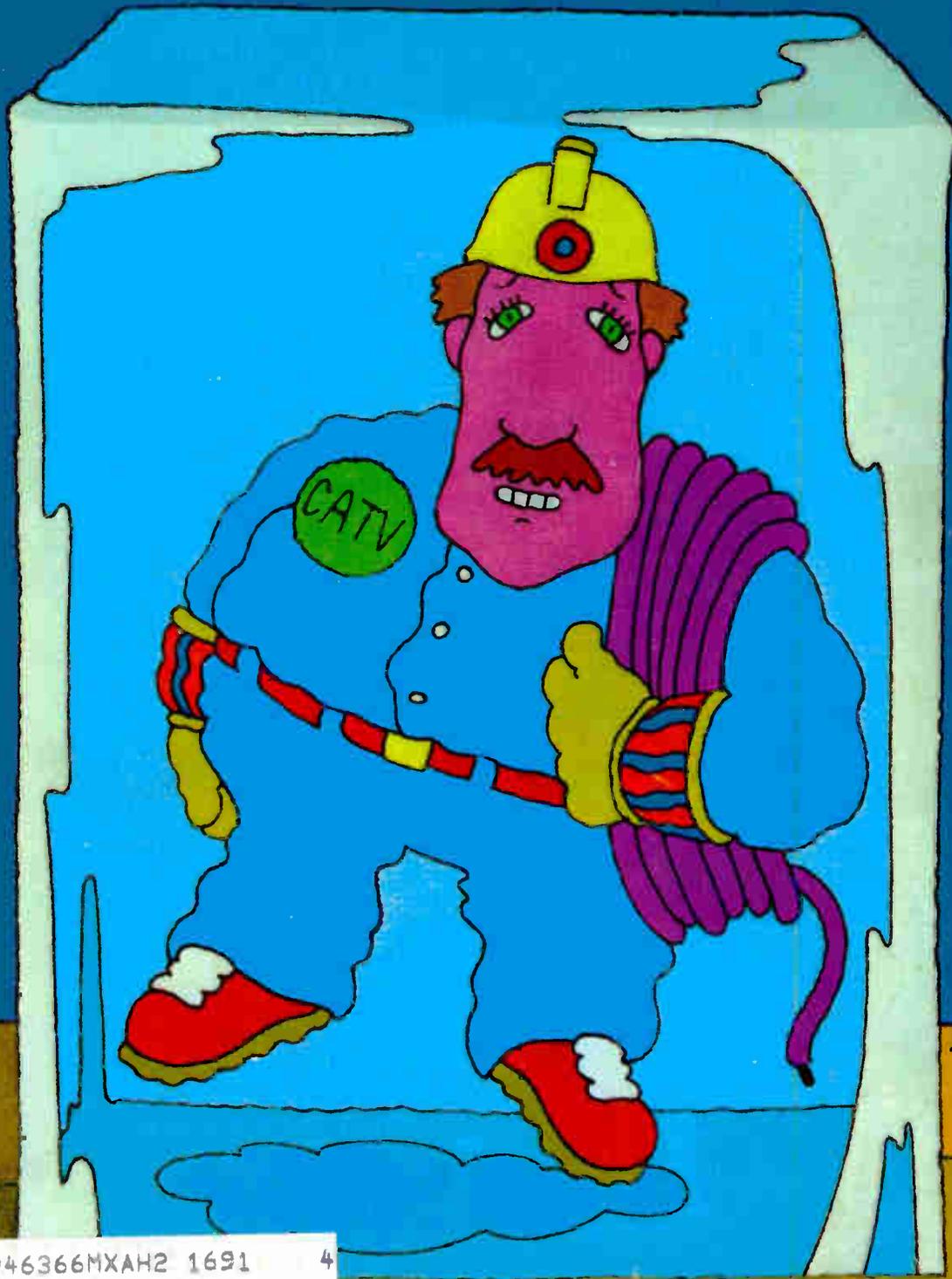


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This month's cover: If that cable technician looks a bit pained, chalk it up to the bitter cold of that FCC-imposed block of ice. It's artist Art Sudduth's way of depicting the Big Freeze. For more on CATV and this year's NCTA Convention, see pages 21-47.

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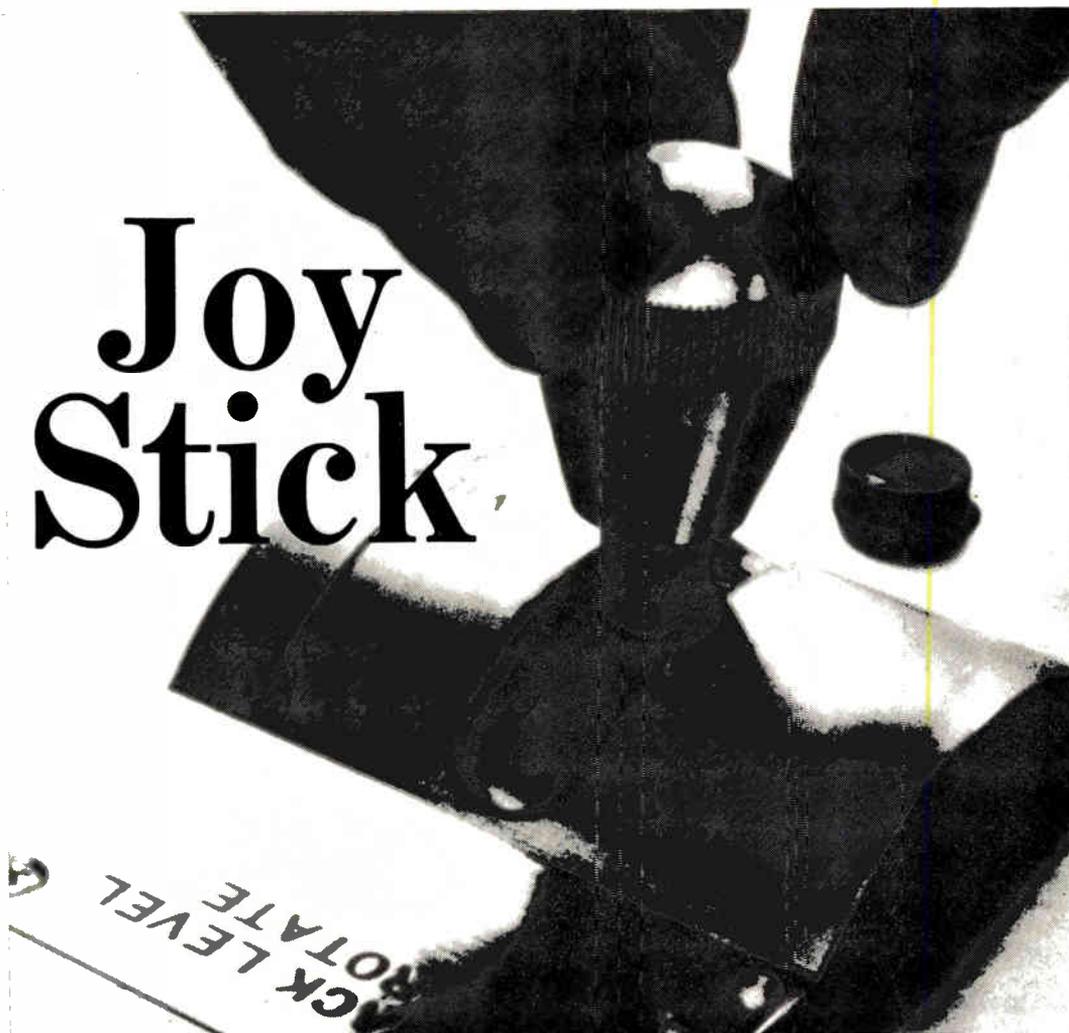


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Gives you "cockpit control" of one or many cameras . . . fingertip response to varying picture quality.

This versatile instrument belongs in a busy studio like yours.

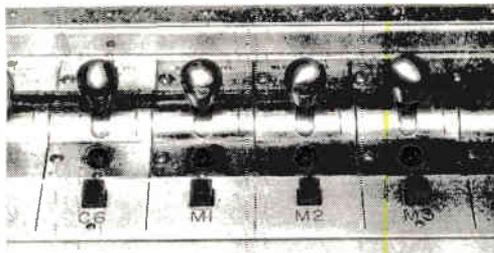
With Joy Stick, one video operator can monitor and adjust one or many cameras. Because all controls are within easy reach, a single operator can respond immediately to a rapidly changing video situation — such as uncontrollable lighting conditions in remote operations. That means the best possible on-air picture quality is constantly at his fingertips!

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Joy Stick is so easy to use! Works like a pilot's joystick. Just move the stick backwards or forwards to control video level (iris). Turn the knob on top of the stick to control black level (set-up). Press the knob to switch a particular camera signal to a single monitor (individual monitors can be eliminated). Joy Stick Assembly or Joy Stick and Paint Control Assembly comes in a compact modular unit ready for installing — console style.



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BROADCAST INDUSTRY NEWS

Senate approves \$20 million for CPB

The Senate has upheld the Johnson Administration's authorization of \$20 million for the Corporation for Public Broadcasting. President Nixon had proposed to cut the CPB budget by \$10 million.

CPB President John Macy outlined a proposed \$2 million budget for next fiscal year, which includes \$4 million in contributions expected from private sources. Macy said that CPB has committed over \$6 million of \$7 million current budget.

The bill is expected to receive strong opposition in the House Commerce Committee. If the authorization bill passes, the money bill still must go before Appropriations Sub-committees of both Houses.

FCC to adopt hard line on a-m licensees

Among stands the FCC is expected to take soon on new station applications and anti-smoking announcements is a hard line on licensees for a full-time a-m station, according to the outcome of an NAB panel discussion held in late April.

Participants in the state president's 14th annual conference were told that the Commission expects soon to issue rules that would

make it harder to obtain a license for a full-time a-m station. A-m and fm stations would be treated as an "aural service" and an applicant would have to show that neither a-m nor fm service was provided in the 25 percent "white area." (Stations now must show that 25 percent of their service would be in a "white area" with no a-m service).

Moderated by John B. Summers, NAB's assistant general counsel, the panel discussion featured William Ray, FCC's chief of complaints and compliance.

Station renewals get protection vs protests

Stations facing license renewal will get a month's grace against protests or competing applications according to rules finalized by the FCC in mid-May.

Opponents of renewal will have to submit filings no later than the first day of the last full month of the license period.

Applicants will be required to announce locally renewal intent at least six weeks before filing.

RCA to develop TV tape recorder for NASA

RCA has been chosen to develop a TV tape recorder with an operational life in space of 1000

hours—three times that of present units—for the National Aeronautics and Space Administration's Goddard Space Flight Center.

To be created under a \$944,000 contract by RCA's Defense Communications Systems Division in Camden, N.J., the unit will use integrated circuits and be able to record TV pictures and infrared data that are 10 times sharper than pictures broadcast on commercial television, according to John F. Burlingame, division vice president.

The unit will use two-in. wide tape and will be able to record signals from 5 Hz to 6 MHz for 30 minutes. The recorder will be packaged in two units, each smaller than an attache case.

Study recommends tax finance public b'casting

Public broadcasting should be financed through a four percent gross receipts tax on commercial TV-radio and "some system of charging for access to spectrum," according to a study commissioned by National Citizens Committee for Broadcasting.

Directed by N.Y.U. Economics Professor Dick Netzer, the study reveals that such a tax would raise \$150 million annually and that spectrum charges would bring in \$50 million. An additional \$270 million yearly could be raised ac-

Creating striking sculptural shapes (l to r) are three new tubes from RCA: Image intensifier tube, RCA-8606, which amplifies light tens-of-thousands of times from starlight or skyglow; high-power transmitting tube with heat flux transformer; and cigar-sized silicon target vidicon. RCA recently produced its 50 millionth TV picture tube.



New Tubes from RCA





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over the full range of cable equalization
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eliminates all connectors
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ording to the Netzer recommendations by:

- Allowing public broadcasting to accept advertising, under appropriate limits and controls.
- Experimenting with pay TV.
- Establishing non-profit satellite system with 90 percent of earnings for non-commercial broadcasting.

Gross tax is preferred over net tax, according to Netzer, because gross tax is more stable. He added, "No combination of private philanthropy, sporadic federal appropriations and even more sporadic state and local government financial assistance will permit public broadcasting to develop more than a small fraction of its potential."

National Association of Broadcasters' TV Vice President William Carlisle called the Netzer report "the most unrealistic proposal that's come down the pike in a long time."

WQAM captures AP's award again

Miami radio station WQAM has received the Associated Press' highest national news award for the third consecutive year.

Both radio and television stations are eligible for the award, which is made on the basis of quality and quantity of stories broadcast.

FCC grants 30-day extension for comments

Deadlines for comments and reply comments on the FCC proposal to ban cigarette commercials from the air have been extended respectively to July 7 and August 7.

The original dates set when the FCC made its proposal last February were May 6 and July 7.

The 30-day extension was in answer to a motion by the six major cigarette manufacturers and the Tobacco Institute Inc.—American Tobacco Co., Brown & Williamson Tobacco Corp., Liggett & Myers Inc., Philip Morris Inc., Lorillard Corp. and R. J. Reynolds Tobacco Co.

Johnson hints banks too strong in b'casting

Banks and big companies (particularly military contractors) may have too much control over broadcasting, said FCC Commissioner Nicholas Johnson before the House Banking and Currency Committee in early May.

In Johnson's "tentative" view,

banks should be prohibited from owning mass media in areas where they do business.

Examples Johnson gave of conflict of interest between banks and companies in broadcasting included AT&T (prime ABM contractor) preempting TV network lines when NET had a program on ABM, and Comsat discovering during the Democrat convention that "it suddenly had another need for the lines that were carrying the news out of Chicago to the people of the world."

Johnson said that he wasn't accusing such companies of deliberate distortion, but that he saw "potential conflict."

'Pussycat' Sells Out



You may remember model Diane Rasmussen—BM/E's hostess at its NAB "Black Pussycat Club." Putting a "sold" tag on the last Conrac model RHA19/Y color monitor to be sold from Visual Electronic's booth, Diane is joined by Frank Heyer, a Conrac employee who lists his height as 5' 19". Each monitor sells for \$2700; \$250,000-worth of them were sold at NAB.

Canadian Broadcasting bans cigarette ads

Canadian Broadcasting Corporation will drop cigarette and other tobacco advertising from its radio and TV facilities when current ad contracts expire.

The network expects to lose about \$700,000 a year in revenue, but counts on getting other sponsors because most of the programs involved are in the prime viewing hours of 9 to 11 p.m.

Health Minister John Munro had urged the network to drop the commercials.

Now its RCA Corporation

RCA's shareholders have voted to change the company's name from Radio Corporation of America to RCA Corporation, as the culminating step in a three-year program aimed at modernizing the company's identity.

President and Chief Executive Officer Robert W. Sarnoff said that RCA has already started to change the names of its foreign subsidiaries by dropping their national identifications—all will be known simply as RCA, regardless of the countries in which they are situated.

Jerrold Corp. receives President Nixon's award

The Jerrold Corporation has received President Nixon's "E" Award for its contribution to the U.S. Export Expansion Program by successful promotion of overseas sales of U.S. products.

Jerrold was cited for the "perseverance, product adaption, indigenous language, advertising and customer training" of its International Division, which was founded in 1965.

Network revenues reach high—\$1.3 billion in '68

National television networks, ABC, CBS, NBC, and their 15 owned and operated TV stations, had revenues of \$1.3 billion in 1968—an all-time high, 7.5 percent above 1967.

The three networks' reported profits of \$179 million before Federal income tax—11.7 percent above 1967—are still below the peak of \$187 million reached in 1966.

TV network operations of the companies in 1968 earned pretax profits of \$56 million, about the same as the previous year, and below the 1966 profits of \$79 million.

Pretax profits for the owned and operated TV stations reached an alltime high of \$122 million, up 17.4 percent from 1967.

WCBS receives award from Silurians' society

WCBS newsradio 88 has received a journalistic achievement award from the Society of the Silurians, an organization of past and present newspapermen.

WCBS received its award in the

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news feature category for "its series of special reports which attempts a fresh approach to news and its background."

The series is a daily morning report by anchorman-reporter Charles Osgood which is written by Jeremy Ryan and produced by Mike Ludlum.

This was the first time the society's awards included categories for radio and television.

Fm stations violate logging rules most

Violations in logs and records—105 of them—were the most numerous of all FCC rules violated by fm stations from July 1, 1968 to December 31, 1968.

Logging violations include failures to make required entries in station logs, to insure entries are factual and to make orderly and legible entries.

Eighty-five violations were incurred by failure to uphold Rule 73.267 on operating power. These violators failed either to maintain operating power within required limits, to ascertain validity of parameters and computation of indirect operating power, or to determine direct operating power with properly calibrated instruments.

Other popular violations involved rules on annual audio-performance measurements, operating log, maintenance log, operators, remote control, program log, modulation monitor, station and operator licenses.

FCC initiates microwave study

The Commission began a two part study on June 1 on frequency assignment techniques for microwave radio systems.

Phase one analyzes present frequency assignment techniques and use of frequencies and will recommend changes for more effective use of the spectrum assigned to these services.

Phase two will examine and analyze results of phase one and consider how data may be used in developing more effective use of microwave frequencies.

RCA and SCC formalize leasing agreement

RCA Commercial Electronic Systems Division and Systems Capital Corp. have formalized an agreement to make RCA radio and TV

broadcast equipment lines available under a variety of long-term leasing arrangements.

RCA will sell individual units of new broadcast equipment, studio or transmitter packages, or entire technical systems to SCC, which will arrange long-term leasing to station operators (individualized leasing arrangements will be made for periods up to ten years, with no down payments).

Two NET series achieve Peabody awards

Two NET series—NET Playhouse and "Misterogers' Neighborhood"—have won George Foster Peabody Broadcasting Awards for 1968.

The Peabody awards, considered broadcasting's Pulitzer Prize, are designed "to recognize distinguished achievement and meritorious public service rendered by radio and television and to perpetuate the memory of the banker-philanthropist whose name they bear."

Peabody awards are administered by the Henry W. Grady School of Journalism of the University of Georgia and a national advisory board.

35 miles too little, says NAB

The FCC's proposed 35-mile restriction for local TV station protection from CATV competition isn't enough, according to the NAB.

Describing the FCC's proposed 35-mile zone of local TV protection as "too restrictive," the National Association of Broadcasters recommended strongly that the limit be extended to 60 miles in major TV markets and to 75 miles in smaller markets.

Comments filed by general counsel Douglas A. Anello and John B. Summers, assistant general counsel, indicated that the

WSTV manager dies

Joseph M. Troesch, director and second vice president of Rust Craft Broadcasting Co., died May 9 in Steubenville, Ohio.

At the time of his death, Troesch was also assistant general manager of WSTV-TV, Steubenville. His passing culminated six years of illness. He was 56.

"small area of protection" afforded in the proposed rule could result in "a proliferation of CATV growth" in Grade-A areas and a "wholesale importation of distant signals" that would fragment potential audiences.

The NAB also stated that it was "taken aback" by the suggestion that channels be leased on a subscription basis, since this would lead to nationwide pay-TV.

Helical courses planned by NAEB

Two special meetings dealing with the operation and maintenance of helical-scan VTRs will be given by the National Association of Educational Broadcasters.

The first meeting will be June 22-25 at the Philadelphia Marriott. The second meeting (called "institute" by NAEB) will be at the Sheraton-Chicago Aug. 17-20. The four-day course will assume no prior training in video recording.

Hyde calls CATV 'important issue'

In reviewing the FCC's recent actions in the CATV field before a subcommittee of the House Interstate and Foreign Commerce Committee on May 19, FCC Chairman Hyde called CATV "one of the most important issues in the communications area . . ."

Hyde discussed the Commission's Friday the 13th proposals, the background of CATV regulation and the nature of CATV service in all types of areas.

It was "a logical consequence of our goal—to eliminate unfair competition which otherwise would be present . . ." said Hyde in noting the relationship between Friday the 13th proposals requiring systems in major markets to obtain retransmission consent before importing distant signals and copyright.

On legislative efforts in the copyright area, Hyde said that the Commission agreed that there is a need for a bill that would combine communications and copyright considerations.

Hyde added that CATV offers exciting promises, "rich in diversity for the American people," and that the Commission was "diligently" seeking views and information to provide answers to the issues in the CATV area.



The NEW RCA 70B is the first VTR to safeguard quality automatically!

In many ways, the 70B can make the VTR operator feel he has more command of tape quality than ever before. Because he can get the highest color fidelity ever achieved—with the most reliable automatic instrumentation ever devised for a VTR.

Automatically, the 70B eliminates costly replays. Sensing circuits just won't let you play tape on the wrong FM standard. Instead, the proper playback standard is selected for any tape—highband, lowband monochrome or lowband color—automatically.

Automatically, the 70B pinpoints problems through its visual-audible central alarm system and alerts the operator immediately.

Automatically, the 70B can save your operator time by eliminating the need for manual cueing. Now he can pre-cue several tapes so they are ready to roll automatically—eliminating tension during the critical station break period.

Automatically, the 70B can eliminate saturation and hue errors. Use the RCA exclusive Chroma Amplitude and Velocity Error Corrector (CAVEC), and the 70B will not only correct chroma errors between bands—but between each line of a band as well!

Automatically, you get better color. The 70B has broadcasting's highest specs—K factor of 1% with 2T and 20-T pulse; differential phase and gain 3° and 3%; moire down 43 db and S/N of 46 db.

The RCA 70B is the dream VTR come to life. For all the reasons why, call your RCA Broadcast Representative. Or write:
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INTERPRETING THE FCC RULES & REGULATIONS

Public Inspection of Network Affiliation Contracts

ON MARCH 25, 1969, the Commission released a Report And Order (FCC 69-289, Docket No. 14710), effective May 1, 1969, amending the rules to permit Public Inspection of Network affiliation contracts. Most broadcasters have felt at first that the Orwellian "Big Brother" has taken another step towards absolute control of the broadcast industry. However, many are not familiar with the reasons behind the new FCC rules. In fact, most smaller broadcasters may be surprised to learn that the Commission adopted these rules to give them a better competitive position in the market place.

Background

On July 16, 1962, the Commission released a Notice Of Proposed Rule Making (FCC 62-745, Docket No. 14710) and proposed public inspection of network affiliation contracts, agreements or understandings filed with the Commission pursuant to Section 1.613 of the Rules.¹ The Notice was quite brief. It included the Antitrust Subcommittee of the House Committee on the Judiciary² recommendation, in 1957, that the Commission "consider the advisability of making public the network affiliation contracts filed with it." Also it noted the Staff Report of the Senate Committee on Interstate and Foreign Commerce³ recommending that affiliation contracts should be a matter of public record to improve competitive conditions in the industry and promote "fair and uniform treatment for all affiliates." The House Committee stated that its study of affiliation agreements:

"... reveals widespread, arbitrary and substantial differences in the terms accorded by each network to its individual affiliates, particularly in respect to station compensation for network broadcasting services, which differences primarily favor large multiple station licensees vis-a-vis the small independent operators."

Finally the Notice included the Commission's Network Study Staff Report⁴ in 1967, suggesting

1. Formerly §1.342. By Order August 2, 1945 in Docket 6572 the Commission ordered that "network and transcription contracts" should not be open to public inspection. All other contracts and agreements required to be filed under the section (now §1.613) are public.
2. Report of Antitrust Subcommittee of House Committee on the Judiciary 85th Cong., 1st Sess., March 13, 1957, page 141.
3. The Television Inquiry Staff Report Committee on Interstate and Foreign Commerce, 85th Cong., 1st Sess., June 26, 1957, page 95.
4. Network Broadcasting, Report of the Network Study Staff to the Network Study Committee, FCC, Washington, D.C., 1957, printed as House Report No. 1297, 85th Cong., 2nd Sess., Report of the Committee on Interstate and Foreign Commerce (page 467).

that the Commission enact a rule making the network affiliation contracts public.

Most commentators feared that public disclosure of affiliation contracts, particularly network rates, would result in competitive injury to licensee-affiliates without any compensating benefit to the public. They pointed out that such information is normally confidential and saw no reason for treating it differently in broadcasting. In effect, they argued that the same tests should be applied, *ipso facto*, to the retention and disclosure of information in the field of broadcasting as in ordinary commercial enterprise.

As to the "confidentiality" argument, the Commission found that business aspects of broadcasting, including rates, are established by private initiative and regulated by the interplay of competitive forces rather than by government fiat. However, a broadcaster's responsibility as a licensee is not discharged merely with adequate commercial competition. The Commission concluded that, while an ordinary commercial entrepreneur may withhold information from his competitor and the public at his "whim or caprice," a broadcaster may be required to disclose information which he considers to be competitive—if the public interest (of which he is trustee) will be served by such action. Publication of affiliation contracts will serve public interest by making "a major contribution towards fostering and maintenance of a national competitive broadcast structure. It will enhance and intensify competition among broadcasters and equip licensees as well as the public with additional information."

As to such information as details of the network-station compensation arrangements, including percentage returned to the station and "free hours" (if any), the Commission's Network Study Staff concluded in 1957 that disclosure would be in the public interest. It would aid stations in their bargaining with the networks by making information available to both sides instead of just one. Also, *it would tend to decrease unjustified variations in compensation arrangements*—for example, variations based on a no-longer existing scarcity of facilities.

Furthermore, opening this type of information to the scrutiny of informed persons may help the Commission remove unfair competitive barriers and adopt appropriate regulations. The Commission (exercising its "expertise") believes these

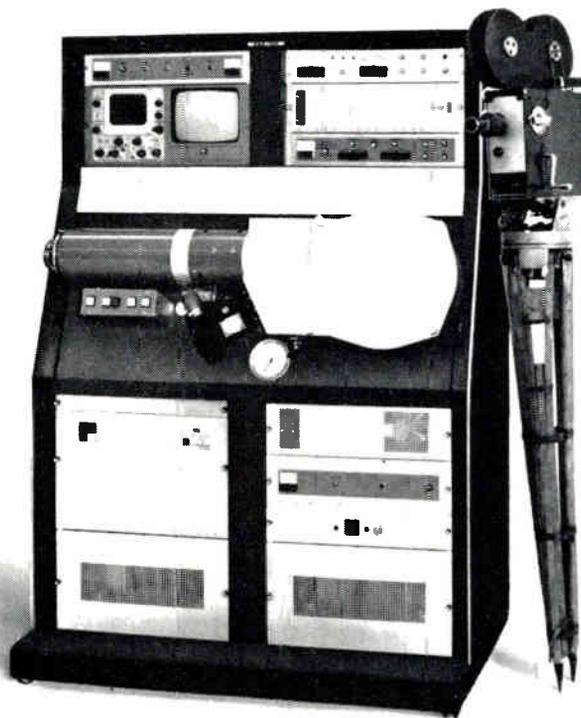
This section, providing broad interpretation of FCC rules and policies, does not substitute for competent legal counsel. Legal advice on any given problem is predicated on the particular facts of each case. Therefore, when specific problems arise, you would be well advised to consult your own legal counsel.

GOOD-BYE KINE HELLO EBR-100



Television raster lines (right) enlarged from 16mm film frames. Lower: EBR-100 recording on 3M fine-grain (less than 0.1 micron) electron recording film. Top: kinescope recording on television recording film. Line-to-line spacing in both pictures is approximately 0.00058 inches or 14.7 microns.

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3M's new Electron Beam Recorder is the first system to produce 16mm monochrome film copies comparable to the original live or video tape signal. It has no energy-wasting optical system. It

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The 3M Brand EBR-100 far surpasses the conventional kinescope in reproduction quality and in the ability to produce consistently good films. It opens new horizons for TV taping and mass film distribution for educational and training purposes.

The EBR-100 is a machine that every major TV studio, dubbing center, film lab and government communications center will want to employ. Easy to install, completely self-contained.

Direct beam monitoring provides simple,

positive adjustment of exposure and gamma. Secondary electrons imaging the film target verify that focus, size, and linearity are correct. You can choose between a direct positive or a

film negative with the flick of a switch. The system also is switchable from US standard 525-line to European 625-line requirements.

The EBR-100 records on low-cost fine grain film. Overall resolution exceeds 1000 lines. The film uses conventional processing and is shown on standard 16mm projectors.

The unit is 68 inches tall, 46 inches wide, 34 inches deep, weighs approximately 1000 lb. and costs about \$55,000. Optical or magnetic sound is available at extra cost.

For details, call our EBR-100 information phone. The number is (805) 482-1911, ext. 216. Or write to EBR-100 Dept. at the address below.

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matters are related to the nature and quality of broadcast service. For instance, if the decision by a licensee to affiliate with a particular network (or to present a particular network program) were made solely on the basis of the compensation received, the public interest would not be served. Indeed, a broadcaster who chooses a network *solely on the basis of a clearance auction among networks* ". . . abandons his responsibility and violates his trust as a community broadcaster. The public is entitled to have access to information bearing on the extent to which this may be a consideration in program selection."

An affiliation contract contains other terms and conditions which may materially affect the broadcast service provided to a particular community. These include (1) means of interconnection and the delivery of programs to the community, (2) the acceptance or rejection of programming by licensees as well as the use of sustaining programs, (3) presentation of national and local commercial messages, (4) delayed broadcast arrangements, (5) provision for preemption of programming under certain conditions and (6) a number of other matters which have a direct bearing on the amount and type of network service which the community will receive. Also, in the radio field, these contracts define the amount and placement of option time being used by a particular station. The Commission believes the public has a legitimate interest in knowing the terms upon which its network service is provided.

The basic public right of access to information kept by government agencies (unless there are very substantial reasons to the contrary) was emphasized by Congress in adopting the 1966 "Public Information" amendments to the Administrative Procedure Act. The particular importance of an informed public in broadcast regulation has been emphasized recently in decisions such as *United Church of Christ v. FCC*,⁵ as well as by Congress in adopting the 1960 amendments to the Communications Act concerning legal notice. In light of these principles, the Commission did not find the arguments raised in favor of confidentiality substantial enough to be controlling here.

Finally, incidental, competitive or commercial injury resulting from exercise of the Commission's duty to protect the public interest in broadcasting cannot be pleaded as a bar to the Commission's exercise of its statutory authority to make public information deemed essential or relevant to the public interest. This is in accord with long established principles of administrative law.

Practical Effects of New Rules

In any event, it does not seem that making these contracts public will unduly damage networks and licensees in their legitimate competitive contest. The "competitive advantage" which will be gained by smaller affiliates through disclosure of "preferred" affiliates' rates and arrangements appears exaggerated. A principal argument is that

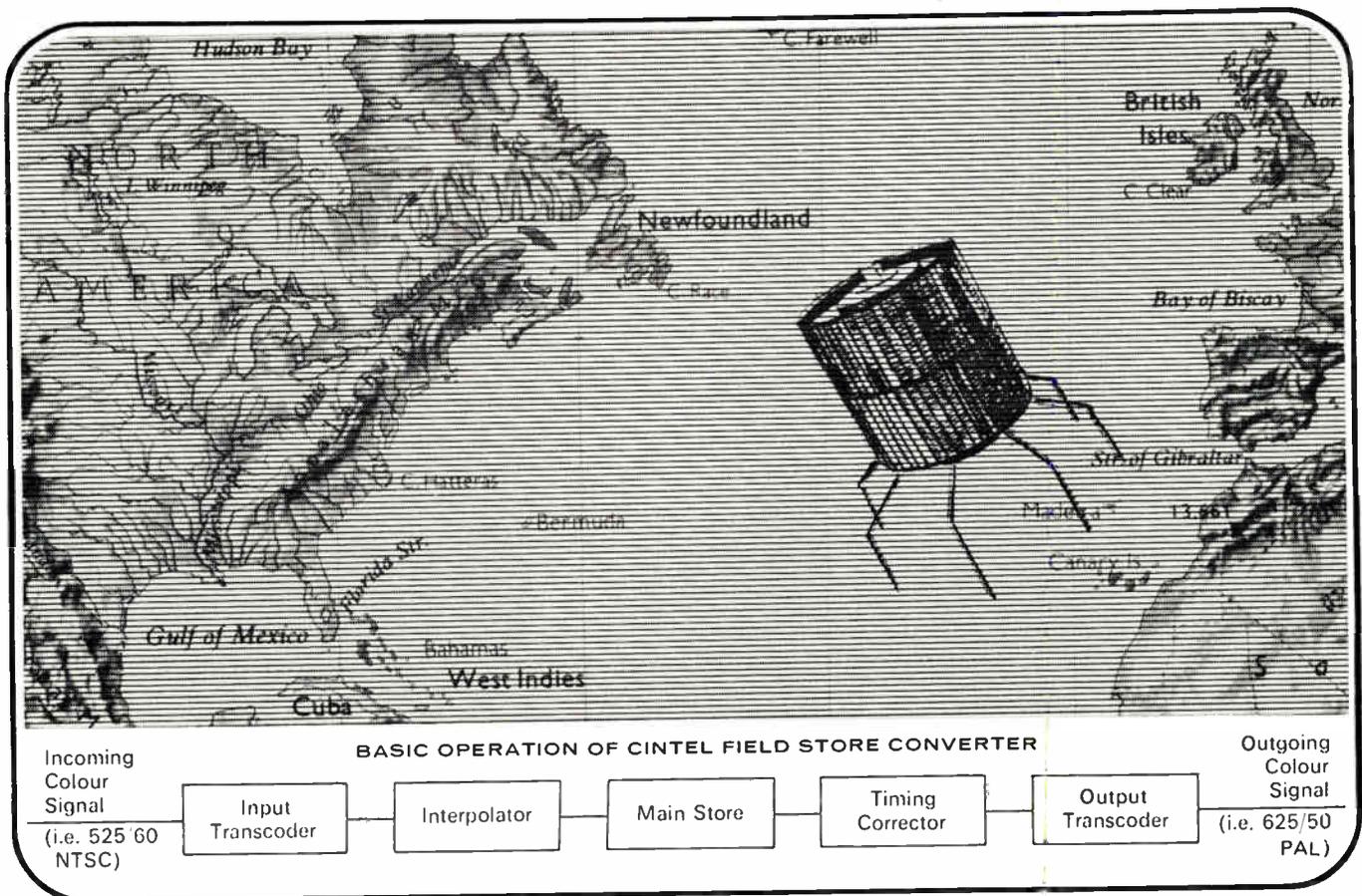
5. *Office of Communication of the Church of Christ v. FCC*, 359 F.2d 994, 123 U.S. App. D.C. 328, 337, 7 R R 2d 2001 (1966).

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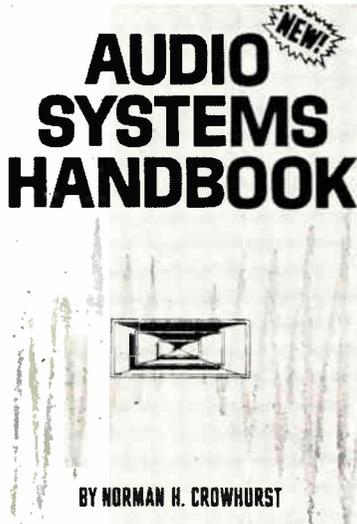
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"less-advantaged" affiliates, seeing the "preferred" terms, would demand equal treatment and networks would be materially injured. However, it is doubtful that the legitimate competitive bargaining ability of affiliates will be affected to the public harm by disclosure of rate and compensation arrangements. It is well known in the industry that in some markets—so-called two-VHF communities, for instance—licensee affiliates enjoy favorable bargaining positions and can command "premium compensation," fewer or no "free hours," etc. The Commission has commented at length on this situation in various opinions and these markets have been identified. In fact, within the industry there is a "kinship" among affiliates and broadcasters, and they can tell "pretty accurately" what happens. Affiliates are reasonably well informed as to one another's compensation arrangements. Hence, disclosure of some affiliates' premium rates and freedom from free hours will not (except, perhaps, as to the detail) be a shock, or even "news," to their competitors. Competitive advantage based on physical restrictions on the spectrum cannot be removed by publicity.

Conclusion

The Commission decided *not* to make public, retroactively, the material already filed under the safeguard of the former rules. Nonetheless, every contract initially filed after the effective date (May 1, 1969), *must be composed of one document without reference to other papers by incorporation or otherwise.* Subsequent filings may simply set forth renewal, extension, amendment, as the case may be, of any prior one-document contract filed after May 1, 1969.

Section 0.455(b) of the Commission's Rules and Regulations was thus amended by adding a new subparagraph (3) as follows:

"§0.455 Other locations at which records may be inspected.

"(b) Broadcast Bureau . . .

"(3) Contracts relating to network service filed on or after the 1st day of May 1969, under §1.613 of this chapter."

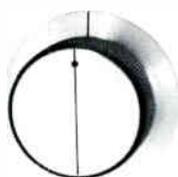
Section §1.613 of the Commission's Rules and Regulations was amended by striking out the first sentence of paragraph (a) thereof and substituting the following:

"§1.613 Filing of contracts:

"(a) Contracts relating to network service: All network affiliation contracts, agreements or understandings between a station and a national, regional or other network shall be reduced to writing and filed. Each such filing on or after May 1, 1969, initially shall consist of a written instrument containing all the terms and conditions of such contract, agreement, or understanding without reference to any other paper or document by incorporation or otherwise. Subsequent filings may simply set forth renewal, extension, amendment, or change as the case may be, of a particular contract previously filed in accordance herewith . . ."

The requirement that network contracts be included in the Commission's *public* files from May 1, 1969 forward should help reduce the unequal treatment of network affiliates and should raise the competitive position of smaller affiliates. For details, consult your attorney. **BM/E**

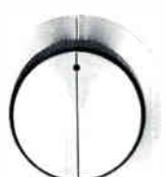
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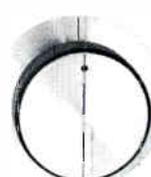
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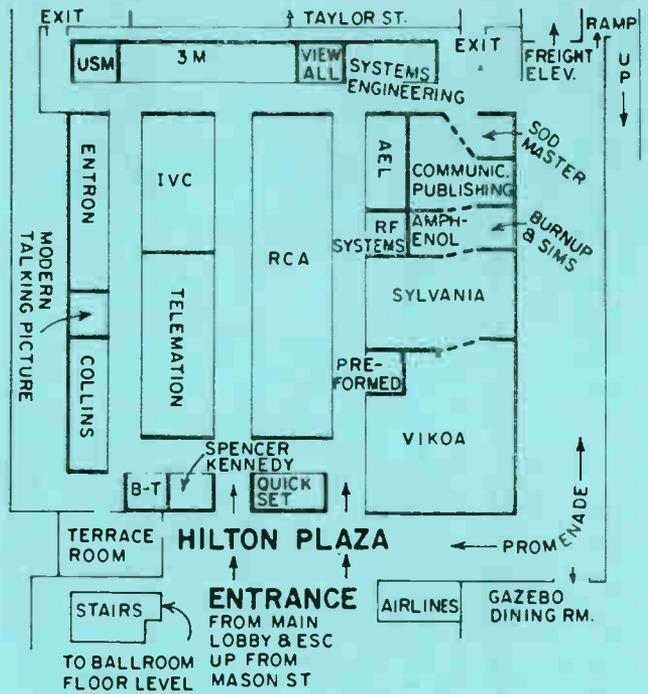
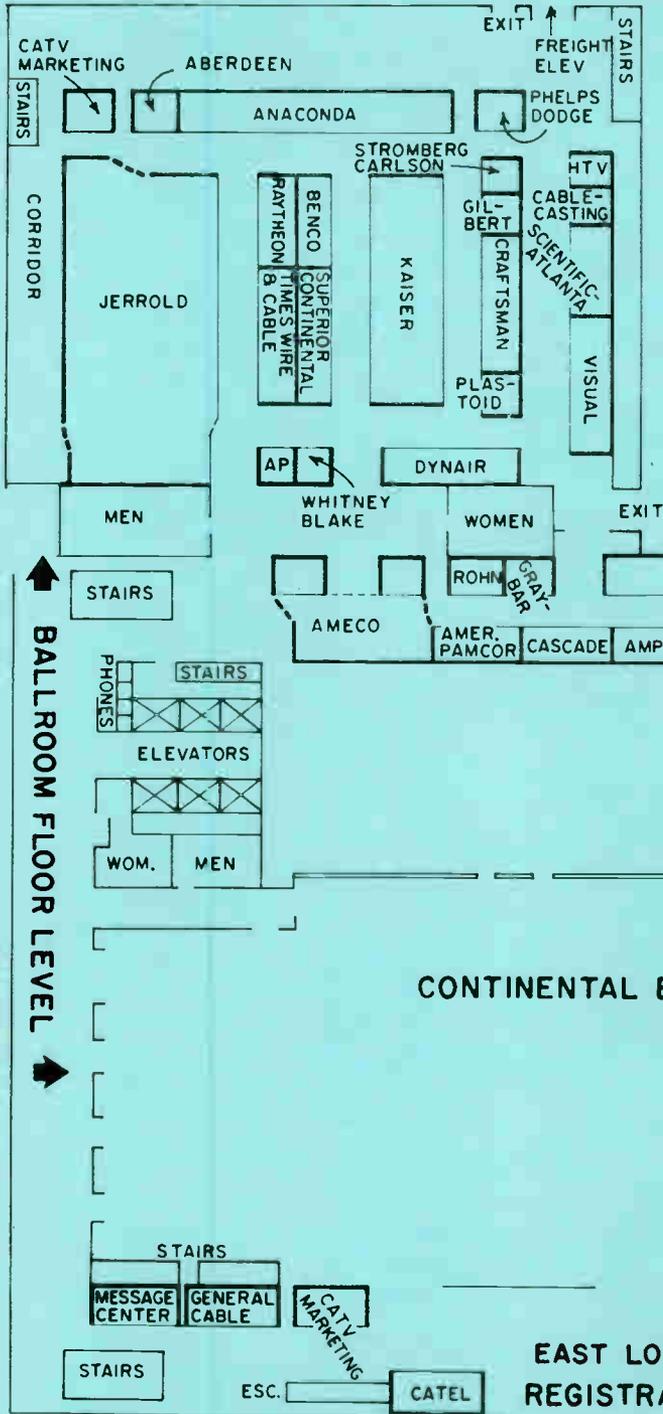
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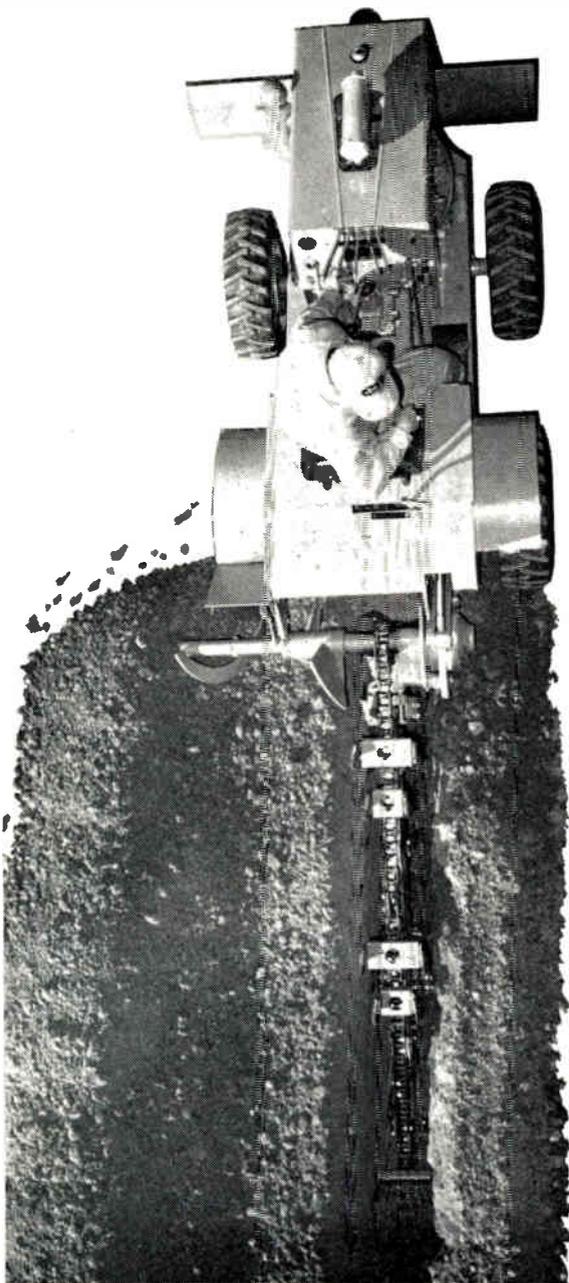
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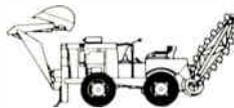
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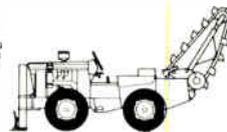
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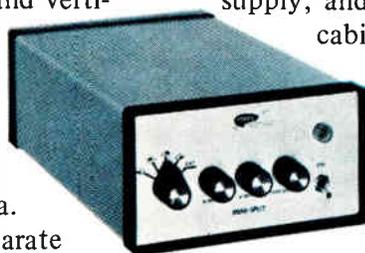
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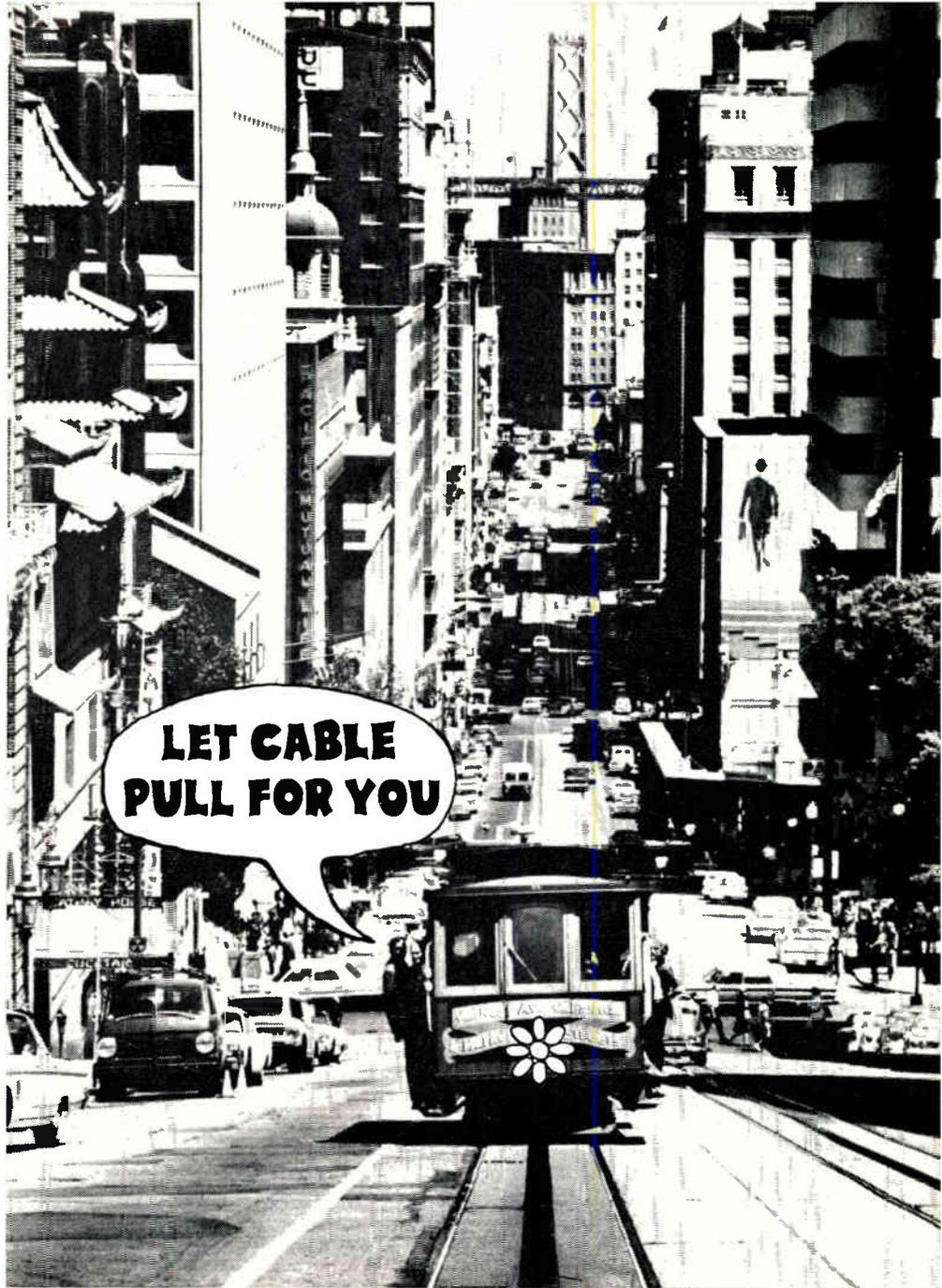
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NCTA '69: Hilton Hosts Hopper of Hopes



JUST ABOUT every NCTA convention opens with an air of uncertainty mixed with high optimism. The optimism is well founded; so is the uncertainty. In the face of last December's Friday the 13th Proposals (Third Report and Order), the entire cable industry faces a freeze that may stretch out for years if the present FCC thinking is continued.

The broadcast interests—especially the NAB—are quite adamant in their belief that CATV is hurting the broadcaster—especially the little new u's—yet it has been shown in some cases that these struggling new stations have actually benefited from CATV carriage. As Milton Shapp stated before the Commission on Feb-

ruary 4, "The main threat to uhf development sought by the Commission is not CATV. The real hurdle—the real 'unfair competition' to uhf stations . . . is not CATV, but the already established vhf stations."

In a lateral move this year, the Justice Department let it be known that it favored accelerated CATV development as a means of increasing the competitiveness of the television marketplace. In a sense, the Justice Department may have played right into the NAB's hands—implying as it were that CATV is indeed competition for the broadcaster. The ultimate accommodations and possible marriages between broadcasters and cable interests weren't mentioned, but



New Benavac Mark II processes vhf channels to video frequencies.

infant cable industry is firmly embedded in an FCC-made block of ice, unable to move in these bold new directions with new installations. Yet there's lots of hope—hope that the Commission won't be permitted to freeze cable development in this arbitrary fashion; hope that the Supreme Court will once again rule in favor of CATV; hope engendered by the large number of operators able to squeeze in under the grandfathering provisions; hope that companies ignoring the restrictions will ultimately win in the courts.

Equipment Glitters

There's little despondency among the major equipment manufacturers. This year's NCTA Convention is the biggest yet, with 73 exhibitors slated to show their wares at the San Francisco Hilton. Prominently displayed will be a line of color local origination equipment from International Video Corp. Featured color cameras are the IVC-100 (\$14,000), IVC-200 (\$19,000) and the all-Plumbicon IVC-300 (\$29,500). Color video tape equipment includes the IVC-800-C (\$4700) and a new low-cost color recorder tagged at \$2335.

Commercial advertising is a newcomer to CATV, and to make the origination easier, TapeAthon is introducing its programmer music system that injects ads at

preselected times. The first such system has already been sold to Kankakee Cable TV (Kankakee, Illinois) which will let the cable operator solicit paid ads for the local origination channel.

Bowing at the TeleMation booth is a line of products that includes: the TMC-2100LO TV camera—a mono camera with lead-oxide pickup tube; TMP-2500 non-duplication switcher/programmer with magnetic core memory; TMM-203D "Dolly-Up" multiplexer; TVI-100 vertical interval data transmission system for simultaneous transmission of digital and analog video; "Porta-Studio" compact video control package; TMM-300 message channel; "97" weather channel; TMT-100 series video test equipment.

Line Equipment

New from Benco is the Benavac Mark II—a solid-state, modular headend heterodyne unit. The newest Benavac processes all vhf channels with input levels between -26 dBmv to $+34$ dBmv—providing output levels of $+34$ to $+54$ dBmv. Conversion is from vhf channel to any preselected 6-MHz channel output between 54 and 240 MHz.

A full line of new Dynafoam cables is being introduced by Times Wire & Cable Co. These cables are designed for use as trunks and feeders and are available in the full

attenuation range from 1.65 dB per 100 feet to 0.76 dB per 100 feet. Even lower attenuation cables are available on special order. Dielectric material is polystyrene and the center conductor is larger than standard size in most cables. Outer diameter will likewise be larger, requiring different fittings.

New for the trunk cable is a dual-pilot carrier automatic slope and gain control system from American Electronic Laboratories. The system uses the new "Superband" and "Colorvue" amplifiers designed for 50-270 MHz operation.

A full line of CATV amplifiers is being shown by HTV, highlighted by a demonstration of two-way use of coaxial cable. The L-20-L amplifier case houses the standard combination trunk and bridging amplifiers for vhf and the needed filters and separate amplifier for the 10-40 MHz band for auxiliary services.

A new galvanized steel teletap for figure-8 coax feeder cable to RG-59/U is being exhibited by Preformed Line Products Co. The company is also showing a new galvanized dead-end for RG-11/U coax.

Two new trenchers are being introduced by Davis Manufacturing Div. of J. I. Case Co. These units are an 18-hp articulated trencher and a 30-hp four-wheel-drive trencher. The 18-hp unit, with four-wheel drive, has hydraulic articulated steering, uses a direct-burial plow or optional hydraulic angle dozer attachment. The machine has a one-hand "Mono-Stick" control, which is also used on the 30-hp model. The larger trenching machine will trench from 18 inches wide, 24 inches deep to 4 inches wide and 60 inches deep, at infinitely variable speeds up to 1500 feet per hour.

Pruzan is featuring its capability to solve supply problems—to get equipment and materials to a system anywhere in the country in a hurry. The booth's main theme is a mechanical problem-solver. Visitors can query the machine about Pruzan's services by pressing the appropriate button. **BM/E**

No Overhead At Cable Plant

It seemed a pretty good idea—installing the cable-drawing machinery before the roof and walls go on—but you could do it only in Arizona.

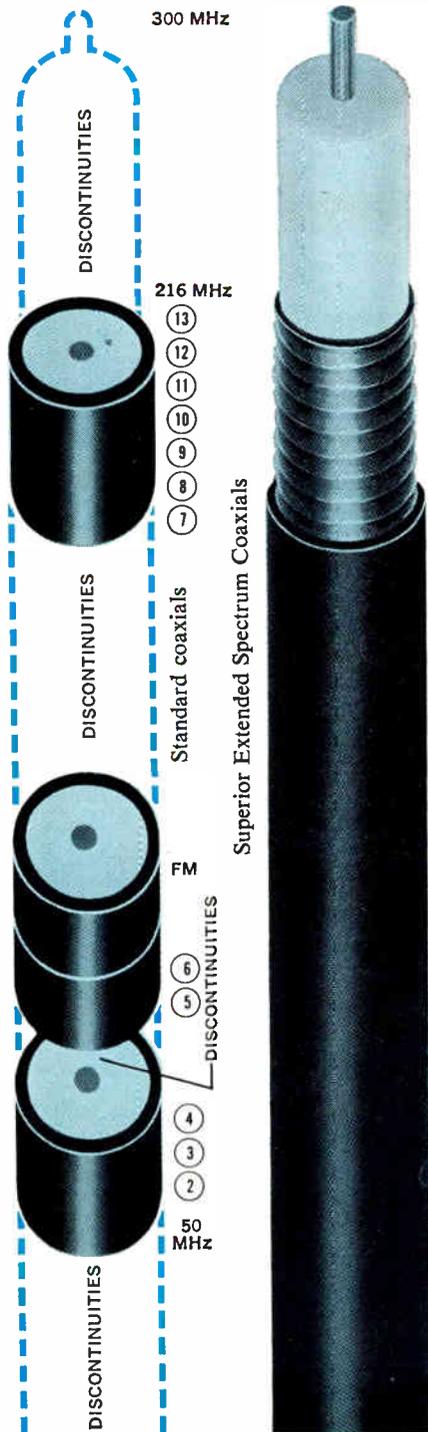
New see-through cable plant is home of Systems Wire and Cable, Inc. (3500 S. 30th St., Phoenix.) The new manufacturer's president is Jack Ward, formerly with Ameco Cable, Inc. Executive v.p. and director of marketing is Nat Marshall, a communications industry consultant, formerly with Ampex and Graflex.

The company is introducing its



new cable, Compath I at the NCTA Convention. Marshall envisions a good market for SWCI products, due mainly to the company's independent ownership with no ties to CATV systems manufacturers.

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Dallas, Atlanta
and Lackawanna
have in common?**

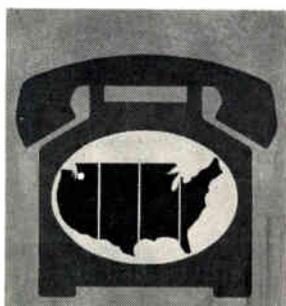
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Cable Consultants

Working with town councils, evaluating proposals, setting up and supervising complete cable systems and emergency trouble-shooting on a grand scale are all in a day's work for a cable consultant.

By Walter Wydro

On the go constantly, the author catches up on mail and paperwork accumulated while he was in the field. Consulting means living out of a suitcase almost constantly.

BM/E Photo



—They're a Must



IT ALL STARTS WITH the franchise hearings. Somebody—often a cable operator from a nearby community—starts bugging the town council or whatever about a system. At about the same time, two or three national cable companies jump in and want to bid. The

local governing body thinks about it for a while, and then awards the franchise to a hastily formed group of local businessmen. Then the fun begins.

For one thing, this new cable group probably doesn't know the first thing about CATV—except for what little has been learned from the franchise hearings and from the written proposals that may have been offered. To these people, “turnkey” is a foreign word that suddenly becomes meaningful when they find out that this is just what they're looking for.

It's at this point that any enlightened group will hire an independent CATV consultant. It's his job to advise on system feasibility and desirability, to find and contract for the right kind of equipment and installation, to find and sometimes to even train technicians for the new system. It's a continuing operation, consulting for a neophyte cable operator, with frequent callbacks for more meetings and brainstorming sessions. Too often, the new cable operator simply doesn't know what he wants or would find acceptable. He's dimly aware that somewhere off in Washington, there's an FCC and that the Commission has something

Walter Wydro (P.O. Box 285, Pineville, Pa 18946) is a private CATV engineering consultant with many years of equipment and system design under his belt. He numbers among his clients some of the most prominent CATV manufacturers and operators in the industry.

to do with the system operation. He also knows that cable is desirable for his community, but his is the monumental job of convincing the citizenry.

Because of the 35-mile rule (in the FCC's proposals) there is a lot of confusion among prospective cable franchisees and communities. The FCC has in a way indicated that it erred in presenting these proposed rules—indicated by the numerous exceptions that have already been granted. The FCC—to all outward appearances—is now using the NCTA's standards for geographical separation. The Commission hasn't said so, but this certainly appears to be the case.

The entire business of obtaining a franchise can be loaded with false starts. In one particular case, for example, the local businessmen's group entered the franchise proceedings very late in the game, and didn't have time to prepare a very satisfactory proposal for the town council. This happened after three national franchise seekers had already submitted applications. The local firm had been preparing its franchise for some time, but it wasn't a very satisfactory job. It was submitted on time, but it just wasn't acceptable as it stood. In comparison with the other applications, it wasn't only unsatisfactory—it was downright poor.

Scoring Points

In a typical small-town situation, a new system will provide far more than the TV channels now available off-the-air. It will provide a total of at least nine or ten channels. This includes importation via microwave for distances of 100 miles. Added to this will be local origination. Almost all systems today provide at least one channel of local origination—time/weather plus another channel for live or locally taped programs.

After the franchise has been awarded, the next step is to make recommendations to the town council. The council will then prepare the advertising and conduct hearings to publicize the reasons for selecting a particular franchisee. Sometimes this will be contested by the other applicants and

then further hearings will be needed to iron out these added problems. There'll always be problems—it's mainly a question of how the council handles the franchising.

Engineering Problems

Biggest problem here is just where to site the headend relative to the town. This is most often very close to the town—which may not be the most desirable from a signal capture viewpoint. Oftentimes the geography won't allow optimum siting; just as often, political factors gum up the works. But generally, if a franchisee wants to buy a head-end site, he'll be able to buy it somewhere in the area—even if it means putting up a tower in a residential area. The town may even rezone to permit this, since the operator is essentially performing a kind of public service. A one-acre site in the middle of a residential area with properly constructed towers is generally not an eyesore, unless it's a very flat country area. Even then, the site can be landscaped just as a broadcasting tower frequently is. After all, broadcasting towers are very often located in some prime real-estate areas in some towns.

Objections Raised

Usually, if there are strong objections to installing a cable system, these arise from poor performance of previous cables in nearby towns. Very often, these systems may have gone in ten or 12 years previously when the technology wasn't as well developed. These objections can also come up when a nearby cable system has changed hands a number of times and each time, the service literally ended. After a month or so of no service, the new owner would put the system on line again with much fanfare but with little or no technical improvement. It's this poor past performance that is the major source of CATV opposition today. It's no longer a case of ignorance or lack of understanding that is a roadblock. People today want cable—especially in those areas where TV is poor or non-existent.

The level of engineering competence and performance is of prime importance in introducing cable to new communities. In providing best possible overall system performance, the key factor is universally the equipment's temperature stability. Whether a single- or dual-pilot agc system or a temperature-controlled-plus-pilot system is used is not really critical from a technical standpoint. Each system will work similarly well. Engineering consultants will each favor certain types of systems. Locked dual pilots (fully closed-loop pilots) work especially well in most setups.

The pilot frequencies that we're forced to use are not necessarily the most desirable ones from a performance standpoint—but the basic design of our vhf TV system has made these particular frequencies necessary. These are 73.5 MHz and

163 to 166 MHz. This latter pilot varies because there are no standards for the industry and the actual frequency depends on the equipment manufacturer.

The noise figure called "acceptable" by T.A.S.O.—29 dB—is not a workable figure. This degree of noise will provide a picture that is acceptable to only a small percentage of the viewers—about ten percent or less. Television audiences have become hypercritical today and expect to get good performance out of their color receivers. To do this, you'll need a considerably better signal than the one that T.A.S.O. calls acceptable. A more reasonable S/N ratio would be at least 40 dB, and a system should be designed to provide this ratio under all conditions. Signal-to-interference ratios should be at least 58 dB, since moving interference patterns are easily detected by the eye of the viewer. This 58-dB figure should include all forms of interference.

Cable Choice

In spite of its poor radiation characteristics and short lifespan, RG-59/U cable is still the industry standard for drops. There's no completely satisfactory drop cable being made—one that possesses considerably better shielding (than RG-59/U) and has good handling characteristics—all at a good price.

For trunks, systems can use ½- or ¾-inch cable. In long systems—using ten amplifiers or more—¾-inch cable is an absolute must. The problem with ¾-inch cable is its relative fragility; it dents very easily, and the resulting line perturbations tend to destroy the VSWR. The ½-inch cable, being thinner and somewhat more flexible, will withstand more abuse without damage. For these reasons, the ½-inch cable is the most widely used type for trunks. Each type has its advantages. The ¾-inch cable lets the system get by with fewer amplifiers.

It's always best to limit the number of amplifiers in the system; the fewer amplifiers, the better. These line amps should be spaced at intervals of about 22-dB cable loss at channel 13, and the actual distance involved depends on the trunk cable and the amplifiers used.

The consultant's job is supposed to end upon acceptance by the franchisee and/or the municipality. He is often called back for further checks when the system is being installed and the first acceptance tests are run. His job still doesn't end there. The consultant might be called in before, during and after the installation is made. He may be called in to help straighten out a co-channel interference problem at the headend, or a random electrical disturbance that occurs only at 5:30 p.m. for 15 minutes every day. The consultant is frequently called in by system and equipment manufacturers and must always be available for that emergency midnight flight out to the middle of nowhere, since that's where the action is. **BM/E**

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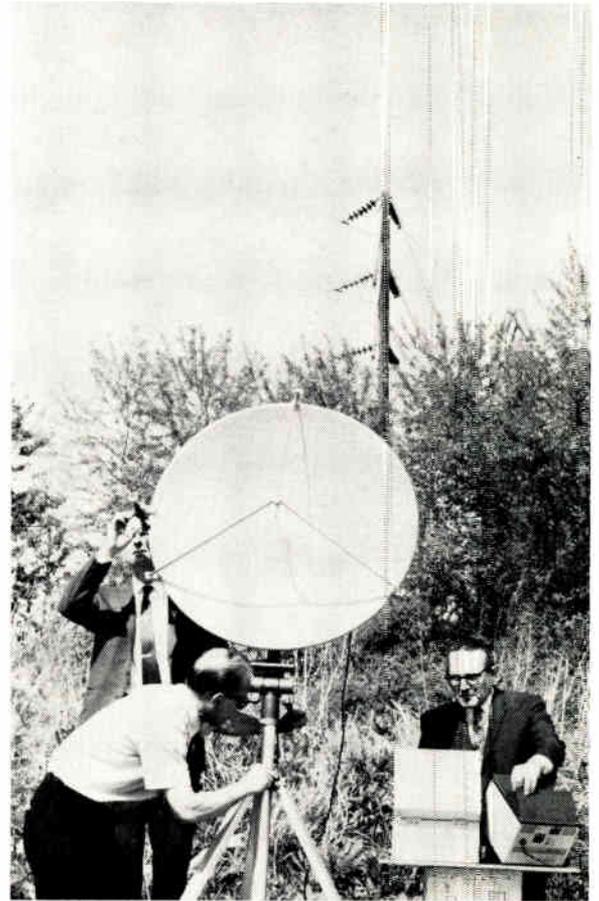
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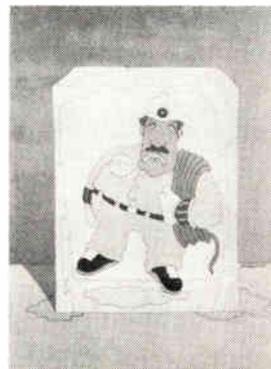
Setting up for field trials, Dr. Joseph Vogelman, Chromalloy's vice president for electronics research (far right) works with engineer and technician. Here, crew orients three-foot parabolic dish with an alignment collimator. System's entire receiving terminal is contained in box in front of Dr. Vogelman.



Cabling without Cable

Called the "Quasi-Laser," a new millimeter-wave transmission system can substantially reduce costs and time needed to get a cable TV system online. But the system's future isn't just in eliminating costly trunk feeders—it could be the basis of a worldwide CATV network, letting viewers in Oshkosh tune in Paris, London, Tokyo or Accra at the flip of a dial.

By Ira Kamen



THE WIRED CITY CONCEPT is getting closer and closer to reality. A major physical problem remaining is the relatively high cost and inconvenience of stringing trunk distribution cables. Yet CATV systems are mushrooming with many of them carrying so many channels that subscribers

have a veritable feast of choice.

High on the list of musts for expanded CATV development is a low-cost ultra-reliable system of signal distribution. The key may well be the Laser Link system—a directional, low-power microwave distribution technique that operates in the millimeter-wave region. Unlike conventional microwave systems, the Laser Link is totally unaffected by weather conditions and has extremely broad bandwidth. Total TV capacity at the present is from 12 to 20 channels, depending on the carrier frequency (10 to 45 GHz).

These frequencies are in an as-yet relatively

Ira Kamen is president of Laser Link Corp., New York, N.Y.

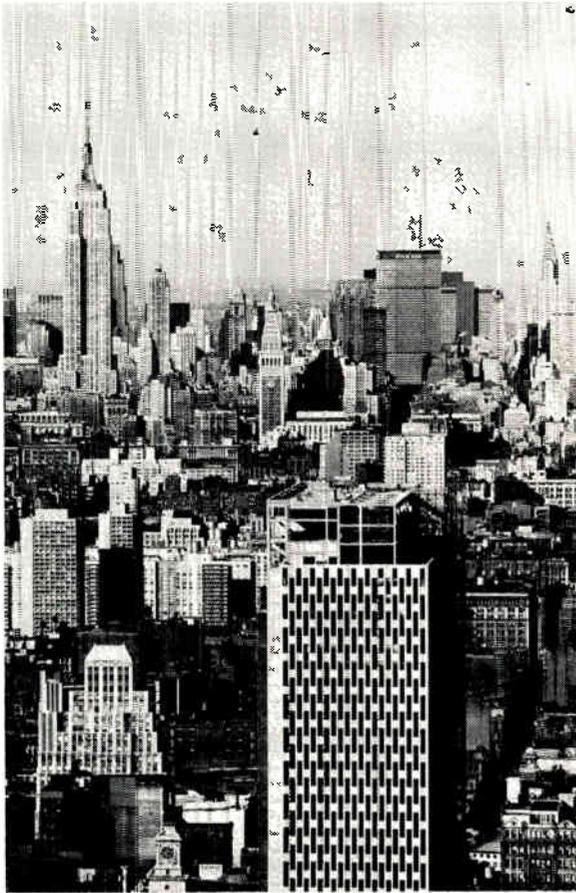


Photo: Chase Manhattan Bank
Cluttered New York cityscape makes TV reception chancy and difficult, suiting locale to laser-link type hookup.

unused area of the electromagnetic spectrum. This "Quasi-Laser" can be used within a city where new underground cable may be economically unfeasible—as well as in more open, rural areas, linking widely separated country communities.

Cabling Program

The wired CATV system is frequently impractical in today's cities. Municipal regulations may require underground installation regardless of the economics involved and in the face of opposition by local telcos to sharing their underground ducts. Telcos usually insist that any cables and amplifiers installed in their ducts can only be their own to protect their vital message services. Because of this attitude, a CATV operator is often limited in his title to the connection between the headend and the subscriber. Independence from telco restrictions gives the operator the flexibility he needs to meet installation dates and can avoid excessive cable installation and maintenance costs.

To bypass various restrictions and complications, the Quasi-Laser was developed, using a new, proprietary modulation technique. This new system has the potential of air-linking all buildings in an area with a minimum of 20 channels from a single radiating source. The system works

independent of frequency and uses such generating elements as long-wave, infrared lasers and other quasi-optical wavelengths—including millimeter wave. The system—because of its operating frequency and modulation technique is fully operative under all atmospheric conditions. The overall system will have better reliability than a conventional wired CATV system.

At the transmitting end, the transducers generate and disperse the beams in a way that eliminates all of the hazards sometimes associated with lasers. The narrow-beam transducers used at the receiving end are less than one foot in diameter, and reflecting mirrors can be used to direct the signal into a shielded building. The system's range at present is limited to three miles in extremely bad weather. In good weather, the range is considerably better, with 10-mile hops at 20 GHz.

Because of the narrow-beam technique central to the system concept, there is little if any interference problem. Result: the same frequency can be used for many nearby systems, effectively limiting the amount of spectrum space needed for this service. For now, the FCC has authorized transmission licenses for research purposes.

Each Building an Island

In major metropolitan areas like New York City, a transmitter could be mounted on some high structure—such as the west tower of the Queensboro Bridge, and could blanket a major portion of the East Side. A receiver could be mounted on the roof of each major apartment building and connected to the already existing master antenna system. Thus, a large building could be cabled for minimum cost.

The system was originally conceived by Commander Harold R. Walker (former U.S. Navy Research Director), working with the writer and with Daniel J. Riesner. When control of the newly formed Laser Link Corp. passed to Chromalloy American Corp., a team of specialists headed by Dr. Joseph Vogelmann developed the needed hardware. The technology developed by Dr. Vogelmann, who is former Research Director of the Air Development Center in Rome, N.Y., has resulted in a total concept that has lots of room for tomorrow's wired-city concepts.

Global Communications System

One of the offshoots envisioned is an economically feasible global communications system (GCS). Using low-power (10 watts) satellite-mounted transmitters, GCS would stress international cooperation. System proponents feel that the United Nations should form an international commission to pool resources for launching a string of communications satellites and to set up an international TV network using the quasi-laser system.

Such an international network would bring the entire world into every subscriber's living

TABLE 1
FORECAST OF "TOTAL INVOLVEMENT SERVICES" OVER CATV

(Next Decade, X = Estimated Date for Operating Service)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
20 TV Channels Start		X								
News and Weather	X									
Community Relations Channels	X									
TV Ombudsman		X								
Theatre TV Start		X								
Shoppers Channels		X								
50 Channels of FM Entertainment		X								
TV Security		Start	X							
Computer, Facsimile and Data Transmission Channels		Start	X							
Medical TV Uses		Start	X							
Air Pollution, Traffic Surveillance & Municipal Services			Start	X						
40 TV Channels				Start	X					
Direct Satellite Pick-ups					Start	X				
Credit Card Banking					Start	X				
20 Channels of ETV & 50 Channels of FM making every home a classroom					Start	X				
Access to Computer Storage Reference Material					Start	Advance	X			
Doing Business at Home							X			
Electronic Newspaper							Start	X		
Access to Channels from the whole World									Start	X

room. He would be able to select programs being broadcast in London, Paris or any other major city. In many cases, the local language would be dubbed or provided in simultaneous translation. It would work in reverse, too, letting the TV viewer in Ghana see programs broadcast in New York, Tokyo or any other city on the worldwide network.

Sophisticated Weather Warning

With a major portion of the globe tied together via laser links, an advanced weather-warning system may be possible. Presumably, less-advanced nations could receive and make good use of sophisticated weather data provided well enough in advance to avert catastrophic loss of life and property.

Because of its flexibility, the GCS system's educational potential is immense. Satellites could be programmed to transmit full courses of study in any subject and in every language. The system would relay instructional programs to schools, factories and community centers. It could use computerized and programmed instruction techniques which permit each student to learn either at a machine-paced rate or at his own speed.

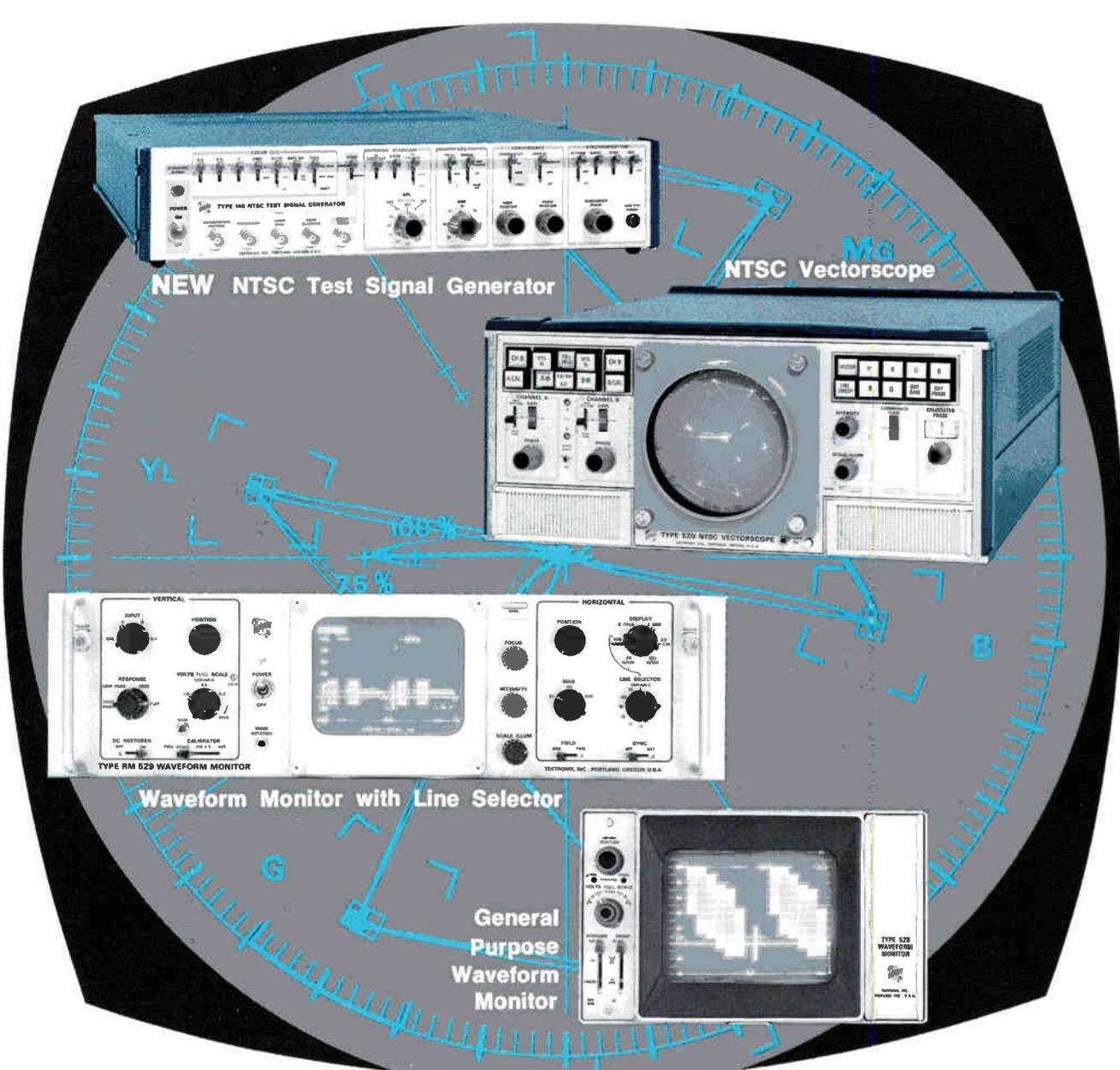
Using cable-linked facilities, the student would be able to "talk back" to the instructor, respond to questions and receive comments from the instructor (all pre-recorded on tape) regarding his responses. Until now, such equipment and techniques have been limited to specific locations. Worldwide "cable" links would make this programmed instruction available virtually anywhere. Using the simultaneous language features of the system, a course in animal husbandry could be given in 30 different languages at the same time if needed—at the same time that other courses were being broadcast by the same system.

Hardly any aspect of our everyday lives won't be touched by cable ultimately. TV sets could be linked to newspaper distribution channels for instant TV screen display of any page in the paper. Library channels would summon any book, document or other research material needed—all in color on the home TV set. A revolution is facing the communications industry—confirming what Marshall McLuhan wrote a little more than a year ago: "The medium . . . of our electronic technology is reshaping and restructuring patterns of social interdependence and every aspect of our personal lives." **BM/E**



product report
television instruments

Total Measurement Capability for NTSC Systems



NEW NTSC Test Signal Generator

NTSC Vectorscope



Waveform Monitor with Line Selector

General Purpose Waveform Monitor



■ With the introduction of the NEW TYPE 140 NTSC Test Signal Generator, Tektronix now provides measurement capability from signal source to waveform display. ■ Each instrument in the Tektronix television family is designed to satisfy a specific portion of your video measurement requirement — with performance to spare! ■ All of these units provide long-term stability and reliable performance through use of solid-state circuitry and state-of-the-art engineering techniques. ■ Mechanical configurations include rack-mount, cabinet and portable units.

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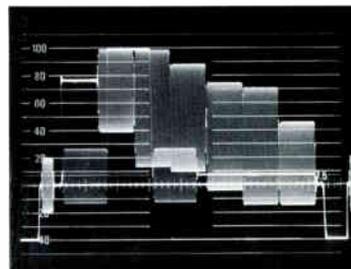
TEKTRONIX PRODUCT REPORT — TELEVISION INSTRUMENTS

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A complete family of television test instruments from Tektronix.

THE TYPE 140 NTSC TEST SIGNAL GENERATOR is a compact, solid-state source of high-quality television test signals for 525-line, 60-cycle field NTSC color TV systems. Combined in one compact unit are: ■ **NTSC ENCODED COLOR BARS** with 75% and 100% amplitude, full-field or split-field bars at 10%, 7 1/2% or 0% setup level. ■ **MODULATED STAIRCASE** providing variable APL, 10% to 90% and fixed APL, 50%. The test signal contains 5 steps plus blanking level with subcarrier phase locked to burst. A new signal capability provides a means to check luminance signal distortion caused by rectification of the subcarrier signal. ■ **CONVERGENCE CROSSHATCH** provided for picture monitor linearity evaluation in accord with IRE specification 54 IRE 23.S1 and color picture monitor convergence adjustment. ■ **VERTICAL INTERVAL TEST SIGNALS**, staircase or color bars can be applied to lines 15 through 21 of either or both fields. ■ **EIA COLOR STANDARD AND SYNC GENERATOR** include a temperature controlled color standard with excellent frequency stability. Digital integrated circuits are extensively used to achieve stability, accuracy, and reliability. Outputs are provided of subcarrier frequency, composite sync and blanking, vertical and horizontal drive, burst, composite video and the convergence pattern signal.

140 NTSC Test Signal Generator \$1600
R140 NTSC Test Signal Generator (includes rackmounting hardware) . . . \$1600

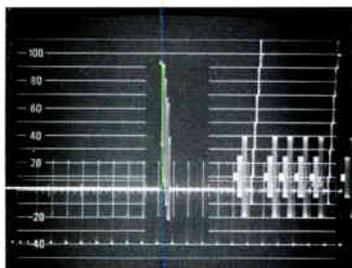


Type 528 Waveform Monitor Display of split-field color bars per EIA Spec. RS189. Signal source — Type 140 NTSC Test Signal Generator.

THE TYPE 528 SOLID-STATE WAVEFORM MONITOR is ideally suited for monitoring waveforms from camera outputs, system output lines, transmitter input lines, closed-circuit and educational TV systems. ■ This **COMPACT INSTRUMENT** requires only 5 1/4-inches x 8 1/2-inches mounting space. ■ Either of **TWO VIDEO INPUTS** may be viewed on the 8 x 10-cm screen. The signal being displayed is provided at the rear-panel connector for viewing on a picture monitor. ■ Calibrated 1 V and 4 V full-scale deflection factors provide convenient displays of typical video and sync signal levels. A variable control provides uncalibrated full-scale deflection factors from 0.25 V to 4.0 V. **FLAT, IRE, CHROMA, and DIFF GAIN** vertical amplifier response positions permit rapid measurement of waveform characteristics. ■ A **SLOW-ACTING DC RESTORER** maintains a constant back porch level despite changes in signal amplitude, APL, or color burst, and may be turned off when not needed. ■ Sweep modes are: 2-V SWEEP (two field), 2-V MAG-SWEEP (expanded two field), 2-H SWEEP (two line), and 1- μ s/div SWEEP (calibrated sweep with accuracy within 3%). Internal or external sync is selectable. ■ Provision is made for YRGB and RGB displays. ■ This lightweight waveform monitor converts to a portable unit for field service by adding an optional protective cabinet. An optional Rack Adapter permits side-by-side mounting of two Type 528's.

Type 528 Waveform Monitor \$825

For a demonstration call your local Tektronix field engineer or write: Tektronix, Inc., P. O. Box 500, Beaverton, Oregon 97005.



Color bars inserted during vertical interval. The full field signal is a modulated staircase, variable APL, 90° modulated subcarrier inserted.



Type 520 Vector Display of VITS color bars conforms to EIA Spec. RS189. Signal Source — Type 140 NTSC Test Signal Generator.

THE TYPE 529 AND RM529 WAVEFORM MONITORS are general-purpose video monitors with VITS measurement capability. ■ Vertical response characteristics are HIGH-PASS, LOW-PASS, IEEE and FLAT (8 MHz). Vertical sensitivity range is 0.12 V to 1.5 V for full-scale deflection. Full-scale calibration at 0.714 V or 1.00 V is provided. ■ A **VIDEO-OUTPUT AMPLIFIER** supplies video and a brightening pulse to a picture monitor, intensifying the same line(s) displayed on the instrument when using the **LINE SELECTOR**. ■ **DC RESTORATION** maintains the back porch at a constant level and may be turned off for viewing other than video signals. The circuit can easily be modified for sync-tip restoration. ■ **HORIZONTAL SELECTION** provides 2-field or 2-line displays, plus calibrated sweep rates of 0.125 H/cm or 0.25 H/cm. Either calibrated rate may be delayed for line selection. **SWEEP MAGNIFICATION** extends the sweep rate by X5 or X25. **POSITIVE FIELD SELECTION** in the **LINE SELECTOR** mode permits detailed study of any desired line(s), and a front-panel switch selects line 16 through 21 for viewing VIT signals.

Type 529 Waveform Monitor \$1115
Type RM529 Waveform Monitor . . \$1165

THE ALL SOLID-STATE TEKTRONIX TYPE 520 VECTORSCOPE is designed to measure luminance, hue and saturation of the NTSC composite color television signal. ■ **PUSHBUTTON SWITCHES** permit rapid selection of displays for quick analysis of VIDEO signal characteristics. ■ **DUAL INPUTS** provide time-shared displays for comparison of input-output signal phase and gain distortion. ■ A **CHROMINANCE CHANNEL** demodulates the chrominance signal for use in VECTOR, LINE SWEEP, R, G, B, I, Q, Differential Gain (dA) and Differential Phase ($d\phi$) displays. ■ A **LUMINANCE CHANNEL** separates and displays the luminance (Y) component of the composite color signal. The Y component is combined with the output of the chrominance demodulators for R, G, and B displays at a line rate. ■ A **DIGITAL LINE SELECTOR** permits positive selection of Vertical Interval Test Signals from lines 7 through 22 of either field.

Type 520 NTSC Vectorscope . . . \$1875
Rackmount Type R520 \$1900



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Getting on-stream in time to satisfy the grandfathering requirements meant setting up shop in a trailer. Situated in one of the country's fastest growing areas, Middlesex Cable has expert pilots at the helm and a tough market to sign up.



IT'S AN IMPRESSIVELY effective head-end tower—sitting there at the confluence of old farmland and an encroaching industrial park in New Jersey's Middlesex County. And it's a busy cable company—Middlesex Cable TV—in fast-growing East Brunswick in one of the fastest-growing

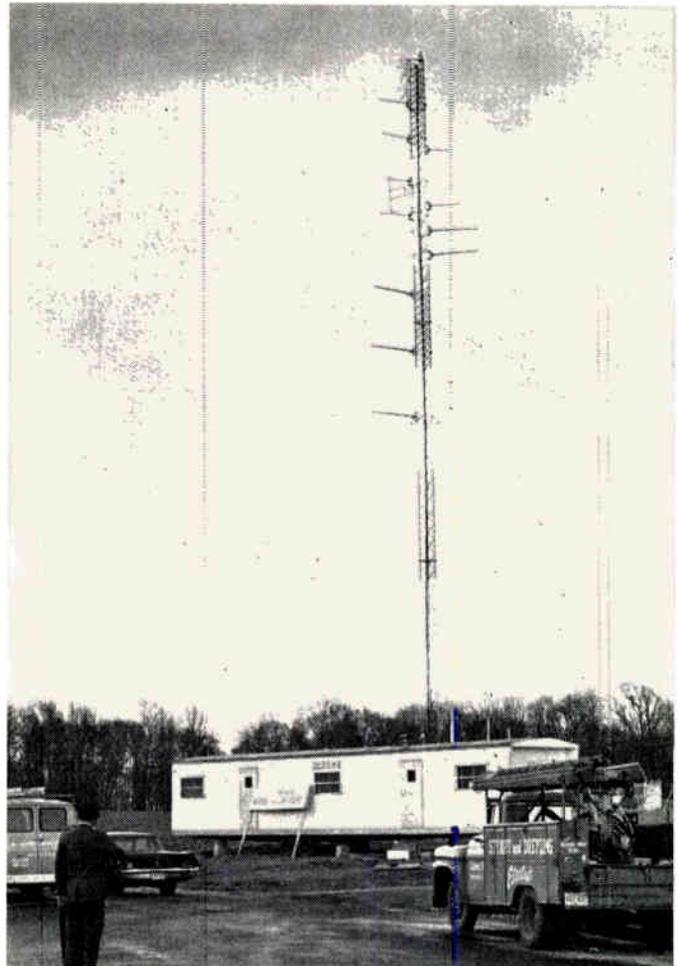
areas on the east coast. But it's in a precarious position with 10 New York TV channels barreling in from one direction and seven from Philadelphia. Typically, the local resident will elect to receive New York only on his own antenna—mainly because of an unwillingness to go to the extra trouble and expense of adding a rotor or a Philly-facing array.

"It's one of the best TV viewing areas in the country," says Middlesex Cable TV's technical director Don Zimmerman, "but people around here just aren't taking advantage of it and settle for really second-rate color in their living rooms. We're out to change that."

Grandfathering by a Whisker

The fledgeling cable company was still constructing its head-end site when the FCC's Third Report and Order (Friday the 13th Proposals) surfaced last December. "We got on line that same week, so we could grandfather the Philadelphia and Wilmington stations," says system Manager Henry Baer. Baer is also general manager of radio station WERA in nearby Plainfield and is a firm believer in the ultimate marriage of broadcasting and CATV interests. On-stream in the nick of time, the cable company now carries 18 TV channels with Channel 8 allocated for local origination as soon as the new studio is built.

For now, Middlesex Cable is headquartered in a rented trailer parked in a muddy field near the head-end. Hip boots aren't necessary to get to the trailer and the way is paved with "flagstones" made of cable drum flanges. Construction of the new building for offices and studio is now



Trailer office and storeroom (above) is system's temporary headend. (Below) Manager and engineer check plans.

BM/E Photos



well under way and Zimmerman expects it to be ready by fall.

In the meantime, new cable is being strung daily as the system reaches out to cover the sprawling geography of East Brunswick.

Baer expects to reach a saturation of 10,000 subscribers in East Brunswick township within three-to-five years. Simple geography dictates that nearby incorporated communities could be served by the same system. Right now, applications are pending in virtually every town.

The plant installation is a mixed bag—some of it going underground, while the vast majority of trunks are being strung on telco poles. New Jersey Bell has caused no problem at all, according to Baer. The telco has gladly leased pole rights to the cable company. "The one place where they don't cooperate though," says Zimmerman, "is in new, buried installations. Local building ordinances say that all new installations must go underground. So we bury our feeder trunks to these new garden apartments that are going up. But telco won't let us bury in their trench. We have to come in with our own Ditch Witch and bury alongside telco's cables."

There's a building boom in East Brunswick

now, and the bulk of the population increase will be handled by new garden apartments now under construction. All of these apartments are being pre-cabled as they go up, with buried feeder trunks installed at the same time. These are ready-made subscribers, and Middlesex Cable will offer service at a reduced hookup fee—\$10 instead of the usual \$20. This way, apartment dwellers, at least in the southeast quadrant, will have the jump on all their neighbors.

The head-end equipment itself is largely Don Zimmerman's own design. He believes that it's the only head-end of its kind in the country. The 200-foot-high tower was built by Advance Industries, and the antennas are by Scientific-Atlanta. The head-end amplifier is a Minivac with a directional coupler mixing the output and a Kaiser pilot carrier generator (165.05 MHz). Primary trunk lines are 3/4-inch cable, while sub-trunk lines are 1/2-inch cable.

Business is going on as usual from the trailer while the new studio/office building goes up. Zimmerman has a goal of 100 miles of trunk cable to string by the end of the year. He's right in the middle of one of the hottest real-estate areas in the country, and cable it he must. **BM/E**

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RAPID-Q TAPE CARTRIDGE UNIT

Circle 120 on Reader Service Card

Mobilize for Remote Video Taping

By Barry D. Stigers

When you go remote, take everything including the kitchen "sync." This is no problem if you rid yourself of the studio notion and put all gear into a mobile cabinet in the first place. Result: quality production and good advertising sales prospects.



THE NAME OF THE GAME in cablecasting at Lower Bucks Cablevision is remote video taping. Doing the local news, sports and weather from the studio is fine, and the usual roundtable discussions and maybe a children's program are excellent, but they're only a base to work from. The real

local programming is outside the studio where the action is.

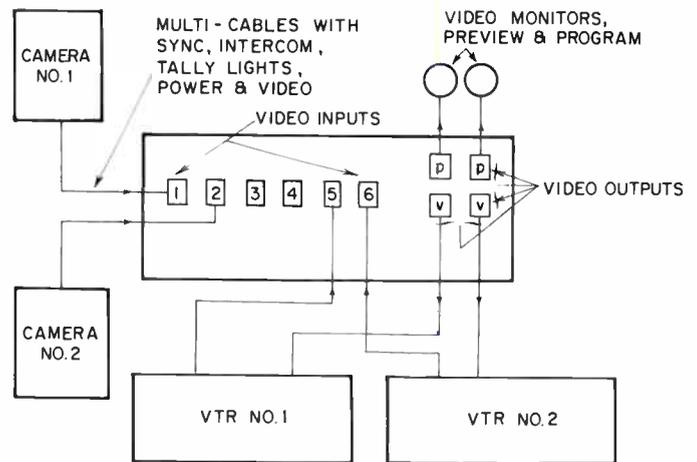
Going out into the community with your tape equipment gives you great program material that you don't have to arrange or produce.

However, the typical operator usually stalls at this point. "I'd like to go out with the cameras," he says, "but it isn't worth the time, effort and cost." In many cases this is true because his system is too hard to move. But if your cablecasting package is built to be mobile, you can use any room (or patch of earth) for a studio. All it takes to be mobile is separation of feed cables.

Here's the philosophy of Lower Bucks Cablevision. Put into a sturdy cabinet video monitors, scope, audio amp, video switcher and remote panel. Wire it inside the cabinet with only microphone jacks, video-in and video-out connectors and camera cable connectors exposed. Wire everything inside the package including the 115-volt power distribution feeders. The only things outside the package then are the single power cord, audio and video connectors that feed and receive the various information from the cameras and the video tape recorder.

Adequately mark every cable and fitting so setup and breakdown become routine. If all this is done, setting up at a remote site is as simple as

Barry D. Stigers is executive coordinator, Lower Bucks Cablevision Inc. Levittown, Pennsylvania 19056.



Wiring block diagram for video equipment in mobile van/studio. Setup affords high degree of flexibility.

plugging in power, plugging in one cable each to the cameras, and connecting the cable to the video tape recorder with video in and out and audio in.

Studio Quality Remotes

By having all this equipment on location with you, your remote video taping will be as good as any studio taping. Electronically, the video tape will have adequate sync, and with the scope along, the picture can be adjusted for proper balancing and gain, allowing for less-than-excellent lighting conditions. Also, if your video switching equipment has the capability, you can do supers, fades

SAMPLE COMMERCIAL

VIDEO OPERATIONS

AUDIO

Fade into logo shot with camera one

(Ann.) Pomeroy's Lower Bucks County Store located in the Levittown Shop-a-Rama is having . . .

Switch to anniversary sale card camera two

(Echo) an anniversary sale.

Fade to picture of spring fashion department

All items in the spring fashion department have been drastically reduced just for you . . . during the Pomeroy anniversary sale!

Switch to picture of pant suit and swim suits . . .

All spring style pant suits have been reduced to half price . . . and swim suits have been cut one third.

Switch to picture of store full of shoppers . . .

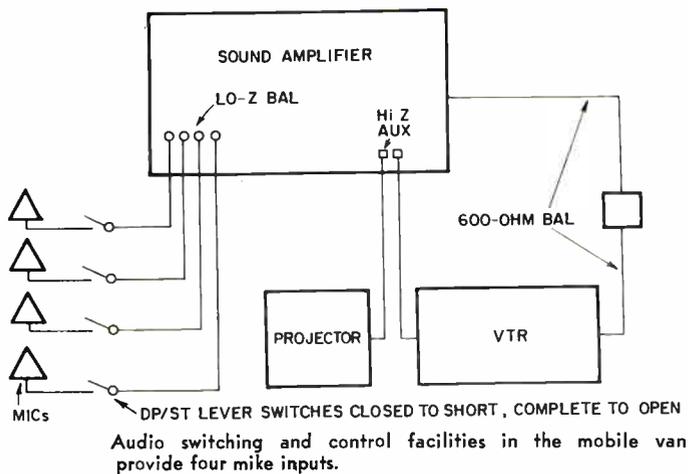
Everyone . . . yes everyone is making the spring fashion show the place to save dough . . . during . . .

Shot of anniversary card

Pomeroy's Anniversary Sale . . . Now going on . . . at . . .

Shot of logo

(Echo) Pomeroy's Levittown Shop-a-Rama Store.



Audio switching and control facilities in the mobile van provide four mike inputs.

and credits on location. This adds real professionalism to your remotes. It also results in a valuable by-product—all of the bystanders on location are impressed with the professional job done and will make an extra effort to tell cable subscribers to watch the program they saw being put together. Another feature of having a complete equipment package on location is that it allows you to mix three or four microphones. This helps make your video tape production as professional as a studio-produced program.

Our particular equipment package consists of two Shibaden 9-inch video monitors, a Bogen 5-mic. 2-auxiliary input audio amplifier, and a TeleMation "Multi-caster" with internal sync. The rest of the package was built by us, including remote buttons for the projector and video tape starts, an intercom selector switch, and audio monitoring selector switch with a VU meter. The ac power line was wired into a common fuse with two feeders each fused into separate switches for lighting and auxiliary equipment.

Be Part of the Community

The real excitement of local origination is getting into the community and making programs out of the people and events that make up and are the community. By doing remotes, you present an image of caring about the community and its functions. This helps sell your system since it creates a need for being on the cable.

Even though it costs money to present these programs, it isn't expensive. For a remote program, we use the following formula: \$2.50 an hour for an operator, \$1.70 an hour for the cameraman (high school boy) and a \$10.00 stipend for the talent. Talent is not hard to find—there's always some person around who is knowledgeable about the event and has enough "ham" in him to want to do a TV show.

The talent is expected to set up and produce the program, and the operator is responsible for the equipment, setup, and direction of the program. This means that three people are required for the remote. Most remotes will take an average

of two hours, allowing for setup and tear-down. Thus, the average cost of a remote is less than \$20. Although this may be more than what you spend doing it in the studio, you can merchandise the programming to bring in more subscribers.

Offset Costs with Advertising

You can also sell advertising to underwrite either studio or remote programs. All cablecasters are thinking about advertising on their systems; however, few have done anything about it. Most operators fear advertising because of the production and competition problems it can create. Most of these fears are groundless, and the revenue that can result in advertising on local cablecasting should outweigh the problems. Lower Bucks Cablevision is now actively selling time.

There are several ways to get into advertising. The fastest and simplest way is to sell the weather channel—this is as simple as putting the name of a sponsor on the dials of your weather unit—or you can offer video exposure on the video portion of an fm channel, or any other unused channel. Institutional advertisers, such as a bank, oil dealer, etc., are prospects. Our system has a Multi-caster feeding one channel and we sell spots on it for \$10 a week. Selling programs takes a little more work, and the price should be higher.

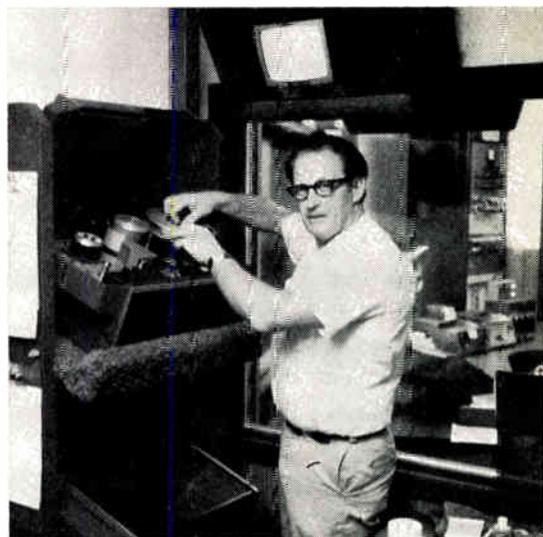
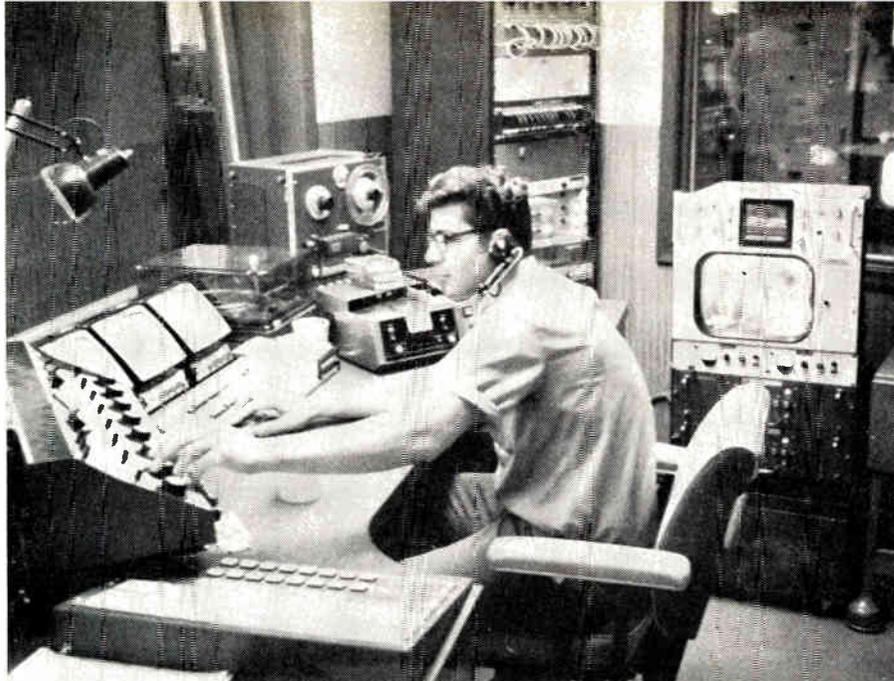
A program such as news, sports and weather needs intro and close credit cards, plus a com-

continued on page 87

Remote Programming Ideas

Outside programming possibilities are legion: there are basketball, football, soccer and baseball games; wrestling, swimming and track meets; golf matches; stock car and demolition derbies; drag races; winter carnivals; fashion shows; local Miss America Pageants; high school graduations; high school band concerts; local symphony orchestras; art shows; parades; horseshoe tournaments; archery matches; skeet shoots; tennis matches; summer playhouses.

When the slow part of the winter comes, a cablecaster may have to create some interesting programming on his own. Would you believe **dart games**? Taverns in Levittown (Pa.) hold weekly dart games and matches between teams, then team playoffs in June. Thus, dart games are a cablecasting natural, particularly since many of the taverns in the area are already customers, and the exposure in each neighborhood is valuable. This sport can be telecast within the studio. One camera is placed, facing the shooter, just beneath the dart board. The other camera with a zoom lens is behind the shooter, to the left, and camera shots are changed just as he shoots. This gives the viewer at home the excitement of seeing the dart come right at the set then the impact on the board. Zooming in on the target gives the viewer at home a better seat than the people watching in the studio. Excitement is added by placing microphones near team players, and using a commentator who knows the sport, the local rules and the players.



Audio room (left) handles multitude of services. VTR and film room (above) is program nerve center. Here, IVC recorder is unloaded.

Cable Is Spelled: Total Entertainment and Information Service

You spell cable: total entertainment and information service. You sell cable by offering just that. A prairie island in Nebraska has nearly as much to offer as Manhattan island.



GRAND ISLAND, NEBRASKA, is headquarters for a central Nebraska cable network that will link *underground* at least three towns and possibly five, into a model 1970 information and entertainment net. Nebraska cable subscribers will be *au courant* with the rest of the world.

Only by linking these separate towns can Multi-View TV hope to garner enough subscribers to make the service feasible in the first place. Most homes can already pull in the three network affiliates and the state's educational channel if they have a uhf antenna.

Multi-View's contribution includes providing four other channels of information. Channel 7 has the UPI news service and the New York Stock Exchange report as supplied by Alphamatic.

Channel 8 presents five different movies a week, two viewings each day. Channel 9 supplies local programming including local talent entertainment and locally sponsored films will appear on this channel also. Channel 4 gives the weather with fm music in the background. A running promotion of what's on all other channels for that day is also displayed.

The Alphamatic New York Stock Exchange service has reportedly changed the habits of some subscribers. An MD, for example, now brown-bags it in front of his office TV set rather than going out for lunch.

Local Programming

Local programming will be very extensive. As of May 1, the channel is operating from 2 p.m. to 12:30 p.m. The extended programming coincides with the expansion into Kearney. Multi-View worked up to this rather heavy schedule by experimenting for nine months. This initial experience, incidentally, has convinced Bill

Continued on page 88

Toward a Sane CATV Policy

Facts, not rhetoric are needed for accurate guidance in new CATV policy formulation. The rhetoric and theory so abundant now have divided the communications industry into two camps—those that believe that CATV hurts broadcasters and those who feel it helps broadcasters. It's time to stop theorizing and look at the plain facts—they're there for anyone who wants to do the digging.

By E. H. Clay



MUCH RHETORIC and a great deal of theory has been generated to demonstrate how (or how not) CATV adversely affects television stations. An objective view has become nearly impossible because of the polemics based on a few sketchy, carefully-selected, purpose-serving facts. The public views being expressed by industry leaders are polarized; that is, they hold that CATV is bad for the broadcaster in all instances or just the opposite.

Perhaps the whole subject of air waves vs. cable television was started down the primrose path of overgeneralization by the first two major studies of this question—namely, the Fisher Report and the Seiden Report. These two scholarly studies both were primarily based on analytic methods dealing with a broad spectrum of air waves vs. cable television.

Certainly such general analytic approaches have their place, but unfortunately in this case these two reports lead to different conclusions. Those who accept the findings of the Fisher Report consider those findings to show that CATV is bad for the television station; those who accept the Seiden Report hold that his report "proved" that CATV was not bad for television stations.

It is unfortunate that neither chose to approach

the problem through detailed analysis of viewing data on matched groups of CATV and non-CATV homes. Fisher obviously thought of such an approach, and considered it a good, but somehow was misled into believing that such data did not exist. "If we had separate data on the viewing of a given station by CATV subscribers and by television homes receiving the station's signal off-the-air, we could consider separately the viewing habits of the two groups. Unfortunately such data do not exist."* Actually, even at the time of that writing, such data were available from the regular ARB diary samples and today, of course, the rapid growth of CATV since 1965 gives an even greater abundance of CATV homes in the rating service samples. Even if such data were not available from rating service samples, the design and implementation of a comprehensive special survey to elicit this type of information would not be an inordinate task.

Third Report and Order

Considering the far-reaching consequences of the FCC's recently proposed rules on CATV (December 1968), it is of no credit to our industry or the FCC that a fact-finding study was not started long ago. It is analyses of this type—the comparing of viewing of individual stations in cable communities via CATV and off-the-air under all the varying circumstances—that are urgently needed today.

Prior to the indefinite postponement of CATV impact hearings, some analyses of this type were beginning to be made public. The smattering of

Ernest H. Clay is vice president and research director for Frazier, Gross & Co., Inc., management consultants, Washington, D.C.

*Fisher, Franklin, et al. "Community Antenna Television Systems and Local Television Station Audience," in *THE QUARTERLY JOURNAL OF ECONOMICS*, May, 1966, page 232.

data available from these hearings, plus information from some of the confidential management reports compiled by Frazier, Gross & Company indicate the following:

CATV homes watch television more than non-CATV homes. This factor is of particular significance because many arguments on the impact of CATV have limited consideration to share of audience, ignoring any increased viewing among CATV homes, and thus overstating the real impact of CATV.

CATV located in a *mixed market* and importing distant signals can have a salutary effect on the audiences to the local uhf station(s). CATV located within the Metropolitan Area of a market and importing distant network signals *without duplication protection* can significantly reduce viewing to the local network affiliates. Within major market Grade A contours, CATV systems serving homes in areas or variable terrain can significantly boost local station audiences even with increased competition from imported signals.

CATV in a Metropolitan Area will help an independent uhf in competition with network vhf stations.

In the Galax, Virginia, CATV hearing, a special matched sample telephone coincidental of CATV and non-CATV homes was reported. The city of Galax is located within the composite Grade A contour of two "top 100" markets, Roanoke-Lynchburg and Greensboro-Winston-Salem-High Point. It is situated in relatively rugged terrain and somewhat less than one-third of the non-CATV homes report good to excellent reception of three-network service. Table I shows the Galax survey results.

As can readily be seen from this survey, with one minor exception, all stations carried on the Galax CATV system gained in audience relative to non-CATV homes. Further, the three stations gaining the most (an average gain of over 60%) were the three stations having off-the-air dominance.

A reasonable hypothesis from these data is that the advent of CATV in a community such as Galax will tend to increase television viewing to all stations carried on the system with the preponderance of this increased viewing going to those stations having off-the-air dominance.

Prime-time Gains

Special CATV vs. non-CATV tabulations of ARB November 1967 samples of the San Diego and Bakersfield Metro Areas have also become part of the public record through CATV hearings. Table 2 shows Homes-Using-Television compari-

sons from these special tabulations:

Although most of the Mon-Fri afternoon and early evening time periods do not show any great difference between CATV and non-CATV homes, prime time and the broader day parts do indicate, as in the Galax study, a significant increase in viewing among CATV homes.

Additionally, the San Diego tabulation and
Continued on page 61

TABLE 1
TV Viewing in Galax, Virginia

Station	Network	City	Average Rating Noon-10 P.M. Mon-Fri January 1968	
			Non-CATV Homes	CATV Homes
WDBJ	CBS	Roanoke	20.5	28.1
WSLS	NBC	Roanoke	8.3	17.2
WGHP*	ABC	High Point	5.3	10.2
WSJS	NBC	Winston-Salem	3.0	3.8
WFMY**	CBS	Greensboro	2.3	0.7
WHIS	NBC	Bluefield	1.5	1.3
WCYB	ABC/NBC	Bristol	—	0.7
Closed Circuit Time/Weather/Music			—	1.3
Homes Using Television			40.9	60.6

* The only "distant" station on the CATV system at the time of this survey.

** A "distant" station not carried on the CATV system at the time of this survey.

TABLE 2
TV Viewing in San Diego and Bakersfield

ARB November 1967 Homes-Using-Television

Day Part	San Diego		Bakersfield	
	Non-CATV	CATV	Non-CATV	CATV
Mon thru Fri 9 AM-Noon	13%	16%	15%	19%
Noon-5 PM	19	19	22	22
5-7:30 PM	48	48	44	48
Sun thru Sat 7:30-11 PM	55	62	53	62
9 AM-Midnight	32	34	31	36
Sign-on to Sign-off	25	27	25	30

TABLE 3
Local Station Viewing in a CATV Area

ARB Nov. 1967 Local Stations Total Ratings

Day Part	San Diego		Bakersfield	
	Non-CATV	CATV	Non-CATV	CATV
Mon thru Fri 9 AM-Noon	11%	13%	14%	11%
Noon-5 PM	18	14	20	8
5-7:30 PM	41	26	42	17
Sun thru Sat 7:30-11 PM	48	39	49	37
9 AM-Midnight	27	22	30	19

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Why Johnny Can't Read Modulation

Citations are handed out wholesale every time an FCC field truck decides to monitor modulation. Reason is peaks as eyeballed on an oscilloscope in a field truck aren't the same as peaks read on a meter or spotted by a peak flasher. Solution may be new inline flashing light monitors. Question FCC has: how many blinking lights and why?

THE FOLLOWING QUOTE summarizes one recent study of modulators: "It is quite evident that there is, on many occasions, a great disparity between readings taken on many modulation monitors and those taken by the FCC field inspection force." If overmodulation is found, a citation will be issued. This has been happening, to the concern of the broadcaster and the FCC.

This measurement disparity has been jointly investigated for several years by the FCC and an engineering subcommittee of NAB. Two elaborate tests have been run at Raleigh, N.C. in cooperation with WRAL-FM. A third test has been

conducted in New York City, measuring the output of the WABC-FM transmitter.

Results of these tests were reported at the recent NAB convention by Virgil Duncan, consulting engineer, Raleigh, N.C. and Fred L. Zellner, Jr. of ABC, New York. (see *BM/E* May, p. 31).

Purposes of the tests were:

Raleigh Test no. 1: Determine differences as measured by the FCC mobile unit and a typical (pre-1968) modulation monitor with a peak flash.

Raleigh Test no. 2: Determine how the new generation of fm modulator monitor (type

appeared in 1968) will compare with each other regarding peak reading.

New York Test no. 3: Determine how well a typical new fm monitor unit compared with the FCC field test technique for measuring peaks. See how peaks are measured by a new in-line flashing light modulator compared with that of the fm monitor and field test measurement.

Differences in all three tests were found. The reasons for the differences are understandable, since each method actually measures a different physical phenomenon.

Peak Flashers

It is generally conceded that the peak flasher indications of 100-percent modulation as used in the latest fm monitors are reasonably good indicators. Collins has proposed a multiple light flasher as a modulation monitor and a notice of inquiry (FCC Docket 18063) has been circulated. Now the FCC is preparing to write a proposed rule considering a 17-line flashing light monitor as a standard. A major question is how many lights are needed. There are several alternatives.

Collins favors a five-light indicator as used in its 900E-1 a-m modulation monitor—four fixed indicator lights set for 25, 50, 85, and 100 percent modulation and a fifth adjustable threshold light set to read any level from 0 to 125 percent.

The experimental in-line light flasher built for and tested by the NAB engineering subcommittee contains 15 lights to flash at 10-percent intervals up to 140 percent. Earlier tests were run at 25, 20 and 5 percent intervals before settling on 10 percent.

The chief reason for the greater number of lights is to give more information as to how modulation is running. Such a monitor could possibly be used to ride gain. Collins says it is not opposed to including more lights but assumes that the monitor is not to be a gain-riding device. Rather it is to provide an indication of the result of riding gain—a routine device for day-to-day monitoring of modulation depth. The variable fifth light does permit a level to be set which indicates where distortion starts. But as

Collins points out, more lights cost more money.

Too Many Lights

The choice of five or 15 lights involves subjective judgment. Some may feel 15 lights is too many—that the eye can't average the display to determine average modulation. This means the VU meter will have to show the generally desired amount of modulation. It's for this reason that the FCC would like to hear from broadcasters. Comments are wanted on not only how many lights are preferred but why. (Refer to FCC Docket 18063 even though the official reply time is over.)

The demonstration set up at the NAB Convention was intended to help broadcasters make up their minds. However, the demonstration was probably too short for most observers. To gain more information, readers are encouraged to contact committee members. The full committee consists of Fred Zellner (chairman) ABC; Fred Everett, NBC; Virgil Duncan, consultant; Jim Parker, CBS; Jim Baker, ABC; George Bartlett, NAB; Harold Kassens, FCC Broadcast Bureau, Curtis Plumm and Hobart John, FCC Field Force.

The Bigger Problem

The in-line flashing light monitor should give consistent results so that operators and FCC field personnel can agree when there may be a problem of overmodulation.

It's likely, however, that there will continue to be differences as long as differing measuring techniques are used. The FCC Field Force has been measuring modulation peaks with a calibrated oscilloscope (across a wideband discriminator for fm). The peaks exceeding 100-percent calibration are counted by technicians eyeballing the 'scope. Although there is a chance for "eyeball" error, both the number of the peaks seen and the actual percentage overmodulation are noted and recorded. Practiced viewers are consistent in reporting similar results.

Standard modulation monitors have indicator meters which are accurate to five percent (on

Duncan modulation monitor recently tested.



Some Disparities From NAB Presentation By Zellner and Duncan

Test no. 1, Raleigh, N.C.: Comparison of FCC mobile unit with monitor.

Typical modulation monitor with peak flasher set for 70-percent modulation.

- Sample 1: FCC mobile unit measured 85 peaks in excess of 100 percent modulation; modulation monitor meter indicated peaks to 95 percent modulation.
- Sample 2: FCC mobile unit 140 percent modulation; monitor nothing in excess of 100 percent.

Test no. 2, Raleigh: Comparison of 1968 FCC type-approved monitors and in-line flashing light type with NAB selected test type no. 1 8-dB pad on input to the exciter, no limiting and no audio filter and level set by standard VU meter at the output of type playback monitor.

- Peaks measured at 100 percent or over: Monitor A, 57; Monitor B, 80; Monitor C, 11; Monitor D, 38; light flashing 209 peaks. (In this test the monitors had 3 seconds on-time; the peak light flash about 1.65 seconds.)

Test no. 3, New York: Comparison of typical fm monitor (meter and flasher), in-line flashing light monitor on FCC field unit. WABC-FM 5-kW transmitter operating at a power output of 4.3 kW circularly polarized antenna. NAB test tape (including 5 varied selections). Audio set up had 8dB pad on audio input to exciter. No filter and no limiting used.

- Modulation Monitor Meter 47 peaks to 100% or over
Modulation Monitor Flasher 105 peaks
In-Line-Light Meter 295 peaks to 100% or over
FCC Truck 54 peaks to 100% or over
(Selection 1, 7 to 130%; Sel. 2, 5 to 130%; Sel. 3, 13 to 120%; Sel. 4, 24 to 160%; Sel. 5, 6 to 110%)

steady tones). Since meters are damped, they may be quite far off as peak meters (in fact meters are generally matched to telephone lines so that equal readings can be observed at both ends of a long line. Meters must have slow response times for this application, and therefore produce erroneous

readings for fast-rising peaks. Although peak flashers are more accurate, there is no rule governing tolerance. The 1968 fm monitors are built with a flasher on-time of three seconds. Although they will help guarantee that the viewer will spot a flash, it also means only one peak per three seconds can be detected.

The in-line flashing light monitor designed by Duncan uses a 165-millisecond on-time. Duncan feels 150 milliseconds is too short and 300 milliseconds overly long. The threshold of light-on and light-off holds to about 1-percent accuracy when the impedance balance to ground for both sides of the line is accurately matched.

The in-line unit described by Duncan works directly off a 600-ohm line (balanced to ground) that produces one volt peak-to-peak for 100-percent modulation. Calibration controls are included with the device. Duncan reported at NAB that by using a peak modulation indicator such as this, the broadcast industry can monitor modulation levels equal to or better than the oscillographic technique now used by the FCC field mobile monitoring service.

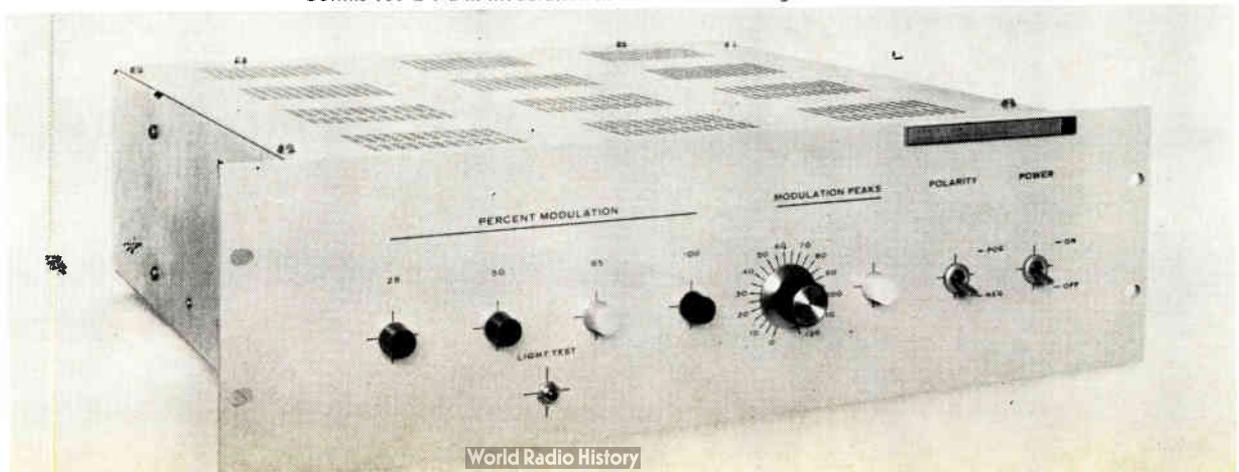
Although there may be good correlation between the flashing light monitor and oscillographic interpretation, there does remain a question of how much overmodulation is "permissible" or, how harmful slight amounts of overmodulation might be.

Does this sound like some kind of sophistry? Does one half cycle of energy which appears randomly in program content constitute overmodulation even if it is at the 15-percent overmodulation level? Any overmodulation causes distortion; this may cause interference in cochannels but probably doesn't. Should some distinction between uses be made?

Peaks of overmodulation can be controlled but at considerable expense in terms of complex discriminatory circuitry or of reduced overall modulation level. A final answer may be in ascertaining how many peaks of overmodulation in a given time period are harmless and therefore tolerable. ABC is attempting to measure this now. In the meantime, adoption of in-line flashing monitor either of the 5-light-level or 15-light-level as an operator's tool is a step in the right direction.

What do you think? The Commission wants to hear from you. **BM/E**

Collins 900 E-1 a-m modulation monitor has fewer lights than Duncan.





Ready for camera—an international conference on ultrasonics in cardiology.

How CCTV Sparks Indiana's Medical Students

They're mighty happy with closed-circuit TV at Indiana University's Medical School. Instruction has become so TV-oriented that it has had an enormous impact on the total learning process—even so far as studying for exams.

By Thomas R. Shepherd

A STATE-WIDE CLOSED-CIRCUIT TV network operated by the Indiana educational TV system is going to offer many distinct advantages to medical students. According to Director Seymour Friedberg, television will offer such plus features as enhanced vision and communication, greater accessibility, recording and convenience.

The advantages of time compression, combined with freedom from space limitations, is clearly gained through televising medical experiments. One physiology experiment at Indiana took two days to set up, since it required extensive telemetry equipment, pumps and other instruments. It was so complicated that two and sometimes three technicians assisted during its 16-hour duration. Through careful editing of video tape, the experiment was compressed into a 28-minute demonstration and shown to 400 students. Through tele-

Thomas Shepherd is educational systems manager, Commercial Electronics Division, Sylvania Electric Products Corp., New York, N.Y.

vision, the benefit of time compression is readily obtained with a minimum amount of processing time.

Video tape used for slide projection permits the erasing of extraneous or distracting sections of the slide and has the benefit of adding a pointer. Thus, the instructor can focus solely on the object of interest. This technique guarantees that all students can observe exactly and only what is intended.

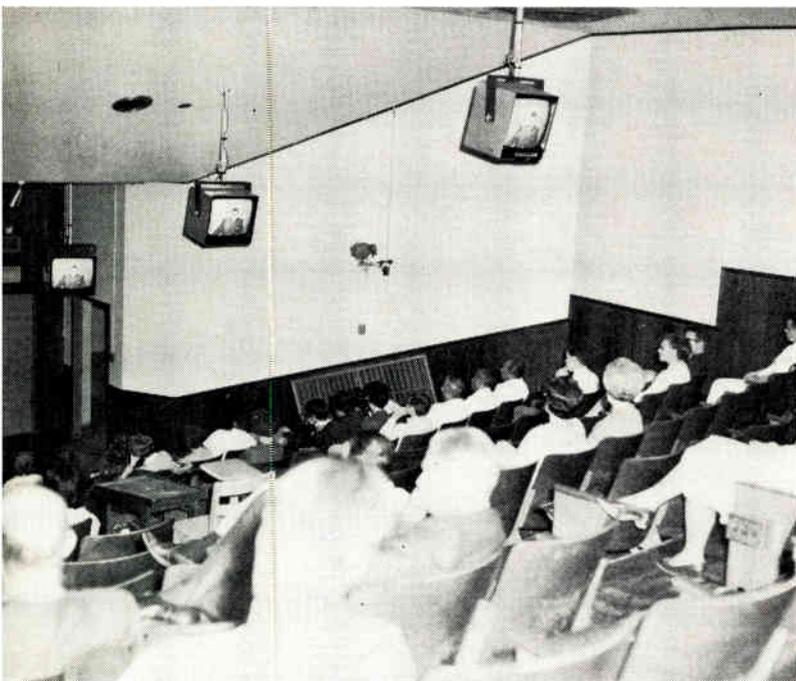
Room-Wide Observation

One of the most important uses of television in medical instruction has been as a magnifier for room-wide observation. A camera with a zoom lens provides a closer and better view than an audience would normally see. Thus, instruments such as oscilloscopes and oscillographs are read by the whole class by briefly glancing at the 9 x 10-ft screen or a nearby monitor. Similarly, the televised projection of slides eliminates delaying instruction to darken the rooms for slide analysis.

Other areas where television plays a magnifying role include microscopy, where a television camera is mounted on a microscope, and macroscopy, where television magnifies small objects such as is done in an anatomy laboratory.

Equipped with a zoom lens, the television camera can observe clinical examinations more closely and effectively than any other observer at

Lecture-hall-turned-TV studio draws a crowd during lecture taping session.



a lecture. The demonstration of how to feel the thyroid gland, for example, appears as a view from a two-foot distance. This view is available to everyone in the room through large-screen monitors.

Instructors have reported better contrast and better definition of their visual materials through TV than they did through previous methods. They are more assured that students see what is important—and only that. All that's required is to sharpen the contrast and carefully focus the television image through normal monitor controls. In slide analysis, for example, the detail of blood cells is made to stand out more sharply than it can by any other method simply by adjusting the TV controls on the camera and monitor. The advantages and convenience of such enhanced definition are exclusive to television.

Dynamic Illustrations Are Possible

Dynamic slide projections are highly valued by instructors at Indiana, particularly in pathology and hematology. They have found that sudden changes in the slide image are more impressive to a student than continual and gradual ones. Therefore, microscopic changes are videotaped at two or three intervals and projected in a series, abruptly switching from one stage to the next. The process effectively emphasizes the changes which occur at each interval.

The advantages of TV over other media include the instantaneous image change. The medium is also convenient for image projection in a large lecture hall. Thus the televised dynamic illustration technique helps instructors to teach more effectively and efficiently.

Color Enhances the Presentation

With the recent introduction of color at the medical center has come a significant increase in TV use in certain medical disciplines. Dermatologists rely heavily on color differentiation, so their use of the television facility is increasing rapidly. Their reaction to initial programs have been very positive. The same history has been true for some aspects of plastic and general surgery.

Microbiologists, who previously used the television facility exclusively within lectures now plan to use TV extensively in laboratory instruction. Thus, the benefit of color has stirred even greater interest to apply the television medium to medical instruction at the Indiana Medical Center.

Accessibility in Laboratory Experiments

Television insures the access of large numbers of students to previously inaccessible areas. Many teaching laboratories at Indiana are either too small or else filled with instruments and tables necessary to the demonstration. However, with the advent of closed-circuit TV, medical classes no longer must be broken up into groups as small as five and relayed in and out of the lab to observe the experiment or only a part of it. No

longer is a whole class jammed together so that it's difficult to see everything or to take notes.

Other experiments, by their nature more easily repeated, previously had to be carried out as many as five times before the Medical Center turned to television and video tape to record experiments for permanent re-use.

CCTV has also demonstrated its accessibility feature by going to the patient. Many who are critically ill, such as those afflicted with cancer, cannot be wheeled from their rooms to a medical school class. The need for immediate and extensive treatment while maintaining patient comfort, does not permit scheduling for one of the weekly clinical conferences. By televising one of the actual examinations in the patient's room, students at the medical school have benefited with minimum interference.

An additional advantage is that more patients become available to the students than was previously possible without television.

High-Risk Experiments

One other important benefit of videotaping complex or high-risk experiments that Indiana instructors appreciate is the ability to present clinical information in the most appropriate context. There may not be a patient in the hospital afflicted with the disease the professor wishes to discuss at that time. An instructional library of various taped examinations eliminates the need to adapt the instructor's schedule to patient availability.

In fact, several professors at the Indiana Medical Center prefer to tape all instructional experiments that are excessively complicated or have an inherently high risk of failure. Through televised demonstrations, the professors save class time by eliminating the possibility of technical delays and by having the experiment with its known outcome performed smoothly and simply. Yet they do not run the risk of presenting an unreal demonstration either, for the taped experiments at Indiana include the human errors and "hang-ups" which actually occur.

Also important to efficient teaching is the advantage of being able to play pre-taped material at the appropriate time in a presentation. The speaker does not have to stop and wait several minutes for his clinical evidence to read out on diagnostic devices, such as the heart murmur's pattern on the electrocardiograph. Likewise, he does not have to interrupt himself to point out signs on the oscilloscope if they occur while he is speaking. With television, he can select and compress his clinical evidence to present it precisely when he desires.

A Case in Neurology

The Neurology Department enjoys the permanent availability of condensed televised examinations in teaching clinical procedure and the understanding of the symptoms, progression and

nature of diseases. A typical application is in recording encephalographic examinations, which are most difficult to perform because of the large number of wires attached to the patient. The examination is used to read and record symptomatic reactions of an epileptic to electrical shocks.

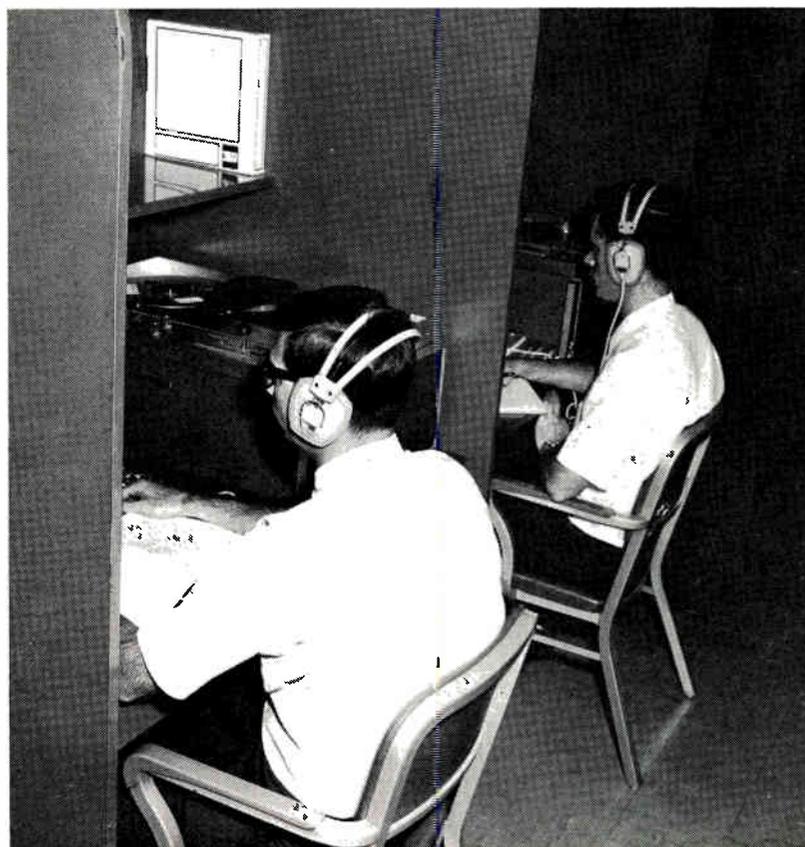
To administer such a stimulus, the physician and nurse must insert needles into the correct parts of the desired muscles. This in itself is a difficult process done by trial and error. Students have reacted negatively to many unsuccessful needle probings in the patient and have also had difficulty in seeing this process since the doctor and nurse frequently block their view.

The neurology instructors have concluded that a taped demonstration is clearer and more acceptable to the students. By performing the experiment once in a proper format for television, the instructor no longer has to concern himself with the audience emotions or field of vision. As well, during the taped demonstration, the instructor is able to take his time to insure 100-percent success. All that's needed afterward is tape editing and dubbing in the professor's lucid explanation.

In the neurological demonstration, a split-screen technique was used after the encephalograph was set up. This way, the medical students can watch the instruments and the patient's visible reactions to the electrical shocks simultaneously and without obstruction.

With the epileptic in particular, significant instrument reactions are quick and faint to the eye.

Students using two of six carrels available at library for video tape playback of lectures and demonstrations.



Television's ability to switch to slow- or stop-motion modes and to heighten the contrast and brightness affords clear visibility to the whole class.

Multiple Communication

Radiologists have reported to the Educational Resources Center that mixing or combining images on a TV screen through the splitting technique is particularly beneficial to the beginning medical student. The instructors like to combine a view of

the radiograph with that of the outer appearance of the same area. This way they can show what a broken skull or leg looks like to the eye and on the X-ray film.

Additionally, the outer appearance of the patient may change, so videotaping the clinical examination assists in measuring changes in the patient's condition and allows student observation at the most appropriate time.

Closed-circuit television, therefore, has the capability of presenting many audio and visual information sources to an audience simultaneously.

Recording for Multiple Replay

A considerable advantage has been gained from capturing medical school classes on video tape. One series of microbiology tapes comprising 150 hours of lecture and lab demonstrations was replayed over 500 hours by students. Usage at the Indiana center has been primarily in studying for examinations, but also for review of the day's lecture, slides, diagrams and formulas presented too briefly for close study. Slow and ill students also find lecture playback a considerable advantage. All that's necessary is for the student to go to the library and ask for the replay. The convenience and heavy demand of this kind of television service confirms its great value.

Privacy for Clinical Psychology

The Psychology Department likes to use television particularly with clinical treatments of patients. Subjects are more relaxed and also less distracted before a camera than they are before a large student audience. With patients who are particularly sensitive, a remote control camera with a zoom lens is set up in the rear of the room to minimize television interference.

Psychologists have found that patient behavior, with or without television, has been the same: there has been no difference in the amount of exhibitionism or in the duration of the "warm-up" period. Thus, a patient is just as likely to act or not to act abnormally before the camera as before the physician.

A two-way audio connection facilitates pre-view and post-interview discussion between the student and the professor at Indiana. Such segments of the class period are vital for thorough student participation and reinforced learning, and do not impose on the patient in any way.

The privacy feature helps in all departments. Some patients, especially females, are shy about examinations before large audiences. Other patients, such as the mentally disturbed, are readily upset. Still others are not easily moved out of their rooms. In all of these cases, the privacy feature is considered a significant advantage for teaching since more patients are now more willing to assist in medical education at Indiana than before. In turn, the courtesy of privacy is one the patient has always deserved, but has not previously received in most medical schools. **BM/E**



Sylvania production unit on wheels made for Indiana Medical Center uses two-inch Ampex helical recorder, switcher and camera controls by Dynair, Ball Brothers effects generator and Tektronix scope.

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The switch- hitters

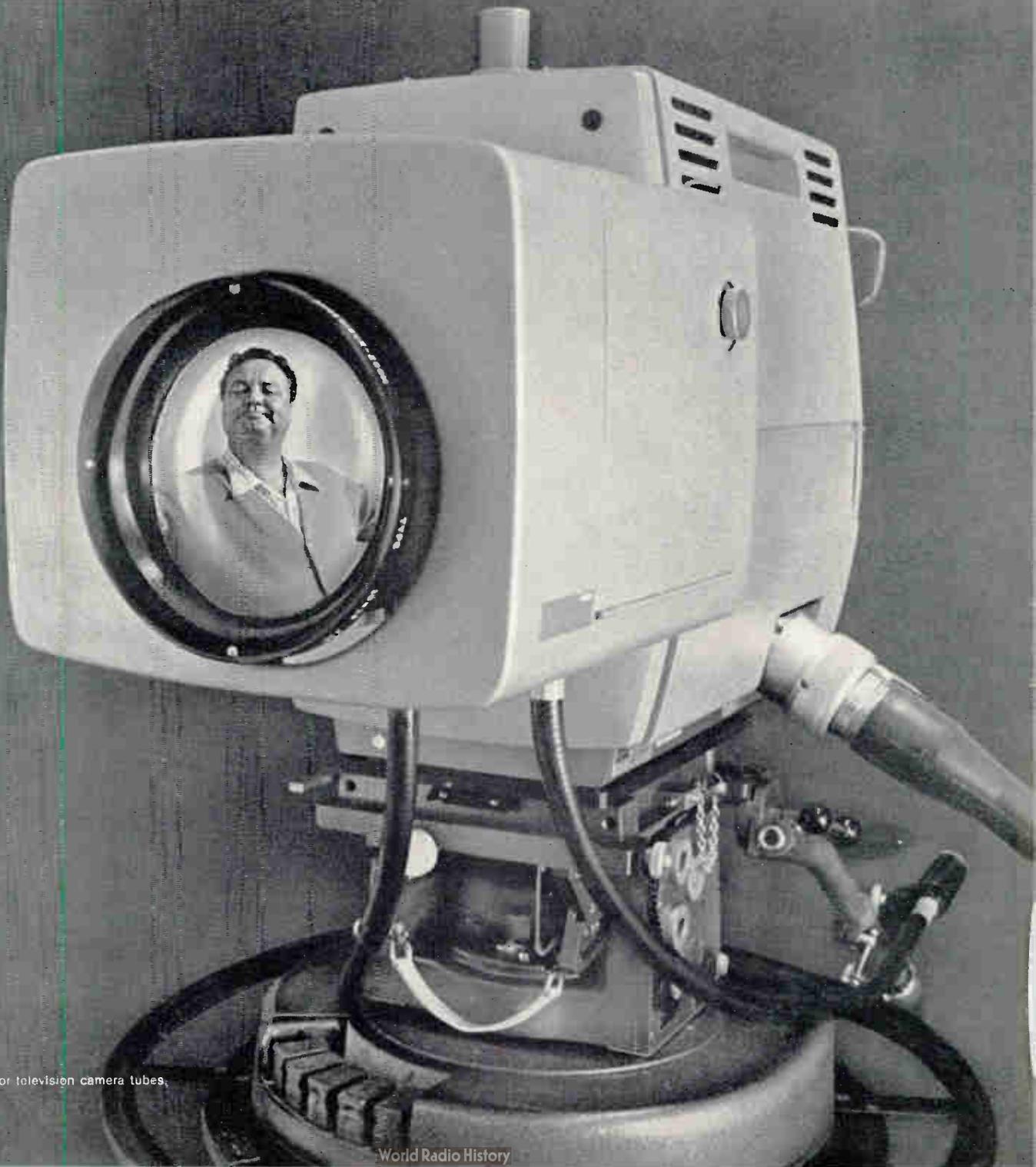
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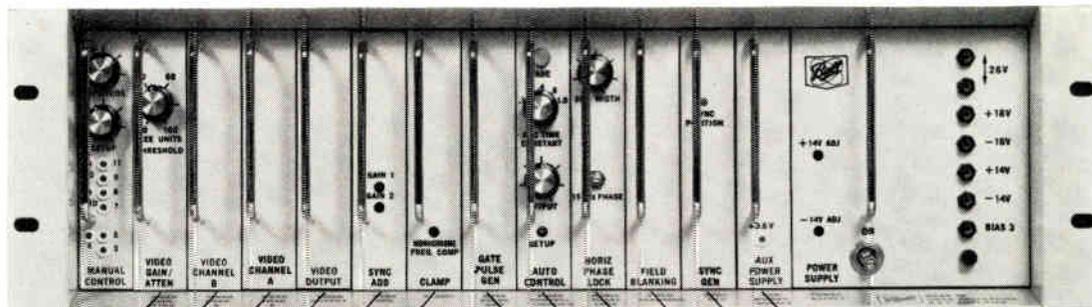
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Same CATV Policy

Continued from page 47

the Galax study both show significantly more concurrent multi-set usage among CATV homes than found in the non-CATV homes (the Bakersfield special tabulation was not sufficiently complete to allow this particular comparison). In Galax, CATV homes had three rating points more multiple usage than the non-CATV homes while in San Diego for the 9 a.m.-to-Midnight, Sun-through-Sat period, the CATV edge in this factor was two rating points. These differences, which reflect themselves on the individual station ratings coupled with the homes-using-television differences, account for a total rating point gain among CATV homes of 22.4 in the Galax study and an average of five in San Diego for the 9 a.m.-to-Midnight period.

This gain in set usage among the San Diego CATV homes is equal to half the total rating point gain for Los Angeles stations among these same homes. It appears likely that about half of the audience gained by "outside" stations through carriage on CATV is from television sets that, without CATV, would not be in use.

On the opposite side of the coin, both the San Diego and Bakersfield tabulations showed marked reduction among the CATV homes in the audience to the established local network affiliates (Table 3). However, at the time of these studies, the only station receiving any program duplication protection was the CBS affiliate in San Diego.

Imports vs. Protection

While the Bakersfield tabulation is not sufficiently complete for detailed analysis, the San Diego data show that two "unprotected" local network affiliates lost an aggregate of seven rating points among CATV homes during prime time while their "imported" counterparts gained six points. On the other hand, the local CBS outlet which was "protected," dropped two points while its "imported" counterpart showed no change. We can assume that given duplication protection, the net loss to the two "unprotected" local stations would have been only one rating point. Thus, the duplication protection during prime time alone on all three stations, the total audience loss during this period would have been reduced from nine rating points to three. If full duplication protection were extended over all time periods, the overall loss to the local stations would be at least cut in half.

What About UHF?

The primary concern expressed by the Commission has been the effect of CATV on the development of uhf stations. Since San Diego now has an independent u with some measurable audience, a "quickie" tabulation of the November

1968 ARB sample for San Diego County was made. This tabulation indicated that KCST (the independent u) had a *greater* net weekly circulation among the CATV homes than among the uhf non-CATV homes.

Another such tabulation done on Tuscaloosa County, Alabama, showed the same relationship for WCFT (33, NBC/CBS) Tuscaloosa. Additionally, average weekly hours of viewing WCFT was over one-third higher among the CATV homes! Although Tuscaloosa is considered by ARB as a one-station market, its home county (located adjacent to the Birmingham Metro Area) is dominated by Birmingham stations. In addition to WCFT and the four Birmingham stations, the CATV system in Tuscaloosa carries WCBI-TV, Columbus; WTOK-TV, Meridian; and WSFA-TV, Montgomery.

Now, this certainly represents only a small amount of data, but the weight of the evidence is such that it must cast a reasonable doubt on the view that CATV will invariably hurt the growth of uhf broadcasting. It does appear very likely that a CATV system bringing additional program choices into a metro area will reduce the audiences to the established *network* stations, be they all vhf or all uhf. On the other hand, where the local signals are a mixture of vhf and uhf, the uhf broadcaster(s) should in most cases stand to benefit from CATV.

Aside from the fundamental philosophic question of whether or not the public can be allowed the freedom to determine for itself what will or will not be in its own best interest, our national television policy should and could be based on facts. The interests of the public and the broadcasting industry demand a comprehensive study of this problem. Preliminary analyses of available data and delineation of the variables significant to the off-the-air CATV audience relationships should be started immediately. Concurrently, work should begin on the design of a comprehensive study using existing data, special surveys and, if possible, some controlled experiments with existing CATV systems.

Additionally, qualification must be made of what now appears to be an inherent handicap for the uhf broadcaster faced with off-the-air competition from vhf stations. To what extent and under what circumstances do families "not bother" to obtain repair when only the uhf section of their set's tuner malfunctions? How many do not go to the expense of a new or additional antenna and lead-in to connect the uhf section of their all-channel set? Is CATV the best or possibly the only way that the uhf station can achieve technical parity with vhf stations at the only point that counts—at the home receiver? These are just some of the facts that need to be obtained. The time to do it is now!

BM/E

BROADCAST EQUIPMENT

Diversity combiner

Model 914 diversity combiner, in operation at a Winnipeg, Canada TV station for over a year, accepts the video and a/c signals from two independent receivers and antennas, combines the two signals and produces a single video signal whose signal-to-noise ratio is said to be 3 dB better than either of the two input signals. Video input impedance: 75 ohms; bandwidth is 5 Hz to 10 MHz. Out-

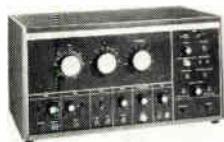


put impedance is 75 ohms and output capability will provide at least 1 V p-p across a 75 ohm load. \$2450/unit; \$1700/10-25 units; additional volume discounts apply. Delivery within 8 weeks. Mid-Eastern Industries.

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Television analyst

Model 1077 television analyst, designed for trouble-shooting all types of television receivers, offers ability to check uhf and transistorized TV, vhf and tube-type television receivers,

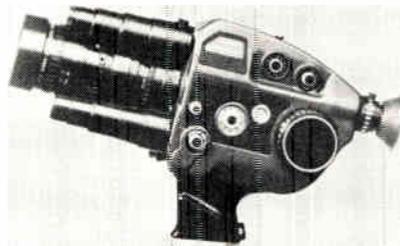


both color and monochrome. Illustrated 108-page instruction manual that comes with model is practically a simplified course in TV trouble shooting. Net price: \$379.95. Dynascan Corp.

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Super-8 camera

New Beaulieu 4008 ZM Super-8 camera features a macro system with precise power focusing up to one mm or closer from surface of the lens; a motorized zoom with variable speed settings from two to 12 seconds; a choice of film speeds from two f.p.s. to 70 f.p.s. for ultra slow motion picture effects; and reflex



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CATV directional tap

CATV directional tap, featuring seized center conductor connectors and the plug-in modular concept, uses an ac bypass circuit and provides for seizing the cable center con-

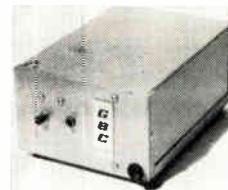
ductors inside its aluminum housing. Measuring 3 X 5 X 4 in., the 3625 has frequency response of 50 to 270 MHz and values—eight to 30 dB



with one, two or four outputs. It is available with connectors for any conventional cable for the through line and "F" fittings for the tap terminals. Essex International, Inc. Circle 278 on Reader Service Card

Sync generator

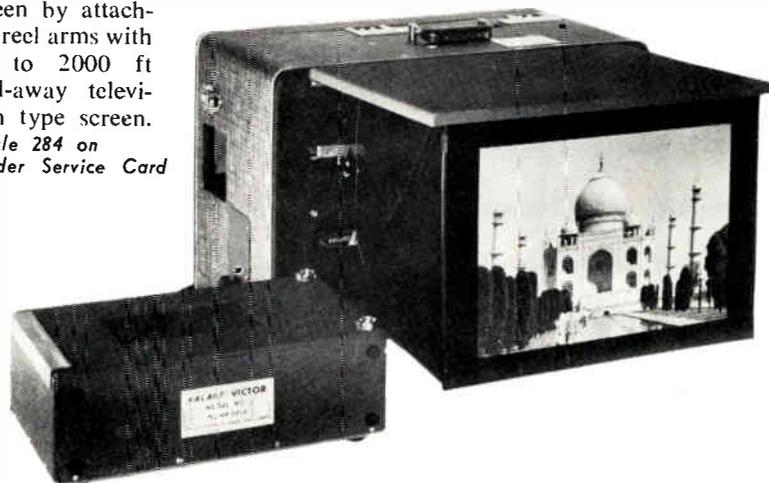
SG-1 sync generator is designed to produce a 2:1 interlace synchronized



Projector

Model STM-18MC3 projector features the MARC 300 high intensity light system and special power pack producing, it is said, four times more light output than projectors using standard incandescent lamps. High intensity light system permits showing films in brightly lighted areas. It is easily converted to a conventional projector for projection to remote screen by attaching reel arms with up to 2000 ft fold-away television type screen.

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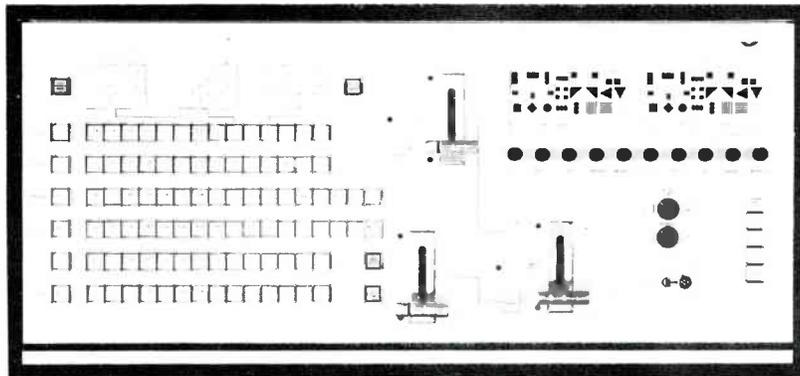
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accept the inputs of up to four video cameras and can monitor the output of each camera. One channel may be inverted to yield a negative picture. An internal sync generator supplies 2:1 interlace sync although sync may be obtained from external source. Model weighs 8½ lb and measures 5¼ H × 15½ W × 10 D in. Power consumption is seven W. Suggested list price is \$595; delivery is 30 days. Sony Corporation of America.

Circle 283 on Reader Service Card

Spotlights



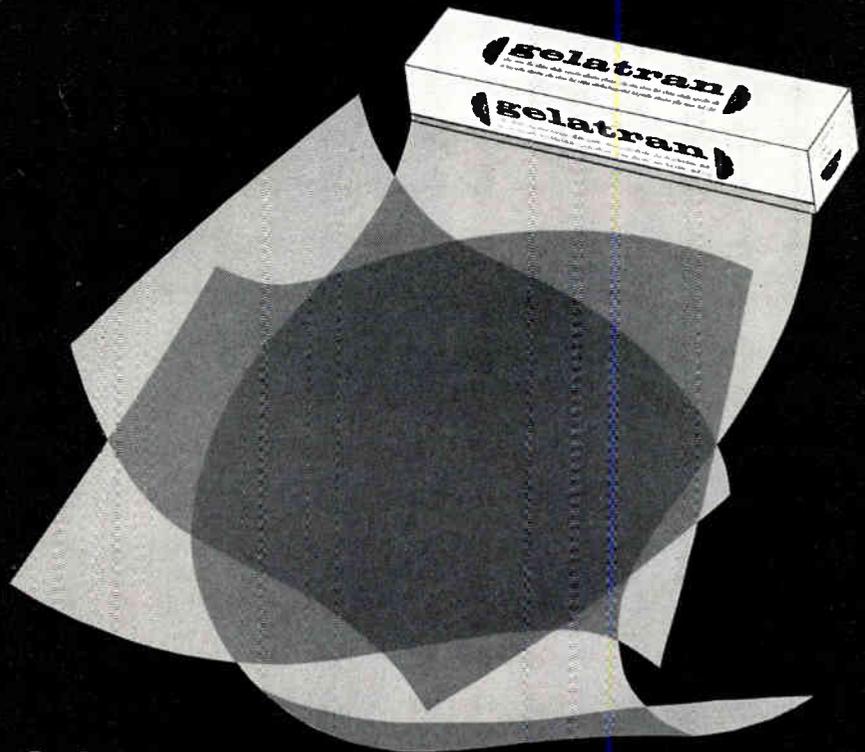
Lekolite (r) spotlights are to be used with tungsten-halogen lamp axially mounted for increased efficiency, smoother field and higher intensities up to 100 ft. Four models include six in., eight in., 12 in. lens 500/1000 W units. Features include heat resistant stepped lenses with opaque risers in optical combination with flatted ellipsoidal specular reflector; rugged corrugated steel body for flow-through cooling (interchangeable in the eight and 10 in. models); offset yoke to permit full clearance of shutter controls; four-way push shutters or iris of heat resisting alloys designed for accurate beam control. Century Lighting, Inc.

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Switching matrix

Model HF-30-E high frequency switching matrix is a 5 × 10 coaxial matrix. Laboratory measurements of 65 MHz at the design impedance level of 50 ohms have indicated cross talk in adjacent closed paths at better than 60 dB. Matrix is operated from a nominal +5 volt supply. Integrated circuits are used for both high speed data input and crosspoint activation. Address time is about 200 nanoseconds for entry of data into electronic stored stages. Signal switching assembly is completely independ-

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A Gates Automatic Tape Control System does the work of two people because it handles all commercial announcements. Switches from tape reels to live announcers to tape cartridges. Even logs time.

"And because it never takes a break, we get continuous programming, automatically," adds Ben, "and this saves us time and money."

Want details and costs for your particular programming? Write Gates, Automatic Tape Control Division, 1107 East Croxton Ave., Bloomington, Illinois 61701, U.S.A. Or call (309) 829-7006. Ben Levesque did!

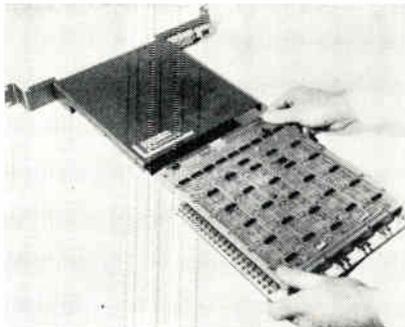


HARRIS
INTERTYPE
CORPORATION

GATES

Automatic Tape Control Division

Circle 129 on Reader Service Card



ent of control assembly. Rack mount is available requiring 1 3/4 in. of panel space. \$650. Cunningham Corp.
 Circle 287 on Reader Service Card

Tape control system

On-Time tape editing/control system is designed for installation in Ampex VR-2000 high band video recorders. Basic system records a time code on cue track of video tape as index for video information. Operator may read back the time code in either direction at any speed and automatically search for any video frame, identify and initiate in-going and out-going edit points, preview the edit before recording and start or stop recorder or auxiliary equipment at a preset time. Electronic Engineering Company of California.

Circle 285 on Reader Service Card

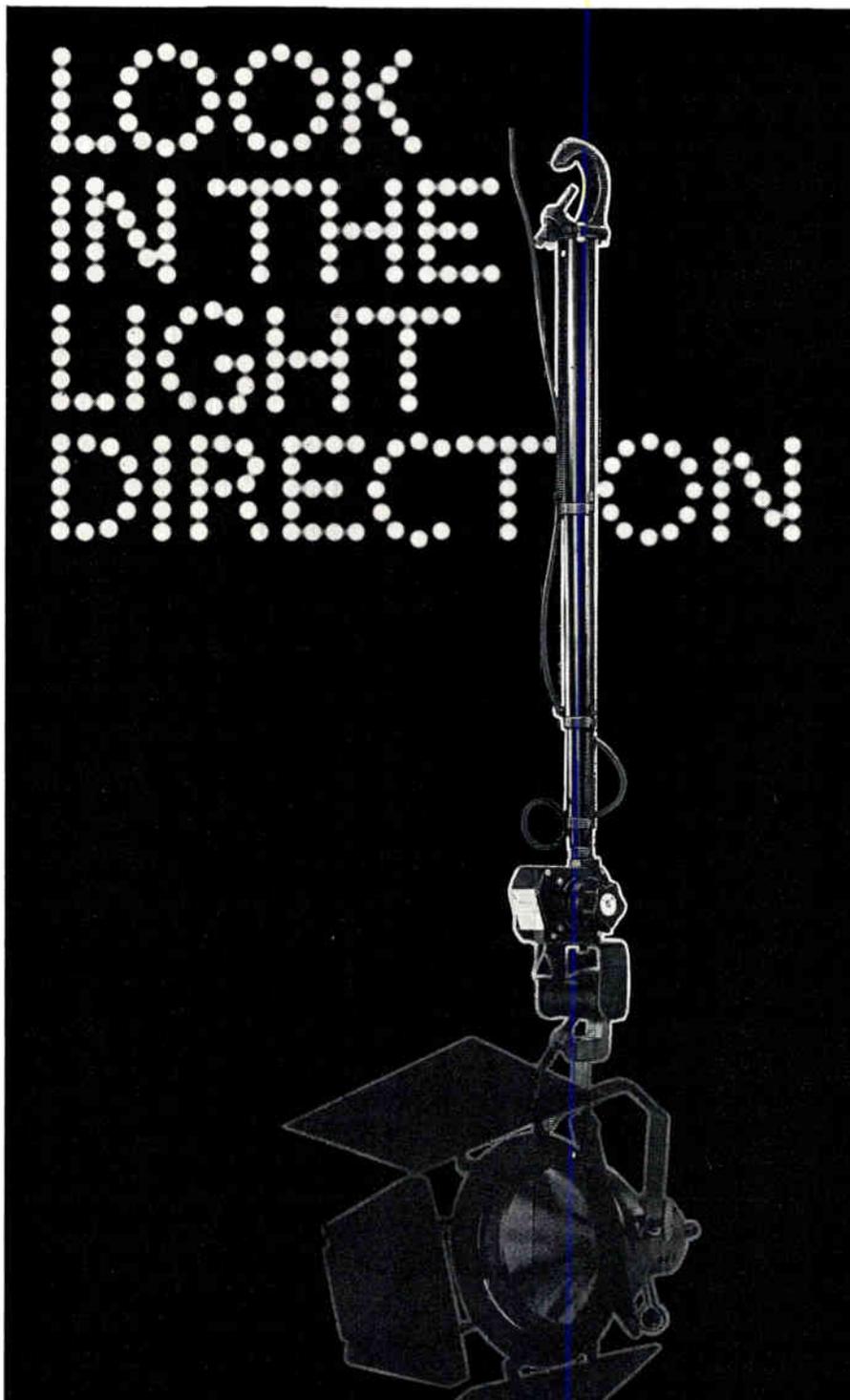
Color subcarrier standard

Model TCS2 color subcarrier standard is intended to replace subcarrier oscillators where a tendency to jitter has produced serious problems in multiple generation color tape recording and editing. Frequency stability of one part per million and jitter less than five nanoseconds. Unit produces dual outputs for 3.58 MHz; dual burst flag outputs and a 31.5 KHz output. Integrated counting circuits are used throughout. International Nuclear Corp.

Circle 286 on Reader Service Card

Audio power amplifier

Model AA-800 is complete 12-W integrated circuit audio amplifier. Constructed with thick film solid state devices, the amplifier is ideally suited for use in high fidelity amplifiers, broadcast and television studio monitor amplifiers and similar applications. Input impedance is 18,000 ohms nominal; input voltage is 300 MV for 12-W output. Output is 4-16 ohms; output is transformerless. Frequency



Anti-G Hanger

Patent pending

There is nothing like this all new adjustable hanger that supports luminaires weighing **from mere ounces up to 80 lbs.!** Fingertip knob control permits simple "dialing" of appropriate weight settings. Unique suspension design pre-

vents hanger from twisting — *the luminaire stays put in any position.* Pole operation or an operator at floor level easily controls height adjustment. Choose from 6, 10 and 15 foot models. Write for complete data on your letterhead.

Solving your lighting needs worldwide with one light, a hundred, or complete lighting systems.

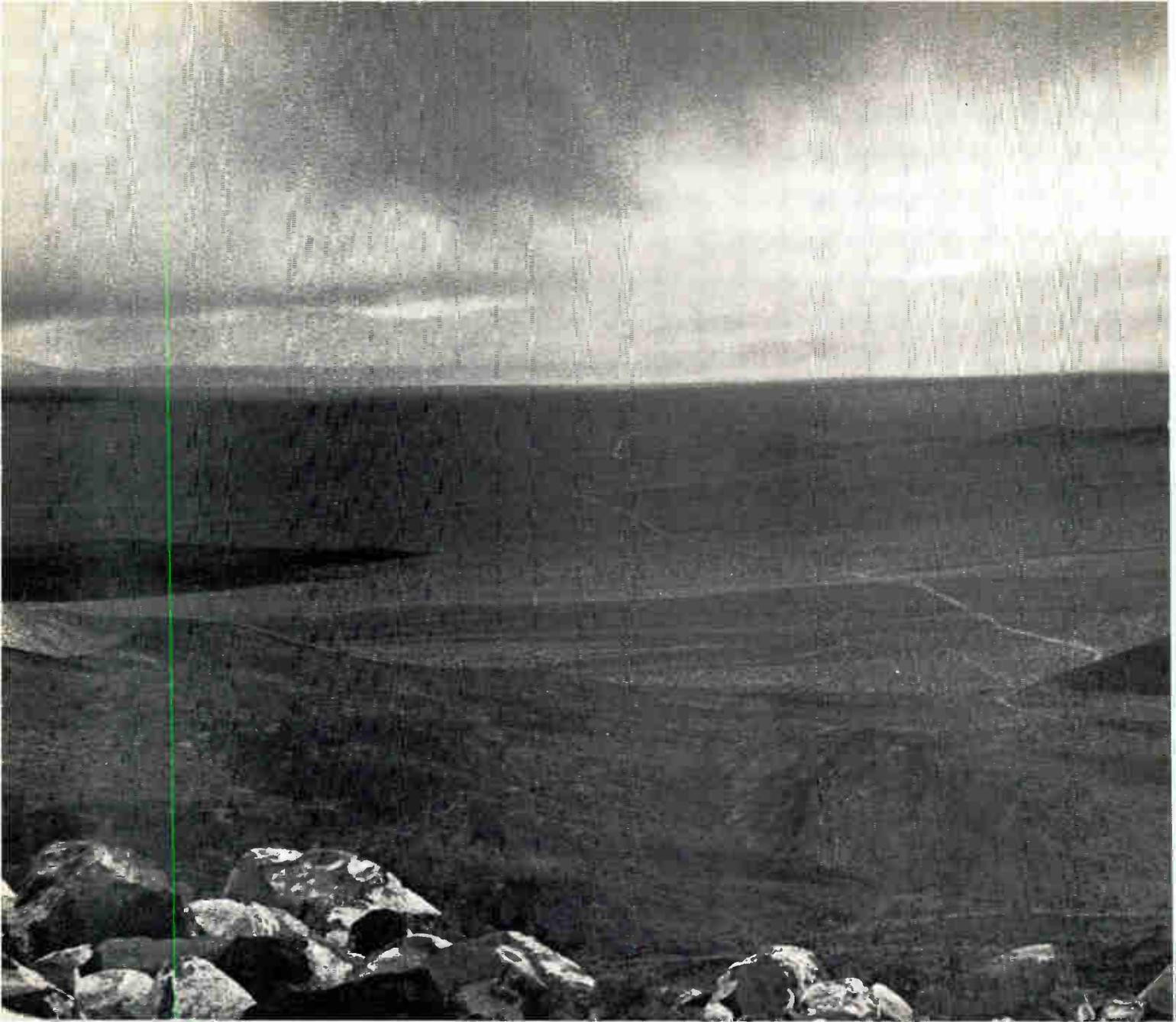
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ColorTran
INCORPORATED

1015 Chestnut St., Burbank, Calif. 91502

Phone: (213) 843-1200

Cable: ColorTran/Telex: 67-7252

A DIVISION OF
Berkey
 Photo Inc. 



We made FM/stereo travel the 150

All it took was
microwave, two
converters, and
one remarkably
simple idea.



impossible miles to Oroville.

EDC got rid of TV sync buzz interference on stereo channels. And solved the toughest communications problem in the industry: Oroville. With the first successful installation of its kind. The Oroville market wanted FM/stereo from San Francisco, 150 miles away, and Sacramento, 75 miles due south. CATV was distributing big-city television in Oroville, but it had been impossible to get FM/stereo through to the cable.

Until we broke the sound barrier with the FMT-201 solid state converter system. It gets signals through nature's barriers, eliminates TV sync buzz interference, brings clear FM/stereo right to the cable. Even into the remotest, most mountainous areas.

We designed FMT-201 for Oroville, built it, and installed it. Beautifully simple, this system receives FM/stereo off-the-air; then

transmits them by microwave to Oroville's CATV, for distribution throughout the entire cable system. FMT-201 requires two converters: an FMD-201 down converter at the originating terminal, an FMU-201 up converter at each receiving terminal. Not too complicated, and not too expensive—the Oroville market got FM/stereo without prohibitive cost.

Oroville's FMT system has been in operation for nine months now. And you can find out—first hand—just what they think of their FM/stereo reception. Call John Ray, of Oroville Communications Co., and ask. His number is (916) 533-0398. (In fact, Mr. Ray says it's OK to call collect. That's how well FMT-201 has worked out.) Our system converted Oroville. Now they want to help convert you too.

Call us collect too. Or tear out the coupon. For data sheets, specs or demonstrations of FMT-201. Our number: (714) 646-9611. Ask for Rex Orton.



**ELECTRONICS
DEVELOPMENT
CORPORATION**

1533 Monrovia Avenue, Newport Beach,
California 92660

Please

- rush data sheets and specs on FMT-201.
- arrange a demonstration of your FM/stereo converter system.

Name _____

Company _____

Address _____

City _____ Zip _____

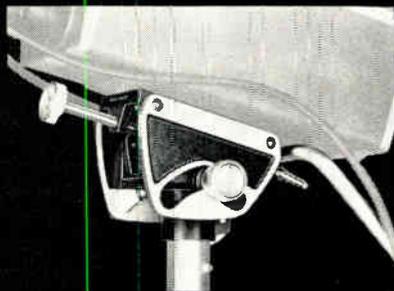
Telephone _____

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GOOD SHOW!

New "Cam-Link"® Heads Provide Cradle Head Performance at Lower Cost!

Controls your heavier cameras more quickly and easily . . . prevents "nose diving" without springs.



Samson® "Cam-Link" Head

For equipment up to 40 pounds . . .

Separate drag and brake controls for pan and tilt . . . independent disc brakes. Adjustable and reversible handle. Adjustable mounting screw. Weighs 5 pounds. \$195.00



Hercules® "Cam-Link" Head

For equipment up to 80 pounds . . .

"Quick-On" mounting plate for instant equipment mounting and removal. Pan and tilt mechanisms operate on sealed ball bearings . . . caliper disc brakes . . . separate drag controls. Weighs 11 pounds. \$260.00

A complete line of instrument positioning equipment.

QUICK-SET
INCORPORATED



8121 Central Park Avenue SKOKIE, ILL.

Circle 132 on Reader Service Card

response ± 1 dB, 20-20,000 Hz at 12-W. Harmonic distortion is less than 1 percent KHz at 12-W. Model AA-800 is 9-1/2 in. long, 4-in. wide and 2-1/4-in. high, and weighs 3 lb. 4 oz. \$39.95. Round Hill Associates, Inc.

Circle 289 on Reader Service Card

Cardioid mike



The D-190E is the new addition to AKG microphones. A cardioid dynamic type, the D-190E is equipped with sintered bronze cap which is said to eliminate effects of wind and breath air turbulence and prevent moisture from reaching the microphone system. The system is shock mounted and isolated from the microphone housing, thus reducing handling noise and minimizing possible impact damage. \$50.00. North American Philips Co.

Circle 288 on Reader Service Card

10,000-W T-H lamp

A 10,000-W tungsten-halogen lamp for studio lighting in television and motion pictures has an over-all length of 15 in. and is available in 3200 and 3350 degrees Kelvin with average rated life of 300 and 150 hours, respectively. Lamps are interchangeable with present G96 10,000-W standard incandescent lamps. Sylvania Electric Products Inc.

Circle 290 on Reader Service Card

Rf load resistor

"Omegaline Model 7580" 75-ohm high power coaxial line rf load resistor is designed to dissipate average power of 80-KW continuous duty with 10 gpm water flow. Direct application to 70-ohm systems. Altronic Research Corp.

Circle 291 on Reader Service Card

If We Were Name Droppers

We would drop 270 of our clients' names in this space because we have

**FINANCED
THE TOP
COMPANIES
IN CATV**

In communications financing, there is no substitute for experience. Call us collect today.



**ECONOMY
FINANCE**

COMMUNICATIONS FINANCE DIV.
108 East Washington Street
Indianapolis, Indiana 46204
AREA CODE 317, 638-1331

Circle 146 on Reader Service Card

June, 1969—BM/E

Attention TV Stations:

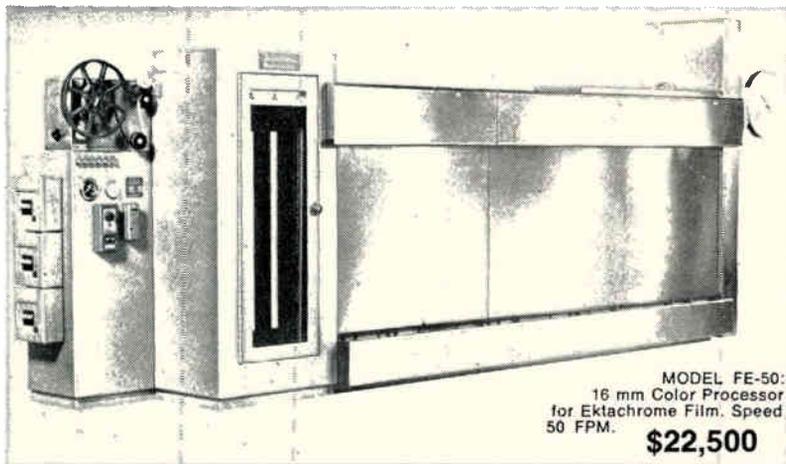
We've got news for you!

FILMLINE'S professional color film processors now available for TV NEWS

The FILMLINE Models FE-30 and FE-50 are exciting new color film processors designed specifically for use in television station news departments. The design is backed by Filmline's reputation as the world's leading manufacturer of professional film processors for the commercial motion picture laboratory industry.

Now for the first time the television industry can enjoy the benefits of professional caliber equipment incorporating exclusive FILMLINE features that have paced the state-of-the-art in commercial laboratories, at a cost lower than processors offering less.

After you check these exclusive Filmline features you'll want to install a Filmline processor in your news department NOW!



MODEL FE-50:
16 mm Color Processor
for Ektachrome Film. Speed
50 FPM. **\$22,500**



MODEL FE-30:
16mm Color Processor for
Ektachrome film. Speed 30
FPM. **\$16,400**

● **"FILMLINE OVERDRIVE FILM TRANSPORT SYSTEM"**

This marvel of engineering completely eliminates film breakage, pulled perforations, scratches and operator error. The film can be deliberately stalled in the machine without film breakage or significant change of film footage in solutions. The heart of any film processor is the drive system. No other film drive system such as sprocket drive, bottom drive or simple clutch drives with floating lower assemblies can give you the performance capability of the unique Filmline Overdrive Film Transport System.

● **"TORQUE MOTOR TAKE-UP"** gives you constant film take-up and does not impose any stress or strain on the film itself. Completely independent of the film transport system. This FILMLINE feature is usually found in professional commercial processors but is incorporated on the FE-30 and

FE-50 models as standard equipment. Don't settle for less!

● **"TEMP-GUARD"** positive temperature control system. Completely transistorized circuitry insures temperature control to well within processing tolerances. Temp-Guard controls temperatures accurately and without the problems of other systems of lesser sophistication.

● **"TURBO-FLOW"** impingement dryer. Shortens dry-to-dry time, improves film results, and carefully controls humidity content of your valuable (and sometimes rare) originals. Immediate projection capability is assured because the film dries flat without the usual curl associated with other film processors.

● **"ZERO DOWN TIME"** The reputation of any film processor is only as good as its reliability. The

combination of the exclusive and special added Filmline features guarantees trouble-free operation with absolute minimum down-time and without continual operator adjustments. Recapture your original investment in 2 years on maintenance savings alone. Filmline's "Push the button and walk-away processing" allows inexperienced operators to turn out highest quality film.

● **"MATERIALS, CONSTRUCTION AND DESIGN"** All Filmline machines are constructed entirely of metal and tanks are type 316 stainless steel, heliarc welded to government specifications. The finest components available are used and rigid quality control standards are maintained.

Compare Filmline features to other processors costing more money. Feature-by-feature, a careful evaluation will convince you that Filmline offers you more for your investment.

Additional Features included in price of machine (Not as extras).

Magazine load, daylight operation ■ Feed-in time delay elevator (completely accessible) ■ Take-up time delay elevator (completely accessible) ■ Red brass bleach tank, shafts, etc. Prehardener solution filter ■ Precision Filmline Venturi air squeegee prior to drybox entry ■ Air vent on prehardener ■ Solid state variable speed D.C. drive main motor ■ Bottom drains and valves on all tanks ■ Extended development time up to two additional camera stops at 50 FPM ■ Pump recirculation of all eight solutions thru spray bars ■ Temperature is sensed in the recirculation line ■ All solutions temperature controlled, no chilled water required ■ Built-in air compressor ■ Captive bottom assemblies assure you constant footage in each solution ■ Change over from standard developing to extended developing can be accomplished in a matter of seconds ■ Impingement dryer allows shorter put through time.

Partial listing of Filmline Color Installations: — NBC- New York, NBC- Washington, NBC- Cleveland, NBC- Chicago, CBS & ABC Networks, Eastman Kodak, Rochester.

Laboratories: De Luxe Labs, General Film Labs (Hollywood), Pathe-Labs, Precision Labs, Mecca Labs, Color Service Co., Capital Film Labs, Byron Film Labs, MGM, Movie Lab, Lab-TV, Technical Film Labs, Telecolor Film Labs, Guffanti Film Labs, A-One Labs, All-service Labs, NASA Cape Kennedy, Ford Motion Picture Labs.

TV Stations: WAPI-TV, KTVI-TV, WXYZ-TV, WTPA-TV, WBTV-TV, WEAT-TV, WMAL-TV, WSYR-TV, WDSU-TV, WVUE-TV, WJXT-TV, WTOP-TV, WAVY-TV, KTAR-TV, WTVR-TV, WFBC-TV, WMAR-TV, WCKT-TV, WAVE-TV, WCPQ-TV, WAPA-TV, WCIV-TV, WJIM-TV, WWL-TV, KYW-TV, KETV-TV, WNBQ-TV, KSLA-TV, WSAZ-TV, WHP-TV, WHCT-TV, WTOV-TV.

All prices F.O.B. MILFORD, CONN.



Send for Literature. BMJu-69 Time & Lease Plans Available.

"When you buy quality Filmline Costs Less"

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Canon has a 45X zoom range.



Divided six ways, that gives you your choice of 4X, 5X, 6X, 8X, 10X and 12X zoom ratios—more tv zooms than anybody else can offer you.

All six have interchangeable rear drives for any Vidicon camera (if you have more than one kind of camera, you can swap your Canon zooms around the studio as needed). All six are available in motorized remote-control versions, too.

Need zooms for Plumbicon or Image Orthicons? We have them, too. Plus fixed focal length lenses for every "C" mount application. All with the optical precision for which Canon is famous. Write for full information.

The lens you need is made by

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Please send information on
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Circle 134 on Reader Service Card

NAMES IN THE NEWS



W. Semmelink



W. J. Byron

Wybo Semmelink has been appointed vice president in charge of the newly created home entertainment products division of North American Philips Corp.

Howard P. Ladd, president of Concord Electronics Corp., has announced the appointment of William J. Byron to the newly-created post of division manager, Concord Communications Systems.

NCTA President Frederick W. Ford plans to leave when contract expires at year's end to open law practice.

William H. Williams has joined the Graflex Division of The Singer Company as manager, international marketing.

Stuart Ross, former chief counsel for Allied Artists, has formed a new audio-visual communications company, Transmedia International Corp.

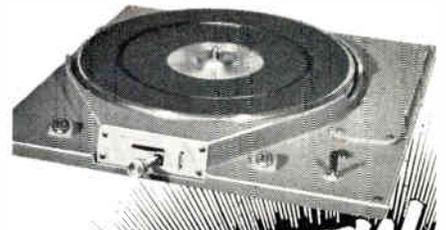
Kenneth W. Heady, general manager of Meredith-owned KPHO Radio and KPHO-TV, Phoenix, has been appointed a vice president of the Broadcasting Division of Meredith Corp. by Darwin Tucker, president and chief executive officer.

George F. Bennett, a Boston investment manager, has been elected to Hewlett-Packard Company's board of directors.

James D. Roosa, Jr. of Chappaqua, has been appointed vice president and station manager of WLNA-AM-FM Peekskill, N.Y.

A prominent government and broadcast figure for more than a decade,

Continued on page 77



NEW

RUSSCO

STUDIO-PRO

CUSTOM MODEL TURNTABLE

Single lever controls 33 & 45 Speeds. Plays 45's without adapter. Illuminated speed indicators. Has detachable tone arm mounting plate. Comes with syn. motor only.

INTRODUCTORY PRICE \$179.50

SOLD DIRECT OR TO DEALERS



NEW

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CUE-MASTER

STANDARD MODEL TURNTABLE

Single lever controls 33, 45 & 78 speeds. Plays 45's without adapter. Simple rugged construction, only 3 rotating parts.

PRICE WITH 4 POLE IND. MOTOR \$140

PRICE WITH SYN. MOTOR \$165

Call or write for folder



\$52
MONAURAL MODEL 1-M

RUSSCO

BROADCAST PHONO

Preamplifiers

MONAURAL & STEREO MODELS



STEREO MODEL 1-S \$104



RUSSCO POWER SUPPLY UNITS model 1-P \$42

RUSSCO Electronics Mfg.
6879 N. SUNNYSIDE, CLOVIS, CALIF.
PH. 299-4692

Circle 135 on Reader Service Card

WBAP-TV decided to go full color, and Fort Worth gave them the business.

"Sure, we added the KODAK ME-4 Process primarily for the color news, documentary, and sports capability we needed to round out our color programming," says Jett Jamison, Director of TV Operations for the Fort Worth station. "But, we also knew that we could count on commercial processing business. We were more than right.

"Besides processing an average of 70,000 feet of our color film per month, we often do as much as 100,000 feet of commercial color processing. The extra income from commercial processing helps offset the cost of operating the lab for station use.

"We now process color footage for many local football teams, including

the bands' halftime shows. We shoot commercials for our local advertisers. We also do work for several local advertising agencies and production houses. We are even processing 16mm KODAK EKTACHROME Film footage for camera shops. It keeps us hopping.

"In two years we've had no trouble at all. We're quality conscious—run-

ning quality control tests daily. The Kodak packaged chemicals are a real boon. We use the Kodak Silver Recovery System, and it's paying off too."

And you thought your station couldn't afford to go full color! Not only can you do it, but you can make money at it. Check into the sizes and prices of the new processors on the market. Find out how they can fit into your operation by calling a Kodak Regional Chief Engineer. In New York, Ray Wulf; in Chicago, Dick Potter; in Hollywood, John Waner. Don't wait.



EASTMAN KODAK COMPANY

Atlanta: 404/351-6510 Chicago: 312/654-0200
Dallas: 214/FL 1-3221 Hollywood: 213/464-6131
New York: 212/MU 7-7080 San Francisco: 415/776-6055



Kodak

all solid state TELEVISION MICROWAVE RELAY LINKS for high quality color and monochrome TV systems

Use as rack mounted STL
or Remote TV Pick-up
or for Intercity Relay

- Meets EIA, CCIR,
and FCC standards
- Available in all
FCC authorized bands
- High fidelity color



- Ferrite isolator
- All Solid State RF Module
- Key lock switch
- Removable power supply module
- Plug in pre/de-emphasis
- Plug in printed cards
- Optional audio subcarriers

RHG, a leading supplier of military TV relay links, now offers Series MRS to the broadcast industry. Transmitters and receivers, with advanced field proven designs provide solid state reliability, no warmup, and low power drain.

To improve your color transmission quality and to insure trouble free operation specify RHG equipment fully described in Bulletin 69C. Call for "no obligation" demonstration.



RHG

RHG ELECTRONICS LABORATORY, INC.

94 MILBAR BOULEVARD
FARMINGDALE, LONG ISLAND
NEW YORK 11735 (516) 694-3100

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Robert D. Squier has joined the editorial board of *Television Quarterly*.

Arden C. Boland, president of Central Dynamics Ltd., Montreal, has announced the appointment of **John D. Ross** and **Peter W. Smith** as vice presidents.

James A. Landon, director of research for Cox Broadcasting Corp., has won first place in the American Research Bureau's 1969 Innovator Awards program.

Sid Mills, executive vice president of Ameco Cable, has announced the appointment of **Kermit Webb** as manager, research and development.

Alan L. Emlen has been named vice president, corporate relations, of Reeves Broadcasting Corp.

Jon C. Bednerik, a former staff member of the Committee on Education and Labor, U.S. House of Representatives, has joined the government affairs staff of the NAB.

KPIX news director **Ron Mires** has been elected president of the Northern California Chapter of the Radio and Television News Directors Association.

Barton Kreuzer, vice president and general manager, RCA Commercial Electronic Systems Division, has received the Distinguished Alumnus Award of the Polytechnic Institute of Brooklyn.

Mel L. Decker has been elected president, chief executive officer, and a director of Houston Fearless Corp.

Richard Estell, WKAR-AM-FM East Lansing, Mich., has been elected National Educational Radio Network board chairman; **Will Lewis**, WBUR Boston, is the new vice chairman.

John H. Magoon, Jr., president and director of Hawaiian Airlines Inc., has been elected a director of Cox Broadcasting Corp.

Promotion of **Ron Shipway** to assistant to the director of Telecommunications, of Altec Lansing, Anaheim, Calif., has been announced by Eric Mitchell, director.

Franklin B. Lincoln, Jr., secretary and a director of Cypress Communications Corp., has been named by President Nixon to serve on the Foreign Intelligence Advisory Board. Board will review ABM program.

Get a \$295 tape timer

Free

An impossible dream?

Not when you buy the Studer A-62 studio tape recorder.

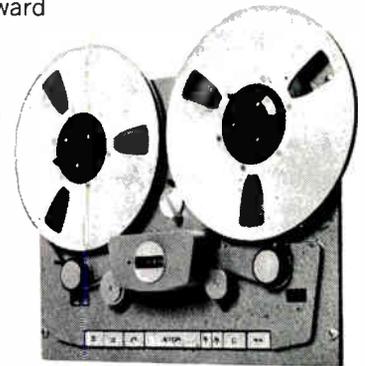
It's got every feature you've ever looked for in a professional tape recorder—plus others you'll find only in ours. Like the tape timer. It's *not* the famous Lyrec TIM-4 you know so well. This one's built in to the deck.

To get a direct reading in minutes and seconds, just run the recorder, even at fast speed. (The Timer's accurate to within 3 seconds in a 1/2 hour tape.) In the time it takes to rewind, your program will be timed.

We've also developed an electronic forward regulating servo loop that keeps the tape tension constant—regardless of reel size. Even the smallest reel hub won't cause any problem. So there's no speed variation, no need for reel size switching, and no varying tape tension. Ever.

And the Studer A-62 practically takes care of itself. It's precision-made by the Swiss. So it will run like a dream. A not-so-impossible dream.

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In Canada J Mar Electronics Ltd.



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BUILDING BLOCKS TO SOUND SYSTEMS



The PRO 12 Tape Recorder: industrial reliability, studio performance

The PRO 12 deserves your special consideration. It is the finest new portable professional tape recorder on the market Solid state Portable/Compact Twin-track mono; dual half track; stereo models Special version for four-track mono and stereo Semi-servo speed control Mixer/Preamp with three inputs for each channel Built-in facilities for mixing two inputs Test switch for lineup Multi-play and Sound on Sound recording Switchable monitoring of recording signal dur-

ing recording—Before and After tape Built-in monitor amplifier with loudspeaker Stereo headphone monitoring Cue and dubbing facilities Tape-lifters End-of-tape and tapebreak switch Pause button Remote control facilities For full data, contact the innovators.

PHILIPS

PHILIPS BROADCAST EQUIPMENT CORP.

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A NORTH AMERICAN PHILIPS COMPANY

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IT DOES ITS THING

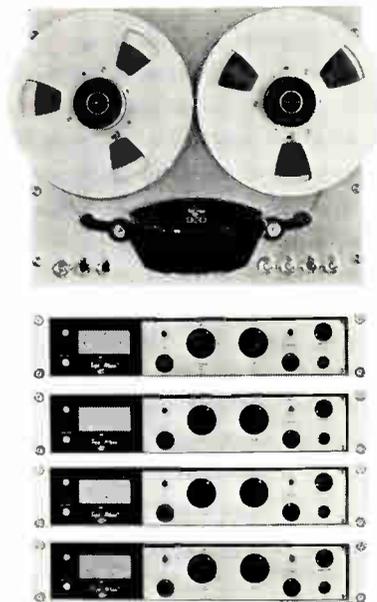


Tape-Athon 900 Portable

REGARDLESS OF
THE PACKAGE, THE APPLICATION,
OR THE OPERATOR



Tape-Athon 900 Console



Tape-Athon 900 Rack Mounting

Tape-Athon's Model 900 Recorder/Reproducer can be expected to provide the same dependable performance in any situation — it's been engineered to take long hours and rough handling, designed to make operation easy and foolproof, and always up to NAB specs.

Available in 2, 4, or 8 track versions, the 900 is the smartest investment the studio can make. It gives you more equipment per dollar than any machine around. Write for brochure TA 250 and a quote. Then we'll do *our* thing.

Tape-Athon, Corp.

502 South Isis, Inglewood, California 90307
(213) 776-6933

NEW LIT

For copies of these literature offerings, circle numbers for appropriate items on Reader Service Card.

Television projection equipment is presented in bulletin #2674 (200) and low-cost 16mm TV uniplex film chain system is described in bulletin #2675 (201) from The Kalart Co.

Designing cable connectors for minimum impedance discontinuity, using time-domain reflectometry for performance evaluation, is described in 17-page application note #94 from Hewlett-Packard. 202

Model 110A 50-MHz Programmable Counter/Timer characteristics are presented in a brochure by Monsanto Electronic Instruments. 203

Model 2202 fm exciter and Model 2202 stereo generator are presented in literature from American Electronic Laboratories. 204

"Calibrated Monitoring Systems for Recording Studios" is the title of a technical paper prepared by Don Davis, manager of acousta-voicing for Altec Lansing. 205

Products and services available to the microwave, uhf and vhf industries are discussed in brochure from Microflect Co. 206

Ferrite blocks for recording heads—"free machining" high permeability-types—are described in bulletin from Magnetics Inc. 207

FCC Annual Report for 1968 contains 162 pages of more than 300 subjects and 11 categories. Copies may be purchased for \$1.50 from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

Raytheon's production equipment product line—precision welding equipment, ultrasonic impact grinders, sonic oscillators and microwave power generators—is included in catalog #69PE. 208

The alpha/numeric logging system concept is explained in eight-page booklet from Gates Radio Co. 209

Automatic cueing turntable DN-35FE is described with diagrams in data sheet from Nippon Columbia Co., Ltd. 210

Unidirectional dynamic microphones are presented in bulletin from American Geloso Electronics, Inc. 211

**View Chicago's Loop
from Chicago's Lake**

LAKETOWER

Lake Shore Drive at Ohio Street

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250 delightful rooms offering motel informality and convenience with hotel luxury and services

Free inside parking • Free continuous station wagon service to and from the loop, theatres, shopping • Free TV/radio in every room • Free ice dispensers on every floor • Dining Room • Coffee Shop • Cocktail Lounge • Room Service • Automatic Dial Telephones • Individual room controls for air-conditioning and heating • Meeting and banquet facilities.

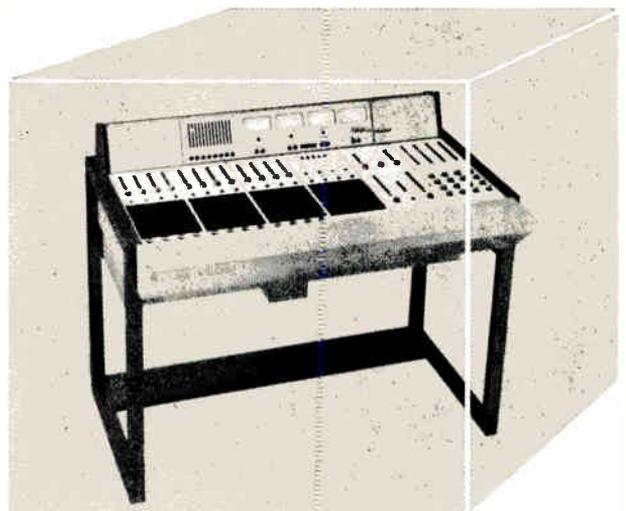
Singles from \$12. Doubles from \$16.

Phone (312) Superior 7-4700
TWX 312-222-0108



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BUILDING BLOCKS TO SOUND SYSTEMS



Third-Generation Mixing Desks... compact and flexible, realistic pricing.

Philips MD Series Mixing Desks are designed for recording, radio, TV, film and theatre use They have exceptional operational features with outstanding specifications and a price-to-performance ratio unmatched in the industry Solid state Flexible, easily-serviced design based on modular system Maximum of 24 inputs to 12 input channels Up to 4 independent output channels (for stereo and multi-

track recordings) Current-dependent mixing Monitoring and pre-listening provided Optional equalizer module, with 4 equalizers, switchable to 8 input channels **For full data, contact the innovators.**

PHILIPS

**PHILIPS BROADCAST
EQUIPMENT CORP.**

One Philips Parkway, Montvale, N.J. 07645 - 201 / 391-1000
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**Further proof...
sound has never
been in better shape!**

RE55 OMNIDIRECTIONAL
DYNAMIC
MICROPHONE

 There are plenty of good, functional reasons behind the new look of Electro-Voice professional microphones. Reasons dramatically proved by the rapid success of the Model 635A and the RE15. Now we've added the RE55 to this handsome group.

The RE55, like its predecessor the 655C, is an extremely wide-range omnidirectional dynamic. And in most electrical particulars it is not greatly different. RE55 frequency response is a bit wider, and perhaps a trifle flatter. An impressive achievement when you consider that the 655C has been extensively used as a secondary frequency response standard. Output level is 2 db hotter, and the exclusive E-V Acoustalloy® diaphragm of the RE55 can provide undistorted output in sound fields so intense as to cause ear damage.

The biggest changes in the RE55 are mechanical. For this microphone is even more rugged than the 655... long known as one of the toughest in the business. There's a solid steel case and new, improved internal shock mounting for the RE55. Plus a satin nickel finish that looks great on TV long after most microphones have been scarred and scratched almost beyond recognition.

For convenience we've made the barrel of the RE55 just 3/4" in diameter. It fits modern 3/4" accessories. It also fits the hand (and its length makes the RE55 perfect for hand-held interviews). We also provide XLR-3 Cannon-type connectors to help you standardize your audio wiring. Detail refinements that make the RE55 more dependable, easier to use.

Finally, the RE55 has the exclusive Electro-Voice 2-year *unconditional* guarantee. No matter what happens, if an RE55 fails to perform during the first two years — for any reason — we'll repair it at no charge.

Try the Electro-Voice RE55 today. The more you listen, the better it looks!

ELECTRO-VOICE, INC., Dept. 691EM, 614 Cecil Street, Buchanan, Michigan 49091

• high fidelity speakers and systems • tuners, amplifiers, receivers • public address loudspeakers
• microphones • phonograph needles and cartridges • organs • space and defense electronics

Electro-Voice®

A SUBSIDIARY OF GULTON INDUSTRIES, INC.

Circle 142 on Reader Service Card

World Radio History

FCC ACTIONS

Forfeiture of \$10,000 "for willful and repeated failure to observe the terms of its station license by authorized pre-sunrise operation" has been asked of Camden Broadcasting Corp., licensee of WACA, Camden, S.C.

Transfer of license of WNEM-TV, NBC television network affiliate serving Flint-Saginaw-Bay City, Mich., to Meredith Corp., Des Moines, has been approved.

Cross-interest in a sales subsidiary has been eliminated as an objection and The Golden West Broadcasters' license for KMPC, Los Angeles, Calif., and Storer Broadcasting Co. licenses for KGBS-AM-FM have been renewed.

Application by Westinghouse Broadcasting Co. for renewal of its license for KFWB, Los Angeles, Calif., has been granted subject to conditions regarding a proposed merger between Westinghouse and MCA Inc.

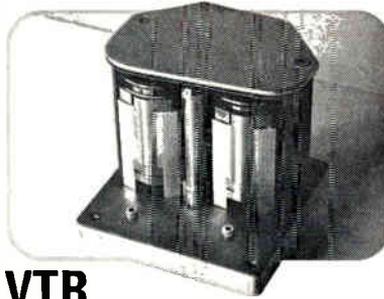
Joint request by licensees of three commercial vhf television satellite stations in Hilo, Hawaii, for reconsideration of a denial of their rule waiver request to allow conversion of stations to vhf translators, has been denied.

Forfeiture of \$5000 for "repeated failure to observe terms of its station license and Section 73.37 of the Rules (by operating prior to authorized sign-on time) and for willful and repeated violation of Section 73 111 (c) by destroying station logs and maintaining logs with false information has been asked of B & G Broadcasting, Inc., licensee of WJSW, Maplewood, Minn.

Section 73 685(a) of the Rules and has been waived and application of Rault Petroleum for new New Orleans TV station to operate on channel 38 has been granted.

Terms proposed for possible transfer of license control in a contract being negotiated for presidency of LIN Broadcasting Corp., have been deemed insufficient to constitute transfer of control.

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VTR

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Nationally recognized recorder head manufacturing and reconditioning experts.

- Heads reconditioned under controlled laboratory conditions.
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Multi-Purpose TV Camera System for Entertainment, Education, Science, Industry

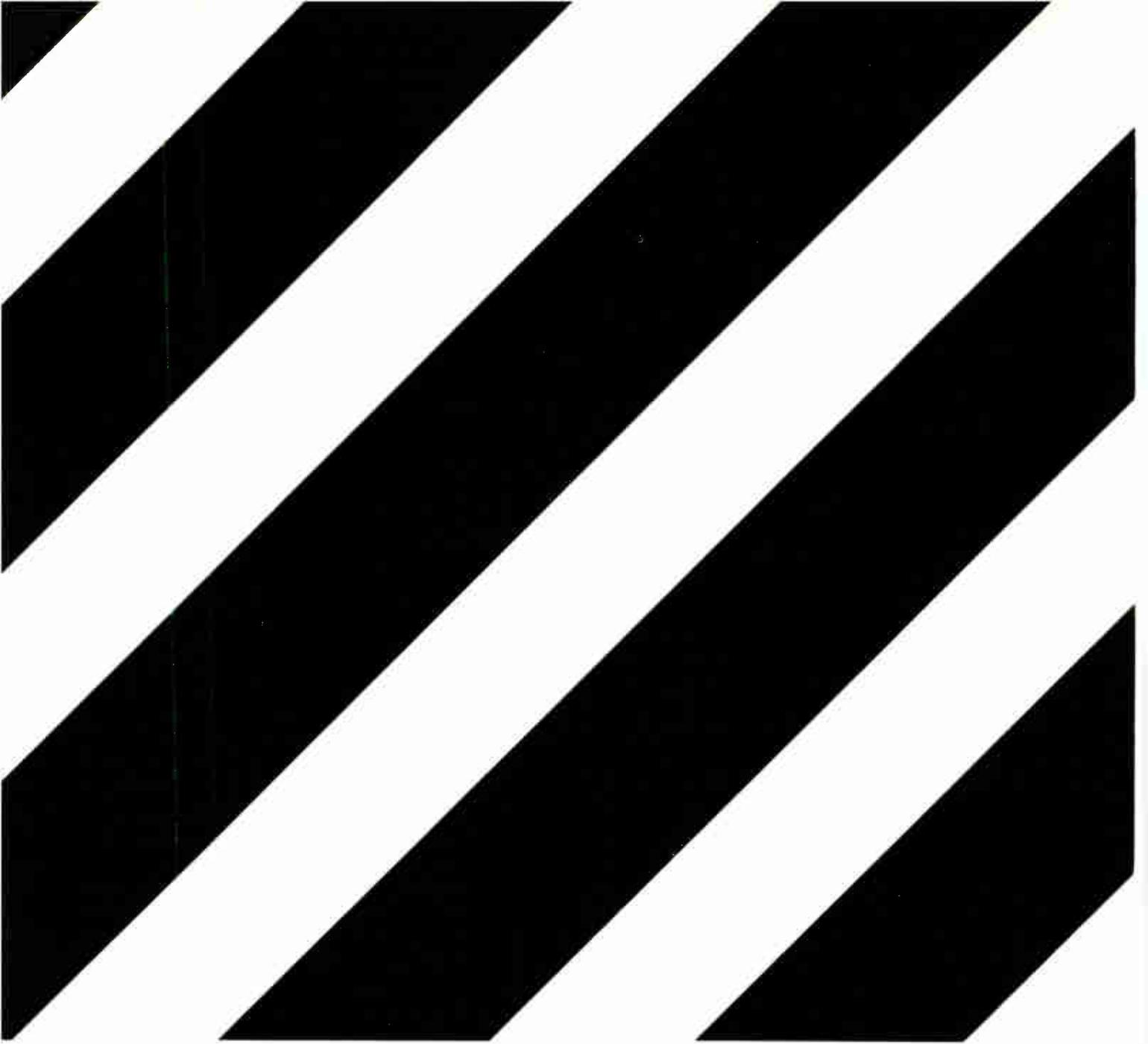
□ A new camera system with many exclusive features not found in comparably priced equipment □ Plug-in professional design for universal applications in the broadcast, educational, industrial, scientific, medical and commercial fields. An excellent low-cost preset announcer camera for TV studios, animating systems and more □ Choice of Plumbicon® or Vidicon camera tubes (Vidicon version excellent in film islands) □ Control Unit handles either, permitting choice of best

sensor for each portion of a multi-camera TV system □ Solid-state circuitry, from the Plumbicon tube innovators, achieves optimum performance with this superior pick-up tube □ Higher scan rate and resolution available for special applications □ **For data, contact the innovators.**

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NO. 400

Guards against cinching.

"Scotch" Brand No. 400 now solves your video tape handling and shipping problems. A new, matte-finish back treatment virtually eliminates cinching, windowing and creasing. Capstan slippage is a thing of the past.

New "Scotch" Brand Color Video Tape guards itself against damage.

Guards against scratching.

The exclusive treatment on "Scotch" Brand No. 400 resists scratching, eliminates polyester redeposits on the oxide surface. Prevents the increase of dropouts and effectively extends tape life.

Guards against dust damage.

This highly conductive treatment reduces static attraction of contaminants that can damage tape and VTR heads. New No. 400 gives you built-in protection, plus performance — the finest value in color video tape.

3M
COMPANY

"SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO.

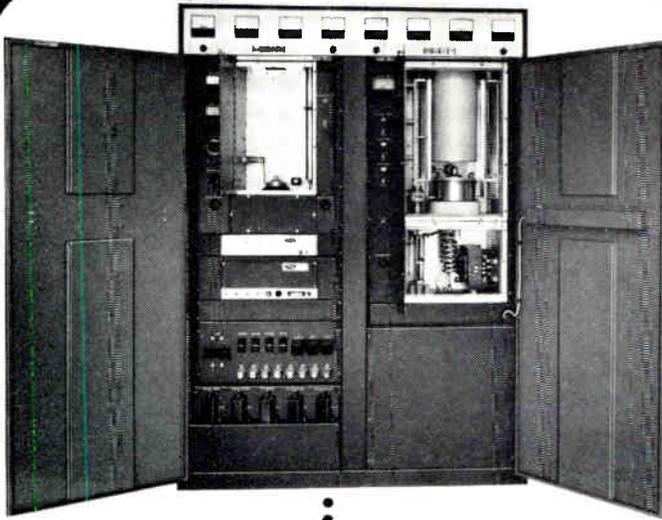
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World Radio History



SOUND FIDELITY
FOR THE 70's

**KNOCK
IT OFF?
YOU CAN'T...**



**YOU
HAVE
TO
TURN
IT
OFF!**

transmitter
capability



**AEL's
FM-20KB
TRANSMITTER**

If you're interested in fail-safe transmission around the clock, the FM-20KB is for you. Built-in standby capabilities and an easy-access cabinet loaded full of exciting features. Here are but a few: New solid state exciter, two tube design.

AMERICAN ELECTRONIC LABORATORIES, INC.
P.O. Box 552, Lansdale, Pa. 19446 • PHONE: 215/822-2929 TWX: 510/661-4976

CROSS-TALK

Dear BM/E:

I was quite impressed and pleased to see in reading the "FCC Rules" section of your March, 1969 issue, that finally a broadcast-oriented publication seems to be recognizing the true effect of the FCC's Third Report and Order and its predecessor, the Second Report and Order. I am totally unable to understand the broadcast industry's failure to recognize the commonality of interest between itself and CATV.

If a federal commission can control the operations of a CATV system in the manner in which the FCC is attempting to do, it is a very short step from that to the programming control of the broadcaster. If a federal commission can limit the number of subscribers which a CATV operator may serve, that same commission can certainly limit the number of viewers a broadcast station can serve—although I confess at the moment, I don't know what the technical requirements of such a system might be. If a federal commission can impose, through own rules, copyright liability on a CATV system, it can certainly change its rules to permit or deny access to programming by a broadcaster.

An honest broadcaster must admit that CATV has not yet harmed a broadcast operation, even in the San Diego market. The threat of harm to broadcast operations from CATV is vastly overstated by those in opposition to our industry. It is far past time for the broadcast industry and the CATV industry to cooperate rather than continue in mutual attack which can only result in derogation of both our industries. Recognition of the facts as they exist and as explained in your article will hopefully assist in bringing this about.

William F. Karnes
Vice President, Operations
National Trans-Video, Inc.
Dallas, Texas

Dear BM/E:

I'm not sure if I was pleased or startled at the appearance of "How Much Is an Engineer Worth?" in the April issue. The article was originally written in 1965 and not published at the time.

Since then, WOHI and WOHI-FM, now WRTS (FM), have moved into a new building (see *BM/E*, Nov., 1966) with lots of new equipment. Both stations have fully automated program switching and are entirely separately programmed.

One thing hasn't changed: we still love our engineers. Now we have two full-time men and keep them

834

Circle 148 on Reader Service Card

busy with equipment maintenance and control operations during our discussion-program-oriented broadcast day—riding gain on public affairs shows.

Joseph D. Coons
President and General Manager
WOHI
East Liverpool, Ohio

Sorry about the antiquity of the article when it ran, but we felt that in spite of the dust on its file, the material was still quite valid. Our thinking on this was certainly borne out by our readers, who have sent in an overwhelmingly favorable response to the article. Mr. Coons, by the way, has graciously agreed to write another article for BM/E. This time, it won't have a chance to collect dust.

Dear BM/E:

Some time ago, I saw a short news item about the two systems for European color standards—the PAL and the SECAM systems. Has one system been adopted, or are both systems being used?

Also, how is the conversion made from these European color standards to NTSC for trans-Atlantic satellite relayed telecasts?

I understand that the Apollo 8 TV system standards had to be “translated” to be broadcast on commercial TV. How was this done?

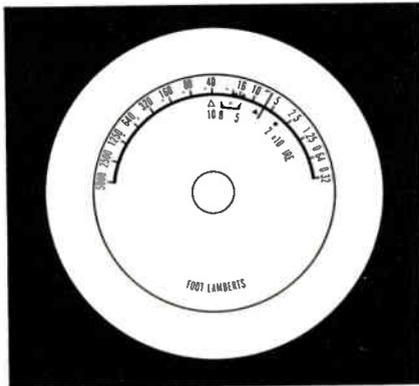
T. K. Abernathy
Statesville Broadcasting Co.
Statesville, N.C.

First, let's take the Apollo 8. This is a monochrome conversion, so it's fairly simple—an overlapping sample is taken by a scanning pickup tube at the ground station. This samples some of the signal bits—causing some picture elements to be lost. A time delay circuit is essential to these conversion systems. The total effect is to lose 100 scanning lines in the conversion.

The Europeans have adopted both PAL and SECAM, split among various countries more for political than for technical reasons. The German PAL is used in Germany and England. The French SECAM system was adopted by the Soviet Union and the satellite Communist countries. Most of the rest of Europe will likely go to the PAL system when they colorize.

Conversions for satellite transmission are made in Britain, from PAL to NTSC. This, NTSC is transmitted via satellite to the U.S. The BBC so far has the only conversion equipment capable of doing this job. The Winter Olympics at Grenoble were video taped in NTSC—eliminating the need for standards conversion. Most satellite transmissions from France must be handled this way for now. BM/E will run a feature on conversions in July.

The TV spot meter that never was.



It's called the Minolta Auto-Spot 1° TV Exposure Meter. And it's the only spot meter in the world with illuminated, continuous and motorized IRE and foot-lambert scales in the viewfinder.

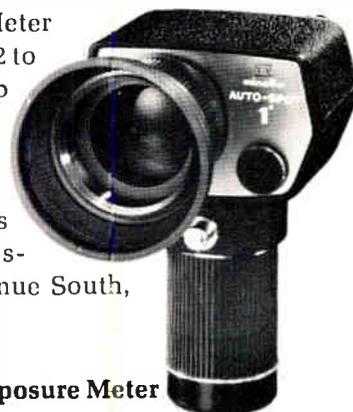
It'll give you quick, precise 1° readings that speak your language. Just aim, squeeze the button and watch the scales turn. With-

out taking your eye off your subject or switching from low to high brightness ranges, you're getting a perfect 1° reading. And the IRE scale makes it easy to keep the right balance between skin tones and the brightest area of your subject. This makes color work a snap.

Your subject is magnified 4x with focusing from 3.3 feet to infinity. And because of the 1° angle of measurement, you can pick out details for tight shots or long telephoto work without leaving your camera position. (This came in handy when the Apollo 8 astronauts took a version of the Auto-Spot 1° along for measuring moon and earth light.)

So thanks to Minolta, TV work will never be the same. After all, just because something never was is no reason to think it can never be.

The Minolta Auto-Spot 1° TV Meter with IRE and foot-lambert scales (.32 to 5000), under \$250 with wrist strap and hard leather, velvet-lined case. (Also available with shutter speed, lens opening, and EV scales for still and cine uses.) For details write Minolta Corporation, Industrial Sales Division, 200 Park Avenue South, New York, N.Y. 10003.



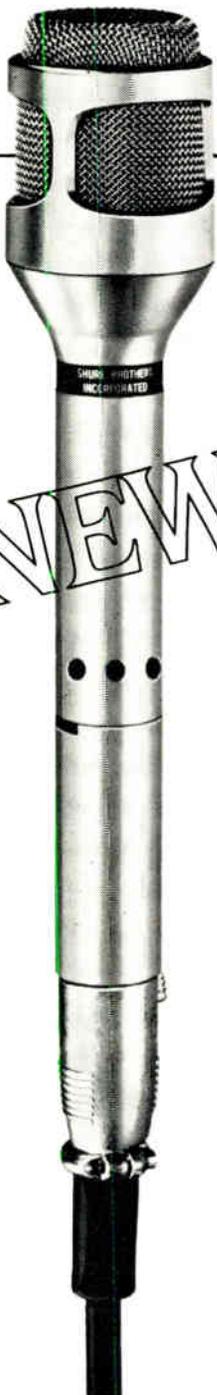
Minolta Auto-Spot 1° TV Exposure Meter

Circle 149 on Reader Service Card

SHURE

SM53

UNIDIRECTIONAL
DYNAMIC
MICROPHONE



one or all of these provable advantages can make this your most effective and reliable microphone!

1. WIDER FRONT WORKING ANGLE

The SM53 allows *greater freedom of performer movement*—*tonal quality is unaffected by movement throughout* the broad effective pickup area. *Eliminates "holes" and "hot spots"* when using multiple microphones. (See other side for polar pattern.) These valuable attributes stem from a broad, true cardioid frontal pattern *at all frequencies, in all planes*—freeing the user from the restrictions of overly tight angular sensitivity.

2. MORE EFFECTIVE REJECTION OF UNWANTED SOUNDS

The SM53 prevents sound coloration due to off-axis reflections or reverberation—and, in addition, unwanted sounds (even air conditioner rumble) are effectively controlled. These properties are achieved through the polar pattern which is singularly uniform with frequency (even at the extreme low end) and is symmetrical about its axis.

3. MECHANICAL NOISE ISOLATION

Built-in effective shock mount significantly reduces the objectionable stand, cable, and handling noises associated with many unidirectional microphones. The SM53 can be used in many applications where conventional units have proved marginal or unusable.

4. EXTRAORDINARY RUGGEDNESS

You can even drop the SM53 directly on its nose without damaging the microphone element—and it will maintain its excellent performance characteristics.

5. SUPERIOR HUM REJECTION

Built-in hum-rejection system reduces magnetic hum susceptibility by as much as 20 db compared to other units! Makes it far more usable in distant pickup applications and in areas with extremely high magnetic fields.

6. LESS SUSCEPTIBILITY TO "POP"

Integral "pop" filter minimizes explosive breath noise without external screening. Works well where other microphones are marginal or unusable.

7. MINIMIZED PROXIMITY EFFECT

Uniform tonal quality is maintained (without objectionable low-end build-up) regardless of whether the microphone is worked close up or from a distance.

8. FIELD SERVICEABILITY

Element (cartridge), connector, front screen, roll-off switch can all be replaced in minutes.

SHURE BROTHERS INC., 222 Hartrey Avenue, Evanston, Illinois 60204

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Circle 150 on Reader Service Card

Remote Video Taping

Continued from page 44

mercial (30 or 60 seconds in length) inserted into the body of the program. These commercials can be produced in several ways. The easiest is with the announcer doing the copy with a product, or a logo, to point to. It is often sufficient just to switch to a Polaroid picture of the product. For additional exposure, put the sponsor's name on the news set.

Each individual item of expense should be passed on to the advertiser. When he purchases advertising, all he is buying is exposure, not production. All art work and production costs must be extra. In this regard, cable advertising is no different than newspaper advertising. They sell space, you sell exposure.

Remote broadcasts can call for special rates

The Lower Bucks Cable Systems

Lower Bucks Cablevision in Levittown, Pa., is well known as one of the first systems to provide more than 12 channels—via dual cable. The system serves a community of about 17,500 homes with 18 channels of information and entertainment—14 TV stations from Philadelphia and New York City, the local origination channel, AP Datavox, weather, fm and color bars.

because exposure includes the tape session on location. Placards can be hung over the talent and over the action point where the camera will focus most.

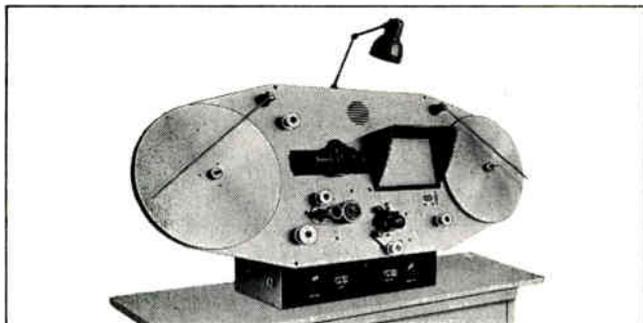
There is no simple formula for determining advertising rates. Analyze local newspaper and radio rates and determine what you think the going rate should be. A fair charge for sponsoring a two-hour sports event might be \$150. If you can't sell a single sponsor for the whole game, sell parts of it to several. There's ample opportunity to credit the sponsor's product or service.

If your system has two tape recorders, then preproduction of commercials and inserting them as the program is played back is the best and most professional way to do it. The proper time can be spent on commercial production, and insert becomes an operator function that provides a welcome change in the normal flow of the programming.

Cablecasting can be a very interesting part of your system operation, providing sales plus revenue if operated correctly and merchandised to the *non-cable* viewer. Make your local origination system portable, and operable with as few people as possible, and sell, sell, sell, customers and advertising.

BM/E

new **LSC** VEDETTE
16mm and 35mm PROFESSIONAL PROJECTORS
for fast, safe, high speed viewing and
inspection of motion picture film



- The ideal machine for film quality control, timing and correction, and release print inspection. Handles negatives, line grains and prints.
- Visual inspection of both picture and optical sound track. Solid state amplifier for simultaneous monitoring of picture and sound.
- Efficient revolving prism shutter and sharp optics produce bright, clear images without overheating film.

- Smooth, gentle film handling at up to 400 ft./min., without intermittent movement of usual claw or Geneva gear drive. Stable, positive focus. 2,000 foot film capacity.

Write for LSC Vedette literature or request a "no obligation" demonstration



LIPSNER-SMITH CORPORATION

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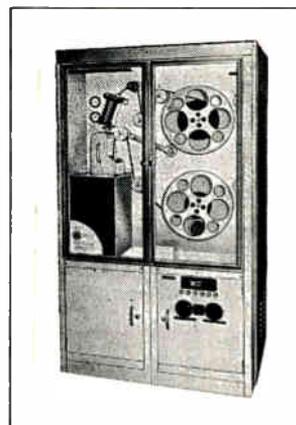
CF₂ ULTRASONIC CLEANER

for MOTION PICTURE FILM · MICROFILM ·
MAGNETIC TAPE

Presented The Academy of Motion Pictures Arts and Sciences Award of Merit for Outstanding Technical Achievement.

Ultrasonic energy is the most effective and economical way to completely clean motion picture film, microfilm and tape without mechanical scrubbing and wiping. Ultrasonic energy performs the entire cleaning operation.

- Restores clarity and sound to maximum quality.
- Enhances the entertainment value of motion picture film and improves commercials.
- Assures static free film with color balance undisturbed.
- Cuts projector maintenance costs . . . no dirt or dust carried into gates and orifices . . . less breakdowns.
- Completely automatic . . . requires only loading and unloading.



- Costs only 1/20 of a penny per running foot to operate.
- Used by every major motion picture lab in the world.

Descriptive brochure sent on request

10041

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Cable Is Spelled

Continued from page 45

Martin, president and general manager, that one should definitely go first class in the studio. Martin has invested nearly \$100,000 in studio gear. His current complement includes cameras from Ampex, a film chain from Bell and Howell and videotape recorders from IVC. Switching and mixing equipment permits almost any mode of operation.

Multi-View didn't start from scratch. In some instances it took over existing systems and updated them. Part of the time, Multi-View would do most of the construction modernization, but at other times it would bid the job out for turnkey.

Multi-View is owned jointly by Martin and

Telesis, a multiple system operator. Telesis was already operating systems in Nebraska and nearby states. Some of these systems may eventually be tied into the underground net. Others, that are quite isolated, may continue to operate as separate plants.

The underground route is laid along state and county right-of-ways. Within a town, lines are run overhead using telco or utility poles. Cable and amplifiers have been purchased from various sources and full twenty-channel transmission is possible. A steel sheath is being used on the cable to keep gophers and other rodents from making unauthorized taps.

Eventually, Multi-View will consider advertising. Its local franchise agreements permit selling time, but for the immediate future, all programming costs are being underwritten by Multi-View—costs that it expects to recover in fast subscriber sales. Kearney will be a good test since the appeal to new subscribers rests heavily on the attractiveness of the information and entertainment service. Multi-View expects success; it's already laying cable to Hastings, which will complete the backbone of this enterprising underground net.

BM/E

Even Stock Brokers Go for Alphamatic NYSE Program

The Alphamatic New York Stock Exchange service is popular even with insiders. The Flint, Michigan cable system has wired the offices of Goodbody and Co. Goodbody runs four monitors to keep itself broadly informed even though it has direct ties to the NYSE and the usual punch-up devices for the latest quote on particular stocks.

TAPECASTER®

T C M

If you buy a tape cartridge machine without a **SUPER-TORQUE** hysteresis synchronous motor, you may be purchasing built-in obsolescence.

The new SUPER-TORQUE hysteresis synchronous motor found in Tapecaster is the first significant improvement to be introduced to tape cartridge machines. Because of increased performance, Tapecaster obsolesces all other machines. That's why Tapecaster is the leader in professional tape cartridge equipment.



Box 662—12326 Wilkins Avenue
Rockville, Maryland 20851
Phone: 942-6666 Area code 301



Tapecaster now has **SUPER-TORQUE**. Why settle for less?

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BM/E CLASSIFIED MARKETPLACE

CLASSIFIED ADVERTISING RATES

DISPLAY CLASSIFIED ADVERTISING: \$22.50 per inch 1x; \$22.00 per inch 3x; \$21.00 per inch 6x; \$20.00 per inch 12x. ALL OTHER CLASSIFIED ADVERTISING 25¢ per word; minimum \$3.00. BLIND BOX NUMBER: No extra charge. Replies sent to address below will be forwarded to you. PAYABLE IN ADVANCE; send check with order. CLOSING DATE: 5th of 2nd month preceding issue date.

BM/E, Monterey and Pinola Avenues, Blue Ridge Summit, Pa. 17214 Phone 717/794-2191

BUSINESS OPPORTUNITIES

FRANCHISE DISTRIBUTORSHIPS FOR SEEBURG BACKGROUND MUSIC

We are expanding our distributor territories, and offer to those who qualify franchises for background music, with phone lines, FM Multiplex, or on-premise systems.

Complete details forwarded on request.
Address:

Joseph F. Hards, Vice Pres.
SEEBURG MUSIC LIBRARY, INC.
1500 North Dayton Street
Chicago, Illinois 60622

WHY BUY AN FM?

Build your own.

Hundreds of open frequencies. Operate \$1,000 mo. fixed expense using our unique plan. If you have capital call 213-980-4000, or write:

Tape Networks, Inc.
12148 Victory Blvd.
North Hollywood, Calif. 91606

SALES REPS WANTED

SALES REPRESENTATIVES TV RELAY LINKS

Openings exist for qualified organizations in territories throughout the United States. RHG Electronics Laboratory, Inc., a leading supplier of militarized microwave relay equipment, is now offering a complete line of all solid state microwave replay equipment for STL and intercity use to the TV broadcast industry.

Contact R. B. Hirsch at

RHG ELECTRONICS LABORATORY, INC.
94 Milbar Boulevard
Farmingdale, L. I., New York 11735
516-694-3100

HELP WANTED

HELP WANTED: Television engineer to be in charge of all engineering matters in CCTV state-of-the-art university operation. Directs activities of engineers and technicians within engineering and technical services operation. Contact State University College, Oneonta, New York. Phone 607/431-3314.

HELP WANTED: Television maintenance technician for CCTV state-of-the-art university operation. Requires strong background in all phases of TV maintenance, experience with 1-inch Ampex slant video type machine helpful. Contact State University College, Oneonta, New York 13820. Phone: 607/431-3314.

HELP WANTED (cont'd)

MANAGER, SALES & MARKETING TV RELAY LINKS

We are a leading supplier of militarized microwave relay equipment, now offering a line of all solid state TV relay links for STL and intercity use to the TV Broadcast industry.

The man for this job has contacts at TV stations throughout the country, and has the ability to organize and manage an aggressive sales and marketing campaign including the selection of a nation-wide rep organization.

This is a top position for a top-notch man.

Contact R. B. Hirsch at

RHG Electronics Laboratory, Inc.
94 Milbar Boulevard
Farmingdale, L. I. 11735
(516-694-3100)

Announcer for 5KW full-time Pennsylvania adult music station with heavy accent on news and sports. No. 1 in medium market. Modern operation with top sound. No maintenance or selling. Good salary and fringe benefits. 215-696-3690.

Available July, 1969. Openings for TV Engineers and TV Technicians. Duties include installing and operating color and black and white TV systems. Salary commensurate with experience. Send resume to Ronald Lask, Chief Broadcasting Engineer, University of Illinois, Medical Center, P.O. Box 6998, Chicago, Ill. 60680.

Studio supervisor—must have first phone license and be experienced in the operation and maintenance of live color cameras, color video tape machines, and color film equipment. Contact John Schuta, Chief Engineer, WTVW-TV, Evansville, Indiana—phone 812-422-1121.

FULL-TIME AND PART-TIME FIRST CLASS men needed. One combination man. One maintenance man. Good pay, fringe benefits, excellent living conditions, profit-sharing plan. South Jersey 609-825-2600.

Announcer/First Phone—no maintenance—permanent position—five day week. Excellent salary—fringe benefits. Contact Robert F. Wolfe, Radio Station WFRO, Fremont, Ohio 43420.

First phone announcer, preferably experienced for Wisconsin AM-FM fulltime operation. Send air-check and resume. Robert Bodden, General Manager, WSWW, Box 1, Platteville.

Announcer—first ticket engineer. Excellent salary for right man. Permanent position in good community. Contact Ron Clark, WHLT, Huntington, Indiana 219/356-1640.

WTOC-AM-FM-TV needs technicians with first class F.C.C. license. Reply by letter to Chief Engineer, WTOC, P.O. Box 8086, Savannah, Ga. 31402.

#1 engineer for Pennsylvania CATV. Get in on ground floor of expanding operation. Box 669-1, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Aggressive, proven, local sales manager for number one station. Write all details to Harvey Hudson, WLEE Radio, Richmond, Virginia.

POSITIONS WANTED

Manager/Comm. manager, best references, small, medium markets. Full responsibility. 36 years old/civic leader. Experienced all phases. Box 669-2, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Black announcer, broadcasting school graduate, third phone endorsed, beginner but eager to learn. Seeks employment with R&B, MOR or jazz station. Will travel. Lee J. Willis, 160 Montview St., Pittsburgh, Pa. 15214 (412) 931-6144.

Top 40 personality, 2 broadcast schools, 3rd endorsed, military recently completed, young, dependable. Would like to stay in New England area. Ready to go. Ed Rice (203) 229-7530.

Broadcasting school graduate, 3rd class, will relocate. Beginner, ready for first job, willing to learn. Contact Joseph Jantzon, 6821 Heliotrope Ave., Apt. C, Bell, Calif. 90201.

POSITIONS WANTED (cont'd)

Disc jockey newscaster. Dependable, versatile, tight board, creative, third endorsed, re-locate. Resume, tape upon request. Box 669-3, c/o BM/E, Blue Ridge Summit, Pa. 17214.

Broadcast school graduate, 21, 3rd endorsed, would accept off mike duties. Kenneth Sudol, 65 Willard Street, Garfield, New Jersey 07026.

EQUIPMENT WANTED

400 to 500 foot self-supporting tower. Give details & price. Mr. Lee, WSBC, 2400 W. Madison Street, Chicago, Ill. 60612.

EQUIPMENT FOR SALE



STANDBY GENERATORS
LINE TRANSFER CONTROLS

New/used-Catalog Free
FORCES 124 WEST LAKE STREET
NORTHLAKE, ILLINOIS 60164

TRANSLATOR POWER Now put your translator where antenna should be for best coverage not where power line happens to be. Use a TELAN thermoelectric generator. No moving parts, simple to operate, leave unattended 6-12 months. General Instrument Corp., Thermoelectric Division, Dept. BM, 65 Gouverneur St., Newark, N.J. 07104, 201-485-2100 ext. 481.

SCULLY TAPE RECORDERS: Mono., 2, 4, 8, 12, & 16 track models plus 270 automatic players. Some models in stock now. W.A.L. custom audio control consoles & console modules. Solid state 120 Watt power Amps. We buy and rebuild Scully lathes. **WIEGAND AUDIO LABORATORIES, INC.** 3402 Windsor Road, Wall, N.J. 07719. Phone 201/681-6443.

Best deals—Spotmaster, Scully, Magnecord, Crown, Amega film equipment, CBS Audimax/Volumax, Metron Modulation Monitor, Langevin, Pultec, Fairchild, Universal Audio, Rek-O-Kut, Gray, Russco, other top brands. Write for information, Finance, trade, lease. Audiovox, Box 7067-55, Miami, Florida, 33155.

"All-steel desk console. 19-inch mounting widths. Two 21-inch side sections. Three 14-inch top sections. Excellent condition. Perfect for audio or video applications. \$150.00. WACH-TV, Box 1020, Richmond, Indiana 47374."

"\$815.00 buys fully professional tape recorder with equal performance and more features than recorders costing \$1,200.00 and more. Full info. Simpson Electronics, P.O. Box 1252, Binghamton, New York 13902."

Brand new remote amplifiers, 2 channel remote microphone amplifiers, 2 1/2 inch VU, battery operated, 9 transistors \$95.00 FOB Kokomo. **GREDCO, INC.** 1830 S. Webster, Kokomo, Ind. 46901. Area 317-883-5688.

Model 335-B Hewlett Packard frequency and modulation Monitor. Just removed from service. Good condition. Presently on 1051 mc. Instruction book. \$650.00. WSOM—Salem, Ohio—216/337-9544.

Broadcast and recording equipment, new and used, bought-sold-traded. New items listed daily. Maze Corporation, Box 6636, Birmingham, Ala. 35210.

2 RCA color camera chains, TK-40A modified by RCA to approximate TK-41. Around 5000 hours. Call 317/773-0030. Write WURD, Noblesville, Ind.

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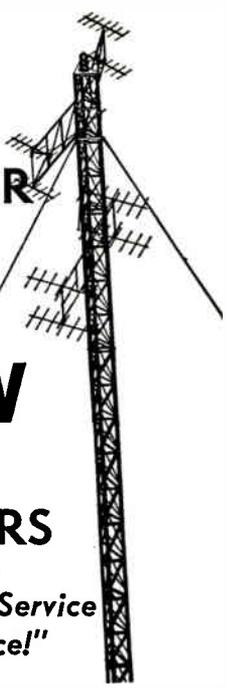
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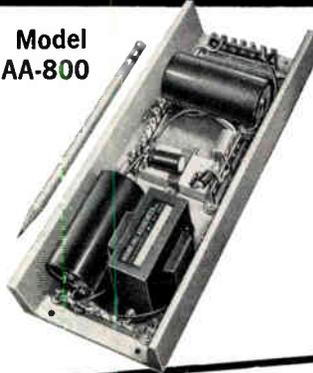
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Circle 156 on Reader Service Card

FROM THE **EDITOR**

What About PSAs?

The definition of a Public Service Announcement is always open to potshots. We have forest-fire prevention, U.S. Savings Bonds, military recruitment, anti-cigarette spots and many others. The PSA character of such announcements has been coming under closer and closer scrutiny by special-interest groups and some stations are finding themselves in a quandary. Is it a *bona fide* PSA or isn't it? Should we run it and risk offending some of our audience?

One such PSA that's drawing fire is the military recruiting spot. Especially vocal college student groups are up in arms against campus stations that carry military recruiting PSAs. One result is that the campus broadcaster is seriously questioning whether these announcements are really in the public interest.

Then there's the fairness doctrine. Does a recruiting PSA imply equal time for anti-war groups? Does a nationally distributed PSA work contrary to the public interest in some locales? The answer to both questions has to be a resounding "no." A PSA does not become less of a public service just because some special-interest groups happen to disagree with government policy. "Bonds buy bombs," is an oft-seen phrase painted on walls in pockets of anti-ware sentiment. But bonds also help keep the national debt afloat, pay government employees' salaries, build highways, buy medicine for the afflicted and help fight poverty.

Recruiting announcements and bond sale plugs are part of our government's fabric of economic solvency and national defense. Whether or not a person agrees with the war in Vietnam has little bearing on the duty of our government to maintain secure borders and defend our country against possible aggressors. It is a trust delineated in our Constitution, and we certainly wouldn't be able to survive very long as a free nation without our military bulwark.

Taken a step further, we're fairly certain that the cigarette interests don't like the anti-smoking PSA's appearing so frequently on the TV screen these days. Yet not one station has questioned the PSA validity of such spots. Is it because the cigarette manufacturer answer with more money for more commercials? Of course, the stations have no choice but to continue the anti-smoking spots.

What then is the ultimate criterion for judging the true public service nature of these commercials? There's no across-the-board yardstick. Consider your audience, your own judgment and the well-being of your fellow man. Refuse to be intimidated, because after all, you are a member of the press and should have the freedom to exercise control over your programming. In the final analysis, simply let your conscience be your guide. You'll be able to sleep better at night.

Walter G. Salm
Managing Editor

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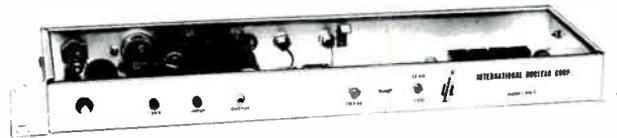
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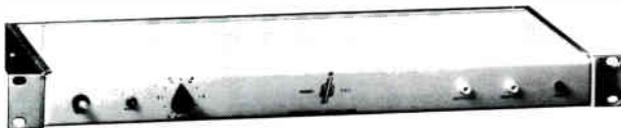
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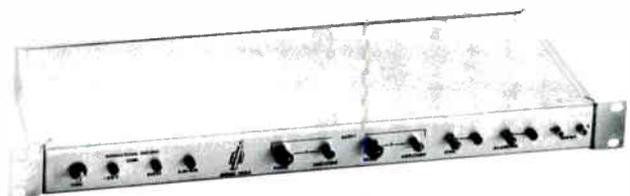
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