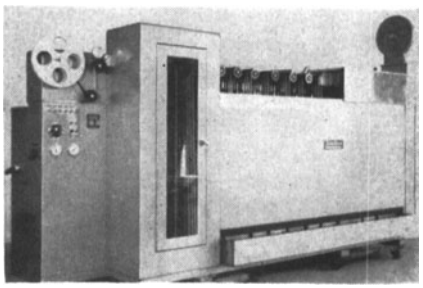
3D-TV without glasses is approached through a device called a Stereo-Hood produced by Stereotronics Corp., 1717 N. Highland Ave., Los Angeles 28. This device fits on the television receiver. The Stereotronics System, designed especially for industrial television, consists of a Stereo-Captor that fits on the TV camera lens and a Stereo-Screen that replaces the glass plate in the receiving monitor. Stereo-Glasses are supplied for group viewing and the Stereo-Hood for individual viewing. The Stereo-Hood is priced at $450 for a 14-in. screen size.



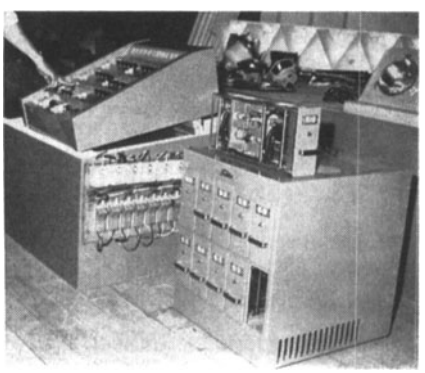
Remote control panels which operate in conjunction with Projectomatic, an automatic programmer, have been installed by Rank Precision Industries Ltd., 37–41 Mortimer St., London W.1, England, in six motion-picture theaters in London. Automatic programming and the use of xenon lamps which burn without attention frees the operator to watch the screen as a member of the audience. The remote-control panel enables him to make promptly any necessary adjustments to improve the picture or sound quality. Shown above is a Gaumont Kalee 21 projector, which employs xenon lamps, large capacity reels and Projectomatic, adapted for remote control of focus and framing by the addition of the two units shown attached to the front.

A Compressor-Amplifier designated Model No. 31 has been developed by Magna-Tech Electronic Co., 630 Ninth Ave., New York 36, to permit compression of dialogue or music tracks without causing detrimental distortion to the program. The unit incorporates a solid-state variable gain device and a two-stage push-pull audio amplifier on one chassis. Designed specifically for use in stationary installments, the power supply, meter and attenuators of an existing console can be employed for the compressor. A 16-pin connector provides convenient plug-in connection of power, input and output, and meter. The compression ratio is 20:10, features include de-essing equalization from 0 to 10 db at 10 kc, variable release time from 50 msec to 1 sec and an attack time of less than 1 msec. An optional accessory is available for increase of input and output levels. Model No. 31 is priced at $650.

Three sizes of Conelites in addition to the 1000 or 2000-w Junior size have been announced by Mole-Richardson Co., 937 N. Sycamore Ave., Hollywood 38. The lighting equipment, used mainly for fill lights, is now available in sizes accommodating 500, 750 or 5000-w globes.



A new 16mm reversal film processor, the R-36, has been announced by Filmline Corp., Milford, Conn. Processing rate is said to be 2160 ft/hr for negative-positive film. Features of the R-36 include an overdrive film transport system that automatically compensates for elongations and keeps tank footage constant; automated processing; daylight operation on all emulsions; Temp-Guard temperature control system; variable-speed drive; film speed tachometer; 316 stainless steel construction; two developer pumps; built-in air compressor; bottom drain valves and drain trough.



An electric dimmer with a silicon-controlled rectifier has been introduced by Tokyo Shibaura Electric Co., 1-Chome, Chiyodaku, Tokyo, Japan, manufacturers of equipment under the trade name of Toshiba. Designed for one-man operation with pushbutton controls, the new dimmer has a 10 kw capacity. The use of transformers is not required; with the silicon-controlled rectifier, the voltage drop is only 1.5 v. The new system is said to eliminate "lamp singing" and is thus acceptable for television use.

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50 percent has been developed by the Armour Research Foundation, Illinois Institute of Technology, 35 N. 33 St., Chicago 16. The significance of this development is not so much that heat has been converted to electricity—that has been accomplished before with efficiencies achieved of up to 12 percent—but that the new fuel cell's 50 percent efficiency brings considerably nearer extensive use of this power source. Perfecting this type of fuel cell may render obsolete turbines and generators, as the cell operates on heat from the sun, nuclear sources or from waste heat sources.

The newly developed cell uses a prepackaged chemical system which can be easily transported, and which may be in the (perhaps) near future launched to the Moon and other planets.

The cell involves essentially a three-step process. First, the heat converts the chemicals for the generation of electricity. Second, the electrical power is taken off while the chemical is cooling. Third, portions of the spent chemical are regenerated by the heat source and are again available for the generation of electricity. The effect is that of two batteries, one giving off current while the other is being regenerated. Instead of batteries, the system uses liquid electrodes for regenerating spent chemicals while hot chemicals are being discharged and decomposed to give electricity. A constant conversion of heat to electricity results from taking off electricity at one point and regenerating chemicals at another point.

Application of this development to practical use suggests that it may soon be possible for remote areas of the Earth to be supplied with electric power through nuclear energy, a year's supply of power requiring only a few pounds of nuclear fuel. In space applications heat energy from the sun could be converted to supply electricity for power, heat and communications in outer space.

A new motor starter developed by the General Purpose Control Dept. of Westinghouse Electric Corp., Buffalo, N.Y., has no moving parts and was specially designed to minimize extraneous noise on motion-picture sets and in TV studios. The device, called a static starter, uses a silicon-controlled rectifier as the main power switch. Termed a "Trinistor" device it blocks conduction in the reverse direction while providing control of conduction in the forward direction. It can be used with 20-hp motors "across-the-line" and with motors of up to 75 hp with reduced voltage starting.

Direct amplification of ultrasonic waves in a piezoelectric semiconductor crystal has been reported by Bell Telephone Laboratories scientists. The soundwaves are amplified by interaction with electrons drifting in the crystal by a process similar to the amplification of electromagnetic waves in a traveling wave tube. Discovery of the principle and its experimental verification was announced by D. L. White, A. R. Hutson and J. H. McFee in the September 15, 1961, issue of *Physical Review Letters*. They achieved amplification of an ultrasonic wave traveling through a crystal of cadmium sulfide (CdS) by applying a d-c electric field in the direction of wave propagation. Gains of 18 db in a 15-mc wave were observed and of 38 db in a 45-mc wave traveling through a 7-mm length of CdS. The amount of amplification obtained depends on the applied voltage and the conductivity of the material. The experiment suggests a new class of solid-state electronic devices such as amplifiers, oscillators, delay lines and isolators based on the combination of piezoelectricity and semiconduction in certain crystals.

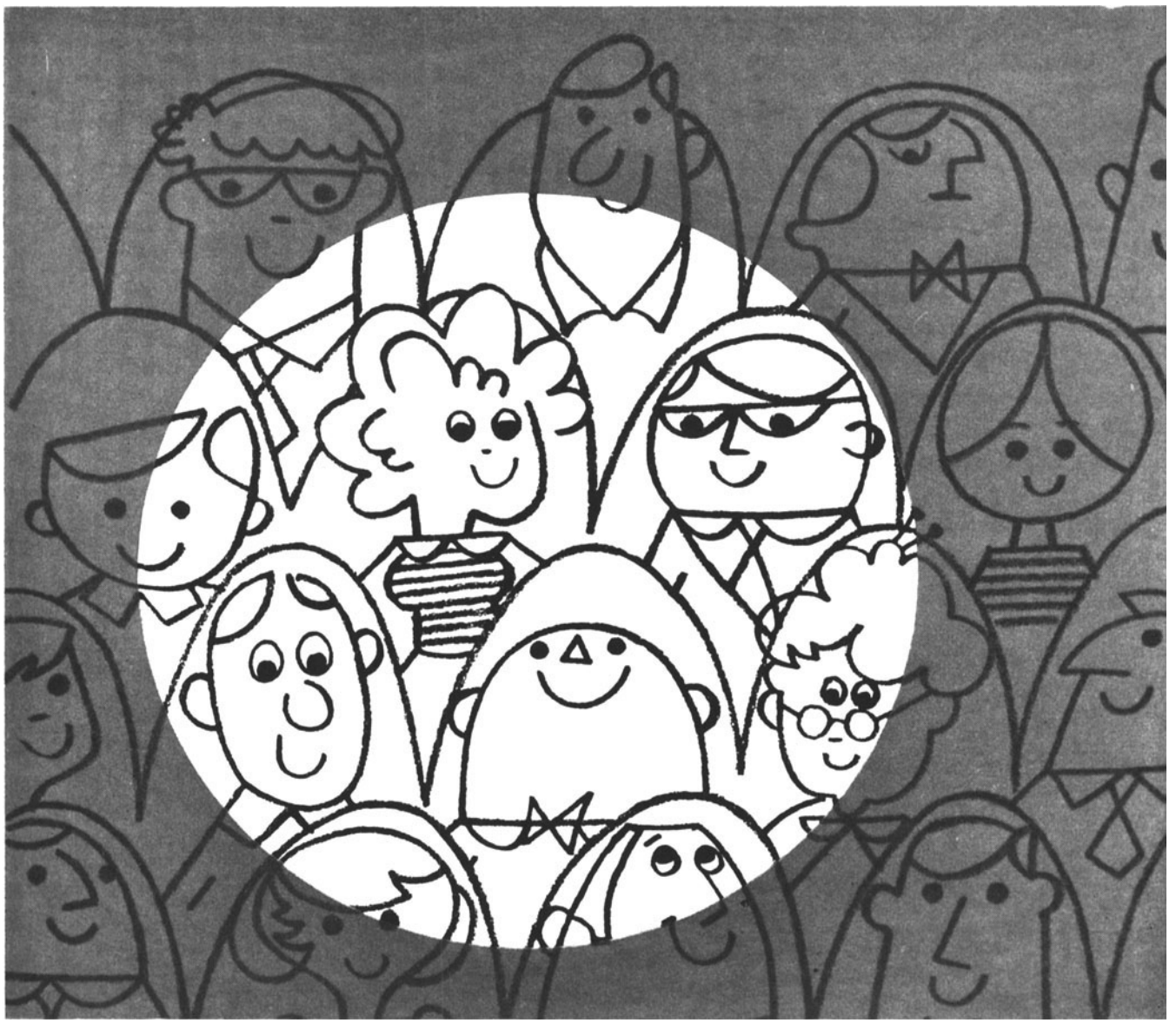
A dual-speed hysteresis synchronous motor designed to drive large inertial masses at a constant rate of speed has been announced by Beau Electronics, Inc., Waterbury, Conn. The design of the a-c motor, designated the Type 5003, is based on an unusual "inside-out" principle of construction, so described because the rotor revolves around the outside of the stator with the motor ring acting as a permanent magnet and the poles shifting as frequency varies. The purpose of this design is to increase the moment of inertia with resultant advantages in torque and stability. The motor is said to have a stable output of 300 or 600 rpm, insensitive to voltage changes.

Tests conducted by the manufacturers show the motor to be operable within a temperature range of -65 to $+165$ F; input voltage 115 v single phase, variable 40 v in either direction; power input 28 w maximum; and continuing operation possible of more than 10,000 hr with maximum unbalance remaining at 0.004 oz in.

Designed as a direct drive for high-fidelity audio tapes and tape recorders, other applications suggested by the manufacturer include video tape, data tape, remote controlled missile stations, astronautical devices and infrared scanning systems. The motor is priced at $95.

A wide-range harmonic marker generator, said to be capable of producing birdie markers up to several hundred times its fundamental oscillation, has been introduced by Telonic Industries, Inc., Beech Grove, Ind. The device, called the CDH-0.1 Harmonic Marker, uses three tubes and two crystal diodes and is supplied as a plug-in unit. The accuracy of the crystal is reported at $\pm 0.005\%$. Designed primarily for use with Telonic sweep generators, the unit is plugged into the sweep generator and produces harmonics of the sweep sample via frequency multiplication. The resulting harmonics are mixed with a portion of the swept signal to create audio beats which are then superimposed upon the display across the sweep range. Available with various crystal frequencies ranging from 0.1 to 100 mc, the price range is from $55 to $75.

Seamless Mylar (DuPont TM) belts, custom made and precisely dimensioned to the purchaser's specifications have been announced by Kinelogic Corp., 1256 North Fair Oaks Ave., Pasadena, Calif. Designed for flutter-free and slip-free precision power transmission in the fractional and subfractional horse-power range, the



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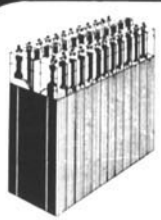

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belts are made in lengths to 48 in., widths to 1 in. and thicknesses from 0.5 to 10 mils. Tolerances are as low as 0.015 in. on length, 0.0001 in. on thickness and 0.005 in. on width. Descriptive literature and technical design data are available from the firm.

A micro-adapter introduced by Karl Heitz, Inc., 480 Lexington Ave., New York 17, is used to attach the Camex 8mm single lens reflex motion-picture camera to any microscope. For microcinematography the microscope's eyepiece is replaced by the adapter tube. The device is priced at $4.95.

A two-terminal component used for limiting current in electrical networks has been announced by CircuitDyne Corp., a subsidiary of Telonic Industries, Inc., 480 Mermaid St., Laguna Beach, Calif. The device is a solid-state unit called the Currector. It is available in fixed current ratings from one to 10 milliamp in 10% increments. Standard current tolerance is ±5%. Typical admittances are as low as 1 micro-ohm and both polarized and nonpolarized versions are available. The price range is from $6.30 to $32.

New bandpass filters, series FBH 102, covering the frequency range from 255 to 3655 cps, have been announced by CircuitDyne Corp., a subsidiary of Telonic Industries, Inc., 480 Mermaid Ave., Laguna Beach, Calif. Toroid coils are adjusted to inductance tolerance of ±1% to attain sharp filter cutoff characteristics while maintaining maximum power capabilities. The insertion loss is reported at 6 db maximum. The bandwidth is approximately 10% to 30% of center frequency at the 3 db down point. Source and load impedance is 600 ohms for standard versions, but other impedance values are available.

The production of semiconducting diamonds—one of the rarest of all gems—has been announced by General Electric Research Laboratory, Schenectady, N.Y. The process by which these man-made gems are made involves subjecting a mixture of graphite and catalyst to which boron, beryllium or aluminum has been added to pressures of about 1 million lb/sq in. and temperatures above 2000 F. The Laboratory has also made semiconducting borazon, a cubic form of boron nitride, which has a structure similar to that of the diamond.

A chemical method for rapid and continuous growth of crystalline niobium-tin has been developed by the RCA David Sarnoff Research Center, Princeton, N.J. This compound is a superconducting material recently found to possess the ability of generating and sustaining very strong magnetic fields without any power dissipation. Until development of the RCA process any extensive use of this material was impossible because of its brittleness. Laboratory equipment developed for this purpose is capable of producing uniform crystal coatings of niobium-tin on a fine wire at a rate of 30 ft/hr. Extension of this method suggests widespread practical use of simple superconductive magnets, using no power, to generate enormous magnetic fields for large nuclear research machines and for ultrasensitive receivers used in radar, radio astronomy and space communications.

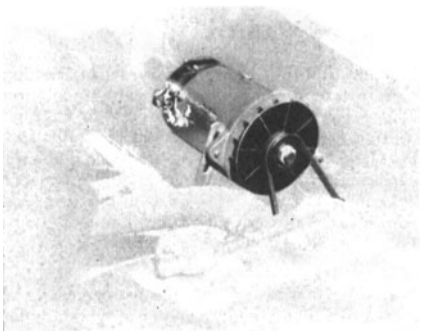
A television system installed in a helicopter to cover the World Championship Unlimited Hydroplane race in Seattle held in August was designed by KIRO-TV for its newscast of this event. Announced as the "smallest and lightest-weight" TV system to be used by a commercial station within its particular range, the main design problems were how to fit a camera chain, transmitter and transmitting antenna into the helicopter while keeping under the weight limit of 250 lb and how to compensate for the limitation of available primary power. The ground equipment included a receiving antenna and receiver. To save power, the camera chain was fitted with an optical rather than an electronic viewfinder, and a transistorized camera chain with self-contained batteries was used. A transmitter was designed which operated on 24 v d-c. The transmitting antenna was of the inverted quarter-wave ground plane type. A large ground plane eliminated the problem of reflection from rotor blades. The system was found to give excellent coverage of an area more than six miles in diameter, which proved sufficient for detailed TV coverage of the hydroplane races.

A new type of connector with the appearance of a coil spring has been developed by Bell Telephone Laboratories for connecting plastic insulated small-gage wires to terminals, designed mainly for use in telephone terminal boxes. The new connector permits wires to be connected rapidly and without first stripping the insulation, and connection and disconnection operations do not disturb other wires connected to the same post. The new connector differs from the coil spring which it resembles in that the spring wire is square-shaped rather than round or oval.

The Dual Electric Eye, a device developed by Bell & Howell, 7100 McCormick Rd., Chicago 45, is used to achieve correct exposure for the subject of a backlighted scene by compensating for the reflection of the sun's rays into the electric eye. Designed with a second photocell to offset the effect of the sun's rays reflected inward from the metal grid covering the electric eye cancels part of the charge generated by the main cell by sending current into the meter from the opposite direction. The new device has been incorporated in the cameras in the firm's Zoomatic series.

Yttrium iron garnet (YIG), a material that provides a substantial improvement over ferrites in many electronic applications, has been the subject of exhaustive studies by Bell Telephone Laboratories, which reported findings of the studies in a paper by R. C. LeCraw and E. G. Spencer presented at the International Conference

on Magnetism and Crystallography held in Kyoto, Japan, during the week of September 18. YIG is similar to the ferrites in that it is both ferrimagnetic and an electrical insulator, but it has a different crystal structure and is a much better insulator. Both types of material transmit microwave radiation with very little loss. Also, when a strong d-c magnetic field is applied to them, they can be made to transmit microwaves in one direction with little loss, but strongly absorb radiation in the reverse direction. The paper on YIG reported observation of YIG ferromagnetic linewidths of only 0.14 oersteds at room temperature and 6000 mc—the narrowest linewidth ever reported for a ferromagnetic material.



The CARon Mobile Power Unit, capable of generating 110-v a-c power from automobile engines, is used as a power source for industrial motion-picture and TV news photography. Availability of the unit has been announced by Gordon Enterprises, 5362 N. Cahuenga Blvd., North Hollywood. The generator is capable of supplying 110-v 60-cycle a-c power for equipment such as motion picture cameras, recorders, and lighting equipment under daylight or nightime conditions in the field. Designed for easy installation on any motor vehicle engine, the generator is driven by the fan belt from the water pump, crankshaft or d-c generator pulleys. A mounting bracket is supplied for engine block installation. A dash-mounted panel contains the on-off switch, volt meter and throttle regulator.

The Model 800 Recording Wave Analyzer is a product of Optron Corp., 335 South Salinas St., Santa Barbara, Calif., and is designed for complete waveform analysis over a frequency range of 20 to 20,000 cycles by measuring the amplitude of all the frequency components in any waveform and recording them on a built-in strip chart recorder. The instrument, contained in a compact unit measuring 18 by 15 by 12 in., has selectivity of 3 db attenuation at $\pm 1\%$ of the tuned frequency, and accuracy of $\pm 3\%$ of the frequency and $\pm 5\%$ of the amplitude.

The PEK 200, a three-electrode, 200-w high-pressure mercury arc lamp, has been announced by PEK Labs, Inc., 4024 Transport St., Palo Alto, Calif. Arc size is 0.100 by 0.070 in. with a total light output of 2500 lm. Operating on a-c or d-c, the lamp is designed for applications such as fluoresence microscopy, projection systems, microfilm duplications, etc. It is priced at $49.