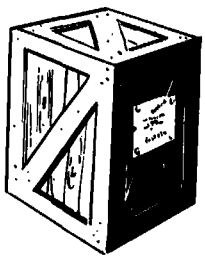


new products

(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.

A portable television camera, hand-carried and battery-powered, described as "the world's first," has been announced by Westel Company, 298 Fuller St., Redwood City, Calif. The camera unit, complete with TV pickup tube, active TV viewfinder and microphone weighs 7 lb. The shoulder-worn recording mechanism weighs 11 lb. The recorder module also holds a 30-min supply of 1-in. magnetic tape and rechargeable batteries, adding 12 lb for a total video recording module weight of 23 lb.

The new camera, designated the WRC-150, is based on a new development in recording called Coniscan. The word "Coniscan" was coined to describe both the path of the magnetic tape and a recording and synchronization system developed to assure broadcast picture stability. An advanced type of electric motor with printed circuit armatures directs the 1-in. magnetic tape at a rate of 10 in./s around an inverted three-piece flat-top cone. The cone's entire midsection, which contains the single recording head, rotates within the moving "collar" of tape. One of the effects of the cone and the rotating center section is that tape stretch and friction are almost eliminated by a lubricating air cushion. Another effect of the cone, around which the tape spirals and overlaps on top of itself, is that the recording head essentially never leaves the tape.

The camera, and the technology upon which it is based, will be described in detail in a paper by W. H. Butler, "A One-Man Portable Television Recording Camera," that will be presented at the Society's 99th Technical Conference (May 1–6) in Washington, D.C.

The firm has also announced the WTR-100 television recorder which, like the WRC-150 camera, is based on the Coniscan video recording system that permits the use of a single recording head. The Westel Color Module WCM-200, when added to the WTR-100 recorder, permits full color operation. The color system provides final electronic time base correction on a line-by-line basis, synchronized to an external reference, and permits direct recovery of NTSC signals.

The TK-42 color TV camera developed by Radio Corp. of America for producing "instant color pictures" will be used by NBC News in its "instant news" studio being prepared for color operations this Fall, according to a recent announcement. The camera makes use of a completely transitorized and stabilized design to eliminate a long "warm-up" time. Four pickup tubes are incorporated, the fourth tube providing a separate monochrome channel to improve picture detail.

The Mark VII color camera, described as one of the lightest and smallest broadcast color cameras in the world, has been introduced by Marconi Company Ltd., Chelmsford, Essex, England. Designated the B3205, the camera uses four Plumbicon tubes, three to obtain red, blue and green color signals and the fourth to produce the black-and-white, or luminance signal. The camera is completely transistorized except for the first stages of the four head amplifiers, which are fitted with nuvistors to give a sufficiently low noise factor. The camera is provided with two filter wheels, one enabling three neutral density filters to be fitted; the second permits the choice of three color filters. Each wheel has an open position. A zoom lens and tilting viewfinder identical to those employed in the Mark V black-and-white camera are used in the Mark VII. The Mark VII can also be operated as a black-and-white camera. The optical arrangement of the camera is designed to provide flexibility in the choice of lenses. It is also compact.

The control unit is suitable for mounting in a 19-in. rack or console and is designed for "hands off" operation within the studio. The camera will operate with camera cable lengths of up to 2,000 ft. More than 60 thin-film circuits are used to contribute to the camera's stability. Dimensions are: height, $18\frac{1}{8}$ in.; width $13\frac{5}{16}$ in.; and length, $26\frac{3}{8}$ in.

Equipments recently introduced by Marconi Company Ltd., Chelmsford, Essex, England, include the Mark V Picture and Waveform Monitor, Type B3901; Grating and Dot Generator, Type B4106; Special Effects Equipment, Type B3740; and Transistor Synchronizing Pulse Generator, Type B3600.

The picture display of the picture and waveform monitor is presented on a 14-in. rectangular tube and the waveform on a 5-in. display. The monitor is designed for

operation under high ambient light levels and is suitable for 405-, 525-, and 625-line transmissions.

The grating and dot generator can be used on both monochrome and color systems. The generator is a self-contained, all-transistor unit designed to check the linearity of any display device by providing either a grating formed by horizontal and vertical bars or a series of dots of uniform duration and spacing. The number of bars or dots is variable in each direction without affecting the duration and uniformity of spacing.

The special-effects equipment comprises an electronic switch pattern generator and power supply. The standard version provides a selection of 15 transitional wipes. Provision is made for reversal of wipe direction and for automatic unidirection wiping. A more sophisticated pattern generator giving a choice of 72 different patterns is also available for this equipment.

The transistor synchronizing pulse generator is available in either a single or dual version. The dual unit is contained in a standard Marconi printed-wiring case suitable for mobile or studio use. It consists of two timer units, two shaper units, two genlock units, two power units and a changeover unit.

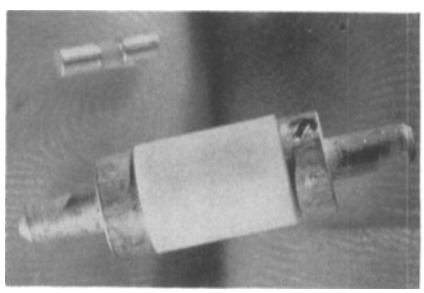
The Mark VIII automatic gain control (AGC) video amplifier has been announced by Ball Brothers Research Corp., Boulder, Colo. 80301. The amplifier is a solid-state unit designed to provide continuous monitoring of video signals from a variety of originating equipment. Two models are available, Model A for local use and Model B for remote operation. The A unit handles local signals originating in the studio where drives are available (sync and blanking drives are required). The B unit derives its required drive pulses from genlock operation from the input video. In addition to the AGC action the amplifier is used to stabilize low-frequency disturbances and noise at the input terminals. Extraneous 60-Hz hum is said to be attenuated by at least 30 dB. When desired, the input video signal may be routed directly to the output terminals by means of a relay and remote by-pass switch.

The Mark IX Video-Pulse Distribution Amplifier has also been announced by the Ball Brothers Research Corp., Video Marketing, P.O. Box 1062, Boulder, Colo. 80302. Designed especially for color studio operation, the modular units feature solid-state circuitry, de-rated components, and self-contained, regulated power supplies. Up to 10 video or pulse amplifiers can be plugged into the chassis to provide as many as 40 isolated signal outputs at one central distribution point. The Mark IX amplifiers are priced at $255.

The CVI Video Converter, Model 201, designed to provide a slow-scan television signal from standard real-time video inputs, has been announced by Colorado Video, Inc., Box 928, Boulder, Colo. 80302. The unit is solid state throughout and conversion is achieved by means of sampling rather than storage tubes. This method is said to provide superior resolution, gray-scale and shading characteristics. The converter can be used for narrow band visual communications, video processing, or as a computer input device for data analysis. Slow-scan frame rates are variable from 5 s to 60 s and either analog or digital outputs may be selected. The converter is priced at $1,950.

A transistorized TV relay system operating in the 6,000-MHz microwave band has been developed by Radio Corp. of America. The system is designed for intercity service, studio-transmitter links or for remote program pickups. The equipment features solid-state plug-in modules for all operating units. The receiver unit has been made entirely solid state with elimination of all tubes, including the klystron. The system is adaptable to either rack-mounted or portable applications.

RCA has also announced a new 55-kW UHF television transmitter called the TTU-50C. When coupled to a high-gain antenna, the new transmitter is said to be capable of more than 2 million W of effective radiated power. The transmitter has built-in color capability and uses three identical 30-kW vapor-cooled klystrons, two for visual power and one for aural. The TTU-50C is priced at $285,000.



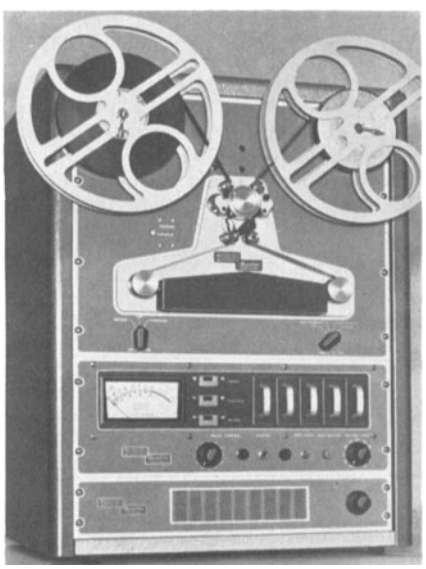
New semiconductor devices that generate and amplify microwaves at higher power levels than transistors and tunnel diodes are being investigated at Bell Telephone Laboratories. These "transit time" devices have already generated as much as 60 mW of continuous power in the 2–11 Gc range. These "transit time" devices are so called because a common characteristic is that their operating frequency is in part determined by the time required for electrons to move or "transit" through a region in the semiconductor material. The devices operate as self-excited generators or oscillators; i.e., they generate microwaves directly when dc voltage is applied to them. Amplification is achieved by using external stabilizing circuitry. The devices operate at room temperature.

Three types of these transit time devices are being studied: bulk gallium arsenide, silicon avalanche diodes, and Read avalanche diodes. The bulk gallium arsenide device consists simply of a piece of N-type gallium arsenide to which two metal contacts have been affixed. The other two types of transit time devices are made from semiconductors containing a junction which is reverse biased to produce avalanche breakdown. The avalanche region is either inside or adjoins a high field "transit" region.

The Ampex VR-1200, a high band video-tape recorder designed especially for color recording by medium-sized and small television stations, has been announced by Ampex Corp., 401 Broadway, Redwood City, Calif. It is fully transistorized and more compact than the VR-2000 (*Jour.*, p. 524, June 1964). High band recordings made on a VR-2000 are interchangeable with those made on the VR-1200. The new recorder is available in several configurations and in both 60-Hz and 50-Hz versions. A number of accessories are available. Prices begin at $46,500.

A compact broadcast video-tape recorder, the VR-1100E, designed primarily for mobile use, has been announced by Ampex Corp., 401 Broadway, Redwood City, Calif. It is 38.5 in. high, 26.5 in. deep, 42.5 in. wide and weighs 550 lb. The size of the recorder was reduced from that of the standard VR-1100 by repackaging the electronics and placing the transport level with the top of the recorder. It is fully transistorized and is available in record/-playback and record only models in both 60-Hz and 50-Hz versions. Prices range from $28,000 to $50,000.

Ampex has also introduced three accessories for its VR-2000 high band color video-tape recorder: an automatic velocity compensator to eliminate color hue banding; a low band switchable standards unit to facilitate switching among high band, low band color and low band monochrome; and a head alignment kit which allows adjustment of head resonance without the use of separate oscillosope and sweep generator.

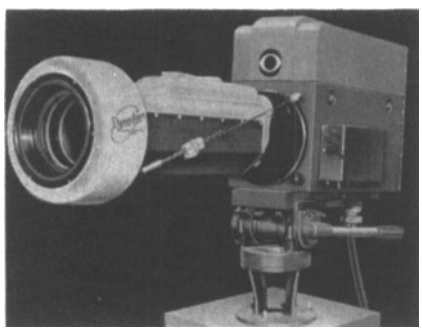


The Magnasync Model DR-1 Displacement Recorder is designed to reposition automatically the soundtrack of a processed 16mm single-system release print film to "editor's sync," i.e., with sound and corresponding picture in line for rapid, accurate editing, and then to reposition the soundtrack automatically to "printer's sync" or "projection sync" for immediate projection. The unit can be interlocked with other magnetic film recording equipment and projectors, including conventional TV chain projectors. An audio input is provided to permit addition of sound to unrecorded release print film, and a playback audio output is provided for projection tracks. Circuitry is modular plug-in solid state. Monitor speaker, headphone output and automatic switching are provided. It is available for 115-V, 50- to 60-Hz from Magnasync Corp., 5547 Satsuma Ave., North Hollywood, Calif. 91601. The price is $1,785.

An improved model of the 3M Brand Professional Recorder, first introduced in June, 1964, has been announced by 3M Company, 2501 Hudson Rd., St. Paul, Minn. 55119. All electronic components have been redesigned to incorporate quick-change, plug-in modules. SNR has been improved to greater than 80 dB, the announcement stated. The new unit will now accommodate tapes from ½ in. to 1 in. wide and will record from 1 to 8 tracks. The recorder's patented "Isoloop" transport system has been designed to reduce flutter to as low as 0.04% rms. A vernier editing feature has been incorporated to eliminate marking the tape with felt pens or other instruments. Features include solid-state circuitry, a range of recording speeds from 3¾ in./s to 120 in./s and a tape handling system designed to eliminate tape spillage, stretching or breakage. The recorder is available as an unmounted transport, a portable unit with electronics, or as a studio console. Prices begin at $2,750 for the tape transport.

The Wide Range Program Monitor, Model 600, has been announced by CBS Laboratories, A Division of Columbia Broadcasting System, Inc., High Ridge Road, Stamford, Conn. The instrument is designed to allow measurement of program audio, noise and crosstalk on a single 60 dB-wide scale. The monitor displays information from +3 to −57 dB on a single linear decibel scale. The reference settings for 0 dB are adjustable from +18 to −22 dBm. Reading of low level audio material is provided for as well as line noise measurements during program pauses. A separate dc output is provided for graphic logging or remote metering. The instrument is priced at $345.

FM Volumax, a device to prevent FM overmodulation and SCA crosstalk without distortion has been announced by CBS Laboratories, A Division of Columbia Broadcasting System, Inc., High Ridge Road, Stamford, Conn. The device uses time-varying functions to control the high- and low-frequencies and instantaneous final limiting to assure that no overmodulation will occur. A new dynamic frequency compensator is used to adjust high frequencies and process all frequencies at reference level without distortion. It is priced at $695, or $1,390 for stereo.



The Dynalens, an image motion compensator designed to nullify image distortion when long-lens cameras and ocular sights are subjected to vibration is now available from Dynasciences Corp., Township Line Rd., Blue Bell, Pa. (See "A Gyro-Stabilized Lens System," by K. Blair Benson and John R. Whittaker, *Jour.*, pp. 916–918, Oct. 1965.) In telecasting, motion pictures and optical sighting the Dynalens electro-optical system is used to eliminate stabilization problems of portable camera mounts, aerial camera platforms, zoom lenses and engine vibration.

A home tape recorder for color television has been developed at ITT Research Institute, 10 W. 35 St., Chicago, Ill. 60616. A prototype unit has been demonstrated at IITRI by the inventor, Marvin Camras, IITRI Scientific Advisor. The new color recorder, an outgrowth of earlier IITRI work in the field of black-and-white television recording, is being licensed to industry. The prototype uses a standard 7-in. spool of ¼-in. tape to record both picture and sound. The unit is completely transistorized and uses only 12 transistors. It has a stationary recording and playback head and in appearance and complexity it is similar to a conventional sound recorder. The basic use of the home video recorder is to record color television programs for later playback. The unit could also be used in conjunction with an inexpensive color television camera, currently under development at IITRI, to produce home movies in color which can be immediately played back on a television screen.

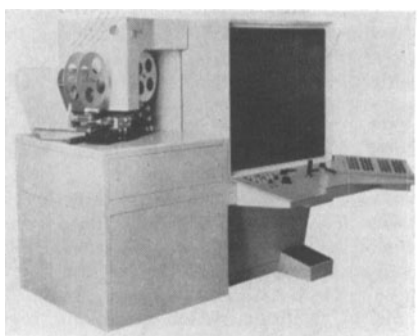
A new video tape designed especially for color television has been announced by 3M Company, 2501 Hudson Rd., St. Paul, Minn. 55119. The tape, called "Scotch" brand #399 Video Tape ("color tape plus") is said to be compatible with any quadruplex video recording system, including high-band equipment. Features of the new tape include improved SNR resulting from a new low-noise oxide and improved binder and coating techniques. Up to fourth generation copies can be made that "only a trained eye can tell from the original," the announcement stated. The tape is said to be capable of up to 2,000 passes without visible indication of picture degradation or tape wear. While the tape is designed for color video recording it can also be used for black-and-white.

A new 2-in. high-band video tape featuring high SNR has been announced by Reeves Soundcraft Division of Reeves Industries Inc., Great Pasture Road, Danbury, Conn. Designated Type 303, the tape is designed to be compatible with all quadruplex recorder and playback systems. It is said to have a low dropout rate and to be equally well suited to color or monochrome applications. The tape employs Reeves' exclusive Micro-Plate process designed to achieve perfect tape-to-head contact during recording and playback. A high degree of surface smoothness is said to result from a high potency fine-grain oxide which is deposited on a polyester base to a precisely controlled thickness. It is available in 2,600- and 4,800-ft reels.

A process for producing printer circuits by conventionally exposing a negative on photographic film, then precipitating the unexposed silver to form an electrically conductive surface image of pure silver, has been developed by the Photo Products Dept. of E. I. du Pont de Nemours & Co., Wilmington, Del. 19898. The silver image formed in the process is about 1.5 μm. It has a resistance of 0.1 Ω/sq and dissipates over 1 W/cm² without degradation or change at temperature up to 93 C. According to the announcement, it "may be little more than a scientific curiosity for a while," but possible applications may, in the future, include "such things as encoder discs and printed circuit checkerboards, electroluminescent panels, resistance networks and metal masks."

Availability of Ektachrome EF Film (Type B) 35mm (5242) and 16mm (7242) has been announced by Eastman Kodak Co. It will be available in the same sizes and at the same prices as Ektachrome ER film 5258 and 7258 (Type B) which will continue to be supplied until further notice. The speed of the EF (Type B) is the same as that of ER (Type B) with an exposure index of 125 tungsten and 80 daylight (using a No. 85 Wratten filter). Both the EF and ER (Type B) films are exposed in the same manner. The ME-4 process is recommended for the EF film and it should not be processed in the ME2A formula. However the ER film can be processed in either formula.

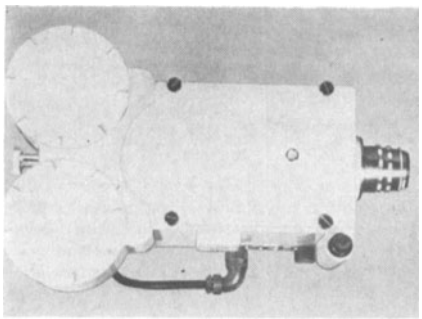
A new Eastman Kodak film, SO 375, a fine-grain high-resolution film with extended red sensitivity plus unusual contrast characteristics, is designed especially for use in solar flare photography for development of a radiation warning system for the Apollo spacecraft. The new film will be used in the NASA Manned Spacecraft Program that will have seven stations around the world photographing the sun at 10-s intervals in a series to continue for a period of 11 to 15 years. The film is to be used in special telescope cameras to photograph the entire disc of the sun through a special filter that excludes all of the spectrum except the hydrogen alpha radiation (6563 Å). The use of the filter to concentrate on the hydrogen alpha line makes it possible to single out solar flare activity on the sun's surface. It is hoped that this study will lead eventually to accurate forecasting of weather patterns and radio transmission disturbances caused by solar particles plunging into the atmosphere.



The Richardson 660 Precision Film Reader has been announced by Richardson Camera Co., P.O. Box 9187, 2201 West Desert Cove Rd., Phoenix, Ariz. 85020. The film reader is designed to enable an operator to make semiautomatic measurements of X, Y and Θ coordinates and in addition to provide entry of auxiliary data into punched card records of images recorded on various 16, 35 and 70mm sprocketed film formats. Features include a low distortion optical projection system with automatic selection of 5×, 10× and 20× magnifications. The choice of bi-directional film transport modes includes single-frame, multiple frame-to-frame, variable cinemotion (all pin registered), and fast flow motion. The entire transport and buffered film reel system are mounted on an X-Y stage. Digitization of this joy-stick-manipulated stage provides coordinate readout accuracies of better than 10 microns. A rotatable reticle and separate light source are used to provide reference for Θ, and X, Y measurements. The reticle is mounted in the proximity of the movable film frame stage so that the image of the film frame and the crosswire reticle are both projected through the same objective lens to eliminate error due to lens distortion and to abate any error due to lens vibration.

The motor drive for the 12–120 Angenieux zoom lens now features an improved mount system, it was announced by Arriflex Corp. of America, P.O. Box 1050, Woodside, N.Y. 11377. No tools, machining or shop installation is required, the announcement stated. Using only two hand screws, the motor drive can be quickly connected to the 12–120 Angenieux zoom lens without removing the crank assembly. The motor drive is based on a specially designed,

custom wound dc motor. Incorporated into the system is a slip clutch to ensure smooth stops and starts with maximum motor protection.

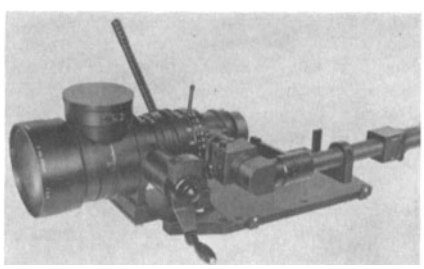


A 70mm continuous flow recording camera designated the 70mm-CFA has been developed by Photo-Sonics, Inc., 820 S. Mariposa St., Burbank, Calif., to take a single photograph of an object traveling at high speeds along a predetermined path. The camera may also be used for oscilloscope or streak recording applications. The camera uses standard 70mm film and a conversion kit permits the use of 35mm film. Film velocities from 5 ft/s to 120 ft/s are possible through the selection of motor and appropriate gearing. The motor (208-V, 3-phase, 60-Hz) provides 3600-r/min. A 900-r/min motor is also available. Film capacity is 200 ft in daylight loading magazines. Buckle and run-out switches prevent film damage and stop the drive motor when the film supply is exhausted. Complete with the 200-ft magazine, the camera is 20½ ft long, 10 in. high and 14½ in. wide.

A system of supplementary lenses for the Viennette Super-8 camera has been developed by Eumig Elektrizitäts-und Metallwaren-Industrie, 1101 Wien X, Buchengasse 11–15, Austria, in collaboration with Biermann & Weber, Wiesbaden, Germany. (Eumig USA is located at 101 W. 31 St., New York, N.Y. 10001.) The camera is fully automatic and is equipped with the Austrozoom lens 1 : 1, 9/9-27mm with reflex viewfinder. Manual control is provided for. The supplementary lens system has been developed to provide for various photographic situations. The supplementary lenses, designated VL 1, 2 and 3, can be used for close-ups. Various color filters are provided.

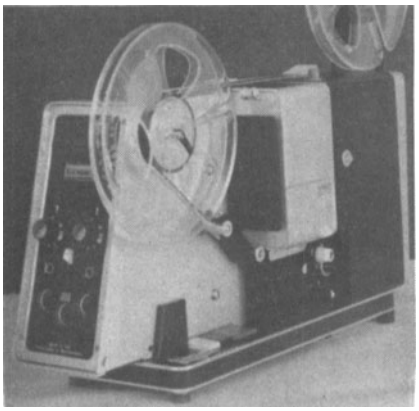
Super Balter lenses in Mitchell R-35 mounts, fitted to the Mitchell BNC Reflex camera conversion can be supplied by F & B Ceco, Inc., 315 W. 43 St., New York, N.Y. 10036, according to a recent announcement. The new combination of lenses makes it possible to use them interchangeably on the BNC-Reflex, Eyemo-Reflex, and the R-35 Mitchell, plus the 25–250 Angenieux zoom lens. Focal lengths of the Super Baltar lenses range from 20mm to 200mm and are available for use with follow focus.

The new 10 × 9.5 Angenieux zoom lens for 16mm cameras has been announced by Zoomar International, Inc., Glen Cove, L.I., N.Y. 11542. Features include apertures from *f*/2.2 to *f*/22, focal lengths 9.5 through 95mm, a maximum field angle of 68° and a telephoto close-up field coverage of 2 × 2¾. Other features include short minimum focusing distances (29 in. from subject to film plane) and substantial depth of field even at full aperture. The lens is available with either a 4 : 1 zoom crank or a new zoom lever. Models with viewfinders are also available.



A new Angenieux zoom lens (10 × 24, 24mm to 240mm, *f*/2.6) with viewfinder for Mitchell BNC cameras has been announced by Zoomar International, Inc., Glen Cove, L.I., N.Y. 11542. The lens is supplied with an integral camera base/lens support assembly and is designed for rapid set-up for studio or location operation. Features include a large 4 : 1 zoom crank that is clutched at both ends for smoother zoom action. An over-sized zoom handle is also supplied for use when special techniques are required. The viewfinder tube has built-in adjustable field mattes and filters. Ground glasses are interchangeable and the lens accepts all standard Mitchell BNC ground glasses of any format.

The Eumig Splicer Super-8, which features a "scrape-both-ends" system has been announced by Eumig Elektrizitäts-und Metallwaren-Industrie, 1101 Wien X, Buchengasse 11–15, Austria. (Eumig USA is located at 101 W. 31 St., New York, N.Y. 10001.) The device scrapes both ends to avoid thickening of the joins. The film ends need not be displaced before the join is completed. The film ends are scraped simultaneously and the operations of trimming and cementing are reduced to a single manipulation. The splicer is sturdily constructed and mounted on an antislip plastic base. It is supplied in a dust-proof plastic container.



The Carena 8S8, a convertible sound and silent projector for both Super 8 and standard 8mm has been announced by Karl Heitz, Inc., 979 Third Ave., New York, N.Y. 10022. The projector, manufactured in Liechtenstein, features simple, rapid conversion from Super 8 to standard 8 by means of a lever which changes claw, film gate and soundheads to the desired mode. If desired, the projector can quickly be changed to silent projection. A built-in transformer can be adjusted from 110-V up to 250-V ac. The unit measures 16½ × 5 ¾ × 9 in., including the built-in screen, and weighs 22½ lb. Prices begin at $599 for the basic unit which includes the projector, Zeiss-Sonnar 2mm *f*/1.2 lens, microphone and case with built-in amplifier-speaker.

A new Orbit Brand movie editor/viewer designed for use with Kodak Super-8 and Fuji Single-8 movie film has been announced by Hudson Photographic Industries, Inc., South Buckhout St., Irvington-on-Hudson, N.Y. 10533. The editor has a 3- by 4-in. "black screen" viewing area with a polarized coating on the rear surface for grainless image transmission. A focusing control, framer and spring action notcher are grouped on the control panel adjacent to the on-off switch and pilot light. The unit includes a butt-type film splicer. It is priced at about $35.

The Automatic Dry Splicer, Model 7600, introduced by Dupage Metal Products Inc., 211 South Main St., Lombard, Ill. 60148, has been designed to tape and splice both sides of the film at once. The machine uses optically clear tape made of Mylar. In operation the film is inserted and the butt cut made with the built-in film squaring cutter. The pre-sprocketed tape is pulled forward and the machine trims and splices both sides of the film at once. The splicer is priced at $99.95 for 16mm and $124.95 for 35mm. A microfilm splicer is available at $89.95 for 16mm and $114.95 for 35mm.

Astrolux High Intensity Lights, designed for one-man, one-hand operation while projecting daylight-quality illumination for distances of 1,000 ft and more, have been announced by Karl Heitz, Inc., 979 Third Ave., New York, N.Y. 10022. The standard 500-, 750-, or 1,000-W projection lights provide up to 500-hr continuous use, light up instantly without warm-up time and can be replaced within seconds, the announcement stated. The light is nonpulsating, has a color temperature of 3200 K and maintains a constant spectrum. The lights operate from standard 110-V ac outlets as well as from dual-purpose car generators or portable generators.

The Mogul-Bi (Mogul Bi-Post Quartz Converta) and Mogul-Pf (Mogul Prefocus Quartz Converta) have been announced by Packaged Lighting Services, Inc., 36 Woodworth Ave., Yonkers, N.Y. 10701. The Convertas are designed to provide better performance for 8- to 12-in. Fresnel spotlights. They are equipped with a telescopic adjustment device to permit the proper lamp filament positioning through the existing lens. Five quartz lamps, interchangeable in the Convertas, vary from 1,000-W, 2,000-hr, 3,000 K to 2,000-W, 150-hr, 3,200 K. They can be burned in any position and are designed to provide balanced lighting with constant color temperature. They are priced at $37.50.

A new series of Type III 200-W mercury short-arc lamps for operation on either ac or dc has been announced by Illumination Industries Inc., 610 Vaqueror Ave., Sunnyvale, Calif. 94086. The lamps are constructed of clear, fused quartz with specially processed tungsten electrodes to provide sources of ultraviolet and visible radiation. Either the 2- or 3-electrode type is available in a 4.1-in. or 4.75-in. overall length. They are interchangeable in fluorescent microscopes and other fixed designs incorporating 200-W mercury short-arc lamps. Features include luminous flux, 10,000-lm; arc size, 0.10 × 0.07 in.; minimum starting voltage, 10 kV; average luminance, 33,000 cd/cm²; and average life (dc operation) 400 hr. The lamps are priced at about $29.

A new slide projector called the Monitor 960 and two Super 8 zoom lens movie cameras, model 84C and 85C, have been announced by Bell & Howell, 7100 McCormick Rd., Chicago, Ill. 60645. The gravity-feed slide projector is equipped with a 100-slide rotary tray and features a preview screen to allow editing of slides before being projected. It is priced at about $160.

The new cameras feature through-the-lens electric-eye exposure control, folding pistol grip, battery-powered film drive, with high-visibility film footage indicator and battery tester. The 84C has an *f*/1.8 3 : 1 zoom lens and is priced at about $170. The 85C has a 5 : 1 zoom lens and is priced at about $200.

The Type WB clean work booth, developed by Westinghouse Environmental Systems Department, 4300 36 St., Grand Rapids, Mich. 49508, is designed for operations better performed in an isolated area; it is also used for applications in which the associated assembly and test equipment must also be kept clean. Construction of the booth is based on the laminar flow principle of air movement. HEPA-type filters are used to provide a working environment containing less than 50 particles (0.5 micron and over) per cubic foot.

These notices are published for the service of the membership and the field. They are inserted three months, at no charge to the member. The Society's address cannot be used for replies.

Positions Wanted

Precision Machinist. Experimental, prototype, and automation on motion picture laboratory film processing, desires posit. in New York or New Jersey. Write J. W. S., 70 Montclair Ave., Little Falls, N.J. 07424.

Recording Engineer. 15 yrs exp. in all phases of m-p sound recording including field mixing, rerecording, optical transfer, and maintenance. Will relocate. Résumé on request. A. Seidman 46-05 Marathon Pkwy., Little Neck, N.Y. 11362.

Cameraman. Highly exp'd, thorough knowledge in all fields of camera work. French, English speaking. Desire posit. with high responsibilities in industrial, commercial or other film production. Available immediately. Résumé on request. Write: George Miklachevsky, (in April) Wiesenstrasse 8, CH 8700 Kusnacht-ZH, Switzerland; (from May) c/o Epanchin, 27 Brown St., Sea Cliff, N.Y. 11579.

Motion Picture Lab Manager or Quality Control Supervisor. 16 yrs. exp. in m-p lab operations. Exp'd. in processing Eastman Color, Kodachrome, etc. Exp'd. timer. Quality control engineer with Eastman Kodak for 9 yrs. College grad. Résumé on request. Bryan Allen, 11 Evergreen Rd. (North Oaks), St. Paul, Minn. 55110.

A/V Communication Specialist. American established in Europe. Fluent several languages. Senior executive positions consulting to governments, schools, UN agencies, industry. Educational technology, industrial training, ETV. Industry/education/documentary film production. Currently holding seminars throughout Europe, writing, and consulting on major TV current-affairs series. Seeks challenging, responsible, rewarding tie with US firm. Eric Hecksher, 26 Rue de Tourville, 78 St-Germain-en-Laye, France.

Positions Available

The Delaware Educational Television Network needs two experienced video technicians in Dover, Del. Experience with I-O cameras, Ampex Videotape recorders, studio operation and maintenance necessary. Openings immediate. New personnel will assist in moving into new plant April 1. First phone not essential but preferred. Write, including full details first letter, William C. Lewis, Technical Services Director, Box 898, Dover, Delaware.

Motion Picture Production Asst. Director of photography-cameraman-editor in growing unit. Able with a Mitchell, Arriflex, or Auricon. Able to light sets ranging from crowded lab to large auditorium. Knowl. all aspects of editing. Familiarity with all other areas of film production. College graduate with at least one year exp. in industrial or educational film production. Minimum salary $6,300 depending on exp. Send résumé to Byrl L. Sims, University of Illinois, Motion Picture Service, 606½ E. Green St., Champaign, Ill. 61820.