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ings of film or television by using the other media.

Acknowledgment: The author is grateful for assistance received from Professor G. C. Rust, Richmond College of The City University of New York.

Discussion

Maxwell A. Kerr (Consultant, Educational Technology): Your brought out the difficulty of using audio tape with super 8 film and the editing situation because of the difficulty of maintaining sync. I recall some of the efforts of using audio tape with 16mm perforations to solve that very problem and I wonder what was really wrong with that idea. (There was a paper, for instance, by Warren R. Isom, "Synchronized Recordings on Perforated Tape," *Journal*, 63: 26-28, July 1954.)

Mr. Reznikoff: There is nothing wrong with that system; there is the problem of having the equipment available, then how to make the transfer. The odd thing is the video-tape recorders are becoming very accessible and very easy to use. But you don't have color and to make a final presentation you are at a disadvantage. With super 8 you edit, for instance, combining materials. I am trying to take a system that uses both

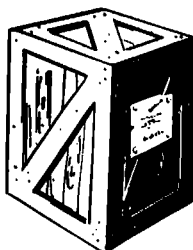
interchangeably in a way that any person can work. To make a major production you can go either to 16mm or make the equipment. This is not for the average person. Another example of this situation is using overhead projectors—fairly simple and very worthwhile, but when it comes down to making the materials and generating the whole presentation, especially for repeat performances, there is the same problem. You only go so far.

William L. Millard (University of Southern California): Is the objective of the system you are proposing for the purpose of student information gathering and playback for their use? Is it not intended for major productions?

Mr. Reznikoff: It is also intended for faculty use. But if there is a great enough desire, we either go to 16mm or they will get the quad machine. The system with super 8 is to fill the gap between a major production and making a small production in a useful way.

Mr. Millard: Is it the intent of these productions that they be short lived? Is the material to be used once or twice and then thrown out? Is this part of the cost factor involved?

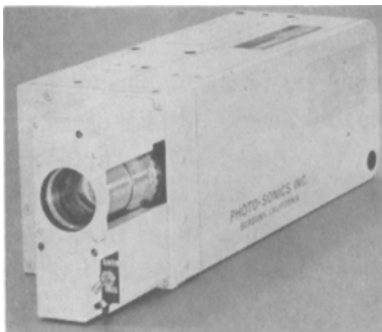
Mr. Reznikoff: Certain of it would have a short life. Other parts, such as a series of microscope slides, are worth having on a cartridge so they can be reviewed and be a permanent file.



new products

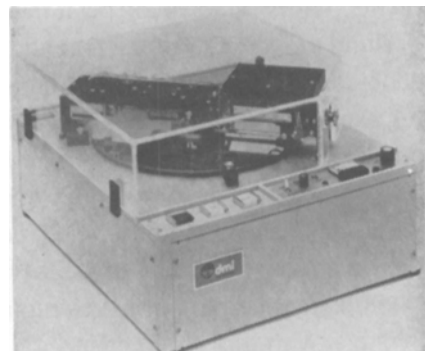
(and developments)

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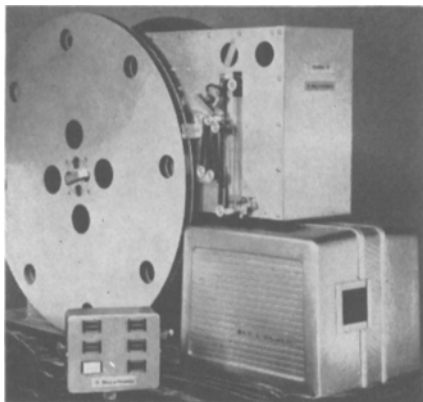
The 16 mm 1MB high-speed instrumentation camera has been announced by Photo-Sonics, Inc., 820 South Mariposa St., Burbank, CA 91506. The camera has an

iris exposure control attachment which provides for dual iris and shutter exposure control over a wide range of *f* stops. The automatic exposure control (AEC) is completely contained in the camera and utilizes scene brightness, frame rate, *f* stop and film speed input signals to energize both servo mechanisms providing for proper exposure. The system automatically cycles between iris and shutter whenever the limits of each are reached. The camera accepts 100-, 200- or 400-ft daylight loading magazines with frame rates of 24, 32, 48, 64 and 200 frames/s. The camera weighs less than 12 lb with 100-ft magazine and film. The price is \$5,000 for the camera (less magazine and lens).

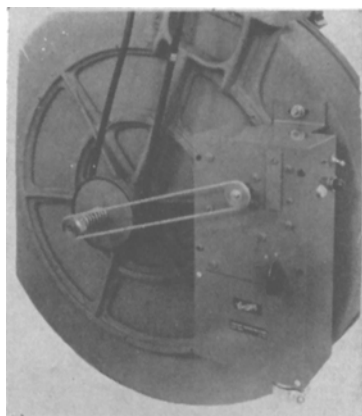


The IDR-100 Instrumentation Disc Recorder, a magnetic disc recorder especially designed for instrumentation use, has been announced by Data Memory Inc., Instrumentation Div., 1255 Terra Bella Ave., Mountain View, CA 94040. The 45-lb self-

contained instrument records transient signal events over 20-s real-time duration and, upon command, it replays the entire disc or repetitively reproduces any 25-ms "window" for hours or even weeks of constant analysis. The IDR-100 incorporates a spirally-driven head mechanism in which the disc drive references the tracking of the record head. During replay, an adjustment control on the head allows accurate positioning of the single head for continuous replay of any 25-ms segment. The IDR-100 is priced at \$8,975. The price includes a 12-in magnetic disc, dust cover, power cord and connectors.



Theater 16, an automatic 16 mm projection system for use in small theaters, has been announced by Bell & Howell Co., 360 Sierra Madre Villa, Pasadena, CA 91109. The new system will accommodate reel sizes up to 30-in in diameter which allows two full-length features or any four-hour variable programming to be shown from a single reel. The 30-in reels are made of aluminum and will hold more than 9,000 ft of 16 mm film. Automatic shutoff can be programmed wherever desired on the film. Heart of the system is the film projection module from the Bell & Howell Autoload 16 mm Projector. A new high-intensity light source projects either a flat or anamorphic picture in a semi-darkened theater. A stand-by light source is included. The system, which weighs less than 175 lb with fully loaded 30-in reels, can be operated from a remote control panel. Theater 16 is priced at \$9,750.



The Century Automatic Safety Control, a device to stop a motion-picture projector automatically whenever the film is not feeding into the lower take-up magazine, has been announced by Century Projector Corp., 729 Seventh Ave., New York, NY

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10019. The device, designated Model MSC-1, is a self-contained unit that attaches to the lower take-up magazine of a motion-picture projector; it operates independently of the film in that nothing touches the film. The unit is attached to the spindle of the take-up magazine that drives the take-up reel. As long as the take-up drive is turning the spindle at the normal take-up reel speed, the device will allow the projector and arc lamp to continue to operate. However, should the film not continue to be wound up by the take-up reel, the reel will start to rotate faster. This causes a sudden change in the r/min of the shaft which the automatic control senses. This change in speed triggers the sensor and shuts off the power to the arc lamp and motor of the projector. The sensor circuit

is a solid state device. When the trigger circuit operates the power switch the projector stops. The MSC-1 is listed at \$180.

Two new overhead projectors, Models 360 and 362, have been added to the line of Specialist overhead projectors produced by Bell & Howell, 7100 McCormick Rd., Chicago, IL 60645. Model 360 is a triple-element lens overhead designed to give high image quality from corner to corner. Other features of the 360 includes a rotating lens assembly that swivels 360°. The head tilts 20° up and 7° down and the body tilts 5° up for keystone compensation. It is priced at about \$225. Model 362 is a wide-angle lens unit that gives a larger image at closer distance than conventional overheads, e.g., with the projector 3½ ft from the screen, the



image size is 41 by 41 in. Model 362 is priced at about \$189.95.

The PJ-400 Color Video Projector, a product of The General Electric Visual Communication Products Dept., Electronics Park, Syracuse, NY 13201, and Studio 90-M, a product of Front Projection Corp., 10-40 45th Ave., Long Island City, NY 11101, have been announced jointly by both firms. The PJ-400 (available in color or monochrome) provides pictures as large as 20 ft wide by 15 ft high. Studio 90-M makes it possible for the large TV image to be re-photographed with live models for broadcast or filming. In operation, the PJ-400 is fed from telecine and projected into the Studio 90-M which projects onto the Retro-Reflex screen. A variety of backgrounds can be chosen from any source that can be fed from a telecine center, such as slides, filmstrips or motion pictures. The PJ-400 in the color version is priced at \$39,500. The monochrome unit is priced at \$28,500.

A new line of 1-in vidicons with infrared-sensitive photo surface or fiber-optic faceplates, produced by English Electric Valve Co., has been announced by Visual Electronics Corp., 356 W. 40 St., New York, NY 10018, exclusive United States distributors for the English company. The infrared vidicons are manufactured with a photolayer whose spectral response is from the visible range to at least 18,000 Å. Tube applications include scientific and industrial uses such as security surveillance and unobtrusive analysis of hospitalized patients.

The fiber-optic vidicon is used in conjunction with a phosphor screen output (image intensifier tubes). The use of vidicon fiber-optic faceplates coupled in direct optical contact with image intensifiers improves the phosphor light output reaching the vidicon photolayer. The coupling arrangement is compact and is unaffected by atmospheric pollution.

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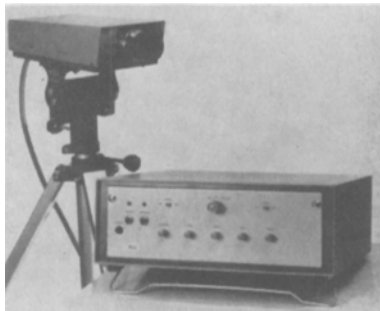
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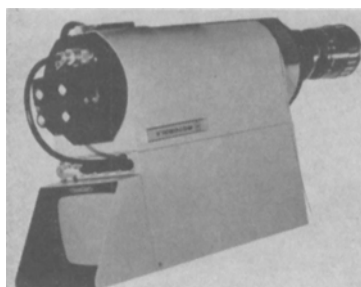
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The PK-530, a compact monochrome studio camera, has been announced by RCA. It was designed especially for cable TV and other small studio originations. It weighs less than 5 lb, including a 5-in electronic viewfinder. The camera is solid-state in design and measures about 11 by 15 by 6½ in. It will accept either fixed focus or zoom-type lenses. It is priced at under \$2,000.



The Multi-Purpose (M-P) TV system designed for applications in education, broadcasting, science and industry has been announced by Philips Broadcast Equipment Corp., One Philips Parkway, Montvale, NJ 07645. The system accommodates the 1-in Plumbicon. When combined with a 6½-in electronic viewfinder, a pan/tilt unit and zoom lens, the system can be used as a studio camera chain, the heart of local-origination operations for the CATV operator. The camera chain is equipped with an intercom system between the camera and the control unit. A choice of scan rates is available. One set of available parameters includes switchable operation at 525-line/60-field and 625-line/50-field; the other operates at 735-line/60-field and 875-line/50-field. The system is priced at \$3,220 including the Plumbicon tube and a rack-mounted control unit.



Two new closed-circuit TV cameras, the S/40B and the S/41, have been announced by Motorola Communications and Electronics, Inc., 6501 West Augusta Blvd., Chicago, IL 60651. The S/40B is specifically designed to operate under severe environmental conditions and to withstand extremes of heat, shock and vibration in heavy industrial environments. It is priced at \$1,495. The S/41 is designed for less stringent environments. It is priced at \$995. The two cameras are the same size, use the same housings and control units and are completely interchangeable in systems. Numerous optional accessories are available, including a viewfinder attachment, an RF output, dual video outputs, special purpose vidicons and various lenses.

The Mini-Compact, a 7½-lb monochrome TV camera designed for closed-circuit, has been announced by Philips Broadcast Equipment Corp., One Philips Parkway, Montvale, NJ 07645. The camera can be operated from a 110-, 117-, 220-, or 234-V ac or a 12-V dc power source. Circuitry is solid state on printed circuit boards. There is no external control except the power switch. The camera produces 600-line resolution and has video and RF outputs. Features include a built-in light meter, a tip-up viewfinder window and a pull-up eyepiece guide. The camera is priced at \$695, including the vidicon, 1-in Schneider lens and power cord.



The LDL-1000 Video-Tape Recorder, a lightweight unit which uses ½-in Crolyn recording tape, has been announced by Philips Broadcast Equipment Corp., One Philips Parkway, Montvale, NJ 07645. It has been designed specifically for use with Crolyn, a new DuPont tape with chromium dioxide coating. The LDL-1000 has a playing time per reel of 40 min and a rewind time of 3 min. It records live pictures and sound and can also record directly from a TV receiver. It is 16½ in wide, 13½ in deep, 7½ in high and weighs about 25 lb. It is priced at under \$650.



Model EV-320, a new video-tape recorder featuring capstan-servo electronic editing in color and monochrome, has been announced by Sony Corp. of America, 47-47 Van Dam St., Long Island City, NY 11101. Because of the electronic editing feature, sequences from various sources, such as tape, off-air and live camera, can be inserted into a pre-recorded master tape by means of pushbutton control. The capstan-servo synchronizes the EV-320 to the input signal in the playback mode which allows the mixing of the output signal with multiple cameras and with additional video-tape recorders from a common sync source. The recorder has two audio channels, one simultaneous and the other independent. In the insert mode, audio channel 2 is activated so that the original sound on channel 1 is not disturbed. Playing time is

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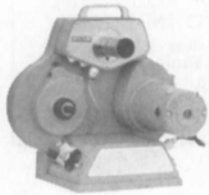
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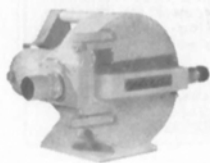
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The Philips 3403 video-tape recorder, a "semi-professional" helical-scan recorder, has been announced by Philips Broadcast Equipment Corp., One Philips Parkway, Montvale, NJ 07645. It can record and play back video signals with or without associated audio signals. The recorder has a sound-dubbing facility and features stop-motion and slow-motion. The circuitry is transistorized and the printed circuit boards are hinged for easy removal. The magnetic heads are made of ferrite and are exchangeable. The recorder weighs less than 50 lb. The price of \$2,250 includes an 1,800-ft reel of tape and a take-up reel.

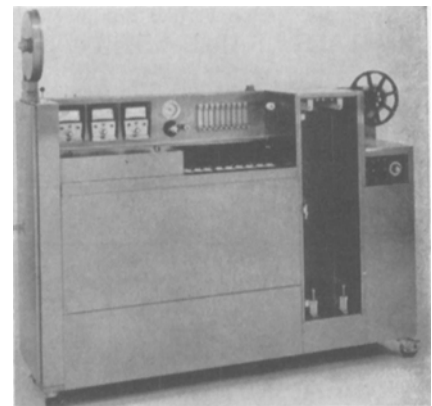
The Spectra TV Snooper, a light-measuring device for closed-circuit applications, has been announced by Photo Research Corp., 3000 N. Hollywood Way, Burbank, CA 91502. The device measures scene illumination, through any given lens, at the image plane of the vidicon faceplate before the closed-circuit system is installed. It can also be used as an fc meter when used without a lens. The instrument is basically a light meter with provision for mounting lenses directly onto the photocell head. The photocell is located behind the lens mount at the same distance as the vidicon faceplate is from the camera lens mount. The readout meter is a taut band type with a 5-in mirror scale marked in fc (or Lux by request). The unit is portable. It measures 11½ by 8½ by 4 in and weighs less than 5 lb. It is priced at \$389.

A test slide projector for closed-circuit TV cameras to facilitate testing and adjusting of Plumbicon and vidicon camera chains has been announced by Philips Broadcast Equipment Corp., One Philips Parkway, Montvale, NJ 07645. The device, which weighs 2¾ lb, operates on local power supply and has a built-in light level control. The light source illuminates an opal glass plate located between the lamp and the slide. Because of its diffusing properties, the glass plate becomes a secondary light source which provides uniform light distribution on the slide. A projection lens forms a sharp image of the slide pattern on the target of the pickup tube. The slide projector is priced at \$285.

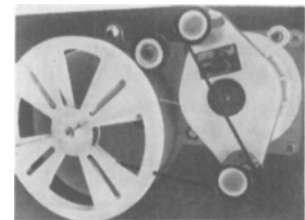


The Bauer C Royal, a super 8 cassette camera with lap dissolve, has been introduced by Allied Impex Corp., a division of AIC Photo, Inc., 168 Glen Cove Rd., Carle Place, Long Island NY 11514. The camera is manufactured by the German firm of Robert Bosch Elektronik und Photokino GmbH. When a lap dissolve is

desired, a scene is faded out with the aid of a variable shutter which, when closed, stops the camera automatically. During the fade a built-in computer registers the number of frames used for the fade-out. When a button is depressed, the film is transported backward the same length of film used for the fade-out (up to 90 frames). During the following scene the variable shutter is gradually opened for a lap dissolve. The camera can run at a slow-motion speed of 54 frames/s as well as 18 frames/s or 24 frames/s for sound speed. The camera is equipped with an f/1.8 Schneider lens and an aerial type (cross-hairs) viewfinder. Cable release is provided for all running speeds as well as for a single-frame feature which enables the operator to achieve various effects such as animated titles. The Bauer C Royal is priced at \$524.50.

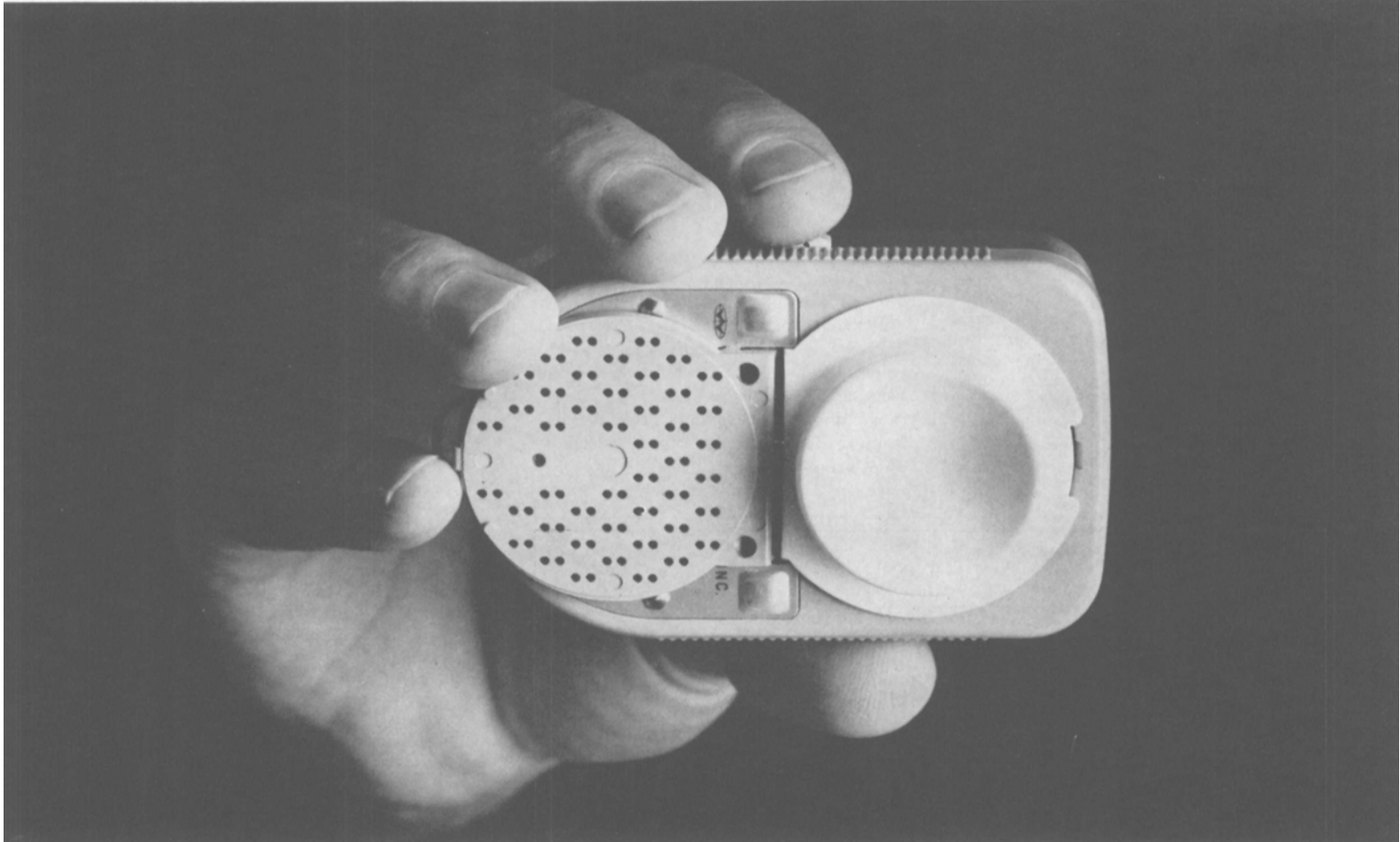


The ColorMate ME-4 16/15 processor for Eastman Kodak Ektachrome 16mm color film has been announced by Terminal Data Corp., 2301 Pontius Ave., Los Angeles, CA 90064. The machine operates at 15 ft/min. Pre-hardener and developer solution temperatures are controlled individually by dial-in solid state proportioning. Other solutions are thermostatically controlled. The processor is 19 in wide, 58 in high, 79 in long and weighs 450 lb dry weight. It is priced at \$9,400.

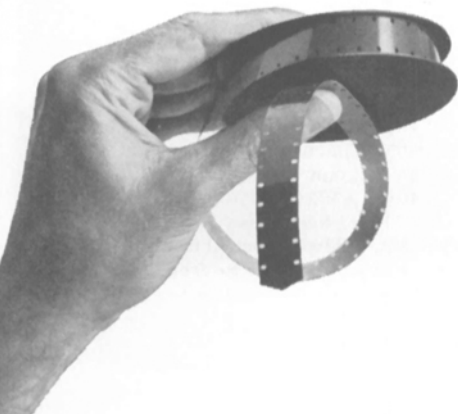


The Unwind Tension Compensator, a mechanical servo mechanism for controlling payout (unwind) tension on reels of film and magnetic tape, has been announced by Compensating Tension Controls, Inc., 476 Thomas Blvd., Orange, NJ 07050. The principle of operation is based on a self-compensating closed mechanical loop. The sensing element is a pivoting head with two precision rollers. A low-rate torsion spring in a housing behind the head provides the force against which the film tension is referenced. The feedback control between the sensing head and the braking system is accomplished mechanically through a stainless-steel cable. The sensing head is constantly responding to changes in reel diameter, acceleration and speed, and transmits this information through the

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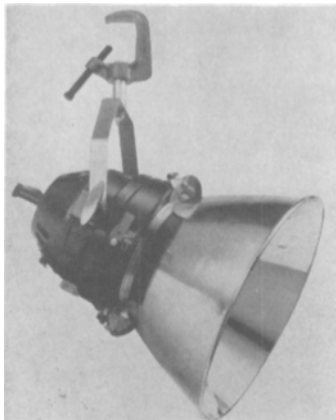
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feedback cable (with a relatively high mechanical advantage) to the braking system. The braking system, in turn, is continuously adjusting the retarding force as indicated by the relative position of the sensing head. The mechanism is priced at about \$400.

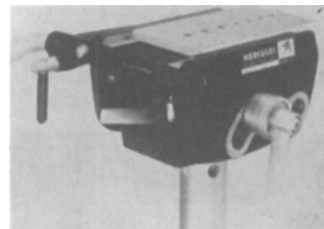


The ColorTran Porta Studio, an assemblage of lighting units to provide a simple and quick lighting installation for remote or studio applications, has been announced by Berkey-ColorTran, 1015 Chestnut St., Burbank, CA 91502. A Pole-King grid provides support for hanging fixtures over the set. The Pole-Kings are spring-loaded and do not require bolting to floor or ceiling. Various lighting units to provide for key, fill, back and set lighting are included in the assemblage. Each fixture is equipped with an integral 25-ft cable. Total connected

load of a Porta Studio is 67 A at 120 V, ac or dc. The Porta Studio, including lighting, mounting and miscellaneous equipments, is priced at \$1,403.45. It is also available for rental.

The Cine Queen II, a lighting fixture utilizing PAR 64 1,000-W quartz lamps in 3,200° K, 3,400° K and daylight color temperatures, has been announced by Berkey-ColorTran, 1015 Chestnut St., Burbank, CA 91502. The Cine Queen II can be stand-mounted or supported by standard grip equipment. The stand model weighs 9 lb and incorporates a cast-aluminum yoke with an integral mounting bracket. The hanging model weighs 5½ lb and is equipped with a C-clamp for mounting on an overhead grid. Each model is priced at \$54.00.

A series of seven Fresnelite spotlights designed for single-ended tungsten-halogen lamps has been announced by Century Lighting Co., Inc., 3 Entin Rd., Clifton, NJ 07014. The spotlights range in size is from 16 by 12 in., 5,000 W, down to the Tini-Spot at 3 by 2½ in., 150/250 W. The units have soft-edged beam performance for key and back lighting. A focal slide is externally operated for quick, smooth focusing from spot to flood with a wide range of variable spread. Price range is from \$25 for the Tini-Spot to \$252 for the 16-in Fresnelite.



A new Hercules tripod head incorporating a springless Cam-Link movement and Quick-On mounting plate has been announced by Quick-Set, Inc., 8121 Central Park Ave., Skokie, IL 60078. The tripod head can support an 80-lb camera which can be mounted by one man. Both panning and tilting mechanisms operate on ball bearings. Both have independent disc brakes and drag controls. Price of the new tripod head is \$260.

An omnidirectional dynamic microphone specifically designed for live recording has been announced by The Turner Co., 909 17th St., N.E., Cedar Rapids, IA 52402. The microphone has on-off switches, peak-free 50- to 15,000-Hz frequency response and output levels of -56 dB. Built-in wind screens are used to reduce breath and pop noises. A three-pin connector is used on the detachable 20-ft cables. Model 2300 is high impedance. The microphone is also available as Model 2303, 150-Ω impedance. Each model is priced at \$75.

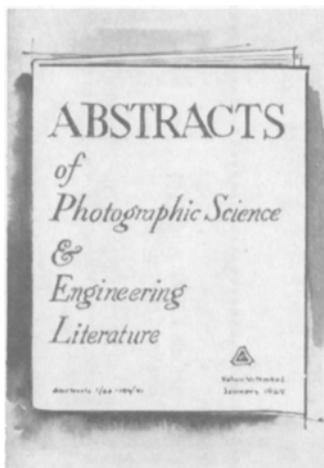
AVI Training Video Tape: A is a 20-min monochrome video tape designed for users of Ampex 1-in video-tape recording and playback equipment. It covers (1) cleaning the video-tape recorder; (2) replacing the video head on an Ampex VR-7500C video-tape recorder and (3) interchangeability. The tape is available from Ampex Tape Exchange, 2201 Estes Ave., Elk Grove Village, IL 60007.

A new silicon transistorized mixer amplifier, designated Model 1589A, has been announced by Altec Lansing, 1515 S. Manchester Ave., Anaheim, CA 92803. The amplifier is designed especially for public address system applications. The unit is 1½ in high, 4½ in deep and fits in a 19-in rack. It is powered by a self-contained 120/240-V ac supply or it can be operated from a 24/28-V dc battery, negative ground. The power output is +20 dBm, with a frequency response from 30 to 20,000 Hz, ±20 dB at line level output. The unit has two inputs, one is low impedance (150/250 Ω) and the second is high or low impedance based upon the plug-in transformer selected. The amplifier is priced at \$141.

A new volume indicator, designated 9713A, designed to replace the old-style VU meter, has been announced by Altec Lansing, 1515 S. Manchester Ave., Anaheim, CA 92803. The new instrument is calibrated in modulation percentages, 6%, 16%, 25%, 40%, 63% and 100% and overload, using blue, four green lights in stepped succession, yellow and red. The unit is 1 in wide, 4½ in high and 3½ in deep. It is priced at \$91.50.

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