

MARCONI

and

AMPEX

TEAMED FOR UNPARALLELED EXCELLENCE IN U.S. TELEVISION

57 Individual MARCONI MARK IV Image Orthicon television camera chains were installed and operating in the U.S.A. at the beginning of this year.

In 17 separate installations the MARCONI MARK IV cameras have been teamed with Ampex's VIDEOTAPE* Television Recorder to produce television tape recordings of the utmost quality.

Such installations range from the CBS Television Network to individual television stations . . . from Government training centres to one of the country's largest Universities.

**The MARCONI MARK IV camera is distributed in the U.S.A.
solely by:**

**AMPEX Video Products Company
REDWOOD CITY • CALIFORNIA**

MANUFACTURERS OF THE VIDEOTAPE Television Recorder

*TM Ampex Corp.

SYLVANIA ANNOUNCES A SUN GUN MOVIE LIGHT YOU



CAN USE ANYWHERE!

NEW 30-V BATTERY-POWERED SUN GUN...

Most versatile movie light ever made!

It goes anywhere. Lights anywhere. Makes it easier for you to shoot effectively under *any* conditions.

New 30-volt, Battery-Powered SUN GUN Movie Light is completely portable. Gives plenty of light for any job. Allows complete flexibility for every kind of news and location situation.

It's a battery-powered version of the remarkable SUN GUN that Hollywood studios have proved in use for over a year. So small it fits in the palm of your hand. Complete unit weighs only 16½ lbs. including battery. Yet pound for pound it outperforms any other battery-powered movie light made!

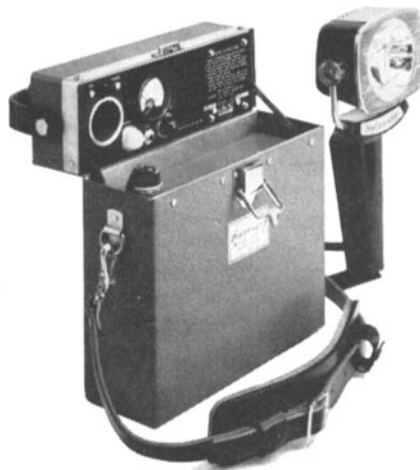
The SUN GUN battery pack is the finest portable power supply in the world today. It's specially designed for SUN GUN Movie Light by Frezzolini . . . world's foremost power pack designer.

It measures only 10" square by 3" wide. Recharges automatically in a short time on ordinary house current. Built-in recharger with automatic cutoff prevents overcharging . . . assures extra-long life. Entire unit can be transported and operated in any position. Nickel-Cadmium

battery is sealed in leakproof metal case. SUN GUN attaches to battery case for compact carrying.

Battery-Powered SUN GUN is easy to handle . . . fits any camera. Head tilts for bounce and indirect lighting. Bulb has rated life of 12 hours with SUN GUN battery pack.

For more details, see your supplier or write SUN GUN Dept., Sylvania Lighting Products, Division of Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.



SYLVANIA

SUBSIDIARY OF

GENERAL TELEPHONE & ELECTRONICS



Africa

SOUTHERN RHODESIA: *Geoffrey Mangin*, Associated Rhodesian Telefilms, 47 North Ave., P.O. Box 8252, Salisbury

Asia

INDIA: *H. Krishnan*, Kodak Ltd., P.O. Box No. 343, Kodak House, Dr. Dadabhai Naoroji Rd., Bombay 1

JAPAN: *Kiyohiko Shimasaki*, Motion Picture Engineering Society of Japan, Inc., Sankei-Kaikan Bldg. No. 3 Otemachi-1, Rm. 271, Chiyoda-ku, Tokyo

PHILIPPINES: *Juan D. Fornoles*, L. V. N. Pictures, Inc., P.O. Box 3610, Manila

Australasia

AUSTRALIA: *P. H. Budden*, Commonwealth Film Labs, 35 Missenden Rd., Camperdown, N.S.W.

NEW ZEALAND: *M. J. Ashley*, National Film Unit, Darlington Rd., Miramar, Wellington E.4

Local Arrangements

The mammoth job of organizing the physical arrangements and supervising the myriad details of a big SMPTE Convention in Hollywood on this occasion will be under the capable direction of **Ralph Lovell**, 2554 Prosser Ave., Los Angeles 64, as Chairman of the Local Arrangements Committee. Assisting him will be:

Vice-Chairman: *Jack Kiel*, Photo-Sonics, Inc.

Hotel Arrangements: *D. J. White*, Magnasync Corp.

Exhibit: *George Kendall*, Moviola Mfg. Co.

Projection: *Merle H. Chamberlin*, M-G-M Studios

Hospitality Co-Hostesses: *Mrs. Ralph E. Lovell*, *Mrs. Harry Teitelbaum*

Publicity: *Thornton Sargent*, *Jack Goetz*

Further appointments will be announced later.

Equipment Exhibit

Visitors to the last Hollywood Convention will remember the busy and bustling exhibit of millions of dollars' worth of video and film equipment that filled the Ambassador's Sunset Room and spilled out into the Registration area. So many would-be exhibitors were turned away that time that for the 91st arrangements have been made for double the amount of space for the Exhibit. Both the Sunset and Boulevard Rooms, lying each side of the ballroom where the technical sessions will be held, have been made available, and the resulting show should be something indeed to see. There is little doubt that we can expect last time's attendance of 2000 plus to be easily topped.

Brochures and order forms for reserving space are now being mailed. Anyone who has not received these and who wants to be sure to get them would be well advised to contact the Exhibit Chairman — **George Kendall**, Moviola Mfg., 1451 Gordon St., Hollywood 28 — and indicate his interest.

New Equipment and Techniques

As in the past, there will be an Equipment Papers and Demonstrations Session at this Convention consisting of short, practical papers and talks by exhibitors. Only exhibitors will be invited to participate in this session as speakers; attendance will be open to all holders of Exhibit Passes as well as convention registrants. The equipment described or demonstrated must be new and never before shown at an SMPTE convention.

Acceptance of the MOVIOLA CRAB DOLLY for motion picture and television cameras is world wide as evidenced by unsolicited testimonials.

Users have learned through experience that the Moviola Crab Dolly provides a mobile platform for their camera that can be precisely positioned with more facility and speed, and with greater accuracy than any other type of camera support.

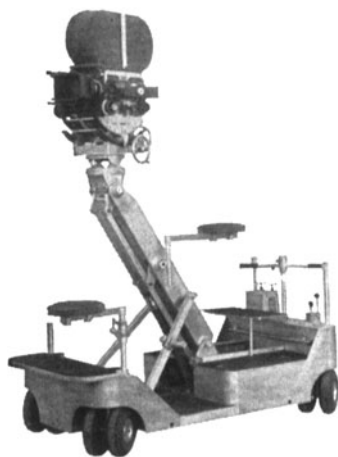
Regardless of the shot — moving or static — all people engaged in the creative phases of the industry recognize that production values are enhanced by the use of the Moviola Crab Dolly.

PRODUCERS see additional set-ups and more fluid camera work resulting in a quality product even on a tight budget.

DIRECTORS can add the dimension of camera movement to their sequences and, through continuous composition, give dramatic force to their story.

CAMERAMEN are able to "roll-in" on tight shots, exploit lighting setups to greater advantage, match "takes" to rehearsals through faithful dolly tracking and re-position quickly by smooth precision adjustment.

EDITORS welcome "dailies" that have an infinite variety of shots and added coverage. These values provided by the Moviola Crab Dolly eliminate "choppy" continuity caused by limited set-ups on ordinary camera supports.



for HIGH production value . . . on a LOW budget

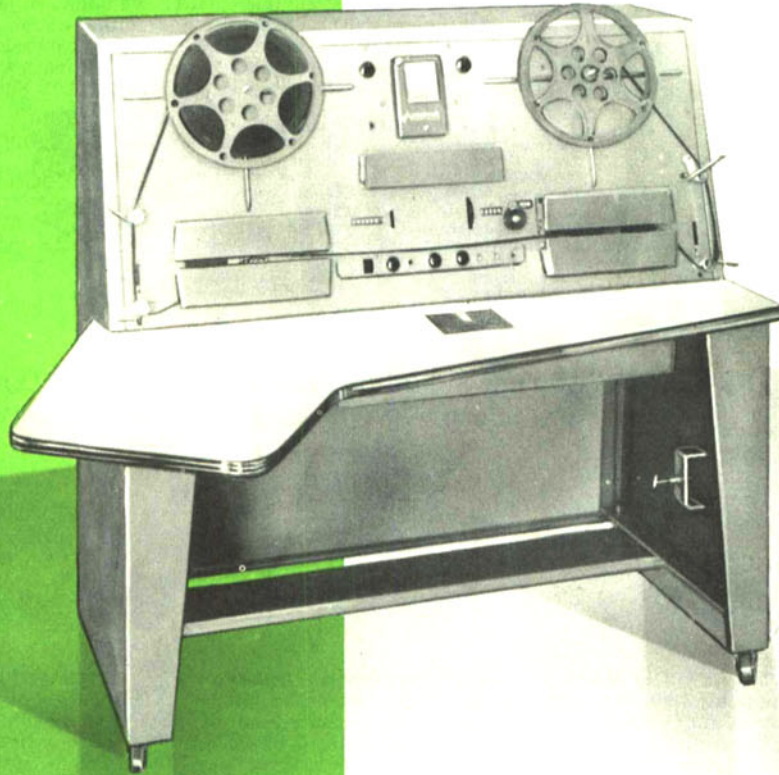
WRITERS see that the Moviola Crab Dolly broadens their scope in its use for dramatic effects.

You can break the stalemate of production values versus cost with the help of the Moviola Crab Dolly. Call or write now for a free brochure—HOLLYWOOD 7-3178.

Moviola

MANUFACTURING CO. 1451 N. Gordon St., Dept. SM, Hollywood 28, Calif. • Cable address: Moviola, Hollywood, Calif.

The Ultimate in Automatic Film Inspection



Now has
Auto-Load
and Electronic
Scratch Detection
with Automatic
Recording and
Splicing

MARK IV

**...the Futurmatic-Styled Inspect-O-Film
with amazing performance...**

The Mark IV is the "ultimate" machine for those "who want everything". Designed as a research unit into the needs of the film libraries of the future, this unit has been put into pilot production because of the demand of leading commercial libraries who must furnish customers proof of print condition. The Mark IV retains from the past only what has been demanded by progressive libraries and could not be left out of a modern machine—features from the Mark II, such as eye-level loading, triple jewel sensitive low pressure detection, console and large work surface design etc. The Mark IV represents a technological breakthrough comparable to Harwald's invention of Automatic Electronic Detection. It gives an electronically written graph of the degree of film scratching by the foot so that

libraries and sponsors can judge print quality on an objective basis. The machine also features "Auto-Load" the easy loading system that will be a part of all film equipment of the future. Other features include: Selective detection, radioactive plutonium antistatic protection, no-scratch vacuum cleaning of film and ultra smooth all direct drive system. The Mark IV is particularly suited for duplex and other multiple machine arrangements. Naturally, electronic liquid cleaning and conditioning are also available along with a host of other features, get full details and see demonstration at coming conventions.

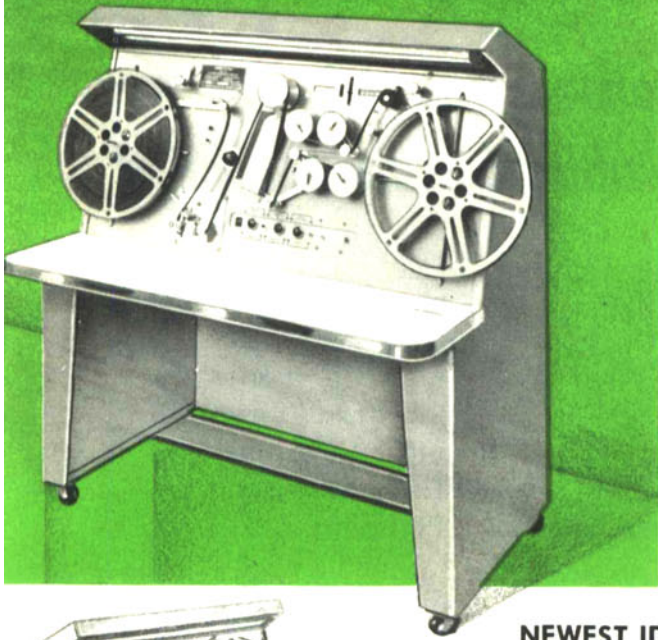
No. 21105 Ship. Wt., 375 lbs.

\$3,450.00 to 5,895.00 depending on accessories

THE HARWALD COMPANY INC.

1245 Chicago Avenue • Evanston, Illinois • DAVIS 8-7070

MODEL "U" MARK II



America's most popular film inspection unit

USED BY LEADING FILM LIBRARIES OF THE WORLD

The Model "U" Mark II is a dynamic machine that has won the praise of leading film library managers everywhere. It is considered the "Work-Horse" of the film inspection field. Designed to be the fastest, easiest to use, easiest to service, most accurate, top performing machine (exceeded only by the Mark IV) but for the vast middle of the road conservative managers market—this unit is the one.

Features eye-level non-stoop open path loading, for operator ease and convenience. Has Harwald originated "Plug-In" interchangeable service parts construction. All console style machines can

be used with electronic cleaning and conditioning. Can be duplexed—used as double "L" or double "H". Electronic loading available (see Deluxe Model). Special Features: Triple jewel controlled low pressure detection, ultra smooth drive, no break no snap starting. Top performance—for the pros!

Since this unit is constantly improved as results from the field show new features valuable, so be sure to get the latest information on it before buying. Simply contact our sales dept., and ask for special 81 feature list.

No. 2J102 Ship. Wt., 350 lbs. \$2,795.00

DELUXE MODEL "U" MARK II

Same as above unit, but with large table, magnifier electronic loading, special wind switch and other deluxe features. Please contact us for features and details. Price \$2,995.00

MODEL "U" SPECIAL

Here's a superb product for the little library to start on. Designed with ample space for adding most Mark II features. It is real easy to use. Full console size with big work surface. Features easy eye-level loading and has Harwald's patented Triple Jewel Detection System.

No. 2J103 Ship. Wt., 270 lbs. \$2,449.00



PROFESSIONAL OPERATOR CHAIR

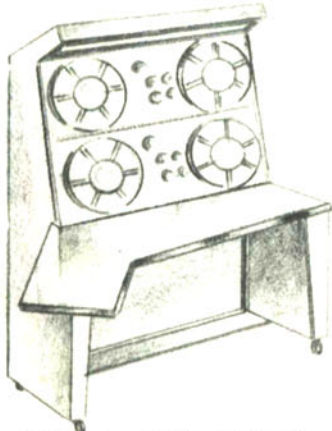
This famous Harwald professional operator chair is designed for maximum comfort. Beautifully styled, strong and it's cool. Has 6 separate adjustments and it is practically indestructible. Ship. Wt., 20 lbs. Sells elsewhere at \$39.95.

No. 13J101 only \$34.95

SAVE \$5.00

NEWEST IDEAS FOR MODERN FILM LIBRARY INSTALLATION

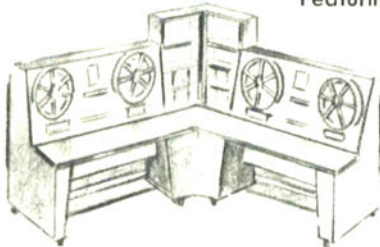
Featuring easy eye-level non-stoop loading and famous triple jewel detection



MARK IV or MARK II DUPLEX

Smallest floor area, greatest comfort and output for Duplex setup. Ideal, where space is prime consideration. Permits operator better control over reels with less fatigue than other stacked or Duplex arrangements. Please write for list of features.

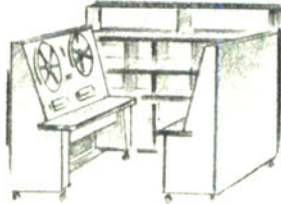
Priced \$3,995.00 to \$6,995.00 depending on accessories



MODEL "U" MARK II or MARK IV Custom "L" or "Double L" Installation

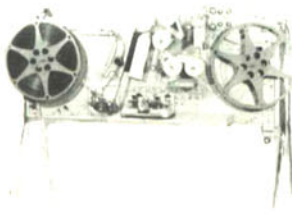
The most popular 2-machine setup. Here is by far the most popular arrangement of film inspection machines, used by perhaps 9 out of 10 leading libraries. It gives maximum output per unit floor space with greatest operator comfort—from easy eye-level loading.

No. 2J110 Ship. Wt., 750 lbs. \$2,950.00 per unit



"TRIPLEX" MARK II or MARK IV

The concept of the future. For those who wish to maximize operator performance, yet have easy eye-level operation. This setup is a custom installation. Please write for list of features.



MODEL "R" INSPECT-O-FILM

The famous "Old Reliable". As rugged as the old "DC-3" air plane. Designed for medium-speed inspection of release prints in 16mm libraries. These machines simply will not die! Ship. Wt., 250 lbs.

No. 2J101 \$1,995.00



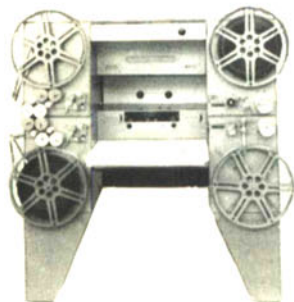
QUALITY PUSH CART

Scientifically designed to solve the problems of holding and moving film easily. Adjustable shelf for right height. Sturdy construction. Holds up to 30-2000 ft. reels. A Quality Product. 40 lbs.

No. 13J106 \$49.00

CONSOLETTA STYLE FILM INSPECTION

Superior Competitive Units for the Small User



ULTRA MODERN DUPLEX Junior Challenger

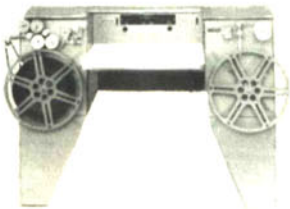
A superior competitive unit for less. Next to stacked Model "U" or Mark IV units, these give maximum output per unit floor space. You must see this unit and compare, prove to yourself how it exceeds competitive units, for less cost.

No. 2J109 600 lbs. \$2995.00

DUPLEX-DELUXE

Extra features for greater performance. Low stretch—low stoop design. Please write for complete list of superior features. 625 lbs.

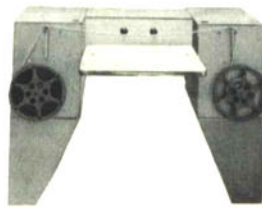
No. 2J107 \$3,895.00 to 5,950.00 depending on accessories



MODEL 76 "CHALLENGER" Junior Consolelette Inspect-O-Film

A superior competitive unit for less. Priced for the little library where consolette design and low loading are acceptable. This machine is in every way superior to competitive makes and we willingly offer it for your close examination and test against any other film inspection machine. Often copied, but never equalled, this all American-Made machine has Harwald's patented detection and outstandingly smooth drive system, safe on film—a real bargain. Please write for feature list.

No. 2J104 325 lbs. \$2,249.00



JUNIOR DELUXE INSPECT-O-FILM

(Not Illustrated) Similar to Model 76 "Challenger", with extra features of Electronic Loading, Triple Jewel Model "U" type detection system and others. For details, please write for complete list of features.

No. 2J106 350 lbs. \$2,495.00

REWIND-O-FILM

A dandy consolette style hand inspection and automatic rewind set up. Trade this machine up as your library grows, to automatic inspection for any Harwald model.

No. 2J108 270 lbs. \$799.00

NEW and USED UNITS—RENTALS—LEASES

Rental to purchase agreements, available on all equipment. Get a FREE industrial engineering analysis. If you have over 200 films, you are probably paying for automatic inspection but not getting it.

PLANNING A MODERN, PROGRESSIVE FILM LIBRARY?

Get Harwald's famous "Past and Future" literature and get help from our qualified sales engineers.

HARWALD'S FAMOUS SERVICE POLICY

Available for all units. We trade, repair, rebuild, redesign and modify all and any type of film handling equipment. Call Mr. Service for details.

We are a service oriented organization. Our sales come largely from recommendations of happy customers. Take advantage of our original "Collect Call Service". An expert is as near as your telephone. Our nationwide organization is always at your service.

MODEL "Q" MARK IV

A new concept of the famous Model "Q" Editing Machine. Ideal for TV Stations, Producers, Distributors, etc. Here is the ultimate in film handling for professional film men in TV stations and for film distribution. This machine not only has all the features of the Mark IV, described on the front cover, including the availability of scratch detection, etc., but also has a viewer and sound reader arrangement so that films may be viewed, edited, cut and an entire TV Show put together with the greatest of ease, in a professional manner.

Often times users report cutting down their time as much as in half of that with normal complicated arrangements and this machine does a complete job. Not only inspects film and cleans it, but times the film and allows it to be viewed at an extremely fast pace. For instance an hour program can be completely pre-viewed in less than five minutes. Complete smooth control over the film movement is possible and all the way from zero to 450 feet a minute, forward and reverse. No solenoids, easy service, no belts—a whole new concept in design!

No. 3J102 Price, depending on accessories, \$4,495.00 to 7,995.00

STANDARD MODEL "Q" INSPECT-O-FILM EDITOR

Here is a professional tool offering electronic inspection, cleaning, measuring, viewing and sound reading for fast and accurate editing. You can inspect, clean and view a one-hour program in less than 5 minutes. Variable film speed from zero to 450 feet per minute both forward and reverse. Machine automatically stops at completion. Guaranteed against defects in material and workmanship. Ship. Wt., 235 lbs.

No. 3J101 Price, depending on accessories, \$3,950.00



The Ultimate Editor—plus Inspection

PROTECT-O-FILM

World's Finest Film Conditioner

4-WAY PROTECTION

1. Maximum Scratch Protection
2. Cleans and Conditions
3. Anti-Static Action
4. Kills "Greenness"



Two types of fluids available. Formula 101X is ideal for use on release prints and for continuous projection as well as general purpose cleaning. Formula 201X is a treatment for originals, intermediate negatives and for use in the Protect-O-Film Electronic Cleaning Machine. It is superb for quantity printing from a given negative without degradation of picture quality. PROTECT-O-FILM is completely SAFE. It contains NO Carbon Tet and it's also Non-Flammable.

Size	Type 101X	Type 201X	Price
Pint	10J101	10J121	\$ 1.75
Quart	10J102	10J122	2.82
1-4 Gal.	10J103	10J123	9.60
5-54 Gal.	10J103	10J123	9.00
20 Gal. Drum	10J104	10J124	165.00
55 Gal. Drum	10J105	10J125	395.00

ELECTRONIC CLEANING MACHINE

World's Finest
Film Cleaner and Conditioner!

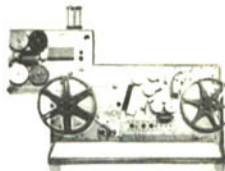
The Harwald Protect-O-Film Machine applies PROTECT-O-FILM Cleaning fluid to 16mm film at speeds up to 1000' per minute. It guarantees excellent 4-way protection. 1 . . . provides cleaning action, 2 . . . prevents scratches, 3 . . . anti-static, 4 . . . knocks "greenness". The cleaning fluid is electronically controlled to provide uniform wetness regardless the speed of the film.

An efficient exhaust is provided to eliminate fumes from the working area. This unit is designed as an attachment to fit any senior type Inspect-O-Film Machine and is controlled by it. Also can be used on a developing machine or bench rewind. When ordering, please specify type of service intended so that the proper type electrical connectors are supplied.

Ship. Wt., 100 lbs.
No. 17J103 \$995.00



Illustration shows an actual installation used with an Inspect-O-Film (Fits any senior type Inspect-O-Film machine)



CEMENT-O-FILM

The Amazing
Lightning-Fast
Super-Speed
Film Cement



Cement-O-Film is a radically new splicing fluid developed in Harwald's laboratory. Now, for the first time, an instant splice can be made—even without heat! Cement-O-Film not only is lightning fast, but it makes extremely strong long-lasting splices. The reason is a new solvent combination which makes a true weld on even the new triacetate film bases. Just order a pint today and see for yourself. Users tell us they save so much time and film, using Cement-O-Film, that they throw out their stock of older type cements. It is absolutely non-corrosive and actually helps to keep your splicer clean.

No. 10J147 One Pint Can \$2.95
No. 10J149 One oz. Bottle with Brush50

HARWALD'S SPLICE-O-FILM

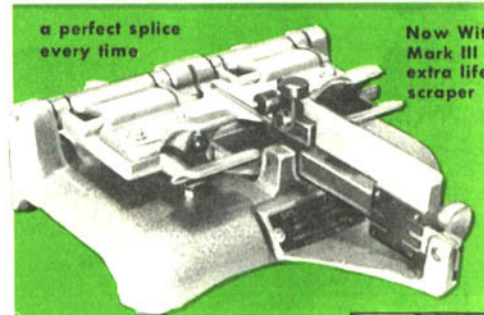
World's finest splicer . . .

The major cause of film failures is poor splicing . . . and the major cause of poor splicing is improper scraping. SPLICE-O-FILM solves these problems with its electric heat and automatic scraper that takes off exactly the right depth of emulsion every time.

In just 9 SECONDS you can get a perfect splice—accurate within 1/10,000 of an inch. For laboratory use, SPLICE-O-FILM's registration accuracy makes it ideal for A-B roll preparation. (No. 4J106 recommended) and its preset scraper permits reliable splicing of raw stock in the dark. (No. 4J105 or 4J101 recommended).

The new SPLICE-O-FILM is equipped with special features not found on the earlier models. Among these is the Mark III scraper assembly with its extra long life tungsten steel blade which can be changed and adjusted perfectly without tools. You can put this unit on your older Harwald splicers if desired. (Part No. 4S3100 \$12.50)

The main difference between the Model B and AR are size and pin arrangement. Model B is larger with pins in the center of the bed for fast working with both B-W and color films. AR is indicated where top quality splices are desired at a minimum cost. Model C is for 35 MM only. The Model B 4J105 is our most popular model for film libraries. Ship. Wts., Model "AR" 5 lbs.; Models "B" and "C" 8 lbs.



a perfect splice every time

New With Mark III extra life scraper



Cat. No.	Description	Price
4J101	3/32" width splice for prints, 16mm	\$ 99.50
4J102	1/16" width splice for negatives, 16mm	\$ 99.50
4J105	3/32" width splice for prints, 16mm	\$175.00
4J106	1/16" width splice for negatives, 16mm	\$175.00
4J107	3/32" width splice for 35MM Film	\$175.00
4J108	1/16" width splice for 35MM Film	\$175.00

Also available 35MM Micro-Film Splicer \$175.00

HARWALD'S SEMI-PRO W.C. SPLICER

A dandy small splicer for the amateur who makes an occasional splice and wants the automatic features. No. 4J205 Ship. Wt., 7 lbs. \$199.50

The Harwald Co., Inc.

1245 Chicago Avenue

Evanston, Illinois

DAvis 8-7070

A Cordial Invitation

from the
HARWALD COMPANY

Visit an exhibit of the world's finest Film Handling Equipment. This is a "convention booth" on paper — for your interest. Also visit us at all the leading Audio-Visual and TV motion picture engineering conventions.
Write, wire, or call collect for immediate attention.

The Harwald Co., Inc.
1245 Chicago Avenue
Evanston, Illinois
DAvis 8-7070

Sincerely Yours

R. Grunwald
R. Grunwald (President)

Harwald sells the "influentials" — the leaders in the field who are recognized as smart buyers. Here is a list of people whose deep technical knowledge and whose service to the A-V field have made them established leaders. From experience, they can offer well-based opinions about our equipment. Although space does not permit a full listing of the leading users of our products, here are just a few . . .

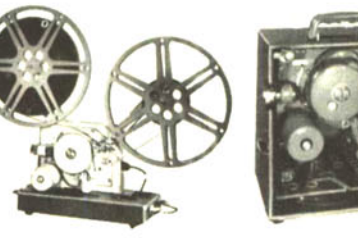
Social Security Administration
Atlanta Board of Education
Baptist Sunday School Board
Gospel Films
Milwaukee Public Museum
Monroe County Library
General Motors Corporation
U. S. Department of Agriculture
Arlington County Schools
Province of Saskatchewan
Viewsound Supplies
Cartwright Schools
Alhambra Schools

Encyclopedia Britannica Films, Inc.
LaMesa Spring Valley City Schools
San Diego City Schools
San Diego County Schools
Greenwich Board of Education
Los Angeles County Schools
Swift Motion Picture Laboratory
Lederle Labs
University of Washington
University of Colorado
U. S. Air Force Film Library
Armed Forces Radio & Television Association Films

We invite you to join this group yourself.

In territories where Harwald is represented by dealers, these men are known as the top men in the field, whose judgement is highly regarded.

"Research and Engineering for Finer Film Handling Products"



MM SUPREME 16mm SOUND PROJECTOR
A highly successful unit designed for educational, industrial and entertainment use. It is compact, rugged, easy to carry, yet it performs with more massive and higher priced projectors. The MM Supreme has automatic safety trips which make film damage virtually impossible even with non-professional operators. It has a self contained screen for desk-top presentations. Film capacity 2000 ft. 105-125 volts, 25-60 cycle AC-DC. Weighs only 28 lbs.
No. 91101 Ship. Wt., 30 lbs. \$349.50

MOVIE-MATE AUTOMATIC REPEATER
16mm Sound Projector for Sales Use
A newly developed, highly reliable compact projector that requires no threading or rewinding. Accommodates 400 feet of continuous film. Only a flip of the switch is needed for an extremely effective and simple presentation. For 105-125 volts, 25-60 cycle AC-DC. Weighs only 23 lbs.
No. 71104 Ship. wt., 26 lbs. \$498.00

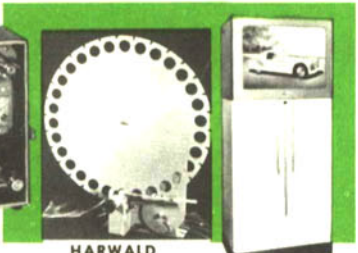


COMPO REELS are the best projection reels and rats available. They are die formed of hard spring steel and the 800, 1200, 1600 and 2000 foot reels have die-cast aluminum hubs. This ensures that the reels run perfectly true, thus preventing damage to your valuable film.

Cat. No.	Description	Price
12R101	16mm 400 ft. Reel	\$.70
12R102	16mm 400 ft. Can	.70
12R103	16mm 600 ft. Reel	1.65
12R104	16mm 600 ft. Can	1.65
12R105	16mm 800 ft. Reel	2.15
12R106	16mm 800 ft. Can	2.15
12R107	16mm 1200 ft. Reel	2.50
12R108	16mm 1200 ft. Can	2.50
12R109	16mm 1600 ft. Reel	2.75
12R110	16mm 1600 ft. Can	2.75
12R111	16mm 2000 ft. Reel	4.25
12R112	16mm 2000 ft. Can	4.25

QUANTITY PRICES ON REQUEST
HARWALD SPLIT REELS permit you to handle film on cores conveniently, such as leader, replacement sections, negatives etc. We carry a complete line in stock — full listing available on request.

Cat. No.	Description	Price
12R113	16mm Aluminum, 500 ft.	\$ 6.00
12R114	16mm Aluminum, 1200 ft.	11.00
12R119	16mm Steel, 400 ft.	4.49
12R120	16mm Steel, 800 ft.	6.15
12R121	16mm Steel, 1200 ft.	7.65
12R122	16mm Steel, 1600 ft.	9.65
12R117	35mm Aluminum, 500 ft.	11.50
12R124	35mm Steel, 400 ft.	5.15
12R125	35mm Steel, 800 ft.	6.40



HARWALD DISPLAY PROJECTORS
ADMATIC is a continuous slide projector, that will give your product or story the impact of Kodachrome slides. Thousands of Admatics have been in use for a 12-year period. It is considered the "workhorse" of the advertising field. Ideal at conventions, trade shows and in your outer office. The mechanism is ultra-reliable and rarely requires service. Slide capacity 2"x2", projection size 10"x23", time every new slide shown, 4 seconds. Height 66", Depth 18", Width 28", Ship. Wt., 160 lbs.
No. 51102 \$495.00

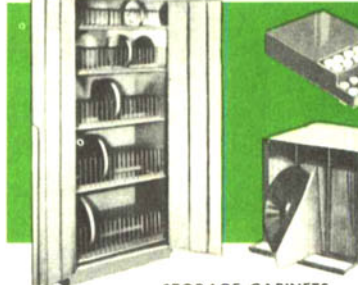
SONOMATIC is a continuous sound slide projector. It has all the features of the above unit, however it has fully synchronized sound. Ideal for showroom, convention or museum displays. The Sonomatic uses continuous magnetic tape for sound track and control. 1000 cps inaudible tone controls slide change. Starts with push-button in front and presentation ends automatically. Tape size, 3/4", tape cartridge capacity, up to 30 minutes. Ship. Wt., 175 lbs.
No. 81101 \$895.00

CINEMATIC is a continuous sound motion picture projector. Styled same as above units. Its excellent picture quality and dependability provides an ideal display or daylight classroom projection. Built-in 800 ft. capacity magazine. Film size, 16mm. Lamp size, 750 watts. Ship. Wt., 190 lbs.
No. 71101 \$1,195.00



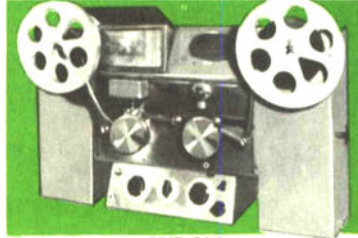
POWER REWINDS
Harwald power rewinds combine unusual convenience in use with economy. One important feature of these units is their very steady speed. Both rewinds take interchangeable shafts and are of 2000 feet capacity. The STANDARD model employs a foot rheostat speed control. The DELUXE model is unusually smooth, stable and works extremely well with sound negatives. It is absolutely safe for rewinding. It uses a knee operated lever which controls a torque converter. This lever can be locked manually if desired. Other arrangements for speed control are available on special order.
Ship. Wts. "STANDARD" 65 lbs. "DELUXE" 75 lbs.

Cat. No.	Description	Price
19J120	Standard rewind with 16mm shaft	\$110.00
19J121	Standard rewind with 35mm shaft	110.00
19J122	Deluxe rewind with 16mm shaft	215.00
19J123	Deluxe rewind with 35mm shaft	215.00



STORAGE CABINETS
Harwald supplies a complete line of top quality storage cabinets for discs, tapes, films and film strips. These units are of double welded construction and hold a maximum of materials in a minimum space. For full information about these superior, yet competitively priced cabinets, write for complete catalog.

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The High Stand—that projects over heads—yet folds for easy storage and rolls smoothly. This amazing stand is 51" high—projects right to the middle of a 45x60 tripod screen! Made of rugged steel, yet light weight. Deluxe & Premier have special levelling feet, rock solid even on irregular floors. These modern grey stands are being specified more and more by leading professional A.V. Directors.



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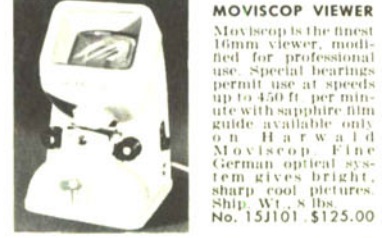


FOOTAGE COUNTER
These precision counters measure feet and frames. A shoe (included) may be attached permanently to the editing bench. Counter fits into shoe, holding it rigidly, can be easily stored out of way permitting space for other equipment. Uses a 20-tooth aluminum sprocket, a Veebler-foot counter for lifetime service—tops for magnetic film. Ship. Wt., 3 lbs.
No. 18J601 16mm Footage Counter . . . \$68.05
No. 18J602 35mm Footage Counter . . . \$68.05



"PREMIER" EDITING BENCH
Functionally engineered & endorsed by world's leading editors. The finest professional bench made. Check these features: Spacious top—Formica Surface—Polished Stainless Trim—Modern Style—Cloth Bins on both sides of built in light box with slide cover lens.
No. 13J102 ship. Wt., 170 lbs. \$289.00

PROJECTION STANDS—another plus product
No. 13J103 "Standard" \$34.95
(No casters no shelf low priced for fixed installations) 27 lbs.
No. 13J104 "Deluxe" 41 lbs. \$39.95
(One shelf casters and levelling feet)
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(Illustrated—the world's finest projection stand) 46 lbs.



MOVISCOP VIEWER
Moviscop is the finest 16mm viewer, modified for professional use. Special bearings permit use at speeds up to 450 ft. per minute with sapphire film guide available only on H. A. F. W. Ltd. Moviscop. Fine German optical system gives bright, sharp cool pictures. Ship. Wt., 8 lbs.
No. 15J101 \$125.00



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Personalized, printed and plain—that pays in money saved! You are paying for this prestige builder in lost films, lost advertising and sloppy handling. Printed every 7 inches with 3 lines of copy. Blue is for head of film, Red for tail. To Order, simply send in your wording and join all the progressive film managers.

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12J107	16mm white sound perf. (1200' min.)	.01/ft.
12J108	16mm white silent perf. (1200' min.)	.01/ft.
12J109	35mm white pos. perf. (1000' min.)	.0175/ft.
12J110	16mm yellow sound perf. (1200' min.)	.0175/ft.
12J111	16mm yellow silent perf. (1200' min.)	.0175/ft.
PRINTED LEADER		
*Under 5,000'	15,000'-25,000'	Over 25,000'
2¢ per ft.	1 1/2¢ per ft.	1 1/2¢ per ft.

*Orders under 5,000' please add \$16.70 set up charge for initial order only.

Education, Industry News

The American Society of Cinematographers has established a Research and Education Committee. Announcement was made by William Daniels, ASC President. Activities of the new committee will include working closely with motion-picture studios, industries, and technicians on long-range programs and developmental work. It will also disseminate information on trends within the motion-picture industry, new equipment, processes, etc. Another of its services will be handling the exchange of technical information between different departments of the major studios with the intent of solving problems and in proving procedures involved in day-to-day production operations. In many respects the work of the new committee will parallel that of the Motion Picture Research Council, disbanded in March, 1960.

Chairman of the ASC Research and Education Committee is Walter Beyer, formerly MPRC staff engineer. Appointment of committee members has been announced. Those presently appointed include Gordon Avil, Mark Davis, George Folsey, Robert Hoag, Winton Hoch, Wallace Kelley, Harold Lipstein, Ray Johnson and Douglas Shearer.

Dr. Albert Narath, President of the Deutsche Kinotechnische Gesellschaft—Germany's professional motion-picture engineering society—was the recipient of his Society's highest award, the Oskar Messter Medal, during the annual meeting of the DKG held in Berlin last April. The award was in recognition of Dr. Narath's many contributions to the art of sound-on-film recording. *Journal* readers will recall that a paper by Dr. Narath on "Oskar Messter and His Work" was published in the October 1960 issue.

The Deutsche Kinotechnische Gesellschaft has followed the same course that the SMPE adopted in 1950 in changing its name to show the addition of television to its field of reference. At its annual meeting held in Berlin last April the Society voted to change its name officially to: Deutsche Kinotechnische Gesellschaft für Film und Fernsehen e.V.

The Brooks Institute of Photography, Santa Barbara, Calif., has been authorized by the California State Board of Education to award the degree of Bachelor of Professional Arts, according to a recent announcement. A special curriculum has been set up to conform with State Board requirements. The Institute also announced the appointment of Russel L. Furse to the post of Supervisor of the Motion Picture Department.

August Heat, a film produced by students in the Department of Theater Arts, University of California, Los Angeles, was given an Award of Merit at the 1961 Vancouver International Film Festival, the only student-made motion picture from the United States thus honored at this festival. It was directed by a graduate student, Martin Zweiback. Both graduate

THE *light* TOUCH . . .

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AUTOMATION
AND
CONTROL

(Our robot's "eye" is the end view of a CL-605)

Clairex Photoconductive Cells, like the human eye, are "windows to the world" of control system design. Our continually expanding line now includes the 5-1 series of hermetically sealed Cadmium Sulphide cells, employing a sensitive material formulation that matches the spectral sensitivity of the human eye! These are the first real "electronic eyes" and thus are particularly useful in applications involving human vision . . . such as Daylight Switches, Photography, and Automatic Brightness Control in Television Receivers.

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and undergraduate students participated in the production.

A Seminar on Photographic Instrumentation, sponsored by Photographic Analysis Co., 100 Rock Hill Road, Clifton, N.J., will be held November 14-16. Intended primarily for engineers, scientists and technical photographers, subjects covered will include basic theories and terms of photography, types of film, processing methods, optics, available equipment and techniques. The first two days of the Seminar will be given over to talks by authorities in the various related fields and to round-table discussions, followed on the last day by a workshop stressing new developments and applications.

"Greater World Understanding Through International Television" is the theme, according to plans just announced for the First International Assembly of the Academy of Television Arts and Sciences to be held in New York, November 4-11, 1961. Representatives of all phases of television, artists, technicians and administrators and from various countries throughout the world will participate. Categories of discussion include educational and scientific. Technical subjects on the agenda include Satellite Repeaters for Television; International Color Television; and Tape Standards — Standards Converter. Additional information is available from Academy of Television Arts and Sciences, 30 W. 54 St., New York 19.

The IFIP Congress 62, sponsored by International Federation of Information Processing Societies (IFIPS), will be held in Munich, August 27 to September 1, 1962. The U.S. member of IFIPS is AFIPS, newly formed from the Joint Computer Committee established ten years ago by the AIEE, IRE and the Association for Computing Machinery. The 1962 meeting will continue the activities of the International Conference on Information Processing, sponsored by UNESCO in Paris in June, 1959. Papers presented at the technical sessions will discuss new developments in the data processing field. An exhibit of new equipment will be held. Additional information is available from Charles W. Adams, c/o IFIP Congress 62, 142 the Great Road, Bedford, Mass.

Richard J. Soltys, President of Soltys Productions, producers of technical and industrial motion pictures, has announced plans for expansion. The firm engages in all phases of production, including directing, writing, editing and photography in 16mm and 35mm. Types of films produced include documentary, training, public relations, advertising, TV commercials and military progress reports.

Natural Lighting Corp., of Burbank, Calif., has announced expansion of its manufacturing facilities to accommodate production of the newly developed Fotosure identification camera. A recently constructed building brings the total plant space to 18,000 sq ft.

The new address of the *Central Division* of General Film Laboratories, of Hollywood, is 1828 Walnut Street, Kansas City 8, Missouri.

Producers Service Co. division of Boothe Leasing Corp. has moved from Burbank, Calif., to 1145 N. McCadden Place, Hollywood. A new building covers 6000 sq ft and includes offices, studios and a machine, maintenance and repair shop.

A total of 130 motion-picture theaters throughout the United States are now equipped with Norelco 70mm projection equipment, according to information released by North American Philips Co., 100 E. 42 St., New York 17. Among theaters so equipped are the 1600-car North Star Drive-In in Denver and (recently) the Cheltenham in Philadelphia and the Warner's in Erie, Pa., both Stanley Warner theaters.

A contract between the U.S. Air Force and Magnasync Corp., North Hollywood, announced by D. J. White, Magnasync President, specifies delivery of 300 Model T-1510 recording systems and 141 reproducers. These are now in production. The systems are slated for MATS installations throughout the world. The largest of these systems can handle 50 simultaneous aircraft-to-tower conversations on a 24-hour basis.

A television program automation system developed by Visual Electronics Corp., 356



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- Use ordinary bulbs attached to colortran converter and boost from current to powerful lighting.
- 5 lights, case, large roll of Gaffer tape \$34.95 Barndoors each \$5.75
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The only tight-wind adapter with Ball bearing roller.

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- Single unit for 16mm and 35mm.
- Fits any rewind.

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Edit single and double system 16mm or 35mm optical sound.
Edit single system Magnastripe or double system magnetic sound. Use with any 16mm motion picture viewer to obtain perfect lip-sync matching of picture to track. Works from left to right or right to left.

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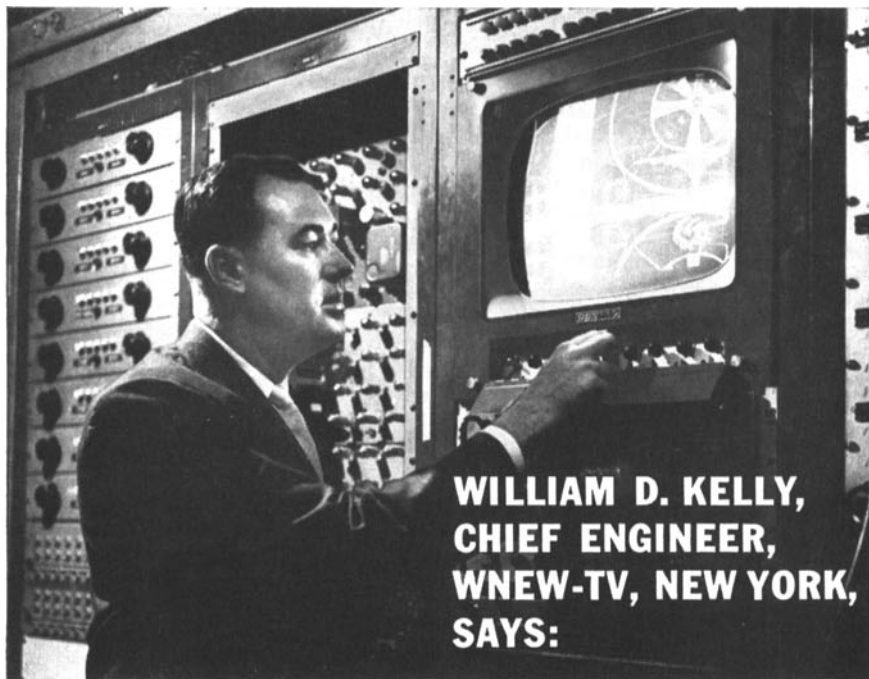
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"It's a big help in examining our video signal to assure perfect synchronization and to quickly determine the quality of the sync pulses," Mr. Kelly adds. "This is by far the most versatile and useful monitor we have ever used."

The new Conrac fully regulated monitor will display either sync or normal picture at the flick of a switch. The 3-position, front-panel switch permits selection between normal picture, pulse cross, and pulse cross expanded. In the last position, vertical expansion of approximately five times shows each horizontal line clearly. In both pulse cross positions, video is inverted (black is white) and auxiliary brightness is provided. Thus, pulse cross brightness can be preset at a different level from that employed when viewing the normal picture.

Mr. Kelly's appraisal of this monitor and his experience with other Conrac monitors is not unusual. Consistency in quality, dependability, and versatility are Conrac characteristics known and preferred wherever a need for monitors exists in the broadcasting industry.

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FROM 8" THROUGH 27", BROADCAST AND UTILITY, EVERY CONRAC MONITOR HAS A COMBINATION OF UNIQUE FEATURES.

- ★ Video response flat to 10 megacycles
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W. 40 St., New York 18, has been installed at WDSU-TV Channel 6, New Orleans. The system uses punched paper tape to control daily program operations. Video and audio signals are switched on the air automatically, projectors are turned on and multiplex mirrors switched according to a predetermined schedule. The system is also arranged to put film projectors and videotape machines in operation a specific number of seconds before broadcast time to stabilize their speeds. An automatic switch then puts the program on the air. This system, now commercially available and designated the Visual 6000, was the subject of a paper by F. Cecil Grace and Charles E. Spicer published in the March 1961 *Journal* (pp. 150-155).

The seven stories of steel and glass of the new physics research building of Eastman Kodak Co., Rochester, N.Y., encloses 200,000 sq ft of floor space, contains more than 200 special rooms designed especially for research in such fields as theory of the photographic process, image structure, optical systems, sensitometry, radiography, sound recording, electrostatics and solid state physics, and can accommodate a staff of about 400 persons. An optical penthouse located on the roof is designed for use in research in problems involving long-range photography and solar radiation. An underground lens tunnel, 160 ft long, 10 ft wide and 10 ft high is designed to maintain a constantly controlled temperature and is planned for use in studies of lens systems.

Precision Laboratories, Division of Precision Cine Equipment Corp., 1037 Utica Ave., Brooklyn, has moved to a new building and is now located at 928-930 E. 51 St., Brooklyn 3, N.Y. The new building, designed by the firm, has been constructed to house its special services as efficiently as possible. The firm's activities include the engineering, design and rebuilding of motion-picture and TV lab. equipment.

A plan to combine Ampex Instrumentation Products Co. and Ampex Video Products Co. into one organization called the Northern California Operations Group has been announced by Ampex Corp. 934 Charter St., Redwood City, Calif. Robert Sackman will act as Director of the group. He is presently Ampex Vice-President and Manager of Ampex Computer Products Co. The move has been announced as part of a long-range program of centralization of research and development, and sales and service activities.

Formation of a new company, Soundcraft Magnetics, Ltd., Haddenham, Bucks, England, has been announced jointly by Frank B. Rogers, Jr., Executive Vice-President of Reeves Soundcraft Corp., Danbury, Conn., and Sir Eric Ohlson, Bt., Chairman of the British firm of Airtch, Ltd. Sir Eric will be Chairman of the new firm and F. S. G. Codling will be Managing Director. Immediate plans for the new firm include sale of Soundcraft products throughout Great Britain and plans for the future include production of magnetic tape. The new company was formed to meet "the exploding demand for magnetic tape products in Great Britain," the announcement stated.

DIAGNOSIS KNOWN

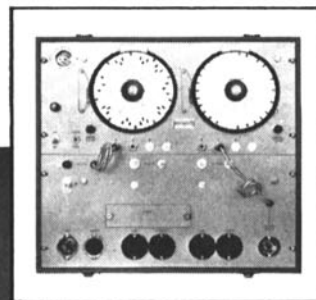
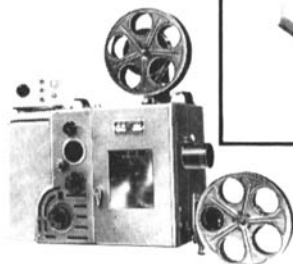
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- In Hialeah, Florida, 51 East 10th Avenue, TUXEDO 8-4604

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NEW WADDELL 16-MM HIGH SPEED CAMERA. A continuous camera employing the rotating prism as the means of optical compensation. Continuous film movement allows film to travel at greater velocities than normal intermittent cameras.

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CECO REDLAKE STOP - MOTION PROJECTOR 35mm variable speed (8-24 pps), single frame, forward and reverse remote control. 1000 ft. reel capacity.

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CRAMER CONTINUOUS 16MM FILM PROCESSOR Fully automatic, can be operated in broad daylight. Compact, portable and economical.

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SYLVANIA FF-33 FLOOD FLASH Ideal for sequence photography. Long duration. Easy & convenient as flashbulbs. Uses "D" batteries.

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CECO E-109 PROGRAMMING DEVICE Individually controls up to eight separate electrically operated pieces of equipment at one time.

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Purchase of a Marconi television outside broadcast vehicle by the Russian Television Authorities has been announced by Marconi Wireless Telegraph Co., Ltd., Chelmsford, Essex, England. The vehicle was exhibited during the British Trade Fair held at Sokolniki Park, Moscow. It is equipped with four Marconi Mark IV TV cameras.

The Westrex Recording Equipment Division of Litton Systems, formerly located at 6601 Romaine St., Hollywood, has moved to 335 North Maple Dr., Beverly Hills, Calif. The firm's new quarters, adjoining Litton Industries headquarters, occupies 30,000 sq ft. The move was made because of the firm's expanding manufacturing and development operations.

Multilingual Sound Installation at the Palace of Science, Brussels World Fair

By GEORGE F. VAN WEYENBERGH

IN 1958 AT THE PALACE OF SCIENCE in the Brussels World Fair, it was desired to tell the story of the atom, describe its structure and give an understanding as to how the electrons, protons and neutrons operate.

Presented on May 10, 1961, at the Society's Convention in Toronto by Austin B. Cooley for the author, George F. Van Weyenbergh, Westrex Company France, 16 Place des Martyrs, Brussels 1, Belgium. (This paper was received on April 10, 1961.)

The problem was to present this story in 30 minutes in five different languages accompanied by pictures, and to be able to repeat this presentation many times. Music and sound effects as well as the multilingual commentary were to accompany the pictures.

It was decided to use 35mm film. Music and sound effects were reproduced from a separate 35mm film over three sets of speakers, one at the front and another at the rear of the ceiling and the third on the stage. The multilingual commentary was piped to outlet boxes attached to the arm rests of the 600 seats of the auditorium.

Five machines were installed. Two provided pictures, using standard Century projectors with anamorphic lenses, Ashcraft lamps and rectifiers and Westrex R-2 reproducers. The other three machines were Westrex sound reproducers using standard 4-track magnetic film. To present the show, one projector was used for the picture and two 4-track magnetic reproducers for the sound. Three of the total of 8 tracks were used to present the music and sound effects over the auditorium speakers. The other five sound channels reproduced the English, French, German, Flemish and Spanish language commentaries. This left one spare picture projector and a spare 4-track sound reproducer for emergency protection.

All five machines were equipped with nonsynchronous and selsyn motors to enable complete interlock operation. A separate amplifying system was provided for each of the four tracks on the three sound reproducers. Patching was provided to enable switching between amplifiers and reproducer tracks. For the picture presentation the arc lamps were operated at 125 amp. The picture was 66 ft in width, and aspect ratio 1 : 2.66 on a perlux screen.

The earphones were of the type used in the U.N. halls in New York: single receiver with removable plastic case which can be slipped over the ear. This was desirable not only as regards cleanliness but also because the cases allowed the choice of either right or left ear. The cord was plugged into any one of the five jacks mounted in a box fitted to the left arm of each of the 600 seats of the auditorium. A potentiometer in the box enabled the listener to adjust the volume.

All earphones used for the five language commentaries were put in parallel. Despite the rough handling the system had to withstand during the six months of its use, no trouble was experienced. All the feeders to the seats could be disconnected in the projection booth so as to isolate any one feeder in which trouble might develop.

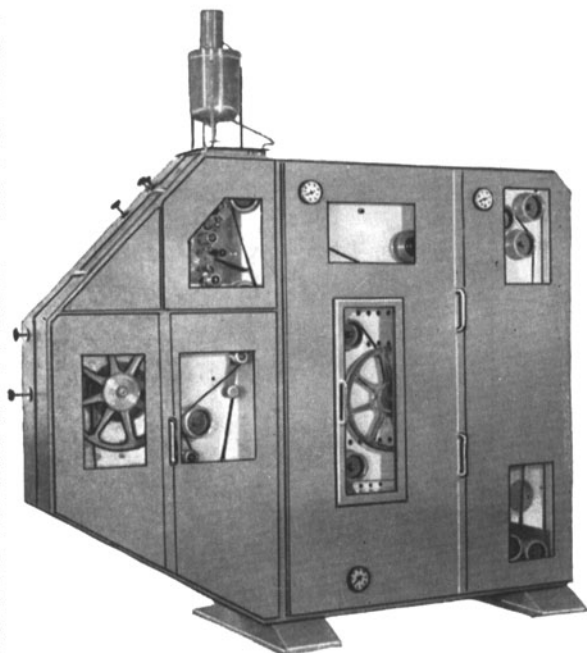
Each language circuit was loaded with an 8-ohm resistance across the line. Thus, any number of 2000-ohm earphones could be used up to a resultant 8-ohm impedance, using the 4-ohm output of the 26C amplifier. Regardless of the number of earphones in use for any particular language no noticeable mismatch was encountered.

SONOCOLOR SCF 2 Magnetic Film Striping Machine

Most advanced HEAVY-DUTY production machine designed to apply magnetic striping to ALL standard sizes of motion picture film. Processes from 1800 to 3000 feet of film hourly. Changing over from one size film to another takes less than five minutes.

The SCF 2 will apply full coating, single or multi-tracks in one operation on any film width from 8mm to 70mm. Complete uniformity of magnetic coating thickness is ensured through micrometric adjustment. Machine can be stopped at any stage without loss of magnetic varnish or sound continuity; speed is smooth and continuous control is maintained from 0 to 50 ft. per minute. A new radar type micrometric control of stripe thickness available as an accessory for darkroom operation when striping raw stock.

Striping section only with complete applicator assembly is available to labs for integration into their own machine. SONOCOLOR is ideal for use by processors where space is limited. Requires less than 11 square feet of floor space. Length 6'2"; Width 2'2"; Height 4'8"; Weight 830 lbs.



SONOCOLOR Patented Striping Unit \$6000

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Out on the ranges, many things are being filmed today that are not subject to nice, convenient prediction for the guidance and benefit of the photographic crew.

How bright will the flash be? Could be nobody knows because it has never been tried before.

Will an event scheduled for sunrise come off an hour late with no opportunity to readjust camera settings? Could be.

Yet the affair is being run for the purpose of providing information from the

color film. When the pressure is on and the question marks are large, the color film had better be Ektachrome ER.

Ektachrome ER Film, Daylight Type, has an exposure index of 160; *Type B*, 125. (It is still a little hard to believe that color film could be that fast.) Exposed on this basis, it gives high definition and color differentiation so vivid that those who have to reach decisions from looking at the results feel a surprising sense of accentuated perception.

Equally important—perhaps more important—is the way Ektachrome ER Film hangs onto its definition and color differentiation when circumstances foul up the calculated ideal exposure settings. Expose it at an effective index considerably above the recommended figures, and it will often take a corps of critics to detect the difference in results. Remember, too, that tolerance to overexposure is likewise handy. We have seen Ektachrome ER Daylight Type footage shot at effective exposure index as low as 24. With compensation in the first development, it shows only a tiny difference in color balance as the only evidence of maltreatment.

One more point is worth noting. Both types of Ektachrome ER Film and Ektachrome Reversal Print Film can be processed in exactly the same way. Further, if you don't want to do it yourself, processing is now widely available.

EASTMAN KODAK COMPANY, Photorecording Methods Division, Rochester 4, N. Y.



A Bilingual Drive-In Installation

By FRANCESCO DE RENZIS

THE METRO Drive-In opened in 1958, in Rome, Italy, was the first drive-in theater to install bilingual equipment. With this equipment either the Italian dubbed version or the original (usually in English) may be selected. In 1959, another drive-in, the Motocine in Madrid, Spain, installed similar bilingual equipment. The ability to provide dual-language versions is important in view of the great

Presented on May 10, 1961, at the Society's Convention in Toronto, Canada, by Austin G. Cooley for the author, Francesco De Renzis, Westrex Company, 19 Piazza Margana, Rome, Italy. (This paper was received on April 19, 1961)

number of English-speaking tourists visiting Rome and Madrid and the number of U.S. personnel stationed in or near these two cities. The Rome Metro Drive-In has a capacity of 800 cars; it covers an area of approximately 14 acres. The parking area is divided into 17 ramps, eight of which have been wired with power distribution to supply in-car heaters during the winter.

The facilities include a snack bar and boxoffice. Six hundred seats are reserved in the grandstand for motorcyclists. There is also a playground for children. The screen tower (Fig. 1), constructed in reinforced concrete, is 68 ft high and 125 ft wide. This screen is tilted 5° and curved on a 755-ft radius. It is the largest screen in Europe. The projection booth is placed on the ninth ramp. The projection distance is about 450 ft.

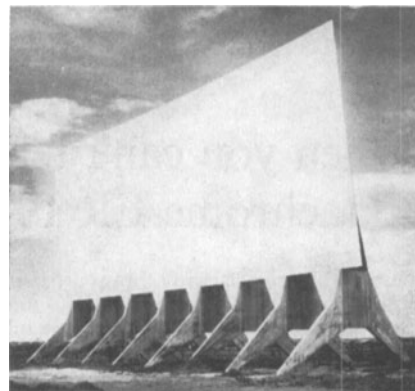


Fig. 1. Screen tower of the Metro Bilingual Drive-In- Rome.

The Italian language sound version is the standard photographic track of the release print and the original language version is a magnetic re-recorded soundtrack on a separate 35mm film. To reproduce simultaneously the two soundtracks for bilingual transmission, each Westrex R6A photographic reproducer is mechanically interlocked with an R-8-B magnetic sound reproducer for standard track reproduction (Fig. 2). The mechanical coupling, incorporating Century helical gears and ball bearings, is used only during the starting period as the magnetic reproducer and the projector are driven by separate synchronous motors.

A special panel, installed on each projector pedestal, simultaneously controls the projector and magnetic reproducer motors, operates the arc rectifier, and can reset the fire alarm circuit. As a safety precaution, a pushbutton, installed on each reproducer pedestal, is used to stop both the magnetic reproducer and the projector and to turn off the arc rectifier. When synchronous operation is not required, the mechanical coupling can easily be disconnected and the motors controlled separately from the same control panel. To facilitate alignment of the mechanical couplings, a special adjustable pedestal for the R-8-B reproducer was designed. Projectors and reproducer pedestals are fastened on heavy iron frames and secured to the booth floor in order to minimize mechanical vibration. A two-way Neumade Synchromaster assembly is used to speed the rewind operation and to make the synchronization easier in case of breakage of one of the two films.

The outputs of the magnetic and the photographic reproducers feed into a preamplifier cabinet installed on the front wall of the projection booth. This cabinet contains two sets of photoelectric cell and magnetic preamplifiers, the photographic and magnetic volume controls, the changeover pushbuttons, and an emergency switch.

Two separate power units, one for each set of preamplifiers, are provided. With the single changeover pushbutton, the magnetic heads and the exciter lamps are switched and the preamplifiers' outputs muted to eliminate clicks and other annoying noises during the changeover period. The magnetic and photographic low level outputs feed into the input panel of the main transmission equipment.



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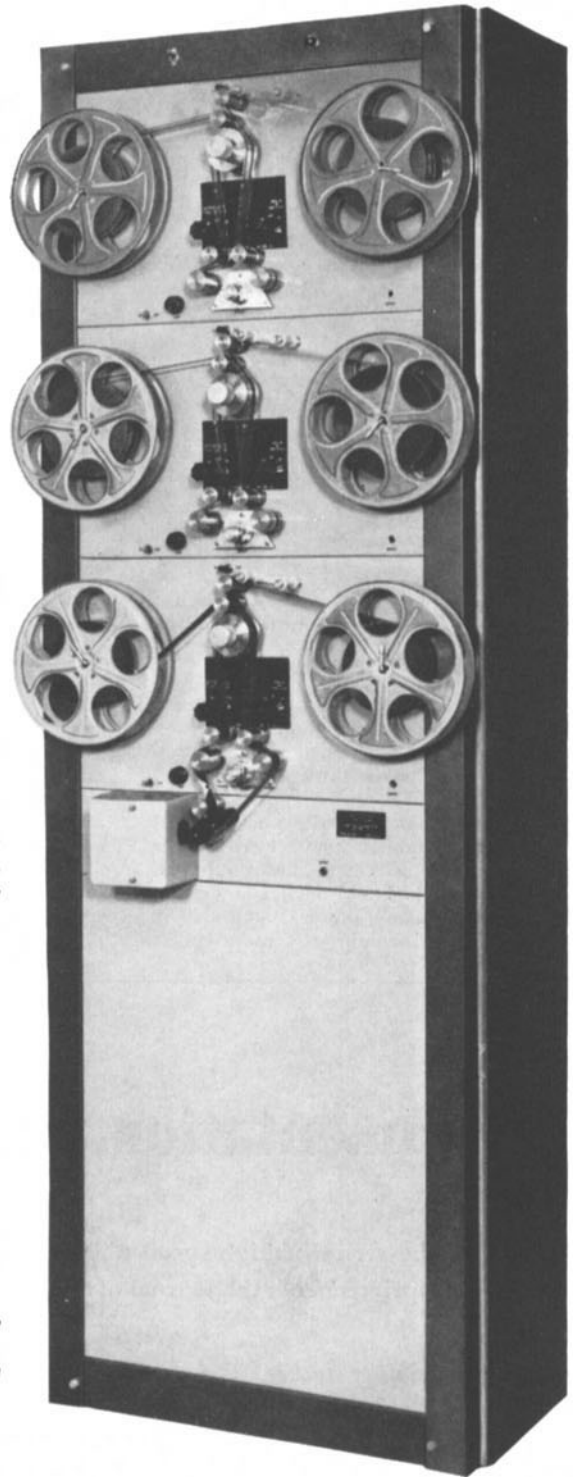
MAGNA-TECH ELECTRONIC 400 SERIES FILM RECORDING EQUIPMENT ARE VARIOUS INSTRUMENTS SPECIALIZED TO PERFORM THE FUNCTIONS ASSOCIATED WITH THE PRODUCTION OF OPTICAL AND MAGNETIC SOUND FOR MOTION PICTURES. THEY OFFER SPACE AND CAPITAL INVESTMENT SAVING WITHOUT COMPROMISING THE CRITICAL DEMANDS OF THE ENGINEER.

The transport is a self-driven unit incorporating the film pulling mechanism, a miniaturized semi-conductor reproduce amplifier, drive motor and torque motors in one assembly. Basically a magnetic reproducer, it is also used as a magnetic recorder, optical reproducer, and optical recorder by means of optional attachments.

Interlock is provided by the conventional method using a selsyn motor mounted on each film transport. 2 to 8 track reproducers and record attachments are also provided. 8 reproduce amplifiers are mounted on one panel. Recording amplifiers are on individual panels.

A cabinet can be supplied to house five complete film reproducers or various optional attachments and transports utilizing the 77" panel space. A semi-conductor power supply mounts inside this cabinet.

Because of quality materials, quality workmanship, and integrity of design, together with the performance and stability, the Series 400 has a complete range of application in every phase of production of sound for films.



VIEW OF THREE SERIES 400, TYPE MD497 DUAL FILM WIDTH, 17½mm AND 35mm MAGNETIC REPRODUCERS, AND ONE OD435, 35mm OPTICAL REPRODUCER ATTACHMENT INSTALLED IN THE CS400 CABINET.

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TYPE	FILM WIDTHS	SPEEDS(fpm)	OPTIONAL ATTACHMENTS ACCOMMODATED		
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MD417	17½mm	90	MR417 MAGNETIC RECORD		
MD435	35mm	90	MR435 MAGNETIC RECORD	OD435 OPTICAL DUBBER	OR435 OPTICAL RECORD
MD447	17½mm	45	MR447 MAGNETIC RECORD		
MD437	COMB. 17½/35mm	DUAL 45/90	MR437 MAGNETIC RECORD	OD435 OPTICAL DUBBER	OR435 OPTICAL RECORD
MD427	17½mm	DUAL 45/90	MR427 MAGNETIC RECORD		
MD497	COMB. 17½/35mm	90	MR437 MAGNETIC RECORD	OD435 OPTICAL DUBBER	OR435 OPTICAL RECORD
MD436	COMB. 16/35mm	DUAL 36/90	MR436 MAGNETIC RECORD	OD416 AND OD435	OR416 AND OR435

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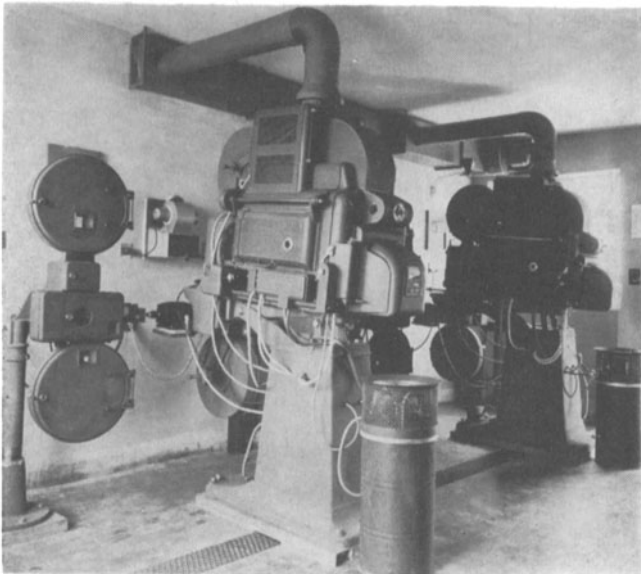


Fig. 2. R & B magnetic sound reproducer.

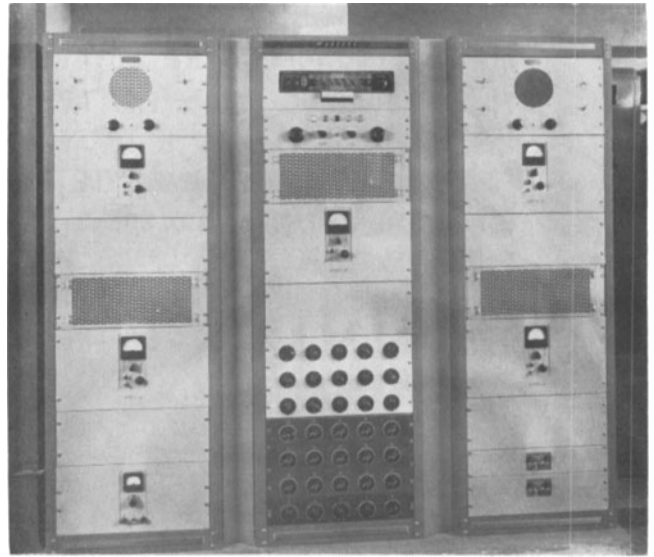


Fig. 3. Transmission equipment.

Transmission Equipment

The transmission equipment, modified for bilingual operation and augmented with some locally designed special accessories, is installed in three cabinets each 5½ ft high (Fig. 3).

The first cabinet contains one modified output and monitor panel, two power amplifiers with associated power supplies, a ventilating panel, and regular and emergency exciter lamp power supplies. The second cabinet contains the radio tuner,

the input switching panel, one power amplifier and associated power supply, a ventilating panel and the ramp switchboard panel. The third cabinet houses one output and monitor panel, two power amplifiers with associated power supplies, a ventilating panel, and the regular and emergency preamplifier power units.

Two 200-w power amplifiers in the first cabinet serve the Italian language in-car speaker distribution bus; two similar amplifiers are in the third cabinet. One of

these amplifiers serves the original language bus and the other serves the speakers installed in the grandstand, snack bar, and manager's office. The fifth power amplifier, located in the second cabinet, is for emergency purposes and can be substituted for any one of the other four amplifiers by operating the input panel emergency switch and the output emergency switch of the defective amplifier. Two of these latter switches are installed on each output panel.

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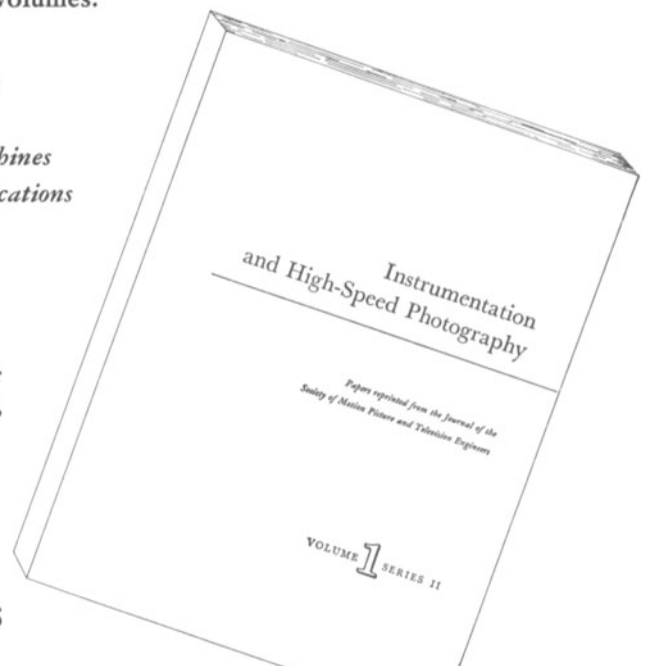
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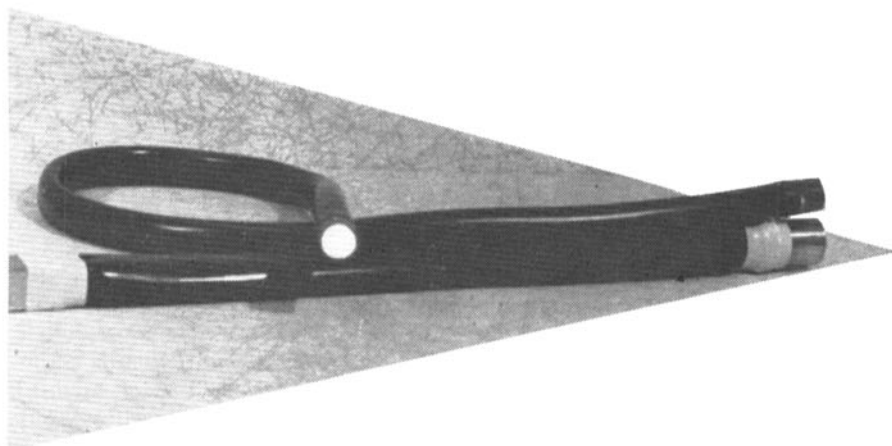
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A Technical Paper on Fiber Optics Printing was given on May 12, 1961, at the SMPTE Convention, Toronto, Canada, by A. J. Miller, Vice Pres., Du Art Film Labs & Tri Art Color Corp. Copies are available on request.



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The input panel (center cabinet, Fig. 3), in addition to the 5-position input emergency switch, contains the nonsynchronous volume control as well as volume control for the grandstand, snack bar and manager's office speaker, and a 6-position input switch. This switch operates as follows:

First position—the photoelectric cell preamplifier drives the four power amplifiers when only the photographic sound-track is to be reproduced.

Second position—the preamplifier drives the Italian version power amplifiers. (The magnetic preamplifier drives the original version power amplifier when the Italian language is on the phototrack of the release print and the original on the track of the magnetic film.)

Third position—the second position connections are reversed if the original is on the phototrack and the Italian on the magnetic track.

Fourth position—all power amplifiers are fed by the radio tuner.

Fifth position—the manager's office microphone preamplifier drives all power amplifiers.

Sixth position—a tape reproducer pre-amplifier feeds all power amplifiers.

The output switchboard panel switches the original and Italian sound distribution systems of each ramp and the grandstand, snack bar, and manager's office sound distribution lines. This panel contains 35 4-position, 2-pole, make-before-break

switches, the first position of which is "off". Dummy load resistances are not required because the power amplifier has a 14 to 1 output damping factor and can work into a load resistance of infinity without going into oscillation. A 3-kva voltage regulator feeds the a-c to the transmission equipment and a 6-kva power transformer supplies the in-car speaker controls and the concession and signal lights.

Amplifiers

The main amplifier has a continuous power output rating of 200 w with a harmonic distortion of less than 1% over a frequency range of 20 to 20,000 cycles and a peak power rating of 400 w with not more than 1% harmonic distortion.

To minimize the crosstalk interference between the Italian and the original sounds, each distribution system has been wired with separate twisted-pair ground balanced conductors. As the 25-ohm output (70.7 v standard) of the power amplifiers has no center tap, center-tapped retardation coils with a low d-c resistance and a high inductance winding were connected in parallel to the power amplifier outputs and with the center tap grounded to balance the outputs.

The in-car speakers are made by Westrex Company Ltd. in London and are equipped with coiled cords. The outdoor loudspeakers were designed and manufactured in Italy for this installation. The speaker controls have been modified to incorporate two matching transformers (one for each of the two in-car speakers), two terminal strips, and two DPDT (double pole, double throw) switches to select the Italian or the original sound distribution system.

Century CCW double shutter, curved gate, water-cooled mechanisms are used in combination with Ashcraft Super-Cinex arc lamps and Bausch & Lomb 4-in. lenses to obtain the maximum light efficiency. Century heavy-duty pedestals and 18-in. magazines, zipper changeovers, Ashcraft 1612 type rectifiers and water recirculators, and Dayton blowers for the exhaust ducts are the necessary accessories which complete the installation.

Positive 13.6-mm × 18-in. and negative 1 1/4-in. × 9-in. National Carbon trims are used with an operating range of 120 to 150 arc amperes. The lower current is used for black-and-white films and standard-size aperture plates; the higher current is used for CinemaScope and MetroScope.

Because of the poor voltage regulation of the main power supply, and to facilitate the handling of the various arc currents required for the different types of films projected during a single show, a 6-position 3-pole commutator switch is used instead of the customary strapping of the "Y" center of the primary winding of the rectifier power transformer.

To comply with fire prevention regulations, an electromechanical safety circuit has been included in the projector to prevent the projectionist from opening the arc-lamp dowsers with the mechanism stopped. Projection porthole glasses have been eliminated to minimize light absorption. Blowers were installed to prevent dust from entering the projection room.

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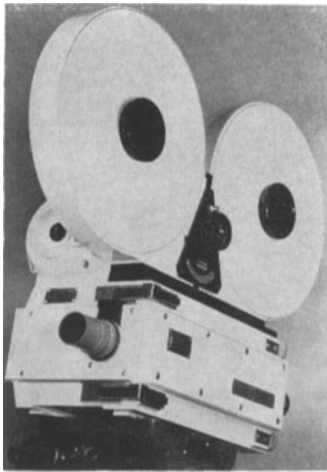
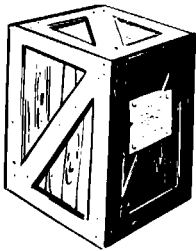
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 Further information about these items can be obtained direct from the addresses given. As in the case of technical papers, the Society is not responsible for manufacturers' statements, and publication of these items does not constitute endorsement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

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 $\pm 4\%$ 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 Photo-

mechanisms, 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; 9 $\frac{1}{2}$ -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

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

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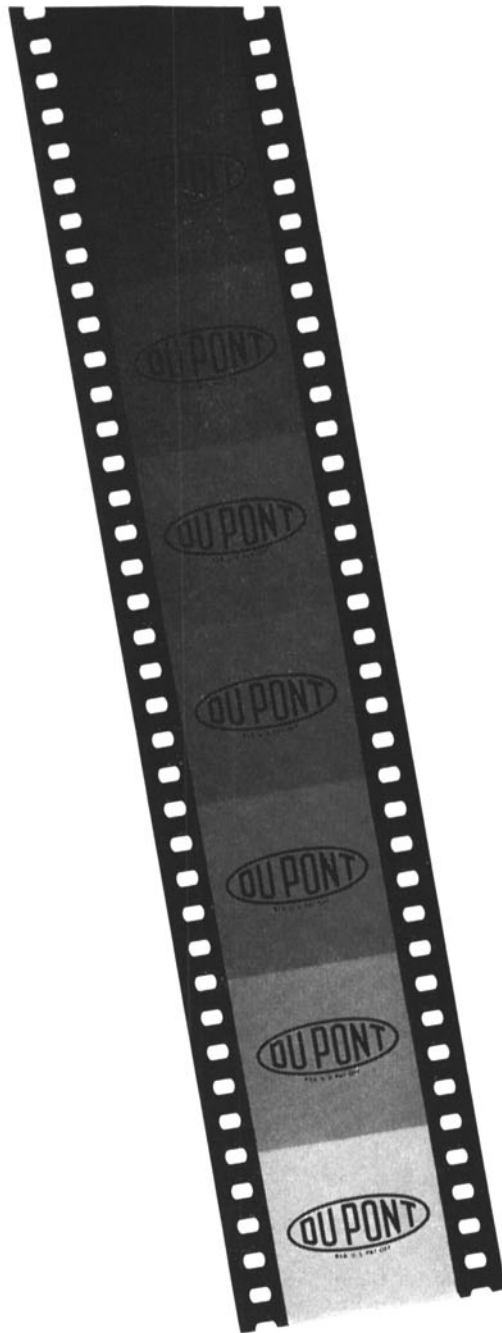
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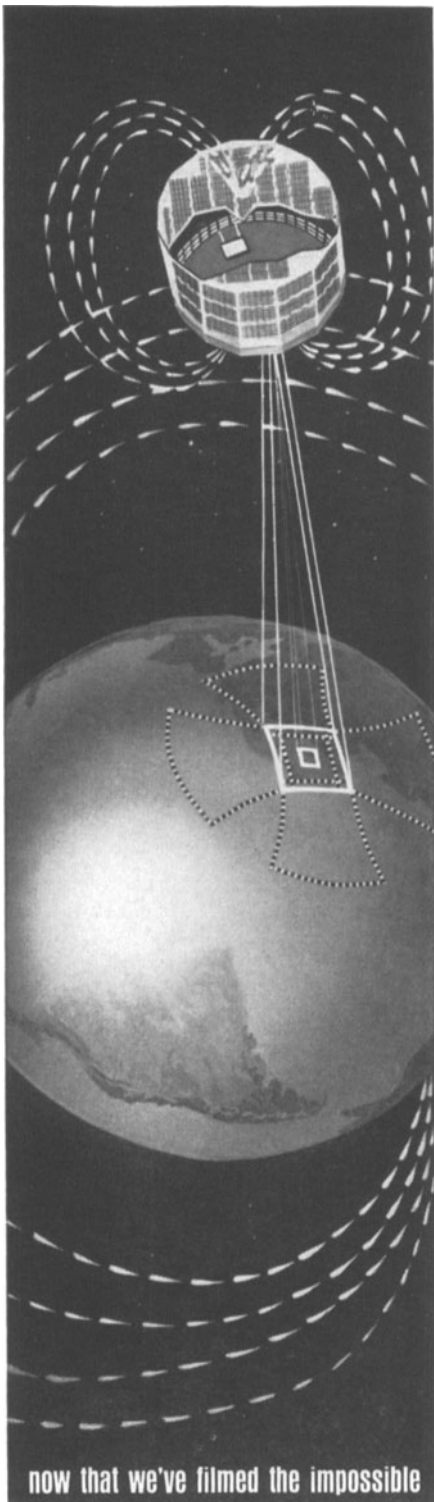
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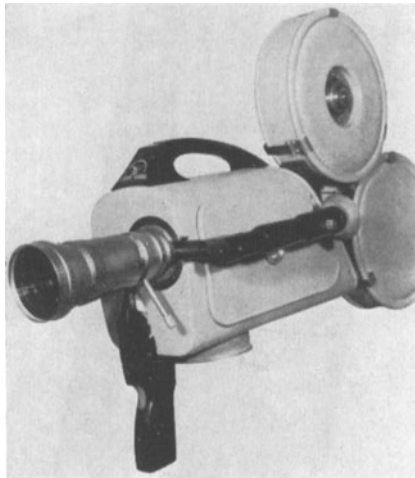
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An ultra-high-speed Kerr cell camera system designed for hypervelocity particle ballistic range and other multiple station applications has been announced by Electro-Optical Instruments, Inc., 2612 East Foothill Blvd., Pasadena, Calif. The system, 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 μ sec. 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. \times 1 in. (small end).



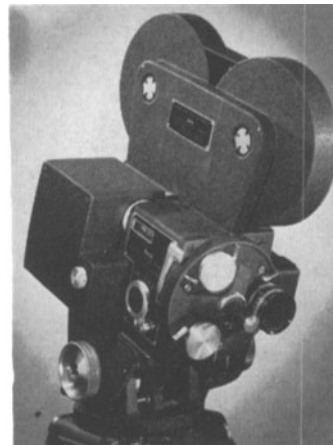
The Sinmor, a 16mm professional sound camera, manufactured by Andr  Debric Mfg. Corp., College Point 56, N. Y., is designed for practicality and easy handling with components that can be removed and disassembled by non-specialists. Available as either a TV (25 frames/sec) or motion-picture (24 frames/sec) 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 (Debric 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-Ang nieux 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 \pm $\frac{1}{2}$ 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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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

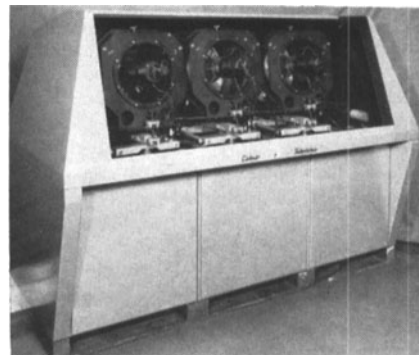
case measuring 19 by 19 by 9 in., and weighing 26 lb, is said to be capable of drying rates of up to 25 ft/min with pre-hardened emulsions to commercial re-tentivity standards. The unit is equipped with a 110 v a-c 50-60-cycle motor which requires approximately 1 amp; a 600-w heater; and a 2-gal static 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,

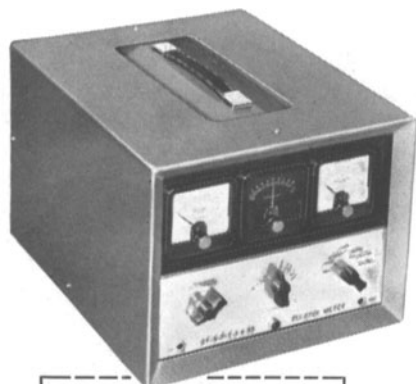


otherwise, would heat the lens elements. Announced by D & F Products, Inc., 1350 No. Highland Ave., Hollywood 28, as the result of studies undertaken jointly with the Motion Picture Research Council before the Council was disbanded, the device is $\frac{7}{8}$ in. thick with a free opening of $5\frac{1}{2}$ -in. diameter to accommodate 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



**GAUMONT-KALEE
FLUTTER METER
TYPE 1740**

BRIEF TECHNICAL DATA

Operating carrier frequency
3,000 c.p.s. \pm 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
 \pm 10 dB
Meter scaling—"Peak wow"
0 to \pm 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 \pm 2% f.s.d.
Power consumption
35 watts
Mains
100/150v. and 200/250v. single phase
45/60 c.p.s.
Dimensions: Height 10 $\frac{1}{2}$ " 26.04 cm.
Width 12 $\frac{1}{4}$ " 31.12 cm. Depth 14 $\frac{1}{2}$ "
36.47 cm.
Nett Weight: 29 lbs. 13.15 Kilos.

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with the Gaumont-Kalee
FLUTTER METER**

**Accurate measurement of sound
equipment speed deviations**

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.

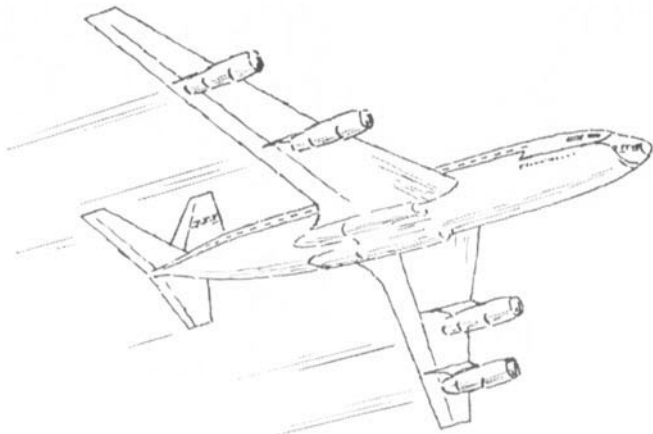
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Egyptian State Broadcasting.
E.M.I. Research Laboratories.
Garrard Engineering and Manufacturing Co. Ltd
Magnavox Corporation of U.S.A.
Marconi Wireless.
Ministry of Supply (U.K.)
Ministry of Transport and Civil Aviation (U.K.)
Mullard Ltd.
N.V. Philips' Gloeilampenfabrieken, Holland
and Denmark.
N.Z. Broadcasting System.
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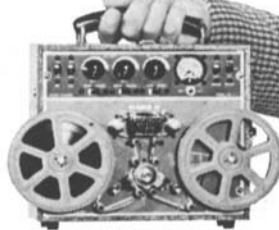
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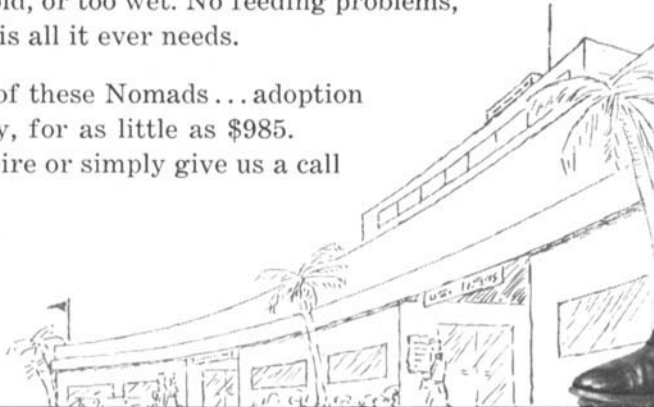


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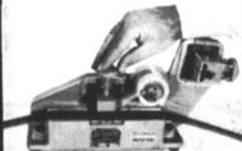
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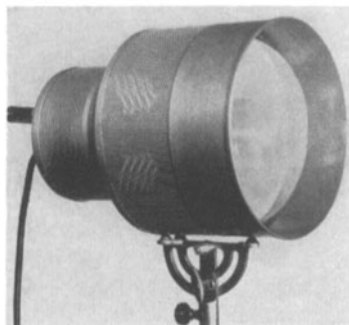
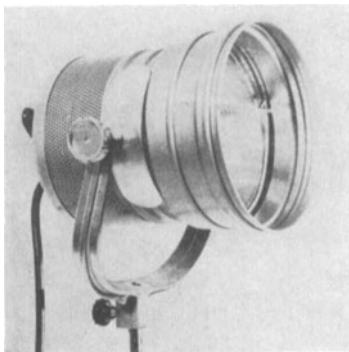
Model 35 for 35mm, Model 16 for 16mm—\$295

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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 pre-booster filament construction of the lamp. 1500 foot candle intensity is obtained at 10 ft, with even coverage of a 2½ × 4-ft area.

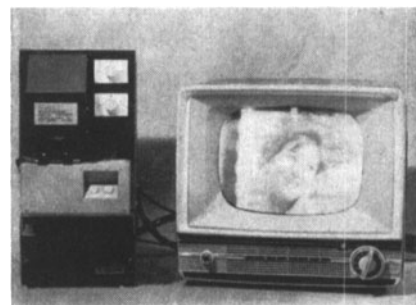
The Super Eighty (bottom) is a light-weight flood using the R-80 1500-w reflector lamp. When powered by a ColorTran Converter it will illuminate a 7 in. circular area with 940 foot candles at 10 ft. Weight is only 9½ lb. Price of the Super-Eighty is \$56. Accessories are available.

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 replace-

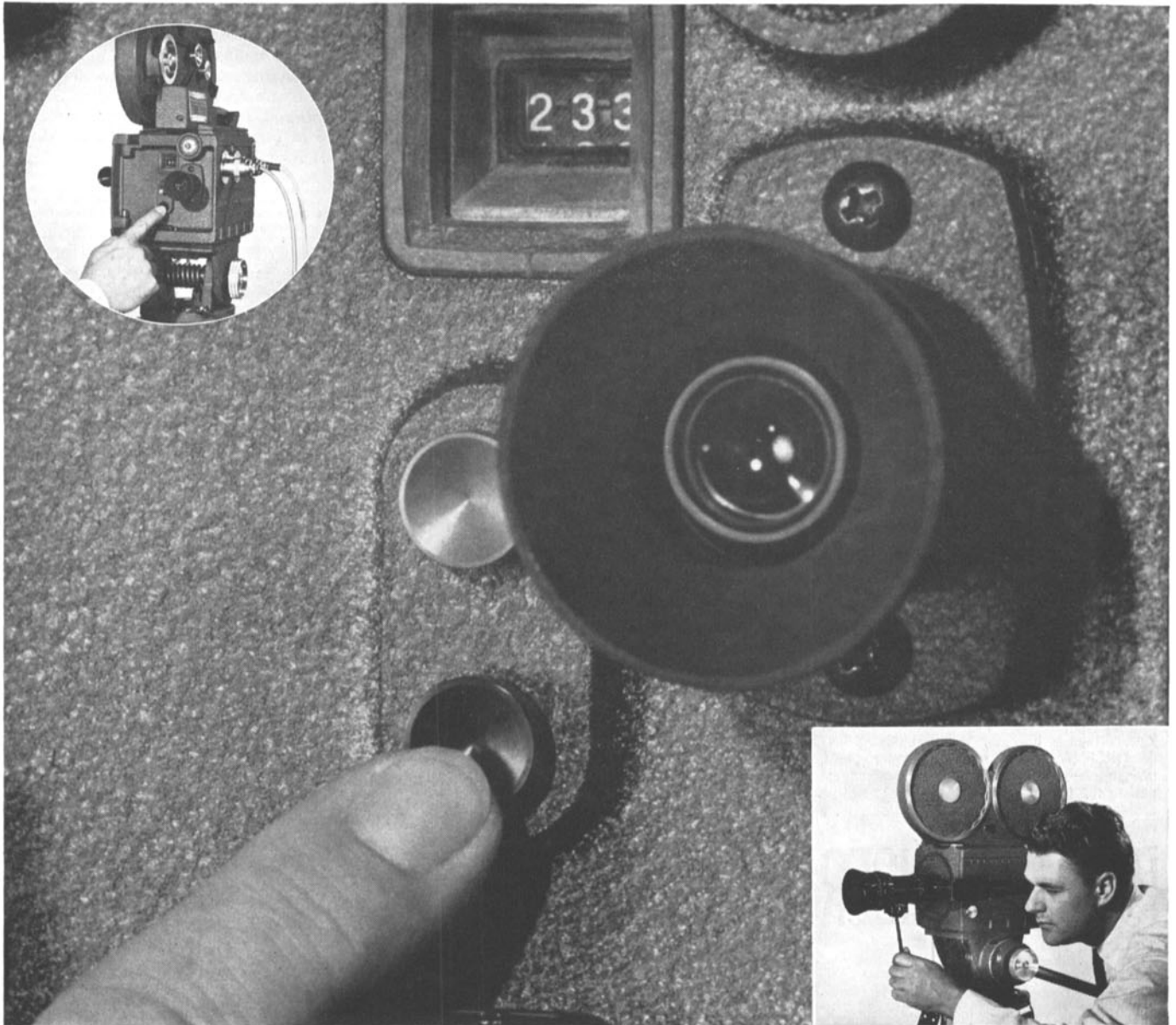
ment of individual components. A five-position knob turns the projector on and off and activates the forward, reverse and rewind operations. The price is under \$600.

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 mc 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 mc. It gives a minimum of 50 mw from 50 to 60 mc 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 ¼-w of power from 50 to 60 mc. The low-level gain is 40 to 50 db and midband and shows a slope of about 6 db across the 50 to 60 mc band. Power from either tube is said to extend the range of measurements possible at 50 to 60 mc 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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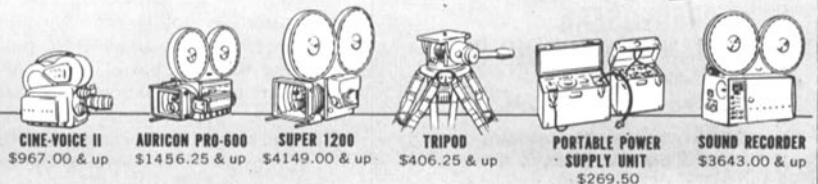
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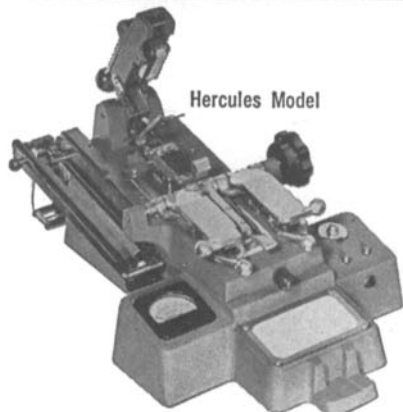
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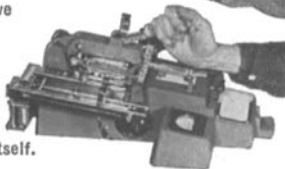
Newly modified Presto-Splicer butt-welds motion picture film, microfilm, acetate, mylar, Polyester, safety-base, paper . . . or any other kind of tape or film . . . AND INTERMIXES ANY OF THESE MATERIALS making a failure-proof, invisible weld that is literally the strongest part of the tape. Every splice you make will be a cleaner splice . . . a stronger splice . . . a PERMANENT splice, with

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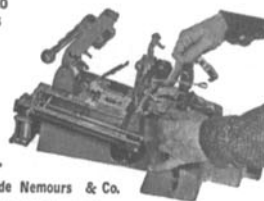
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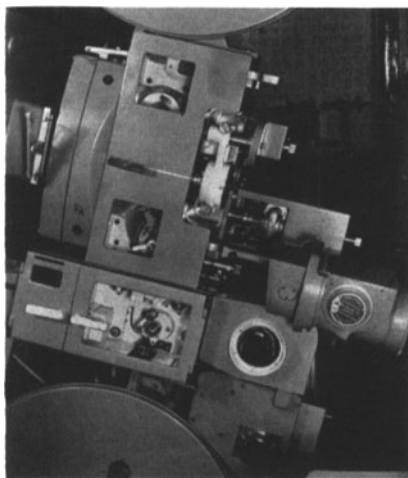
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A device for viewing a still photograph as a positive image from 35mm negative is a product of Canon Camera Co., Inc., 312 Shima-Maruko-cho, Ohta-ku, Tokyo. The device is connected on one side to the antenna terminals of the TV receiver and on the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

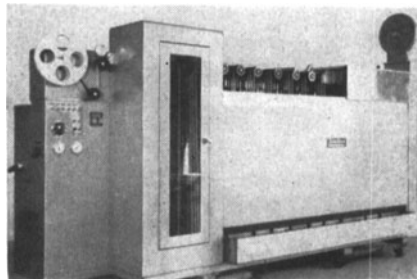


Remote control panels which operate in conjunction with Projectomatic, an automatic programmer, have been installed by Rank Precision Industries Ltd., 37-41 Mortimer St., London W.1, England, in six motion-picture theaters in London. Automatic programming and the use of xenon lamps which burn without 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.

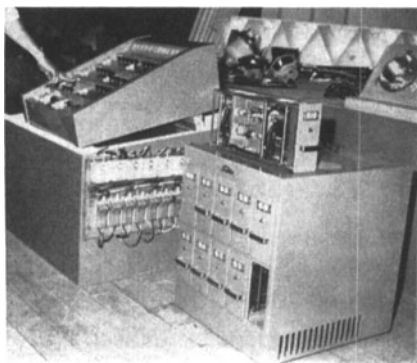
A Compressor-Amplifier designated Model No. 31 has been developed by Magna-Tech Electronic Co., 630 Ninth Ave., New York 36, to permit compression of dialogue or music tracks without causing detrimental distortion to the program. The unit incorporates a solid-state variable gain device and a two-stage push-pull audio amplifier on one chassis. Designed specifically for use in stationary installations, 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.

A new fuel cell which directly converts heat to electricity at efficiencies exceeding



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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 pre-packaged 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.

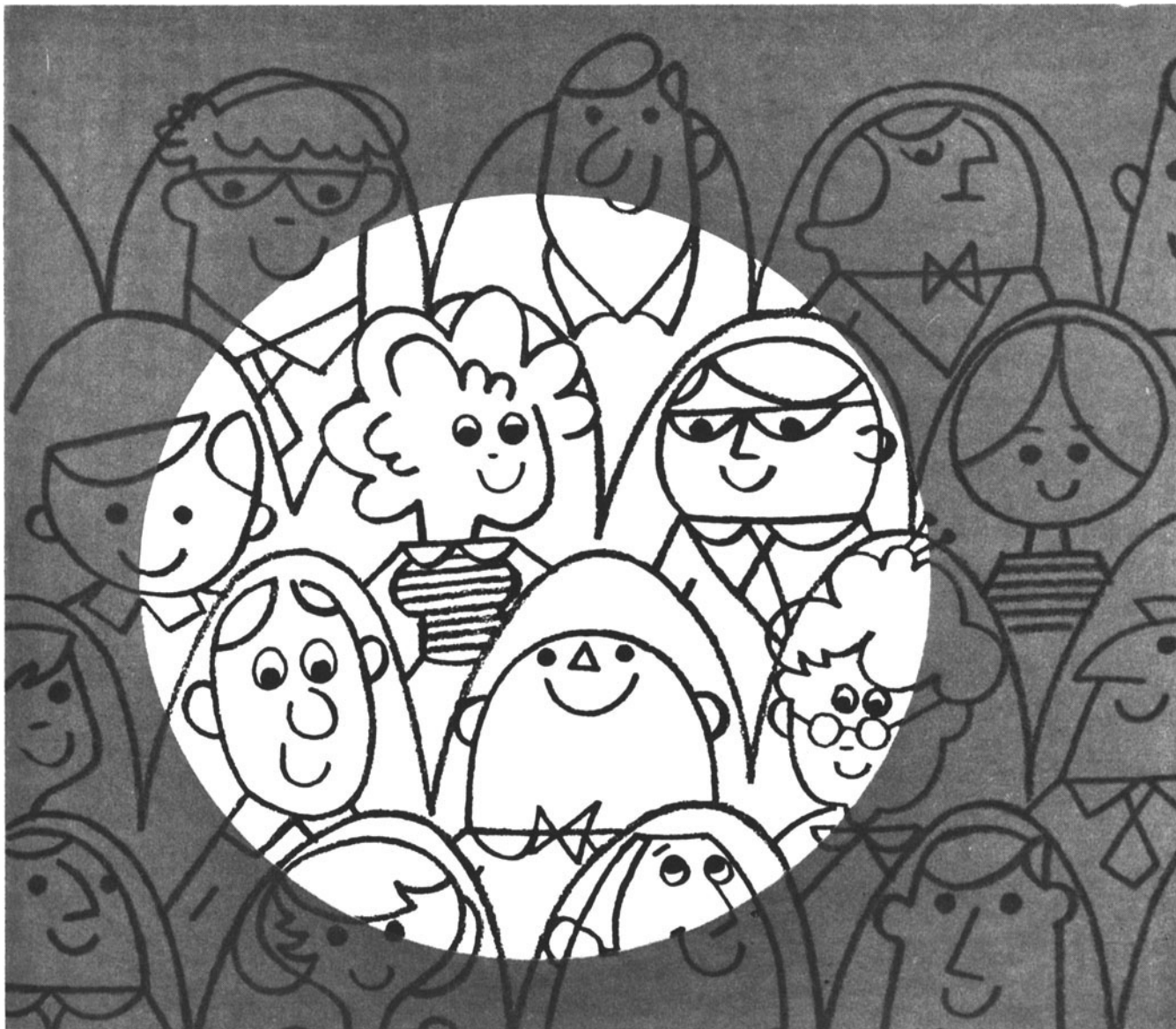
A dual-speed hysteresis synchronous motor designed to drive large inertial masses at a constant rate of speed has been announced by Beau Electronics, Inc., Waterbury, Conn. The design of the a-c motor, designated the Type 5003, is based on an unusual "inside-out" principle of construction, so described 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, astronomical 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 Kineloc 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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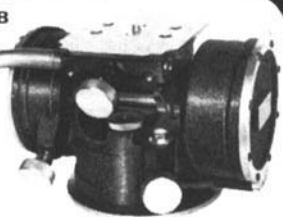
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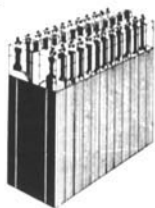
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belts are made in lengths to 48 in., widths to 1 in. and thicknesses from 0.5 to 10 mils. Tolerances are as low as 0.015 in. on length, 0.0001 in. on thickness and 0.005 in. on width. Descriptive literature and technical design data are available from 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 Currentor. It is available in fixed current ratings from one to 10 milliamp in 10% increments. Standard current tolerance is $\pm 5\%$. Typical admittances are as low as 1 micro-ohm and both polarized and non-polarized 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 $\pm 1\%$ 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.

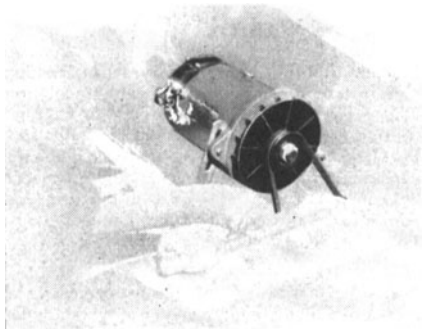
A **television system installed in a helicopter** to cover the World Championship Unlimited Hydroplane race in Seattle held in August was designed by KIRO-TV for its newscast of this event. Announced as the "smallest and lightest-weight" TV system to be used by a commercial station within its particular 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 nighttime 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 fluorescence microscopy, projection systems, microfilm duplications, etc. It is priced at \$49.

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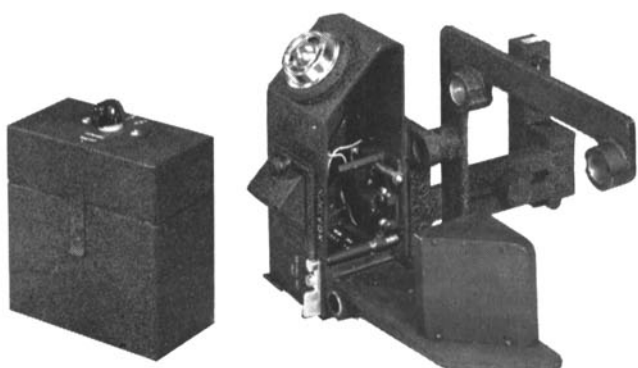
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Television Broadcast Technician. Group stations offer opportunities for men with initiative and basic knowledge of TV fundamentals. Write G. G. Jacobs, Corinthian Broadcasting Corp., 302 So. Frankfort, Tulsa, Okla.

Exchange Job—TV Cameraman. German TV cameraman in Munich, Germany, TV studio would like to exchange job for 1 yr with TV cameraman in New York, Washington or Philadelphia, including fully furnished apartment in beautiful section of Munich. Write: F. Sittl, München-Bogenhausen, Buschingstrasse 45 XII, Germany. Additional information in New York from: Ursula Heemann, 123 East 39 St., New York 16. YU 6-5478.

Journals Available/Wanted

These notices are published as a service to expedite disposal and acquisition of out-of-print Journals. Please write direct to the persons and addresses listed.

Available

Transactions and all issues of the Journal from July 1927 to Dec. 1959. For sale as entire lot only. Henry Roger, Rolab Studios, Sandy Hook, Conn.

Transactions. Ten volumes, Nos. 19 through 34. Write: William C. Kunzmann, 2992 West 14 St., Suite 2, Cleveland 13, Ohio.

Index 1936-1945; Mar.-Sept., Nov., Dec. 1947; Jan., Feb., Sept., Nov., Dec., Index Jan.-June 1948; Jan., Mar. & High-Speed Photography, Apr.-July, Index Jan.-June, Sept.-Dec., Index July-Dec. 1949; Jan.-Oct., Dec., Indexes Jan.-Dec. 1950; Jan.-Apr., June, July, Sept.-Dec., Indexes Jan.-Dec. 1951; Jan.-July, Index Jan.-June 1952; Jan.-Aug., Nov., Dec., Indexes Jan.-Dec. 1953; Jan.-June, Aug.-Dec., Indexes Jan.-Dec. 1954; Jan.-Dec. & Index 1955; Jan.-Dec. & Index 1956; Jan., Mar. 1957; Jan., Apr. 1958. Available as entire lot for \$100. Camille Buyse, 1232 Chaussee de Wavre, Auderghem-Brussels 16, Belgium.

Jan. 1936 through Mar. 1957, except Mar. 1942 and Jan. 1945. Send offer to: R. S. Parris, 29 Charles St., Natick, Mass.

Assortment of Journals, from 1937 through 1950. Write: Alan Cook, South Londonderry, Vt.

Complete set of Journals March 1937 through May 1954. Best offer. A. R. Ulmer, 69 Cresskill Ave., Dumont, N. J. DU 4-8656.

Complete set of Journals January 1949 through December 1960, inclusive, including high-speed, special issues, indexes, directories, etc., in excel-

lent condition. For sale as entire lot only. Leslie Helhena, P. O. Box 643, Burbank, Calif.

Complete set of Journals from January 1934 through June 1960. Excellent condition. For sale only as a set. Write: Don Norwood, 1470 San Pasqual St., Pasadena, Calif.

Complete set of Transactions, except Nos. 6 and 9, and all Journals published to date, including indexes. All in good condition. Price \$500. Also extra copies of Transactions Nos. 21, 31, 32. W. W. Hennessey, RFD #2, Pound Ridge, N. Y.

Complete set of Journals from May 1937 to June 1954, including special volumes and membership directories, excellent condition; also Mar., May 1934 and July 1935 issues. Write: Harry R. Lubcke, 2443 Creston Way, Hollywood 28, Calif. HO 9-3266.

Jan.-Dec. 1950; Jan., Feb., Apr.-Dec. 1951; Jan.-Mar. 1952. Also available are vols. 6 and 7 of The Television Society (British) covering the period Jan. 1950 through Sept. 1955. Write: Andrew N. McClellan, 65 Hillside Drive, Toronto 6, Ont., Canada.

Dec. 1946, Feb.-Dec. 1947, 1948-1955 complete. All copies in perfect condition; for sale as entire lot only. Write: Joseph W. MacDonald, 2414 Sullivant Ave., Columbus 4, Ohio.

Jan. 1947 to Dec. 1957 complete and in perfect condition. For sale only as a set. Write: Charles J. Marshall, 2816 Royalston Ave., Kettering 19, Ohio.

Complete set of Journals Jan. 1949 to Dec. 1958. Perfect condition. What offers? Write: J. G. Jackson, 210 Kingsway South, Port Alberni, B. C., Canada.

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Jan., July, Sept. and Nov. 1949; Jan and Feb. 1950. Century Lighting, Inc. (Mrs. Levine), 521 W. 43 St., New York 36, N.Y.

Feb., Mar., Apr., June 1934. Mrs. Janet Van Duyn, Librarian, CBS Laboratories, 227 High Ridge Rd., Stamford, Conn.

Journals—Bound volumes. Write: S. P. Solow, Consolidated Film Industries, Inc., 959 Seward St., Hollywood.

Transactions 6 and 9 (\$15 each offered). W. W. Hennessey, RFD #2, Pound Ridge, N.Y.

Jan. 1938, Jan. 1949. (Many other issues are available for trade.) Dept. of Cinema, Univ. of Southern Calif., University Park, Los Angeles 7. Att: Herbert E. Farmer.

Mar. 1939, May 1940, July, Feb. 1942, July 1949. V. E. Patterson, 2 North 30th St., Phoenix, Ariz.

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Fotografía lunar autoestereoscópica

LESLIE P. DUDLEY

[799]

Cuando los astronautas puedan efectuar aterrizajes suaves en la luna, se van a necesitar aparatos ópticos eficaces para el aleccionamiento de grupos y para la educación sobre topografía lunar. Se estima que resultarán de un gran valor en este sentido, las fotos estereoscópicas de la superficie lunar, que para visionarlas no requieren un aparato visor individual. De acuerdo con esto, el artículo esboza una proposición para la producción de este tipo de vistas obtenidas con los datos transmitidos desde una astronave en órbita dentro del espacio.

La representación cinematográfica de las soluciones de problemas de explosiones en la hidrodinámica

B. E. DRIMMER, A. D. SOLEM, y

H. M. STERNBERG

[803]

Máquinas calculadoras de alta velocidad son usadas para resolver problemas de explosiones y de choques. Cada problema es reemplazado por una red de puntos en la que cada punto tiene asignadas las características físicas del sistema explosivo que se considera. Periódicamente, las nuevas posiciones de todos los puntos calculados son presentadas como puntos móviles sobre una pantalla osciloscópica y fotografiadas. Mas tarde, provistas de animación, en forma de película, una sucesión de estas posiciones suministran una rápida visualización del movimiento completo. Una película así preparada incluye una comparación con una película del correspondiente fenómeno explosivo actual, la cual fué tomada con una cámara Beckman y Whitley, Model 189, de un millón de exposiciones por segundo.

Equipos de proyector reversible para cuartos de revisión

R. A. BULL

[806]

Ciertas ventajas económicas se obtienen con el uso de equipos de proyección reversible en los cuartos de revisión, controlados remotamente desde el local del auditorio. Se describen las características esenciales de dichos equipos.

Facilidades de reverberación artificial para locales de auditorios y sistemas de audio

G. R. CRANE y G. A. BROOKES

[809]

Se comentan dos nuevos equipos para producir reverberación artificial. Se emplea uno para aumentar el período efectivo de reverberación en iglesias y otros locales públicos en los que el período de reverberación natural está por debajo del nivel deseado. El otro es para usarse en aplicaciones de estudios de audio con el objeto de introducir efectos especiales. La reverberación artificial se produce en un sistema memorizador de grabación magnética y salidas múltiples. Cuando se usa en locales de auditorios, la información de reverberación es alimentada a una serie de altavoces colocados en las paredes, los que simulan un conjunto de superficies reflectoras, recibiendo cada aparato su propia información reverberante distintiva. Tanto en las aplicaciones para locales de auditorios como en estudios, el período de reverberación y la respuesta de frecuencia de la reverberación pueden regularse en extensa amplitud.

Diseño de las consolas para control del alumbrado en los estudios británicos de televisión

FREDERICK P. BENTHAM

[814]

En la Gran Bretaña el control de alumbrado ha adquirido gran importancia tanto como instrumento de expresión dramática como para controlar la calidad de la visión. El luminotécnico

(director) generalmente opera los mandos directamente sin la intervención de un electricista. La calidad de memoria automática derivada de la inercia de los sistemas de amortiguación de luz electro-mecánicos ha simplificado el diseño de estos mandos y, en consecuencia, ha obligado a muchos usuarios en la Gran Bretaña a mostrarse reacios a la adaptación de formas de amortiguadoras enteramente eléctricas tales como el tiratrón y SCR lo que sugiere redes múltiples preajustadas.

Generador de señales de sincronización a transistores

J. S. MYLES et J. N. REID

[822]

Se describe un generador de sincronización que emplea únicamente semiconductores como elementos de amplificación o desviación. Las distintas potencias de slida standard de la EIA se forman mediante un metodo original de selección de pulsaciones procedentes de un solo tren de pulsaciones, y el comienzo y la duración de cada porción de estas ondas tienen una relación precisa de tiempo con el tren de pulsaciones que las origina.

Se dan ejemplos del diseño del circuito y se examinan algunas sus características electricas y mecanicas.

Los metodos de diseño descritos se han aplicado a un generador de sincronización al que se le ha asignado como numero de tipo el R20861A.

Uebertragungskennlinie und Filmwiedergabefähigkeit der Vidikon Bildaufnahmeröhre

R. G. NEUHAUSER

[791]

Die Uebertragungskennlinie des Vidikons kann nicht fuer die direkte Vorausbestimmung der Uebertragungseigenschaften eines Fernseh-Filmsystems verwendet werden. Die in der Praxis uebliche Methode die dunkelsten Bildpartien des Videosignals als Schwarzpegel zu verwenden, veraendert die effektive Uebertragungskennlinie des Vidikons. Korrekte Fernseh-Filmwiedergabe verlangt deshalb zusaetzliche Gammaregelung des elektrischen Signals. Die vorliegende Arbeit beschreibt die Art der benoetigten Regelung zur korrekten Fernseh-Filmwiedergabe, die den neuerdings vorgeschlagenen Bestimmungen fuer Kontrastbereich und Uebertragungskennlinie entspricht. (Ub. von Hans Popp)

Vorgetäuschte Nachtphotographie mit Farb-Umkehrfilm

GEORGE T. KEENE

[795]

Die allgemein ueblichen Methoden Nachteffekte bei Tageslicht-Photographien zu erzielen, sind kritisch ueberholt worden, und man hat eine Reihe von Moeglichkeiten entdeckt, diese Methoden zu verbessern. Ein ueberbelichtetes Originalnegativ (2 Blenden ueberbelichtung), mit Hilfe eines Zwischen-positivs kopiert, zeigt eine erwuenschte Verminderung der Farbtonskala, mattere Farben und einen realistischeren Nachteffekt. Der notwendige Kompromiss zwischen Realismus und Zusammendruekung der Farbtoene ist erkluert. Nachtszenen, mit Hilfe von Kunstlicht und Mondlicht aufgenommen, werden kurz besprochen.

Autostereoscopische Mondphotographie

LESLIE P. DUDLEY

[799]

Wenn sanfte, bemannte Landungen auf dem Mond praktisch durchfuehrbar werden, dann werden wirksame visuelle Hilfsmittel zur Gruppeninstruktion und fuer topographische und unterrichtende Zwecke benoetigt werden. Man

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ist der Ansicht, dass sich stereoskopische Photographien der Mondoberfläche, die den Gebrauch von individuellen Sehinstrumenten nicht erfordern, als wertvoll in dieser Beziehung erwiesen würden. Die dementsprechende Abhandlung skizziert einen Vorschlag zur Herstellung solcher Bilder nach Information die von einem orbital gelenkten Weltraumvehikel übermittelte wurde.

Die Kinematographische Darstellung numerischer Lösungen von Problemen der Explosions-Hydrodynamik

B. E. DRIMMER, A. D. SOLEM, und H. M. STERNBERG [803]

Man benützt elektronische Rechenmaschinen um Explosions- und Stossprobleme zu lösen. Jedes Problem wird als Gittersystem betrachtet, in dem jeder Punkt die physikalischen Eigenschaften des entsprechenden Ortes in dem Explosionsystem hat. Periodisch werden die neuen Lagen aller berechneten Punkte gleichzeitig als Bildpunkte auf einem Oszilloskop gezeigt, fotografiert und später in schneller Folge reproduziert, wodurch man eine visuelle Darstellung der Bewegung erzeugt. Ein Film zeigt diese Folge und vergleicht sie mit einer entsprechenden Explosion, die mit einer Geschwindigkeit von einer Million Bildern pro Sekunde mit Hilfe eines Beckman and Whitley Model 189 Apparates photographiert wurde.

Projektor-Ausrüstung mit Fern-Umschaltung für Vorführ-Räume

R. A. BULL [806]

Bei der Verwendung von Projektions-Geräten mit Fern-Umschaltung, die vom Zuschauerraum aus gesteuert werden kann, ergeben sich einige wirtschaftliche Vorteile. Die wichtigsten Konstruktions-merkmale dieser Anlage werden beschrieben.

Anlagen zur Erzeugung künstlichen Nachhalls in Grossräumen und bei Audio-Systemen

G. R. CRANE und G. A. BROOKES [809]

Es werden zwei neue Anlagen zur Erzeugung künstlichen Nachhalls besprochen. Die eine wird zur Erhöhung der wirksamen Nachhall-Zeit in Kirchen oder anderen Grossräumen benützt, in denen die natürliche Nachhall-Zeit unter dem gewünschten Pegel liegt. Die andere Anlage ist zur Verwendung in Ton-Studios gedacht, und dient zur Schaffung besonderer Effekte. Der künstliche Nachhall wird in einem Vielfach-Gedächtnis-System auf Magnet-Aufnahmebasis erzeugt. Bei der Verwendung in Grossräumen gelangt der so geschaffene Nachhall in eine Wandsprecher-Anlage, die eine Reihe von Reflektions-Oberflächen nachbilden, bei der jeder Sprecher seinen eigenen Nachhall-Impuls erhält. Die Nachhall-Zeit und die Nachhall-Frequenz-Leistung können innerhalb eines weiten Bereichs gesteuert werden, und zwar bei der Grossraum-Anwendung wie auch bei der Verwendung im Aufnahme-Atelier.

Konstruktion von Beleuchtungs-Schaltanlagen bei den Fernseh-Ateliers in Gross-Britannien

FREDERICK P. BENTHAM [814]

In Grossbritannien hat die Beleuchtungssteuerung als Mittel des dramatischen Ausdrucks und für Überwachung der Bildqualität grosse Bedeutung erlangt. Die die Beleuchtung kontrollierende Person (Regisseur) bedient die Regelorgane häufig selbst ohne Inanspruchnahme eines Elektrikers. Die Güte des automatischen Erinnerungsvermögens, die sich aus der Trägheit des elektromechanischen Helligkeitssteuersystems ergibt, hat die Konstruktion dieser Regelorgane vereinfacht, so dass viele Benutzer in England neuerdings ungenügend rein elektrische Helligkeitssteuergeräte, wie z.B. Thyatron und SCR verwenden, die viele vorher eingestellte Stromkreise erfordern.

Transistor Synchronisierungs Signal Generator

J. S. MYLES und J. N. REID [822]

Folgend ist ein Synchronisierungs Signal Generator beschrieben der als Verstärkung oder Schaltelement eine Halbleiter benuezt. Die normalen Wellenformen der E I A sind durch eine einzelne Impulsfolge bei besonderer Impulswahl erzeugt.

Der Anfang sowie die Zeitdauer von jedem Teil der Wellenformen haben ein bestimmtes Zeitverhaeltnis gegenüber dem originalen Impuls.

Verschiedene Schaltplanentwuerfe sind gegeben und einzelne elektrische sowie mechanische Vorteile diskutiert.

Die Entwurfsmethoden, welche in dem Synchronisierungs Signal Generator gebraucht wurden, sind mit der No. R 20861A bezeichnet.

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