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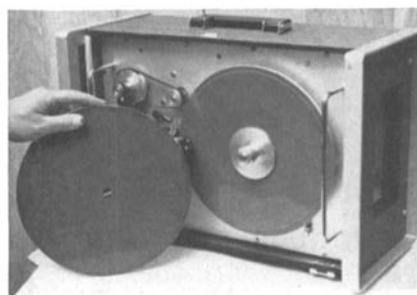
(and developments)

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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.

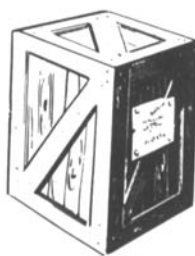
Pictures from discs: Two machines using thin plastic discs to record and play back black-and-white motion pictures and still pictures in color have been introduced by Sony Corp. of America, 580 Fifth Ave., New York, N.Y. 10036.



The Videomat, which records black-and-white motion pictures for immediate playback contains a camera, lights, discs and a 19-in TV screen. The disc has an aluminum rim with an "inside surface of material identified with video tape," according to Sony officials. The machine can be coin operated or can be operated by means of a foot switch or a remote control system. It is 62 in. high, 22 in. wide and 23 in. deep and operates on regular house current.



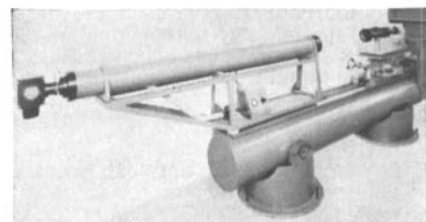
The Video Color Demonstrator is reported to record up to 40 color still pictures



on the disc for play back over a standard television monitor. Showing of the pictures can be repeated or the pictures can be erased from the disc if desired. Use of an attachment makes it possible to use the machine with a black-and-white TV camera to record color pictures. Applications suggested by Sony officials included use of the color machine on closed-circuit television for classroom use.

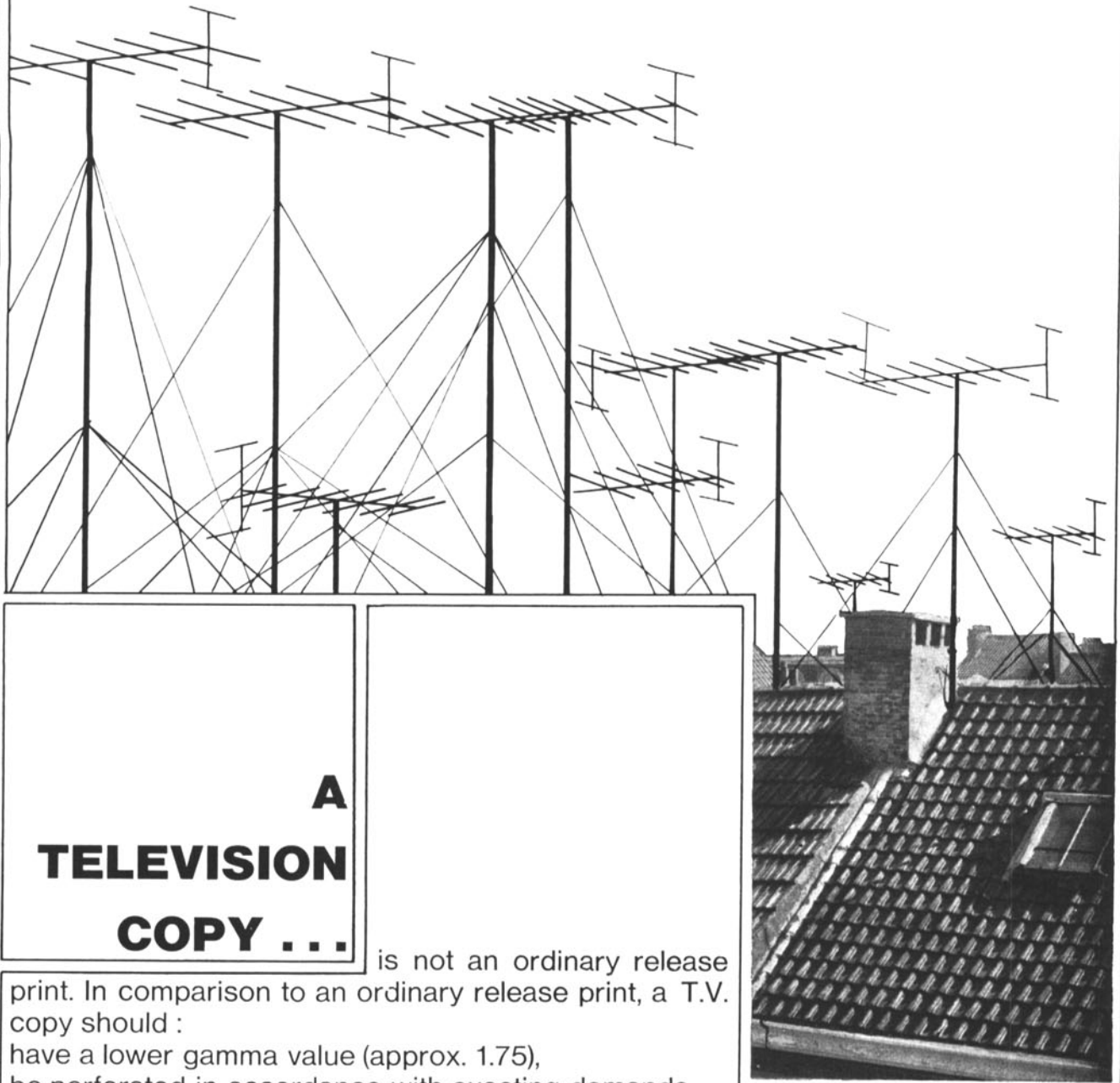
Both machines are expected to be commercially available next fall. The Videomat is expected to be priced at about \$3,000 for a complete unit, and the Video Color Demonstrator will be priced at about \$1,700 to \$1,800.

A tiny semiconductor device reported to generate microwaves at frequencies up to 40 billion Hz has been developed at RCA Laboratories, Princeton, N.J. The device, a microscopic crystal of the compound gallium arsenide produced in pure form by a process known as epitaxial growth, employs a recently discovered phenomenon called the Gunn effect. This effect (named for J. B. Gunn of IBM who identified it in 1963) is observed in certain compound semiconductors of which gallium arsenide is the best known example. It occurs when a voltage applied to the crystal exceeds a certain level, causing electrons to pass through the crystal in bunches rather than as a uniform current. The bunching gives rise to the microwave output at a frequency determined by the number of bunches per second. According to the announcement, the new device is both simple and compact and can be produced in quantity by employing techniques used in the manufacture of transistors and integrated circuits. The semiconductor device is said to be the first solid-state type known to operate reliably above the level of 10 billion Hz.



An optical bench 16 ft long with a 90-in. $f/15$ Fraunhofer objective, manufactured by Hall-Barkan-Opticon, 173 Marbledale Rd., Tuckahoe, N.Y., has been acquired by Albion Optical Co., West Nyack, N.Y. The bench will be used to test and adjust lenses for television cameras. Because of its length, the bench construction was based on kinematic design principles formulated to provide the best stability and accuracy. Output from either of two light sources, a tungsten filament lamp or a monochromatic gas chamber emitter, is projected through a specially designed reticle to the collimating lens 90 in. away. The collimated beam is then directed through the entrance pupil of the lens under test which images the reticle either in the focal plane of a microscope for visual inspection, or in the film plane of a precision camera if photographic data are required.

The optical bench is equipped with a nodal slide to permit rotation of the test lens with an accuracy of ± 30 seconds of arc, direct reading to 15 s. The X and Y axes of



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the nodal slide have a total excursion of 10 in., accurate to ± 0.0002 /in., direct reading to 0.001. The microscope stage, which is mounted on a removable bridge, permits rotation to 180° and linear travel of 4 in., direct reading in 0.001 in. increments. The bench is equipped to measure focal length from zero to 40 in.

A new **Tracking Zoomar** for GSE and naval applications has been announced by Zoomar, Inc., Glen Cove, N.Y. 11542. The unit, rated at T 9, has a zoom range of 3.5 to 18 in. and focuses from 75 to infinity. The design of the lens is such that the reticle image does not move with relation to the target during changes in focal length but remains in focus during the entire zoom. Other features include remote control of zoom, iris, focus and built-in filter wheel; built-in thermostatically controlled heater; an automatic sun shutter to protect the vidicon tube; pressurization at 4 lb/in²; solid-state components consolidated into one potted assembly; and non-fungus nutrient materials. Stainless-steel inserts are used wherever necessary and the entire unit is mounted on an azimuth and elevation platform which can be adjusted to boresight the unit to within $\pm 1.5^\circ$ azimuth and elevation. The system can be exposed to severe outdoor conditions without impairing optical or mechanical functions.

A **panoramic reconnaissance lens** has been developed by Perkin-Elmer Corp., Astro-Optical Div., 2930 Bristol St., Costa Mesa, Calif., specifically for use with panoramic cameras where wide field, high resolution

and flat fields are required. The 12-in., $f/5.6$ lens weighs 1.8 lb. Tests conducted by the firm have shown a visual resolution in excess of 240 lines/mm while average resolution of 83 lines/mm has been recorded at 11 positions at 2.5° increments on Aerocon Plux X film. The lens is designed for a $\frac{1}{2}$ × 5-in. format but can be modified to provide other formats such as $4\frac{1}{2}$ × $4\frac{1}{2}$ in.



The **Camex 8mm single-lens reflex camera**, designed especially for medical cinematography, has been announced by Karl Heitz, Inc., 979 Third Ave., New York, N.Y. 10022. The camera contains a single-lens reflex system with a flip-up reflex mirror to preserve the maximum amount of available light for image and film. The system combines with various scopes (includ-

ing slit lamp eye photography) to provide medical records of critical sharpness. Interchangeable lenses from 6.5mm to 360mm, including 12.5mm and zoom lenses plus extension tube, micro-adaptor, etc., can be used for applications in medical cinematography.

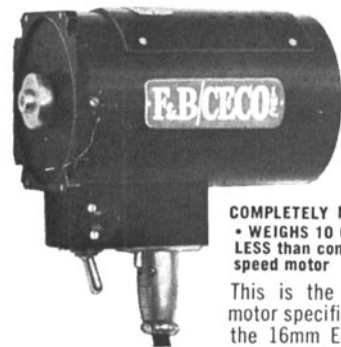
A new type of electron tube designed to withstand the rigors of rocket blastoffs and space vehicle landings in interplanetary operations has been developed by the RCA Industrial Tube and Semiconductor Division, Lancaster, Pa. The tube, said to be the first of its kind to be built entirely of ceramic and metal, is a photomultiplier, 4 in. long, slightly over 2 in. in diameter and weighs 7 oz. The tube, designated RCA developmental type C70144, was designed especially for scintillation counting in space. Developmental samples are priced at about \$2,000.

The **Circle S Copymaster stand**, announced by Sickles Sales and Service Co., Hayden and Princess Roads, Route 1, Box 726, Scottsdale, Ariz. 85257, is designed for production of slides from transparencies up to 8 × 10 in. and opaque art up to 20 × 30 in. on 100-ft rolls of 35mm film. The system consists of a special 35mm production camera (manufactured by Ferd. Homrich and Sohn of Germany). The optical system uses the Schneider Componon lens. A wood-topped steel base has a built-in illuminator and fully adjustable copy lights. Controls are located on a swing-out panel. Composition and focus can be done on a through-the-lens reflex viewer or by means of a projected field and reticle. Features include an electronic timer, adjustable from 0.5 s to 50 s; a solenoid-actuated shutter; blower-cooled illuminator; and sealed plug-in relays. The price is \$3,950.

A portable recorder called the PI-7100 has been announced by Precision Instrument Co., 3170 Porter Dr., Palo Alto, Calif. The instrument combines broadband instrumentation functions (1.5 MHz sine-wave bandwidth) with video recording (3.5 MHz for television or pulse signal analysis). The recorder is used to reproduce either video or instrumentation data in forward or reverse playback at continuously variable speeds from zero to 16 in./s. Features include stacked coaxial reels and helical scan, closed loop drive recording on 1-in. tape. The recorder occupies three cubic feet of space and weighs 90 lb. The system was designed primarily for such nonsynchronous broadband instrumentation uses as prediction, radar, infrared or ultraviolet recording, and, with the field interchanging of certain etched, solid state, plug-in circuit cards, for recording television or for pulse signal analysis.

Model RCV9003, a tunable, all solid-state television relay receiver which operates over the 6.875 to 7.125 Gc frequency band, has been announced by International Microwave Corp., subsidiary of Microwave Associates, Inc., River Rd., Cos Cob, Conn. 06807. A low-noise tunnel diode amplifier is incorporated to extend the range of existing equipment or to reduce the size of antenna

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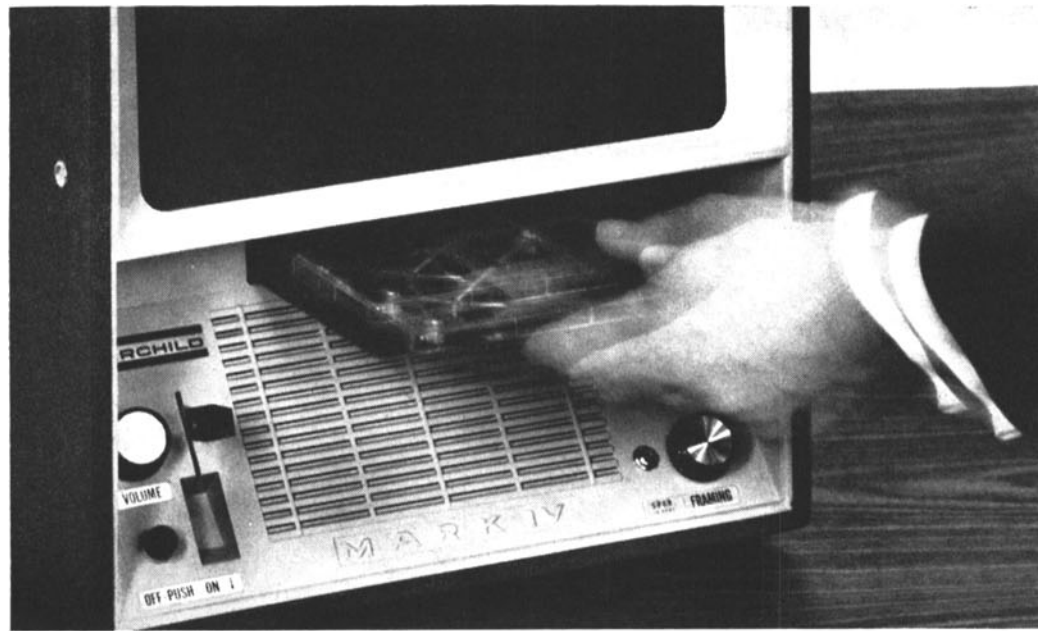
required for a given range. An AGC circuit controls the gain of the tunnel diode amplifier from 16 dB of gain to 6 dB of loss.



An additive color rear projector 70mm viewer to be used in conjunction with multisensor reconnaissance records has been designed by Giannini Scientific Corp., 3839 S. Main St., Santa Ana, Calif. 92702, under sponsorship of Rome Air Development Center, Griffiss Air Force Base. The projector incorporates three additive color channels and one reference channel. A stereo bridge can be mounted for stereo viewing. The four channels can be simultaneously or independently scanned in X and Y modes and are also independently adjustable for X and Y translation and image rotation about the optical and X and Y axes. Each channel has 5X, 10X and 20X magnifications variable $\pm 5\%$, and incorporates a film transport accommodating 100 ft of 70mm unperforated film. Two rear projection screens are provided for viewing, each equipped with a movable 3X loop for additional magnification.

A new dynamic cardioid microphone, the D-202ES, produced for Norelco in Austria by AKG, has been introduced by North American Philips Co., 100 E. 42 St., New York, N.Y. 10017. The unit incorporates two independent microphone capsules in a single housing, connected by a cross-over network at 500 Hz. One capsule is adjusted for low frequency and the other for high frequency response to achieve a frequency range of 30 Hz to 15,000 Hz with a deviation of only ± 2 dB. Front to back discrimination is reported greater than 20 dB over the entire frequency range with the off-axis response (90) completely parallel to the 0° (front) curve. The microphone is priced at \$130.

The S-10, a pressure gradient type condenser microphone, has been announced by Synchron Corp., 10 George St., Wallingford, Conn. 06494. The microphone, which is self-contained with no overload protection required, operates on a Mallory TR-126 mercury battery with a rated life of 1,000 hr and employs an FET. Permanent polarization is supplied at 62 V. The frequency



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range is listed as 40 to 20,000 Hz with a deviation of less than 3 dB. The cardioid pattern is said to give effective front-to-back discrimination of approximately 20 dB. Sensitivity is rated at -53 dBm re: 10 dyn/cm² at 200-ohm load. It is priced at \$240.



The University of Glasgow has acquired the first television outside broadcast unit to be designed for an educational establishment in the United Kingdom. The £16,000 four-camera unit, supplied by Marconi Company, Ltd., Chelmsford, Essex, contains facilities normally found in an educational studio control room. The unit will be used to record lectures on video tape for subsequent use by the University of Glasgow and associated educational establishments. It will also be used to link lecture theaters within the University so that more

students can "attend." Three light-weight vidicon TV studio cameras fitted with electronic viewfinders are provided. Two have 4-lens turrets and the other is fitted with a zoom lens. The cameras can be operated at distances of up to 500 ft from the vehicle

using the cables provided. The camera complement is completed with a caption camera. This is normally housed in the vehicle, but can be used externally with a boom for such purposes as recording surgical operations. Vision mixing facilities are provided for the four cameras and sound mixing for up to 8 microphones and 4 high-level sources. In addition to communications facilities between producer, camera and sound crews, facilities are provided for students in the linked lecture theaters to communicate with the lecturer.

The EMT-160 Polarity Tester manufactured by EMT Wilhelm Franz, Lahr, Germany, has been introduced by Gotham Audio Corp., 2 W. 46 St., New York, N.Y. 10036. The transistorized device is used to determine instantly the phasing of microphones, loud-speakers, amplifiers and other elements in a complete electroacoustical system. The instrument consists of two parts, an "acoustical pistol" as a sender and an indicator unit. The indicator bridges the output of the component or system under test. Polarity is indicated by the illumination of one of two lamps, green indicating "in phase," and red indicating "phase inversion." The system operates by means of a steep pulse of definite polarity which is generated in the sender either acoustically or electrically. Pulse amplitude is switchable to 1.0 mV, 100 mV, 1 V and 9 V. The system is priced at \$325.

dB. This represents an increase of 8 to 10% in the STC rating of Overly acoustical doors and a 100% increase in their absorption and reflection of incident sound energy.

A new lens coating service, designed to make optical surfaces resistant to corrosive contaminants is available from Berg Industries, 108 N. Roselake St., Los Angeles, Calif. 90026, according to a recent announcement. The process, called Dura-Cote, imparts a thin film coating to glass, plastic and metallic optical surfaces of an extremely hydrophobic nature, with characteristics which include high water repellancy; greatly reduced electrical surface leakage, with resistance to current tracking; and low surface friction coefficient. Tests conducted by the firm showed the process effected resistance to water, steam, detergents and solvents and in addition made lenses and reflectors impervious to salt water, smog, ozone and salt air.

A composite sound seal designed to double the sound energy absorption of acoustical doors has been announced by Overly Manufacturing Co., Door and Frame Div., 574 Otterman St., Greensburg, Pa. 15602. The device, called the "H" seal has been granted a U.S. Patent. Development tests conducted by the firm on various sound seal designs showed that characteristics of certain mid-range frequency sounds permitted them to pass more freely than others through acoustical barriers. The new seal is designed to give doors better sound attenuation in these and other frequencies.

A new electrical "through" connection for printed wiring boards, developed at Bell Laboratories and Western Electric Co. Engineering Research Center is said to prevent excessive stresses on solder bonds while comparing favorably in cost with conventional types. The new connection, reported in the October 1965 issue of *Bell Laboratories Record* by G. W. Eftang and J. A. Burns, is known as the C-R, the letters standing for "compliant-redundant"—"redundant" because the connection consists of many braided gold plated copper wires and "com-

The seal is said to raise the Sound Transmission Class (STC) of most doors 3 to 4

pliant" because it remains flexible in the wiring board hole after soldering. The wires are braided over a silicone rubber core. The combination fits snugly in the hole and prevents the solder from flowing in. This is reported to result in a compliance that protects solder bonds on the wiring board land areas from stresses caused by board dimensional changes due to humidity and temperature.

Magprobe, an ac stray-fields probe, has been announced by JFL, Inc., P.O. Box 157, East Islip, N.Y. 11730. The device requires no external power and is lightweight and compact (4½ in. long). It is designed to measure both magnitude and direction of radiated fields; its sensitivity is limited primarily by the sensitivity of the instrument on which it is read out (i.e., VTVM or oscilloscope). The encapsulated probe is equipped with standard, spring-loaded, pluggable connectors. It is calibrated in gauss and senses fields with magnitudes of less than 1 gauss. It is priced at \$46.50.

A new line of rugged pH electrodes has been announced by Photovolt Corp., 1115 Broadway, New York, N.Y. 10010. A membrane-glass formula is used to reduce substantially the sodium error and the special high-alkalinity glass electrode is said to have virtually zero error up to pH 14. All-glass construction eliminates use of adhesives or cement. A newly developed reference system is used in the glass electrode to compensate for errors due to temperature changes. The new electrodes are available for use with all pH meters.

Tele-Amp, a product of Tele-Measurements Inc., 145 Main Ave., Clifton, N.J. 07014, is a self-contained, solid state color/monochrome distribution amplifier for video or pulse, with optional sync mixing on all or selected outputs. Individual gain controls are provided on each output for varying both output gain and sync adding. The system includes a basic rack frame with regulated power supply, master video amplifier, a master sync amplifier, and up to six output modules. Standard UHF-type connectors are arranged across the back of the unit for ease of connection and electrical test points are provided for front monitoring of all signals. Prices range from \$325 to \$415 depending on the number and types of output.

A new solid state sweep generator, Model 1001, has been introduced by Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind. The new instrument features a wide frequency range, variable sweep width, high stability, swept or CW operation, and a completely new type of frequency marking system. Range of the new unit is 100 KHz to 20 MHz, covering applications for RF, IF and video systems.

The firm has also announced two new plug-in sweep oscillators, the VR-2M, featuring frequency stability and a sweep width variable from 100 Hz to 10 MHz, and the VR-50M, which is capable of covering an entire frequency octave of 500 MHz to 1000 MHz in a single sweep.

The **TSA series of high-Q subminiature bandpass filters** for RF and microwave applications has been announced by Telonic Engineering Co., 480 Mermaid St., Laguna Beach, Calif. The filters are ¼ in. thick and are available with 2 to 6 sections, center frequencies from 100 MHz to 1 GHz and bandwidths between 2.0 and 20%. The TSA devices are helical resonator filters of 0.05 dB Chebishev design. They are designed to combine extremely light weight with a rectangular configuration.

The firm has also introduced a series of pre-packaged kits for making VSWR measurements. In addition to a Rho-Tector VSWR detector, each kit contains two standard matched terminations and two mismatches. Prices range from \$195 to \$345.

The **Delcon Model 4910A Open Fault Locator**, a device used to locate an open fault in paired communications cable up to 20 mi in length, has been announced by Delcon Division, Hewlett-Packard Co., 943 Industrial Ave., Palo Alto, Calif. The device locates the open faults by utilizing the latest automatic charge sampling technique to provide a reading directly in feet. A solid-state device, the locator is battery-operated and weighs 5 lb. It is priced at \$575.

Agfachrome CK17S reversal color film, a tungsten-type film for 8mm cameras, has been announced by Agfa-Gevaert, Inc., 275 North St., Teterboro, N.J. The film is Type A, intended for use with 3400 K flood-lamps and sun guns, and can also be used with daylight. It has an exposure index of ASA 40 when used with the recommended lamps and ASA 25 with daylight when a No. 85 conversion filter is used. The film is supplied in double 8mm 25-ft lengths, providing 50 ft of film after processing. Price, including processing, is \$3.95.

An **ASA Exposure Index Guide for Anscochrome Motion Picture 16mm and 35mm D-50, D-100 and D-200** is available upon request on company letterhead from Bebell & Bebell Color Laboratories, Inc., 108 W. 24 St., New York, N.Y. 10011. Daylight and Tungsten Indexes are shown for all four films and filtration for emergency situations in converting from daylight to tungsten and from tungsten to daylight is also shown. Printed in two colors on a bright yellow-orange, the card is designed to fit into a wallet, card-case or to be pasted on the side of a camera magazine. The numerals are larger than those on the usual E.I. guide.

The **Model 101 Moisture Gage**, a direct-reading device to show the relative percentage of moisture in woods, molding sand, soils and other granular material, is a product of Henry Francis Parks Laboratory, P.O. Box 25565, Seattle, Wash. 98125. The instrument incorporates a 0-100 µA microammeter and is said to have better than ±2% accuracy at 70 F. Features include an additional zero to 100 empirical scale for adaptability. The moisture gage is 6½ in. high, 5½ in. wide, 2½ in. deep and weighs 2 lb. It operates with a nickel-cadmium battery. The price is \$149.50, which includes a battery charger and a prong-type electrode.

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