

NOV 1973

# BME

BROADCAST MANAGEMENT ENGINEERING

**NAB 1973**

**Unveils Significant  
New Equipment  
For Eager Buyers**



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KLINGSTON

# If You Want To Hear Something Great, Read This.

Stop by our booth at the NAB Convention in Washington, March 25-28, and listen to our pitch.

You'll hear it loud and clear on our new Scully 280B magnetic recorder/reproducer. (The 280B has, to our knowledge, the best signal-to-noise ratio in its price range.)

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So drop by Booth 614 in the Ambassador Room of the Shoreham Hotel.

While you're in Washington, we can go through channels together.

▶ **Scully/Metrotech**

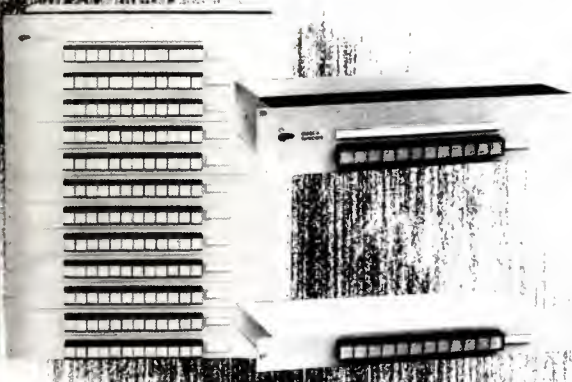
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SEE US  
AT NAB  
BOOTH 317

# DYNAIR's price catalog describes these new products and over 150 others.



## NEW "PATCH CABLE ELIMINATOR"

DYNAIR's new Series-X Video-Audio Switchers eliminate the custom fabrication usually required for routing switchers. These units are totally modular, allowing off-the-shelf assembly of almost any input-output configuration, either video-only, or audio-follow-video. And, expansion is easy too . . . you simply add input or output expansion modules as required.

The basic unit is video only, with options including audio, sync-mixing and tally provisions. Illuminating pushbuttons are standard, with provisions for easily labeling the individual inputs and outputs. The new Series-X provides exceptional performance at prices which are, in many cases, much less than our earlier version of the Series-X.

## NEW SPECIAL EFFECTS GENERATORS

DYNAIR's new SE-70A and SE-70A-R Special Effects Generators allow basic effects to be easily and inexpensively added to any television system. These broadcast quality units operate equally well on color or monochrome signals, with either broadcast or industrial sync. A quality locking-type gear-driven effects mechanism is used, allowing effects to be easily implemented.

The units provide horizontal and vertical wipes, inserts from any corner with diagonal expansion, and internal and external keying and matting. The SE-70A is self-contained for console mounting and the SE-70A-R is an electrically identical remote-controlled unit, the control panel of which may be easily mounted in custom panels.



## NEW DYNAIR "PRICE CATALOG"

DYNAIR's new price catalog has been designed to provide you with a quick look at the large variety of equipment we manufacture and our current price on each item. We think that you will appreciate the convenience of this new catalog/price list combination . . . it's a very handy reference guide to DYNAIR's world of television.

Request your copy today . . . we think you'll like what you see.



## DYNAIR ELECTRONICS, INC.

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DYNAIR

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MARCH 1973/VOLUME 9/NUMBER 3



For the first time in several years some significant new equipment will be shown. Buyers won't exactly be bidding from the floor, but they have purchasing in mind. See article, page 31.

**BROADBAND  
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WWDL in Scranton kept adding to facilities, then put a new building right around the old one to hold it all.

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"Sound shaping" has to be used with discretion if a radio signal is to stay clean and also be "loud" enough.

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Being johnny-on-the-spot for local happenings wins a strong following for WDDD-FM.

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The initial shake-down period is rough, but it's worth it.

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# BROADCAST INDUSTRY NEWS

## FCC Relaxes Operator Rules For AM and FM Stations

In response to a petition from the National Association of Broadcasters, the Federal Communications Commission has partially relaxed the operator requirements for AM and FM broadcasters. Effective April 27, 1973, an assistant chief operator will be allowed to act as chief operator when the latter is absent. A second amendment makes partial proof of performance on directional antennas due every three years, rather than every year as at present, for stations without first-class radiotelephone operators on duty. The new rule requires only a skeleton proof of performance every year for such stations. The FCC, however, denied the NAB request for deletion of the requirement of automatic shut down if the antenna fails to switch properly, for stations using lesser-grade operators, pointing out that even if the automatic cut-off were not required, such stations would be required to shut down manually under Section 73.93(g) of the rules. (See also Interpreting the FCC Rules and Regulations, this month, page 24.)

## Ampex Sells VTRs to ABC Worth \$3.5 Million

Ampex Corporation announced a two-year agreement with the American Broadcasting Company for delivery of videotape recorders and cassette video systems with a potential value of about \$3.5 million. The first three AVR-1 VTRs have already been delivered to ABC in Hollywood, and the first three ACR-25 video cassette systems will be delivered in April 1973, according to the announcement, two in Hollywood and one for San Francisco.

## WWCC Forfeits \$3000 For Contest Rigging

The FCC has ordered AM Station wwcc, Bremen, Georgia, licensed to

Bremen Radio Company, to forfeit \$3000 for violation of Section 509 (a) (4) of the Communications Act, by prearranging the outcome of a contest with intent to deceive. According to the FCC, wwcc in November 1971 broadcast a contest in which no more than one person could win per day, but led listeners to believe that a person might win on any of the broadcasts of the contest, even after another person had won on a particular day. The FCC rejected the management's request that the forfeiture be reduced because of the small income of the station, pointing out that the station's financial condition had been taken into account in setting the amount. The station management did not avail itself of its right to an evidentiary hearing.

## FCC Refuses to Drop Cross-Ownership Rules

In answer to a number of petitions for reconsideration of the prohibitions against cross-ownership between TV broadcasters and cable

system operators, the FCC has affirmed its bans against joint ownerships as specified in Section 76.501 of the rules. The Commission said it had given thoughtful consideration to the petitions, but remained persuaded that the bans "are in the public interest and should continue in force." The goals of the rule, said the FCC, are "increased competition in the economic marketplace and . . . in the marketplace of ideas." The major broadcast networks are already so dominant in television, said the FCC, that any further expansion of their control should be "stopped and turned around before it becomes entrenched." The Commission did, however, extend the deadline for divestitures required under the rule to August 10, 1975—the deadline had been August 10, 1973.

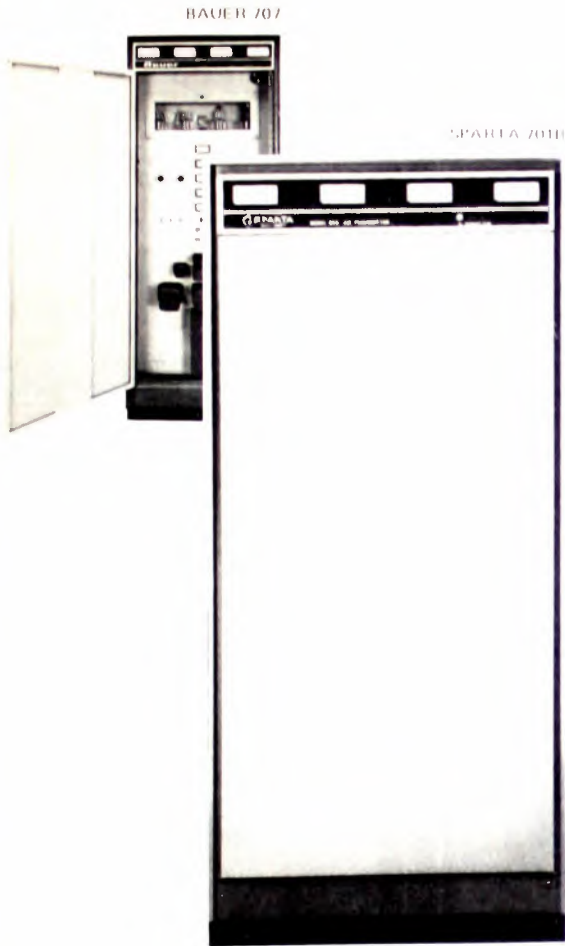
## FCC Opens Major Inquiry Into Relations of Hotel-Movies Cable, and Broadcast Systems

The Federal Communications Com-  
continued on page 8



ABC's Julius Barnathan, vice president in charge of broadcast operations and engineering (left), and Arthur Hausman, president of Ampex, signing the \$3.5-million agreement for AVR-1 recorders and ACR-25 cassette video systems at ABC's headquarters in New York City.





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**NEWS**

mission has opened an inquiry looking toward rulemaking that could have major effects on the competition brewing among the movie-for-pay systems going into hotels and motels, cable systems, and television broadcasters. The inquiry was stimulated by a complaint of Sterling Manhattan, cable operator in lower Manhattan, against Trans-World Communications, which is furnishing movies-for-pay to New York hotels, using the closed-circuit video transmission service of the New York Telephone Company. Columbia Pictures, parent of Trans-World, has also applied for permission to use microwave in the Business Radio Service to distribute motion pictures to hotels in four other cities. Related also, said the FCC, are the proposed rules for licensing and regulating common carrier stations in the Multipoint Distribution Service.

The FCC, pointing out that a basic question is whether and to what extent any of the new services should be restricted to prevent unfair competition with broadcasting or cable, refused to rule immediately on the Sterling complaint against Trans-World and allowed Trans-World to proceed. However, the FCC did say that while the rulemaking was underway it would consider requests from cable systems for waivers allowing them to compete with transmission firms in supplying motion pictures to hotels and motels; cable systems could proceed with assurance that such waivers would be granted in "competitive situations." The review, under Docket #19493, will cover broadly the many interrelated questions raised by the new services, said the FCC, inviting comments by May 31, 1973.

**Task Force on Renewal Law Opens Campaign**

The Task Force on License Renewals of the National Association of Broadcasters opened a country-wide campaign to encourage enactment of broadcast license renewal legislation in the 93rd Congress. Task force captains in each of the 50 states were working with broadcasters in their areas "assigned" to each of the 535 members of Congress. The plan also includes participation by State Associations, working with community leaders, and a vigorous public relations pro-

gram. Committee chairman Mark Evans said: "Much spadework has already been done in Congress . . . The committee has developed strategy and a plan of action . . . but make no mistake, neither NAB nor this committee can do the job. Our success will depend on broadcasters."

**Arizona CATV Elects Officers**

The Arizona CATV Association, at its meeting December 14, 1972, elected Don Corbitt, of Cobre Valley Cablevision, Miami, Arizona, president for the coming year; Clay Blanco, of Valley Telecasting, Yuma, as vice president; and Morris Wright, of Cable-Com General, Safford, as secretary-treasurer.

**NAB Says Pay Cablecasting Will Erode Free TV**

Unrestricted pay cablecasting, the NAB said in a recent statement, will erode the widespread availability of free TV. The danger, said the NAB, is that pay programming will siphon off free TV's programming supply, forcing free TV into a downward spiral with consequent loss to the public; and thus anti-siphoning regulation "no longer can be postponed." Antisiphoning would increase, not decrease, program diversity, said the NAB, by forcing cable operators to come up with new programming.

**AECT Plans Convention in April in Las Vegas**

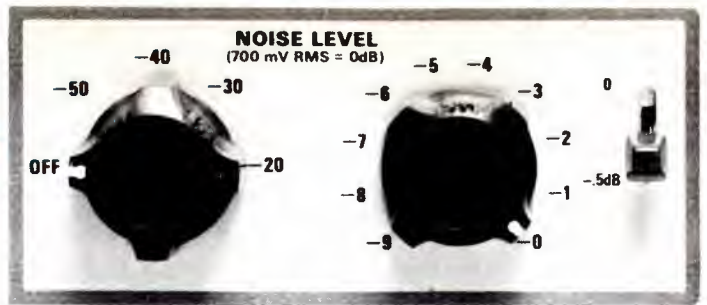
The Association for Educational Communication and Technology has announced its plans for a convention to be held April 8-13, 1973, at the Las Vegas Convention Center. Sessions will cover many aspects of educational technology, including both theoretical and practical approaches. Not only schools and colleges, but government, industrial, medical, and other special branches will be represented. Audio and video techniques, including films, video cartridges and telecommunications, will be covered. An exhibit of equipment in the field is a feature of the meeting.

**NCTA Asks For Convention Technical Papers**

The engineering department of the National Cable Television Association has issued its annual call for continued on page 10

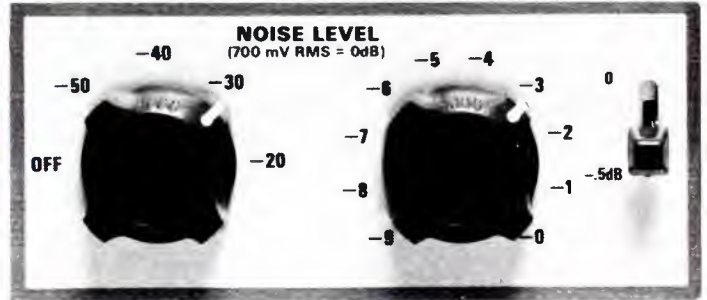


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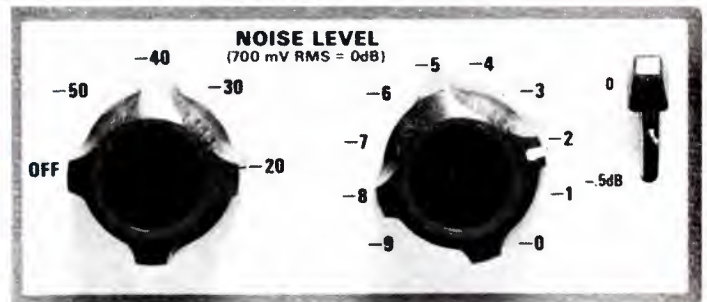
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2.



*in-service*

3.



# noise measurement



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It's **easy** to make in-service or out-of-service noise measurements with the TEKTRONIX 1430 Random Noise Measuring Set. An error-free, side-by-side comparison technique is used. **1.** A portion of a line is deleted. **2.** A calibrated noise level is then inserted by the TEKTRONIX 1430. **3.** The noise level to be measured and the 1430's calibrated noise output are then matched side-by-side on a waveform monitor or scope. This method is highly accurate. In-service noise measurements, using a

selected line in the vertical interval, are made with better than 2-dB accuracy. And the measurements are meaningful in terms of what you see on a picture tube because CCIR weighting and low-pass filters are built in.

Accurate, repeatable measurements are convenient to make in cameras, VTR's, STL's transmission systems or wherever video-frequency random-noise is a problem. Of course program material is protected with copper-to-copper safety. Tests

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can even be performed in the absence of composite sync using the 1430 generated horizontal sync. Full-field measurements can be made with resolution approaching 0.5 dB. For more information about the Tektronix noise measurement technique, contact us at P.O. Box 500-A, Beaverton, Oregon 97005.



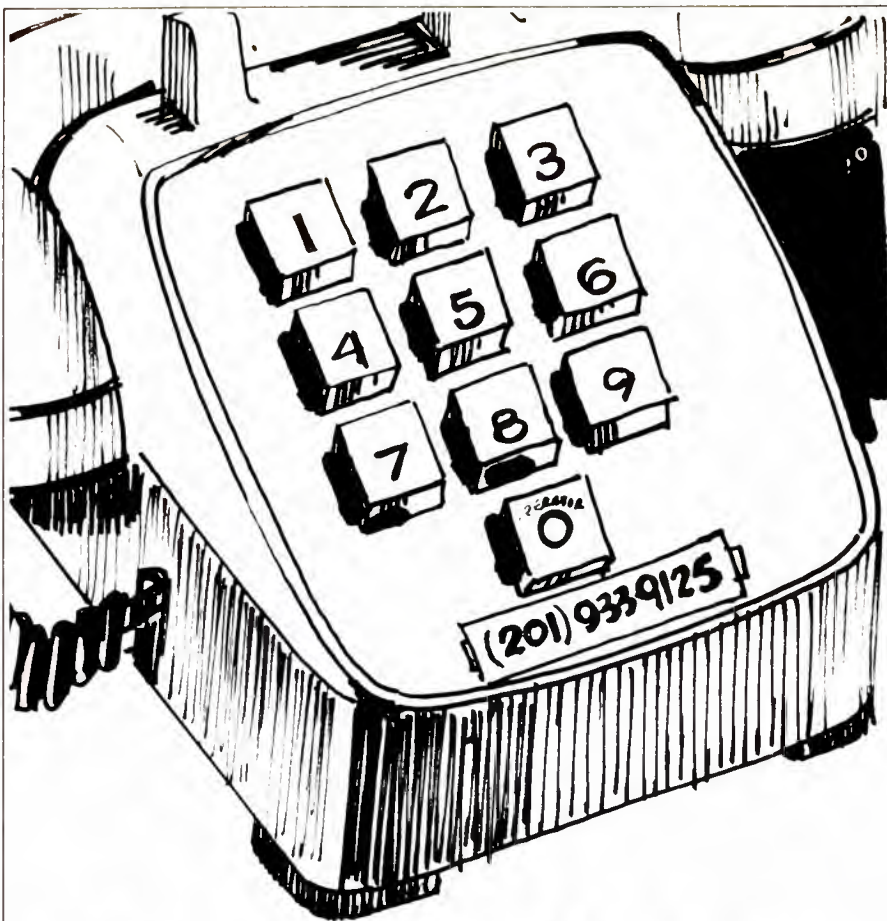
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## NEWS

technical papers for the Convention, to be held June 17-20 in Anaheim, California. Advance indications are for more than 5000 registrants and more than 150 exhibitors. Among the topics specially wanted are those in the area of program origination, cable channel allocations, measurement and tests, subscriber terminals, microwave and laser systems, interactive systems, technical manpower and management, satellite/cable systems, installation and maintenance, and many others. Those wanting to submit a paper should send a one-page (150 word) abstract no later than March 1, 1973, to Delmer C. Ports, NCTA, 918 16th St. N.W., Washington, D.C., 20006. Those whose papers are accepted will be notified by April 1, 1973.

### TPT Washington Report Enlarged to Half Hour

Excellent viewer response stimulated TelePrompTer Corp., New York cable system, to expand its weekly cable program, "Window on Washington," from 15 minutes to a half hour beginning in January. The program is prepared and moderated by Anne Denton Blair, the cable industry's first full-time Washington correspondent. Mel Baily, TPT executive producer, says the longer program will allow greater depth and story development, and will also integrate better into programming of others among TPT's 96 systems in other cities.

### FCC Extends Date For Cable Performance Tests

Acting on a plea from the National Cable Television Association, the FCC at the end of the year extended to December 31, 1973 the deadline for reporting of the initial performance tests required of all cable operators. NCTA had pointed out the severe shortage of equipment and trained personnel, and the heavy financial burden of the tests for smaller cable operators. On the latter point, the FCC opened, under Docket #19659, an inquiry into possible changes or amendments in the rules that would ease the smaller operator's burden, with comments due by February 28, 1973. The FCC, noting the hundreds of service complaints received every year, pointed out that any amendment must be consistent with its objective

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Automatic monitoring

Digital effects with programmable wipes

Animated logos

Preselected wipes

Preselected keys

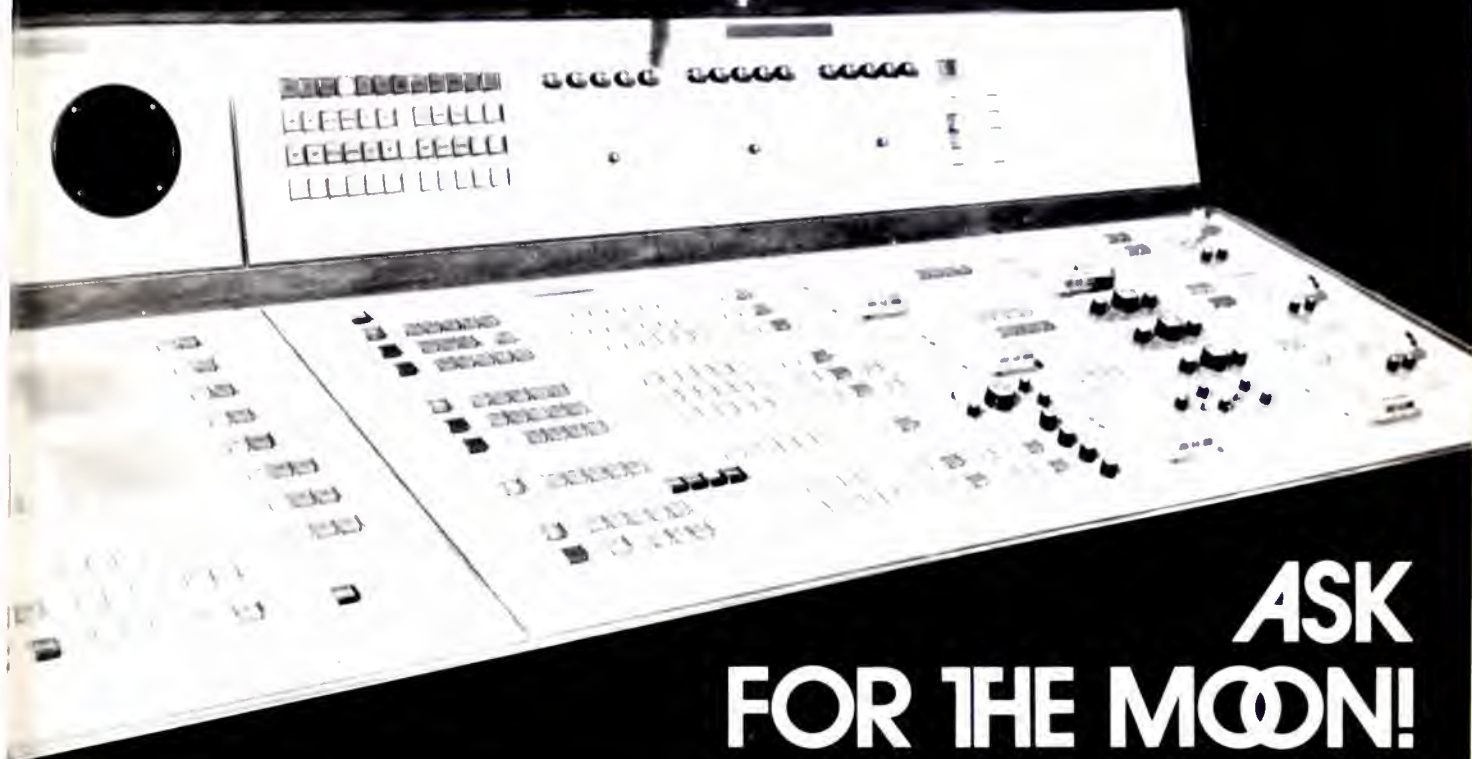
"Mini" digital effects

Wipeable quad split with matted borders

Rotary effects

Variable wipe limits

Edged effects with chroma borders



# ASK FOR THE MOON!

**Bill Kessel did. And got it.**

Just ask him. He's one of the toughest chief engineers in the business. And he wanted features that no one else could give him in two switchers for his studios at KTVT in Ft. Worth and for his facilities in Dallas.

Jack Harris, the production manager, was just as delighted... on the creative side. He got the exclusive features that pack in business... with a control board designed for guys who have to put it all together.

Take a shot at the moon... everything you want... and then some. See us at the NAB Show!



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TR-5 7800 960 TBC 320F

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### DELTA 47 — PIC-PROCT™ TBC SYSTEM

Time Base and Velocity Error Correction down to the proverbial  
Gnat's Eye — in one 7-inch standalone rack package.

### DELTA 7 — VELCORT™ HUE SHIFT CORRECTOR

Standalone Velocity Error and Color Jitter Corrector — add one to  
your quad or heliscan VTR already equipped with its own internal  
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Write or phone for catalog, technical specs, and the name of your nearest  
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## NEWS

of assuring reasonable service to every cable subscriber.

### WBTV Gets Record Amount of Blood for Red Cross

Stations WBTV and WBT in Charlotte, North Carolina, in a campaign organized jointly with the Red Cross, gathered 1126 pints of blood from volunteer donors, the largest quantity ever collected in a single day in North Carolina. The "Give-In," in the WBTV studios, used 33 donor tables, operated by nearly 300 volunteer medical and non-medical helpers, with the scene put on the air from time-to-time along with announcements urging citizens to come in. The WBTV "Give-In," the announcement says, is the major reason the Piedmont Carolinas' chapter of the Red Cross has not suffered a blood shortage in recent years.

### 3M Forms National Dealer Network

The 3M Company has set up a national network of 14 professional audio dealers for the company's audio recorders and accessory equipment. Included are: Accurate Sound, Garland, Tex.; Aengus Enterprises, Fayville, Mass.; Audio Recorders of Arizona, Phoenix; Automated Processes, Melville, N.Y.; F.T.C. Brewer, Pensacola, Fla.; Fidelity Sound, Washington, D.C.; Daniel Flickinger, Hudson, Ohio; Gill Custom House, Palos Hills, Ill.; High Fidelity Showroom, Clayton, Mo.; Jackson Sound, Denver, Col.; Maze Corporation, Birmingham, Ala.; Pams, Dallas, Tex.; Telephase Electron systems, Memphis, Tenn.; and Westlake Audio, Los Angeles, Calif.

### TIO Finds Minority Hiring Far Up In Broadcasting

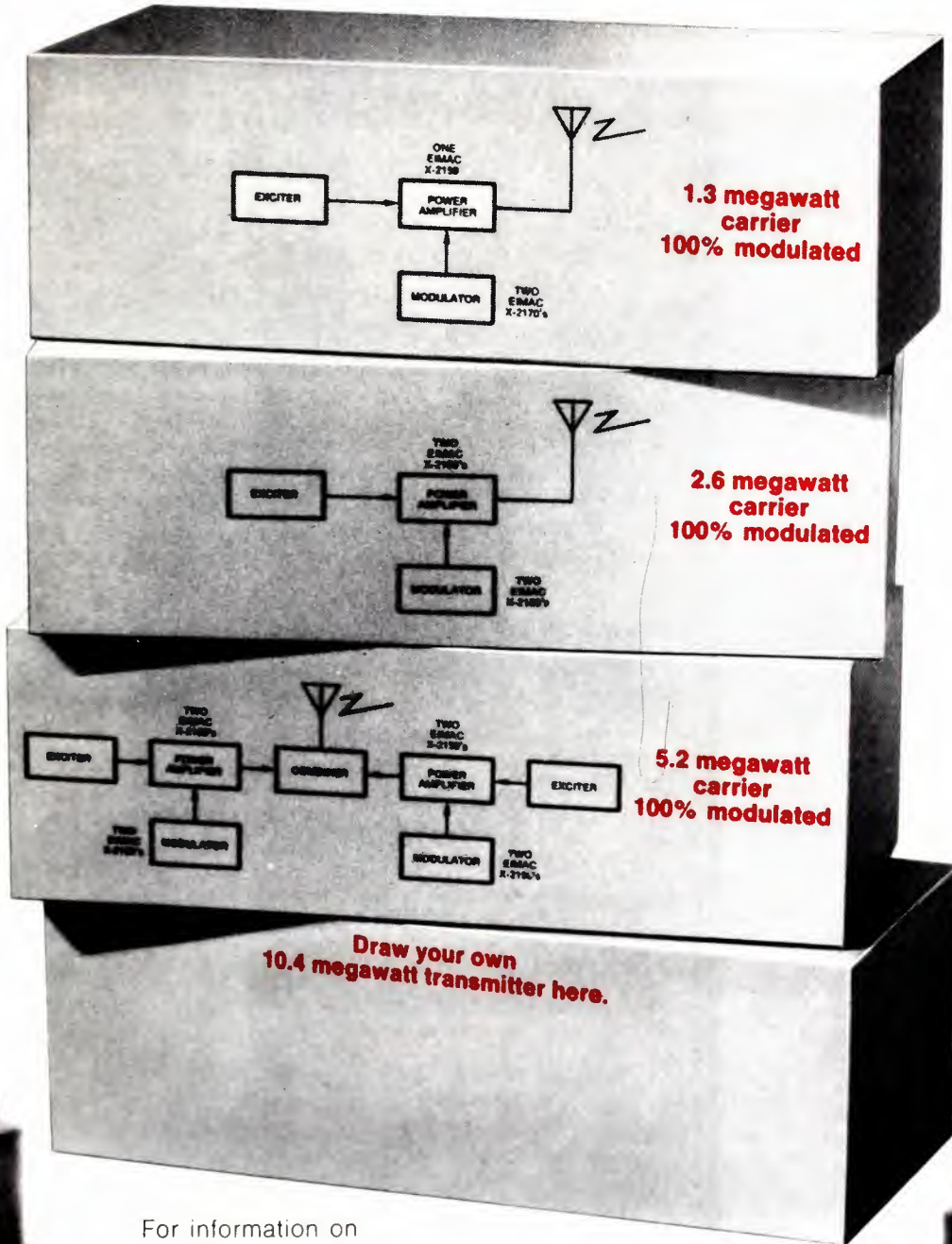
In answer to charges by Dr. Everett Parker of the United Church of Christ that broadcasters have a "dismal" record in the hiring of minorities, Roy Danish, director of the Television Information Office, has pointed out that during 1971 and 1972 minority employment in broadcasting has risen sharply in all nine major full-time occupational categories. "Dr. Parker ignores the rapid progress in minority hiring . . . during the last five years, and even his use of statistics is warped," said

continued on page 14



# Now hear this:

EIMAC super-power tetrodes provide transmitter "building blocks" up to 10.4 megawatts, 100% modulated.



X-2159



X-2170

For information on the X-2159 and X-2170 super-power tetrodes, contact the EIMAC Division of Varian, 301 Industrial Way, San Carlos, California 94070. Or any of the more than 30 Varian/EIMAC Electron Tube and Device Group Sales Offices throughout the world.



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Dear Gabby:

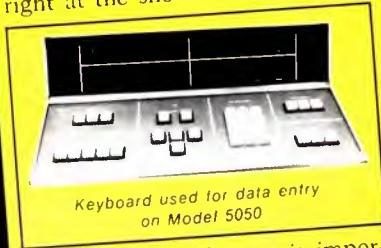
# "How can a wife compete with a \$10,000 Video Tape Editing System featuring Jam-Sync?"



Datatron's Girl Gabby

**DEAR GABBY:** My husband returned from the NAB show singing the praises of a \$10,000 Video Tape Editing System which features something called 'Jam-Sync'. Since he seldom praises my homemade jams, or notices the hours I slave over the kitchen sink, I need help in winning him back.

**DEAR NEGLECTED:** Many NAB visitors fell in love with Datatron's Model 5050 - a Video Tape Editing System with keyboard entry which works with helical or quadruplex VTRs, yet is priced at \$10,000, thousands under competition. In fact, a number of TV stations placed orders right at the show.



Keyboard used for data entry on Model 5050

The jam-sync feature is important since it eliminates the need to pre-record the SMPTE time code on tapes for add-on editing from masters or live sources.

Instead, during pre-roll, the built-in time code generator is set & sync'd so that time picks up exactly where it left off - to the

frame! This saves hours of time, and head wear on expensive video recorders too.

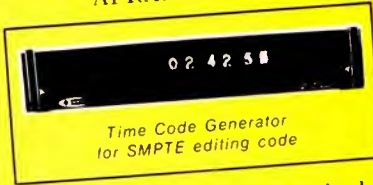
But don't fret. Once your husband's Datatron Model 5050 is installed, he'll have more free time to sing the praises of your jams and jellies.

GABBY

★ ★ ★

**DEAR GABBY:** How can Datatron sell a SMPTE edit code reader for \$1500 and a generator for \$1750 when competitive models go for over \$2500?

**AFRAID OF BARGAINS**



Time Code Generator for SMPTE editing code

**DEAR AFRAID:** Don't be afraid of these bargains. Datatron's edit code reader & generator are fallouts from their Video Tape Editing System project. The low prices reflect simple construction and dedicated design. Actually, they cost less than capstan revolution counters which aren't nearly as accurate.

GABBY

★ ★ ★

Send your questions - either straight or humorous - to Gabby. We'll mail a Flair pen for all received and pay \$100 if we use question in future ad.

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Microelectronic Testing



Timing Instrumentation



Shelly Indicators and Readouts

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## NEWS

Mr. Danish. "He reports, for example, a one-percent increase in . . . officials and managers . . . (actually) this is one percentage point (and the increase) was 25%." Mr. Danish said a TIO survey has shown that, in 27 of the largest cities, 38 of every 100 broadcasting jobs filled during 1972 went to a member of a minority group.

### Public Issues Get N.Y. Airing Thru Regional Plan Programs

A comprehensive series of programs on public issues, with the general title "Choices for '76," is in preparation by the Regional Plan Association, independent New York study group, for presentation during 1973 on most of the New York television stations. One-hour programs on housing, transportation, environment, poverty and other problem topics will run over several three-day periods, with one program on each of the 18 TV stations in the area. Study papers on the project will appear in a book; newspapers are adapting the material to feature stories. The viewing public will be asked to "vote" on the issues, with the Gallup organization making a before and after study of the vote results.

### NAEB's Harley Says CPB Should Stay Out of Programming

President of the National Association of Educational Broadcasters, William G. Harley, has issued a statement contending that only an agency directly responsible to licensed stations should have a decisive influence on programming, since the legal responsibility for the programming rests with the stations themselves. Therefore, says Mr. Harley, the Corporation for Public Broadcasting, since it is accountable to the government, should have no operational role in programming.

### Kodak Sets Full Schedule of Motion Picture Courses

Eastman Kodak Company has announced a 1973 schedule of courses in motion picture and color film technology, to be held through the year in Rochester, San Francisco, Dallas, Atlanta, New York, and Oak Brook, Illinois. Among the courses offered are Basic Film Production, Advanced Film Production

continued on page 16



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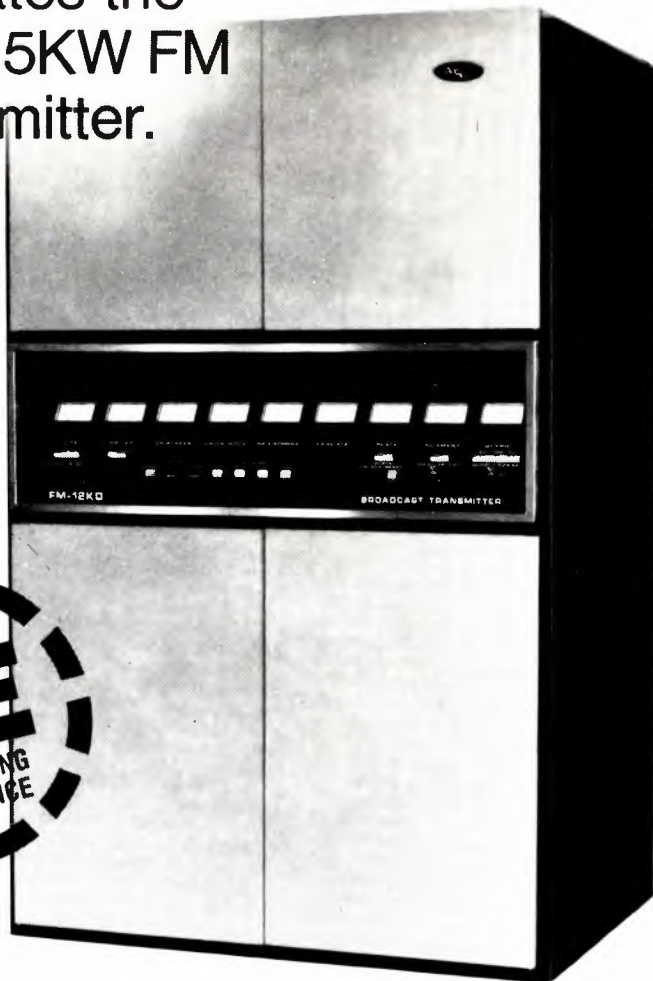
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## NEWS

tion, Sound and Double Application, Ektachrome Processing, Eastman Color Negative II Workshop and others. Complete schedule and all other information can be had at Eastman Motion Picture Division regional offices in Dallas, Atlanta, Hollywood, San Francisco, New York, and Oak Brook, Ill., or at Eastman Kodak, 343 State Street, Rochester, N.Y. 14650.

### Smooth Sound Puts Down Rock Music, Says Gavin

Smoother sound is taking over, with less than 25% of the top-100 hit singles in 1972 belonging in the hard-rock category, according to an annual summary released by the Gavin Report. America seems to be going for mellow ballads, says Gavin. Country music and rhythm and blues continued to thrive, according to the survey.

### NAB Executive Committee Endorses Code Board Changes

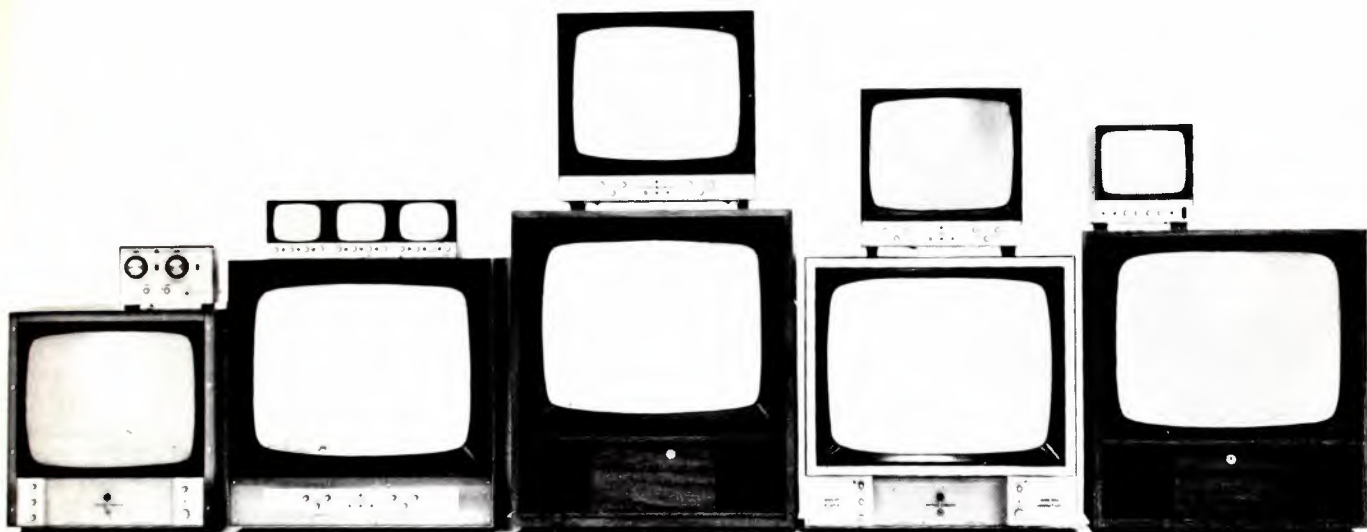
The Executive Committee of the National Association of Broadcasters has endorsed a major reorganization of the Radio Code program, intended to increase membership in the Radio Code. Under the new plan the Code would be applicable to all NAB members, who would certify their adherence on an annual basis. The cost of Code operations would be met from general NAB funds; members not adopting the Code would get no reduction in dues. Further, the Radio Code board would be directed to devise a code reflecting the industry's "high standards and general principles," assuring broad industry support.

### NAB Affirms Free-Press Rights of Broadcasters

The Board of Directors of the National Association of Broadcasters has adopted unanimously a resolution affirming the right of broadcast journalism to protection under the First Amendment to the Constitution, which guarantees freedom of the press. "We further affirm that . . . freedom of the press from government interference at any level is fundamental to our free society, to the public's right to know, and to broadcasting's responsibility to the public to inform them accurately and objectively," the resolution said

continued on page 18





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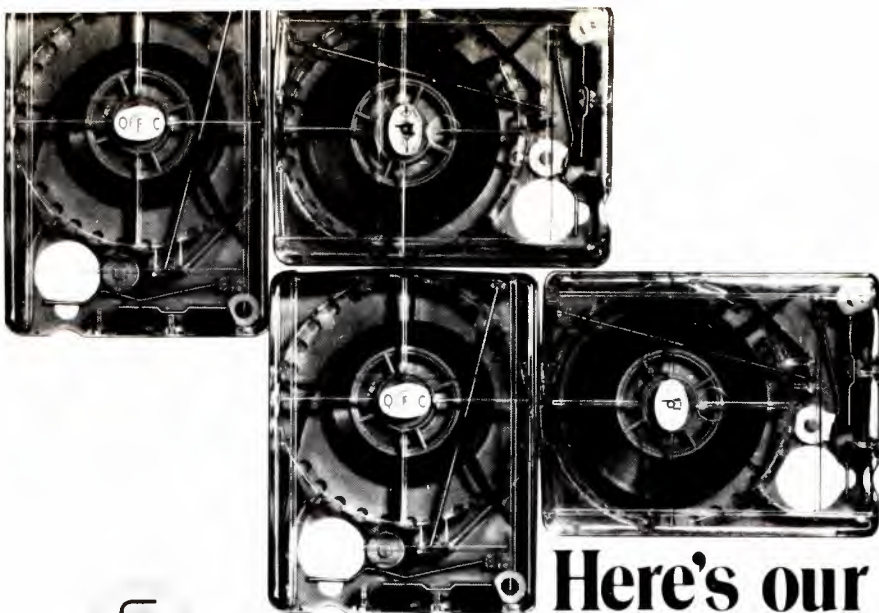
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## NEWS

in part. It also urged the NAB government relations staff to exert every effort toward obtaining legislation which would assure broadcasters of the protection.

### NCTA Opens National Awards Program

A 1973 National Awards Program, announced by the National Cable Television Association, will include awards in five categories for cable systems: System marketing campaign; public relations, single project; public relations, continuing campaign; advertising and promotion, single project; advertising and promotion, continuing campaign. Entries must be based on projects or activities conducted between April 15, 1972 and April 13, 1973; the latter is the 1973 entry deadline. NCTA will make the awards at its 2nd Annual Marketing Workshop in Denver, May 10-12. Entry blanks: NCTA, 918-16th St., N.W., Washington, D.C. 20006.

### Mountain Broadcasters Elect Morgenroth President

The Rocky Mountain Broadcasters Association, at a meeting on January 9 in Salt Lake City, announced the election of Earl E. Morgenroth as president. Mr. Morgenroth is president of Western Broadcasting Co., Missoula, Montana, which operates television and radio stations in seven cities in Montana and Idaho. Vice presidency of RMBA went to Bill Sims, of KOJO Radio, Laramie, Wyoming.

### Founder's Project Issues History of Cable in Massachusetts

The Founder's Annex Public Service Project has issued "Cable in Mass 2," an updating of an earlier handbook on cable. It includes a history of cable in Massachusetts; the status of cable in each municipality; each company's ownership and record; and an annotated copy of the state regulations. Copies: \$3.50 each, plus 80 cents for first class mail, 40 cents for second class, from Founder's Annex, P.O. Box 388, Dedham, Mass. 02026.

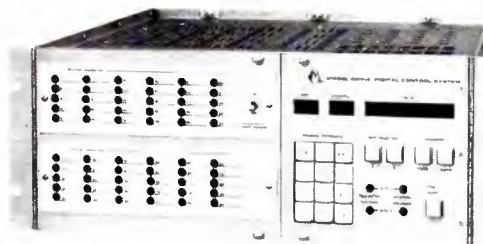
### Westinghouse Gives Studio Building To Temple University

A seven-story building in downtown Philadelphia, used for 34 years as  
continued on page 20



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an origination site for area and national radio and television programming, has been given by its current owner, Westinghouse Broadcasting Company, to Temple University. The building had been used until mid-1972 by the Westinghouse stations, KYW-TV and KYW Newsradio, and for the Mike Douglas Show, all now in a new building on Independence Mall. Temple will set up a number of classrooms in the building, and also use the studio facilities for laboratory programs in theater, radio, and television.

### Perry of GE Hails Outlook for 1973

Donald E. Perry, vice president of General Electric and general manager of its home entertainment division, predicted at year's end a 6% to 7% increase in consumer electronics business in 1973 over the high levels set in 1972. He saw audio systems and components up about 15%, reflecting in part a reduction in average living space that makes component systems look more salable than the older consoles. His projec-

tions on TV receiver sales were for about 8.5 million color and 8.3 million monochrome units, roughly the same as in 1972. Compactness and styling will be even more important than in the past, said Mr. Perry, with strong markets for portables. He said four-channel stereo should grow steadily, but will not replace two-channel for some time yet; evolution, not revolution, was his word for it.

### National Science Foundation Funds Tech Study in Tacoma

An experiment in joining engineers and systems experts with city administrators to seek new solutions to a wide range of city problems is underway in Tacoma, Wash., with funding from the National Science Foundation. The "Urban Laboratory" project is attacking such subjects as improved fire-fighting techniques, harbor protection, transit service, refuse collection, traffic case scheduling, and city government.

### Videorecord To Distribute Training On New Health Law

The Videorecord Corporation announced a videocassette series of

training programs on occupational safety and health, designed to aid industry in complying with the new Federal Occupational Safety and Health Act (OSHA), now being enforced by the U.S. Dept. of Labor. Dr. James Lieberman, vice president of Videorecord's medical division and formerly U.S. Assistant Surgeon General, called OSHA, effective in April 1971, "... the most sweeping legislation of its type ever passed by Congress." The eight-part videocassette series is available for rent or purchase at Videorecord dealers across the country.

### Greater Media Adds Two Stations To Broadcast Chain

Greater Media, Inc., of New Brunswick, N.J., announced purchase of WQTE, AM station in Monroe, Mich., and of WHFI, FM station in Birmingham, Mich. The multiple-station owner already operates stations in Washington, D.C., area, Huntington, W. Va., New Brunswick, N.J., Huntington and Smithtown, Long Island. The firm also publishes a chain of suburban newspapers in New Jersey and operates cable systems in New England.

continued on page 114

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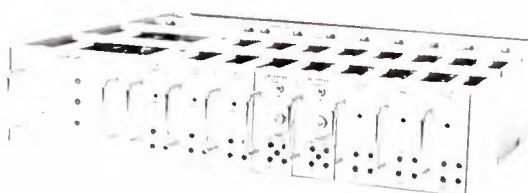
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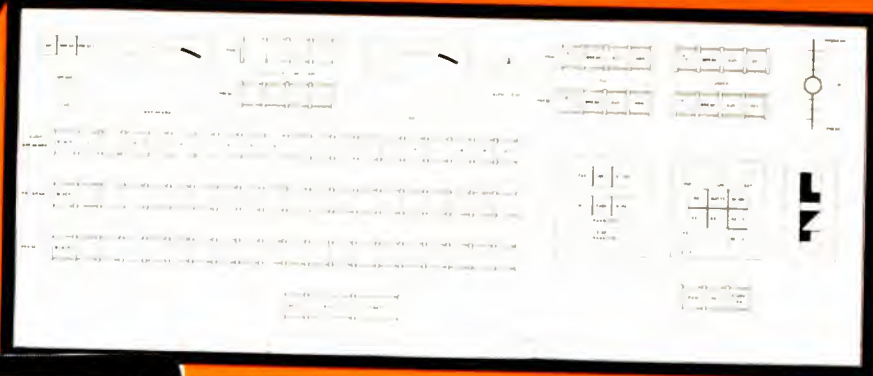
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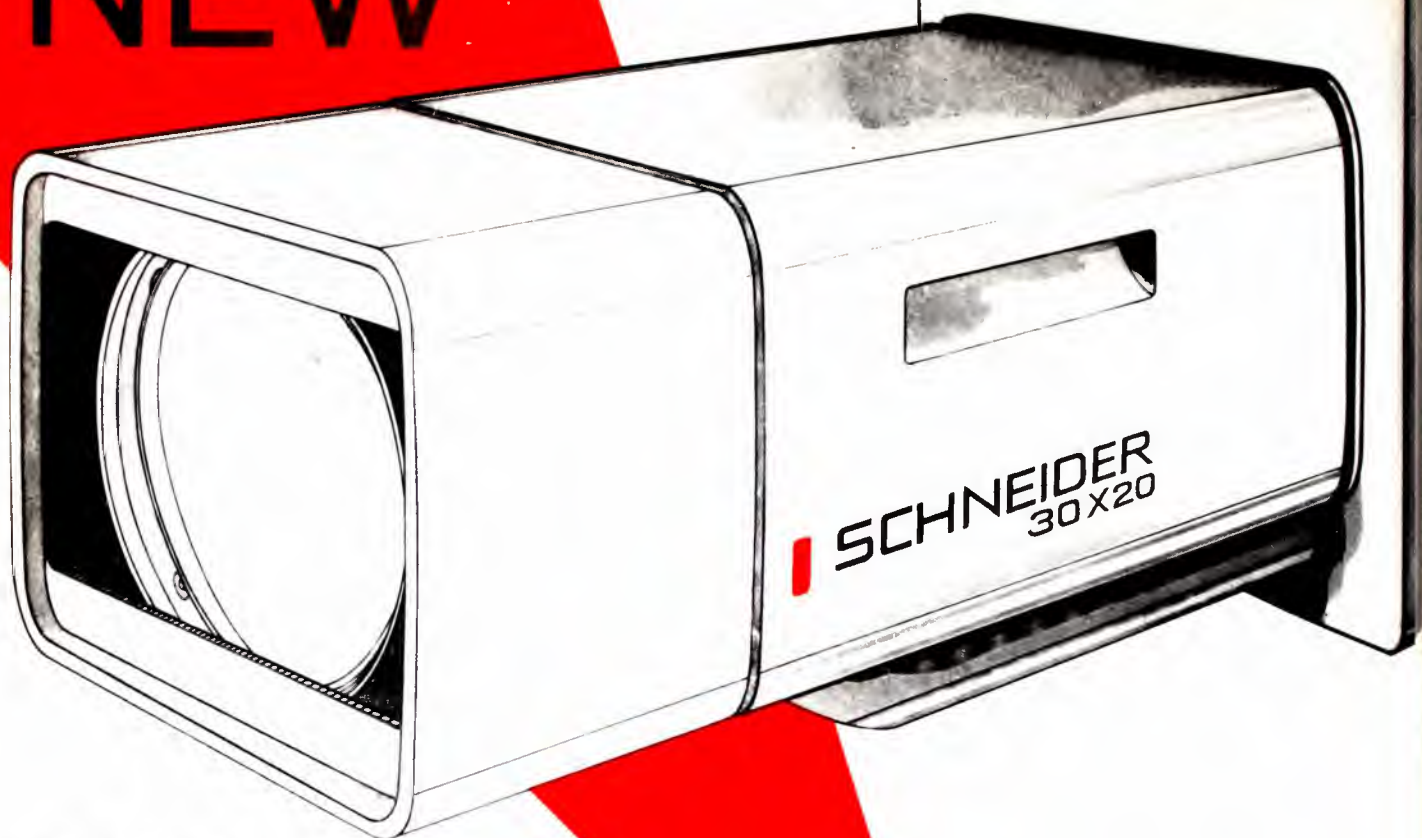
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# INTERPRETING THE **FCC** RULES & REGULATIONS

## **Broadcast Re-Regulation: Changes In Certain Station Reporting, Record-Keeping and Operating Requirements**

In a recent broadcast action, the Commission changed and/or eliminated certain operating rules which it considered anachronistic. "Designed to remove unnecessary operating burdens and improve public service" these rule changes are individually minor in nature, but in the aggregate will save time and be more convenient for licensees and permittees. The minor rule changes pertain to the following: 1) auxiliary transmitter testing; 2) station reporting; and 3) operating requirements and record keeping.

*These rule changes become effective on April 4, 1973.*

### **Auxiliary Transmitters**

The requirement that auxiliary transmitters be tested at least once a week at a specified time has been lifted. Hereafter, the necessity of and time for testing is in the *discretion* of the licensee. Note: Though voluntary, all auxiliary transmitter tests must be entered in the maintenance log. Hence, the licensee need only specify that the auxiliary transmitter is 1) in proper operating condition, and 2) adjusted to the licensed frequency (if, of course, such is true) and used accordingly.

Because many auxiliary transmitters have a licensed power less than that of a regular transmitter, the Commission has determined that such an auxiliary transmitter (with lower power than the regular) may be operated in excess of the auxiliary's licensed power so long as it does not exceed 105% of the regular transmitter's licensed power.

In conformance with the rule applicable to AM stations, the Commission eliminated its "five-day restriction without FCC authority" on use of auxiliary transmitters for both FM and TV. Under special circumstances (e.g., when a licensee or permittee, for reasons beyond his control, must operate with 1) less than specified minimum operating power, or 2) less than minimum hours of operation), the

licensee is no longer required to notify the Commission or FCC district field office immediately of same to be given his ten-day grace period. Rather, he may submit to the Commission a *written request*, no later than the tenth day, for such additional time needed. Hence, the licensee has a ten-day grace period to correct the problem.

Clarification is made of the AM and FM rules which require the operator on duty to have ready access to and visibility of the transmitter, required monitors, metering equipment and/or remote control instruments. For purposes of picking up deviations from these instruments' normal indications, they must be visible for operator observation *within a 360° arc*. This eliminates the assumption that said instruments must be "directly in front" of the operator.

### **Station Reporting**

Licensees need no longer notify the FCC Engineer in Charge of the radio district of station location re the following:

- a) defective modulation monitor;
- b) defective indicating instruments;
- c) defective frequency monitor;
- d) maintaining minimum operating schedule;
- e) maintaining minimum operating power;
- f) departure from regular schedule of share-time operation;
- g) beginning of stereophonic broadcasting;
- h) transmission of point-to-point messages during emergency operations.

Note: Notification of the above to the Commission is required and operation without such equipment is limited to 60 days without further Commission authorization.

continued on page 26

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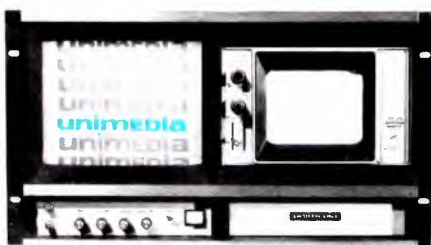
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## FCC Rules & Regulations

continued

### Operating Requirements and Record Keeping

Certain other minor operating rules were *eliminated*, including the following:

- 1) The requirement that the licensee keep specifications concerning temperature variations at the crystals used in transmitters;
- 2) The requirement that he retain an accurate circuit diagram (furnished by the manufacturer of the equipment) at the transmitter;
- 3) The requirement that a supply of spare tower lamps be maintained;
- 4) The requirement for an entry in the operating log of each interruption, not automatically restored, of the carrier wave, covering the cause and duration of same and signature of the person restoring operation.

These are all *eliminated*.

In addition, the Commission made certain changes and clarifications in other minor operating rules, including the following:

- (1) The licensee may keep equipment performance measurement data on file at either the remote control point or at the transmitter. Note: The signator of the required material must also *date* it;
- (2) The licensee need no longer file, with the Engineer in Charge of the radio district of station location, the copies of contracts with part-time, first class radio-telephone operators;
- (3) An *exception* to the requirement that transmission live meter readings be entered in operating logs of FM and TV stations is made when power is being determined by the indirect method.

As presently drawn, Commission rules allow *unattended* operation of intermediate stations in multi-hop configurations in the aural services and for TV intercity relay stations, TV translator relay stations, and multi-hop TV STL stations, but do *not* provide for unattended operation in certain single-hop situations. Hereafter, the rules will permit *unattended* operation of one-hop aural STLs, aural intercity relays, and TV STLs. Of course, observations at the receiving end of the circuit are still required.

Commissioner Richard Wiley currently supervises a special task force considering a plethora of subjects for future FCC re-regulation action. This list of subjects includes directional antennae; remote pick-up; automatic transmitters; logging, program and operating maintenance; operator testing; Subsidiary Communications Authority; selected aspects of radio license renewals; reorganization and reformulation of FCC rules; administrative requirements; records to be filed with the Commission; records to be filed at the stations; reports to the FCC; application forms; other forms; and FCC and licensee communications and relationships. Many of these will likely become the subject of future formal proceedings. When such occurs, *BM/E* will treat changes in depth.

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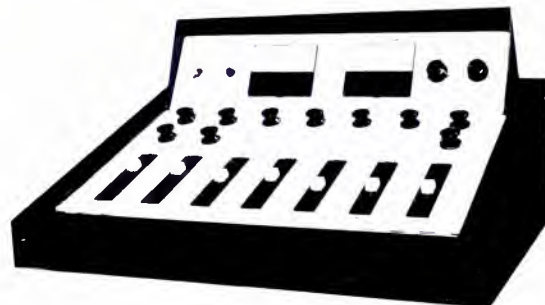
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October 6, 1972

Mr. Norman L. Bleicher  
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Dear Norm:

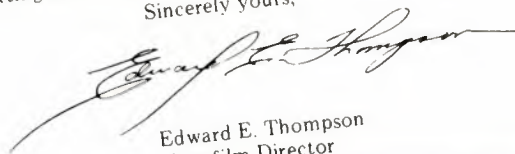
Thank you for your letter of September 13, 1972.  
You mention four areas for information relative to news work, using the CP-16/A, and they are as follows:

1. I feel that the CP-16/A is the best news camera on the market today. All of our news reporters feel the same way. It is extremely portable and we are able to shoot pictures much as we do with our Bell & Howell or Bolex cameras. I have designed a small "U" shoulder pod of aluminum, padded with rubber, for use with the camera. The light weight of the camera, "U" pod and magazine make for quick and easy shooting, with comfort and ease for the cameraman as well.
2. As to use under adverse conditions, the camera has performed very well in inclement weather and I see no reason why it should not be the same in the winter as in the summer.
3. Service has been the best. Both you and Cinema Products Corporation have been in close touch with us and we are very pleased with the quick service we are getting.
4. News of Interest: In addition to the shoulder pod, I have installed a Sennheiser MKH-815 shotgun microphone, with a shock-proof mount, on top of the CP-16/A camera. The camera is so quiet that the 815 mike does not pick up any camera noise. With no cables and no power pack to get in the way or restrict your movement, the cameraman can really move in and around, getting the right position to get the best picture. He becomes a part of it all.

The enclosed photographs may be of some help to explain the "U" pod and the shotgun mike. The cameraman is Larry Sales, a reporter here at WAVE News. The other guy holding the camera and mike happens to be me.

In summing up, I am happy to say that we are very pleased with our two CP-16/A cameras (even the price) and I am looking forward to getting another in the very near future.

Sincerely yours,



Edward E. Thompson  
Newsfilm Director  
WAVE-TV

EET:jk  
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If the only thing bothering you about your helical VTR is the picture you play back, you can relax.

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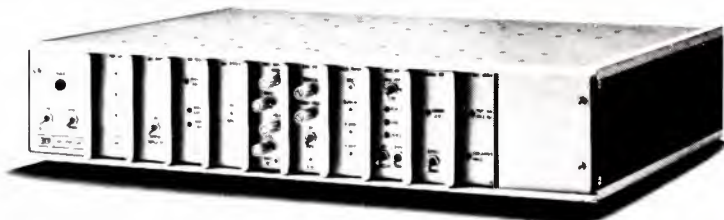
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# NAB '73 Unveils Significant New Equipment For Eager Buyers

LAST YEAR AT NAB CONVENTION TIME the economy was on the upturn. This year it's practically booming. A sampling of managers and chief engineers surveyed by *BM/E* indicates high interest in new equipment and greater attendance in Washington than in Chicago last year. And, for the first time since the introduction of the video cartridge player in 1969, there will be some significant new equipment unveiled to allure buyers. *BM/E* has already had a peek at several impressive new systems and undoubtedly a few surprises will be unveiled at the show.

IVC is headlining a helical VTR multiple cart machine as a low-cost way to achieve VTR automation. A new company (new in broadcasting, that is), Echo Sciences, is unveiling a broadcast quality helical back-pack recorder. Marconi is bringing over from England a brand new telecine which reflects a total redesign effort. As evidence that we are truly into the digital era, Sarkes Tarzian is ready to amaze us with a digital effects generator. And there are some new advances in automatic measuring and correcting equipment as the following pages will illustrate.

Prospective buyers will be there according to *BM/E's* second annual "Panel of 100" survey\* which measures the degree of interest in the NAB Convention, and in new equipment in particular. All signs indicate more pointed interest in specific product areas and greater attendance.

\*Several panels of 100 were surveyed. Breakdown of respondents: TV (plus TV with radio interests), 68; radio only, 64. TV respondents were preponderantly directors of engineering (managers turned their questionnaires over to engineering executives for completion). Radio respondents were: managers or owners, 38; chief engineers, 26.



New portable one-inch helical VTR from Echo Sciences meets full broadcast requirements.

In response to the key question—"Will you be looking at any specific new equipment?"—86% said "yes." We found that virtually every TV broadcaster is looking for some specific piece of equipment. Seventy-seven percent of the radio broadcast group is looking for something in particular for expansion purposes (50%) or for replacement (50%).

In the TV area, the video cartridge/video cassette machine is of keenest interest; 70% said this equipment would be investigated. Next in order of interest are cameras. Sixty percent of this group is most interested in medium-priced cameras as opposed to top-of-the-line (40%). Portable cameras were identified as being of special interest.

A product to move from relative obscurity last year to high on the

interest list this year is the videotape editor. Last year 25% expressed an interest. This year almost half have a specific need for editing equipment.

Also high on the list are video switchers, including automatic switchers. Although the total number of panelists showing interest in TV transmitters and remote control equipment has waned some what, transmitters are *the* piece of equipment of most interest to about one-third of the respondents.

In the realm of radio, three products stand out as being of more than usual interest: audio consoles, cartridge players, and automation in general. Consoles lead the list with 65% of our respondents mentioning specific interest in them. But the real winner in terms of increased interest over last year is automation equipment. Last year



40% singled out automation, but this year the figure is 52%. Our breakout shows cartridge machines of keen interest—61%. There is no comparable figure for last year since we then lumped this popular product with tape recorders in general.

We also note that logging equipment and status and alarm indicators have moved up in interest this year, due doubtlessly to FCC rule changes.

Tables showing various categories indicate shifts in interest.

## Greater attendance

In 1973, 70% of our respondents (from a cross-section of both large and small stations) indicate they are making the trip to Washington. Last year it was 66%. Those with TV interest will be there in greater numbers (82% said "yes" compared with 77% last year). And, in five cases out of six, if a panelist said he was not attending, his station will be represented by one or more staff members. (The only TV station replying which did not expect to attend at all was a small public TV station.) Our poll indicates 56% of those with radio interests only will be attending—just slightly better than last year. Two-thirds of all managers replying are going, but only about three-eighths of the engineers.

## More money but buying may be deferred

Those that will be attending have bigger budgets than they did in 1972. The average budget\* for TV stations, represented by our panel for 1973 is \$380,000 per station compared to \$300,000 last year. For radio, the capital expense budget is \$33,450 up considerably over the \$25,000 reported last year.

Although broadcasters will be seeking out specific products and will have money to spend, there is likely to be very little buying directly on the convention floor. Last year some 9% indicated they might buy at the show; this year only two or three broadcasters thought they might sign up at the convention. Most indicate they'd do their actual purchasing later in 1973.

\* Thirty-two TV stations and 20 radio stations provided budget estimates.

## Overall Interest In TV Equipment

	Percent Interested 1973	Percent Interested 1972
Video Cartridge/Cassette	70%	—
VTRs	50	60
TV Cameras (med. price)	33	} 80
TV Cameras (top of line)	24	
Character Generators	50	50
Videotape Editors	45	25
Switchers	42	50
Audio Consoles	33	—
Film Chains	33	43
Test Equipment	33	—
Automation	30	37
Remote Control Gear	30	50
Monitors	30	40
Enhancers	30	43
Transmitters	27	43

## Overall Interest In Radio Equipment

	Percent Interested 1973	Percent Interested 1972
Consoles, Mixers	65%	60%
Cartridge Players	61	} 65
Tape Recorders/Players	52	
Automation Equipment	52	40
Audio Processing	42	55
Headsets	35	37
Remote Pickup & STL	35	25
Status & Alarm Indicators	35	—
Loggers	33	25
Microphones	33	52
Turntables	33	57
FM Transmitters	30	40
AM Monitors	28	32
FM Monitors	28	29
FM Antennas	26	43
Audio Controls	26	—
Transmission Lines	24	23
AM Transmitters	17	20
Towers	11	20

## Portability and High Performance in New VTR From Echo Science

The combination of easy portability with high performance is obviously needed to expand out-of-the-studio service for the VTR. Echo Science Corporation is showing a new one-inch VTR system. The WR201C, in a compact package, designed for easy back-packing or van shelf use; total weight with rechargeable battery is 38 pounds, dimensions 15 in. x 11.5 in. x 6.5 in. The recording format is the two-head helical system introduced by Echo Science, which has a scan angle of 13 degrees and track length of 3.7 in. The new unit has a tape speed of 15 ips, writing speed 1470 ips, record time one-half hour on standard 8-in. reel. Electronics is high-band, NTSC color direct. The system has been used in literally thousands of airborne missions of the U. S. military.

Echo Science is also showing the WRR411C, a studio model using the same format as the WR201C (recordings are interchangeable between the two machines). The WRR411C is a table-top model weighing 140 pounds, with overhead bridge holding

picture, waveform, and audio monitors. Playing time is one-and-one-half hours on 12½ in. reel. Continuous time and velocity correction is integral. Inputs are provided for composite video (0.5 to 1.5 v p-p), sub-carrier, composite sync, and black burst. Specs meet broadcast standards. Price about one-half that of quad.

## Two New Systems Pioneer Automatic Video Correction

Send a video color signal down a long transmission line, or through a satellite "circuit," and a lot of things can happen to it. Up to now, getting a color signal back to standard has depended on manual adjustment at the receiving end of the line.

Now come two units designed to keep a video signal completely up to snuff automatically by monitoring the Vertical Interval Reference signal (VIR), and applying instantaneous correction as needed.

In a pre-NAB disclosure exclusively for *BM/E*, CBS Laboratories announced the introduction at the show of the VIR Correction System, a two-

continued on page 34



# Yesterday's Prophet and today's Profits

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unit system consisting of the VIR Generator, Model 2100, and the VIR Corrector, Model 2200. The generator sends the VIR signal down the line. At the receiving end, the VIR corrector will automatically adjust, back to the values at the generator end of the line, the following: burst/chroma phase; burst amplitude; overall gain; chroma gain; set-up to 7.5 IEEE (with option). The corrector also takes care of other in-line distortions that may arise in distribution amplifiers, STLs, etc.

Automaticity is preserved with a "fail-safe" circuit that turns the unit into a simple unity-gain amplifier when no VIR signal is coming in. Operation is based, of course, on the proposed EIA standards for the VIR signal.



Tektronix/VIR video corrector, above, and CBS unit below.

What appears to be a similar system was announced in pre-NAB releases by Tektronix, who call their unit the Model 1440 Automatic Video Corrector. The maker says the system will use the VIR signal for automatic correction of video gain, chrominance/luminance gain ratio, setup level, burst phase relative to chroma, burst gain and sync gain. The unit can be remotely set to "manual" operation, with all corrections remotely controlled. If no VIR signal comes down the line, the 1440 switches automatically to manual operation. If the power fails, or a remote by-pass switch is actuated, the video signal is sent around the unit.

These two systems look like important additional stimulants to the trend toward higher standards of color quality in broadcasting.

## Moseley Introduces New Digital Remote Control

Moseley Associates has a new digital control system for remote operation of broadcast transmitters, the DCS-2,

## Simplified Automatic Cart Play from IVC

Among the really new ways of doing things to be unveiled at NAB is International Video Corporation's BCR-200 broadcast "cart" machine, which embodies an attractively simplified approach to the automation of video programming. Basic difference between the BCR-200 and most other cart machines now available is that the BCR-200 does not move the carts: each of the six helical-scan carts with one-inch tape (or 12 carts, in an extra-bay option) has its own playing position. The cart at any position can be removed and another inserted at any time. Threading is automatic; if a cart fails to thread in a few seconds it is ejected and can be reinserted. Each cart holds from ten seconds to *one hour* of material, so the system can handle not only commercials, IDs, spot announcements, etc., but also a station's full programming.

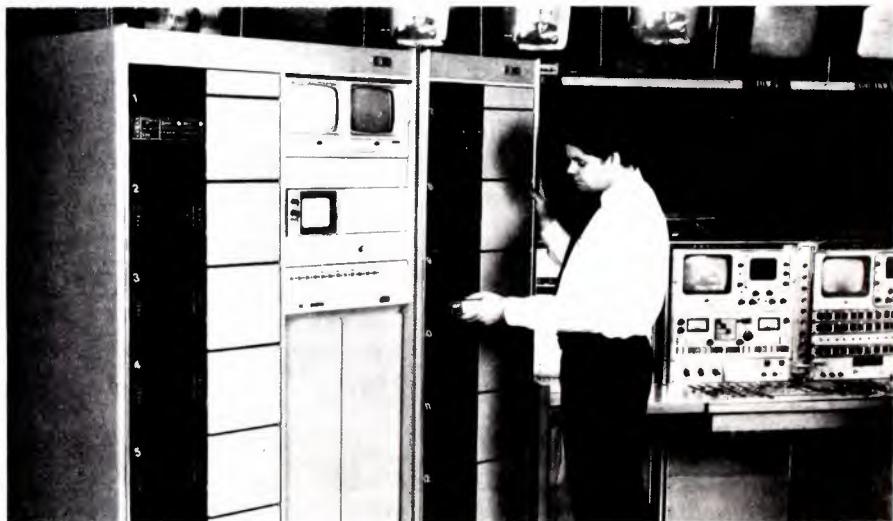
Carts on the machine can be started and stopped in any sequence automatically, under control of a computer built into the system, with full pre-programming of 12 positions available. Each bay of six carts includes one position that is for recording as well as playback; this can be used to prepare new carts while others are being played under computer control. The carts can also use tape recorded on the IVC 900-series VTRs.

The recording positions include facilities for putting cue tones on the second audio channel. After video material from any source has been re-

corded, the operator can rewind and preview the tape, stopping it at any point that a cue tone is needed. Pushing the Record and Cue Tone buttons causes the tape to reverse for five seconds while recording a five-second roll cue on the second audio track. End cues are put on the same way. A cue can be separately erased and re-recorded if a correction is needed.

A playback deck can be programmed to play a segment, rewind the cart, and eject; or play, rewind, and recue (for material to be inserted into programming repeatedly during the day); or to play, roll forward, and cue. The last mode allows syndicated programming, for example, to be stopped at any point automatically, with automatic cueing in of commercials on another cart during the pause, followed by restart of the syndicated program at the next cue.

Electronics is quite similar to that of the IVC-900 series VTRs. A built-in time-base corrector limits error to approximately  $\pm 4$  nanoseconds; drop-out compensator and processing amplifier are also built in. To reduce the chance of downtime, any deck that is malfunctioning can be skipped in the sequence; a spare can be put in quickly. Manual programming, with thumb-wheel switches, is available as a backup for the automatic programmer. IVC says the BCR-200 will sell for roughly half the cost of "Carousel" type cart machines.



IVC cartridge videotape recorder in 12-deck, three-bay configuration offers simplified programming and extreme versatility.

which provides control, telemetry, status, and automatic logging, for all basic functions needed with a remote transmitter plant. Telemetry uses a

full four-digit number with resolution to 0.01%. Desired parameters can be logged automatically, and the status

continued on page 36



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When our RF circuit brought condenser microphones out of the recording studio and into the world, even we had no idea of the many applications you'd put them to. But what our technology made possible, your ingenuity extended in many different directions. What was once a fragile luxury, you made a necessity in location filming, audience participation shows, press conferences,



rock concerts, opera, cinema verite . . . the list grows daily in recording, broadcasting, filmmaking, education and technology. We have not rested on achievements either. Creating and improving condenser microphones with new features, new capabilities. And happily, you adopted them to an extent that has made us the industry standard. Perhaps though, you are unaware just how large the "first family" of professional condenser microphones and accessories has become. For the latest information, please write or call us.

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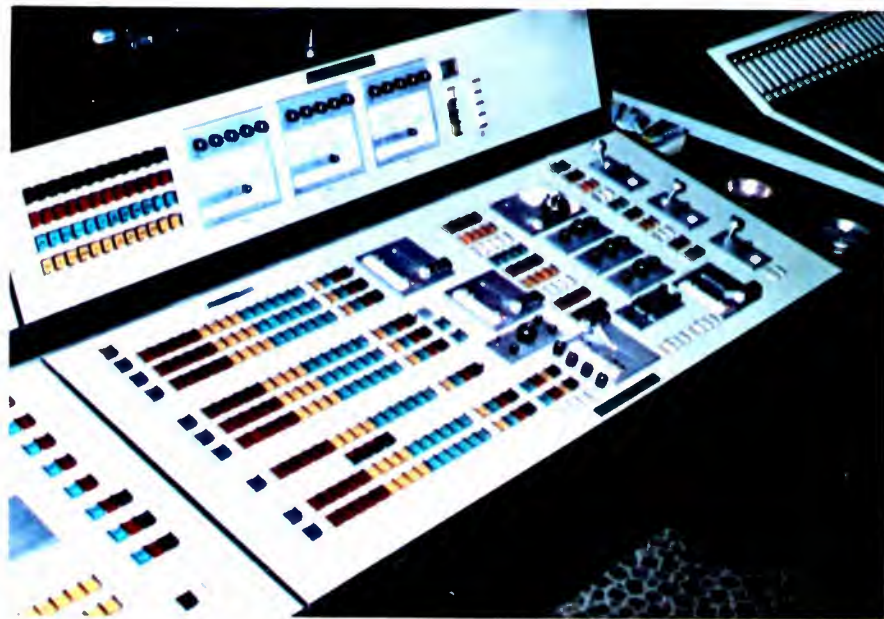
## Digital Techniques Bring Fresh Flexibility to Local Station Production

system gives observation of events as they occur. With a computer option, full automatic operation of a transmitter is available (when FCC rules allow). Other new items: RPL-3 and RPL-4 remote pickup transmitters, which operate in the 148-174 MHz and 450-470 MHz bands respectively, and include audio mixing facilities; and the PCL-101 aural studio-transmitter link for AM broadcasters in countries requiring operation at 150 MHz or 240 MHz.

A new series of digital electronic equipments aimed at bringing increased flexibility to local TV station productions are being unveiled by Sarkes Tarzian's Broadcast Equipment Division. Key unit in the series is the "Cinematte II," a digital special effects generator with an unusually varied complement of operation modes. As the keyboard photo shows, buttons can be punched for automatic production of a large series of mattes, wipes,

etc. The unit also can be expanded in production capability to become comparable to a motion picture editing system, and can be controlled by a computer for automatic programming.

Another unit to be shown in the digital production-tool series is a new multi-system switcher, which combines a number of digital electronic components. Sarkes Tarzian has sold one of the switcher systems to station KOOL-TV in Phoenix, Arizona. Another product to be shown is a one-line machine control system called Digiplex. A technical talk on this system will be given at the NAB engineering conference. Also at the show will be an advanced model of the "Star-Com" data communications system which Sarkes Tarzian has had under development for several years.



Multi-system switcher from Sarkes Tarzian (sold to KOOL-TV) incorporates digital effects generator.

## Marconi Will Show New Integrated Telecine

Marconi Electronics will introduce a new integrated telecine unit, the B3404, which includes a large complement of operating and control features aimed at efficiency in a TV station, and takes up only about 6½ by 2¾ feet of floor space. The two specially-designed 16mm projectors are mounted on open vertical plates, with a straight-line horizontal segment of film going through the drive and optical gate on a lower plate in front of the operator, and with drop-in threading. Projectors can run in forward or reverse from zero to twice normal speed (which is 24 or 25 frames/second). It has instant start (after cueing up), auto stop, and cueing to individual frames with metal markers on the film.

Light intensity is several times that needed for average film, and is adjusted by a servo-controlled 100:1 neutral density disc allowing projection of film with a very wide density range. A closed loop of film about 11.5 feet long can be run for any repeating message. Film loops are automatically maintained. Optical and magnetic sound heads are included. A 35mm projector with most of the same features is available.

An unusual optical system, avoiding the moving mirror system, controls the selection of light source: four small motors, each driving an aluminum vane that can interrupt one light path. Normally only one path is open, but two or more can be opened to superimpose images. In or out time is less than 10 ms. The two slide projectors accept 16mm and 35mm slides in

continued on page 38

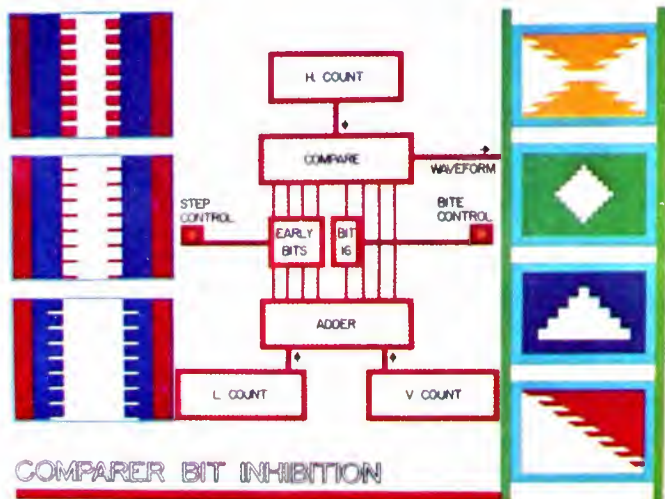


Diagram of a portion of Sarkes Tarzian digital effects generator shows some of the effects.



# Don't dub 'em, dupe 'em, or dump 'em

Use 'em! Shibaden's dramatically new color cartridge video recorder lets you use all your existing 1/2" EIAJ color or black and white tapes. No need to dupe, or lose resolution by dubbing up to 3/4" or 1" formats.

With Shibaden's SV-530 you get fast, convenient record and playback operation. Unexcelled color stability and reproduction. Exceptional reliability.

Pop-in a cartridge. Then, instant-response, solenoid-activated keyboard controls let you move to any function — Play, Record, Fast Forward, Rewind or Positive Stop. When the tape ends, it re-winds . . . automatically, and the cartridge ejects . . . automatically.

The superbly crafted SV-530 has a decorator wood case, weighs only 46 lbs. and measures less than 20" across. A true portable.

Compatibility with all EIAJ Type-1 VTRs, and considerably less tape storage space and cost than cassettes, are a few of the many other Shibaden pluses to consider.

Consider a demo. Or simply send for our Color Cartridge Video Recorder brochure. From Shibaden . . . "The Image Makers."



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standard 30-slide trays. Slide sequencing is automatic.

The camera is designed for three 30mm lead oxide tubes. Camera electronics include video processing: gamma correction, aperture correction (with glass delay lines for vertical aperture correction); in-band and out-of-band boost; automatic registration.

The control panel is horizontally mounted in center front, and includes pushbuttons for all automatic, start-stop and select features. A quadrant fader serves for white control, with vertical motion to adjust the light filter and rotation to adjust the black level. If color balance in a film changes and chrominance gain needs adjustment, white balance is adjusted with two potentiometers that can be set simultaneously, maintaining overall balance.

In the sound channel, there is a "Hold Sound" button which keeps the sound from a source coming through to the operator after a shift to another source for the picture.

## New Color Monitor Has Correction Matrix To Match Home Receiver

A problem in adjustment of color broadcasts has long existed because many professional studio monitors maintain the original NTSC coding and matrixing, which was based on chromaticity of phosphors then in use. Display phosphors in monitors and in home receivers today have different chromaticity; they were introduced in the interest of improved brightness, producibility, and have stability. Home receivers normally include a correction matrix which brings the color fully to NTSC standards. Thus, if the broadcaster adjusts the video signal for desirable color quality on the monitor, it is likely to be different and inferior on the home screen.

Tektronix is introducing at the show a 17-inch color monitor with Trinitron picture tube, the Model 670, which includes a switchable matrix giving essentially the same "view" of the signal as a modern, compensated home receiver. The matrix can be switched out with a front panel control to allow test and setup with strict NTSC demodulation characteristic, using color-bar signals. The monitor needs just four controls for full color adjustment: chroma gain, phase, contrast, and brightness, all fully calibrated.



New integrated telecine from Marconi is compact and efficient.

## "Exhibitors" At NAB

### Addressograph Multigraph Corp. (Booth 530).

A copy system for fast copies of logs, schedules, spots, scripts, etc.

### Acrodyne Industries (Booth 607).

TV translators for UHF and VHF; a new TV modulator; video amplifiers and peripheral equipment.

### Allied Tower Company (Booth 609).

Various tower models for broadcasting antennas; complete tower service.

### Amco Engineering Co. (Booth 558).

Special styling to match decor in modular instrument consoles, cabinets and enclosure; low-silhouette consoles.

### Alford Manufacturing Company (Booth 618).

Antennas for FM, TV, ITFS; duplexers; coaxial switches; RF measuring equipment.

### American Data Corporation (Booth 610).

Line of video test and production units includes the ADC video sync generator; a video distribution unit; the Model 570 video production

switcher; and the Model 1430 time temperature-ID character generator which has built-in clock for the time source, an integral temperature sensor which can be mounted remotely from unit (as outside a window) for automatic temperature announcements, and a keyboard for entering program or ID announcements.

### American Electronics Inc. (Booth 556).

Will show the Model RBT-500, a remote pickup microphone amplifier and control unit built into the standard Model 500 telephone set, with matching carrying case, for originating radio remotes to be fed in via telco lines.

### American Electronics Laboratory (Booth 215).

On display will be the new 50-KW AM transmitter, a 50 kW unit, and also the new 50 kW FM transmitter, a dual 25/25 with diplexer.

### American Telephone and Telegraph Co. (Booth 527).

### Ampex Corp. (Booth 200).

Several new products will be revealed at the show. Also on exhibition will be the full line of two-inch and one-inch video and audio tape record and play equipment; also the line of magnetic tapes.

continued on page 42

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MARCH, 1973—BM/E



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Large or small systems... no matter how complex... whatever you require in audio control for broadcast or recording, Cētec's Electrodyne can provide the answer in a console of excellent design and finest quality.

"Our purchase of your console was the best selection we could have made," said Bob Paasch, chief engineer of WCKT, the Sunbeam Television Network Station in Miami, Florida. "We talked to several of your competitors and decided—hands down—on Electrodyne. And now what really counts with us is that we're completely satisfied with the performance of our Electrodyne console."

The respected name... the leader in its field... that's Electrodyne. Designed, built and sold by Cētec, Inc.

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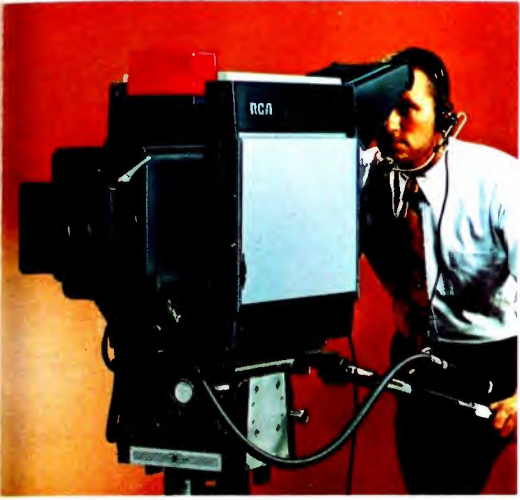
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**Introducing  
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**It sees things the  
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But automatically.**





Until now, the TV color camera that couldn't be beat was the RCA TK-44.

You could depend on it for true, sharp pictures time after time.

Now there's the new TK-45. It combines what you liked so

much about the TK-44 with big new advantages.

Advantages like automatic black and white levels. Automatic iris. Automatic centering.

So you get consistent picture quality, consistent scene-to-scene colorimetry with less need for technical manipulation. Camera set-up and operation are simpler and easier.

And since the new features are located in the control unit, cable clutter is kept down.

There's more. Much more. But it adds up to this. No other camera can do more to make your productions look better—automatically.

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The New TK-45. It sees things your way. Automatically.

## Andrew Corporation (Booth 214).

Exhibiting the line of **rigid coaxial transmission lines**, coaxial switches, semi-flexible transmission lines, microwave waveguide, antennas for studio-transmitter links.

## Angenieux Corporation of America (Booth 109).

An operating model train set will provide visual subject matter for in-the-booth demonstrations of the 15:1 **zoom lens**, Model E61 f/2, which will be mounted on an operating video camera feeding a monitor unit.

## Asaca Corporation of America (Booth 522A).

Introducing a **portable color video camera** that one man can carry and operate; also a line of CCTV cameras and associated equipment.

## Audio Devices, Inc. (Booth 520).

Will feature the new A2 **audio tape cartridge** and the **stereo-phased A2 cartridge**, along with the complete line of magnetic recording tapes and magnetic film; also the duplicator-quality cassette.

## Ball Brothers Research Corp. (Booth 314).

Full line of color and monochrome monitors in a range of sizes.

## Belar Electronics (Booth 544).

A complete line of type-approved AM, TV, FM, FM-stereo, SCA, frequency and **modulation monitors**. Demonstration will include live off-air monitoring, using the companion RF amplifiers of monitor units. RF amplifiers are separate units to reduce problems of using built-in RF amplifier near transmitter site. Demonstration of AM monitor will show accuracy in reading 125% positive peaks, and the separate indication for negative peaks.

## Berkey-Colortran (Booth 303).

A new **soft-light design** is the "Mini Soft-Lite," designed for two 500, 750, or 1000 watt lamps.

## Beston Electronics (Booth 700-701).

Will introduce new **automatic light control systems** for color film chains; also the Model 650 special effects generator with "Wondra-Wipe;" and a unit for adding vector display operation to standard oscilloscopes. Also: a line of distribution amplifiers for audio, video, and pulse signals.

## Bird Electronic Corporation (Booth 539).

Instruments and components for **RF power measurement**, including high-power load resistors, RF directional wattmeters, RF power and VSWR monitors; 2 kW. to 50 kW coaxial loads and attenuators; coax loads and attenuators; coax switches; RF power sensors; and many others.

## Robert Bosch Corporation (Booth 526).

Featured will be the KCU-40, **large studio color camera** with self-registering and self-balancing in operation; KCP-40, smaller color video camera; KCR-40, hand-held color camera with same automatic circuitry as KCU-40; KCF-40, color film chain; FFCC-40 automatic color corrector for enhancing signal from worn color film; and the TCP, TV-140, and KP-40, CCTV color cameras.

## Boston Insulated Wire and Cable Co. (Booth 322).

Wire and **cable products** for broadcasting and CATV.

## Broadcast Computer Services (Booth 533).

**Computer services** for traffic and accounting in broadcasting and CATV.

## Broadcast Electronics (Booth 107).

Will show their line of **audio tape cartridge systems**, including a new compact playback unit, the Model 370, only 5½-inches wide; three fit across a normal 19-inch rack space. Also: the Titlemaster character generator with audio interface; the 1070 Mini-series. The booth will include a complete studio set up to show the use of the equipment on display.

## Broadcast Facsimile Network,

Inc. (Booth 554).

## Broadcast Products (Booth 514).

Introducing a **60-tray random-access cartridge assembly** for automated systems, the Multicart 600 series designed for standard Type A audio cartridges; also a new line of audio consoles designed specifically for automated systems, with eight inputs (three out (left, right, mono); also the new Station Master Traffic and Accounting System, with integral computer for control of all station logging, traffic, and bookkeeping. A distributor for the Dolby noise reduction system, will demonstrate at the booth the use of both Dolby A and Dolby B in broadcasting applications. Line of automation systems including the AR-2000 and AF 1000, on display.

## CBS Laboratories (Booth 103).

See the highlights section for description of new CBS **VIR Correction system** for automatic color signal correction at end of long transmission line, using the vertical interval signal. Also shown will be the CBS line of video processor, character generators, and related equipment.

## CCA Electronics Corp. (Booth 224).

New line of **TV transmitters for UHF and VHF**, plus antennas for same (first showing of former Ampex line with CCA improvements); also a new solid-state remote pickup and STL system; new audio consoles; new cartridge record-playback units; a new FM antenna.

## Canon USA, Inc. (Booth 507)

**Lenses and optical equipment** for TV cameras and 16mm motion picture cameras.

## Cellomatic Productions Corp. (Booth 501A).

**Cueing, prompting and rear-screen projecting equipment** for television including a new improved prompting system not previously exhibited in this country.

## Central Dynamics Corporation (Booth 207).

Will introduce the new VS-120

continued on page 44

Circle 136 on Reader Service Card

MARCH, 1973—BM/



# Colormatch.



Find out what it means to you.  
See the Conrac demonstration at NAB.  
(Sheraton Park Hotel, Booth No. 222)



## CONRAC

The true measure  
of color in broadcasting.

Conrac Division  
600 North Rimsdale Avenue  
Covina, California 91722  
213 966-3511

series of **video production switchers**, featuring soft-edge wipes as well as other special effects. Also to be unveiled at the show will be a new **videotape editing system**, the TV-200, which uses SMPTE code, with built-in generator, for a moderate-cost editing installation. Other products on show: remote transmitter control units; the PEC-102 computer-controlled videotape editing system; the VK-2140 encoded chroma keyer.

## **Century-Strand, Inc. (Booth 601).**

Studio **lights and lighting controls**, accessories.

## **Cohu Inc. (Booth 519).**

The new Model 1500 **color video camera**; the new 9501 video production switcher; the 1230 viewfinder studio color camera; the line of video processing equipment.

## **Colorado Video, Inc. (Booth 550).**

Model 260 **Video Compressor** will be shown which allows conversion of TV signal to narrow bandwidth for transmission over voice grade circuits. This is a new model which is more efficient than earlier units. Model 261 **Video Expander** will be shown which reconverts compressed signal to standard 525 line picture. Company will discuss system that sends a still picture over FM subcarrier in seven seconds.

## **Commercial Electronics Inc. (Booth 524).**

Will show **new enhancer and sync generator** for CEI 280 camera system. Other accessories for CCU will be displayed. Live camera demonstrations will be featured.

## **Communications Carriers, Inc. (Booth 603).**

Introduced will be a straight-thru **RF repeater** for intercity microwave systems; a **portable microwave system** for intra-city use; low-noise preamps for microwave systems. Units operate on 6 and 12 GHz.

## **Compu/Net, Inc. (Booth 542).**

Availabilities/billing automation.

## **Conrac Corp. (Booth 222).**

Will introduce the **new Series 5000 19-inch and 25-inch color utility monitors**, with shadow-mask tubes. Will also show in final form the Series 1000 solid-state TV demodulator. A number of the latest version of the RH Series of broadcast monitors will be set on the same program material to show extremely close color matching achieved with the color-controlled phosphors used.

## **Continental Electronics Mfg. Co. (Booth 320).**

High-power **AM broadcast transmitters**.

## **Data Communications Corporation (Booth 557).**

Computerized **on-line management system** for broadcast accounting, traffic, sales.

## **Datatek Corp. (Booth 563).**

Will introduce the new D400 compact, low-cost, **video/audio switcher**, controllable in a wide variety of ways: also an envelope delay measuring set, a TV transmitter color equalizer and waveform corrector. Also a full line of distribution amplifiers for video, audio, and pulse signals.

## **Datatron, Inc. (Booth 548).**

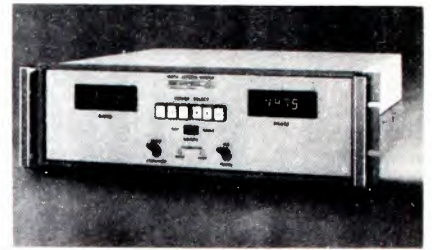
The new **videotape editing system** brought out by Datatron, the Vidicue 5050, can control simultaneously any two quad or helical VTRs that have electronic edit capability. Priced at \$10,000, the system includes an SMPTE time-code generator, with the system set up so it is no longer necessary to pre-record the code for editing. During pre-roll, the internal generator is automatically synchronized to the code recorded during the previous scene, and begins recording at the edit point. This reduces headwear from repeated runs through, and provides an immediate elapsed program time. Optional additions include one for precise frame-to-frame sync of the two VTRs, and one virtually eliminating overshoot.

## **Datavision, Inc. (Booth 521).**

Will show the complete line of **video character generators**, including the D2400, D1500, and the new D1032.

## **Delta Electronics, Inc. (Booth 532).**

**Transmission line measuring equipment** for on-the-air monitoring, in-



cluding impedance bridges, common-point bridges, receiver/generator.

## **Dynair Electronics Inc. (Booth 317).**

Will show their line of **distribution switching equipment**. Included are logic units for remote control of video and audio switching, interfacing with dial, thumbwheel, computer, or other control systems. New: a modular patch cable unit for audio/video routing, which can be expanded as need arises; the SE-70A special effects generator for color video (SE-70A-R in a remote-control version).

## **Eastman Kodak Company (Booth 528).**

Will have the Kodak Video Film Express parked in front of the hotel for **on-the-spot filming and fast processing** of motion picture film. Also shown will be the new Kodak Supermatic 70, **cassette film system** with integral magnetic recording and playback.

## **Echo Science Corp. (Booth 612).**

See highlights section for description of new **portable one-inch VTR** introduced.

## **EMCEE (Booth 316).**

UHF and VHF TV translators, 1 watt to 1 kilowatt; TV antennas; ITFS systems.

## **Electro Sound, Incorporated (Booth 604).**


Will introduce a new series of **professional audio open-reel recorder/players**. Will also show their in-cassette duplicator, and their full line of broadcast audio units, including mixers, preamplifiers, power amplifiers.

## **Fairchild/Robins (Booth 309).**

A whole new line of standard  
continued on page 46



it's on record...



Now it's official! An association equipment survey quoted in *BM/E* magazine produced some very revealing information on FM broadcast industry preferences — particularly in the category of phono cartridge usage, where a whopping 57% of the respondents expressed their preference for Shure cartridges . . . *more than all other brands combined*. It didn't particularly surprise us because we know our M44 series with its uncommon combination of clear sound, low cost, exceptional ruggedness and excellent back-cuing characteristics, has been the broadcast standard for years. And our peerless V-15 Type II Improved? There simply isn't a better cartridge for "high fidelity" FM operations. Write for the free Shure "Guide to the Conversion of Monophonic Broadcast Facilities for Stereo Records," as well as the complete Shure Phono Cartridge Catalog.

Shure Brothers Inc.  
222 Hartrey Ave., Evanston, Ill. 60204



Circle 141 on Reader Service Card

broadcast **audio consoles** are being shown, offering many engineering advances and covering a broad price range, intended to meet requirements of many classes of user.

## Fidelipac Division of Telepro, Inc. (Booth 511).

**Automatic tape cartridges**, the series 300, 600, and 1200; also cartridge racks and other accessories.

## Imero Fiorentino Associates (Booth 509).

**Studio lights** and lighting design.

## Fort Worth Tower Co., Inc. (Booth 308).

**Antenna towers**, all sizes, for broadcasting and CATV systems.

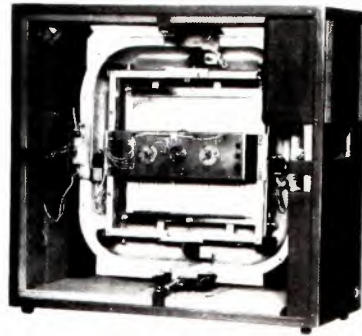
## Gates Division, Harris-Intertype (Booth 211).

Shown for the first time will be the Stereo 80 **audio console** with 18 inputs, switchable to eight mixing channels, with distortion less than 0.5% at all frequencies; the CB-1200 professional turntable, with three speeds, flutter and rumble well below NAB requirements; and a full line of **video color cameras** (formerly the GE video camera line), which includes the TE-201 video color camera, an economical unit with plug-in view finder and compact package; the top-of-the-line PE-400 color camera, which includes an automatic circuit for preserving detail in high-contrast areas; and the PE-245 color film camera, a four-vidicon unit. Gates will also show **transmitter systems**, control consoles, and other items.

## Gotham Audio Corporation (Booth 305).



As additions to the extensive line of **recording and broadcast items** from Neumann, EMT, Studer, etc., Gotham will introduce: the Studer



A80 and B62 tape recorders; the EMT 928 turntable, for professional broadcast use; and the Neumann KU80 artificial head for binaural recording.

## Grass Valley Group, Inc. (Booth 300).

Introduced at the show: the new 1600 series of audio/video **production switching systems**, with integral mixing systems, standard effects, pattern edge selection between soft ("video vignette") hard, and matted, and with improved keying techniques. Also new at the NAB is the **Border Line Generator**, which provides character generation with outlines selectable as to hard, outline alone, or drop-shadow effect. Other products: the 1400-12 low-cost production switcher for mobile or small video installations; the 1400-24 automation units for switchers, with the APC-2000 computer.

## GTE Sylvania (Booth 304).

**Tungsten halogen lamps** for TV studio lighting.

## Houston Photo Products, Inc. (Booth 613).

No information.

## IBM Corp. (Booth 615).

## Ingersoll Products (Booth 551).

**Cabinets and modular enclosure systems**, with sloping front, low profile; contemporary styled enclosures.

## Innovative Television Equipment (Booth 563).

**Video camera mounting equipment:** dollies, stands, heads, etc., for all sizes of camera.

## International Good Music, Inc. (Booth 223).

A new complete operating unit, shown at NAB for the first time, is the Model 740 **automated audio control system**, which includes an integral mini-computer, two 48-unit stereo Instacart players, two reel-to-reel transports, automatic time-temperature announcer, keyboard control desk, and high-speed, English-print-out, automatic logging unit. Also introduced will be the new BAT 1000 **computerized system for control of traffic, billing, payroll, etc.**; a simplified, two-rack Model 400 control system, demonstrating "Sounds For All Seasons" taped programming; and the Model 502-4 system with Instacart and direct-access MOS memory. The IGM tape program services will be available for auditioning in a separate Sheraton Park suite.

## International Tapetronics Corporation (Booth 538).

Introduced at the show will be a new line of broadcast-oriented **reel-to-reel audio tape machines**, which have three-motor design. There are



models for 10½-inch and 14-inch reels, single or dual speed; all have motion sensing, edit mode, and IC logic. Also on display will be the complete line of single and multiple-deck cartridge systems.

## International Video Corp. (Booth 220).

**Video cameras; video helical recorders;** see also description of new BCR-200 automatic video cart system in highlights section.

continued on page 50



# Think big. Start small.

Just about everyone knows about the CMX System/600. It's the most advanced, sophisticated video tape editing system in the world. And we're proud of it.

What everyone doesn't know is the fact that we make a lot of other computerized video tape editing systems and components. And we're just as proud of them. The CMX System/300 for instance, a complete on-line video tape editing system. It allows you to edit and assemble frame accurate video tape masters. With a maximum of creative control. And a minimum of fuss and bother. And since it's a component system, you can start small and build big. A piece at a time.

Then, there's our newest system: The System/400. It's a system that allows you to edit on helical tape. Off-line. Then assemble

the final master on 2 inch hi-band. Automatically. You can buy it alone, or add it on to an existing System/300.

But, although our systems fit your needs, a complete computerized system may not fit your pocketbook. That's swell with us. We also build a lot of useful editing components. Beginning with an audio insert editor that sells for \$1,050. Which means you can keep right on thinking big; but, you can start small. And build from there.

We create the post-production systems components and computer programs that make complete creative control of video tape possible. It's a good business for us. It may be an even better business for you. And we'll be at the NAB Show to tell you why. Drop by. We'll be in booth 502. With our systems.

**Start here.**

Mr. G. G. Heitel  
Marketing Manager, CMX Systems  
635 Vaqueros Avenue  
Sunnyvale, CA. 94086

Dear Jerry,  
I'm interested. Please send me descriptions and information on CMX editing systems and components. We're thinking.

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Title \_\_\_\_\_

Firm \_\_\_\_\_

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You can expect to see me at the NAB Show, too.

cmx systems

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With lab quality digital accuracy



- Model 155A Automatic Counter
- 5Hz to 32MHz frequency range
- Auto-ranging, including automatic decimal point positioning
- 5 digit display with Hz, KHz and MHz indicators
- Only 3½ lbs. and 2"H x 4½"W x 8½"D
- \$475

- Model 155B 100MHz Counter
- 5Hz to 220MHz frequency range
- Resolution to 10Hz at 220MHz and 1Hz up to 20MHz
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Monitor frequency with a Monsanto digital counter faster and more accurately than by analog methods. Crystal controlled clocks and all solid state components insure reliable, long-term stability. These instruments are operable from the AC line, 12V to 32VDC mobile sources and optional battery pack. The Model 155A battery pack allows for completely portable operation at only \$200. For a demonstration contact your local Monsanto representative.

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Schafer Electronics Invented It.  
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Schafer Electronics Keeps Improving It.**

## **Schafer Electronics IS Broadcast Automation**

Join us at NAB booth 225 and help us celebrate our twentieth year of service to the radio broadcast industry. And if you have a few minutes we'd be delighted to demonstrate one of our newest systems for you. If you won't be at NAB, write and we'll send you information.

# **schafer**

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Alberta, Canada T2H1Z3

In Hawaii, Mexico, Puerto Rico  
and the Virgin Islands contact:  
Schafer International  
1355 Harbor Drive  
San Diego, California 92101

For the rest of the world contact:  
EMI Sound & Vision Equipment Limited  
252 Blythe Road, Hayes  
Middlesex UB3 1HW England

## Jamieson Film Co. (Booth 535).

Color film processing equipment.

## Jampro Antenna (Booth 310).

FM duplexers, towers and accessories, high-power FM and TV antennas, transmission lines, tower lighting equipment.

## Jerrold Electronics Corp. (Booth 503).

A wide variety of CATV headend and line electronics units; engineering of complete systems.

## Johnson Electronics, Inc. (Booth 217).

New, redesigned models in line of FM/SCA tuners and receivers; also a new portable SCA/multiplex demonstration unit.

## Kaman Sciences Corp. (Booth 533).

Fully automatic computerized traffic and accounting services for television and radio; on-location computer will be demonstrated. (Equipment and services formerly sold by Broadcast Computer Services, Inc.).

## Kliegl Brothers (Booth 226).

Will introduce the 5 kW Small-Pak, a Fresnel luminaire designed for compact studio requirements. It is 15 inches front to back, has a new quartz Mogul bipost lamp holder, brass focus mechanism with front and back handles; tilt knobs; clear or black riser lens. Kliegl will also give a working-studio lighting demonstration, showing how a well-lit studio is set up with fill, key, and back lights, cyclights, and various forms of effect lighting. Can be viewed "live" as well as through a video camera chain.

## LPB, Incorporated (Booth 540).

A dual-output mono audio console, the S-15, has eight input channels giving capability for up to 19 input lines; each channel has step attenuators, leaf-type telephone switches, with all active components on plug-in modules. Second output, with characteristics identical to first, can

be used for monitoring or for production and recording while first is on the air.

## Landy Associates (Booth 555).

Featured are to be the new modularized monochrome video monitors made by Modtec Corporation; and the McBee Industries' automatic loggers for radio and television.

## Lenco Electronics (Booth 704).

Will introduce a family of video, pulse, and subcarrier distribution amplifiers. The PVA video distribution amplifier has a loop-through input and four isolated outputs. Plug-in accessory will add differential input and equalization. The PPA pulse distribution amplifier has simi-



lar input-output arrangement, pulse amplitude fixed at 4 volts, and width equal to input width at the 50% point, for inputs from 1.0 to 5.00 VPP. Sub-carrier unit, Model PSA, has one input, two dual outputs, goniometer for phase adjustment. All units go into 3½-inch rack frame, with matching power supply.

## Listec Television Equipment Corp. (Booth 529).

Introducing the new Vinten Mark V lightweight camera head, with complete hand-control facilities. Also showing the Vinten heavy-duty Mark IIIA camera head, available with external drag controls; Vinten tripod and pedestal dolly units; the Fulmar Type 702 pneumatic pedestal, with very low operating height.

## McBee Laboratories (Booth 555).

A new item is the V11/21 automatic digital logging system, which records and prints out meter readings. The completely self-contained system prints and displays the date, time, channel number, and meter readings in volts, amperes, watts, etc. Integral with the unit is a solid-

state, 24-hour digital clock to supply exact time for display and print-out.

## McCurdy Radio Industries, Inc. (Booth 307).

Will show their line of audio units for broadcasting, including three desk-mounting mixing consoles, the SS4388A, an eight-input unit for news booth or disc jockey area; the SS7400, a 12-input monophonic dual channel console; and the SS7500, ten-input stereo console. Other items are the SS3157 monophonic and SS3158 stereo console disc reproducers, the SS7300 intercom and a line of variable equalizers, preamplifiers, distribution and power amplifiers.

## McMartin Industries, Inc. (Booth 213).

New items on exhibit include the TBM-8800 AM RF amplifier to convert AM modulation and frequency monitors to off-the-air operation, which has separate broadband outputs for modulation and frequen-




cy feeds, manual or automatic gain control, carrier loss alarm circuitry and local/remote switch. Also introduced at the show will be the TBM-2000B monitor for FM-SCA transmissions, which measures modulation, frequency deviation, injection level, S/N ratio, and with built-in measurement of internal noise. Other new items are the TR-E2 receiver for FM/SCA transmissions; and the dual-channel version of the 500 series audio consoles, designated B-503.

## 3M Company, Magnetic Products Div. (Booth 104).

Introducing the new Series 400 videotape line, on cushion-flange reels and also in RCA and Ampex cartridges; also shown will be 3M U-Matic cassettes with a variety of 3M tapes, as well as the complete videotape line for quad and helical machines and the line of audio tapes. Another intro: the new Series 330 magnetic film, on acetate base with improved low-noise oxide.

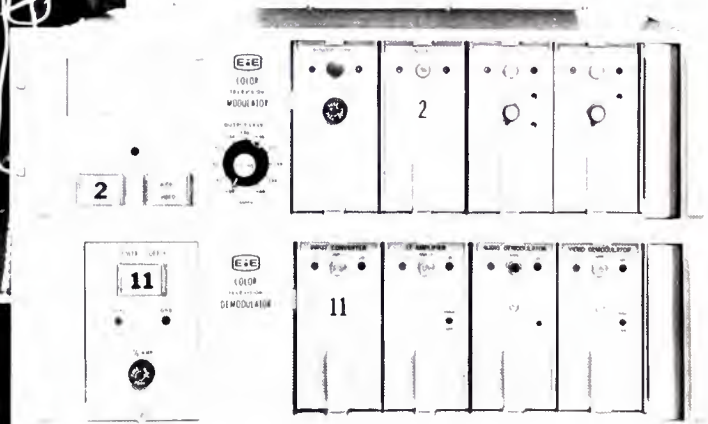
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## Need a low cost, high quality, station "in house" monitoring system?

A television station "in house" monitoring system designed around the EiE CTM1 Color Television Modulator and the CTD1 Color Television Demodulator can be an effective, low cost and relatively simple method of meeting your station's monitoring requirements.



An EiE RF Distribution System eliminates the disadvantages associated with video/audio distribution systems such as prohibitive cost, system complexity and restricted monitoring capability. With the CTM1 Color Television Modulator which can be equipped to meet the FCC group delay predistortion requirements, station staff personnel can receive faithful reproduction of their product on consumer quality color TV receivers. Once the system is installed, anyone in the station who needs private monitoring can be accommodated for little more than the cost of the receiving/display equipment.

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## 3M Company, Mincom Div. (Booth 105).

Introducing the new M79 series of **2- and 4-track audio recorders** designed especially for broadcasters, using 1/4-inch tape; shown also will be the M79 16-track recorder with synchronizer; video/sound synchronization will be demonstrated.

## Marconi Electronics Inc. (Booth 108).

See highlights section for description of new Marconi **B3404 telecine**.

## Marconi Instruments (Booth 108).

The new Model 2914 **TV Automatic Monitoring System** for TV transmitters, with digital readout, using VITS for analysis; with the 2915 unit added, will correct out-of-limits operation. Also new: Model 2910 non-linear distortion analyzer, which simultaneously reads differential gain, differential phase, luminance, non-linearity; also the Model 2913 VITS generator.

## Marti Electronics, Inc. (Booth 106).

Highlight will be solid state **remote pick up transmitter/receiver** RPT 40 and R 30/150. This system was previewed last year, but it is now in full production and ready for delivery. Also to be shown is the 950 MHz aural **SLT remote control and telemetering system**. Other products: audio amplifier including the CLA-40A compressor limiter; the PGM 20 program/line amplifier; the MA 10 monitor amplifier, and a complete line of accessories.

## Memorex, Video Products (Booth 502).

CMX computer-assisted **videotape editing system**: full line of quad and helical scan videotapes.

## Micro-Communications, Inc. (Booth 616).

**RF switching combiners**, filters, duplexers, switches, loads; TV and FM antennas.

## Micro-Trak Corp. (Booth 515).

The line of broadcast tone arms,

including viscous-damped models; broadcast turntables; the Series L line of studio furniture, including consoles, cabinets, tape cartridge racks, etc.; the Model 2570 automatic antenna control system; models 6400 and 6401 phono preamps; the Series T line of monitor speakers. Also: introducing a new master clock for broadcast applications.

## Microwave Associates (Booth 504).

**STL microwave systems**, including a 1/2-watt 12-GHz link; also 1 watt intercity and STL system on 7 GHz; low-cost local loop systems; portable B-line microwave links; high-power H-line repeaters for intercity network relay applications.

## Miratel Division, Ball Brothers Research Corp. (Booth 314)

Introduced will be an updated version of the **Video Production Center**, which includes switching and special effects for video program control. Interlocked, fail-safe switching prevents loss of program by operator error. The unit accepts synchronous or non-synchronous, composite or non-composite, color or monochrome signals.

## Mole-Richardson Co. (Booth 315).

**Quartz studio lights**, low-power and high-power; stands, many accessories.

## Moseley Associates (Booth 313).

See the highlights section for description of **new digital system for**



**remote control** of broadcast transmitters.

## Nagra Magnetic Recorders, Inc. (Booth 702).

The SN Mini-recorder; the Nagra line of **portable audio recorder/players**.

## North American Philips, AKG Division (Booth 203).

Will unveil at the show the new CK-8 **short-shot-gun condenser microphone** for the C-451 system; and the

C412, which has a four-position selector giving omni, figure-8, cardioid and super-cardioid patterns.

## Nortronics Company, Inc. (Booth 212).

**Magnetic recording heads and accessories**; cleaning and maintenance equipment for video and audio recorders.

## Paillard, Inc. (Booth 606).

**Bolex 16mm cameras**, automatic for single and double sound filming; Super 8 cameras and projectors; other pro cameras and accessories.

## Paulmar, Inc. (Booth 617).

Will exhibit **film inspection and editing equipment**.

## Pentagon Industries, Inc. (Booth 549).

**Professional duplicators** for cassette and open-reel tape recordings.

## Phelps-Dodge Communication Co. (Booth 553).

**Coaxial cable and accessories**; remote pickup antennas; other broadcast products.

## Philips Broadcast Equipment Corp. (Booth 202).

Will feature the **studio video camera line**, among them the Norelco PC-72, with CLUE (camera line-up equipment) for quick set-up; the digital PC-100A; and the moderate cost 3-Plumbicon model, LDH-1-B. Also: a number of portable cameras, including the PCP-90B, and two "surprise" portables to be unveiled at the show. Each day a prize will be awarded consisting of a Pro 12 audio tape recorder to the engineer whose name is drawn from among those doing a set-up on the PC-72 in the booth. Other items: a low-cost telecine microphones; mixing consoles. Also: the Norelco VTR color videocassette recorders. All equipment will be "hands-on" for visitors.

## Potomac Instruments, Inc. (Booth 608).

Showing the full line of **antennas, monitors** and field strength meters.

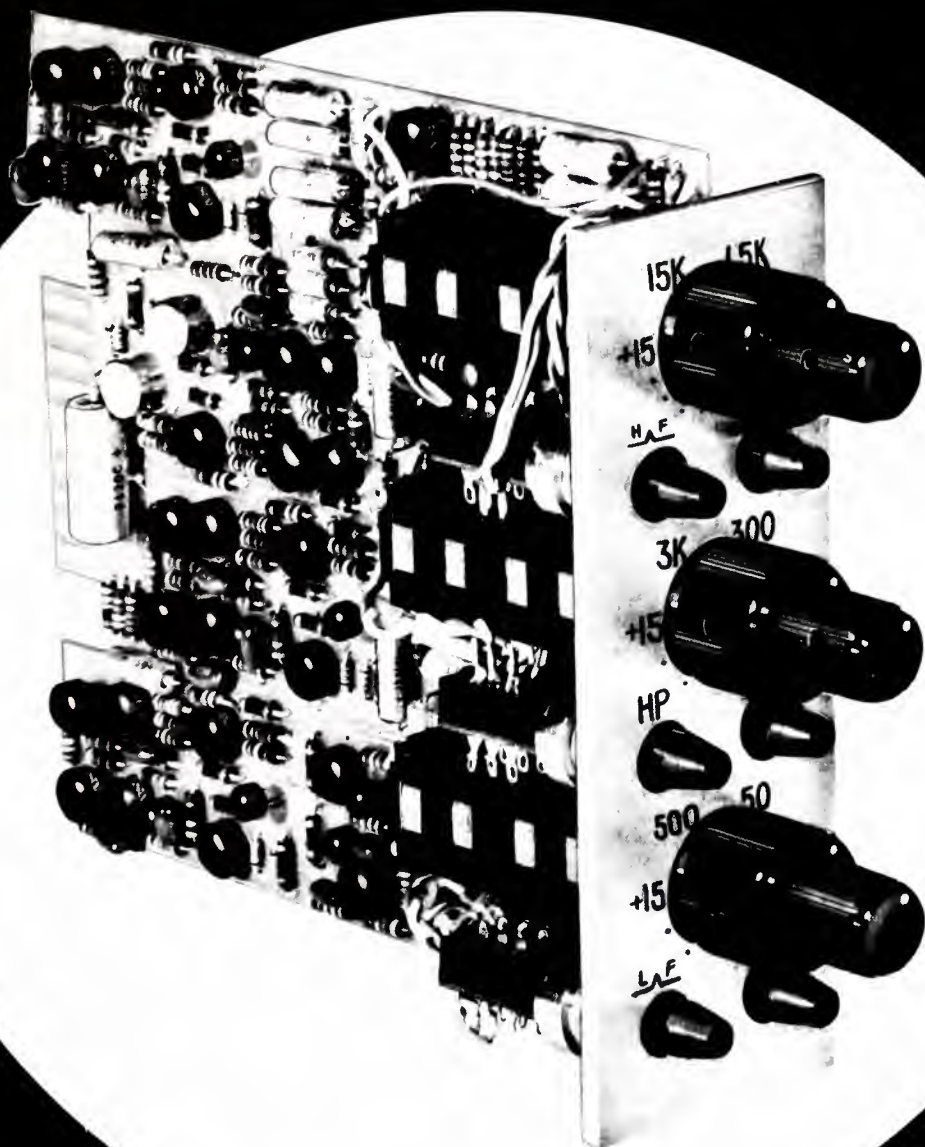
## Power-Optics, Inc. (Booth 221).

Remote control systems for professional television.

continued on page 54



# FLICKINGER



## MODEL 167 EQUALIZER

- 3 Overlapping Ranges
- Infinitely Variable Frequencies
- High Pass Filter Network
- Separate Peaking and Shelving Controls
- Independent Range Operation
- No Insertion Losses

For more information  
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Hudson, Ohio 44236

## Profit Recovery Systems (Booth 559A).

Line of **equipment for recovery, recycling, and pollution control** of waste chemicals from film processing units, including: the TV Pac, a complete recycling recovery-pollution-control system which extracts silver from waste with an electrolytic process, and regenerates cyanide bleach solutions and treats other waste materials with ozone generated within the system; and the Silv Pac, which includes the silver-recovery operation only.

## Q-TV Sales and Distributing Corp. (Booth 302).

"Q" **prompter systems**; prompter accessories; crawl systems.

## Quick-Set, Inc. (Booth 506).

**Camera pedestals**, dollies, tilting heads, cam-link heads, accessories.

## RCA Communication Systems Division (Booths 100-101).

Will emphasize the **automation capabilities of RCA broadcast equipment**. A miniature theatre will be set up to demonstrate live action of TCR-100, automatic cart machine. Also on demonstration: automatic features of TK-44 video camera. Introduced will be new television film products and new transmitting products.

## RCA Electronic Components (Booth 102).

**Vacuum tubes**, klystrons, vistacons, vidicons, test equipment.

## Raymar Associates (Booth 608B).

## Recortec, Inc. (Booth 536).

Two new items shown will be the **Video Tape Evaluator** and **Video Tape Conditioner**. The evaluator is a stand-alone tape deck that tests videotape longitudinally to report total length, number of surface defects, edge damage, and splices. An optional printing accessory records the locations of all defects. Tapes are also cleaned, degaussed, and precision wound after testing. Total test time is eight minutes for a one-hour reel. The Conditioner is a stripped-down version that cleans and winds only.

## Research Technology, Inc. (Booth 559).

The **Retectron Model A500 machine**, allowing operator to clean, inspect, edit and time 16mm film in one operation; film storage systems.

## Revox Corporation (Booth 560).

Will show the new M201 **Beyer microphone**, a super-cardioid dynamic designed especially for radio and TV broadcasting with extremely small size for its type; will also show the Revox tape recorder with Dolby B circuitry, the full line of Beyer microphones. A small operating studio will be set up, using Beyer microphones, Revox recorders, and the Lamb compact control units.

## Reynolds Leteron Co. (Booth 547).

**Graphics for TV titles**; special system for producing letters and other graphics as needed.

## Richmond Hill Laboratories (Booth 319).

Will introduce the new VPM-41 **portable production video switcher**, with all electronics on control panel—has ten inputs, four busses, special effects, faders; also a 20-input video switch with white key; and a new video routing switcher.

## Rohde and Schwarz (Booth 312).

New products to be shown include: A new **Tracking Unit**, for use with the Videoscope 3 sweep analyzer, which makes possible frequency response measurements on TV transmission lines with long signal delay (such as transcontinental and satellite circuits), and on tape recorders; also the new **TV field-strength meter** for the 25-300 MHz band; a new TV translator, the Model HS2061, for VHF and UHF; and a new TV demodulator with front-end receiver, usable in remote control systems. In addition, many other units in the extensive line of test and monitoring devices will be on hand.

## Rohn Communications Facilities Co., Inc. (Booth 321).

**Towers** for FM, AM, TV, and CATV antennas.

## Rust Corp. (Booth 210).

**Automatic digital remote-control systems** for transmitters; automatic logging systems, including low-cost logger for operation through remote-control circuits; status and alarm systems.

## Sarkes Tarzian, Inc. (Booth 209).

See highlights section for description of new **digital video production switchers** and special effects generators introduced.

## SC Electronics, Inc. (Booth 559).

Will introduce new 12-inch **monochrome video monitor**, and also new single and triple six-inch monitors.

## Schafer Electronics (Booth 225).

New items will be: Model 900 series of **solid-state automation systems**, including the 902 MOS memory system accommodating up to 19 broadcast audio sources, with built-in time insertion capability and digital clock; and the 903 MOS memory system addressed through a keyboard or punched paper tape, accommodating up to 19 audio sources, addressable sequentially or by real-time insertion. Also: systems for verified and coded **automatic logging** in full English print-out, connectable to all Schafer systems. In addition, the Schafer 8000 computer.

## Scully-Metrotech (Booth 614).

On the show list are the Scully 280B series **recorder-reproducers**, the Metrotech 400 series loggers; the Metrotech time-code generator-reader, complementary to the 400 series loggers; and the Metrotech 500 series recorder-reproducers.

## Shibaden Corporation of America (Booth 318).

Equipment for CCTV systems, including a full line of **color cameras** and associated equipment.

## Shively Laboratories, Inc. (Booth 546).

FM and TV **antennas, transmission lines, dummy loads**, coaxial switches, multiplexers, antenna towers, and many related items.

continued on page 56



# Get the professional look from helical-scan Ampex **VPR-7950**

## It's that good!

A super-sharp teleproducer can see the superior quality of a VPR-7950 picture compared to one from any other 1" recorder.

### What is a VPR-7950?

The world's highest performance 1" color/monochrome, helical-scan videotape recorder. It incorporates the same advanced design features of the Ampex VPR-7900 and the TBC-790 time base corrector in a handsome, highly functional console.

Video waveform and picture monitor selector switches may be used together or independently. An eye-level panel includes both monitors as standard equipment and an optional vector display scope.

The VPR-7950 is a complete recorder/reproducer which features:

- Very high carrier mode (7-10 MHz) for exceptional quality in color dubs even down to 3rd and 4th generations; 5th, in black and white.

- Precision, fast, *total*, electronic insert and assemble editing from any signal source.

- Internal digital reference system that includes a horizontal lock servo, frame lock and vertical interval switching.

- Three independent tracks (single video - dual audio), each of which can be used, altered, edited or replaced at any time.

- High efficiency ferrite video head with 500 hour warranty and the fastest, simplest replacement system ever devised.

- Capstan controlled high speed tape cycling modes, velocity loop tension servo, direct coupled drum servo, minutes and seconds coun-



ter, monitor amplifier and cue microphone.

In developing the time base corrector, Ampex engineers discarded current technology and took a new



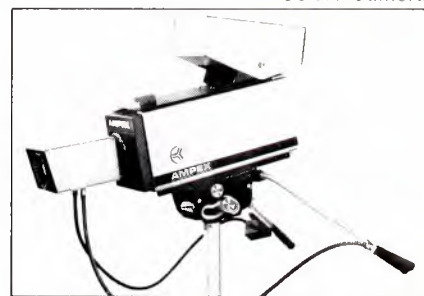
*Ampex VPR-7900 recorder/reproducer  
with TBC-790*

digital approach to time base correction that affords the most stable video signal ever produced by a helical-scan recorder. It produces clean fades, lap dissolves and special effects as well as dubs of edited material of outstanding quality to 1" and 1/2" videotape recorders, quadruplex recorders and transfers to film.

Like the VPR-7950, the combination of the VPR-7900 and TBC-790 produces recording capabilities that meet all standard broadcast requirements. The TBC-790 may be purchased with the VPR-7900 you may now own. The VPR-7900/TBC combination is portable enough for use as a mobile unit for location work. Tapes made on the VPR-7900 are completely interchangeable with those made on the VPR-7950.

Round out your teleproduction system with the Ampex CC-500 color camera system, which incorporates professional features, is simple to operate and low in price.

*CC-500 Camera*



Call your Ampex Dealer or write: Audio-Video Sales, Ampex Corporation, 401 Broadway, Redwood City, CA 94603.

**AMPEX**

Circle 138 on Reader Service Card

## Shure Brothers, Inc. (Booth 306).

The full line of **professional microphones**, mixers, disc reproducers, tone arms, microphone accessories, preamplifiers, etc.

## Skirpan Lighting Control (Booth 552).

Studio **lighting control systems**, including computerized control with cathode-ray tube for data insertion and status display.

## Soll, Inc. (Booth 513).

**Engineering and consultation** on design and installation of all broadcast facilities; station planning; design, construction and installation of RF switching systems.

## Sono-Mag, Systems Marketing Corp. (Booth 227).

Will introduce a complete **new line of automation systems** for FM and AM radio broadcasters, including: the AP-1 Alpha programmer which can store more than 60,000 programmed events, handle an FM and AM station simultaneously; the DP-1 digital programmer; the Sequential programmer; and the moderate-cost Formatter. Also new will be the bi-directional, all-silent "Caroussel" automatic cart system, and the new SMC single-cart recorder/player, which handles all three standard cart sizes.

## Sparta Electronic Corporation (Booth 310).

The new Model 680 **FM exciter** aims for greatly simplified operation and maintenance with digital AFC



control circuitry, which keeps the transmitter on frequency without ovens; automatic carrier balance; and strip-line RF circuitry. Also



new at the show: a "**building block**" system for automation equipment, allowing a modest-cost beginning with expansion as needed; the Corinthian series of open-reel tape decks, for reels up to 16 inches; RS250 random-access cartridge system; Centurion II custom audio console; and a new 1 kW AM transmitter, Model 701B.

## Spindler and Sauppé (Booth 516).

Introducing the new **Spectrum 32 TV-film chain**, including dual 16mm slide magazines for color and monochrome, wrap-around preview lights, twin 500 watt, 200-hour lamps with elapsed time meter, turbine blower and air filter, remote control, modular electronics, built-in power supply; also the Ultrabright system for single-camera background projection, up to ten times as much light as beam splitter systems, dynamic dissolve adjustable from instant cut to slow lap.

## Stanton Magnetics, Inc. (Booth 545).

Will show the Series 500, Standard Broadcast line of **stereo pickups**, and the 681 Calibration Standard line, all available with a variety of styles tip sizes and compliance values; the Dynaphase 40 and Dynaphase 60 stereo headphones; and a new preamp-equalizer for feeding a magnetic stereo phono pickup into console input circuits.

## Storeel Corporation (Booth 541).

Systems for space-saving **storage of television equipment** and accessories.

## Superscope Incorporated

Marantz **preamplifiers, amplifiers, tuners**; Sony 854-4S four-channel tape recorder; Sony Condenser and Electret-Condenser microphones.

## Systems Resources Corp. (Booth 512).

Television **character generators**.

## Taber Manufacturing and Engineering (Booth 543).

New and refurbished **audio heads**, head refinishing, **tape degaussers** for tape up to two inches wide, audio test tapes.

## Tape-Athon Corp. (Booth 517).

**Tape recorder/reproducers** for broadcasting; automation systems for complete on-line control; the Model 900 very-slow-speed tape recorder for logging up to 20 days on one reel; background music library.

## Tapecaster TCM, Inc. (Booth 505).

Will feature their new Mark IV 300 series **audio cartridge**.

## Technology Incorporated, HF Photo Systems Div. (Booth 602).

The line of "Little Max" **color film processors** has been extended to cover Super 8 and 35mm film. Units hold all processing functions in compact form. Processing speed ranges from 5 to 21 feet/minute, depending on model.

## Tektronix Inc. (Booth 206).

See highlights section for description of new **Automatic Video Corrector**, Model 1440, which uses the VIR signal for automatic color correction of end of transmission line



or satellite circuit. Also in the highlights section is a description of the new Model 670 color monitor, which includes a correction matrix to match compensation in home color receivers. Will also introduce: a new gen-lock test signal generator, model 145; the new Model 1441 VIR signal deleter/insertor, which takes program off selected line and inserts VIR signal; and the improved models 147A and 149A NTSC test generators.

## Tele-Cine, Inc. (Booth 537).

Introducing a new Schneider 30:1 **zoom lens** for 1 1/4 inch and 1 inch

continued on page 122



# The uncomplicated teleprinter



A small, quiet, multi-copy machine which simply plugs into the power and signal line like a portable typewriter.

We do not use any super-sophisticated technology which takes a PhD to troubleshoot. Our machine is a solid little workhorse of extreme simplicity, it does no more or less than is required by knowledgeable users who depend on minimal downtime.

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Circle 139 on Reader Service Card

# The quality that TAV produces is like the camera it uses.

Trans American Video does great work. They really have an eye for video tape. In fact, they're quite a unique video facilities company. When it started in business over a year ago, it ordered none of the first Fernseh cameras sold in the U.S. TAV used those cameras to cover the U.S. - Russia track meet and then proceeded to become the world's largest independent mobile color video tape facilities company. Their current credits include NFL Monday Night Football, Young Dr. Kildare series, Pat Buchanan in Sharon, La special, Duke Ellington - We Love You Madly special, and Frankenstein Parts I and II feature.

Today, TAV has over \$8 million worth of equipment. And here's what they have to say about Fernseh cameras.

It took only a short training period for our operators to learn to use the cameras, and for the camera to establish themselves as quality pieces of equipment.

The Fernseh cameras are easy to set up and strike. Once they're required, they're extremely stable. A video operator does not have to continually ride the picture.

There's a lot more we can tell you about the family of Fernseh cameras. Interchangeable modules. Small diameter cabling. Performance specifications, etc. For more detailed information, contact your local Fernseh division representative at one of the offices listed below.

Chicago: (312) 681-5000

Houston: (713) 841-1111

Los Angeles: (213) 649-4330

New York: (212) 900-9000

Ramsey, N.J.: (201) 829-1550

San Francisco: (415) 582-9470

## Robert Bosch Corporation Fernseh Division

Circle 140 on Reader Service Card







# Buffalo: A Modern TV Plant Aids, And Shares In, Regeneration of Downtown Area

WGR-TV's new plant, a totally modern TV facility, is also a key structure in the rebuilding of the city's center.

TAFT BROADCASTING'S WGR-TV, Channel 2, went on the air in Buffalo, New York, last December from a new TV plant satisfying splendidly not only the technical needs of the operation, but also the desire of the management to aid, and participate in, the current regeneration of the city's center. The massive renewal project envisions new structures for many governmental and business operations. For its dual purpose, Taft moved to the center of the downtown area, the only TV plant there. The company spent about \$3½-million and got a building with an exterior that adds greatly to Buffalo's "new look," and holds fully modern technical facilities.

WGR's management has its sights set on, among other things, becoming a "good citizen" with strong involvement in the community. One first move in that direction was the donation of the old TV facility, which was well out of the downtown area, to WNED-TV, Channel 17, local ETV station. WNED is already in the process of revamping the building.

WGR's new building includes a "community room" which the management hopes to make a meeting center for many local groups. It includes film, videotape, and slide equipment, and will be open as freely as possible to responsible groups that need such facilities. Availability of the room is being widely advertised in the community.

The two-story building holds all executive offices and administrative space for programming, public affairs, promotion, sales, news, and all engineering except the transmitter, which is a few miles away, tied in with a microwave link. There are 45,000 square feet of space, on a landscaped area that totals 95,000 square feet. Binghamton brick lines the first floor; a 74-foot wall of tinted windows complements the building's main entrance. Sidewalks outside are heated in winter. A reflecting pool in the plaza will hold sculpture depicting the role of television in contemporary life. The open terrace outside the lobby, with trees, flowers, grass areas, and mar-

ble benches, can double as an outdoor TV studio.

As an NBC affiliate, WGR programs many prime-time network shows, including network news programs. However, the station is going for a strong local character as well, based primarily on a twice-nightly half-hour local news program, at 6 and 11 p.m., with WGR's own anchorman, Ron Hunter, to shape up the presentation. Remote crews will cover important local events on videotape for editing into the news show; the in-studio staff will comment. The management considers the local news effort one of the most important elements of its community involvement, and also of its drive for enlarged commercial success. They are frankly shooting at the number one position in local news held (when this was written) by the ABC affiliate, WKBW, on Channel 7.

Many local shows will be produced in the two new studios, which are 40 x 60 feet, and 60 x 80 feet, respectively. WGR will also promote the use of the studios for general commercial video production.

The larger studio includes two built-in bowling alleys, allowing the presentation of a local show that is obviously going to be immensely popular. Called "Bowling for Dollars," the show goes on at 7 p.m. five nights a week and pits guest bowlers against each other in pairs, with each getting two rolls. Two strikes wins a jackpot, which may be over \$1000; high scores win lesser amounts. People who want to compete are being invited on the air to send in for "entry cards," and WGR, at last count, had taken in about 60,000 requests! Similar shows have been started in a few other cities.

The \$800,000 worth of new equipment, installed under the direction of Hal Higgins, manager of engineering, and Ed Gordon, engineering supervisor, starts off with three up-dated GE PE250 color cameras, two equipped with new Q-TV teleprompters. Commercials, IDs, spot announcements, are usually handled by an RCA TCR-100 video cart machine, but automation will generally be confined





Exterior of new WGR-TV studio-administrative building in downtown Buffalo has brick facade on first floor, tinted windows above. Glass-enclosed tower holds microwave antenna for air link to transmitter.



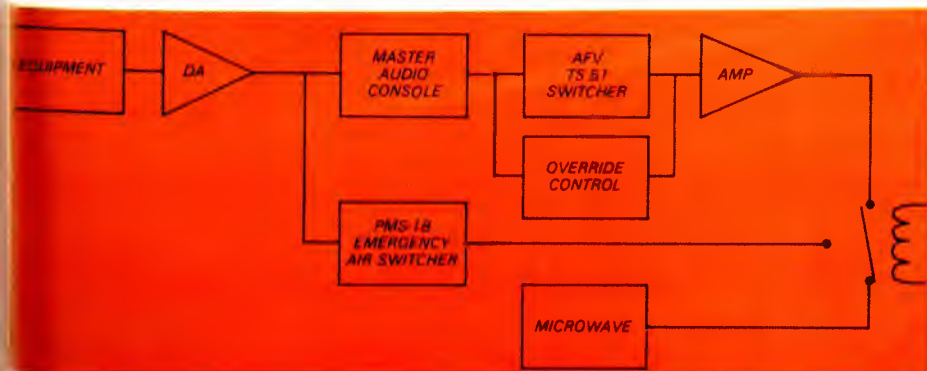
Engineering Supervisor Ed Gordon inspects RCA TCR-100 cart system for many commercials, IDs, spot announcements. Major part of programming is produced live from studios or from NBC network feed, with some from open-reel VTRs.



Looking over shoulder of program director Ernie Rouert at push-button panel of sub-control switcher (RCA TS-51) which receives inputs from studios, lines, VTRs etc., and routes them as required. Vidifont special-effects generator, and chroma keyer are also at position.



A main control position at WGR-TV, with large studio window facing operator, switcher under his right hand, studio monitors above window, monitors for other inputs below window, operation monitors at far left. Each studio has its own control room.



Block diagram of switching system shows automatic re-routing circuit which sends program through PMS-18 if main switcher fails.



WGR-TV puts strong emphasis on local news with reports each night at 6 p.m. and 11 p.m. Above, members of the news staff, at one end of large news room, prepare copy for the local news reports.



The WGR-TV "News Cruiser" operator checks out a local happening with a Buffalo patrolman. Film cameras or portable videotape units record newsworthy events for integration into the two nightly local reports.



Chief photographer of WGR-TV, Terry Johnson, inspects one of the film cameras he will assign to a news crew to record an event for the station's local coverage.

to that area. There are two RCA TS-51 switchers, two custom-built audio consoles, three custom-built film chains.

Master control area has an RCA TS-51 System 20 switcher with AFV, into which WGR's engineering staff inserted a custom audio console for level control of individual sources. The staff also modified the audio circuitry to allow override of 12 sources, rather than the six in the original design.

Sub-control uses an RCA TS-51 System 26 dual re-entry switcher with two TE-60 special effects units and chroma key. The custom-built console provides 62 microphone inputs, 16 mixers, four sub-channels, and two output lines. Both studios have CBS Vidifont generators and custom-built RCA remote control panels for VTRs and film chains. The

VTR and film equipment includes three TR-70s, one TR-22. The three film islands have TK-27 cameras updated with contour adjustment, four TP-66 projectors, and two TP-6s.

Terminal equipment is all RCA with sync distribution via an RCA Consync system, TA-19 processing amplifier, and TA-53 distribution amplifier. An emergency switcher system (drawing) feeds all video and audio through a PMS-18 switcher in case of failure of the master control switcher. Studio transmitter link is a Raytheon RTR-2A system with a glass-enclosed microwave tower on the new building. Transmitter includes an RCA PT-10 that drives an RCA 25-BL final amplifier.

Taft Broadcasting, and Buffalo, can be extremely proud of the new WGR. **BM/E**



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# Eight Years of Updating End In A Final Splurge— Result Is A Completely Modern Stereo FM Plant

WWDL, on 104 MHz in Scranton, Pennsylvania, built their spanking new studio-office plant around their old one without any cross-talk in ongoing programming.

A PROGRAM FORMAT DESCRIBED BY DOUGLAS V. LANE, president of WWDL-FM, in Scranton, Pennsylvania, as "wide middle-of-the-road music" has paid off for the stereo station which covers a good part of the northeast section of the state. The station started quite small in 1964, with a studio and office building of only 800 square feet. Original studio list included only a Gates stereo yard control board, one E-V microphone, two Gates Cartri-Tape II cartridge units. WWDL was 100% in stereo from its first day on

the air, the first stereo station in Scranton.

Each year thereafter WWDL added to its programming facilities. And last year the station got a building to house it all properly, with room for any future expansion needed. Designed by Mr. Lane, in collaboration with an architect, the new studio-office plant has 4000 square feet of space with just about everything a "music" FM stereo station needs for effective operation.

With construction going on around the active studio, WWDL kept construction noise out of the programming by shifting announcers and DJs back and forth to put distance between them and the work crews. Additional "on-air" red signals were put up so that carpenters could avoid hammering or sawing when on top of live mike positions. These precautions succeeded so well that no listener called in to ask what a power saw or active hammer was doing in the music.

The studio line-up now gives high efficiency for WWDL's program format, with most music played from discs, but some current hits on tape cartridges and some older material on open-reel tape. Gates Stereo Yard console and Stereo Statesman console feed an Audimax 111 AGC amplifier, which feeds telco lines to the transmitter (about two miles away). Gates Criterion stereo record/playback units are in each of the two studios, along with four ITC compact stereo playback units, selected because of low mechanical noise when starting and stopping.

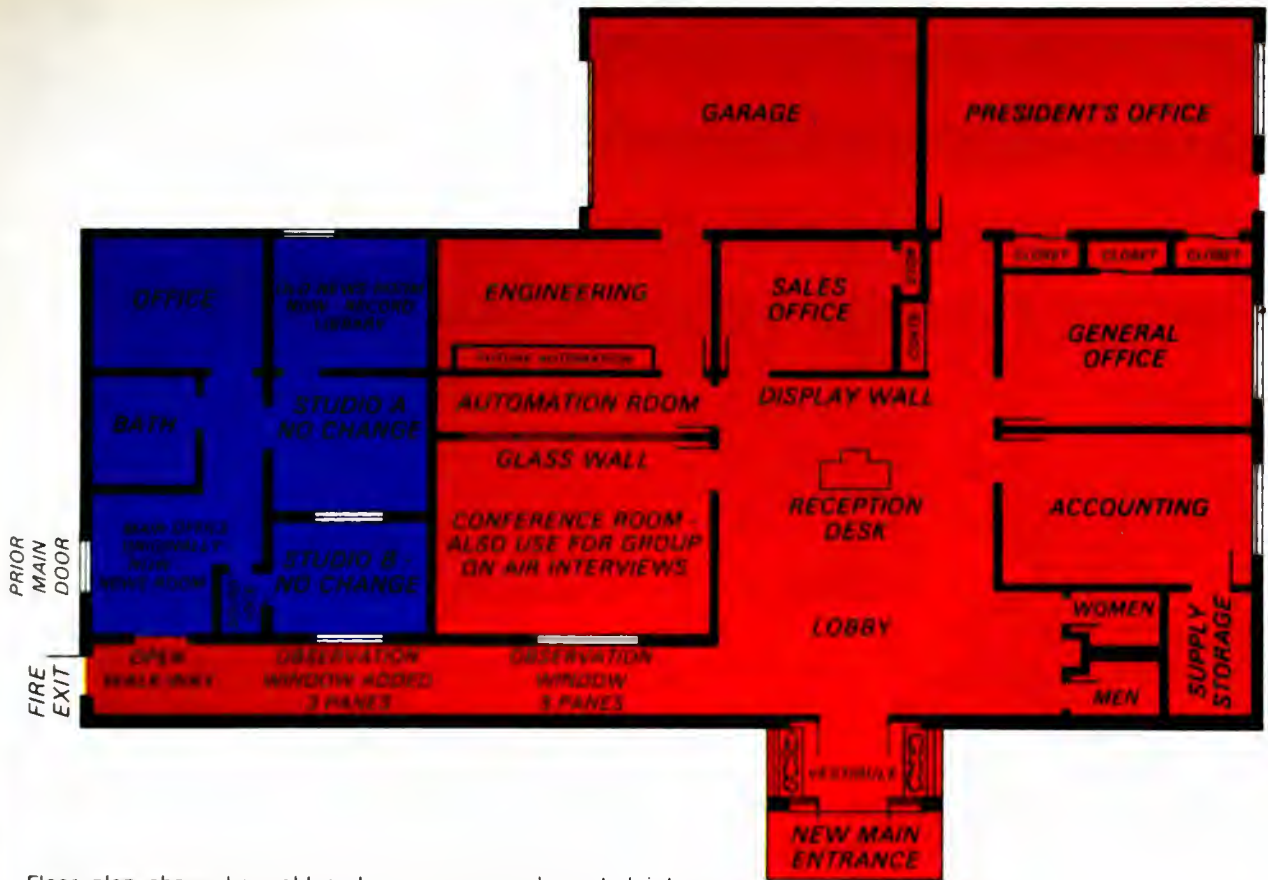
ORK turntables were chosen for flexibility in shifting between 45 and 33-1/3 rpm. Micro-Trak tone arms have Stanton 681-SE cartridges, which have proven to be rugged and easy to cue back. The six open-reel machines include Ampex and Teac models.

"The announcing staff does not crowd the micro-



WWDL's old building, with 800 square feet of floor space, before the expansion program that incorporated it into the new building, shown in lower photo on opposite page, extends across one end of the old, with a new entrance at far right.





Floor plan shows how old and new were amalgamated into a greatly enlarged stereo FM plant which has everything needed for a successful "wide MOR" music operation on stereo FM.

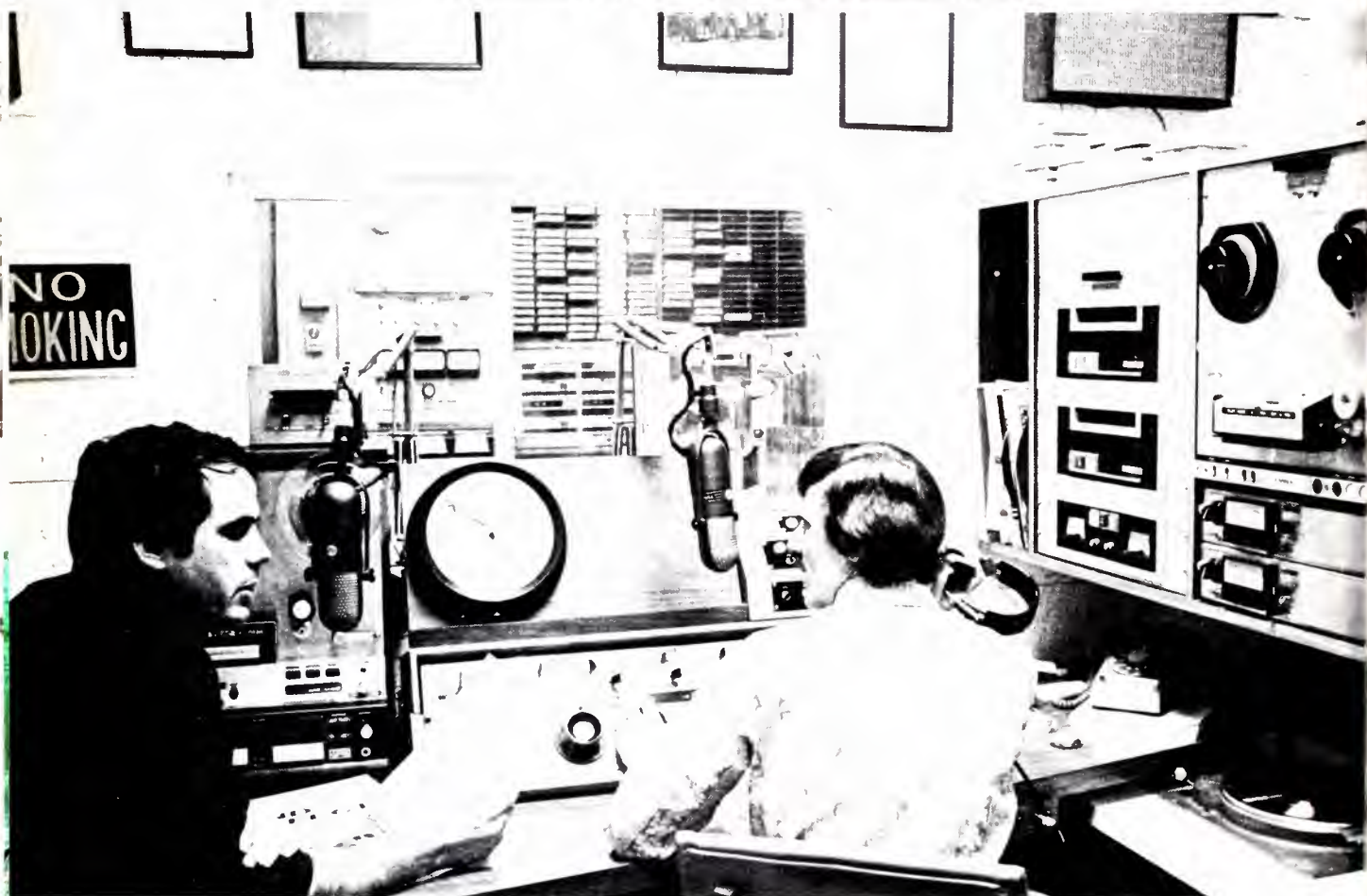




Close-up shot at disc jockey-announcer position in one studio shows how program origination equipment is all within reach: Gates cart machines, Ampex open-reel tape player, QRK turntables with Stanton 681EE phono pickups, RCA microphones.



Looking over control desk with Gates console, the second studio can be seen through window, with a variety of origination and control units.

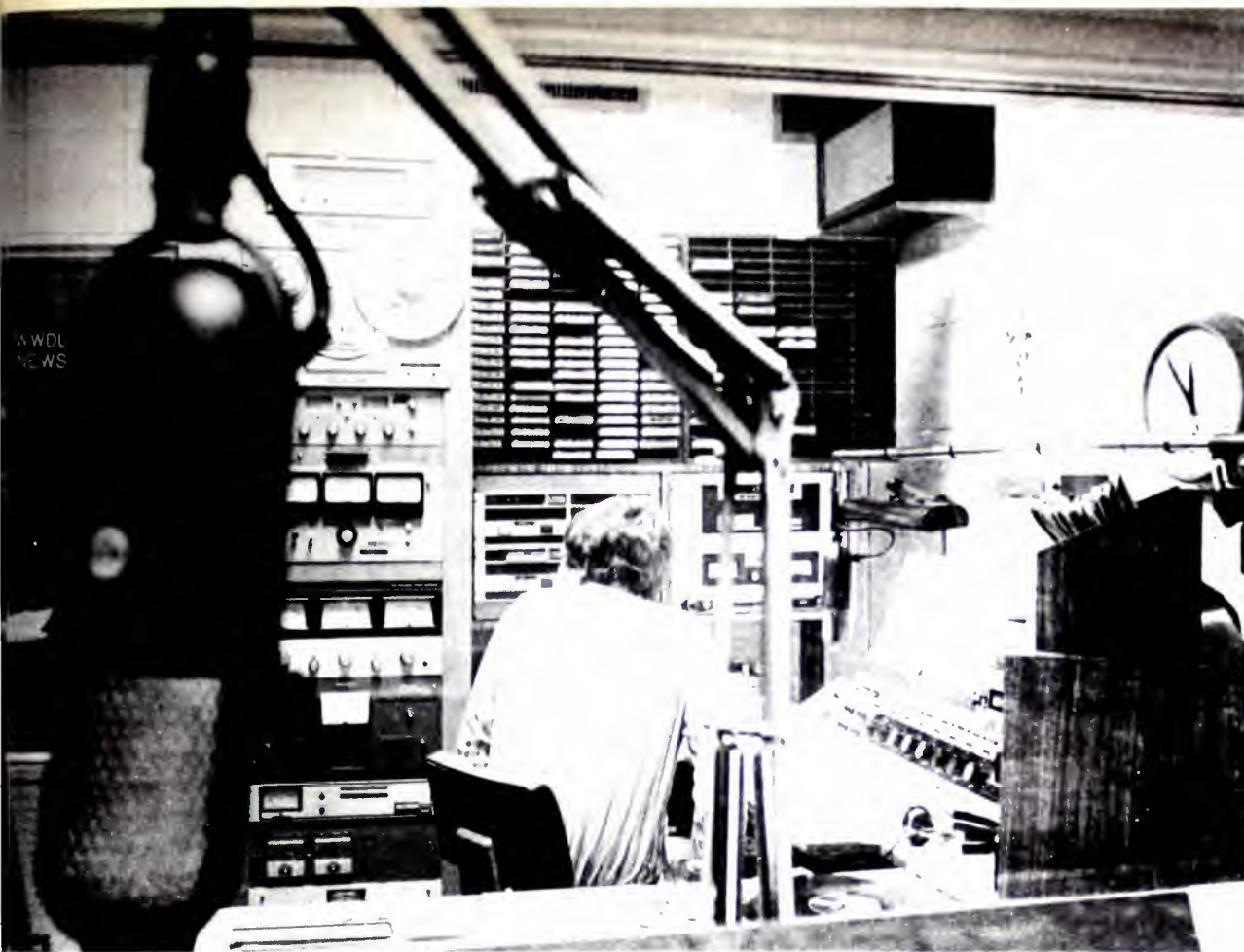


phones, and a soft-sell approach is used," says Mr. Lane, "and we have found RCA 770X microphones effective for this approach." McMartin monitors and RF amplifiers are in the main on-the-air studio, to work with a Gates remote control system. UPI audio feeds are handled automatically by the tone-activated control amplifier. Martin book-shelf speakers are used as monitors throughout. An automatic hourly time tone unit was home-brewed from two Singer timers.

With the studio arrangements (see photos) an announcer or DJ can do just about everything in the programming line without leaving his control chair.

Also in the building are all the offices, the record library, a conference room which is control-board equipped for recording interviews, and a room intended to hold automation and computer equipment in the future, as well as the present engineering office and maintenance area. The building is heated by electricity and has zoned air conditioning.





WDL  
NEWS

Closer shot of second studio shows Gates console, on control desk at right, open-reel and cart tape machines on rear wall. Door to news room is at left rear.



At left is the original equipment set-up at the main control position, shown in its present state in the pictures on the preceding page. New studio is behind wall at announcer's rear, as indicated on floor plan and in facing-page photos. Evident in earlier photo, above, are the cartridge and open-reel tape machines, console, single microphone.

The transmitter plant, on top of West Mountain, includes a 350-foot tower with single-bay circularly polarized antenna, and an auxiliary antenna on the building. Gates FM-IH3 is the main transmitter, and Gates ISC the auxiliary, which is kept in stand-by at all times and can be put on the air from the studio in about one second.

Emergency transmitter power comes from a Kohler 15 kW unit with propane-fueled generator. A modified stereo Volumax at the transmitter gives

adequate peak control. There is also a small emergency studio in the transmitter building.

Concludes Doug Lane: "A well-equipped facility is a vital necessity if an FM station is to serve itself and the community well. We have been highly gratified by our recent showing, with ARB surveys putting us frequently number one in the Scranton/Wilkes Barre area, in a number of the demographic quarter-hour shares. Our plant efficiency is an essential part of this showing." **BM/E**

# Traffic Speeds Up And Station Personnel Slow Down As Computer Tie-ins Solve Long Time Problems

DURING THE HEIGHT of the political campaign last fall, a salesman rushed into the Traffic Department at station KOB-TV, Albuquerque, and breathlessly gave Dorothy Smith, traffic manager for the station, a last minute schedule of spots that "just had to go right away."

Miss Smith, with a nonchalance bordering on indifference, took the schedule to a small machine in the corner of her office, punched keys for a few minutes, then sat back and waited. Within three minutes the machine began to clack back: when it was through Miss Smith tore off the read-out from the machine, looked at the salesman, and nodded "okay."

If there was any doubt that times had changed in the Traffic Department of KOB-TV it was quickly dispelled by Miss Smith, who returned to the little machine, typed out the changes for the daily program log in a matter of seconds, and returned to her desk.

"Two years ago," said Miss Smith, "that salesman wouldn't have dared come into the office with that kind of a request. He'd have found a bunch of screaming maniacs wearing out pencils in an effort to keep the log up to date."

Miss Smith looked fondly at the console sitting in the corner of the office and said, "It doesn't look like much does it? But it's absolutely breathtaking. After 25 years of manual operating and one year's exposure to the computerized handling of traffic, I just don't know how we ever managed before."

To people familiar with the organized chaos of the average station Traffic Department, the scene at KOB-TV, even during the ritual of "making up the log"—which often resembled New Year's Eve in Times Square—is now serene and efficient.

The revolution in streamlining and modernizing traffic departments has long been overdue and there

are several systems now available for overworked station traffic people which could change not just their efficiency, but their on-the-job attitudes, according to Miss Smith.

"The traffic job used to be sheer drudgery," she said, "and the constant updating, changing and substituting to keep the log up to date probably caused more personality traumas in TV than anything else. The pressures that were always hanging over the girls in traffic are no longer around and all traffic work can now be done, thanks to our central computer system, with a minimum of pressure and a maximum of effectiveness."

KOB-TV uses the BIAS computer system (Broadcast Industry Automation System) which is operated out of Memphis, Tennessee, and although there are several other systems on the market (see *BM/E*, September 1972, KOB-TV seems quite happy with its current system.

Miss Smith pointed out a number of specific areas in which the computerized traffic had streamlined the work for her department. "We used to have to type the daily logs three days ahead," she said, "which meant three days of continuing and exasperating changes. Now, with the help of the computer console tied-in to Memphis, we run our final log at 2:30 p.m. the day before it's current. And, where we used to slave for hours over the log, we can now put out the final copy in just 30 minutes."

Changes in the log, which have long been the bane of traffic people, now can be done in seconds, according to Miss Smith, and service orders can be confirmed within 30 seconds.

Jerry Danziger, vice president and general manager of KOB-TV, calls the BIAS system a "super-tool." "This system has so much potential," says Danziger, "that I don't think we fully understand its scope. What it has done for us to date, however, has been





Dorothy Smith (left), KOB traffic manager, shows computer print-out to general manager Jerry Danziger

fantastic. "Instant avails" has always been a major goal for any station—that we have, but it is only a small part of the information this system makes available for us. It has enabled us to get our "accounts receivable" faster and decrease the payment lags from agencies. It provides us with a complete breakdown on our sports—by classification, product, product protection—all in minutes. It does our billing and keeps it up to date, gives us a running account of costs, and running account of daily revenue."

Danziger attributes much of the station's increase in revenue to the capacity the computer system has to analyze and project spot information quickly. "During the recent political campaign," said Danziger, "the competition was turning down business because according to their logs they were out of saleable time. We had a similar circumstance in a prior campaign and reached the same conclusion only to find, too late, that there were plenty of spots still available. With the computer system we say, 'what have we got?' and within minutes we know. Thus we were able to handle a greater number of political advertisements than ever before."

But, to Jerry Danziger, the most important advantage of the BIAS computer system for his station is the complete informational check of all phases of the KOB-TV operation that the system can provide.

"This system is capable of producing every form of report a station manager could want," says Danziger. "Station gross on a running hourly basis—comparison of sales of individual salesmen—you can get it by the hour, day, or week; expenses on specific sales related problems—breakdowns are available in minutes; rotation of spots within certain time periods—zap, at your finger tips."

"Not only does the system streamline your operation," says Danziger, "but it stops you from making

mistakes. If you try to log competing products together the console says 'that's a no-no.' If you're overloaded in any time period with spots, the system tells you so. If duplication occurs, the system wants to know why."

"The BIAS system," says Danziger "institutes its own dialogue if it's not satisfied with the informational input. And that scares me."

Danziger pointed out also that in addition to the atmospheric changes that had occurred in his Traffic Department, it had also caused some important personnel changes. "Where we used to have four or five girls in traffic always typing changes in the log or up-dating the records, now we have two girls handling the whole affair and, with the increasing knowledge on their part on how to handle the computer system, their jobs have become far less tedious. We have been able to utilize the other girls in different areas of the station."

Danziger indicates that the interfacing of the equipment in the early stages caused a few traumatic experiences, but, since the bugs have been worked out, the system operates like a charm. "I think it's one of the greatest developments for station administration in years," said Danziger, "and with the ever-increasing load of paperwork, the continually growing complexity of spot-buying, logging, billing and confirming, I don't know how a station can continue to operate without some form of computerization."

The Hubbard Broadcasting Company, which owns and operates KOB-TV, has been installing one of the most sophisticated computerized systems available at its home station at KSTP-TV, Minneapolis-St. Paul, utilizing the BIAS system. The standard BIAS service is used at Hubbard's WTOG-TV, an independent UHF station in Tampa-St. Petersburg, Florida.

**BM/E**

# We admit... we have created a generation gap!



1954  
D-24

1971  
D-124

1954  
D-19

1971  
D-190

When it comes to cardioid dynamic microphone developments **AKG** is purposely creating a generation gap.

We have to, because we insist on staying far ahead.

Imitation is the sincerest form of flattery and while others attempted to equal the acoustical properties and duplicate the design appearance of the D-19 and D-24, **AKG** continued in setting the pace by developing a new family of transducers with superior performance characteristics.

The D-19 and D-24 are the finest microphones in their

class, as thousands of owners will attest. However, new techniques and materials made fundamental design changes possible. Gone is the complicated "plumbing" within the microphone requiring slots or holes along the microphone body, and these essentials are improved: smoothness of response, uniformity of directional characteristics, front-to-back ratio at all frequencies and ruggedness.

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Circle 142 on Reader Service Card





Bill Wertz, VP of WQLR, checks the chronometer, as Dennis Weidler is poised to put the station on the air, Pat Dyskiewicz and Eric Toll watch.

## Stanton. Brings on the new.

A new Station, and a new sound hits the air in Kalamazoo, Michigan. WQLR STEREO starts serving the market in June, 1972 with all new equipment and new programming. Every cartridge on every tonearm at WQLR is a Stanton. Vice President, Bill Wertz states, "We chose Stanton because we were starting fresh and we needed to impress the community with the quality of our sound from the very first on-the-air minute. Naturally, the well-documented reliability of Stanton's 500 series cartridges helped influence our choice."



Artie Altro makes the WOR-FM sound, while Eric Small, Sebastian Stone and Promotion Director, Kim Olian look over a new album.

### Radio stations all over the nation specify Stanton.

For on-the-air use, Stanton 500 series cartridges have the ability to withstand rugged handling without any lessening of audio quality. They meet all standards for reliability and sound quality, both in on-air playback usage, and in the production of transfers. These characteristics, which assure high quality sound with minimum maintenance, make them ideally suited not only for professional use, but for home stereo systems as well.



Scott Muni, WNEW-FM, cues in on a new release.



Engineer Brian Morgan of WDRC AM/FM, gets ready for on-air playback.

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Circle 143 on Reader Service Card

# The Competition Sounded Louder Than We Did— How We Met The Challenge

By T. L. Mann

In the November 1972 issue, Irwin H. Fust Jr. advocated a number of forms of audio signal processing to allow a higher modulation level and make the sound more pleasing in the article entitled "How To Give Your Program Format Technical Support." Here, Chief Engineer T. L. Mann of WINA, Charlottesville, Virginia, tells how he succeeded in increasing apparent loudness, differing sharply with some of Mr. Fust's recommendations.

WE HAD A PARTICULARLY DIFFICULT apparent-loudness deficiency, as explained more fully below. We had to use modern audio processing amplifiers in the most intelligent way to help alleviate it. We did *not* get usable improvement from the mid-frequency peaking advocated by Mr. Irwin Fust in his article in the November issue of this magazine; that approach simply succeeded in making the signal sound very poor. But we did get a *big* improvement from a change to high-quality condenser microphones that have strong, true, transient response. Here are the details on these experiences.

Apparent loudness is not defined in any reference book, manual, instruction book, or journal that I have seen to date. I shall venture this definition: Apparent loudness is the degree of loudness that one *hears*, rather than the level that an engineer *reads* on test instruments (i.e., a modulation monitor). This commodity is, to say the least, hard to pin down exactly, but it can make or break a station's sound.

When modulation is applied to an AM carrier, as shown in Fig. 1, we can see that amplitude of the carrier wave increased proportionally to the modulation level. In other words, the higher the modulation, the higher the "peak envelope power." Peak envelope power will always be well in excess of the carrier power of an AM station, since the carrier power is specified in the license as being without modulation. The maximum percentage of modulation is limited, however, by practical considerations in the negative direction (graphically speaking, that

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**T. L. Mann** is chief engineer, WINA/WOMC/AGRINET, Charlottesville Broadcasting Corp., P.O. Box 1230, Charlottesville, Virginia.



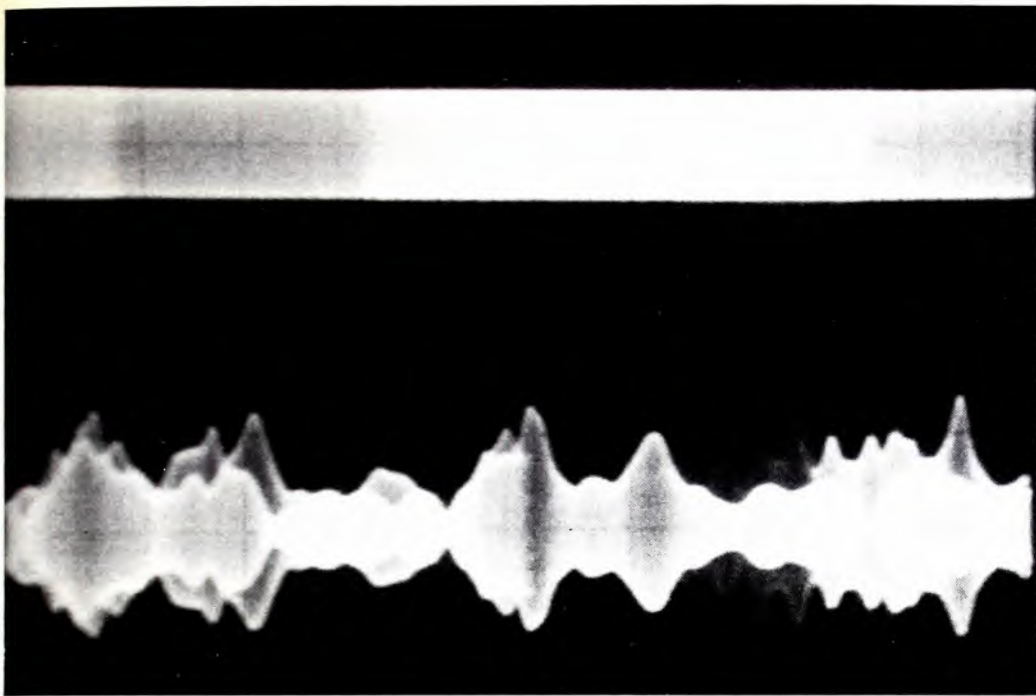


Fig. 1. Dual-trace oscillogram showing unmodulated RF carrier, top trace, and carrier modulated lower trace. Note the higher the modulation, the higher the peak envelope power.

towards the zero line of the carrier); by the fact that at over 100% negative modulation the carrier is clipped for a momentary part of the audio cycle; and, in the positive direction (graphically away from the zero line of the carrier), by a recent enactment by the FCC setting the limit at 125%.

Sophisticated AM processors have become available in the past year or so which allow the positive half of the wave to ride at 124.9% before absolute limiting takes place, while at the same time keep the negative half of the wave at or below 100%. (**Editor's note:** See table of audio processors, December 1972, *BM/E*.) The best units have automatic (and fast in the microseconds) peak switching which inaudibly, instantaneously switch a high negative peak to the positive direction, so it can be limited and used more constructively.

In FM, the carrier has a constant amplitude. The frequency "swing" is the modulation information. The more swing, the louder the signal, up to the FCC limit of  $\pm 75$  KHz ( $\pm 25$  KHz for TV audio). Asymmetry has no level effect in FM broadcasting. What is of indispensable value in FM is a processing amplifier which takes into account the "pre-emphasis" placed on the audio going into the FM modulator. The pre-emphasis boosts the higher audio frequencies in order to overcome losses which affect high frequencies. This means a 10,000 Hz tone will overmodulate an FM transmitter at a lower level than a 100 Hz tone will. The FM "proc amp" takes into account this pre-emphasis to prevent overmodulation in FM.

Audio processing generally falls into five headings: automatic gain control, limiting, compression, clipping, and equalization. Automatic Gain Control (AGC) action is analogous to an electronic hand on

the master gain pot. It carefully raises low levels, and judiciously lowers (gracefully!) high levels. In essence, the AGC "normalizes" levels to a previously set value. Most modern AGCs have a "velvet hand" approach to this process, through the addition of certain features. These are:

Return-to-zero, which tells the AGC "valve" to return to zero expansion/zero reduction when there is no input present for "X" length of time. This prevents the AGC from trying to amplify noise when no signal is present.

"Variable time" means simply that the AGC has a slow expand time and a rather fast reduce time. This is coupled with a slow release time for expansion, and a fairly slow release time for reduction. This prevents the "swish" of early units.

Most modern AGCs have a memory which remembers the *last* input and keeps the degree of control at that point when the signal suddenly ceases, and maintains this control until the time delay runs out for the return to zero function. All of this actually is pretty neat and, to sum it up in layman's terms, it keeps the level pumped up to normal.

Next enter the limiter. I mean here the fast-action *peak* limiter which is used almost exclusively in broadcasting today. The modern, fast-peak limiter is a broadcaster's insurance policy against overmodulation, and is also the route to a higher apparent loudness through the ability to run maximum legal peaks. The peak limiter acts with the force of a sledgehammer to pound down peaks that could overmodulate. It does not affect the non-offending peaks surrounding the offending peak. Most peak limiters today have a "crowbar," or failsafe, device near their output so as to not allow *any* overly-high

peaks through at all. Please color the peak limiter necessary.

Next comes the compressor. Some think the compressor is an unsophisticated AGC; others think it a slow action limiter. I think the compressor is a gain-riding device and, depending on where you ride the compression threshold and input level, the compressor can be both of the above, in a limited fashion. I commonly use compressors to ride gain on a variety of utility functions, such as remotes of one kind or the other, which tend to vary in level considerably. Remember that the compressor is working on the *whole* audio signal rather than just the peaks.

The clipper must be next presented for consideration. The clipper is really a rough form of limiting. If a level gets too high for the clipper, it is simply sliced off by the clipper control elements. Perhaps "sliced" is a mild word to describe clipping. In actuality, the edges surrounding the clipped wave are really rough, as if the offending peak had been actually *axed*. Clippers are seldom used alone. They are frequently employed as those "crowbars" in peak limiters, so their activity is reduced by having the limiter in front. They are the resource of last resort.

Equalization is a different kind of processing than the previous four. It is used in FM and recording in order to overcome certain shortcomings of the medium, but these are fixed equalizations, to be set by the appropriate standards. What we wish to comment on here is using equalizers to "shape-up" program material for cosmetic purposes.

Mr. Fust suggested in his article boosting the "presence bands" in order to achieve more apparent loudness. I strongly disagree with him here! In the first place equalization cannot take place on a fixed basis, since every station announcer sounds different. Secondly, to ask one of today's non-technical operators to make adjustments to an equalizer is not only adding more than he can do, but foolhardy as well! To compensate for these variances, I suggest instead the CBS Dynamic Range Compensator, which instrument acts continuously and variably in this presence band.

As far as AM pre-transmitter equalization is concerned, I have done quite a bit of experimenting on this subject and have come to the conclusion that flat and distortion-free performance is the best. I tried Mr. Fust's 100-7500 Hz bandpass and peakings, and found that the station sounded as if it were being transmitted, if you'll forgive the hyperbole, through a dixie cup and length of string rather than a \$20,000 transmitter.

Since we possess an Advent Graphic equalizer, I was able to try a number of different peakings and whole families of curves. None sounded better on the air than flat. I judged things through two receiving media: one a \$25 table radio, the other an automobile radio. I used a high-fidelity receiver and a small, cheap transistor portable only to verify fringe results, since the table and auto receivers are

the most used. All these test receivers were new within the last year or so, and were transistorized. Moral: Even on modest receiving sets, you can hear a *better* sound with flat transmitter and system response! As an afterthought, hasn't equalization always been a corrective rather than a cosmetic processing medium? If special effects are desired, or unusual colorations requested, both should be performed in the production studio and committed to tape. For the transmitter, the regimen of flat response, minimum distortion, and low noise should be followed.

Generally, contrary to some opinion, all processing equipment should be set up according to the manufacturer's instructions. Failure to do so almost always results in either inconsistent or disastrous results. One manufacturer, CBS Labs, has a test record which is especially helpful in setting up AGCs and limiters. The particular cut of interest is a peaked calibration signal which is a 100 Hz continuous tone, with 3KHz bursts several milliseconds apart. By long experience with this set-up aid, I can tell you that this is as close as I've been to "synthetic" program material which has an average peak content like that of regular programs.

We have had special problems with apparent loudness, because we don't sound as loud as the other two stations in the market (AM). We are a 5kW fulltimer, DA-N, while the others are respectively a 1kW day, 250W night; and a 5kW DA-D, 1kW DA-N. Both of the other stations have transmitter plants right in town, while we are several miles out in the country because of night pattern location requirements. We have a long telco line, which is not conducive to good transient response.

In our manager's words, we sounded "soft" in comparison to the competition. We particularly suffered when the control room mike was open. It was an old standby, an RCA ribbon. I tried several dynamics, but they were as bad or worse, and even a cheap condenser, but the distortion was intolerable.

Finally, I bought a Neumann U-87 for the control room and the world changed. I examined the modulated envelope with condenser and non-condenser microphones. It was obvious even at first glance that the condenser produced a cleaner sound and that all of the transients came through nicely, producing 124.5% positive peaks and good 99.5% negative peaks. The sound is just so obviously *cleaner* on the air that our "softness" problem has been solved to a great degree, though it will obviously never be the same as if we were located right in town with either a short or, better yet, *no* telephone line to go through.

As a result of this experience, we are beginning to convert the entire facility to Neumanns over a period of time. Phantom powering (48V supplies are readily available and, in many cases, 48V is already in the house) makes further economies while still using the best.

**BM/E**



# Canon offers the perfect zoom lens for the camera of your choice

P10 x 20B1



P17 x 30B1



P17 x 30B2



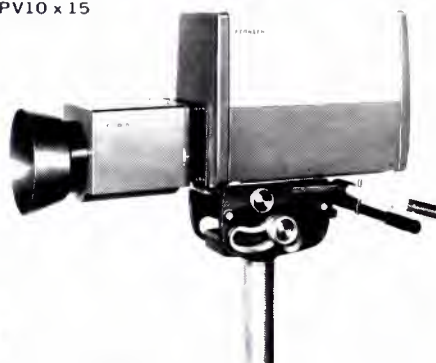
PV10 x 16B



PV17 x 24



PV10 x 15



More and more people are discovering how significantly superior Canon Zoom Lenses are for TV broadcasting purposes. Their outstanding color characteristics, even in dim light, is one of the many reasons why Canon was chosen for telecasting the Munich Olympics. Canon's wide range of excellent zoom lenses encompass three types of operation control— all-servorized, via flexible cables and by effortless push-pull rod control. And it can be attached to

fit and operate with any make of TV camera. Shown on this page are only a few examples of the quality lenses Canon has available to more than meet your particular demands. Specify Canon to stay ahead.

The following are Canon TV Zoom Lenses for the Plumbicon® color cameras currently available on the market:

Size of image tube	Lens	Image format covered
1 1/2" Plumbicon® color camera	P10 x 20B4	17.1 x 12.8mm (21.4mmφ)
	P17 x 30B1	
	P17 x 30B2	
1" Plumbicon® color camera	PV10 x 16B1	12.8 x 9.6mm (16mmφ)
	PV10 x 15B2	
	PV17 x 24B1	
	PV 6 x 18B1	

® Reg. TM N V Philips of Netherlands.

#### The Canon TV Lenses Naming System



Applications	Image Format	Pick-up Tubes
P	21.4mm	1 1/2" Plumbicon
PV	16mm	1" Plumbicon

Apart from the above, Canon has available TV zoom lenses for 3" or 4-1/2" image orthicon cameras and can also build special lenses to fit your requirements.

# Canon

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Circle 144 on Reader Service Card

# Quick Success On The FM Band: Getting All Around Town Pays Off For New Station

WDDD, FM stereo operation in Marion, Illinois, hit the black in two months by going out of the studio to get going the local news, by automated programming of country music, and by intelligent advertising policies.

WHEN WDDD WENT ON THE AIR in Marion, Illinois, in November 1970, the independent FM station was up against two high-power AMs, a local cable system, and a brace of local newspapers.

Two months later the station was in the black and has stayed there ever since.

One of the main elements of that success, according to Dutch Doelitzsch, president, has been the management's determination to become the "hot" news station, known through the town as the one present at, and aiding with air coverage of, a wide range of important community activities. To get this go-everywhere capability, WDDD invested in a Ford Super Van and equipped it with a Marti remote radio link. Broadcast-quality signals can be fed into the studio from as far as 25 miles away. Important remotes go on the air live, switched in between the country music programming that is the station's staple fare.

The latter is nearly 100% automated, but preserves a "live" character with expert announcer and skillful disc jockey talk recorded to surround the music. As in a number of other stations, the resulting air product sounds more "live" than that of many non-automated stations; the quality depends essentially on the personalities of the five disc jockeys, and on the expertise of Program Manager P.

D. Schmidt. Getting it all down in advance allows the program department to produce a sound that is smooth and seamless, as well as lively.

Automation, says Mr. Doelitzsch, is one of the keys to the station's success. "The announcer . . . does . . . everything a live announcer does, except that our announcer is doing other things while he is on the air, such as selling, production, news, copy, and so on," said Mr. Doelitzsch. "All this requires about 2½ hours per week for the announcer to prepare his material for automating. . . . Visiting broadcasters can't believe that what they hear is actually automated."

WDDD's emphasis on community involvement goes far beyond the usual alertness to local news. The station, with its remote pickup, becomes a participant in all important local events. The Ford Super Van and the station personnel make the station visible at such events, which reinforces the image of the station as the one to follow for local news. In a recent week, WDDD picked up, live, the following:

- Three high school baseball games
- High school all-sports banquet
- Senior Citizens Convention keynote address
- A riding lawn mower clinic.

As many as five important remotes have been aired in a single day, but the average is roughly one a day.

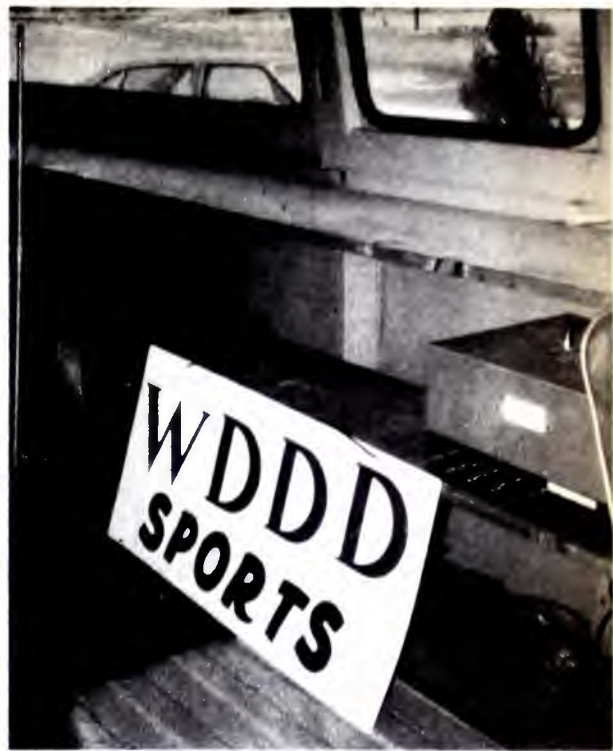
This activity has already succeeded in convincing a large number of people that if they want to find out about something that is happening in town, they had better tune in WDDD. Mr. Doelitzsch says. This leadership among the media in the community is ". . . an enormous help in our sales efforts. Wouldn't you want to go with the winner?"

The equipment and personnel costs of the remote operations are both high: a professional broadcaster obviously has to be on hand to handle each assignment. "If our remote coverage were a complete loss, we would still do it for the reasons already mentioned, but at WDDD we make money on our remotes." The method is a sponsorship plan, under which a local businessman can pay \$25 each three months, and get mentions—not ads—a specified number of times on remote broadcasts. The plan has proven highly popular with the sponsors

## New Equipment Line-Up For New Sound

Shortly before the accompanying story was written, WDDD moved into new, carefully-planned headquarters with a fresh equipment line-up. Equipment was chosen for the top "sound" the management wanted: Gates Statesman console; QRK turntables; phono cartridges and preamps are Shure; tape cartridge equipment is ITC; open-reel tape units are Ampex and Scully; automation is Schafer; compressor/limiters are Marti. The monitoring equipment is Gates; main transmitter, CCA; and auxiliary transmitter, RCA. With a hilltop location, they are getting "good" signal reports up to 90 miles away.

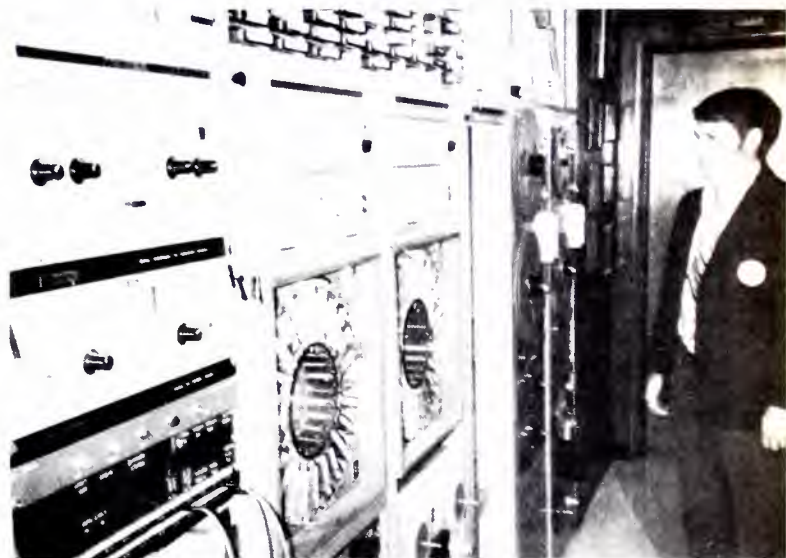




Inside (right) and outside of the WDDD news van, which can be dispatched in a few minutes to any news location to send back broadcast-quality signals from anywhere up to about 25 miles from the station. The Marti transmitter, visible on shelf at right in interior, is equipped with beam antenna in rear of van (left of picture) for the longer remotes. The attractive van makes the station highly "visible" at town events.



Getting the on-location news: Governor Dan Walker of Illinois (left) is interviewed by WDDD news director Steve Land at the dedication of man-made Rend Lake.



President Dutch Doelitzsch stands next to the Schafer automation gear used to put "seamless" but lively programming on the air.

and gives WDDD freedom to use remote pickups as needed. "After all," says Mr. Doelitzsch, "who can pass up an advertising package that costs only \$8.33 per month? Everybody wins . . ."

A further element of community involvement is the availability of WDDD air personalities as masters of ceremonies for clubs or other organizations. "They do this as part of their regular duties," says Mr. Doelitzsch. The programming also includes a good number of local "talk" shows, on which personnel of local groups can be interviewed to tell the

community about what they are doing.

WDDD put on its first quad broadcast in November 1971, raising considerable local interest. But the station has not yet put much emphasis on this because there is very little country music recorded in quad.

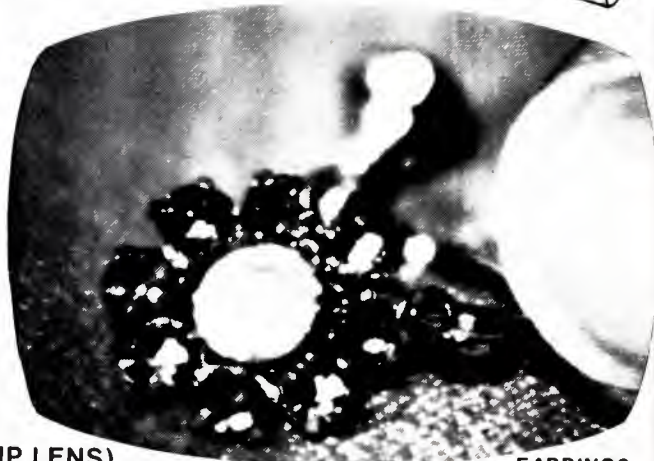
A last note on the special character of WDDD: at the time it went on the air, in November 1970, no member of the management or technical staff was older than 23! Give these youngsters ten years and they will zoom clear out of sight. **BM/E**



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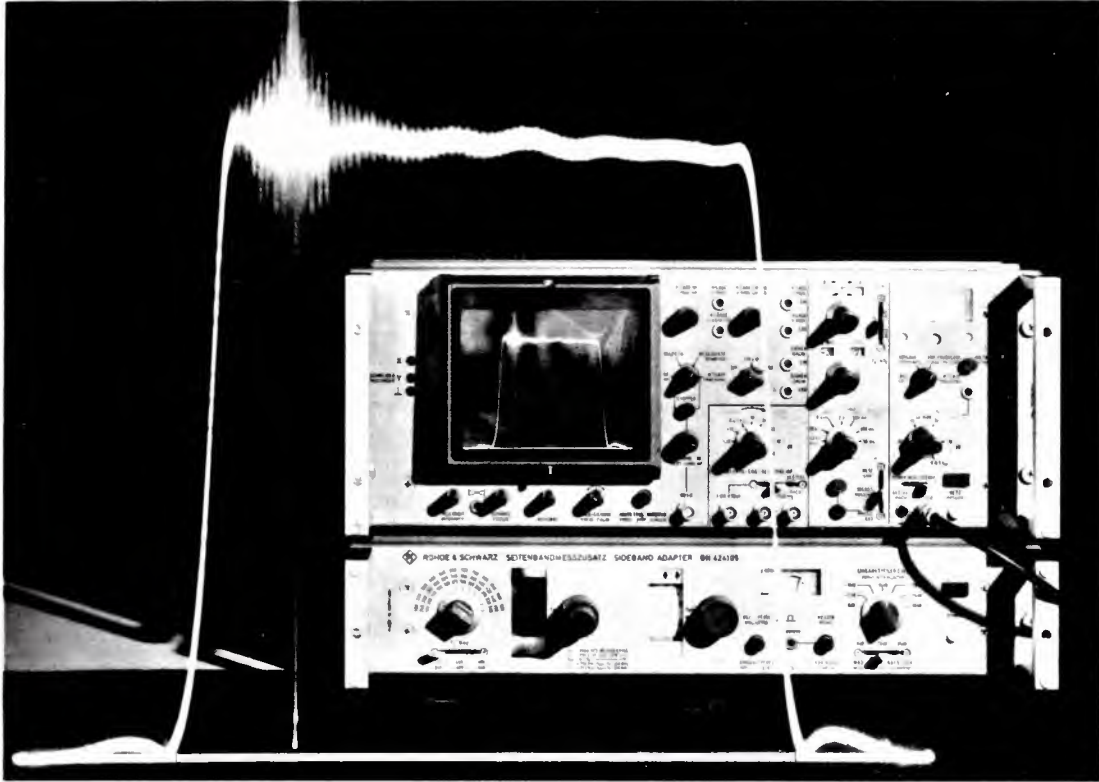
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Circle 145 on Reader Service Card



# VIDEOSKOP & SIDEBAND ADAPTER to MEASURE VIDEO SYSTEMS WITH COMPOSITE SIGNALS.



## FEATURES :

Complete test system : Sweep Signal Generator, Selective Tracking Receiver (2 kHz BW), large screen display, in a single cabinet. 75  $\Omega$  VF, 50  $\Omega$  RF.  
Freq. Range : 10 kHz-20 MHz or

with sideband adapter 30-1060 MHz  
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Sweep :  $\Delta f$  sweep  $\pm 100$  kHz to  $\pm 1$  MHz  
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LIN (30 dB) and LOG (50 dB) display with 30/50 dB dynamic ranges.

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Use as sweep source and plotting detector with R/S Type LFM Envelope Delay Test Set.

Chopper operation for simultaneous presentation of two input signals, e.g., frequency response, envelope delay.

Double control facility in display section for magnification of a particular section of frequency response.

## APPLICATIONS :

Display of frequency response and envelope delay on VF system in presence of sync/blanking pulses (sweep with composite video).

Measurements on transmission links (with tracking receiver).

VIT measurements

Sideband analysis 30 MHz to 1060 MHz (with sideband adapter).

Spectrum Analyzer

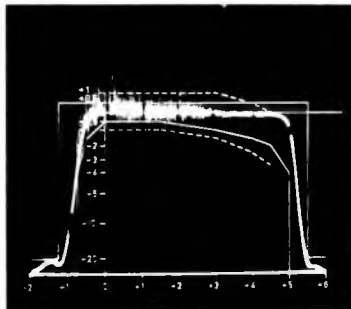
## MEASURE

Absolute and relative amplitude-frequency response  
Return loss

Sideband characteristics of TV Picture Transmitters  
End-to-end transmission characteristics on cables and radio links

Characteristics of TV Receivers, Demods, Filters and Amplifiers

Simultaneous Frequency Response and Envelope Delay



Display of sideband characteristic of a VSB TV channel Signal Generator (SBTF). Test requirement : sweep signal component in composite picture signal 10% of picture signal, set-up at picture white. Combining swept-frequency operation with analysis permits the test signal to be easily observed and measured between the spectral lines.

Videoskop is a highly reliable solid state visual display sweep frequency system covering the range of 10 kHz to 20 MHz. A sideband adapter is available to include VHF and UHF up to 1060 MHz and permits measurement of sideband characteristics to within 10 kHz of TV picture carrier. Type SWOF III Videoskop provides an automatic display of the amplitude response of a test item instantaneously. There is also a facility for manual sweeping (point by point tuning) for use as a CW signal generator. Level meter, calibrated switchable/continuously adjustable input and output attenuators and marker generator permit absolute measurements. Selective tracking receiver makes possible plotting of characteristics of TV systems in the presence of sync and blanking pulses. It further eliminates errors due to harmonics and can be used as a spectrum analyzer. Measuring range is -100 dB to +70 dB. Chopper operation is available for simultaneous presentation of two input signals, e.g., frequency response, envelope delay with Type LFM Envelope Delay Test Set. The display section has double control facility for magnification of a particular section of the frequency sweep. The long sweep time (adjustable from 50 ms to 80 s) is used for test items with long delay times or for use with an X-Y Platter. Accessories available : Tracking Unit for link measurements, Precision Freq. and Marker Generator, adjustable to 1 kHz throughout sweep range and displayed to 5 digits.



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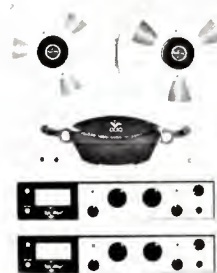
# Tape-Athon

# THE INDEX OF PROFESSIONAL STUDIO EQUIPMENT

Model 900

## LOGGER

Tape-Athon's broadcast **LOGGER** is ideal for radio stations and communications centers, combining performance, dependability and low investment in a field-proven unit. Speeds down to 15/32 ips permit 409 recording hours per channel with up to 8 channels / 8 tracks available.



LOGGER

Model 900

## RECORDER

A truly professional recording system, the 900 will perform virtually any audio assignment in the studio. Mechanically and electronically the 900 has proven itself in hundreds of installations. Uses all reel sizes to 10½", has dual capstans for smoother tape movement, 30 to 15,000 Hz response, sensitive to 25 Hz cue tone and speed combinations of 3¾-7½ or 7½-15 ips. It operates so smoothly it can handle ½ mil tape.

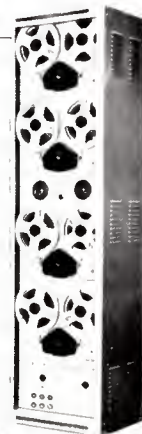
The 900 is also ideal for use as a playback unit in automation systems. Electronics are all solid state, it has automatic reversing, instantaneous start/stop, and reel torque compensation.



RECORDER

## MULTIPLEXING

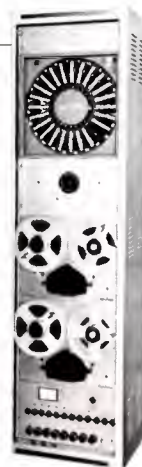
Here's a pair of easy ways to broadcast background music for fun and profit. Tape-Athon's **PROGRAMMER** and **CHANNEL CASTER** both have 4 tape transports with a capacity of over 800 different musical selections. With the **PROGRAMMER** you have built-in timing circuits that permit an infinite variety of mixing for specialty music during the broadcast day. It's complete with 7-day ON-OFF clock, VU meter, monitor speaker, and 40 watt amplifier. The **CHANNEL CASTER** is equipped with six inputs and an intersperser to mix music and ads or other spot announcements. Both are available with Tape-Athon's extensive music library on a sale or lease basis.



MULTIPLEXING

## AUTOMATION

This low-cost Tape-Athon **CHANNEL CASTER CAROUSEL** allows any station to automate for a modest investment. The CCC is a two-tape transport system (expandable) with a cartridge Carousel unit that can be interspersed with the music. This allows local ads to be aired with news, weather, ID, or any other promo material. This complete program package is priced at only \$4285.00 in mono and \$5285.00 in stereo.



AUTOMATION

# Tape-Athon Corp.

502 S. Isis Ave., Inglewood, Calif. 90301 • (213) 776-6933



# WCVB-TV, An All-Digital Station—No Other Way To Go

"If things are ever to move upward, someone must take the first step and assume the risk of it." — William James

A quote used in the dedication announcement by WCVB

BOSTON STATION WCVB-TV, channel 5, which is one year old in mid-March, is not just a station; it's a pioneer. The Big Screen now streams continuous images of two, mostly digital, live-action programs.

After many months of development, the station's new programming, including a new 11:30 a.m. program called "Weekend Update," is now on the air. It took the air on Sunday, March 22, 1993.

The station's new programming is made possible by modern equipment. When the station was built, it had a list of 100 equipment suppliers. Today, only "Who's Who" at some museums and a few other countries, Canada, and France. The rest of the world is all of the new gear that has come on line.

Although there are many challenges, the station's new programming is a major step forward. The station's new programming is a major step forward. The station's new programming is a major step forward.

"There was always a lot of talk about the station's new programming. It was always a lot of talk about the station's new programming.

He says the station's new programming is a major step forward. The station's new programming is a major step forward. The station's new programming is a major step forward.

"We primarily have a lot of digital equipment. It's a great deal of different equipment. It's a great deal of different equipment.

We're having a lot of trouble with the equipment. It's a great deal of different equipment. It's a great deal of different equipment. It's a great deal of different equipment.

The first problem was that the equipment was not working. The staff did not understand the technology. A crash program had to be organized with the manufacturers on site. It became clear that the staff thought that the theory was not being understood by most operators. This meant concentrating on how to localize trouble to a machine. In times past, operating crews acquired a technician to where to kick or poke a piece of gear as an expedient in revitalizing it. Digital equipment does

not have a technician to call.

Most of the station's new programming is made possible by modern equipment. When the station was built, it had a list of 100 equipment suppliers. Today, only "Who's Who" at some museums and a few other countries, Canada, and France. The rest of the world is all of the new gear that has come on line.

Although there are many challenges, the station's new programming is a major step forward. The station's new programming is a major step forward.



Operating a video camera in a studio setting at WCVB-TV. The station's new programming is a major step forward.





the training operation.

Steve deSatnick says to appreciate the scope of that training process you have to imagine each man studying the operation manuals for products entirely new to the industry as well.

"Using digital circuitry is a departure from what most of us had been used to," he explains. "The theory is excellent; reducing theory to practicability leaves something to be desired."

"However if the system is working, the pictures are outstanding and the videomen love them."



Studio A control room. Audio control is on other side of glass wall, right.



Inside audio control room for studio A.



Close-up of switching position for studio A.

deSatnick says proudly.

"Reliability of performance hampered us most in the early going," deSatnick says, although he is not quick to point a finger at any one manufacturer in particular.

It is known though that WCVB still keeps its fingers crossed when it faces a heavy schedule in front of the studio cameras.

Heavily community-oriented, WCVB originates 4 hours of live programming each week. The remainder of the station's schedule is provided by ABC Television. On November 15, WCVB expanded its service to 24 hours Wednesday through Saturday and signs off other days at 1:45 a.m.

The extended hours resulted from staunch community support of the station's programming. Many observers believe WCVB has the superior signal in the area. It was a long time coming, some WCVB engineers admit.

The plant has five Norelco PC-100As, the most advanced broadcast television camera on the market today. And while WCVB says it has not faced a day of down time due to camera performance, the station does say that some of its cameras have spent a considerable amount of time back at the Philip plant to incorporate production improvements.

The PC-100As are outstanding at their best, deSatnick says, and praises their technology as far advanced, but admits that the station and Norelco had reliability problems. Some modules require resetting or replacement. For reasons that were never fully understood by the station, cameras occasionally would automatically switch from the operating mode to standby.

It appears that the solution is at hand. Problems that were attributed to line transients have, for the most part, been solved by some by-pass capacitors. The biggest annoyance, intermittent troubles—that were hard to pin down—seem to have been licked. Circuit design is now frozen and the quality of modules is now uniform.

All of deSatnick's headaches weren't camera alone. He says that the Ampex AVR-1 third generation color video recorders played havoc with the station's crew in the early months.

"There were power supply problems that have been modified and head life problems with the AVRs," he says, but quickly adds, "the AVRs are still the greatest things since copper wire."

One AVR was down for a week when Ampex needed seven days to replace a matched transistor for the unit. Since that time deSatnick has established a working rule that no piece of equipment be down more than 24 hours. To enforce this rule he has a six-man maintenance staff that does not double in operations. "They're constantly putting out brush fires," he says.

In recent months WCVB has overcome most of its operational problems and deSatnick appreciates the help he's had from manufacturers in correcting problems and training. The educational process continues today and WCVB is sending some of its engineers to school to learn more about the sophisticated equipment.

There is more time now to talk lavishly of th



station's newness and its avant garde operation. The large items of equipment include two Norelco 17.5 kW transmitters with solid-state low-power stages and IF modulation; an RF switching system; an RCA five-bay butterfly antenna; five PC-100A cameras, a Norelco PCP-90 portable video camera; three film islands, each with two 16mm projectors and a slide projector; four AVR-1 and two Ampex VR-1200 tape machines; one Ampex slow motion recorder and one Ampex RA-4000 electronic editing unit; and the production control room, master control room and tech center consoles and racks. The RF switching complex permits 11 modes of operation between the dual transmitters and the 3/2 antenna. The Central Dynamics Ltd. master control switcher is planned for on-line, real-time computer control.

Later a computer-controlled station-automation system will be incorporated into the present switcher which will embody a number of interconnected, job-oriented programs.

Steve deSatnick calls the CDL master control switcher a stout performer. He adds that anyone not using an IF modulated transmitter is behind the times. He talks freely about operations at the station, although the plant's purchasing had been completed by the time he arrived in Needham in August 1971, and he's not trying to defend his decisions.

In detail, the CDL video switching equipment in master control includes a 24 x 4 video/audio switcher with special effects and background generator and a 17-event memory and machine control system. A four-channel audio mixer, four audio cartridge machines and one reel-to-reel audio tape machine are also contained in the console. The remote control panel for the studio transmitter is located in the master control room as is the Leitch pulse delegation and tally switcher.

The station has a production center and a post-editing center that house the videotape equipment including four AVR-1 and two VR-1200 videotape recorders, one Ampex slow-motion recorder and the Ampex RA-4000 electronic editing unit with a CDL 15 x 8 video/audio switcher for use with the 4000.

By combining the two, wcvb feels it gets benefit from taping and playback sessions, while at the same time permitting post editing in a separate room under quieter conditions.

In January 1974, wcvb expects delivery of the new Ampex ACR-25 video cartridge tape machine.

The physical layout of the studio building gives a spacious appearance, although wcvb officials say they are becoming increasingly cramped in their 55,000 square feet location.

There is constant construction underway within the building. The original layout has changed somewhat over the first year of operation, but basically wcvb operates with a 40 x 30 x 16-foot-high news studio, with adjacent news room including a 16mm film processor, TWX room and film editing room, as well as offices and news conference room.

A 20 x 24-foot production control room is now being modified to include a smaller second room, and the main studio, 40 x 60 x 22 feet high, is positioned adjacent. Both the news studio and the



VTR room has four AVR-1 and two VR-1000 Ampex videotape recorders. Ampex RA4000 editing console is in foreground.

Master control console is a Norelco design with CDL 17-event memory control unit.



main studio have a unique floating floor and a resiliently-supported, hung ceiling to exclude external noise.

The technical area is completed by the tech center, master control room, a scenery storage room, dressing rooms, film editing spaces, program department offices, and master control room.

The station has 8400 square feet additional space which houses carpentry, the air conditioning plant and garage space for the mobile vans.

The station is temporarily using a full-sized video van as a second control room until construction within the plant is completed. Wcvb uses a second van, a mini-studio on wheels which contains a PCP-90 and the Ampex VR-3000 portable video recorder, for on-location work. (See *BM/E*, January 1973, for story on election night coverage around Boston by wcvb.)

Looking back at the early problems, most of wcvb's station planners would agree with a point deSatnick is quick to make. "We could have gone with proven equipment. That would have solved a number of problems earlier. Digital equipment is nothing to fear; in fact it's the only way to go.

"The crew responded admirably to a special situation," deSatnick says.

It's time for praise. For the most part the engineers have reached a more comfortable period. Working with the equipment and maintaining the operation has become an easy job.

"No other way to go," station planners say today with a glint in their eyes. Perhaps there is still the memory of the days when the combination of new technology, solid state electronics, and digital operation posed some tense moments for Boston's wcvb, channel 5.

**BM/E**



# You have to carry it to believe it! A 38-pound broadcast color portable VTR costing far less than Quad.



Our new Model 201C record/only VTR meets all quadruplex color broadcast levels of performance. Only the color electronics are new. In the last three years the tape transport has flown millions of tough environmental miles for the military. It's been there and back.

We'll not load this message with tech details but instead invite you to a live demo at the 1973 National Association of Broadcasters Convention.

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We'll also demonstrate our new studio Model 411C record/reproduce VTR. It, too, meets the same high levels of broadcast color performance of all the big, expensive VTR's. Superior tape handling, continuous time base and velocity correction plus

insert and assemble editing are standard features. There are, however, major differences.

Our machine costs far less than Quad and weighs only 140 pounds. What has happened is that the 411C makes possible and practical a compact remote capability in a station wagon. And, going right down the list, we save you at least 60% in original purchase and operating costs.

If the potential of these new VTR's boggles your mind—wait until you see the full story.

Contact our Director of Broadcast Video Marketing. Telephone 415/961-7145.

## ECHO SCIENCE

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# BROADCAST EQUIPMENT

**Power supply** for headend or microwave applications has standby for continuous operation without delay or transfer time. Model 1600 has inverter stable to .03 Hz, works from 120-volt, 60 Hz sine wave, or for 108-volt DC automotive or stationary batteries. INTERSTATE TEL. AND ELECTRONICS 275

**Electronically-tuned oscillators** cover octave bandwidths in five units over range 32 MHz to 1 GHz. LTO Series has tuning linearity and tuning accuracy to  $\pm 1\%$ . Output is 20 mV, fully isolated for stable operation into VSWR's up to 10:1. Tuning voltage may be modulated up to 1 MHz. \$390. to \$475. TEXSCAN CORPORATION 276

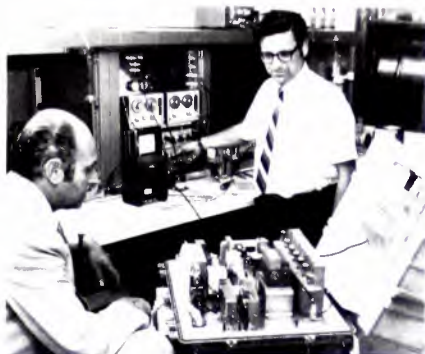
**Tripod head** handles cameras with high or low center of gravity. Model EC is a "Hydrofluid" head for Eclair



NPR and conventional cameras. It has built-in level, full pan and tilt. NATIONAL CINE EQUIPMENT 277

**Counter** measures frequency 0.001 Hz to 2 MHz. Model 6220 can resolve 0.001 Hz in one second, uses a phase-lock technique for rejection of random noise, has AGC that sets all output adjustments for total hands-off operation. Digital readout has auto-ranging decimal and leading-zero suppression. Measurements are also available in 4-bit BCD parallel output. \$350. SYSTRON DONNER 281

**Broadband multi-channel microwave receiver** can process up to 40 video channels in the VHF band. AME broadband receiver permits full use of



mid-band and super high-band channels, as well as standard VHF channels, with low inter- and cross-modulation. THETA-COM 279

**Character generators** have keyboard entry, keyboard-controlled word flash, audio tape storage, two-speed horizontal crawl. Model D-2400 has simultaneous two-channel display and four-page display memory. Model D-1500 has smaller character size, single channel. From \$4000. DATAVISION, INC. 280

**New videotapes** are available with non-back-coated gamma ferric oxide, back-coated gamma ferric oxide, back-coated cobalt high energy. QVII video-



tape comes in 1/2 in., 3/4 in., and 1 in. widths. QUALITY VIDEO INDUSTRIES 284

**Wireless teaching-aid system** consists of small transmitter and any number of pocket-sized receivers. WTA-10 system can transmit recorded tape or

instructor's voice to student carrying a receiver. \$495. (with 10 receivers). RHA AUDIO COMMUNICATIONS CORP. 282

**MATV amplifiers for VHF/FM** has separate gain controls for low-band and high-band channels to balance output. Model CVB-30A handles both strong and weak signals, has maximum gain of 35 dB on low-band and FM, 33 dB on high band, noise figure 8 dB, output maximum  $> 52$  dBmV per channel. BLONDER-TONGUE LABORATORIES 283

**Hand-held detector** allows location of low-level sources of RF noise. The "Sniffer" picks up magnetic fields at discontinuities on surface carrying RF current. A dB meter, built-in loudspeaker, or plug-in headphones all indicate presence of the interference. The one-and-a-half foot arm can be extended for sniffing in tight locations. Battery operated; weight two pounds. SINGER INSTRUMENTATION 285

**Data display unit** has full-screen memory, central timing, and a serial ASCII input. Model CG105 has internal sync for RS170 color or mono composite video signal; 512-character memory for up to 16 lines of 32 characters each. \$595. VIDEO DATA SYSTEMS, INC. 286

**Automatic background-music system with announce programming** is designed for cable TV use. The "Channel-Caster Carousel" has two open-reel tape playback transports for the music programming, and a rotary tape cartridge mechanism that holds 24 message cartridges, all in a standard 77 in. rack. Music programming and insertion of messages on a random-select basis can be preprogrammed for a full day, with completely automatic operation. TAPE-ATHON CORPORATION 287

**FET probe for wideband oscilloscopes** allows measurement of low-amplitude signals to 220 MHz without appreciable circuit loading, can be used on scopes with intrinsic bandwidth to 150  
continued on page 86

For less than the price of a small console you can own the whole studio.

# mini studio



## LAMB

See us at the NAB Booth 560 Shoreham Hotel

**Put your money where your mouth is.**

Sharp words. But sound advice when you're choosing a microphone for voice recording.

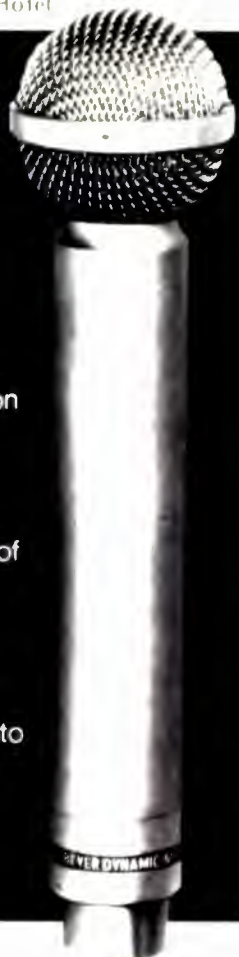
And when it comes to faithful voice reproduction in the most demanding recording and broadcast situations, we don't know of any microphone that can compare with our Beyer M 160.

The unique double ribbon design of the M 160 can unerringly reproduce the most subtle nuances of speech and music. And its super cardioid pattern assures superb front to back discrimination while rendering the M 160 almost immune to feedback.

Naturally, this kind of quality and performance doesn't come cheap. The Beyer M 160 costs \$180.

But when you think about it, that's a small price to pay for never having to say you're sorry.

**Another innovation from Beyer Dynamic, the microphone people.**



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## PRODUCTS

**MHz Model PM9353** has input impedance of 3.5 pF in parallel with megohm, dynamic range of  $\pm 1$  vol drift under 1 mV/day and broadband noise under 0.5 mV. **TEST AND MEASURING INSTRUMENTS (PHILIPS)** 28

**FM coupler** is for insertion in VHF circuit, has bandwidth  $\pm 300$  MHz. Model 95 supplies VHF rejection of the FM tape of 25 dB, has negligible through loss. **MAGNAVOX CATV** 28

**Production titler** has 10-14 character matrix characters in standard character height, 10th row title only mod for quick access to 16 titles. Model PT 3200 has roll and crawl mode.



two read rates, consists of a small keyboard and separate 3 1/2 in. by 19 in. rack-mount electronics unit. \$399. **MSI TELEVISION** 29

**Tape recorder and reproducer** has three speeds, ferrite heads, plug-in head assembly. Model 7202 has flu-



continued on page 8



# Spotmaster

What's a turnkey studio? It's a completely equipped radio broadcasting center, with all the equipment available from one source: Broadcast Electronics.

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**TAPEX CORPORATION**

BME-3

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## PRODUCTS

ter and wow at 0.04% at 7.5 ips, solenoid-operated tape lifters. SCHAFER ELECTRONICS CORP. 291

**Portable TV production center** accepts inputs from three cameras and a VTR. "Mini Console" also has built-in spe-



cial effects generator, four-input audio mixer, and three 5 in. monitors. GBC CLOSED CIRCUIT TV CORP. 292

**Voltage surge protectors** use gas-filled three-electrode tubes which instantly ground both sides of line with an over-voltage. Series 167 protectors have both gaps in one envelope, so both sides ground out simultaneously, preventing development of "line-to-line" voltage. Breakdown time is 0.3 micro-second, with no breakdown at 500 vDC, firing at 620 vDC. Gap carries 50 amps for 2 seconds, 7 amps indefinitely. CARDION ELECTRONICS 293

**Zinc coating material** forms a rust-resistant coat on any metal. "Zinc-It" can be put on cold, provides nearly the same protection at hot-dip galvanizing. CRC CHEMICALS 294

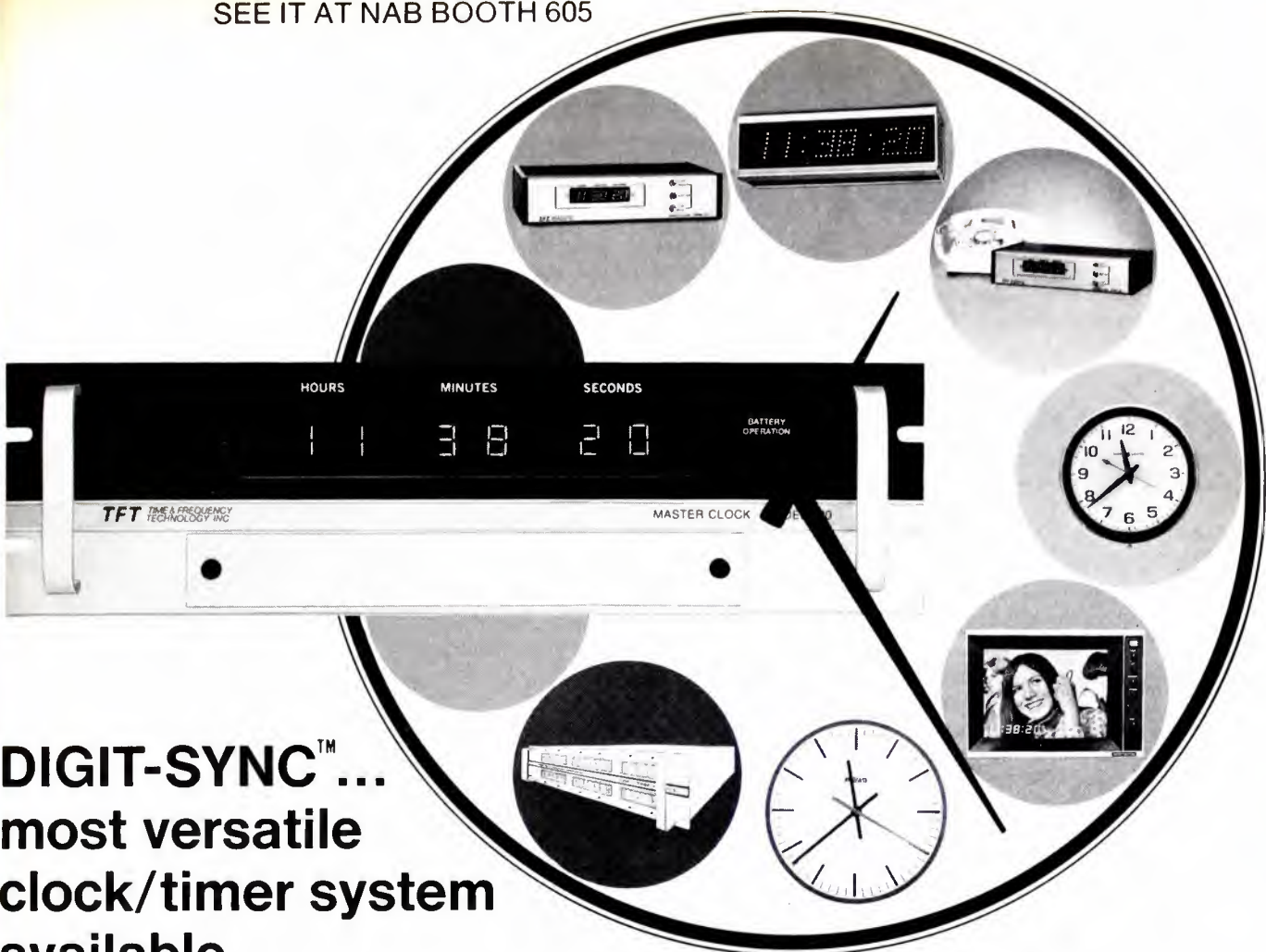
**Wideband amplifier** carries from two to seven color TV signals, plus FM, in the 6-48 MHz range, for more than 40 miles in a 32-amplifier cascade. "Sub-



Nova" is normally installed in multiple cable systems, with up to eight units in one housing, for 56-channel capacity. Unit gain is 25 dB, noise figure 7.5 dB, cross modulation - 85 dB. Dual pilot-carrier AGC controls level and slope. AMECO 295

**Digital cueing device** provides identi- continued on page 90





# DIGIT-SYNC™ ... most versatile clock/timer system available

Now, with TFT's DIGIT-SYNC clock/timer system you can synchronize any number of remote digital clocks, impulse clocks, event timers and synchronous motor clocks, and impose time data on a video signal, with an accuracy of one second per month. Or, as an option, three seconds per year.

And installation is easy. Unlike other systems that need more than 20 conductors for remote time display, DIGIT-SYNC uses a single pair of shielded wires to transmit time data and supply DC power to auxiliary units.

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# ALL-IN-ONE SPORTSCASTER HEADSET

This sportscaster can roam about a football field, rubberneck at a basketball game, or quickly position himself for an important golf shot. All with just one piece of equipment. The new Telex CS-90 Sportscaster headset lets him broadcast live (fixed station or mobile) listen to production cues, and monitor his own transmission, all with hands free convenience.

He can do all this because Telex has now combined the finest professional microphone available, one of proven broadcast quality, with an equally high-performance headphone.

This wide-range, dynamic, boom microphone has a low frequency response to transmit his voice clearly and crisply, and an omni-directional design to pick up colorful crowd noise. The two channel headphone fits comfortably with a padded headband and foam filled earcushions to screen out ambient noise. It is adaptable to any application or equipment by means of non-terminating cordage and features exclusive Telex audiometric type driver elements. And both headphone and microphone are designed to stand up even if the sportscaster has to work in all types of weather extremes and can't avoid some hard bumps. In fact, if the broadcaster doesn't hold up as well as the CS-90, there is a "push-to-cough" switch that mutes the mike when necessary.

Constructed of high-impact ABS plastic and stainless steel. Styled in non-reflective black and grey to eliminate glare on camera. Write for further information.



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## PRODUCTS

fication and cueing information electronically. "Digislate" works with both film and tape, has provision for remote control. \$285. AUDIO/VIDEO PRODUCTS. **296**

**Line of vidicon cameras** includes studio and industrial security models. PVC838 is a monochrome studio camera with 1-inch vidicon, 550 lines of resolution, 5:1 rear operated zoom lens. PVC808 is a viewfinder camera with 2/3-inch vidicon and 3-inch electronic view finder. PVC828 is for industrial security; once focussed it needs no adjustment. AUDIOTRONICS CORP. **297**

**Connectors for CATV aluminum sheath cable** include all standard types: entrance, feed-thru, splice, termination, etc., for sizes .412, .500, and .750 cable. RFI suppression is built in, and return loss is given as better than 40 dB. EG&G INC. **298**

**High-power RF transformers** match 50 ohms to 75 ohms, and vice versa. AT-10 Series handles up to 10 watts, average power, between 40 MHz and 250 MHz. Insertion loss is 0.4 dB. \$39.95. ACRODYNE INDUSTRIES **299**

**Clock/timer** will synchronize remote digital clocks, event timers, and synchronous motor clocks, and will also put time information in a video sig-

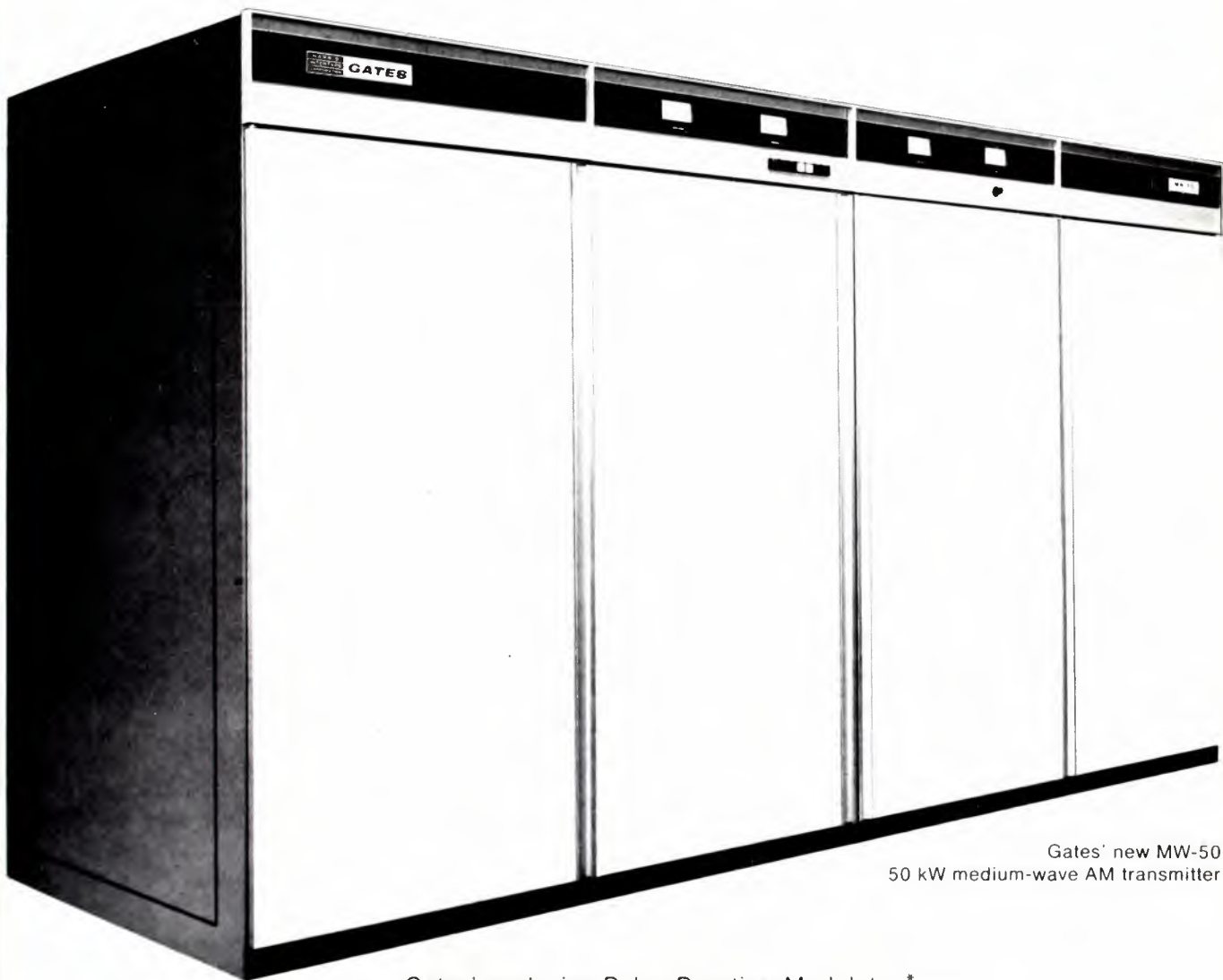


nal. DIGIT-SYNC has standard accuracy of one second per month, with a crystal reference. Higher accuracy is optionally available. Time information is transmitted to slaves over a single pair of wires, using built-in modems. TIME AND FREQUENCY TECHNOLOGY, INC. **300**

**Eight new video camera tubes** include four image isocons, two intensifier vidicons, one BIVICON, and one vidicon. The isocons, Models 4827, 4827A, 4828, and 4828A, are useful for medical and industrial X-ray applications, or others with large intrascene dynamic range. Intensifier vidicon-continued on page 92



# We threw away the 50 kW modulation transformer and reactor... With PDM,\* who needs them!



Gates' new MW-50  
50 kW medium-wave AM transmitter

Gates' exclusive Pulse Duration Modulator\* System is 90% efficient. That's why Gates' new MW-50, 50 kW medium-wave transmitter operates at greater than 60% overall efficiency. With greater reliability, greater frequency response, and lower power consumption than any other AM broadcast transmitter in the same power range.

There are other reasons why the MW-50 is superior. Like the use of only 5 tubes (in just 3 tube types) in the entire transmitter. And 130% positive modulation capability.

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"a complete monitoring system"

## FM • STEREO • SCA

SEE US AT  
NAB '73  
Booth 213

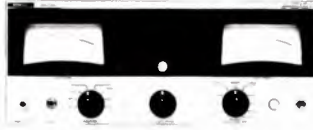
### TBM•3700 this is FM MONAURAL

- internal calibration
- measures internal S/N
- carrier failure indication
- full remote metering available



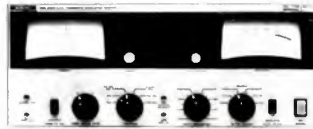
### TBM•2200 add this for FM STEREO

- simultaneous left/right reading of modulation
- metering function on one switch
- direct reading of separation and crosstalk



### TBM•2000B add this for SCA

- internal calibration of SCA injection
- frequency and modulation plug-in modular design
- **NEW for NAB/73**



### TBM•2500C add this for OFF AIR monitoring

- excellent sensitivity
- superb selectivity
- 45 dB AGC range
- phase linear for excellent stereo/sca recovery



# monitors

For complete information, please contact: Director of Sales . . . . . (402) 342-2753

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## PRODUCTS

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**New optional capstan servo** for Series AG-440 audio tape recorders provides continued on page 94



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## PRODUCTS

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**Low-noise capacitor microphone sys-**

tem is intended to complement Noise Eliminator system, has only 8 dB noise level. Model 3000 also works at high sound pressures, delivering + 20 dBm into 600 ohms at 110 to 140 dB sound pressure. Equalizer has four switched ranges; gain switch provides for close, medium or distant miking. BURVEN LABORATORIES **307**

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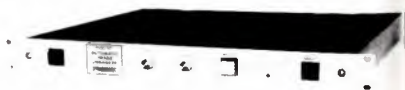
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continued on page 95

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Equals:  
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Insertion Loss/Frequency:  
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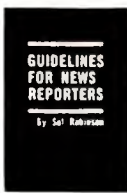
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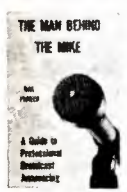


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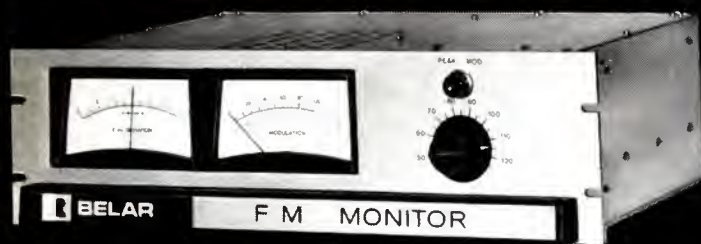
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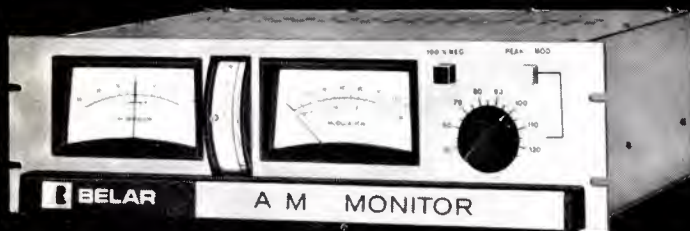
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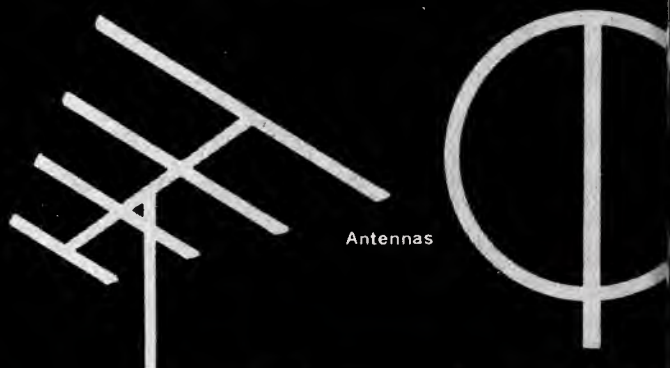
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**Frequency synthesizers** have 0.1 Hz resolution from 0.1 Hz to 13 MHz. Models 3330A and 3330B have push-button center-frequency setting, built in memory for programmed control of functions. Model 3330A has manual control of amplitude, 3330B has four-digit push-button amplitude control with 0.01 dB resolution over a 100 dB range. Solid-state digital displays show frequency and amplitude on the 3330B, frequency on the 3330A. Frequency stability is  $\pm 1 \times 10^{-8}$ /day, can be made higher with optional reference. Single or continuous sweeps are built-in. 3330A, \$5100; 3330B, \$6000. HEWLETT-PACKARD. 316

**Hardware and software for computerized logging, billing, accounting and traffic** are combined in package system. "Bat 1000" consists of a mini-computer with keyboard and CRT display, 8192-word memory, two cassette read-write transports, and a high-speed printer. System can communicate directly with any

ASCII code device. Installation is on a turnkey basis with operator training. System produces automatic log, plus all billing, payroll, statements, etc. INTERNATIONAL GOOD MUSIC, INC. 317

**Precision hysteresis synchronous motor** for direct replacement in Ampex and Scully audio units has direct capstan drive 3 $\frac{1}{4}$  and 7 $\frac{1}{2}$  ips, or 7 $\frac{1}{2}$  and 15 ips. Inside-out design cuts flutter and wow; electrified capstan cuts tape slippage

and wear. BEAU MOTOR DIVISION, UMC ELECTRONICS. 318

**Telephone answering unit can ask questions as well as record caller's voice.** The Ansafone 650 allows user to record any series of questions, with time between for the caller's answers. Questions are recorded on a tape cartridge; incoming messages on another tape. Incoming tape counter shows user volume of recorded messages when

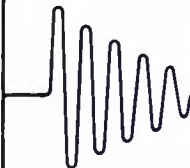
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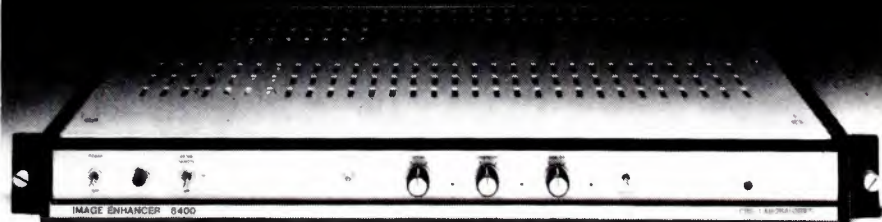
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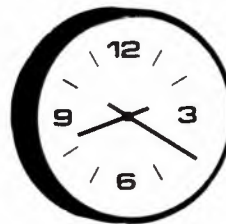
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**Slide projector kit** for time-message-weather channels in MATV and CATV uses a carousel slide projector, can handle up to 80 slides at one time. Model TMW-5SK works with Model FMW-5, sequences slides into message interval of the latter. Also needed is a heavy-duty projector (Kodak model 3-2 is recommended). \$465.00. **JEROLD ELECTRONICS CORP. 321**

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**Low-cost radio noise meter** operates on fixed frequency (either 834 KHz or 1000 KHz) in the broadcast spectrum. Model NM-21FFT requires no tuning, is easy for untrained personnel to use. Recorder output makes long-term  
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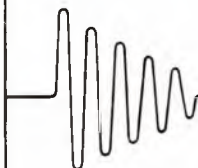
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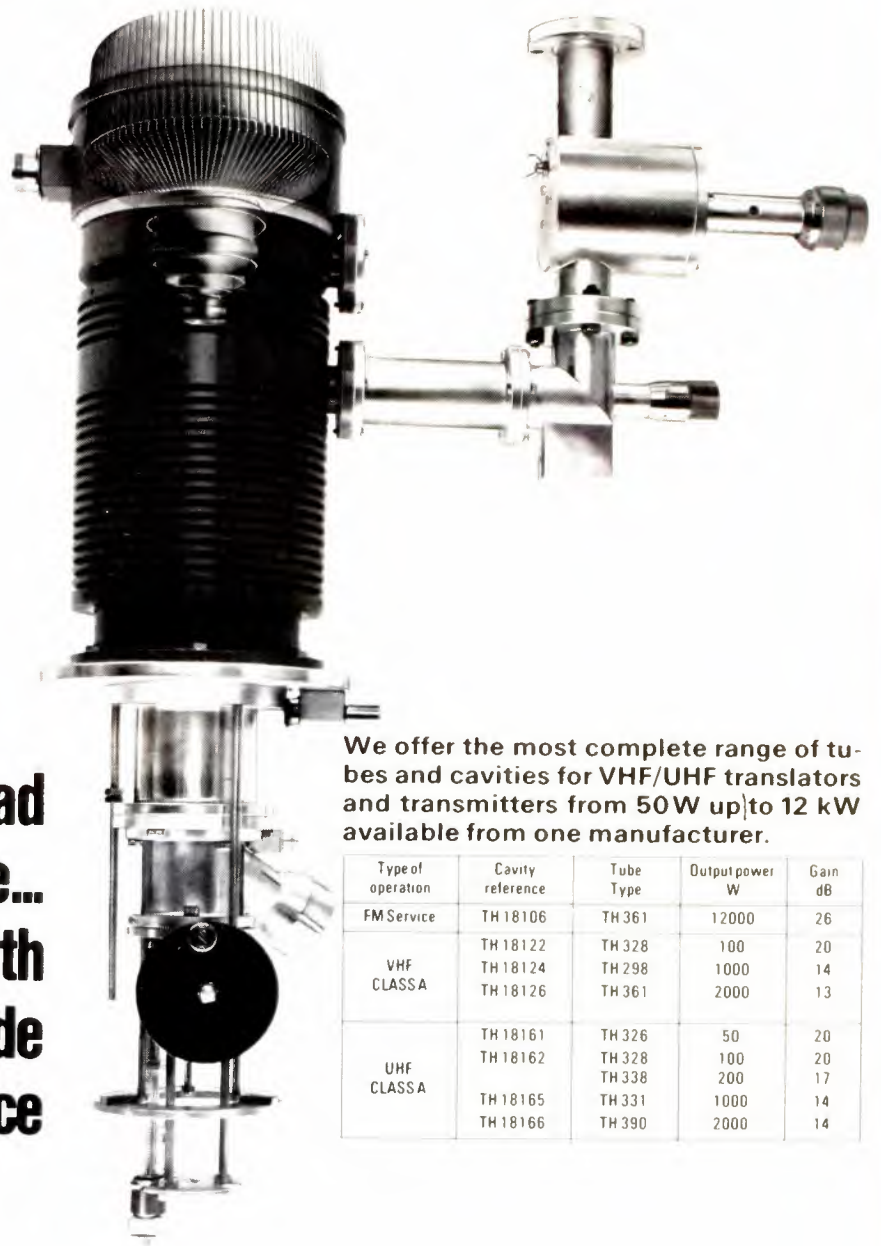
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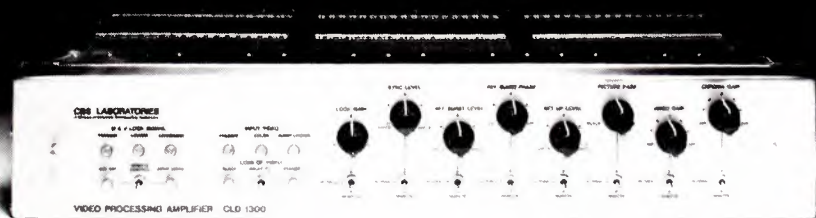
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All-electronic computer-controlled telex exchange, ELTEX II, is covered in six-page data booklet describing main operating features. Frederick Electronics. 201

Comprehensive line of panel meters and accessories, and a customized panel meter service, are fully described in a new 28-page catalog. Triplet. 202

Booklet covers detailed specifications and applications of sweep-frequency RF network analyzer for 400 KHz to 500 MHz, measuring impedance admittance, magnitude, phase and group delay, etc. General Radio. 203

Portable microwave radio for 1.7 to 15.25 GHz range is fully described in four-page brochure, showing separate transmitter and receiver modules, detailed specifications, and block diagrams of typical applications. Terra-Com. 204

Full data is available on specifications and use of endless-loop video cartridges, Model LV-5 (five minutes) and Model LV-10 (ten minutes), for many half-inch helican scan VTRs, in black-and-white and color. Sony. 205

Burn-in and electrical test sockets and carrier-contact systems for semiconductors are described in six-page brochure. K-Tech, Inc. 206

Bulletin details line of electronic counter/controllers, including totalizers and many controller options. De-Tec-Tronic Corp. 207

Wall chart shows appropriate Beyer microphone to choose for any of 22 general applications and 69 different musical instruments. Revox Corporation. 208

Log book for cable television systems includes ten forms suggested for keeping records of equipment performance, testing, and monitoring. "Equipment Record Log" has forms for antenna installation, antenna sig-

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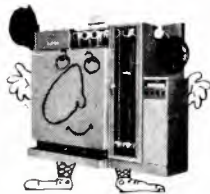


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Little Max, the compact color film processor that performs quality, small volume processing for a small amount of money. Little Max fits the bill without bankrupting whoever foots the bill. Using 8, 16 and/or 35mm film, Little Max automatically processes with CR-100 chemistry in 15 minutes dry-to-dry, as well as the standard ME-4 Process in 28 minutes. And when it comes to quality, Little Max can stand shoulder-to-shoulder with the big guys. Small size. Small price. Big value. Little Max.

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# LITTLE MAX

Circle 174 on Reader Service Card

## NEW LIT

nal measurements, headend tests, line amplifier records, and so on through entire system. Ameco. **209**

Bulletins on **pre-wired and connectorized jackfields** have photos, dimensional drawings and technical data, on units with Bantam jacks for two-wire, four-wire and six-wire telephone circuits. ADC Products. **210**

Full line of **microcircuit op amps** is covered in short-form catalog, "Linear Circuit Modules," which also includes sections on non-linear function modules and low-cost modular power supplies. Teledyne Philbrick. **211**

**Master antenna television system** gets detailed description in full-color brochure, showing application in hotels, motels, and hospitals, apartments, etc. RCA. **212**

Applications bulletin shows methods for making **low-resistance measurements** in the range from 0.001 ohm to 1 ohm, with accuracies of 0.06% or better, using four-terminal ratio capability of 3450A/B digital voltmeter. Hewlett-Packard. **213**

Illustrated 16-page brochure describes **CATV services, from feasibility studies to complete turnkey systems**. GTE Sylvania. **214**

**Low-light-level TV camera** that will produce usable picture with 5 X 10<sup>-5</sup> foot-candles (cloudy moonlit night) is described in new data sheet. Cohu Inc. **215**

**Expanded data service on electron tubes** and associated-components, called Data Service HB-3 DS, has replaced the earlier service, in use for 40 years; New service will consist of mailings of loose-leaf data booklets, full 8 3/8 in. X 10 7/8 in., with commercial, technical, and application notes. Domestic, \$8.50/year, foreign \$10/year, from RCA Commercial Engineering, Harrison, N. J. 07029. **216**

New 116-page catalog of **professional audio, broadcast, television, recording and motion picture equipment** is available. Audio Distributors, Inc. **217**

More than 235 books on **radio and TV servicing, audio and hi-fi, basic electronic technology, amateur radio**, etc., are listed in 72-page catalog. TAB Books. **219**

**News bulletin** issued periodically describes new technical and marketing **continued on page 107**

## Sony's award presenting microphone.\*

\*Used at Academy Award and  
Emmy Award TV  
presentations 1972



Featuring a high-performance condenser capsule of electret design, the ECM-53 is specifically designed for broadcast, recording studio, public address and similar applications.

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Getting sound sync by ear is costing you a lot more than it has to. Because now you can get sound sync that's right on the money, instantly.

By using the SMPTE Edit Code and the new 3M Series 79 Synchronizer.

No more trial-and-error tape positioning, no "rocking and rolling," no time-wasting-tweaking of tape speeds until they sound right.

Just fast and easy sound sync, because with the edit code on your video and audio tapes, you've got split-second, absolute identification of the entire tape length.

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Then manually park the tapes to within half a minute of each other using the Synchronizer's built-in edit code reader and start your VTR. The audio recorder automatically slaves to your VTR and locks into perfect sync, with no drift, no knob twisting no matter how long the tapes.

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8-track and a 16-track unit together.

And, of course, your audio recorders should be 3M Series 79 Professional Audio Recorders. Mono through 24-track, they give you precise tape handling, extremely low

wow and flutter and signal-to-noise ratios that are state-of-the-art.

Used together, the 3M Series 79 Synchronizer and Professional Audio Recorders give you the sound quality and split-second accuracy you need for editing, dubbing and sweetening. Faster and at a much lower cost.

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# Where to get 3M's sound sync:



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- Aengus Engineering, Inc.  
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Fayville, Mass. 01745
- Audio Designs & Mfg. Inc.  
16005 Sturgeon  
Roseville, Mich. 48066
- Audio Recorders of Arizona  
3830 No. 7th St.  
Phoenix, Arizona 85014
- Automated Processes, Inc.  
80 Marcus Drive  
Melville, N.Y. 11746
- Fidelity Sound Company, Inc.  
GSA Dealer  
1200 18th St., N.W., Suite 105  
Washington, D.C. 20036
- Daniel Flickinger and Assoc.  
40 South Oviatt St.  
Hudson, Ohio 44236
- Gill Custom House, Inc.  
8813 W. 95th St.  
Palos Hills, Illinois 60465
- High Fidelity Showroom  
6383 Clayton Road  
Clayton, Missouri 63105
- Houston Electronics  
5709 Savoy Lane  
Houston, Texas 77036
- Jackson Sound Productions, Ltd.  
1403 So. Lipan  
Denver, Colorado 80223
- Martin Audio  
320 W. 46th St.  
New York, N.Y. 10036
- The Maze Corporation  
1900 First Ave. No.  
Irondale, Birmingham, Ala. 35210
- Milam Audio Corp.  
700 West Main St.  
South Pekin, Ill. 61564
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Dallas, Texas 75204
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2009 Naudain St.  
Philadelphia, Pa. 19146
- Telephase Electrosystems, Inc.  
595 Vandalia  
Memphis, Tenn. 38112
- Westlake Audio, Inc.  
6311 Wilshire Blvd.  
Los Angeles, Calif. 90048

## NEW LIT

events in cable and cctv fields applying to the supplier. Electronic Industrial Engineering, Inc. **222**

**Audio attenuators of a wide variety** together with comprehensive technical background and application notes, are shown in catalog, together with **variable filters and equalizers**. Shallco. **223**

**Oscilloscope with dc to 200 MHz optimum pulse response** is covered in complete technical brochure; unit has 8 X 10 cm display, 7 cm/ns speed, option for dc-to-250 MHz bandwidth, numerous other plug-in options. Tektronix. **224**

Bulletin on **Model TE-21 high-resolution closed circuit camera** describes use for image intensification, radiograph analysis, data transmission, film chains and others in which high resolution is needed. General Electric. **225**

"The Story of Computer Graphics" is a 12-page booklet describing in amusing style **man's attempts to communicate with graphics**, from the cave man to the present, and including detailed specifications on the **Model 7200A Graphic Plotter**. Hewlett-Packard. **226**

**Video digital clocks** are subject of new bulletin, showing use with inexpensive video monitors, single-conductor cable. Chrono-Log Corporation. **227**

**Comprehensive line of video instruments and processing units**, are covered in short-form catalog, including data display, analyzers, special effects generators, image enhancers, test and sync generators, TV-to-computer interfaces. Colorado Video Inc. **228**

**Step-by-step splicing procedure for Type TF totally-filled cables** are illustrated and described in a new comprehensive bulletin. Anaconda Wire and Cable. **229**

**Use of spectrum analysis in CATV performance measurement** is covered in great technical detail in 28-page booklet, "Spectrum Analysis and CATV Systems" which shows how nearly all parameters to be under FCC control can be determined. Tektronix. **230**

Bulletin describes use of "Strandwise" and "Strandlink" units for **anchoring and connecting cable strand, guy wires, etc.** with the proper tensions. Reliable Electric Company. **231**

# DYNAMIC!



**Model  
525**

## COMPRESSOR-LIMITER

- **Switchable Compression and Limiting functions**
- **Ceiling control for 20 dB of compression or limiting**
- **De-Ess switch (Anti Sibilance)**
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- **Fast attack time**
- **Integral illuminated meter**
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- **Frequency dependent release times**
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- **Transformer coupled output to +24 dBm**
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- **Utilizes Automated Processes 2520 Op Amps**
- **Panel mounting 1 1/2" x 5 1/4"**

Designed for individual channel use where quality, stability and ease of operation are of paramount importance, the extreme flexibility, repeatable performance and stereo interconnect features of the Model 525 make it extraordinarily suited for all studio applications.

The unique Ceiling control permits one knob control of compression or limiting in 2 dB steps over a 20 dB range while maintaining a constant output level.

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Virtually all types of program material can be controlled with great consistency by the 525 without annoying side effects... **DYNAMICALLY!**



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## NEW BOOKS

**Technical Papers Presented at The 1972 NAB Engineering Conference** (TAB Book No. 172). 184 pages. Leatherette binding. \$10.00. TAB Books, Blue Ridge Summit, Penna.

This is a complete transcript of the papers presented at the NAB engineering conference held April 9-12, 1972. The transcript includes the original tabular and illustrative material—photos, diagrams—for each pa-

per. Strongly-reproduced, easily-readable type makes it a pleasure to use.

## Understanding Your Studio System

By Douglas Gratton

Once upon a time, one of my aunts heard that I was interested in television. At Christmas her present arrived—"The New Teach-Yourself Guide to the Basics of Television Engineering." The book was accompanied by a short note in which Auntie wrote that the nice man at the

bookstore had assured her that I was going to enjoy and understand this exciting book.

Well, the title—and her note—were the only two things that I understood in the entire book. The first sentence in the first paragraph began, "Hi! The importance of the crystal intersync lock on the non-composite video signal is often confused." And thus was my name added to the ranks of the unwashed, unbaptized, and confused.


Well, Kenneth Knecht may also have had an aunt who gave him that book for Christmas. If so, he has learned his lesson well. His recently published book, *Designing and Maintaining The CATV and Small TV Studio* (TAB Books #615, October 1972, \$12.95) is a model of quiet patient statement and explanation about the basic electronic principles of professional television studio design and maintenance. His emphasis is as a production engineer—he never even begins to discuss theory or CATV distribution.

His knowledge of his subject matter is as precise as his scope of the spectrum of engineering—and it is all summed up in the title. It is rare to find a cobbler who sticks to his last these days. Most of them seem to have diversified into shoe-shine stands, umbrella repairs and—for some unknown reasons—the selling of large florid stuffed animals.

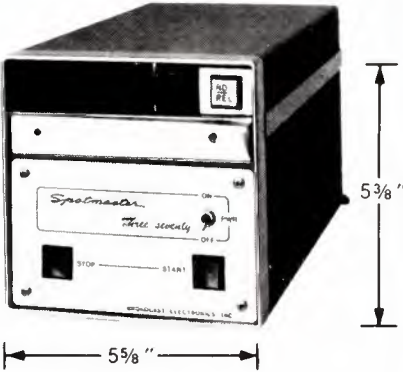
Starting with the characteristics of the video signal and working up through cameras, VTRs, audio, monitors etc., Mr. Knecht concludes his book on systems philosophy and design. The back-index is helpful and concise with the listing of only major entries—though I suspect that this is for reasons of economy as much as for efficiency—and I especially found helpful the sub-index for each chapter.

I am not a professional engineer so I showed the book to one such animal and, apart from a few infrequent prima-donna sniffs, he pronounced it healthy in all respects. I am, however, a professional producer and such is the way of television that I believe that producers will benefit from understanding of basic engineering principles. How many CATV or ITV producers really know what to look for in the RETMA resolution chart (page 46)? So I shall keep this book on my shelf for my own reference and I commend that you do the same. **BM/E**

**Mr. Gratton** heads Gratton Associates Ltd., a New York production organization specializing in industrial and training films and tapes. He authors the *CM/E* series, "All You Ever Wanted To Know About Production."



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5 7/8"

5 7/8"


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"Since all our music is on carts, they must be dependable. Without doubt, the A-2 gives us the reliability we need."

Shown here with Mr. Small is John Bailie, Maintenance Supervisor

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# CROSS-TALK

Following are two requests for help that we wish we could respond to directly: we recommend them earnestly to any readers who may be in better position.

Editor, BM/E:

I am an electronics technician who six months ago succeeded in leaving Roumania and arriving in Israel . . .

Knowing the kindheartedness of Americans, I wonder if you could give me a helping hand: 1) I would like to take a refresher course, by correspondence, beginning with semiconductor devices through ICs to transmission equipment and techniques in mono and color TV, as well as microwave techniques. I do not know which institution is ready to send these courses to Israel; maybe you could let me have some addresses. 2) In your opinion, could I find an opening in the U.S. or Canada for a few years, to update my knowledge . . . I am 45 years old, possess the University

of Cambridge school certificate, the Roumanian matriculation, have (graduated?) in 1963 at the Electronics Technical School in Roumania. I speak English, French, German, Hungarian, Roumanian and elementary Hebrew. I have worked in electronics since 1959 . . . six years as maintenance technician of electronic equipment in . . . one of Bucharest's big hospitals.

Yours sincerely,

Amir Srasa, Givat Beik HaKeren,  
Block 1, entr. 3, apt. 23,  
Jerusalem, Israel.

Editor, BM/E:

I am writing to you for some advice concerning the possibility of obtaining studio broadcasting equipment for our inmate radio station.

In the early part of 1967 the C.C.I.S. Jaycees, an institutional chapter, with imagination for experience and what odds and ends that we could appropriate from the institution for parts, built a radio station. A local radio station gave us two well-used RCA turntables which, with some repairs, have given us very good service. Due to an increasing interest by my fellow inmates in the broadcasting field, we are looking into the idea of turning our closed circuit radio station into a broadcasting school which, hopefully, will teach the basics of this field and create a stronger interest, at the technical end, in an even greater future in the field of broadcasting.

If you could advise us as far as how to obtain used studio equipment, which we could repair ourselves if necessary, and printed material on the broadcasting field, your help would be deeply appreciated.

Sincerely yours,

Don J. Slater, Mgr.,  
C.C.I.S. Jaycees,  
Inmate Radio Station,  
Box 100, Somers, Conn.

Editor, BM/E:

Here is one for feedback that has been too long overlooked. I refer to the time printed on phonograph records. It is too small and about the smallest print on a record. It should be the largest.

The other day I ran across a record that didn't even have the time on it. The time should be very accurate and should be very large.

Ray G. Kelley  
Engineer, WLOH-AM  
Princeton, W. Va.

Correcting the record: High school stations are a long-standing and now continued on page 112

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Absolutely—and only with the DATAVISION Model D-2400 Character Generator, performance-proven in worldwide broadcast use for:

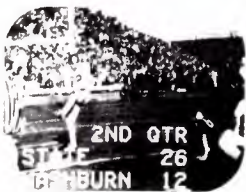
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Each D-2400 page displays 8 full rows of clear/highly visible characters. The characters are 32-scan lines high, and easily read as far as 30 feet away from a 21" TV screen.

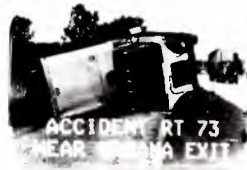
That's not all—the D-2400 has plenty of other *Standard* features, too: 2-speed Horizontal Crawl, Controlled Word Flash, Handy Lower-Third Title Insertion which allows random access and display of up to 32 single-row titles, an easy-to-use Alpha numeric keyboard, Instant keyboard entry, Internal Non-additive Video mixing, and a Data Output Connector that really lets you talk with computers. Plus—a host of useful, optional features you can add to meet specialized requirements.

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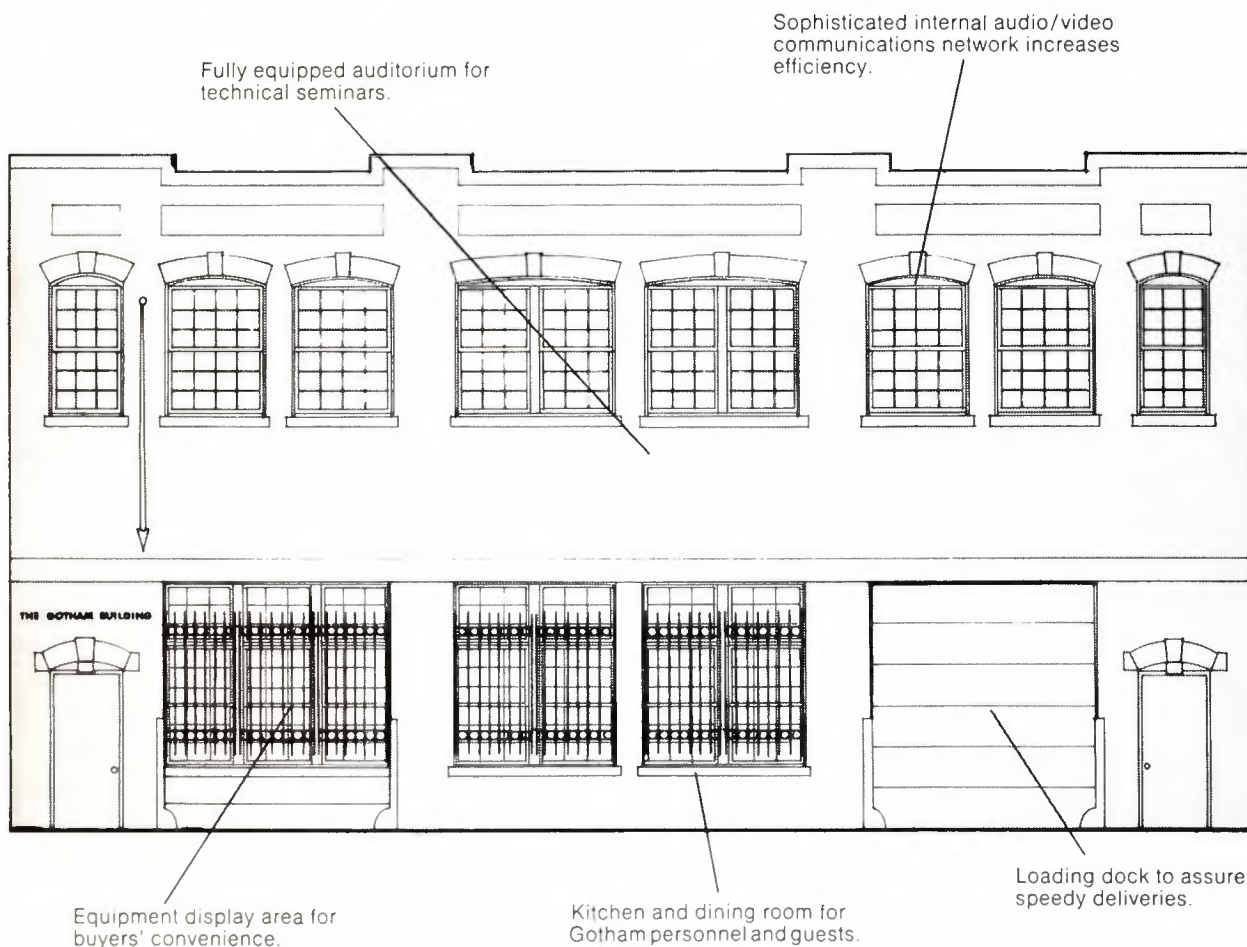
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## CROSSTALK

*rapidly growing segment of the broadcast community.*

We do know better, but we slipped anyway in a pre-publication rush. We failed to blue-pencil the claim, in a release concerning a 10-watt FM station just put on the air at Weaver High School, Hartford, Connecticut, that it was the "first high-school broadcast station."

The January issue was hardly in the mail before we began to get letters from other, often much older, high school broadcast stations. Finding out which was the very first high school broadcast station on the air will apparently take more digging in FCC files than we could manage before this issue went to press, but the date is certainly more than twenty years back. On the who-was-first question we are inclined to agree with Jon L. Busch, station manager of KSPN, Aspen, Colorado, when he says he

knows he is "inviting trouble" with his claim for KBPS, Benson Polytechnic High School in Portland, Oregon which according to Mr. Busch date to 1929!

Whoever started it, school stations mostly on low-power AM, were fairly scarce until the early fifties. Then the FCC's simplified rules for 10-watt FM educational stations began to stimulate school interest.

Today there are well over a hundred such stations licensed to local school districts. In addition, another kind of "broadcasting," the carrier current system, which does not require FCC licensing, has become important in the schools: LPB, Incorporated, a principal supplier in this field has sold systems to, or discussed them actively with, about a hundred schools. Applications in all the school categories went up sharply in the last two years, so the number of stations in service will before long be considerably above what it is now.

Typically, the high school station is staffed by students with one or two faculty directors. A good example is WIRQ, FM 10-watter at Irondequoit High School, Rochester, New York, one of our correspondents. The station is on a regular five-day week, usually eight to ten hours a day, with many music programs, literature, and art discussions keyed to high school interests, news specials, a platoon of student disc jockeys, school sports and other material tailored to the teen-age audience.

Another school makes intriguing use of its station: in driver training courses, a number of student drivers out on a large lot near the school, get individual instruction via the radio in each car, allowing one instructor to handle all of them at the same time (obviously the students have to be competent enough to avoid running each other down).

In many schools the student activity in the station counts as laboratory work in regular courses in broadcasting: announcing, station operation studio practice, etc. Such courses are spreading rapidly in high schools across the country.

We want to thank the following, who were the first to write us with information about school stations: Harrison J. Klein, consulting engineer of Boston, who told about WHSR, WJH, and WRSB, all in Massachusetts high schools; Bonnie Teklin, manager of WIRQ, mentioned above; Michael Muderick, of WTAJ-TV in Philadelphia, who told about WHES, Haver-town High School; and Meyer Gottesman, chief engineer of KYSM, Mankato, Minnesota, who reported on KUHS in Concord, California. **BM/E**

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**Business Briefs**

**Oak Industries** has formed a new group, **Oak CATV/Security**, to make and market products in those fields, with Carl J. Bradshaw as group vice president . . . **Theta-Com** announced receipt of patent No. 3,699,465 by John A. Pranke, manager of engineering, covering self-balancing push-pull amplifiers used in some Theta-Com systems . . . Some recent editorials, each

broadcast a number of times on **WCBS Radio**, N.Y., were on: tighter control of methadone for addicts; a school integration dispute in Canarsie, Brooklyn; a labor-leader comment on a city "productivity" drive; and support for a New Jersey bill guaranteeing reporters' rights to source secrecy.

**KRLN-TV**, public station in San Antonio, Texas, won a CPB Local Program Award for a bilingual series for children, "Carrascoldenas." . . . **Television Arts Inc.**, Columbia, S.C., is a new production and consulting firm serving TV and

cable with programming development, commercials, market analysis. Michael A. Fields is president . . . **WWPB-TV**, Maryland's third educational TV station, located in Hagerstown, goes on the air in late spring with about \$600,000 worth of **RCA** studio and transmitting equipment.

**WTCN-TV**, Metromedia station in Minneapolis, put in service in November its new 1375-foot antenna tower, 905 feet higher than the old one, for greatly improved service in the area.

continued on page 11

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**You Could Smile Too . . . IF YOUR HELICAL-SCAN VTR'S OUTPUT IS AS STEADY AS THIS DISPLAY. BUT YOU WON'T KNOW UNLESS YOU'RE CHECKING IT ON A LOW-COST UAP**



**PULSE CROSS MONITOR**

THE MODEL PC-95  
WITH UNDERSCAN  
AND AUDIO, TOO

REQUEST  
BULLETIN  
BM 373

AND TAKE A LOOK AT OUR BUDGET-PRICED WAVEFORM MONITOR



**Ultra Audio Products**

Box 921 Beverly Hills, Calif.  
90213 (213) 849-1433



Circle 186 on Reader Service Card



# Do wonders for your image

Whatever your CCTV requirement . . . or problem . . . we think you should think of Shibaden.

Shibaden offers a complete line of *professional quality* video equipment. Tested, proven and in use throughout the world.

Education. Training. Medical. Industry. Security. Broadcasting. Cablecasting. You name it . . . there's a Shibaden TV camera, video tape recorder, monitor or receiver, and all the accessories for it.

The video products pictured below are only four of the 150 currently available to those who won't compromise quality, yet must consider economy.

Look into the camera line. From mini-sized security cameras, up thru the high-

quality, moderate-priced black and white studio cameras (as the popular FP-100D shown below), and on up to the Shibaden FPC-1000s and the FP-1200, the professional color camera.

Check out Shibaden VTRs. The 510D with electronic editing is shown below. Their many features include (at no extra cost) variable slow and stop motion, servo capstan, internal sync and EIAJ-format specs.

And so on. Portable VTRs. Monitors from 5" to 23". Switcher/Faders. Special effects generators. Lenses. If you need it, you name it. Chances are Shibaden has it . . . off the shelf.

Write today for full specs and costs on one or all of our products. We may be able to do wonders for your image.



**SHIBADEN CORPORATION OF AMERICA**

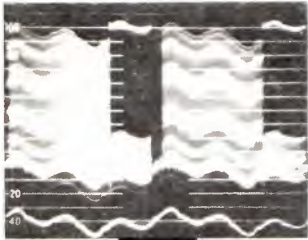
Exec. Off.: 58-25 Brooklyn-Queens Exp'y, Woodside, N.Y. 11377  
21015-21023 S. Figueroa St., Carson, Calif. 90745  
1725 No. 33rd Ave., Melrose Park, Ill. 60160  
100 Martin Ross Ave., Downsview, Ontario, Canada

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[www.americanradiohistory.com](http://www.americanradiohistory.com)

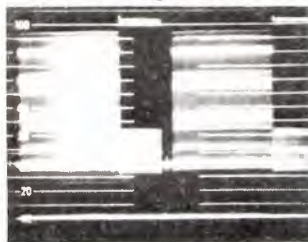
# STOP GROUND-LOOP HUM!

VIDEO  
HUM STOP COIL  
HSC-1



NEW!

NEW!



● Will **ELIMINATE HUM** and other **INTERFERENCE** in Video Lines caused by differences in Ground Potential!!

- For Color and Black & White
- FLAT — DC to 6.5 MHz
- No Low Freq. or Hi-Freq. Roll-off
- No Differential Phase Distortion
- No Differential Gain Distortion
- No Envelope Delay
- Reversible
- Passive Device — Failure Free
- Small Compact Package 4" x 4" x 2 1/4"
- Low Price.

**\$110.—F.O.B. NY**

### ELIMINATES HUM & INTERFERENCE:

- **IN FIELD**
  - Between Remote Truck & Telco
  - Between Remote Truck & Microwave
  - For Intertruck Hookup
  - For VTR Units
  - For Monitoring Lines
- **IN STUDIO**
  - Between Buildings
  - On long runs in Buildings
  - Between Studios & Transmitter
  - On incoming TELCO circuits
  - On Outgoing TELCO circuits

**AUDIO-VIDEO ENGINEERING COMPANY**  
65 Nancy Blvd., Merrick, N.Y. 11566  
Tel. (516) 546-4239

Please send Add'l. Inform. on HSC-1  
Please send me HSC-1 coil(s).  
Enclosed is remittance of .....  
Please Invoice on 10 day Free Trial

Name .....  
Station or Co. .... Title .....  
Address .....  
City ..... State ..... Zip .....

Circle 189 on Reader Service Card

## NEWS

**National Teleproductions Corp.**, Chicago, opened new, enlarged studios for their production of commercials, IDs, programming, and processing of film and tape . . . Twenty-third annual **Broadcast Industry Conference of California State University**, San Francisco, will take place there April 8-11, with a large slate of awards to TV and cable: data from Benjamin Draper, 1600 Holloway Avenue, San Francisco, Calif. 94132.

**Memorex Corp.** reported revenue of \$102,583,000 and net income of \$582,000 for the nine months ended September 30, 1972, which compares with a loss of \$5,276,000 in the 1971 period . . . **Federal Pacific Electric**, equipment manufacturer of Clifton, N.J., has formed an advisory council of electrical contractors from across the country to advise on design of products . . .

**Cleveland Outdoor Advertising** of Merced, Calif., has bought from Eller Outdoor Advertising the non-metropolitan segments of the latter's Bakersfield and Fresno ad structures.

**Burnham and Company, Inc.**, New York investment banking firm, has issued a report explaining the effects of the FCC restrictions on ownership of broadcasting stocks; for copies, 60 Broad St., New York 10004

**Television Microtime, Inc.** has signed an agreement, for distribution of professional television products, with **Harvey Radio's** Professional Audio-Video Division . . . **Eastman Kodak** will present a feature-length film based on the Hale classic, "The Man Without A Country," on ABC-TV April 24, 1973, with movie star Cliff Robertson in the title role. . . .



**Videorecord Corp.** has signed an agreement with Video Nursing of Evanston, Ill., to distribute the latter's video training and education programs for nurses . . . **Pat Jenks Associates**, instrument rep. has opened two maintenance/calibration centers, one in Wakefield, Mass., one in Hamden, Conn.

continued on page 118

# QRK "FUTURA" CONSOLES



	MONO	STEREO
6 CHANNEL	\$1095	\$1695
10 CHANNEL	\$1995	\$2495
6 CHANNEL PREWIRED SYSTEM	\$2095	\$3145

## QRK

**EAST**  
716 JERSEY AVENUE  
GLOUCESTER CITY, N. J. 08030  
PHONE: (609) 456-1716

**WEST**  
1568 NORTH SIERRA VISTA  
FRESNO, CALIF. 93703  
PHONE: (209) 251-3008

A subsidiary of  
**CCA ELECTRONICS CORP.**

Circle 193 on Reader Service Card

# QRK CARTRIDGE EQUIPMENT



	PLAYBACK	R/P
MONO	\$495	\$695
STEREO	\$725	\$995

- DIRECT DRIVE
- BUILT IN 150 Hz TONE
- COMPACT—ONLY 5 3/4" WIDE
- UNEXCELLED SPECIFICATIONS

## QRK

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FRESNO, CALIF. 93703  
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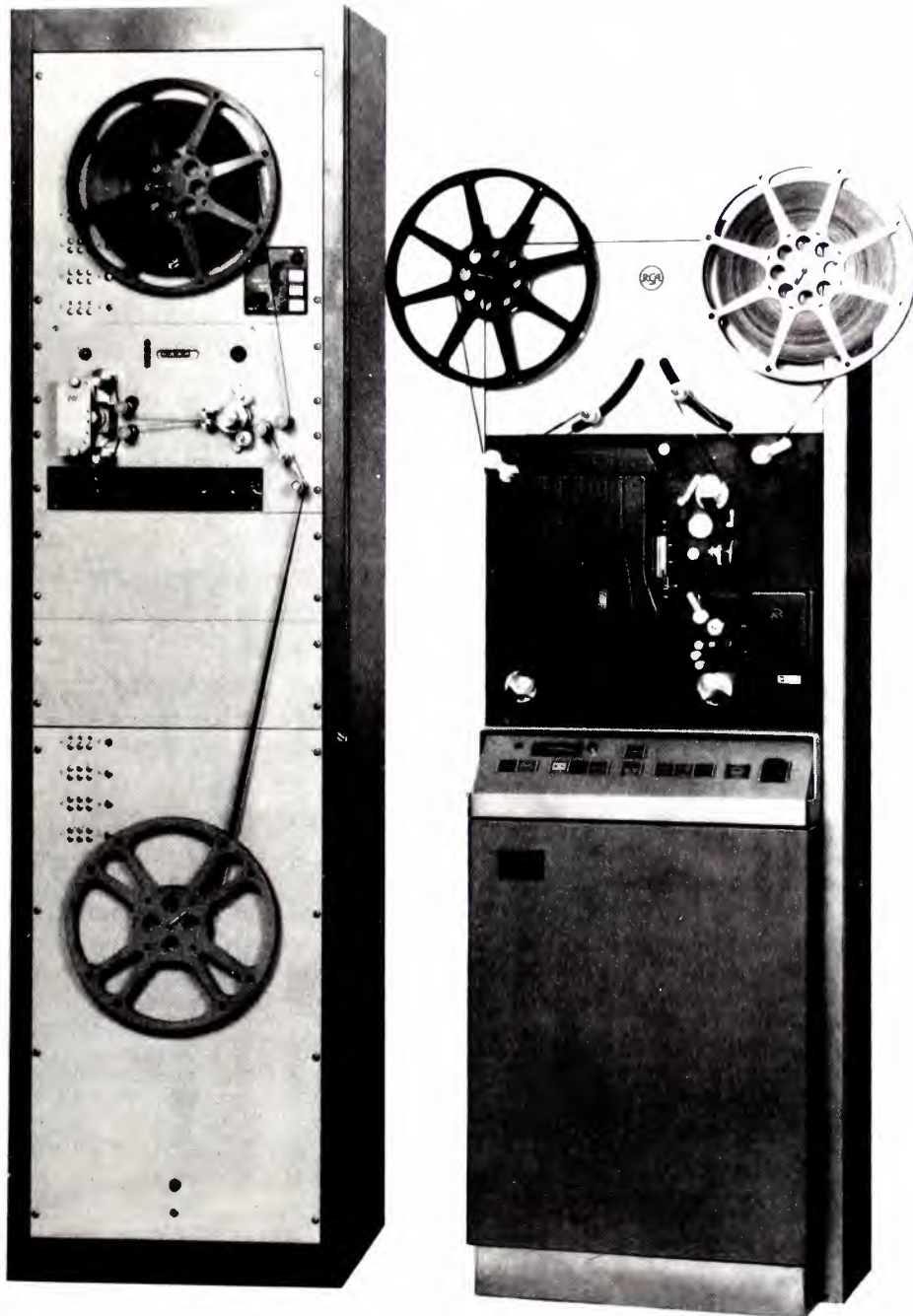
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# MAGNETIC SOUND on FILM INTERLOCKED WITH TELECINE PROJECTOR

FOR 16MM — 17½MM — 35MM FILM  
IN ALL STANDARD TRACK CONFIGURATIONS  
SMPTE AND/OR CCIR EQUALIZATION  
INTERLOCK KITS AVAILABLE FOR ALL 16MM OR 35MM TV PROJECTORS



**MAGNA-TECH ELECTRONIC CO., INC.**  
630 Ninth Avenue / New York, N.Y. 10036

- Quad Eight - Magna Tech, 11810 Vose St., North Hollywood, Ca. 91605
- Cinesound International, Ltd., Imperial Studios, Maxwell Road, Borehamwood, England
- Magna-Techtronics (Aust) Pty., Ltd., 49 Whiting St., Artarmon, N.S.W., Australia 2064

Circle 191 on Reader Service Card

**Western Digital Corp.** reported loss of \$482,537 for six months ended December 31, 1972, compared with loss of \$640,099 for 1971 period; the break-even point for monthly operations was reached during the second quarter . . . **Sola Basic Industries** showed earnings for nine months ended December 31, 1972 of \$3,567,089, against \$2,660,446 in 1971 . . . **Association of Maximum Service Telecasters** will hold the annual membership meeting at 2 p.m. March 25 at the Shoreham Hotel, Washington; a special meeting of the Board of Directors is set for 2 p.m. March 24, and the regular board meeting will follow the membership meeting on March 25. **Citizens' Financial Corp.** of Cleveland will buy Northeast Data Com, Inc. from the New Haven Savings Bank. **WRTV**, Indianapolis, entered three of the four top award winners in the Television Bureau of Advertising's local commercial competition.

**Animation Filmmakers Corp.**, Hollywood, is making an animated TV series based on the Charley Weaver "Letters to Mama;" the

series will be called "Charley Weaver's Tales of Mount Idy" . . . **RCA** has sold to **Martin Marietta** more than \$1 million of COS/MOS integrated circuits for use in pocket paging units being made by Martin.

**Station WLOL Radio**, Minneapolis, won a Golden Mike Award from the American Legion Auxiliary, for the best program dealing with youth in 1972—"WLOL Focus—Youth" . . . **Electronic Homes Company** is a new firm formed by George T. Saddler, formerly marketing manager for TDK Electronics Corp.; the firm will manufacture and sell a full line of blank cassettes and open-reel tapes . . . **GBC CCTV Corp.** reported sales of \$4,386,003, and net income of \$165,889 for the year ended May 31, 1972, up from \$155,566 in 1971.

First **RCA** videotape cartridge system in Europe was installed by London Weekend TV, Ltd. . . . **Magnasync/Moviola Corp.**, subsidiary of Craig Corp., introduced the Moviola M-79 Junior, compact editing system; and opened a new Hollywood office (1001 N. Highland Avenue) for sales, rental and repair of the firm's movie products.

**Times Wire and Cable**, Meriden,

Conn., has agreed with LaSeneffoisse SA, a Belgian wire and cable producer, on a plan for a joint venture organization to make and distribute CATV cable in Belgium and other Common Market countries . . . **Reeves Cinetel**, New York, is the mixer for the Public Broadcasting series, "An American Family," the TV presentation of a real family's daily routine over several months . . . **Electronic Industries Association** estimated that the U.S. electronics industry had revenues of \$29.8 billion in 1972, up from \$27.9 billion in 1971—a 7% increase—with communications and industrial electronics up about 10%, consumer electronics up about 8%.

**Laird Telemedia** will supply film projectors and optical multiplexers as part of the production of \$1.8 million worth of video and film systems sold to the U.S. Navy by **International Video Corp.** for "Site" (Shipboard Information, Training and Entertainment), which will allow crews to see films and videotapes on shipboard . . . **Kaman Sciences Corporation**, Colorado Springs, has bought assets of Broadcast Computer Services of Webster,

continued on page 120

*1969 — World Video Introduces the First One-Gun Color Monitor . . .*

*1972 — World Video Introduces "The Un-Monitor"  
The Revolutionary 17" One-Gun Color Monitor . . .*

See the latest in professional color video monitors from "The Innovators" at the NAB Convention March 25-28, Booth 508 Shoreham Hotel.



CR6210



CR6700



CB6210



**WORLD VIDEO, INC.**

P O BOX 117 BOYERTOWN, PA. 19512

PHONE 215-367-6055





Irwin Ungerleider  
New York



Jack Keyes  
New York



Pete Stuart  
Los Angeles

## SELECT THE RIGHT TV LENS!

Our staff, headed by these men, is at your service.

Selecting the right television lens to do the best job is never easy. Many factors are always present to be reviewed and considered. These men can help you. Their experience and knowledge of the use of fine optics in television broadcasting and production, educational and industrial television and closed circuit television is invaluable. Let them assist you in reviewing your requirements and helping determine your needs. They will show by on-the-spot demonstration the right

television lenses that will do the best and most economical job.

Whether your immediate requirements are for a major broadcast studio or a surveillance installation system via closed circuit, call on this team to assist you. The tradition of excellence of Taylor Hobson Optics has been a hallmark for more than 80 years. These men will share this heritage with you to truly help you choose the right television lens. They are only a telephone call away, call them today.



Nick Glade  
New York

**SERVICE IS VITAL** - especially if problems arise when tight broadcast and production schedules must be met. Our technical staff is trained to respond to any problem - and give that expert care that fine optics require. When unforeseen problems arise, contact our service technician at the office nearest you for prompt, efficient assistance.



Don Henyan  
Los Angeles

VISIT OUR BOOTH 525 AT N.A.B. (SHOREHAM HOTEL)



### RANK PRECISION INDUSTRIES, INC.

New York	260 N. Rt. 303 West Nyack, N.Y.	10994 (914) 358-4450
Illinois	411 Jarvis Ave., Des Plaines, Ill.	60018 (312) 297-7720
California	5437 E. Sheila St., Los Angeles, Calif.	90040 (213) 722-3221

Circle 196 on Reader Service Card

N.Y., and will take over the marketing of the computerized traffic and accounting systems of BCS.

People

**Richard E. Putman** is director of engineering, Audio-Video Systems



Division, Philips Broadcast Equipment Corp. . . . **Joseph C. Groth, Jr.** won promotion to the presidency of TelePrompTer Manhattan CATV; he had been general manager for the preceding five years. . .

**Robert B. Hansen**, formerly manager of engineering, color TV, for Motorola, has joined Zenith Radio Corp. as director of color TV engineering. . . . **Edward S. Ely** was named chief engineer of KSan-FM, Metromedia stereo station in San Francisco . . . **John J. Sie** became



director of engineering of Acoustic Research, Inc.

**Marianne Faulkner**, business manager of WXIX-TV, Cincinnati, was named national chairman of the Management Development Committee of American Women in Radio and Television . . . **Eugene L. Bidun** became sales manager for LPB, Inc., makers of broadcast control-room equipment . . . **Jay B. Sondheim** was appointed general manager of KBHK-TV, Kaiser UHF station in San Francisco.

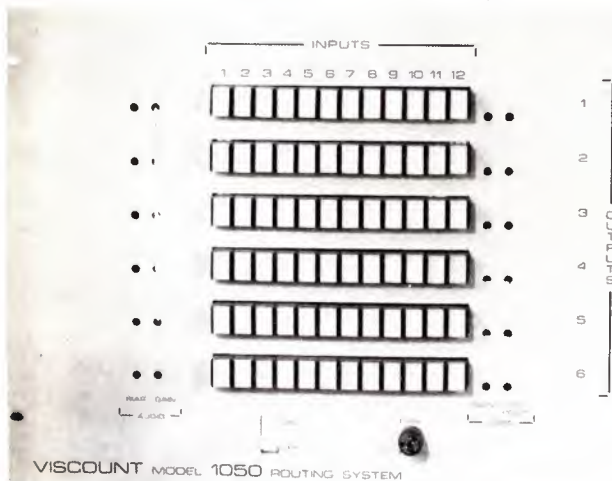
**Robert W. Flanders** was promoted to the position of vice president and director of engineering of McGraw-Hill Broadcasting. **BM/E**



division manager, terminal products and services division, of Jerrold Electronics Corporation.

**Richard W. Bock** was appointed midwest sales manager of Miratel Division, Ball Brothers Research Corp. . . . **John J. Bubbers**, who was vice president of field engineering for Stanton Magnetics, became

*Where can you get this quality and all these features — at this price?*



All VISCOUNT routers feature solid state circuitry throughout; colour compatibility to broadcast standards; illuminated push-buttons; any number of outputs from 1 upwards.

The 1050 has mechanical push-buttons and quasi-electronic cross-points, giving patch-panel prices with much improved performance. Recommended user price as illustrated: Video only \$2190; Audio only \$2080; Audio follow Video \$2770.

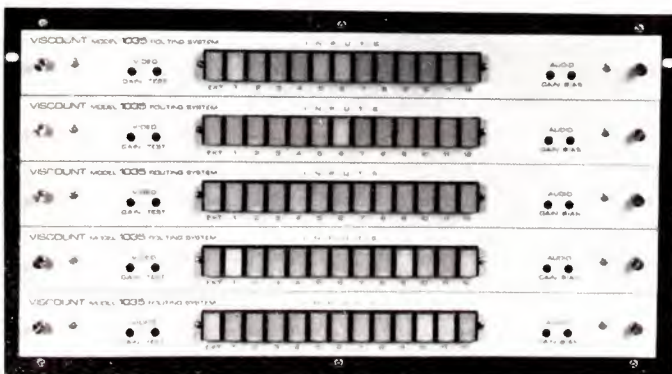
The 1035 has mechanical push-buttons and electronic video switching. S/N 60 dB to 10 MHz, EXT input also provides input for re-entry for up to 24 inputs. Expandable after installation. Recommended user price as illustrated. Video only \$2865; Audio follow Video \$3478.

Also available 1030 series all solid state routing switcher; X-Y address remote control head; touch-button control; 10 input x 10 output; 500 nsec switching time. Recommended user price Video only \$5700; Audio follow Video \$8500. Can be expanded after installation. Options include touchdial or thumbwheel control, or computer language address, also multiple switching memory.

DELIVERY 4 TO 6 WEEKS



**VISCOUNT VIDEO SYSTEMS LTD.**,  
Marine Industrial Centre  
105 East 69th Avenue  
Vancouver 15, British Columbia, Canada  
Phone: (604) 327-9446 Telex: 04-508605



Circle 194 on Reader Service Card



# Change is in the air.



Now you can get more from your telephone. In the studio. On location. In the office.

For example, either our 30A Voice Coupler or our versatile 50A Portable Conference Telephone now allows you the flexibility of using regular telephone lines for remote broadcasts.

In addition, "hot lines" to the police and other news sources give you the news as it breaks.

And new compact switching equipment makes it easier for callers to reach your station, and makes communications more efficient for all your staff.

But with all our increased flexibility and innovative service offerings, one thing hasn't changed: Bell System dependability. Automatic test equipment monitors performance at our place, and we correct most troubles before you notice them at your place. And if you do need to call for help, it's never Long Distance. With us, it's always a local call.

For the whole story of how modern communications can help broadcasting performance and profits, telephone your Bell System Communications Consultant.

**AT&T and your local Bell Company.**



plumbicon color video cameras, to be demonstrated on live cameras. Also new is the line of **camera support equipment**, including heads, tripods, dollies, pedestals, motorized and servo pan heads, lens motorization, complete camera remote control. Also on display: Model 5404B **videotape editing programmer**, Polaris zoom lenses.

### Teledyne Camera Systems (Booth 534).

Television **tape-to-film transfer equipment** for color and monochrome.

### TeleMation, Inc. (Booth 500).

Will introduce: A new line of **video production switchers**, TPS-2006, with 20 inputs, 6 busses, mixing facilities, special effects built in; smaller switches, the TPS-10004; also a compact switcher, the TPS-7A, for vans or small studios. Also introducing the TCE-2000 digital color encoder, and the TED-2 automatic computerized character gen-

erator, with teletypewriter input. Also shown: a new version of the TZF-3000 color film camera.

### Telemet, Inc. (Booth 216).

Will introduce a new **decoder**, Model 4706, designed to put a station's existing RGB chroma keyer in line and provide zero horizontal delay NTSC chroma keying. The unit eliminates chroma crawl and can use different encoded video sources: it can also be interfaced with any part of the system, as long as the system includes an RCB chroma keyer.

### Telestrator Industries Inc. (Booth 531).

Electromotion system for **producing motion pictures** with still cameras; character generators for television.

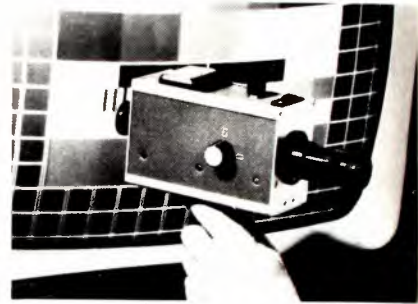
### Telesync Corp. (Booth 201).

**Prompting equipment systems**, horizontal-vertical crawl; front projection systems.

### Television Equipment Associates (Booth 521).

Will show the following array of

products: Magnetek **tape cleaner** which removes most of dirt from both sides of videotape, and with up to 70% of drop outs; a battery powered **portable headset amplifier** (new) the Colorgard Mark IV meter, which allows quick adjustment



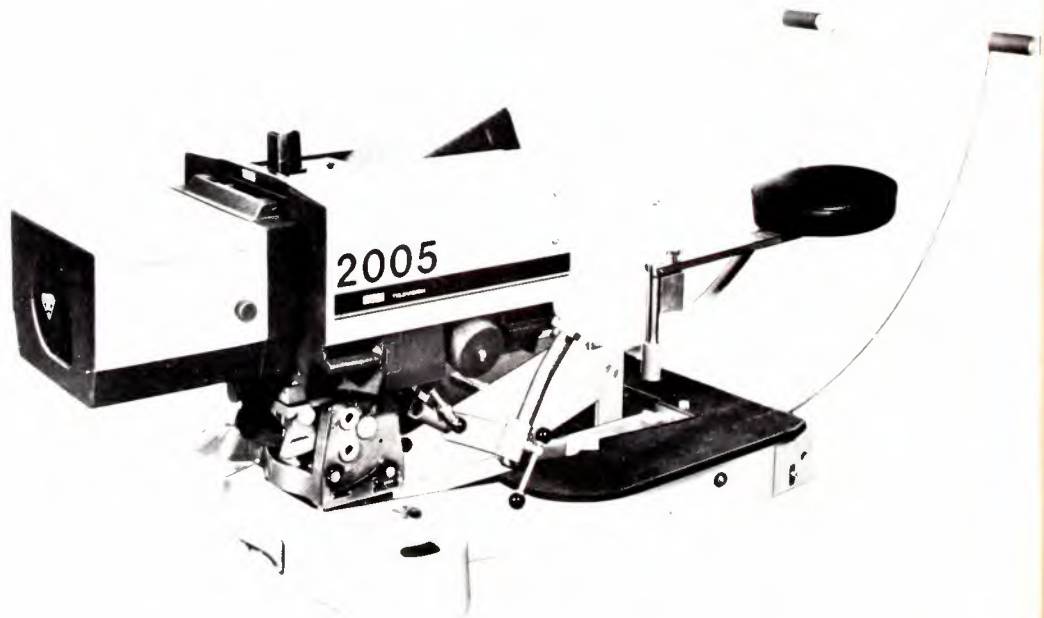
of color balance of any TV monitor; Minilite, super-lightweight headset which can be positioned slightly of the ear for minimum chafing; Ampligard headset for communication; on TV musical productions; (new) Matthey **video delays** (see entry for Matthey Electronics); the Clean Air Shower, which bathes VTR head area in air with 99.97% of dust removed, extends head life; the IRT Comparator, for adjusting color monitor balance.

continued on page 124

# When you get down to camera mounting equipment, there is only VINTEN, from LISTEC.

See all that's new, booth 529, NAB Shoreham

VINTEN Type 723  
Low Angle Dolly.  
Featuring air counter-  
balanced jib with 4½" to  
25½" height range;  
capacity 350 lbs.



### Listec Television Equipment Corporation

35 Cain Drive, Plainview, New York—11803

tel: (516) 694-8963, 8973 & 8976

Circle 198 on Reader Service Card



# A NOISE FREE AGC AMPLIFIER WITH A DYNAMIC RANGE PRESERVER



WILKINSON ELECTRONICS GCA-1  
STEREO OR MONO

- \* Noise -75db even with loss of input. Automatically "rides" gain without regard to peaks. Exclusive RMS Detector preserves dynamic range. Will not adjust gain if signal removed.
- \* Distortion - 0.1% all gain settings.
- \* Frequency Response -  $\pm 1/4$ db 50HZ to 20KHz any gain setting.

For complete details write:

**WILKINSON**  
ELECTRONICS, INC.

1937 MacDADE BLVD.  
WOODLYN, PA. 19094  
PHONE (215) 874-5236 874-5237

Circle 248 on Reader Service Card

# A LIMITER WITH INSTANTANEOUS ATTACK--LESS THAN 1% DISTORTION



WILKINSON ELECTRONICS LA2-C/S  
STEREO OR MONO

- \* Distortion -  $1/4$ % for 6db of limiting. 1% or less to 20db of limiting.
- \* Attack Time -  $5/4$  Radians for gain control before clipping.
- \* Overlimit Attack Time - Instantaneous.
- \* Compression Ratio - More than 35:1.
- \* Frequency Response - + 1db 50Hz to 35KHz with full limiting.

For complete details write:

**WILKINSON**  
ELECTRONICS, INC.

1937 MacDADE BLVD.  
WOODLYN, PA. 19094  
PHONE (215) 874-5236 874-5237

Circle 199 on Reader Service Card

Now  
you have a third choice  
when you go  
from color tape to film.

**1** The low priced system.  
You call it "kinescope."  
You like the price.  
Not the quality.

**2** The high-priced system.  
You call it "expensive."  
You like the quality.  
Not the price.

**3** Our new Teledyne system.  
You'll call it perfect.

Teledyne at Mediatech is a brand new system that insures consistent broadcast quality transfers at the same cost as the low-priced system. Color or black/white. 16 or 8 mm. From quad or helical tapes.

Give us an opportunity to prove it.  
Send for our price list and further information

**Mediatech**

824 Busse Highway/Park Ridge, Illinois 60068

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

824 Busse Highway  
Park Ridge, Illinois 60068  
312/693-8366

Circle 240 on Reader Service Card

# Replace your Ampex or Scully motor with a BEAU MOTOR

Hysteresis-Synchronous Motor

- ◆ Ball Bearing Construction for Years of Trouble-free Operation
- ◆ Electroplated Capstans for Longer Life
- ◆ 0.00015 Inches Max. TIR
- ◆ High Inertia Rotor
- ◆ Low Flutter & Wow Inside Out Construction

Tape Speed	Ampex Model	Scully Model	Beau P/N	Price
3 3/4-7 1/2	440	270 275	43H-108	\$150.00
		280 282		
7 1/2-15	440	270 275	43H-115	150.00
		280 282		
7 1/2-15	350		54H-56	165.00
	351 354			
3 3/4-7 1/2	350		54H-61	165.00
	351 354			



**BEAU MOTOR DIVISION**  
 UMC Electronics Co.  
 460 Sackett Point Road  
 North Haven, Conn. 06473  
 (203) 288-7731

Circle 241 on Reader Service Card

## JOA CARTRIDGE SERVICE OFFERS DISTINCT ADVANTAGES YOU SHOULD KNOW ABOUT

Advantage ONE—NO MINIMUM

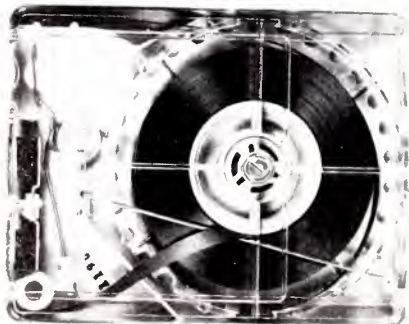
### CARTRIDGE RECONDITIONING

- Advantage TWO—NO EXTRA CHARGE for
- (a) foam teflon-faced pressure pads
  - (b) replacement of minor parts
  - (c) visible splice
  - (d) pretesting under actual broadcast conditions
  - (e) 48 hour processing
  - (f) Scotch heavy-duty lubricated tape

### NEW CARTRIDGES

Advantage THREE

Shipment, from stock, of any standard size, or . . . "prompt shipment" of CUSTOM SIZE Fidelipac precision manufactured NAB cartridges



Advantage FOUR—20 or more shipped prepaid  
 Authorized distributor for NORTRONIC HEADS  
 Phone or Write

### JOA Cartridge Service

P.O. Box 3087, Phila., Penna. 19150  
 Area Code 215, 886 7993

Circle 253 on Reader Service Card

# NAB '73

## Television Microtime Inc. (Booth 600).

The Delta 7 Velcor is a new stand-alone **time base corrector**. It interfaces with two-inch quad or one-inch helical VTRs, and in combination with the Delta 44 unit it reduces maximum color phase displacement to less than + 3 ns, referenced to external subcarrier phase, throughout the reproduced picture.

## Telex Communications Div. (Booth 518).

Tape recorder/reproducers; tape duplicating and copying equipment; headphones.

## Time and Frequency Technology Inc. (Booth 605).

Frequency monitors, for audio and TV, which reduce distortion by omitting RF amplifiers; automatic loggers; digital clocks.

## United Research Laboratory

## Corp. (Booth 510).

Autotec professional **tape recorders**; exact duplicate replacement parts for professional recorders of many makes.

## Utility Tower Co. (Booth 204).

Antenna towers for radio and TV.

## Varian Assoc. (Booth 523).

Power tubes, including triodes, tetrodes, pentodes; klystrons.

## Vega Electronics (Booth 310).

Wireless microphones (will be exhibited by Sparta Electronics).

## VIF International (Booth 561).

Background music equipment and services; audio automation equipment; audio tape recorders and players; video test generators, digital timers for video applications.

## Visual Electronics Corp. (Booth 218).

Will introduce: A new **miniature**  
 continued on page 126

# Standard for Precision...

## When accuracy counts.



PANEL MOUNTED



PORTABLE

### Portable or Panel-Mounted

Accuracy to .002 of a second. Built for long, trouble-free service. Easy to read, shatter proof crystal . . . the perfect timer. For full details, request Free catalog No. 261.

Model	Scale Divisions	Totalizes	Accuracy
S-100	1/5 sec.	6000 sec.	±.1 sec.
S-60	1/5 sec.	60 min.	±.1 sec.
SM-60	1/100 min.	60 min.	±.002 min.
S-10	1/10 sec.	1000 sec.	±.02 sec.
S-6	1/1000 min.	10 min.	±.0002 min.
S-1	1/100 sec.	60 sec.	±.01 sec.
MST-100	1/1000 sec.	6 sec.	±.001 sec.
MST-500	1/1000 sec.	30 sec.	±.002 sec.

STANDARD ELECTRIC TIME



DIVISION OF JOHNSON SERVICE COMPANY

89 LOGAN STREET • SPRINGFIELD, MASS. 01101

Circle 242 on Reader Service Card



# FLASH!!

## FAST, FAST, FAST RELIEF FROM THE FCC STEREO BLUES!

If you broadcast FM stereo, you're probably worried about the proposed "Stereo pilot off when broadcasting mono material" rule. Besides, you know that stereo attracts listeners and pleases advertisers.

We build a device that beats the Commission to the punch by creating realistic pseudo-stereo from any mono source material. The Orban/Parasound Stereo Synthesizer is amazingly quick and easy to use, and it's fully mono-stereo compatible.

This is the first time we've advertised in broadcast-oriented media, but we're well-known in professional recording circles. And our Stereo Synthesizer is already used by such blue-chip companies as Elektra, MGM, Capitol, Altophonic, and PAMS, as well as by broadcasters throughout the country. \$749 puts it in your production studio or on the air.

We also build a \$595 reverb that has achieved wide acceptance because of its remarkable price/performance ratio. Unique circuit concepts make it outperform any other spring on the market, including the \$1200 job many of you have grown to know, if not love.

Broadcasters — we need your business. And we're going to get it by offering you well-built, fairly-priced products that really perform.

For more information, write Parasound, Inc., 680 Beach St. #495, San Francisco, Calif. 94109 or call (415) 776 2808.

### ORBAN/PARASOUND: THE AUDIO PROCESSING PEOPLE

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## PERFECT YOUR CCTV SYSTEM WITH COSMICAR<sup>®</sup> LENSES



TV-COSMICAR-EE 16mm F/1.6

The TV-COSMICAR-EE 16mm f/1.6 is a high-speed lens specially designed for 2/3" vidicon cameras. It maintains image luminance 100 lx against subject brightness between LV11.3~17 (350~18,000 cd/m<sup>2</sup>), about 1,800~96,000 lx.

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When the switch lever is turned on to "EE", the lens diaphragm operates as fully automatic electric-eye, and is brought on to "OPEN", the diaphragm stays fully opened condition.

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# NAB '73

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**Vital Industries, Inc.**  
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Will introduce the new VIX 100-4 video production switcher with a novel special effects generator. Also a computer-controlled master control system; unit supplying digital control for visual graphic displays; digital control of routing switcher; and a full complement of peripheral equipment.

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consoles; processing amplifiers; FM exciters; stereo and SCA generators

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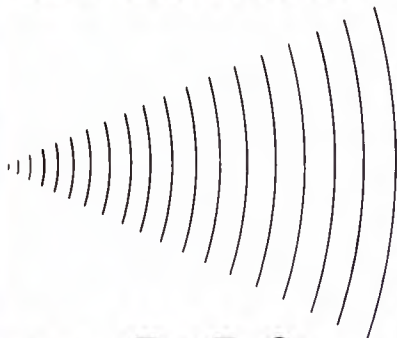
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antenna  
do this...**



**and this..**



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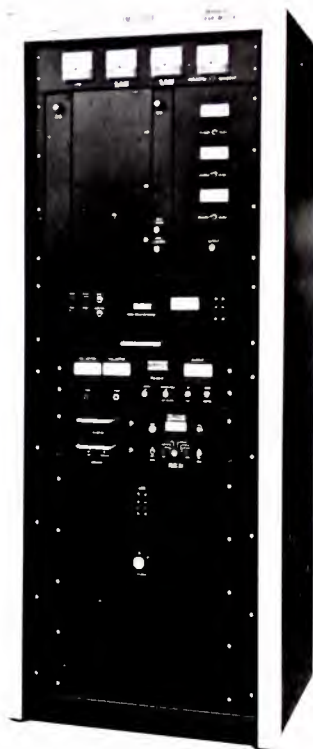
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 Power: Internal battery  
 Calibration certificate supplied  
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Circle 255 on Reader Service Card

# FROM THE EDITOR

## Some Visceral Reaction to Radio and Programming Deregulation

The recent Long Island Railroad strike helped us to know radio as never before. For a while the experience was interesting and exciting—the one-and-a-half to two-hour drive each day provided ample opportunity to sample the AM dial.

Prior to this extended listening experience, we really didn't know radio intimately except for a few pet likes and hates—such as WGBS all news radio and WABC respectively. The latter came on automatically every time one of our teenagers had used the car. Over the year we eventually adjusted to the music—even liking some of it—but WABC's breathless announcing style, with verbiage no less, still sends us up the wall. WGBS was our station. But all-news wears thin when you hear it recycled four or more times an hour. We tested WABC news for a day to see if they would inject a little more variety—there was less and the delivery duller.

We tried "Rambling With Gambling" one morning. Between traffic reports, news, commercials, sundry other reports, and more commercials we actually heard Gambling utter maybe several hundred words. Since we have no reason to feel loyal to Mr. G, we can report he struck us as most desultory (which is somewhat of a synonym for rambling) and lusterless. Maybe it was an off day for him. Earlier we'd been amused by WISW and WHF (really zany morning commentary), but since we didn't identify with any of the personalities they were, a best a diversion.

For straight rounded pleasant listening—music and news—the local Long Island and Westchester (New York), New Jersey and Connecticut stations served our purpose. But the cloddy, humorless (even when they tried), hard-sell commercials that blasted us every three minutes were unmerciful—and more than we could take. Not having a classical car, thank God for WPAT

"Pet hates during January, Sheraton Hotels' singing commercials. "What has Sheraton done for you lately." Overly loud and annoying (they haven't done anything for me). Another was Mobil O on the energy crisis. "What would you do?" they asked. Nam one alternative to Mobil's dipping holes—all over and you label your self a moron. Categorically offensive was the Oldsmobile dealer's New York Mafia glorifying promotion of the H. Squire.



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**Model RG-1**  
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**Model CPB-1** Common Point Bridge measures resistance to  $\pm 2\% \pm 1 \text{ Ohm}$  and reactance to  $\pm 5\% \pm 1 \text{ Ohm}$  at full power.

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Circle 256 on Reader Service Card

Actually, we enjoyed a lot of the creative efforts of New York City admen. They were infinitely easier to take than some of the local home brew stuff—unless they happen to insult you which occurs frequently.\*

We tried one morning New York's municipal station, WNYC. If you want a lesson in why radio has to be entertaining, try WNYC. Even the traffic reports are murder. WNYC gets reports from police helicopters. Although the guys make a valiant effort to be personal, their delivery styles simply don't move any faster than the traffic they are reporting. If you want a lesson on the need for good signal-to-noise, WNYC helicopter reports offer that too. S/N must be 5-to-1 or worse at times, and when it's that bad, the information had better be exciting.

We stayed with WNYC for two hours that morning and, although it was never entertaining, we did learn how to buy and fry fish. And we heard of one job opening. If you could tune in some of WNYC's information reports on *your* schedule, rather than *theirs*, the station might serve some function. Maybe they ought to make audio cassettes available at news stands instead.

Although morning drive-time radio was an inadequate substitute for an hour's reading time on the train, in our judgment, five-to-seven p.m. radio was appalling. The most disturbing thing was the lack of variety. From six o'clock on there was no choice. The suburban stations went off the air at sundown. It seems every New York station, including those nominally music or news, feature during this time slot a call-in sports show. If you aren't a sports nut, there is nothing to listen to. The only alternative is to tune in an ethnic station or play the dial for a Canadian station that might skip for ten minutes or so.

The frightening aspect of the sameness or me-too-ism is that, if radio would be truly de-regulated by the FCC, it might not offer more diversity at all. Instead it would be ARB regulated—if sports call-in shows are the listeners' preference one week, that's what we'll get from everybody next week. Some stations split their personality between a.m. and p.m. to be part of the crowd. Extremely disturbing.

It makes you wonder what would really happen if the Office of Telecommunications Policy proposed revision of the Communications Act is adopted. There is certainly merit in eliminating the FCC requirement calling for certain percentages of this type programming and that. In a multi-station market, who needs it? You'd assume one station could be all-news, another all-religion, still another classical music. Such an arrangement would be better than forcing a teen-age rock station to do public affairs on housing problems. OTP's Whitehead made an appealing point when he declared the licensee, and not the FCC with its quotas, should determine what serves local needs. But after our stint of radio listening, we're less sanguine about the results.

We're reminded that our free economic system polluted the air we breathe until legislation forced it to do otherwise. That's no criticism of the free enterprise system. It is simply an acknowledgment that when the score is counted by profits earned, there will be pollution unless there are rules. No rules means broadcasting can pollute the air with call-in sports shows. Or it can limit the size of the music play list when it discovers top-40 MOR wins ratings. It can buy up a classical station and switch to C&W.

We are four square in favor of less regulation and minimum government control. But this much we acknowledge: Radio and TV today is more responsive to the community than ever before because it can be so readily challenged by the public. When there are standards to be met and criteria to judge by, quality improves.—JAL



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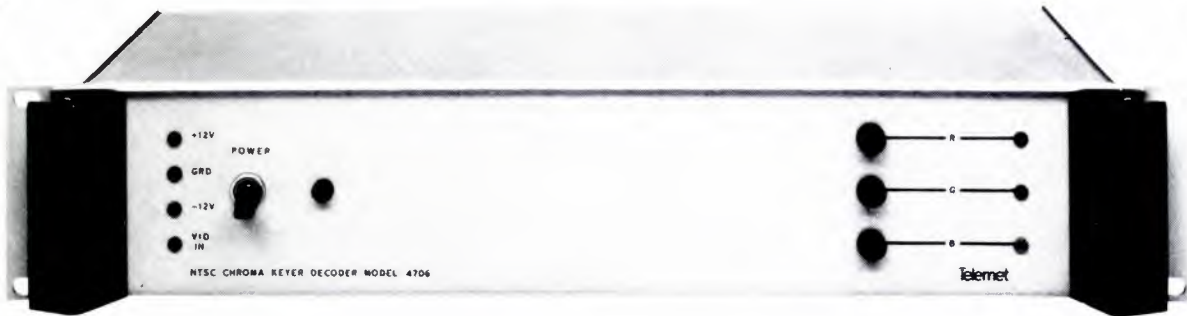
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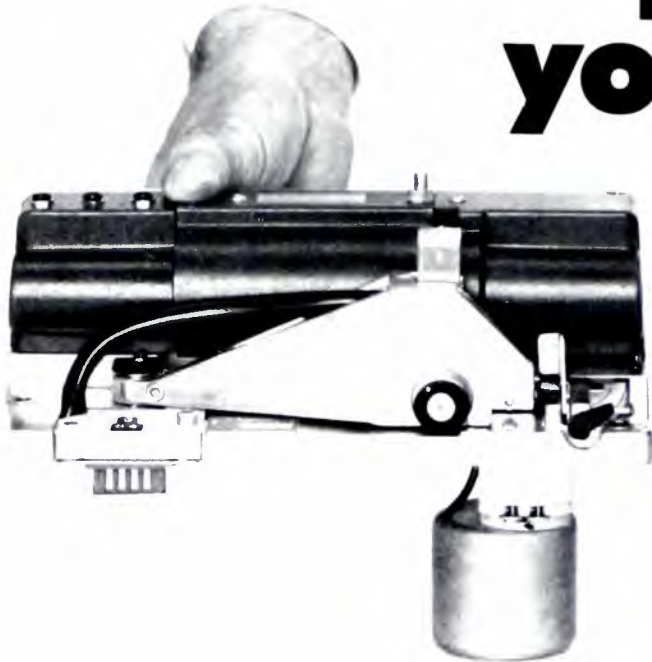
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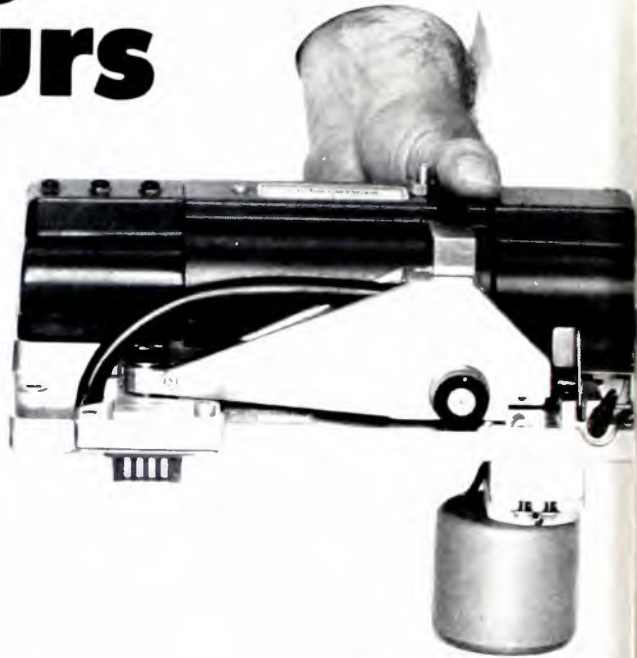
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