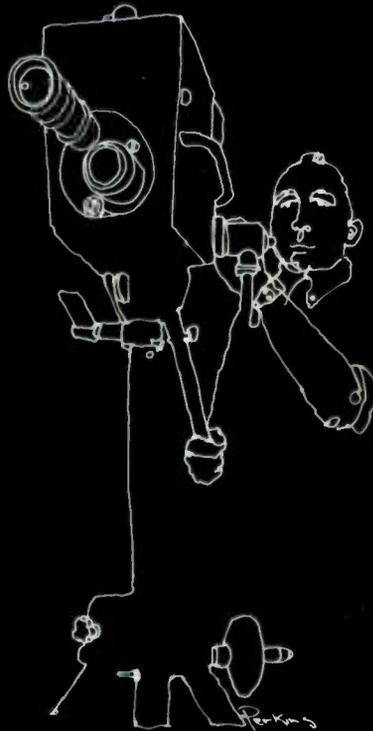
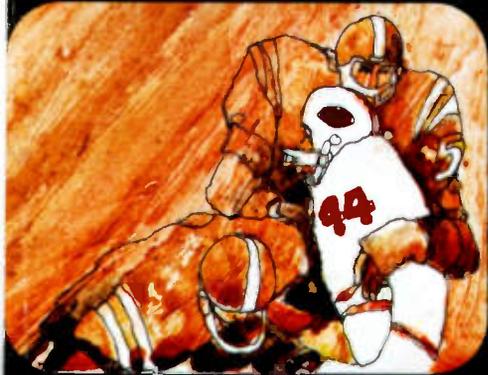


TV Communications

The Professional Journal of Cable Television

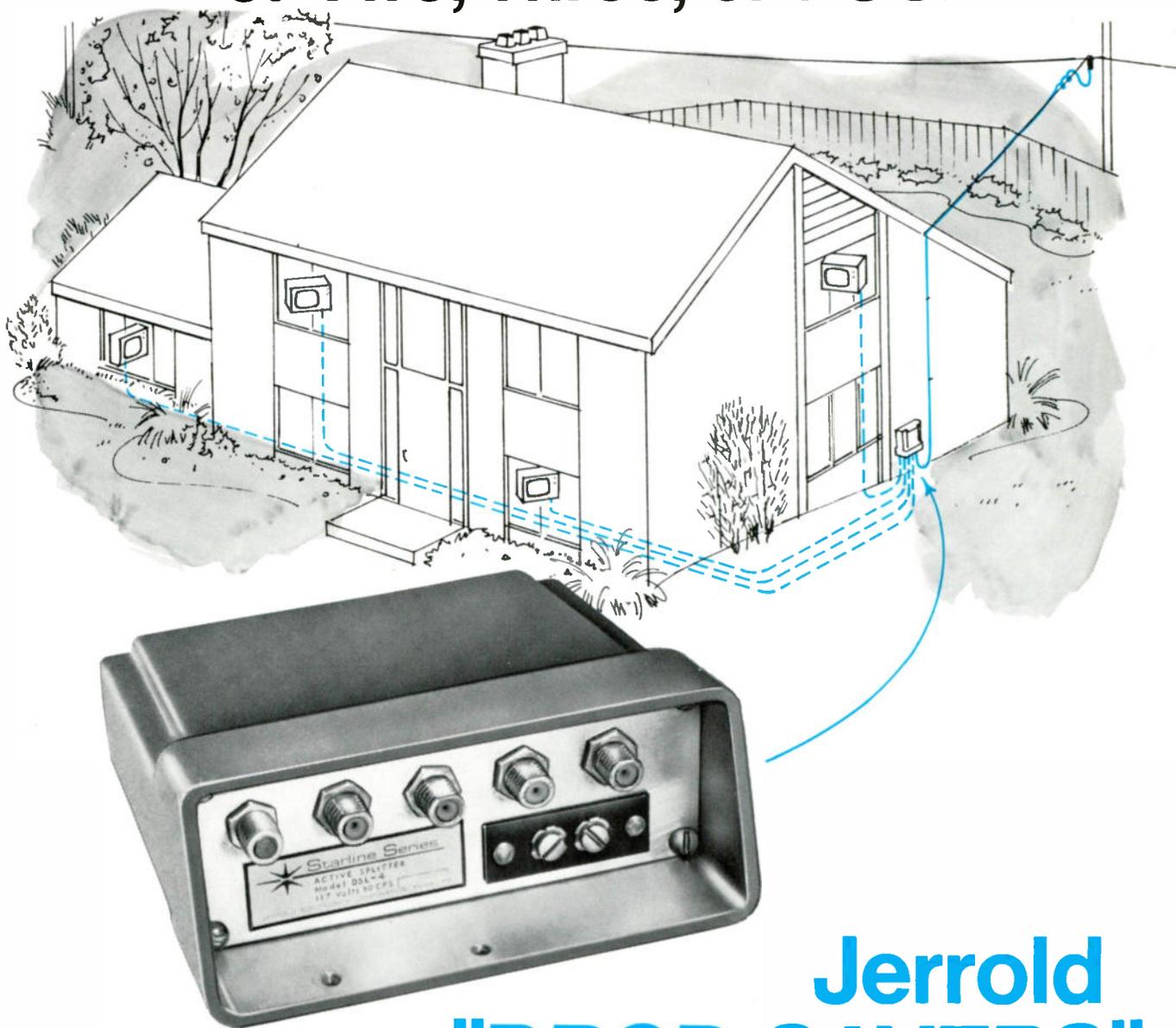


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(WASHINGTON)
-- PRESIDENT NIXON SAYS THE NATION IS MOVING BACK TOWARD STABLE PRICES. AND HE BACKED UP HIS OPINION BY

THIS ISSUE: CATV SOFTWARE DIRECTORY

ONE drop line does the work of Two, Three, or FOUR with



Jerrold "DROP-SAVERS"

New Jerrold "DROP-SAVERS" are immediately available to provide all the "on-the-spot" amplification needed to feed up to four TV sets with a single drop line. They're efficient, inexpensive, and already hailed by system operators as the answer to the rapidly growing number of multi-set locations. Perfect for homes, small apartment houses, duplexes, appliance stores, and TV shops.

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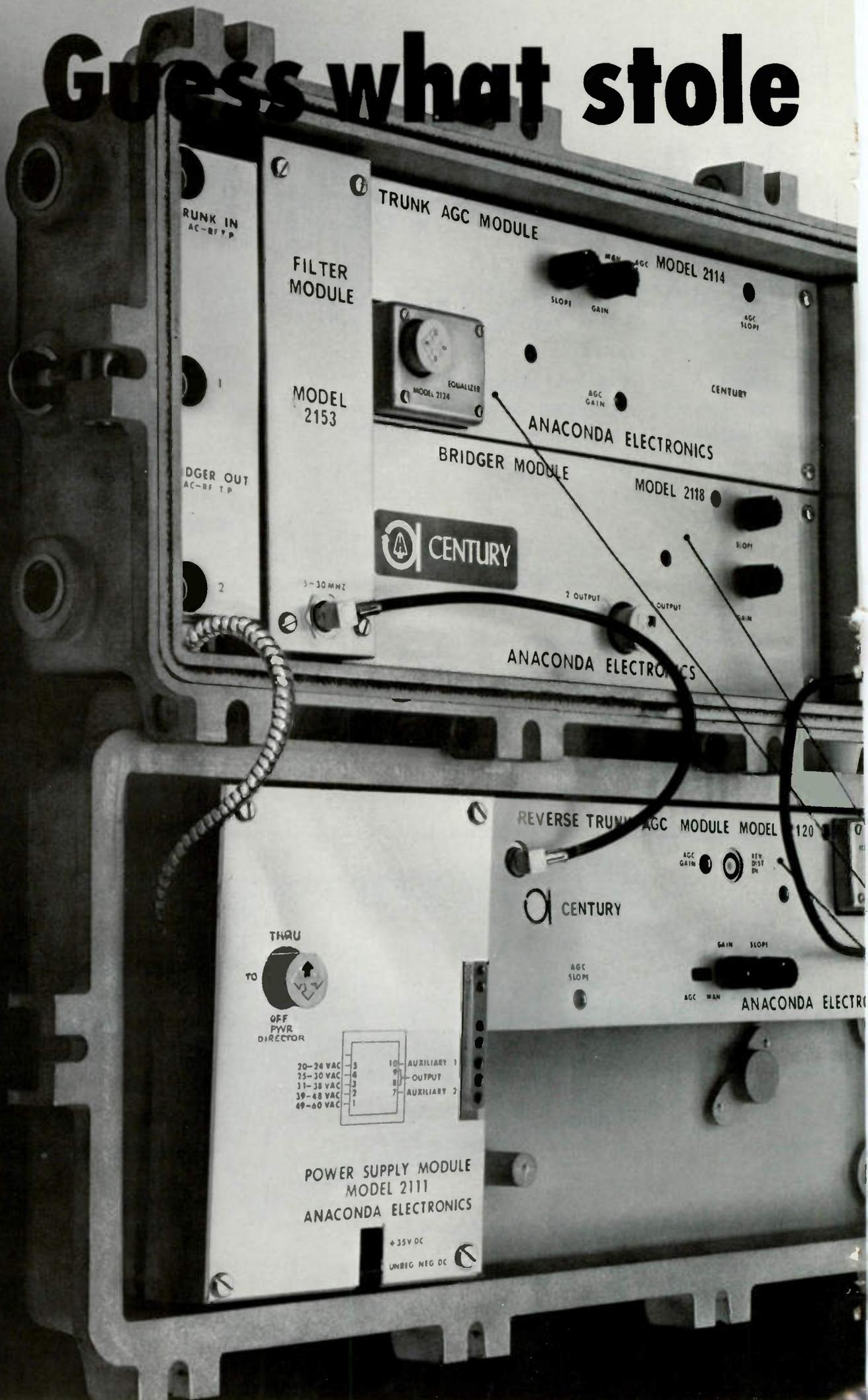
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August, 1970, Volume 7, Number 8

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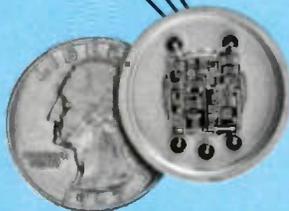
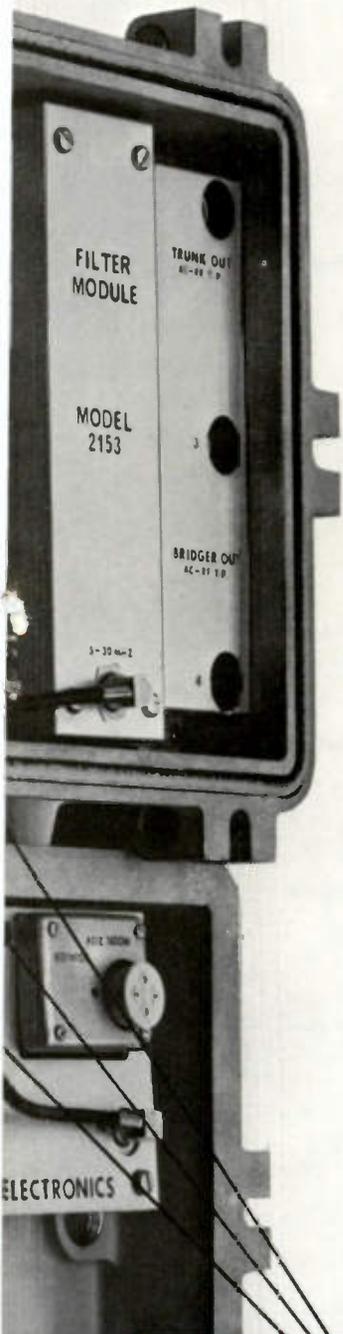
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TV Communications

The Professional Journal of Cable Television

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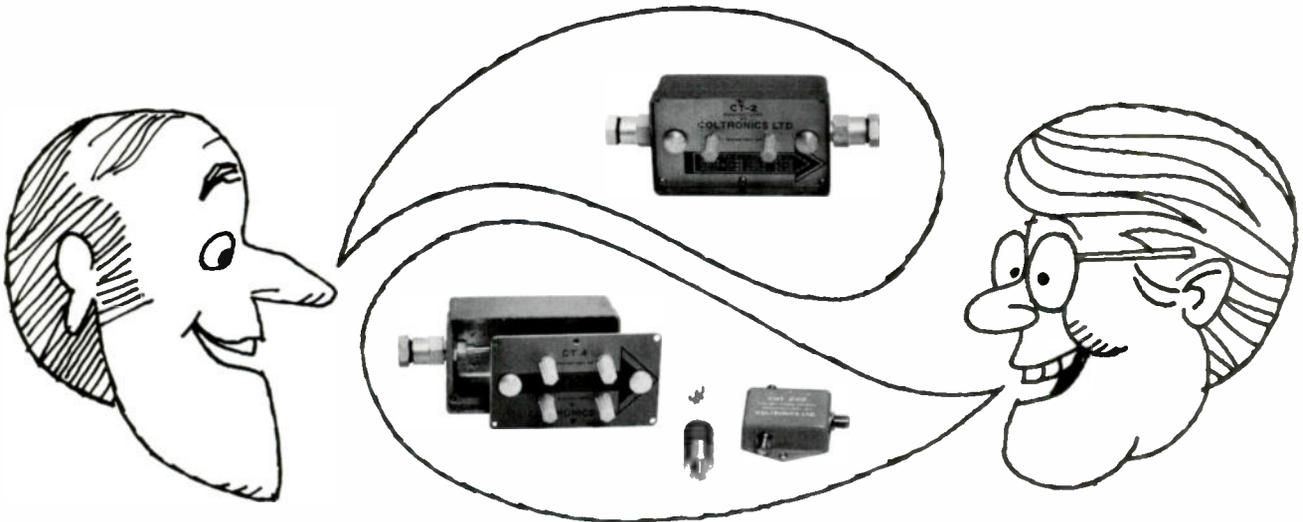
Patrick T. Pogue



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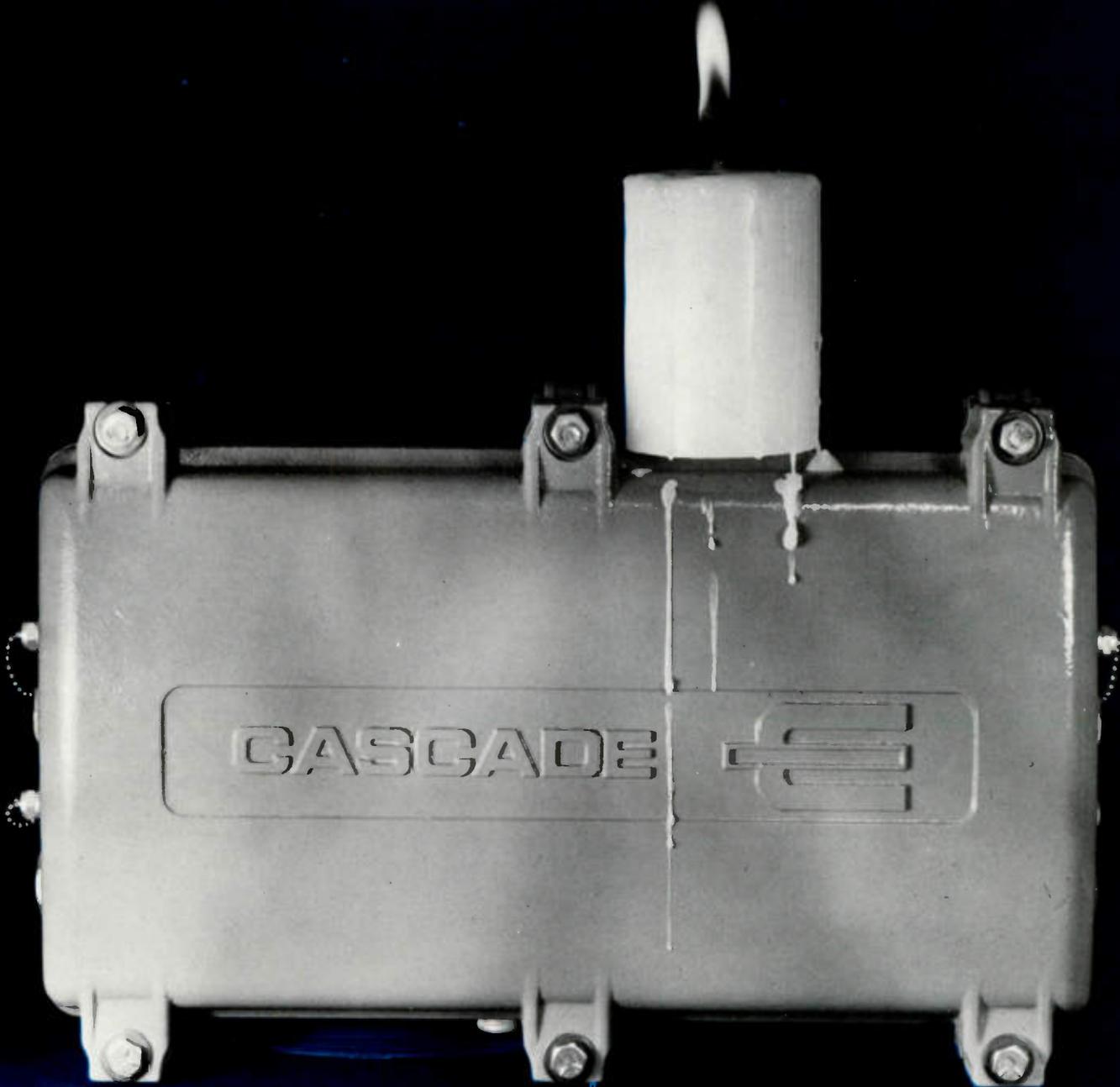
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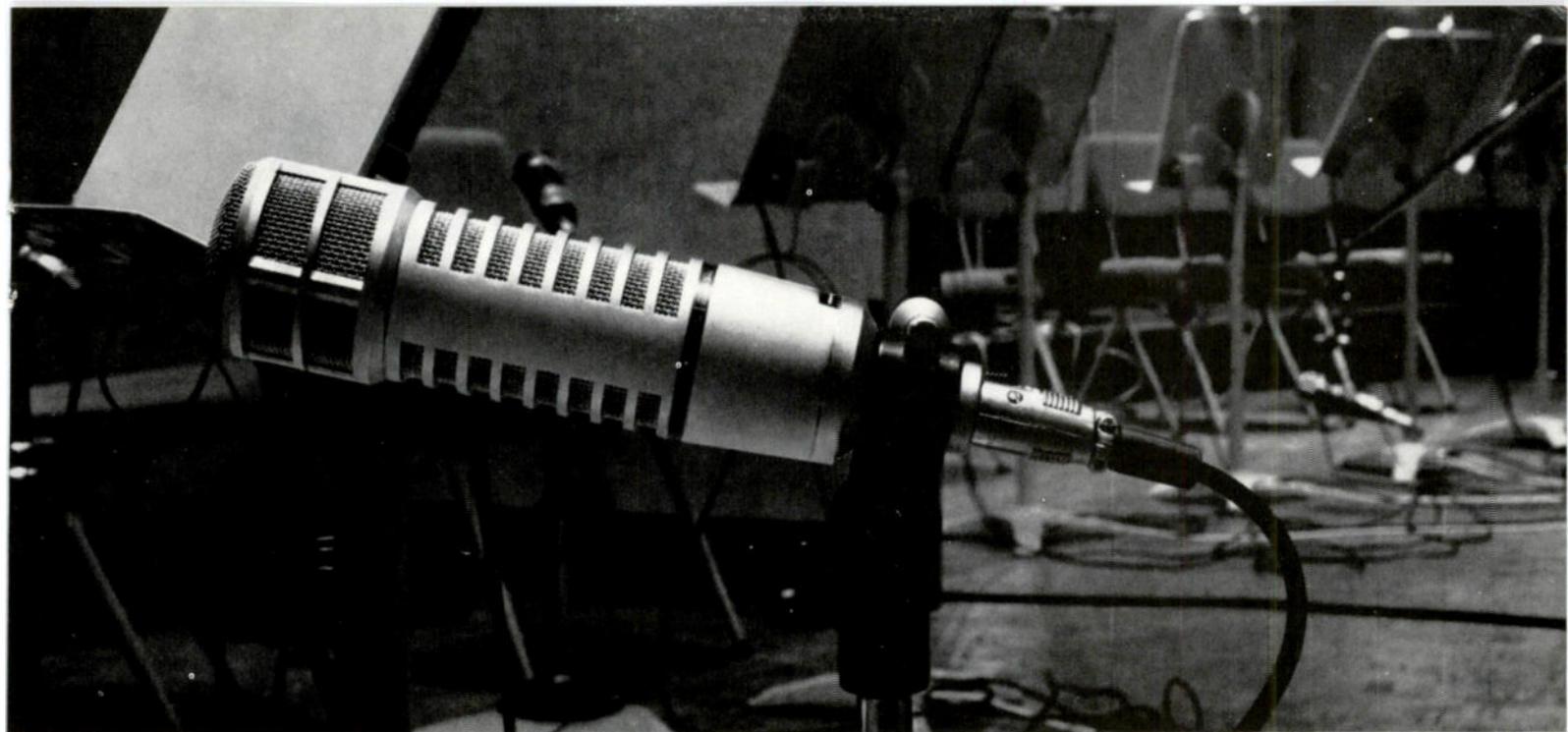
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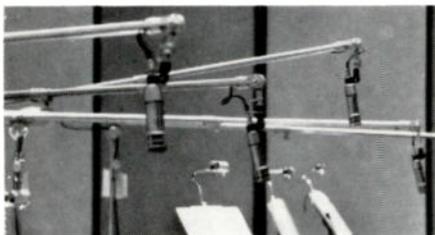


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As a result, when Studio M was completed, RE20's were on the booms... almost four dozen of them from our first production run.



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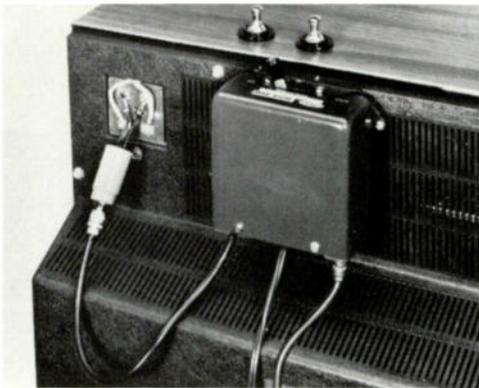
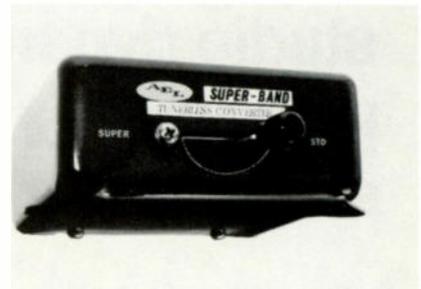
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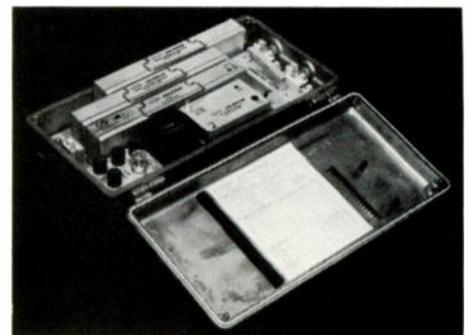
This unique accomplishment is the result of using AEL's SUPER-BAND® Amplifiers and the SUPER-BAND® Tunerless CONVERTERS! Coatesville, an Eastern Pennsylvania City, receives over the air TV programs from all points of the compass.

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The TVC Viewpoint

EDITORIAL



Robert A. Searle
Editor

It's Your Voice!

Although the National Cable Television Association cannot be expected to objectively tackle the issues of CATV cross-ownership and ownership limitation, that does not mean that cable operators should ignore the question. The membership of NCTA is quite diverse. A high percentage of member systems are affiliated with broadcast or newspaper interests. Furthermore, NCTA is almost totally dependent upon large MSO's for its financial support.

Obviously, it would be folly for the trade association to take a position against CATV ownership by broadcasters or newspapers (or to support a meaningful limitation upon the size or number of systems which a single corporate entity can own). By the same token, any NCTA argument against ownership limitations would hardly be taken seriously by the FCC or Congress.

The voice of an individual cable television operator, on the other hand, can still carry considerable weight at the Commission. As an individual, you

have every right — and perhaps the obligation — to make your views known on all major issues — sensitive or not. Because of NCTA's inability to represent the cable industry on these ownership questions, the only representation that CATV interests will have must come from individuals and companies.

Without suggesting what your position should be, we urge you to carefully evaluate the various limitation schemes which have been put forth by the FCC with respect to CATV ownership. The diversity of approaches suggested implies that the FCC is inviting some constructive suggestions. For the CATV industry to remain silent is not constructive.

Let your opinion be heard on these questions. File your comments to one of the many able communications attorneys who specialize in CATV, or simply write to the FCC direct (be sure to include 50 copies for distribution at the Commission).

This is one instance where you can't "let NCTA do it."



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Perspective

on the news



*B. Milton Bryan
Executive Editor*

Indications are that the industry is starting to move again. A number of manufacturers report backlog orders for CATV hardware, and at least one is working hard to get a new plant in operation.

TeleMation, for instance, has sold over twenty-five color cameras to cable operators in recent days — a major index of the fact that local origination purchases, in particular, are on the upswing.

Big problem manufacturers are facing now is tight money. Many manufacturers report they are either afraid to extend credit to operators willing to buy or are unable to get credit for them. “Selling is not too tough,” they say, “But getting the money once the sale is made is sometimes difficult.”

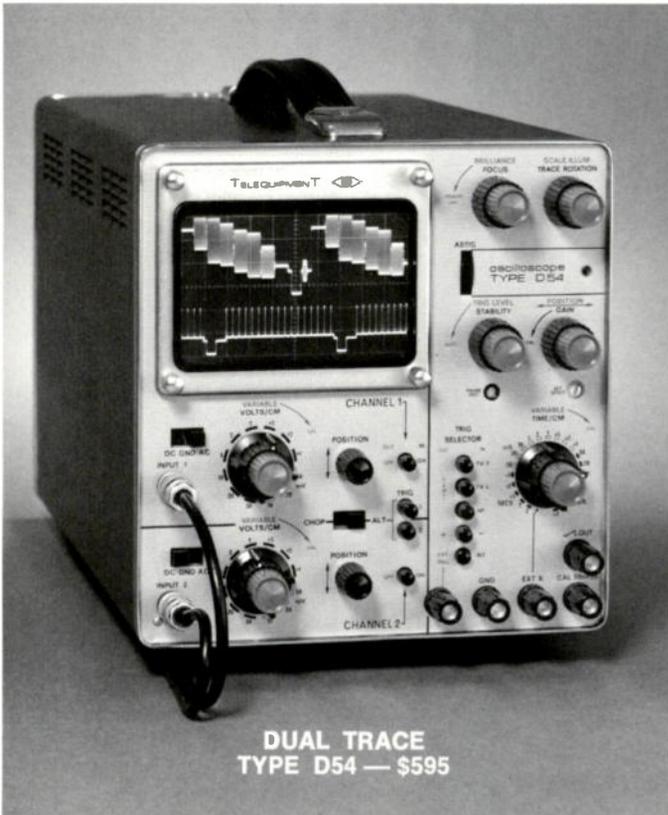
However, money squeeze appears to be beginning to relax a little. Housing finance, a major index of trends in money, is starting to loosen up in some areas. Retail spending is beginning to increase again, and leading investment men, bankers and economists are predicting the beginning of an upward move soon.

Return of healthy business situation will be slow, however. While this won't hurt cable growth in new areas, it will undoubtedly mean growth will be slower.

Cablemen too are beginning to relax a little. In spite of the uncertainty of the Commission's regulatory proposals, operators are settling down with a generally optimistic attitude about cable's future. The first attitudes of fear and confusion regarding the proposed rules have worn off, and are being replaced with a calm and confident hope with regard to the final outcome.

The proposed rules will probably be modified considerably. The Public Dividend Plan, designed as a boon to UHF, has been objected to strenuously by ACTS, the radical voice for U's. Although the ACTS proposal which would allow UHF the same importation rights as cable is highly unlikely, some aspects of new FCC rules will be of unquestionable benefit to the U's.

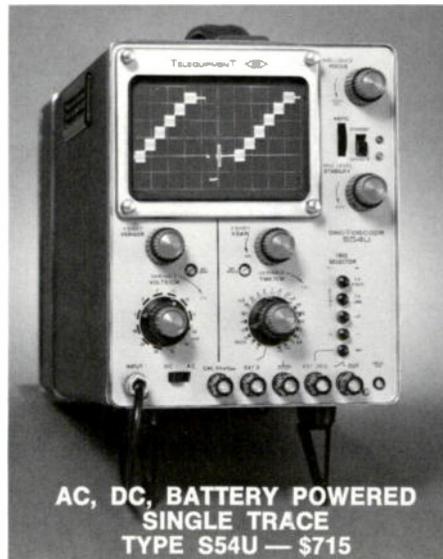
The new face at the Commission may be that of Cincinnati lawyer Sherman Unger, informed sources say. Formerly a part of the Housing and Urban Development operation, Unger can be expected to go after measures which will provide more and better television for minorities. He may be Nixon's concession to black pleas for representation at the Commission. Pro-minority attitude may result in pro-cable and pro-UHF stand. Eventual attitude with regard to CATV is impossible to determine at this time.



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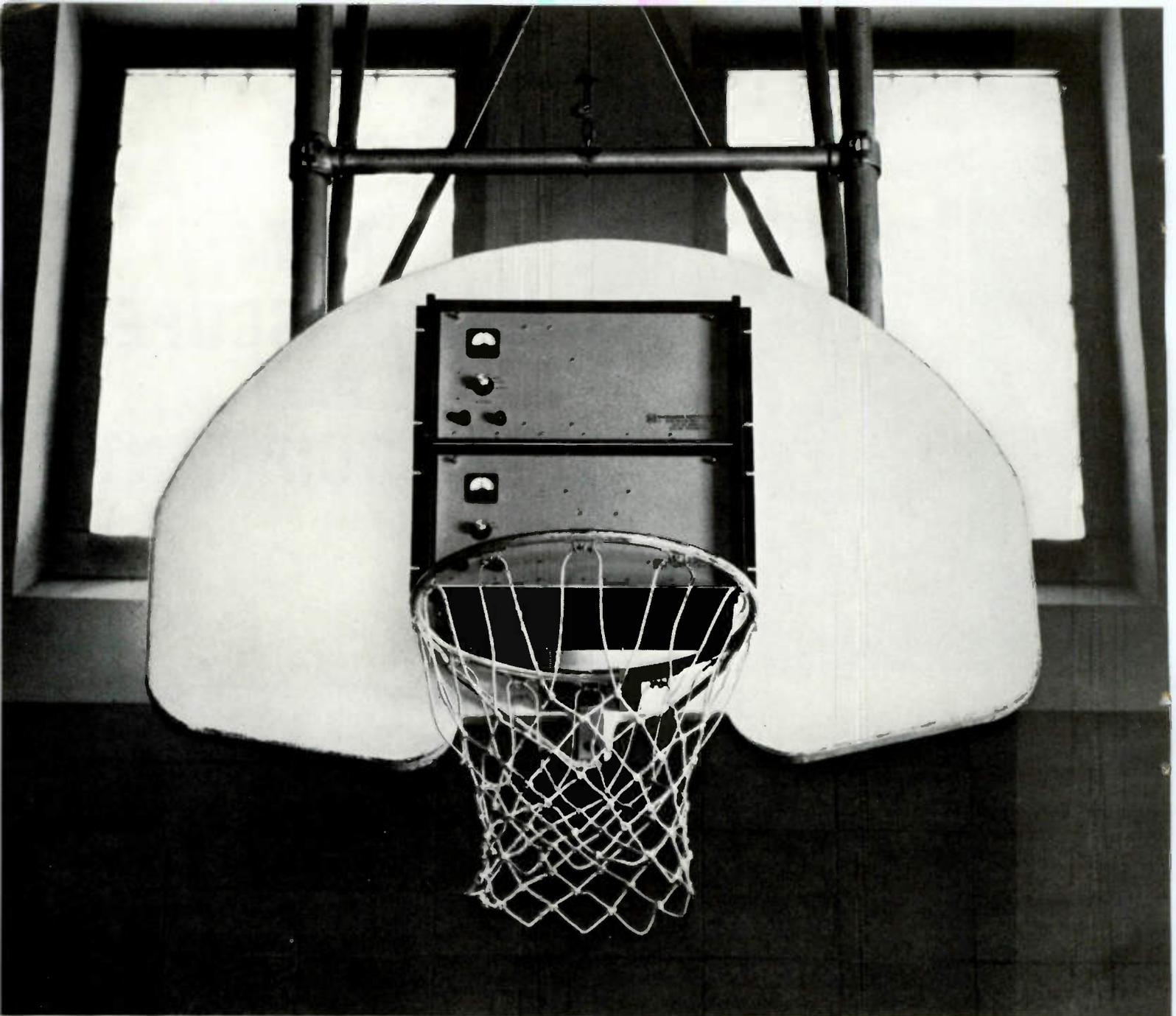
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Management Guidelines

D. Stuart MacPhail
Managing Editor



Getting Across to People

"Communication" is a word CATV people hear and use nearly every day. Yet, this word (when applied to management) is a key to success that is too frequently missed. Lack of communication has caused more failures, more frustration and more misunderstanding than any other phase of management.

Communication is a high sounding, impressive management word. Cutting it down to size, it simply refers to your ability to express yourself so that people will understand *exactly* what you have to say, and your ability to understand *exactly* what people say to you.

Most people are self-centered and it is hard to get them to listen. Unless we understand this, we will never really learn to communicate. In the business world, it is hard to exchange *accurate* thoughts and opinions.

People are so preoccupied with their own thoughts and problems that they seldom listen intently. How often have you heard people say, "I'm sorry, I wasn't listening. Would you repeat what you said?" Or the preoccupied look in their eyes that tell you they are here physically, but mentally off in another world.

Also, most people do not want to listen. They are so eager to begin talking themselves, they can hardly wait for

you to catch your breath so they can interrupt your message to introduce their own comments.

Usually people do not bother to listen with an open mind. Their thinking is biased, so they hear only what they want to hear. If your opinion differs from theirs, they actually repel any comments you may make. This goes for all levels of management, up or down. This is a fact of life and should be recognized as such. Your method of presentation will go a long way in reducing or raising their listening barrier.

These are but a few of the problems that create difficulties for good communications. Recognise that odds are against your making yourself clearly understood. Accept it as a real problem and also as a real challenge.

This is why it is important for you to learn to improve your method of communicating to others. It can mean the difference between success and failure; a project or suggestion being accepted or rejected; a receptive ear or complete indifference.

If you don't get your point across, and you haven't tried to improve yourself in this area, don't blame anyone but yourself.

Next month this column will deal with ways to gain your employees *willing* cooperation. 



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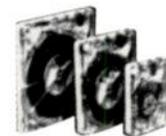
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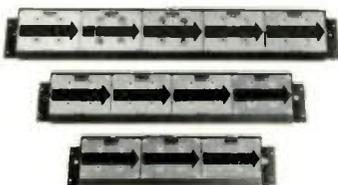
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Construction Reports

Northeastern States

North Adams, Mass., Berkshire TeleCable, adds Channel 22, Springfield, to system . . . Glen Falls, N.Y. Champlain Cablevision Corp., construction to begin soon . . . Herkimer, N.Y., Antenna Vision, Inc., seeking to raise monthly subscriber rates by \$1 to \$5.50 monthly.

Lewiston, N.Y., STV Cable Television, Inc., tower site located . . . Lake City and Scranton, Pa., Lake City Cablevision, construction under way . . . Wilkinsburg, Pa., Centre Video, construction nearing completion.

Midwestern States

Crystal Lake, Ill., Vue Sonics, Inc., preliminary work under way . . . Dixon, Ill. Dixon Cable TV, Inc., construction to begin soon; system to be operational by October 1 . . . Knoxville, Ill. Northwest Illinois CATV, system to be operational by fall.

Pittsburg, Kan., Pittsburg Cable TV, Inc., plans to add KPLR, St. Louis independent, to 10 video channel system . . . Jefferson City, Mo., International Telemeter Corp., hook-ups continuing . . . McCook, Neb., Multi-Vue TV, system scheduled to be operational this summer.

Southern States

Columbus, Ga., TeleCable of Columbus, turnkey contract for 100 miles of plant awarded to AEL Communications . . . Annapolis, Md., Annapolis CATV, construction scheduled to be under way.

Barnwell and Williston, S.C., Home CATV Co., Inc., 500-foot tower installed . . . Pt. Pleasant, W. Va., Point-View, preliminary engineering studies completed.

Western and Mountain States

Sierra Vista, Ariz., Sierra Vista Cable TV, adds regular local origination programming . . . Modesto, Calif., Cablecom General of Modesto, Inc., hook-ups under way . . . Oceanside, Calif., Oceanside Cablevisio, hook-ups under way.

San Clemente, Calif., San Clemente Cable TV, monthly subscriber rate hike from \$4.50 to \$5.50 . . . Whitecliff, Calif., Bay Cablevision, construction to begin in near future . . . Yountville, Calif., Storer Cable TV, Inc., system energized.

Durango, Colo., Cable TV of Durango, adds two Denver channels, an independent and an educational, to previously 6 video channel system . . . Palisade, Colo., Comtronics Cable TV, hook-ups to begin in near future .

International

Summerland, B.C., Can., South Okanagan Cable TV, construction under way . . . Stouffville, Ont., Can., Richmond Hill Cable TV, Ltd., construction under way . . . Tavistock, Ont., Can., Grand River Cable TV, Ltd., construction plans now being made.

Woodbridge, Ont., Can., Richmond Hill Cable TV, Ltd., service to be available soon . . . Tokyo, Japan, Tokyo Cable Vision, first system to serve Shinjuku area, to be operational by the end of the year.

TVC

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NCTA WANTS REGULATION EXCLUDED FROM COPYRIGHT BILL

The NCTA board has approved a recommendation that the Senate Judiciary Committee take the CATV regulation out of the copyright revision bill and leave such regulation up to the FCC. But NCTA asked that the passage of such legislation should explicitly provide for the cable industry to make no copyright payments until FCC adopts (in final form) some version of the CATV Public Dividend Plan.

NCTA national chairman Ralph Demgen said that the just released text of FCC rules and proposals are too complex for the board to have formulated precise stands yet. NCTA has asked board members and association members in general to study the seven documents and let NCTA know their views.

Then, NCTA general counsel Gary Christensen will draw up a draft of NCTA's position, which will be sent to board members August 10. On September 9, the board will meet again for as long as it is necessary to hammer out a final position which will then be filed with the Commission by October 7.

On the matter of FCC rules and proposals on CATV ownership, Demgen said that the NCTA board had not formulated a position.

The NCTA chairman also said that he thinks the Commission is acting in "good faith" and that "Chairman Burch has done what he said he would do."

NCTA president Donald V. Taverner, also at the press conference, said that although Senator John McClellan (D-Ark.) and the copyright subcommittee haven't assured NCTA that the stripped-down bill would contain a provision protecting cable until the Public Dividend Plan is adopted, "we've been encouraged."

COMMITTEE MEMBERS, CHAIRMEN GET NEW POSTS AT NCTA

NCTA Board of Directors has approved the nomination of two new members of its executive committee and the nominations of chairmen for the association's Public Relations and Legislative Committees.

NCTA national chairman Ralph N. Demgen announced that Amos D. Hostetter Jr., vice president, treasurer and director of Continental Cablevision of Ohio, and Robert H. Symons, vice president of TelePrompTer Corporation of New York, have been named to the seven-man executive committee.

Demgen also announced that the NCTA's new public relations committee chairman is William M. Bresnan, president of H&B American Cablevision. Chairman of NCTA's Legislative Committee is Lawrence W. Kliwer, vice president of Peninsula Cable Corporation in Hampton, Virginia.

The NCTA committees also had vice chairmen named. Taking that slot on the Public Relations Committee is Abram E. Patlove, executive vice president of Goodson-Todman Cablevision Inc. Vice chairman of the legislative committee is Frank Thompson, general manager of Rochester Minn. Video Inc.

TEXAS ASSOCIATION ASKS MEMBERS TO HOLD BACK

The Texas CATV Association has advised its members to continue under their old pole attachment agreements with Southwestern Bell Telephone Co.

The association said that in letters apparently mailed during the latter part of May and early June, Southwestern Bell suggested that all cable operators in their operating territory sign the new form of attachment space agreement.

Late News (Continued)

"The letter acknowledges that the 50-cent increase supposedly to be effective June 1, 1970, has been waived. However, the letter stated that the \$4.00 rate effective January 1 has not been waived and that the new contract will become effective on that date," the association said.

The Texas Association noted that the statement is not "necessarily consistent" with the commitment by Bell System counsel at the hearing in Washington.

The telco said in Washington that the increase would be suspended during the pendency of the proceeding unless the proceeding were unduly delayed.

"There is no immediate advantage to signing the new contract," said the association. Signing of the new contract has the "disadvantage of implying consent to the \$4.00 rate effective January 1, 1971, and to the subsequent increases to \$4.50 on July 1 and \$5.00 on January 1, 1971."

HAWAII PASSES LAW FOR NON-FCC REGULATION OF CATV

With the signing into law of Act 107 by Governor John A. Burns, Hawaii becomes the first state to regulate CATV by a department other than the PUC. Act 107 places cable regulation under the Director of Regulatory Agencies. A five man CATV advisory board is to be selected by the Governor to advise the Director of Regulatory Agencies.

NAB CITES FIVE POINTS OF CRITICISM ON RULES

The National Association of Broadcasters board of directors reacted to the new and proposed CATV rules of the FCC by issuing a strongly critical five-point resolution:

"1. We endorse a national policy to encourage increased diversity of programming choice and communications service, but we believe that this is not necessarily achieved by the importation of the signals of distant broadcast stations, nor by the origination of programs by wired systems, where the program types are already in the community.

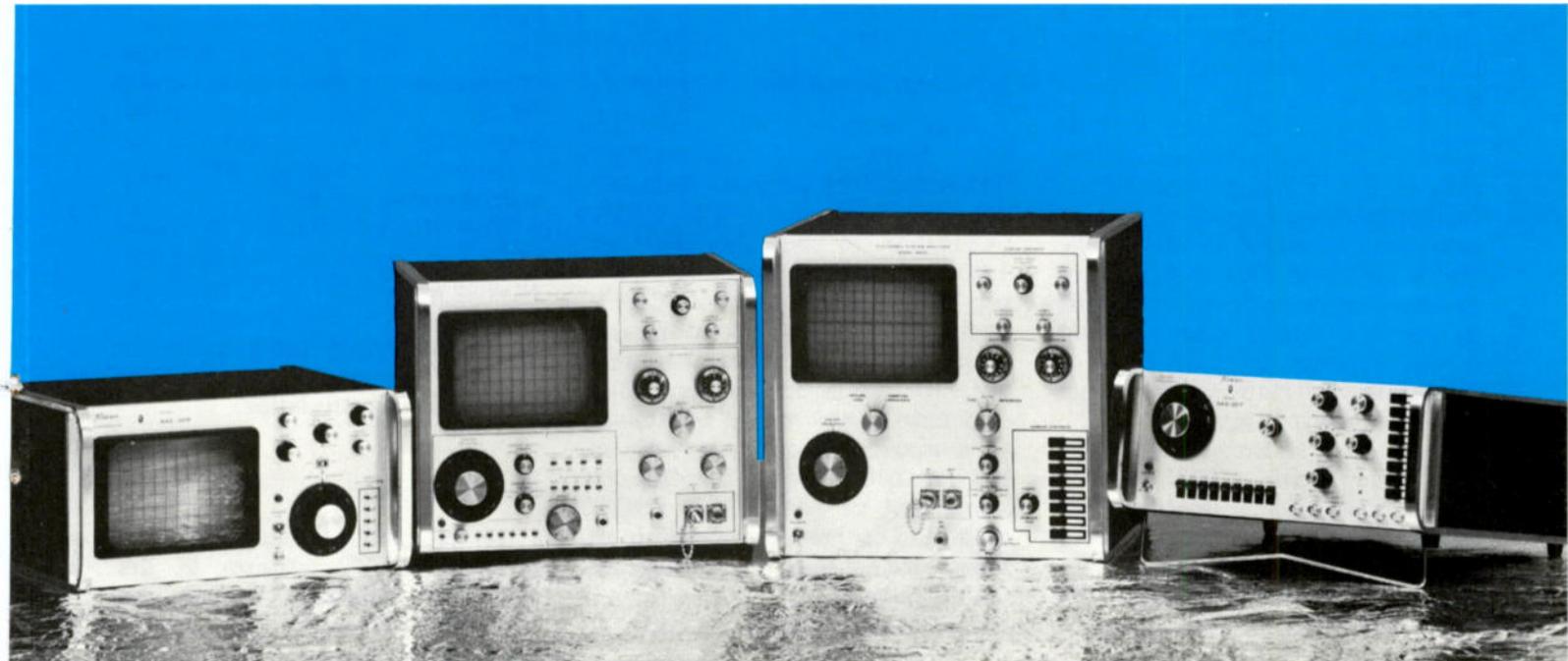
"2. Areas underserved by broadcasting should be supplemented by a reasonable number of additional signals through wired systems so that optimum communications service to all the public can be achieved.

"3. A legal and regulatory atmosphere to assure fair and healthy competition between broadcasting and CATV should be fostered by the Congress as clearly in the public interest. At present, for example, only the broadcast media pay the fair market value for the programs transmitted to the public.

"4. The continued unregulated growth of the paid wire system represents a real threat to the continuing capability of the broadcast system to maintain or improve the present quality of local service.

"5. The present proposals pending before the Federal Communications Commission are potentially destructive of the over-the-air broadcast service to the public, and are not based on definitive research and public hearings which Congressional procedure could require before such profound changes in public policy were accomplished. If the communications policy of the United States as reflected in the Communications Act of 1934, as amended, is to be so radically changed, the National Association of Broadcasters urges that it be the Congress of the United States and not the FCC which should evaluate and determine the broad public interest."

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FCC Pieces Together CATV Package Of Restrictions, Proposed Rulings

The FCC has devoted a considerable amount of time recently to CATV and the result has been a formalized CATV package incorporating new and proposed CATV rules.

The Commission has banned network and same-market ownership of CATV and proposed even further-reaching prohibitions. It issued the essence of its CATV Public Dividend Plan. It firmed up program origination requirements, proposed technical standards and began to take a close look at preempting state and local franchising autonomy.

Television stations have been forbidden to own CATV systems within their grade B contours and networks have been banned from ownership of CATV at all. In addition to these two rules, the

Commission asked for comments on banning newspaper and radio cross-ownership of CATV.

Limits on Ownership

Also proposed for comments were limits on system multiple ownership. The proposal includes: possible limitations of CATV ownership to 50 systems with 1,000 or more subscribers in the top-100 population areas; CATV ownership by an operator who holds interest in more than one TV, two AM or FM or more than two newspapers would be limited to a maximum of 25 systems in the top-100 markets. Limitations also might be placed on a CATV operation to prevent ownership of more than one top-3 market CATV system.

As an alternate proposal, the Commission asked for comments on the limit of 2 million for the total number of subscribers served by any CATV system. The Commission furthermore asked whether it might ban or restrict CATV ownership by microwave carriers, weekly newspapers, CATV equipment manufacturers, national news magazines, magazines, advertising agencies, wire services and program suppliers.

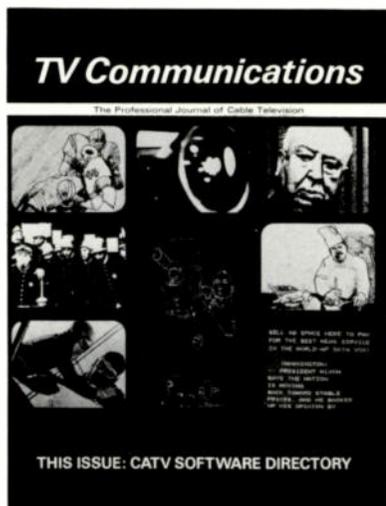
Adopted rules by the Commission prohibit local cross-ownership of CATV systems and translators, though it said it would consider exceptions to cases where it could be proven that without cross-ownership there would be no increase in broadcast of CATV service to the public.

The CATV Public Dividend plan was issued by the Commission as a proposal. FCC asked for comments on the proposal but noted that the old retransmission consent procedure in obtaining distant signals still holds.

U's Get Protection

Under the Public Dividend proposal CATV systems in the top-100 markets would be permitted to carry four distant independent signals but would be required to delete commercials from the signals and replace them with commercials provided by local stations. Independent UHF station's commercials will receive first priority in the substitution, followed next by UHF network affiliates. Commercial substitution would also be afforded to any local station able to demonstrate that its ability to serve the public has been threatened. The same distant signal permission would apply below the top-100 markets, but CATV systems would also be able to import any missing network signals.

The rules are conditioned on the passage of copyright legislation which sets CATV liability, the Commission said. It stressed that its suggested copyright fees are the only suggestions the Congress may well wish to change. Seven-tenths of one percent of CATV revenues from subscribers

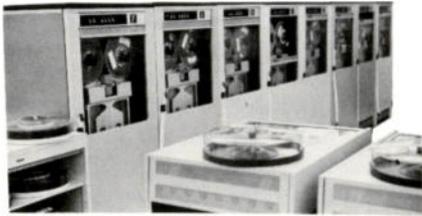


This Month's Cover...

CATV Software — programming intended for cable television. That's the subject of a comprehensive suppliers directory beginning on page 37 of this issue. Art for the cover this month was prepared by Ken Perkins, KR Graphics, Inc. (a subsidiary of King Resources Company). Depicted are some of the various forms of programming cable operators may choose from in planning their origination efforts. Clockwise, from lower left: feature length movies (including some of the "classics" such as Phantom of the Air offered by MCA TV); cartoons and children's fare (such as Our Gang and The Keystone Cops from Sandy Frank Program Sales); sporting events; special productions; interview and discussion programs (such as The Dennis Wholey Show by R Associates with name guests such as Alfred Hitchcock); programming for the housewife with recipes, household hints, grooming tips, etc.; and automated information services (such as the alphanumeric readout unit by Data Technology Corp.).

TV

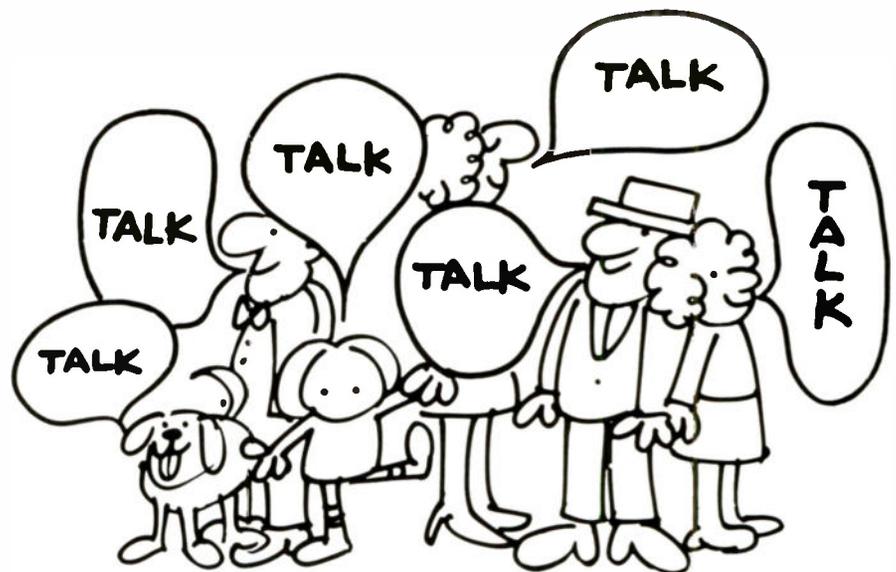
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would be charged for each distant signal, and Congress may wish to charge more for educational TV signals and local signals, FCC said.

In addition, five percent of each CATV system's gross subscriber receipts would be paid to the Corporation for Public Broadcasting — to finance its operation. The FCC said that this probably would raise \$3 per subscriber annually.

The FCC asked for comments on whether CATV systems should share the cost of commercial substitution.

Carriage and same day non-duplication would be continued under the proposed rules and systems now operating in the top-100 markets would not come under the proposed rules unless they expanded their trunk lines into new areas. Systems in markets below the top-100 markets would not come under the proposed rules so far as their present operations are concerned. They would thus be permitted to expand their present signals.

The technical standards proposed by the FCC included three topics: requests for comments on 20 and 40-channel cable systems, the extent of two-way communications capacity that should be required in new systems and a possible requirement that all CATV systems provide local channel and program facilities to each distinct unity within its franchise area.

In issuing its proposals, the Commission said that because of the public's needs for the growth of CATV, it "intends to continue to require minimum system capacities adequate to serve foreseeable demands. The Commission cautioned operators to avoid the economic burden of installing inadequate systems that would soon need to be expanded at extra cost."

Future CATV systems will have to be capable of two-way communications for those customers who want it, the Commission said, "the returned communication capability should provide at least the capacity of a four-KHC message channel that might be shared by a limited number of subscribers so that cueing problems are avoided."

The Commission didn't propose standards for FM carriage, "ghosting," limits or performance characteristics involving phase relationships in the system. But it warned that developments "may impel us" to adopt such standards.

Once it sets the actual technical standards as rules, the Commission said, they would have to be compiled within a period of three years.

The Commission plans to establish general federal standards for CATV operation and leave it up to the local regulators to see

that these standards are met as part of the cable system's franchise authority.

The FCC wants to restrict the franchise fee charged by municipalities to 2 percent of the cable system's gross revenues from subscribers. It went to some lengths in its proposals to try to smooth any state and local feathers that might be ruffled.

In asking for comments on the nature of standards to be adopted for local application, the FCC announcement noted that the local franchising authority "would

investigate the character qualification of the franchise applicant, check on areas to be served, pole-line attachments, rates, quality of service and repairs. This information would be certified to the Commission by the local government organization before the Commission authorized the CATV system to use broadcast signals. The Commission would also specify to the local government unit a continuing regulatory program for such matters as rates, repair services and expansion timetables."

CBS Will Spin Off CATV, Combining It With Syndication Unit

Columbia Broadcasting Systems, Inc. has said that it will combine its U.S. CATV operations with its program syndications operations. The move will found a company, independent of CBS, whose stock will be distributed to CBS shareholders.

The plans to spin off CATV operations followed by less than a week the Federal Communications Commission ruling which forbids ownership of CATV by the three major broadcasting networks. The prohibition of network ownership of cable was incorporated in a sweeping CATV package (see separate story this issue) that among other things barred TV stations from owning CATV systems within their grade A contours.

CBS said it will discuss with the Internal Revenue Service possibilities of obtaining clearance for a tax-free distribution of the stock it plans to spin off. The network noted that combined 1970 sales for the two units to be spun off are projected at \$20 million.

The proposed spin-off was made in reply not only to the latest FCC regulations barring the networks from ownership of CATV systems, but also to earlier FCC regulations that would have progressively barred the networks from syndicating operations.

In announcing the spin-off, CBS noted that FCC regulatory action

is "impairing these two operations just at the time when they should be taking advantage of the bright opportunities for growth. It is neither wise nor fair to shackle their prospects during the inevitable long process of seeking more equitable rules."

CBS cable operations, appraised at a worth of \$40 to \$50 million, consist of approximately 15 franchised systems, 100% owned; 3 systems, 80% owned; and five systems less than 80% owned. The network serves about 10,000 subscribers on the West coast. Its cable operations presently form part of CBS Television Services division. In program syndication, CBS Enterprises, Inc. is the unit that has distributed television programs, CBS newfilm and other films in the U.S. and abroad.

The FCC rules are final, but subject to petition and court appeals. On the issue of the progressive prohibition of networks from syndicating operations, CBS did petition.

The National Broadcasting Company, division of RCA, didn't announce any immediate comment on its own plans or on the CBS spin-off. NBC operates cable systems serving close to 20,000 subscribers throughout the U.S. American Broadcasting Company has no CATV systems franchised or in operation.

System Sales

Suffolk Cablevision, operator of five cable systems in New York, has recently been acquired by a private corporation which will be known as Petra Cablevision Corp. Peter Gilbert will head the firm in which he and several other investors will comprise the controlling interest.

The Times Mirror Co. has acquired controlling interest of Long Island Cablevision Corp. for 75,000 shares of its stock, valued at approximately \$2.7 million. Long Island Cablevision serves approximately 11,000 subscribers in Greenport, Riverhead, Sag Harbor, Southampton, and Westhampton, N.Y.

Sarasota Central Antenna Network, Inc. and Venice Central Antenna Network, Inc., which reportedly serves approximately 9,000 subscribers in Sarasota and Venice, Fla., has been purchased by Storer Broadcasting Co.

Valley Master Cable Corp., a wholly-owned subsidiary of Mid-Continent Telephone Corp., has purchased Hardy Television Cable Corp. Hardy Television Cable serves approximately 600 subscribers in the Conneautville, Linesville and Springboro, Pa., areas. 

FOCUS

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Systems

B.M. Tibshrary has been named general manager of Cox-Cosmos, Inc., according to Charles A. Batson, president of the firm. He most recently served as operations manager for the company, but has also been manager of the firm's Ocala, Fla., Florence and Sumter, S.C., cable systems.

James V. Dunbar, Jr. has been named director of administration for Cosmos Broadcasting Corp., according to Charles A. Baston, president of the firm. Dunbar, who joined the firm in 1966, will continue to serve as Legal Counsel, in addition to his new position. Cosmos Broadcasting

owns and operates five CATV systems through its subsidiary, Cosmos Cablevision.



Mr. Tibshrary



Mr. Rozak

Earl G. Roberts has been appointed manager of the newly operative St. Albans Cablevision, Inc., system in St. Albans, Vt. He

joined the company's staff in July, 1969, when construction of its facility was in the planning stages.

Suppliers

Robert J. Wilson has been promoted to the newly created position of group vice president, wire and cable division of Anixter Brothers, Inc., according to an announcement by Bruce Van Wagner, vice president operations for the firm. Formerly Anixter's Midwest regional vice president, Wilson will now be in charge of all operations of Anixter's wire cable service centers.

D.A. Riedinger, vice president, marketing of Phelps Dodge Communications Co. has announced the appointment of Kenneth Atkinson as field sales manager. In his new position, Atkinson will be responsible for nationwide sales of coaxial cable for CATV applications. In addition, he will direct five full-time salesmen in district offices and assist in the direction of 18 technical representative organizations from his headquarters in Atlanta, Ga.

Data Technology has announced the appointment of Don Rozak as CATV marketing manager for the firm's line of Data Vox equipment. In his new position, Rozak will be responsible for all CATV marketing operations, including the company's line of split screen accessories for advertising and local origination.



Mr. Wyckoff



Mr. Roberts

B.W. Hughes, sales manager for Spencer-Kennedy Laboratories, Inc. has announced the appointment of Donald L. Wyckoff as Western regional manager. In his new position, Wyckoff will be responsible for administration and sales of SKL's products in the western half of the U.S. 

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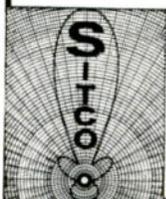
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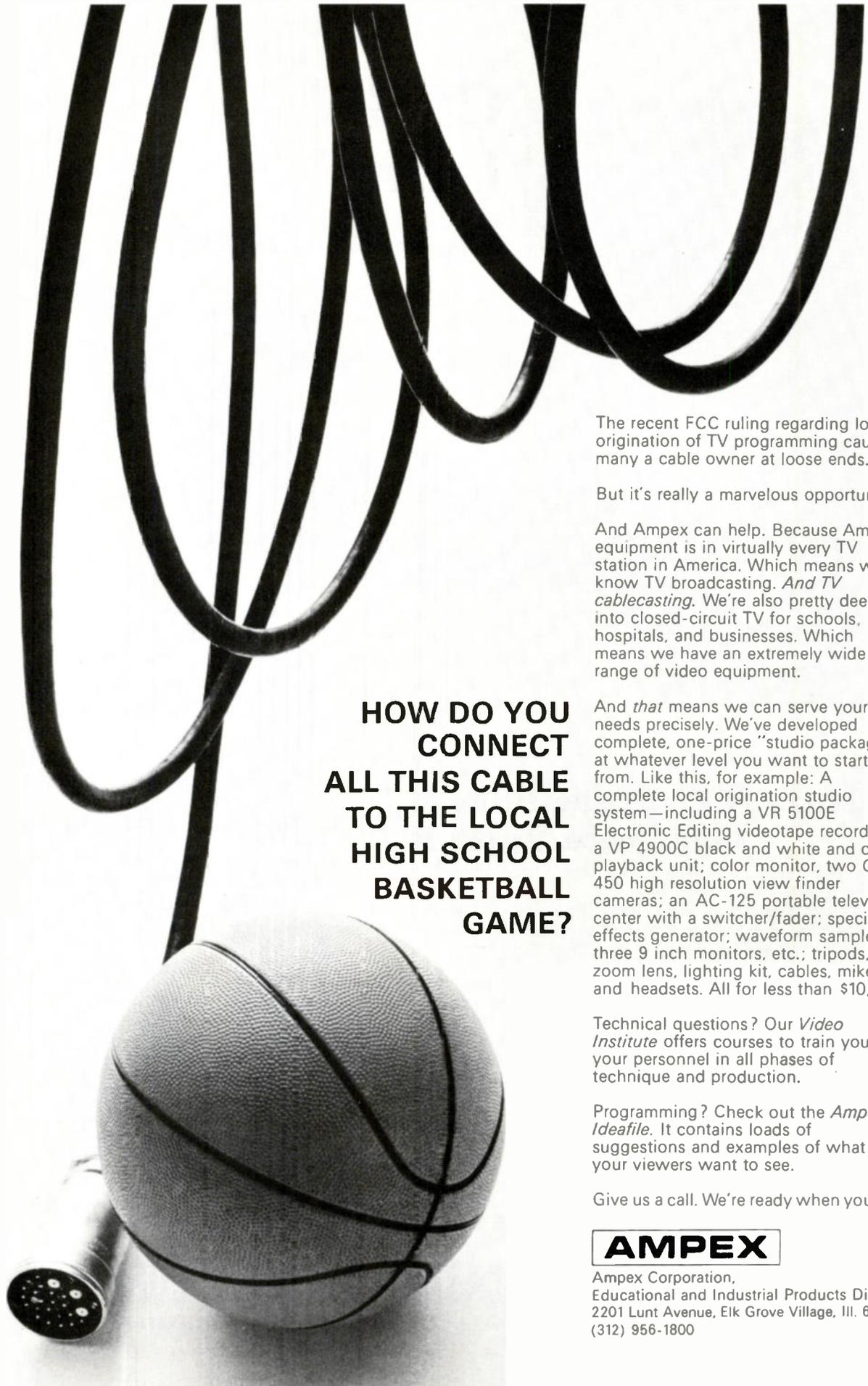
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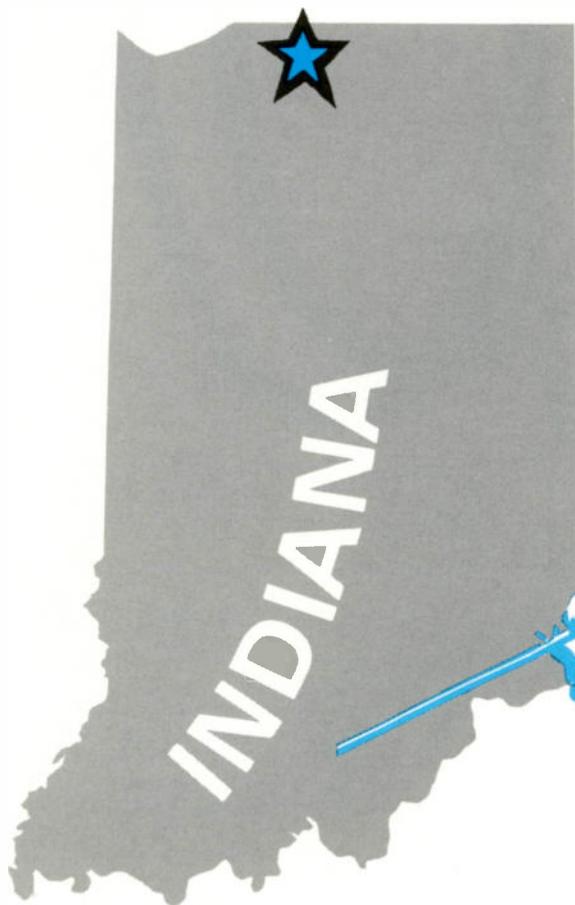
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Recent FCC Proposals: An Analysis for Laymen

What do the Commission's proposals mean, and what are their implications for the future of cable? Two well-known communications attorneys tackle these questions in the pages that follow.



Many know E. Stratford Smith as Mr. CATV, a particularly apt title since he himself coined the term "CATV" in a memorandum which he prepared for the FCC while he was a trial attorney (1946 to 1951).

Strat Smith received an engineering degree from the University of Utah. His Juris Doctor (1943) and Master of Laws (1949) were received from George Washington University. In 1951, he established a private law practice in Washington, D.C. Attorney Smith formed the law firm of Smith and Pepper (now Smith, Pepper, Shack and L'Heureux) in April, 1957. It was under his leadership that the well-known Fortrightly case received a U.S. Supreme Court ruling that cable television was free from all liability for payment of copyright fees.

What do the FCC actions of June 24, 1970, foretell for the CATV industry? This question has been repeated many times since that date. It is far too early to attempt a definitive answer. In fact, a reading of the various documents reveals a great deal of indecision on the part of the Commission in various areas; and, it seems clear that the rules and policies which are now evolving will be modified substantially, not only by the time they become effective, but continuously and frequently over the next several years.

It does seem clear, however, that the Commission has



Attorney Arthur Stambler takes a look at the FCC's new CATV regulatory program and describes his review as "A Minority Critique." Stambler's background includes prior service as Legal Assistant to one FCC Commissioner and two Commission Chairmen.

Arthur Stambler was admitted to the New York State Bar in 1949 and the District of Columbia Bar in 1955. His preparatory education was received at George Washington University and Harvard University. He is a member of the American Bar Association and the Federal Communications Bar Association. Stambler has his own law firm in Washington, D.C., where he practices before the Federal Courts and Administrative Agencies including the Federal Communications Commission.

The FCC's new CATV "package" represents one of the most mixed-bags of federal regulation in recent Washington annals. It is clearly of landmark proportions — unique, comprehensive, wide-ranging and complex. What is less reasonably perceived, however, is just what it involves, and what it will mean for the future of our country's communications media, CATV as well as TV.

Initial industry reactions to the FCC's announcements seem to find that same partisan split — this time with CATV pro and TV con. But the opinion here — apparently a minority view — is that there are substantial questions as to

responded to the significant criticism of its CATV policies from both within and outside the CATV industry, and that it has recognized the compelling need to open the major metropolitan areas for CATV development. The obvious question, of course, is how to do it in the light of the demand of the public for a greater diversity of program sources and auxiliary communication services and the divergent interests of copyright proprietors, broadcasters, CATV operators, franchising authorities and regulatory agencies. The Commission has made a valiant first effort and has produced a fascinating potpourri with something for everybody — or almost.

In this brief comment, no effort will be made to detail or evaluate all of the proposals, or pinpoint the many ambiguities and inconsistencies that appear throughout the several documents. Moreover, this would not be fair to the

whether the FCC has now served CATV's best interests or may have actually disserved them. At least in making the prime attribute of its new program an unprecedented extension of regulatory control over the communications media under its jurisdiction.

There is, to be sure, some good reason for an optimistic CATV view. To an industry weaned on condemnatory FCC attitudes (such as "pirating" of product and harm to TV service), it's fairly heady stuff to now find FCC compliments as to there being "no disagreement about (CATV's) value and importance," and that it "offers the technological and economic potential of an economy of abundance."

But testimonials do not a system make. The FCC's asserted new approach will mean a brighter CATV future *if, and only if* policies and decisions are soon expressed in actions which permit and encourage the industry to expand into new systems, new signals, new services and (most importantly) new subscribers and users. It is on the traditionally skeptical litmus paper test of "deeds rather than words," that it may be questioned whether the

Commission which apparently has tried to put forth a comprehensive, if tentative, plan to enable CATV to move forward in the major markets. A function of the rulemaking process is to permit interested parties an opportunity to advise the agency where it has erred, and it is not to be expected that in a field such as CATV (where the issues are infinitely complex, interrelated and emotional, where private interests are so divergent and the public interest so important) that a concise, consistent and fully realistic plan would emerge at the outset. Indeed, in view of the previous regulatory attitude of the FCC towards CATV, and in particular the postures of several individual Commissioners on various public interest issues (such as protection of UHF, diversity of ownership of communications media, local community expression and educational television) it was indeed a major accomplish-

FCC's package merits solid CATV expectations. Or, whether it may actually turn out to mean continued restrictions on further development. Any analysis today is a risky business that must reflect surmise and conjecture. But this striking contrast between what the FCC did and what it said may be enough to dampen CATV optimism in favor of a cautious "wait and see" attitude.

Everything the Commission has now *done* — such as its ownership limitations and burdensome cable-casting requirements, etc. — imposes new restrictions on the growth of a fledgling industry that has yet to truly get off the ground. In contrast, everything the FCC assertedly has in mind to free, stimulate and expand CATV is only in the form of rulemaking *proposals* that are decidedly extreme and controversial, that have to undergo long and hotly-contested rulemaking proceedings, and that further depend upon equally problematic Congressional legislation, before the FCC can even consider their adoption.

In the meantime the "freeze" continues as tightly as before, and for a further indeterminate period. It is this absence of *any* interim

ment that the second report was issued at all. This brief review seeks only to sketch the broad outlines of the proposal, and provide comment rather than evaluation.

Importation of Distant Signals

Insofar as relaxation of the ban on distant signals for major markets is concerned, the proposals are contained in a second further notice of proposed rulemaking. As the Commission said: "The essence of the proposal is that CATV systems in the top-100 markets, in addition to local signals, may carry four distant independent signals, but will be required to delete commercials from the independent distant stations they carry and replace them with commercials provided by the local stations." The plan would not specifically guarantee

relief, pending this extended rule-making — together with the vast and almost incredible array of new regulatory burdens the FCC contemplates for almost all CATV systems — that drains substance, if not credibility, from the rosy dream of CATV's tomorrow that might otherwise emerge from the Commission's new CATV pronouncements.

Summary coverage of only a few of the basic items of the FCC's new novelty catalog for CATV should be enough to demonstrate the vast size of the "Pandora's Box" which it has now opened.

Public Dividend Plan Has Many Problems

The Commission's new distant signal proposals have all but kissed away the last 20 months of its search for effective CATV regulation that went into its earlier "retransmission consent" concept, unveiled with much fanfare in December of 1968, and since essentially unused. Although reiterating that "retransmission consent" remains a pending alternative to its new scheme; the FCC admits not having bothered to

CATV access to each of the three networks; however, there will be few if any of the top-100 markets not having local service from each network. Non-network programs from distant network stations may be counted as "independent" signals. CATV may carry any number of educational stations "if no objection is made by the local educational licensee or permittee at the time he is informed of the system's intention to carry the distant stations."

Appeals for funds must, at the request of the local ETV, be deleted from distant ETV signals and appeals provided by the local ETV station substituted — that is, distant non-commercial commercials must be deleted and local non-commercial commercials substituted.

The Commission's efforts to protect local commercial UHF (and under some circumstances VHF) as well as ETV stations from any adverse economic results

complete its processing of comments long-since filed to that proposal, and chides the industry for being "uninterested in its (properly comprehensive) test." Yet it now opens up a new, even more exotic and controversial approach that could well bog down its CATV regulation for years in trying to find answers to its many problematic elements.

Problem 1: A top-100 market proposal to bring in 4 distant independent signals on the bare conclusion that the anticipated returns to local UHF's from substituted commercials will more than offset the feared fractionalization of local audiences. All of this is done in advance of any effective UHF support, and perhaps even in the face of its active opposition.

Problem 2: A plan to substitute commercials that depends on complex and obviously expensive electronic equipment that is, as yet, not even on the drawing boards. Based on a sharing formula among the local stations that fairly boggles the mind, it is difficult enough to understand, much less to apply in practice.

Problem 3: A proposal for non-top-100 markets that is only

of local audience fractionalization (resulting from the importation of distant signals) though contrived, should be acceptable to CATV provided that the benefiting stations must bear the equipment and operational costs. The Commission's tentative view that the costs should be borne by the stations will surely be attacked by the local stations and may be modified. Moreover, there are serious questions as to the practical workability of this plan. Significant extra effort, as well as expense, will be required from the protected station and it may well be that only the larger, large-market system can provide enough audience to warrant this expense. For CATV, it is important that the protection plan, or a similar one, be made to work in order to expedite major market development. The Commission is not ready yet (and may never be) to ignore the audience fractionalization problem and subject the local

partially evolved, and is grossly ambiguous as to whether or not it really differs from the top-100 criteria.

Problem 4: A recognition that Congress alone can determine the indispensable copyright aspect, while apparently refraining to date from working with the Hill to develop some widely-accepted copyright legislation. At this late date the Commission has put forth only its staff's "suggestion" for fees of 0.7% of gross system revenues for each distant signal carried.

Problem 5: The gratuitous and support-seeking "gimmick" of requiring CATV system payment of 5% of annual gross revenues as a subsidy to educational-television development. This idea is offered by the FCC without so much as recognizing the questionable nature of such a proposal in the absence of legislative authorization. (It is a proposal certain to draw strong broadcaster opposition as being the next "for whom the bells toll.")

Problem 6: The proposal to limit local franchise fees to 2% of annual system revenues (admittedly in order to accommodate the 5% ETV subsidy). Again, the

non-network station to the forces of competition and audience preference. However, this writer ventures the view that most local stations entitled to protection will not like the plan.

The alternative leapfrogging proposals of the Commission (that at least two of the distant independent signals be in-state) has merit, but it should not be at the cost of forcing carriage of in-state stations having relatively little quality independent programming. This could easily result if the independent were a geographically isolated, poorly financed station. The real problem is the converse. Generally, the system's local stations will be in-state, and a reasonable amount of local political news, and cultural programming will be available. It is the CATV community close to state borders whose local stations are out-of-state which have the need for in-state service. All CATV systems should be

FCC proposes an action without even raising the obvious questions of its regulatory power to do so, and ignoring the likely new opposition from the nation's cities at this loss of needed revenues.

Federal-State-Local Relationship Inquiry

Despite its having previously raised these troubling questions as to proper federal-local relationships in CATV regulation — and without even bothering to consider the rulemaking record already compiled in response thereto — the Commission has now waded further into that theoretical bog by raising other fundamental issues that are even more difficult to resolve.

The FCC is rather firm in rejecting — for practical reasons of its own limited resources — an approach that would license CATV's or apply detailed FCC regulation directly to them. But it then asserts only the most bare-boned jurisdictional proposals for a dual regulation with itself in the driver's seat. This would permit local entities to handle basic franchise matters (such as legal, technical, financial and character

guaranteed access to at least two in-state signals if they are available.

The Economics Are Staggering

The proposed contribution of 5% of gross income to the Corporation for Public Broadcasting is discriminatory and unfair. If CATV systems are to be required to originate and to provide local government channels, local public access channels, lease-channels and instructional channels, this is a sufficient tapping of the economics of CATV. A major effort must be made by the industry to place the financial facts of CATV life before the Commission at this proceeding. A notion that CATV can pay 5% of its gross for broadcasting, provide at least three dedicated channels (as much as 50% of channel

capacity of 20-channel and above systems), provide adequate production equipment to operate these channels, pay \$.30 per subscriber to the FCC for regulatory purposes, pay the cost of state public utility regulation, pay copyright fees, pay its normal operating costs plus the current cost of capital; staggers the credulity of even those operators of the very large systems. Also in this regard, not of the least concern is the Commission's proposal to require conversion to its new technical standards (presumably including its minimum channel requirements in three years). Can you believe such notions in today's money market?

The economic problem is compounded by the striking refusal of the Commission to preclude state rate regulation. It is inconceivable that the states can efficiently regulate the entire economic basis of the industry under public utility concepts,

while the Commission demands expenditures of the nature and magnitude which the Commission seeks to impose. It is equally inconceivable that any rate regulation of CATV is necessary in the light of the economic burden which the Commission would require the industry to bear.

Don't Expect A Fast Thaw

Many other comments can be made, both favorable and critical, but space does not permit. Moreover, as previously indicated, the place for extensive, constructive and critical knowledge is in the industries' comments to be filed on or before October 7, 1970. The industry, in looking forward to the future, should distinguish between a thawing of a freeze and the breaking of an icejam. What is happening is the former; even so, before the heat is applied, a copyright bill must be passed. RVC

qualifications, rates, pole attachments, etc.), but with "uniform or minimum standards to which such local actions must conform" to be prescribed by the FCC in Washington. FCC authorization for CATV use of broadcast signals would follow only after the local entity certified that it had "considered" these matters.

The Commission's Notice has in one short paragraph (and almost innocently) raised a host of basic questions that are usually determined over a lifetime of practical experience and with attention from courts and agencies on all governmental levels. But that the FCC has itself not devoted much study to this complex subject-matter is shown by the superficial and inchoate nature of its own statements. They provide only the briefest mentions as to particular regulatory standards, how they would be applied, and to which parties' comments should be directed. At this stage to open such a generalized, free-swinging and wide-ranging inquiry into one of the most abstruse areas in all regulation—and concerning an industry in which FCC to date has had limited practical experience—scarcely seems consistent with

its avowed objective of shortly lifting the "freeze" and adopting some regulatory program for further CATV development.

Technical-Capacity Standards For CATV Systems

While the FCC's Docket 18894 Notice speaks in terms of considering new standards for CATV technical performance, its proposals actually go far beyond that seemingly non-controversial aspect, into some of the most speculative and problematic areas imaginable. These relate to certain operational aspects which the FCC now projects for *all* CATV systems in the future: a capacity of 20 to 40 channels; a two-way communications capability for any subscriber desiring it; and a series of separate origination studios and distribution facilities for every distinct community (i.e., neighborhood with some 25,000 or so households) within its geographic boundaries.

FCC proposals for such new standards (to be applied to all systems) are made without any consideration whatever of the high costs and other technical problems required to achieve these develop-

ment. There is no FCC review of the current CATV situation that recognizes the speculative nature of such proposals. There is not as yet even a 20-channel system in a core city of a top-100 market that has finally solved its direct pick-up problems. Two-way capability is barely in its infancy; and there is no clear idea whatever as to the technical problems and costs of the "neighborhood systems" proposals. Thus, FCC insistence upon these problematic aspects could even boomerang to discourage or delay the construction of interim systems which are unable to button down such capacities at this time.

These futuristic FCC conceptions of vast-capacity CATV service—together with other related proposals for donating half of a 20 channel system to local public facilities and providing an ambitious schedule of local originations—inevitably raise doubts as to the basic practicality of the FCC's new CATV approach.

Other questions arise from the FCC's seeming effort to regulate development of CATV far beyond anything ever attempted for

(Continued on page 79)



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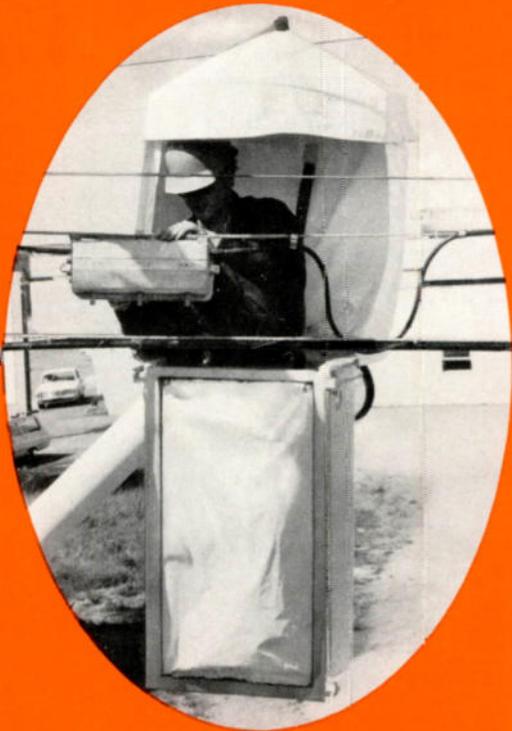
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Software for Cable TV: A Directory of Suppliers

FCC compulsory origination rules have generated brushfire development of CATV software suppliers. An up-to-the-minute summary of program availabilities appears on the following pages.

ALLIED ARTISTS TELEVISION CORPORATION

15 Columbus Circle, New York, N.Y. 10023; Ph. (212) 541-9200. Subsidiary of Allied Artists Pictures Corporation. Officers: Emanuel Wolf, Chairman of the Board; Andrew P. Jaeger, President. Regional Sales Managers: Leo M. Brody, Eastern Division Mgr.; Ken Weldon, Midwestern Division Mgr.; Carl Miller, Western Division Mgr. Programming format includes 16mm films. Offers more than 500 full-length motion pictures including several from the 1960s, but the majority from earlier years. Along with westerns and "action" movies, 48 Bowery Boys and 11 Charlie Chan flicks are included. Cost is available upon request.

AMERICAN INTERNATIONAL TELEVISION, INC.

165 West 46th Street, New York, N.Y. 10036; Ph. (212) 245-3035. Owned by American International Pictures. Stanley E. Dudelson, First Vice President. Regional Sales Representatives: Hal Brown, Marvin Levine, Chad Mason, Al. Horwitz. They have feature films for cable systems which "do not interfere with present customers at television stations." No cost information given.

ASSOCIATED CABLE CASTING & EDUCATIONAL SERVICE SYSTEMS, INC.

801 Welch Road, Palo Alto, Calif. 94304; Ph. (415) 326-4734. Wholly owned corporation. Officers: Kenneth L. Lownes, Jr., President; Karl Schmidt, Vice President-Programming; Anthony Marniscalco; Robert Scher, Secretary-Treasurer. Associated Cable Casting & Educational Service Systems offers a programming format of 1" videotape, ½" videotape, audio tape and live on-site & MW relay. No programming content information given.

THE ASSOCIATED PRESS

50 Rockefeller Plaza, New York, N.Y. 10020; Ph. (212) 262-4000.

TV Communications

Membership Corporation. Officers: Wes Gallagher, General Manager; Robert Eunson, Asst. General Manager; Robert Sundy, National Representative for CATV Services. Offices in major cities of every state. Programming format includes electronic display of AP news circuits. A continuously moving alphanumeric display of world, national and regional news is offered on a 24 hour basis, seven days a week. A split-screen adapter allows input of local news and advertising. The operation is totally automatic. Costs vary. The average rate, including local-input capability is \$125 weekly.

ASSOCIATION-STERLING FILMS

600 Madison Avenue, New York, N.Y. 10022; Ph. (212) 421-3900. Officers: R.D. Mitchell, President; G. Roger Cahaney, Executive Vice President. Regional TV Exchanges: New York, Los Angeles, Dallas, Atlanta, and La Grange, Ill. Programming format includes ½" videotape. Distributes free sponsored films to TV stations. Featurettes and ¼ hour and ½ hour programs. Also supplies news clips and creative programming services.

AVCO EMBASSY PICTURES TV

1301 Avenue of Americas, New York, N.Y. 10019; Ph. (212) 956-5500. A subsidiary of AVCO. A wholly owned corporation. Officers: J. E. Levine, President; L. Lightstone, Executive Vice President; E. J. Graff, Vice President for TV. Regional sales representatives in Memphis, New York, Chicago, and Los Angeles. Programming format includes 1" videotape, 16mm films. They offer feature films and cartoons. The cost of their services is based on number of subscribers and market size.

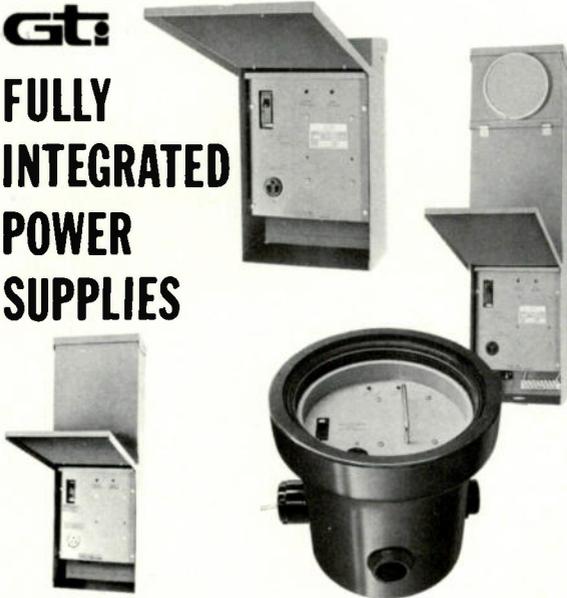
BARASH ADVERTISING, INC.

403 S. Allen Street, State College, Pa. 16801; Ph. (814) 238-5051.

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						Any extra or option not listed Special Paint, Fittings Etc.
MOUNTING						
CB						POLE CHANNEL BRACKET FOR LOW POLE MTG.
PD						PEDESTAL Surface Mtg (UNGD System)
HD						HEAVY DUTY TAB FOR HIGH POLE MTG.
CABINET TYPE						
MA						WITH METER ADAPTOR AND POWER CO. TEST BLOCK
NA						WITH POWER CO. TEST BLOCK NO METER ADAPTOR
SC						NO POWER CO. TEST BLOCK NO METER ADAPTOR
UG						FLUSH GROUND LEVEL (Underground System)
NC						NO CABINET
OUTPUT VOLTAGE (REGULATED)						
30R						30V @ 12A
35R						35V @ 10A
60R						60V @ 9A (XFMR TAPS) 30V @ 9A
(UNREGULATED)						
30U						30V @ 12A
35U						35V @ 10A
60U						60V @ 9A (XFMR TAPS) 30V @ 9A
BASIC UNIT						
N						NORMAL (AC TO AC)
S						EMERGENCY STAND-BY Battery pac optional
PRODUCT						
CT						CATV POWER SUPPLY

GT: Glenronics, Inc.

CATV DIVISION
P.O. Box 66/748 EAST ALOSTA AVE.
GLENLORA, CALIFORNIA 91740
(213) 963-1676

Officers: Sy Barash, President; Mimi Barash, Vice President; Charles Shuster, Treasurer. Programming format includes 1" videotape, 16mm films, audio tape.

This firm prepares standardized TV commercials of various lengths . . . with a variety of formats. They are also equipped to produce special commercials, etc.

BLACK VIDEO SYNDICATION NETWORK

P.O. Box 13097, San Diego, Calif. 92113; (714) 264-9595. Officers: Chuck Johnson, President (and owner); James Glass, Executive Vice President. Martin Hodes, National Sales Manager; William Branch, New York Office Mgr. Programming in formats of 1" videotape, 1/2" videotape, 16mm film and audio tape.

Black Video offers a variety of programs including gospel music, variety, drama, history, education, religion, serials, cartoons, sports and news programs geared for the Black community.

CABLE CHANNELS, INC.

19 Terrel Drive, W. Webster, N. Y. 14580; Ph. (716) 671-7330. Officers: Colby N. Fletcher, President; O. William Lindberg, National Sales Manager. Exclusive distributor: Jerrold Electronics. Cable Channels offers a programming format which includes 1" videotape (either IVC or Ampex).

Produces a sports package consisting of 14 one-hour video tapes which may be played twice each week. Tapes allow commercial insertions. Included is NFL/AFL football, NCAA sports events, pro-golf, and pro-bowling as well as specials on rodeos, auto and boat racing, etc.

CABLEGUIDE

938 Denny Bldg., Seattle, Wash. 98121; Ph. (206) 622-1052. Officers: David E. Warmuth, President; Clarence N. Gosanko, Secretary-Treasurer; Mary Mayo McCabe, Editorial Director.

Program consists of TV program listings and community news and information. Using telephone company leased lines, they tailor TV program listings to match viewing fare on each cable system. Listings appear in 15 minute segments surrounding each hour and half hour. Remaining time is "in-depth TV program information and community news and public service information."



"The Dennis Wholey Show" by R Associates

CBS ENTERPRISES INC.

51 W. 52nd Street, New York, N.Y. 10019; Ph. (212) 765-4321. A wholly-owned subsidiary of Columbia Broadcasting System, Inc. Officers: Ralph M. Baruch, Vice President & General Manager; James T. Victory, Vice President, Domestic Sales; Henry A. Gillespie, Director, Domestic Sales; Joseph B. Irwin, Director, Business Affairs; William C. Aden, Jr., Director, Creative Services; Frank Herman, CATV Programming Consultant. Regional Sales Offices: New York, Chicago, San Francisco, Dallas, Atlanta. Programming format includes live; 16mm film and 35mm film.

They provide "virtually everything a cable system needs to produce 15 hours per week, full color, of unduplicated live programming specially designed for maximum local audience interest." Also offered are 13 color half hours; Vince Lombardi's "The Science and Art of Football." A prize-winning guessing game program is also offered.

CENTRONICS INTERNATIONAL

Suite 395, Tower Building, Little Rock, Ark. 72201; Ph. (501) 376-3161. Officers: J.L. Means, Chairman of the Board; Harry

Have something to show for yourself.

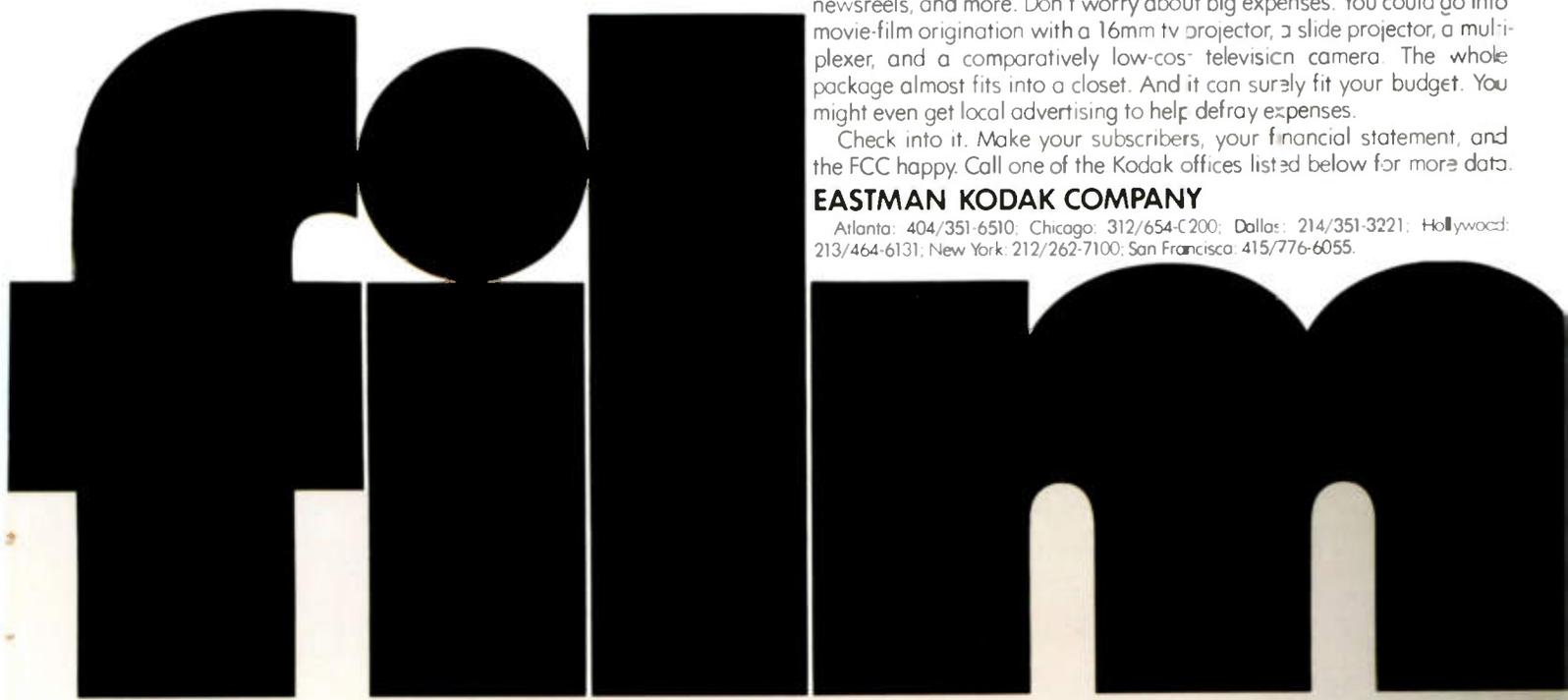
As a CATV operator you've probably been quite content to be a middleman providing distortion-free television. But what about all those extra channels you've got just lying there in your cables? What about the FCC's suggestion that you try a little program origination? What about making a little more money? Huh?

There are many companies around just waiting to let you have syndicated tv series, full-length feature movies, travel films, documentaries, newsreels, and more. Don't worry about big expenses. You could go into movie-film origination with a 16mm tv projector, a slide projector, a multiplexer, and a comparatively low-cost television camera. The whole package almost fits into a closet. And it can surely fit your budget. You might even get local advertising to help defray expenses.

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Atlanta: 404/351-6510; Chicago: 312/654-C200; Dallas: 214/351-3221; Hollywood: 213/464-6131; New York: 212/262-7100; San Francisco: 415/776-6055.



Kodak

Thomason, President; J.C. Harris, Secretary-Treasurer. Regional Sales Representatives located at home office. Programming format includes 1" VTR.

Centronics offers college sports programming and variety shows. Cost of their programming is based on the number of subscribers.

COMPUTER IMAGE CORPORATION.

260 S. Beverly Drive, Beverly Hills, Calif. 90212; Ph. (303) 934-5588. Stock Corporation. Officers: Lee Harrison, III, Chairman of the Board; Bruce L. Birchard, President; Richard D. Rush, Vice President-Finance; Francis Honey, Vice President-Engineering; Samuel C. Kendrick, Jr., Vice President-Eastern Marketing; John D. Hublou, Vice President-Western Marketing; Rudolph F. Handel, National Sales Mgr. Video Systems and Equipment.

This firm offers special production capability. For information and prices concerning 1" videotape productions, contact Rudolph F. Handel, 2162 S. Jason Street, Denver, Colorado 80223. For information and prices concerning 16mm film or 35mm film, contact Samuel C. Kendrick, Jr., 666 Fifth Avenue, New York, New York 10019.

DIVERSIFIED CATV SERVICES, INC.

511 No. Akard, Rm. 731, Dallas, Tex. 75201; Ph. (214) 742-8580. Corporation Officers: O.D. Chanslor, Chairman of the Board; Bill E. Cook, President; Robert M. Sinks, Vice President. Offers 1" videotape. Diversified offers three packages of programming with costs based on subscriber count, with minimum charges. Package one offers 28 hours per week, \$210 per week minimum. Package two is 21 hours—\$180 minimum. Package three is 14 hours—\$150 minimum. Most programming is available in color with content ranging from cartoons and sports to movies, documentaries, adventure programs and game shows. Diversified also offers over 1,400 hours of instructional TV programs as well as religious programming.

DOCUMENTARY BROADCASTING SYNDICATE

P.O. Box 166, Bryn Mawr, Pa. 19010; Ph. (215) 527-2070. Privately owned corporation. Officers: Jay R. Silber, President and Chairman; A. L. Silber, Executive Vice President. Programming format includes live NTSC color network feed.

Describing itself as "the 4th network," this firm provides live TV news and nationwide "Telephone Talk." Their service is designed to feed news and informational programming to cable systems throughout the country "at no cost to the CATV operators or to the subscribers." Includes eleven hours of news, etc., and 176 commercials.

GREAT PLAINS NATIONAL INSTRUCTIONAL TELEVISION LIBRARY

University of Nebraska, Lincoln, Nebr. 68508; Ph. (402) 432-3637. Non-profit corporation. Officers: Paul H. Schupbach, Director; L. Tracy Clement, Associate Director. Regional Sales Representative: Milton E. Hoffman, Senior Programming Counselor. Programming format: 1" videotape, 16mm film.

The company offers a collection of films on the basics of television production. Covered are such areas as graphics, sound, lighting, use of camera lenses, set construction, make-up and presentation techniques. They also distribute a wide range of instructional telecourses on videotape.

GRIDTRONICS, INC.

610 Fifth Avenue, New York, N.Y. 10020; Ph. (212) 581-4940. A subsidiary of TeleVision Communications Corporation. Frank N. Cooper, President. Programming format is 16mm film.

Gridtronics offers a special plan involving their placement of programming on a cable system's unused channels. Subscribers pay extra for these extra channel services and the cable operator retains 50% of the monthly subscriber income. Available are a professional channel, an entertainment channel and two instructional channels.

J. R. HAMPTON & ASSOCIATES

P.O. Box 1401, Englewood, Colo. 80110; Ph. (303) 781-8697. Jack Hampton, General Manager. This is a division of World Wide Productions. Regional Sales Distributor: Diversified Services, Dallas, Texas.

They offer the "how to" information and supplies for a cable system to conduct Bingo games (and, for the younger set — Lingo). The games are conducted live at the local cable system by cable people. Also geared to be a promotional plan for building subscriptions.

INDEPENDENT TELEVISION CORPORATION

555 Madison Avenue, New York, N.Y. 10022; Ph. (212) 755-2100. Officers: Abe Mandell, President; Irving Klein, Executive Vice President. Regional Sales Representative: Miss Cyndy Wynne. Programming format includes 16mm film.

"Cinema 100," full length feature films, many post 1960, 34 in color; "Space Age Theatre," 213 half-hours for kids; "Recess Time," 39 color half-hours for kids; "Action Playhouse," 117 half-hours of family entertainment; "Mystery Theatre," 26 hour programs; "Sports On Parade," 351 special shorts.

INTERNATIONAL TELE-CABLE PRODUCTIONS, INC.

115 West Road, Towson, Md. 21202; Ph. (301) 828-4128. Officers: John Claster, President; Jim McGarity, Vice President. Programming format includes 8 local-live programs exclusively for CATV.

International provides the props, stage settings plus scripts and all materials for each program. Includes six adult programs and two children's programs featuring local participants.

KAP V FILMS LTD.

45 West 45th Street, New York City, N.Y. 10036; Ph. (212) 765-3375. Corporation. Officers: Steve Kambourian, President, Jackie Vaden, Vice President; Paul Kasander, Executive Vice President; Al Bialek, Vice President. Regional sales representatives located at home office. Programming format includes 16mm films, 1" videotape.

Offers "The Outdoor Life" half-hour program with former New York Giants football star Frank Gifford. Also offered are two series for the do-it-yourselfer: "How To Get the Most Out of the Home Workshop." Each fifteen-minute episode features authorities from Popular Science Magazine.

W.N. KIRSHNER & COMPANY, INC.

1132 Waukegan Road, Glenside, Ill. 60025; (312) 729-3030. W.N. Kirshner, President. Programming format includes 1/2" videotape. A production company.



KR GRAPHICS, INC.

1515 Cleveland Place, Suite 407, Denver, Colo. 80202; Ph. (303) 255-2053. Wholly owned subsidiary of King Resources Company. Officers: Bennett King, Chairman of the Board; Robert L. Whearley, President; William A. Baker, Director of Television Services. Regional sales representatives are located in Denver office. Programming format includes 1" videotape, 1/2" videotape, 16mm film, audio tape, and duplication in all formats.

Pilot production has been initiated by this firm for programs dealing with sports, gourmet cooking, interior decorating, religion, outdoor living, juvenile entertainment and public service travelogues. Most programs will be available by early 1971. Twenty hours per week is planned.

LEVIATHAN COMMUNICATIONS INC.

220 East 42nd Street, New York, N.Y. 10017; Ph. (212) 697-5390. Wholly owned corporation. Officers: Theodore C. Levenson, Chairman of the Board; D. William Hanway, President. Programming includes CATV news and program service by nationwide wire using electronic character generating equipment with local originating equipment for local news, announcements, ads.

LOMAC COMMUNICATIONS INC.

102 Patcong Avenue, Linwood, N.J.; Ph. (212) 661-8640. Company Principals: L.E. MacDonald and Atlantic Coast Cable Corp. Officers: L.E. MacDonald, President and Director of Engineering; John Heinz Jr., Vice President of Sales. Programming format includes 1" videotape; 1/2" videotape; 16mm film, audio tape, broadcast quad 2".

Expects to offer (by Fall) a series on a press conference format, produced weekly in Atlantic City with national personalities. Will be in color and will be offered free. Also planning a children's show and assorted educational programs for all age groups.

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AND LOVE Theme is interpreted in topical discussions on love and interesting food preparation.

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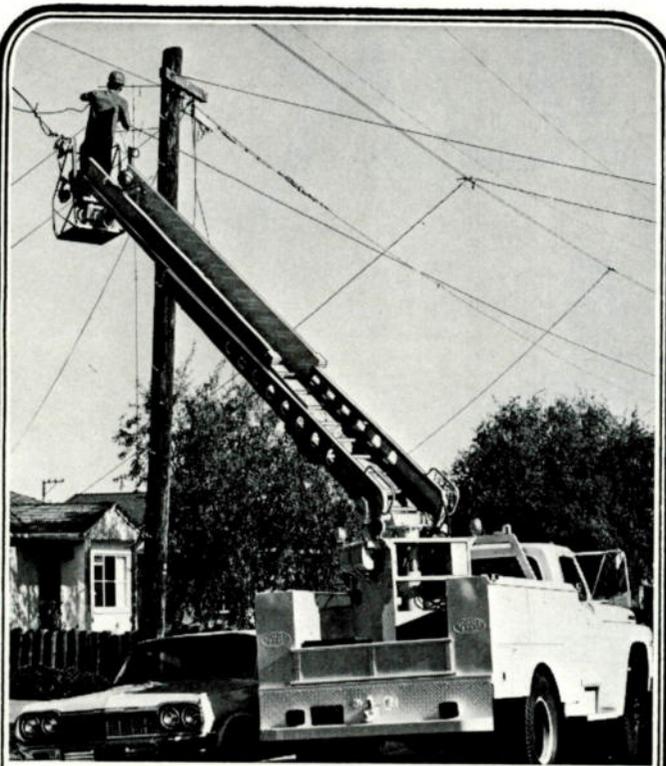
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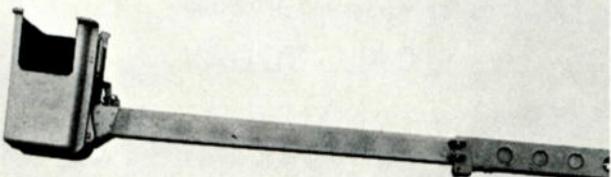
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MCA TV

100 Universal City Plaza, Universal City, Calif. 91608; Ph. (213) 985-4321. A wholly owned division of MCA Incorporated (owner of Universal City Studios, Universal TV and several other allied entertainment companies). Officers: Robert Greenberg, Vice President and CATV Representative. Programming format is 16mm film. Their initial entry into CATV involves release of fourteen, 12-chapter motion picture serials. All were produced by Universal Pictures in the early 30's. Included are such "classics" as "Perils of Pauline," "Heroes of the West" and "Vanishing Shadow."

MESTON'S TRAVELS, INC.

3801 N. Piedras, El Paso, Tex. 79930; Ph. (915) 566-1631. Officers: Harvey Meston, Elizabeth Ann Meston, Valerie Cavanaugh. Programming format includes 35mm or filmstrips with script. They offer prepared travel programs using slides and scripts. Cable operator must provide voicing. Programs draw from a library of 3,500 color transparencies from throughout the world.

MONITEL

488 Madison Avenue, New York, N.Y. 10022; Ph. (212) 371-5600. Officers: Robert L. Lawrence, Chairman of the Board, Monitel, Inc.; Henry S. Bonner, President Monitel, Inc.; Edward A. Grey, President, Monitel National Rep. Monitel is a 24-hour information service offering time, temperature and weather forecasting, household hints, cartoons, safety tips, horoscope, sports, recipes and games. They will also represent systems for the sale of advertising time.

NATIONAL CATV PROGRAM BUREAU, INC.

1004 Stemmons Tower South, Dallas, Texas 75207; Ph. (214) 638-5310. A closed corporation (Texas). Officers: R.L. Eaton, President; D.W. Kilbrith, Vice President Marketing; T. Martin, Secretary-Treasurer. Programming format includes 1" videotape (IVC and Ampex), CBS-EVR.

This is a library of "television entertainment from the major producers of the industry." Access to the library is offered to cable systems on a membership basis. The basic rate is one-half cent per program half-hour, per subscriber.

NATIONAL TELEMEDIA, INC.

342 Madison Avenue, New York City, N.Y. 10017; Ph. (212) 697-6845. Officers: Richard Perlestein, President. Telemedia provides no "canned" program services. However, they provide a consultant service for local operators involved in local live origination. They will also produce custom TV commercials on a one-time charge basis.

NATIONAL TELESYSTEMS CORPORATION

9125 Sunset Blvd., Los Angeles, Calif. 90096; (213) 276-1018. Joint Venture/Dick Clark Productions Inc., International Video Corporation. Officers: Don Eldredge, Chairman of the Board; Jack Mann, President; Robert Zabriskie, Treasurer; Francis LaMaina, Secretary; Arden Mosher, Sales Manager. Programming format includes programming on IVC and Ampex 1" videotape.

NTC offers fifteen hours per week of new programming produced for cable television. Additionally NTC offers feature films, film series and local origination packages including "Green Valley Cable Nursery School," "Bingo" and "Teen Dance Show." The new CATV programming runs 35 cents to 10 cents per subscriber per month for 15 hours of programming. The films vary from 20 cents to 4 cents per subscriber per month, depending upon the size of the package.

NBC FILMS, INC.

30 Rockefeller Plaza, New York, N.Y. 10020; Ph. (212) CI-7-7-8300. A wholly owned subsidiary of National Broadcasting Company. Officers: Gerald Adler, Vice Chairman; William Schmitt, Chairman; Jacques Liebguth, President. Regional Sales Representatives located in Chicago, Dallas, Los Angeles and Greensboro, N.C. No information given as to programming available for cable television.

NICHOLSON-MUIR PRODUCTIONS, INC.

138 Chatsworth Avenue, Larchmont, N.Y. 10538; Ph. (212) 824-1614 or (914) 834-3005. Officers: E. Roger Muir, President; Robert A. Nicholson, Executive Vice President. Programming format includes 1" videotape.

This firm offers the "Video Encyclopedia" free to cable operators. The "Encyclopedia" is a library of special interest, first-run programs in color for CATV. Various subjects are currently in production, with first series to be available in Summer of 1971. The programs have four commercial breaks, two filled by N-M and two for local spots. Cable system will only pay for shipping and handling costs.

NORTH AMERICAN STUDIOS, INC.

14 Newbury Street, Boston, Mass. 02116; Ph. (617) 261-8100. Robert A. Gilmore, President. Programming format includes 1" videotape, 1/2"

videotape, 16mm film, and audio tape. This firm provides TV and other origination services, including audio-visual displays, commercial production, program production, professional counseling. "In the near future, a complete origination package and lease-a-channel service will be provided."

NORTH AMERICAN TV FILM CORP.

1330 Kuntz Road, Erie, Pa. 16509; Ph. (814) 864-2288. Stock corporation. Programming format includes 16mm films and 35mm films.

Production house for custom programming, etc. Wishes to do special production work for CATV systems.

NTA/CATV

8530 Wilshire Blvd., Suite 407, Beverly Hills, Calif. 90211; Ph. (213) 025-7701. A division of NTA, Inc. Officers: Berne Tabakin, President; Peter S. Rodgers, Executive Vice President. Regional Sales Representatives: Marvin Grey, and Joseph Zaleski, Regional Sales Directors. Programming format includes 1" videotape and 16mm films. Offered for CATV are three groups of feature length films totaling more than 1,800 in all. Also 57 post-1960 productions (39 in color), and over 600 cartoons (300 in color). More than two dozen syndicated series are offered in half-hour formats. Another 56 Gene Autry western half-hours and 100 Roy Rogers half-hours are available. A new 13 part color sports show "Rodeo, USA" is also offered.

OPTIMEDIA SYSTEMS, INC.

1080 Route 46, Clifton, N.J. 07013; Ph. (201) 777-7600. George Hoffman, President. Programming format includes 1" videotape, 1/2" videotape, 16mm film, audio tape, and video cassette (when available). This is a "complete television production" facility. Mobile facilities are also available. Both facilities and personnel are offered.

R ASSOCIATES, INC.

974 Pavilion Street, Cincinnati, Ohio 45202; Ph. (513) 421-2253, 241-6089. Closed Corporation, Officers: Chairman of the Board, Jerome R. (Tad) Reeves; Carl F. Trunk, Jr., President; Roland O. Reed, National Sales Manager. Regional distributor: The Key Group, Inc., Meadville, Pa. Programming format includes 1" videotape (Ampex and IVC).

"Parsley, Sage, Jani and Love" is a half-hour color, daily conversation/contemporary cooking program, produced exclusively for CATV.

Production of the first 130 programs began June 8th and are now available. "The Dennis Wholey Show" is a 104-time talk-variety show featuring top guest stars. It has run on 22 television stations and is now available to CATV with 16 minutes of commercial break time in each show. Rates are based on subscriber count.

ROBERT E. PETERSEN PRODUCTIONS

8480 Sunset Blvd., Los Angeles, Calif. 90069; Ph. (213) 657-5100. Robert L. Dellinger, Group Vice President. Programming format includes 16mm film.

This firm is engaged in the creation, production and syndication of television series, specials and motion pictures. They have some properties available for CATV usage. Send for a brochure.

SANDY FRANK PROGRAM SALES, INC.

790 Madison Avenue, New York, N.Y. 10021. Privately owned corporation. Officers: Sandy Frank, President; Burt Friedman, Director of Business Affairs; Jon Kaufman, Secretary & General Counsel; Emily V. Hammond, Treasurer; Ray Eichmann, Research Consultant; Jeri Deans, Director of Operations; Irene Frydler, Sales Coordinator. Programming format includes 16mm film and 2" videotape.

"Lone Ranger" cartoons; "Golden Voyage" 78 half-hour adventure series; "My Little Margie" 126 half-hour episodes; four different travel and outdoor sports adventure series; four different comedy and cartoon series including the Keystone Cops, Laurel and Hardy, Ben Turpin, "Our Gang," Colonel Bleep and Mighty Mr. Titan. More than 350 such flicks. Prices available on request.

SCHNUR APPEL TELEVISION CORPORATION

200 Central Park South, New York, N. Y. 10019; Ph. (212) 381-8601. A Schnur Appel Company. Officers: Mel Appel, Chairman of the Board; Richard Carlton, President. Regional Sales Representatives: Philip Besser, Eastern Division Mgr.; Arthur Manheimer, Western Division Mgr., 6253 Hollywood Blvd., Hollywood 90028 (213) 462-6903. Programming format includes 16mm film and Standard 2" videotape.

For children — Felix The Cat, The Mighty Hercules, Speed Racer, Mack and Myer For Hire, Gigantor. These series vary from 4 minutes per episode to 30 minutes each for about 700 separate flicks. Eight other packages of TV programs are offered for wider audiences. They include the Joan Rivers Show, Wide Wide World, The Big Attack, feature movies, etc.

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SHOWCORPORATION OF AMERICA

10 East 49th Street, New York, N.Y. 10017; Ph. (212) 421-8830. Officers: C. Robert Manby, President; Fred Schneier, Executive Vice President; Richard A. Harper, Vice President, Regional Sales Representatives: William Morris, Eastern Sales Rep.; Henry Guzik, Southern Sales Rep.; Paul Litt, Midwestern Sales Rep.; Richard Loughrin, Western Sales Rep. Offers programming format of tape and film 16mm. They offer 156 Abbott and Costello cartoons; 120 feature films (many in color); "Vip Travel Guide," a daily, half-hour color series on the how, where and when of travel throughout the world; "Firing Line", one-hour debates with William F. Buckley, Jr., in color; and the Christmas classic "A Christmas Carol."

TAPE-ATHON CORPORATION

502 South Isis, Box 814, Inglewood, Calif. 90307; (213) 776-6933. A family-held corporation. Officers: George M. Anthony, President; David J. Anthony, Executive Vice President; H.J. Halvorsen, Vice President; Wally Rubin, National Sales Manager. Tape-Athon offers "the World's Largest Tape Library" for background music via CATV.

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TELE-COLOR PRODUCTIONS, INC.

708 N. West Street, Alexandria, Va., 22314; Ph. (703) 683-3203. Officers: Charles F. Riley; Harold L. Smullian. Programming format includes 1" videotape, 1/2" videotape, 16mm film, audio tape, and 2" videotape.

This firm offers color and b/w studios and mobile units for on location production services. They have tape-to-film transfer services and video tape dubbing services.

TELEMATION PROGRAM SERVICES, INC.

50 East 42 Street, New York, N.Y. 10017; Ph. (212) 687-0180. Officers: Robert Weisberg, President. Programming formats include 1" videotape and 16mm film.

TPS operates as a film buying representative for the cable industry (currently representing 32 systems). TPS also offers the "Baby Sitting Channel," consisting of 800 modern, non-violent children's programs. Cost information on both services upon request.

TELEVISION PRESENTATIONS, INC.

43 W. 61st Street, New York, N.Y. 10023; Ph. (212) 586-1717. A subsidiary of Sterling Communications. Ira G. Delumen, Vice President & General Manager. Regional Distributor: Mar-Kit, Jef Marcus, Bert Kittay, Programming format includes Alpha Numeric Kit. Programming consists of alpha numeric system of UPI news service, including New York stock ticker and local origination materials. Prices range from \$90 to \$192 per week.

TRANS AMERICA FILM CORPORATION

Hollywood Taft Bldg., Hollywood at Vine, Hollywood, Calif. 90028; Ph. (213) 466-7575. A privately owned corporation. Officers: C.E. Feltner, Jr., Chairman of the Board; David Bloom, President; Kyle C. Thomas, Asst. to the President; A.R. (Bob) Nunes, Western Sales Mgr.; William Bloom, Mgr. Film Distribution. New York Office: 2 West 45th Street, New York, N.Y. 10036 (212) 972-0160: C.E. Feltner, Jr., Chairman; Claude Hill, Secretary. Tri Cities Office: Box 975, Kingsport, Tenn. 37662 (615) 246-4000: John Dallas, South East Div. Mgr.; Don Ferguson, Mgr.-Sales Service.

TAFIC is an independent motion picture and TV film owner and distributor. They own and distribute feature films, western features, special programs, cartoons and TV series with over 1,000 titles available to CATV.

VDO AMERICA INC.

1916 Gulf Life Tower, Jacksonville, Florida 32207; Ph. (904) 396-5763. Owned by Securities National. Officers: Bill Hatcher, President; Gene Orr, Chairman of the Board; Bill Hatcher, President; Buddy Dykes, vice president; Gilbert Kelley, vice president. Regional Sales Rep.: Kemp Advertising Agency, Gulf Life Tower, Jacksonville, Florida 32207. Programming format includes 1" videotape, 16mm film and slides for commercials.

They offer local emphasis programming tailored to individual markets. They lease an unused channel from CATV operators and handle all the programming for that channel. Cable personnel with the skills and techniques of CATV programming.

VISUAL DYNAMICS

8530 Wilshire Boulevard, Beverly Hills, Calif. 90211; Ph. (213) 657-6020. Partnership. Officers: T.K. Vodrey, President; Carles Callaci, Vice-President; Neil MacKenzie, Director. Regional Sales Reps.: Audio Craft, Inc.; Seattle; Recording Center, San Diego; Interstate School Supply, Baton Rouge, La.; Universal Export De Mexico, Mexico, D.F.; Oregon Audio Video Systems, Portland; Hyer Associates, Denver; Universal Magnetics, Inc., Dallas.

Visual Dynamics does not provide CATV programming; rather, they hold on-site training workshops. These workshops are designed to equip cable personnel with the skills and techniques of CATV programming.

VISUALIFE PRESENTATIONS

634 S. Victory Blvd., Burbank, Calif. 91502. Div. of Audio International Inc. Officers: O. Berliner, President and Executive Producer; R.M. Sherman, Vice President; M.P. Larsen, Secretary; M. Daniele, Sales Manager. Programming format includes 1" videotape, 1/2" videotape, 16mm film.

They offer music, variety and documentary programming.

WINTERS/ROSEN DISTRIBUTION CORP.

9110 Sunset Boulevard, Los Angeles, Calif. 90069; Ph. (213) 274-6607. Officers: Burt Rosen, President; Jerry Weisfeldt, Executive Vice President-Sales. Regional Sales Representative: (East of Mississippi) Brad Marks, 22 Somerset Dr., Woodcliff Lake, N.J. 07665 (212) 947-7699; (West of Mississippi) Arthur Greenfield, 9110 Sunset Blvd., Los Angeles. Programming format includes 16mm film and 2" color videotape.

Offered are 52 one-hour weekly (color) Barbara McNair Shows; 78 half-hour Buck Owens Ranch Shows (color); 25 feature films; 350 cartoons; 208 half-hour color film hunting and fishing shows; other special features.

TVC

Local Origination Profile: Cablecasting Election Returns

The cablecasting of local election returns can be of major interest to your subscribers. Here's how it has been done at Ottawa (Illinois) TV Cable.

By Xenophon W. Mitchell
Director of Cablecasting
Jerrold — Midwest Systems

Political cablecasting at Ottawa TV Cable (Illinois) has proven to be successful in both subscriber gain and viewer popularity since the initial local election return cablecast, approximately nine years ago.

The excitement of the election and the new method of receiving results created a festive mood throughout the city. Some CATV subscribers found another justification for a party... election result parties were held in homes and clubs all over the Ottawa TV Cable service area.

The following steps were followed to attract and maintain a

viewing audience.

First the limited space at the head-end was rearranged to allow space for props, equipment and people. Arrangements were also made for program participants.

During the election it was necessary to receive results from the entire Congressional District, comprised of 5 counties. Cable TV election representatives covered "key precincts," reporting to their respective county anchor man, who in turn reported to the overall anchor man at Cable TV election central. Tabulators maintained an accumulative total of all major office candidates.

The system used by the Cable TV election reporting team was at least three hours ahead of all other news media in reporting "unofficial" returns.

Since paper ballots are used in most areas of Illinois, the vote tally process is long and cumbersome. Therefore, late reporting is not uncommon. This allows the Program Director the opportunity to have numerous guests during the evening of election returns.

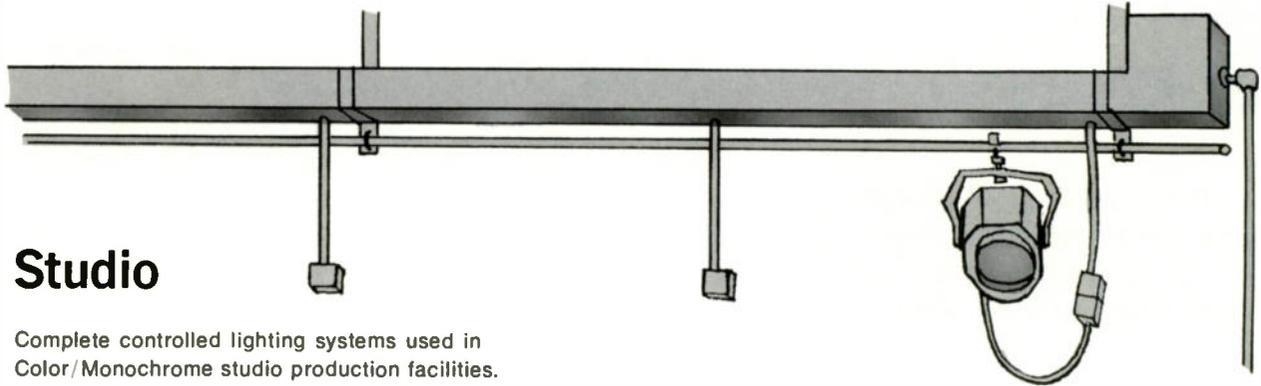
Invited guests usually include representatives from labor, business, industry, professional groups, civic associations, service organizations... fraternal, religious and educational leaders... and participants from young adult groups. All these people are alerted to be prepared for interruptions during their time "on the air," for latest election reporting information. This practically guarantees a viewing audience during the lull between election reports.

Candidates are requested to appear on the program during the evening. Cable TV Community Channel MC's and announcers do not editorialize or project victors of political contests. The Community Channel of the Ottawa TV Cable system provides election information as a public service; therefore, the viewing public does not expect management or staff members to express their individual political views.



Randy Thomas announces election results.

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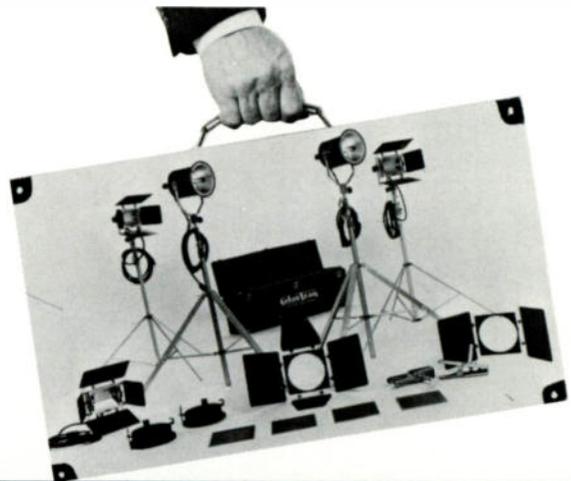
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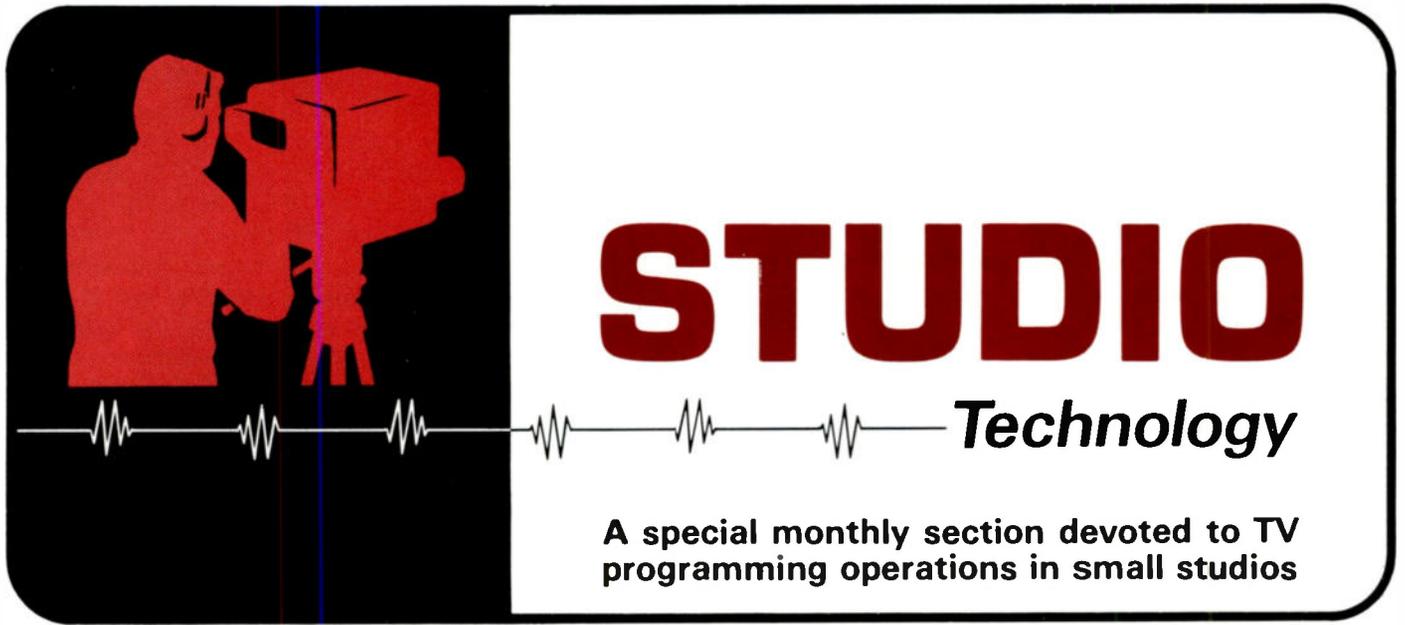
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The Studio Control Room: Switching Audio & Video Signals

This two-part article on patching and switching provides basic insight into multiplying the usability of your expensive origination equipment.

By Jack A. Rickel

Last month we discussed the role of audio and video patching devices for the small CATV origination system. This article will describe the complimentary and sometimes competitive use of audio and video switching.

While patching is the most flexible of all interconnection methods, it does present some disadvantages. For one thing, there is not room on the designation strip above each jack hole to put more than the briefest of descriptions as to where the jack goes. Unless the operator is familiar with the routing he may have difficulty getting it straight

in his mind. For another thing, it is highly unusual to find a combined audio-visual patch panel. The usual practice is to have one or more video patch panels and one or more audio patch panels. It is relatively easy for an untrained operator to get the video from one origination source patched up with the audio from a different source.

Crossbar Switching

The best way to eliminate these two problems is to use a form of crossbar switching. The control panel for a crossbar switcher

usually consists of a rack panel with rows of switches arranged horizontally and vertically. For example, each vertical row of buttons may represent a video input with its associated audio. Each horizontal row may represent an output. Activating any button takes both audio and video from that vertical row and switches them to the output represented by that horizontal row. For example, if you went down the rows to horizontal row number 5, and depressed the button in vertical row number 3, the audio and video inputs from input number 3 would be connected to

the output line number 3, which could be to a modulator feeding Channel 5. Crossbar switchers are available with buttons which illuminate when activated so you can see from some distance away which inputs are connected to which outputs.

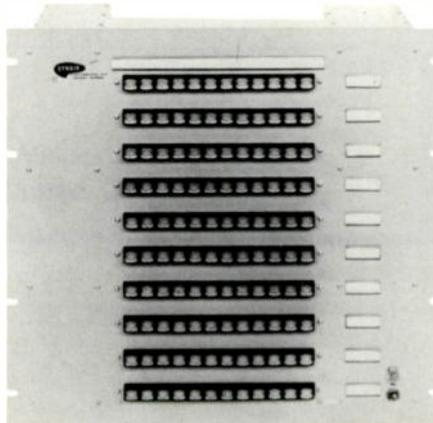
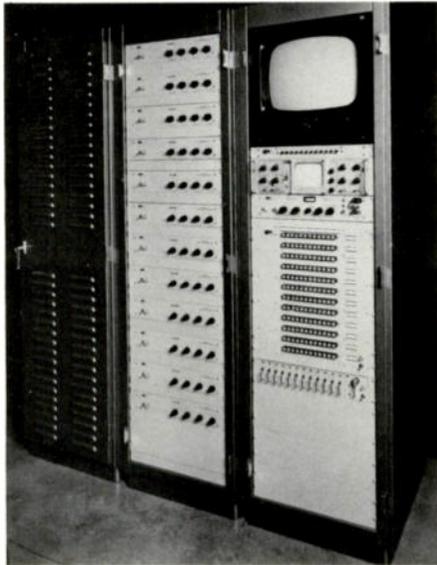
Most crossbar switchers have solid-state distribution amplifiers for both audio and video on each

output, so that any number of outputs can be connected across any input without loading it down. These crossbars are usually available in six and twelve input models and up to twelve outputs as standard units. Custom assemblies can be had for any number of inputs and outputs up to several hundred. Principal suppliers of crossbar switchers in

alphabetical order are Alma Engineering, Dynair Electronics, and TeleMation. Prices for a twelve input, six output crossbar switcher for audio and video are as follows: Alma — \$3,440, Dynair — \$3,140, and TeleMation — \$4,240.

This may seem considerably higher than patching, but it must be remembered that the prices of patch panels do not include distribution amplifiers which must be added externally.

Two useful options which can be added to crossbar switchers are (1) bridging inputs, so the video input (such as from a camera) may be fed through the crossbar, and on to some other input; and (2) sync adding outputs, so sync may be added at the output if one is switching non-composite video.



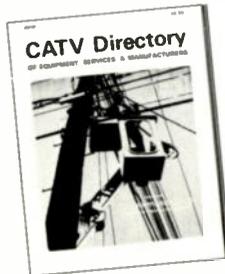
Shown above is the Dynair Electronics, Inc. VS-12x10-SBL audio-video switcher. At the left the unit is built into a 12-channel modular-type head-end system.

Passive Switching

A simpler form of audio and video switching which may be used by the small system operator is passive switching. This is usually a simple, mechanically interlocked

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TV Communications

switch with six or twelve inputs and one output. As an option, the buttons may be illuminated. Such a switcher may be used to select the inputs to a monitor, a video tape recorder, a waveform monitor or similar application.

A word of caution here. Many passive switchers are the terminating type, so that when designing a system the switcher must be at the end of any particular video feed, or else fed from one of the outputs of a distribution amplifier. Most passive switchers have extra contacts so that audio can be switched along with the video. Passive switchers are made by a number of companies and prices range from \$60 to \$150 depending on the number of buttons and whether or not they are illuminated.

The Switcher/Fader

The most widely-used switcher in any origination system is the switcher/fader or production switcher. The switcher/fader is a device with dual input switching into dual amplifiers, the output of which can be mixed into a single output line. A split handle geared to two level controls, called a "fader bar," can be moved backwards and forwards in a short arc. The level controls are to control the video output from each amplifier and as the fader bar is

moved from one extreme of travel to the other, first one amplifier and then the other is at maximum output.

As the level goes down on one amplifier it comes up on the other and this is called "fading" between two pictures. When the fader arm is in the mid-position half of both amplifier outputs are fed to the outgoing line and the pictures are said to be "mixed" since one is overlaid upon the other. Usually the split fader bars are linked together to make a smooth transition from one picture to another, but they can be decoupled to allow them to be moved independently of each other for special fades and mixes.

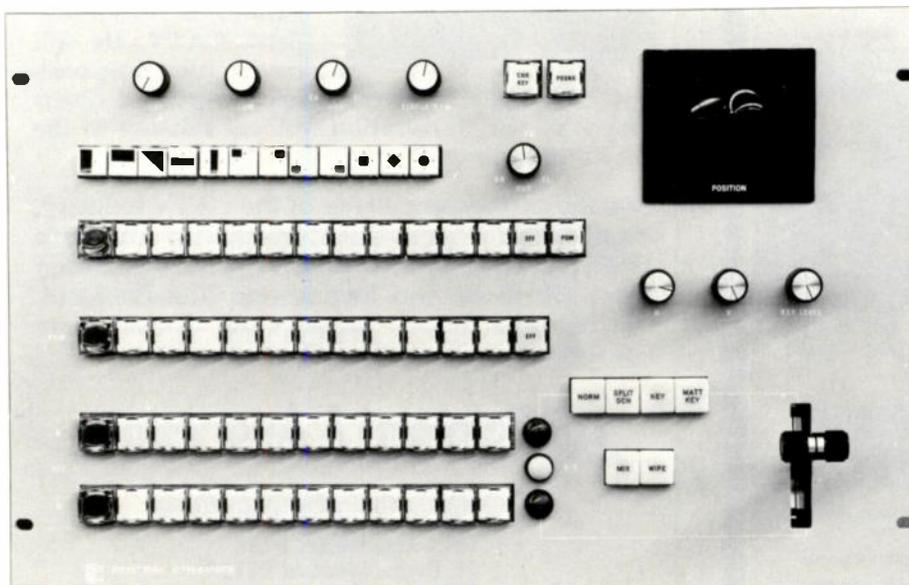
Input switching to the fader amplifiers is usually accomplished with two rows of buttons designated "A" and "B" bus, which simply means their outputs either feed A or B amplifiers. The number of switch buttons on either bus determines the number of inputs which can be fed to that amplifier. For example, if you had six buttons on each bus, you could have six inputs to each amplifier. Buttons 1, 2, and 3 might control the input from three studio cameras, button 4 might be from a film camera, button 5 from a message channel and button 6 from the output of the special effects generator. The same inputs would be fed to the same positions on both A & B bus

to reduce confusion.

Since the input on many switcher/faders is of the terminating type rather than the loop-through, it may be necessary to use distribution amplifiers on each piece of equipment which is to feed the switcher/fader. One of the distribution amplifier outputs would go to A bus and another one to B bus.

Switcher/faders can switch either composite or non-composite video signals, but can only mix or fade non-composite signals. Therefore, one must be careful to feed only non-composite signals to the input of the switcher/fader if he wishes to have complete control of the output signals. Sync signals are supplied to the switcher/fader by a separate sync feed and sync is added to the mixed or faded signal which appears on the output of the switcher/fader.

Earlier versions of switcher/faders had provisions for both non-composite and composite switching on the input buses, but to avoid confusion, the newer units add composite video switching to the output line (which is also composite) after the mixer amplifier outputs. Some of the composite video which might be switched into the output line would be signals from video tape recorders, signals from off-air tuners or signals from a weather channel camera with internal sync.



Central Dynamics VSE 741 video production switcher.

The Preview Feature

Many switcher/faders have a third row of switch buttons called a preview bus. Its output is usually connected to a video monitor and a waveform monitor, but not to the mixing amplifiers. The operator by depressing any button on the preview bus can preview any video source before he switches it into A or B bus.

Often there are two extra buttons on a switcher/fader marked "normal" and "reverse." In normal position the switcher/fader works like it normally does. In the reverse position, the preview bus is switched to the input of the A bus amplifier and the A bus becomes the preview

bus. This allows the operator to fade to anything on the preview bus. Some of the newer switcher/faders have "automatic preview." There are only two rows of buttons, either one of which (not being taken at that moment) becomes the preview bus. When the fader arm is moved to the bus being used as preview, it is then taken and the other bus becomes the preview bus.

Production switchers are just like switcher/faders except that they are more elaborate. They may have four or more input buses; many, many inputs in each row; and incorporate a special effects generator. This usually consists of two or three rows of input switches for the special effects generator, a control to set up the effects desired, a joy stick to position the effects on the screen, and another fader bar to fade effects in and out of the program.

Switcher/faders and production switchers come in all sizes from units costing a few hundred dollars to units costing over a

hundred thousand dollars. Some of the smallest units consist of no more than two little solid-state amplifiers with a knob on the front panel, controlling a dual level control to fade or mix between video inputs. Large units may run to a dozen rows of switches for broadcast use.

Switcher/faders are made by just about everyone in the television video processing field. Here are a few of them listed alphabetically: Alma, Ampex, Central Dynamics, Cohu, Dynair, GBC, General Electric, General Precision, Grass Valley, Phillips, RCA, Richmond Hill, Riker, Sarkes Tarzian, Shibaden, Sony, TeleMation and Visual.

What are good small switchers/faders for the CATV operator who wishes to begin origination? Dynair has a vertical internal switcher/fader, the VS-150 for \$750. It has three non-composite inputs and three composite. Their production switcher, the VS-152-A, sells for \$1,795 and incorporates six non-composite inputs, two composites, special

effects and dual fader bars. TeleMation has its TPS-8 x 2 automatic preview switcher/fader with eight inputs composite or non-composite for \$1,950. Their TPS-12 x 3 sells for as low as \$2,995 and has twelve inputs and a separate preview bus. The Alma 6511 has four non-composite and three composite, plus effects buses for \$3,300.

If, by now, you're completely confused as to the relative merits of patching or switching, Trompeter has one answer. It is a combination video patch panel with tally lights coupled to a switch matrix. One can switch inputs to outputs by depressing a switch button or can change the whole set-up by moving the patch cords from one to the other. The tally lights on the patch panel light to indicate which patch positions are activated by the switch.

Next month this column will take a look at video tape recorders. In another article the "how to" of VTR electronic editing will be covered. rvc

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Brooks, an 18-year veteran of the CATV industry, formerly held management posts with Anaconda Electronics and (more recently) Spencer-Kennedy Labs, where he was Engineering Vice-President. He holds a BSEE degree from Northeastern University.

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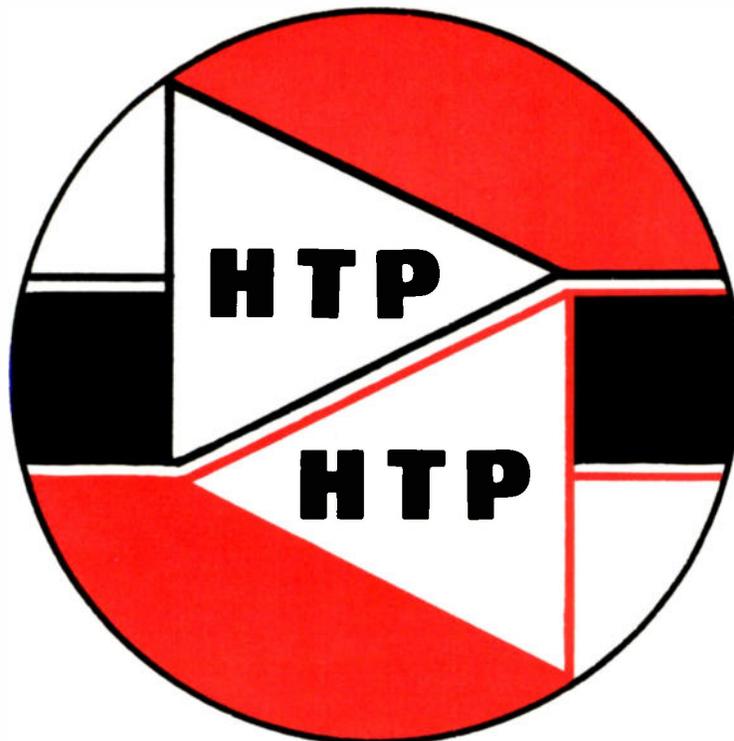
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Studio Notebook

answers to program problems



By Ken Lawson
TeleMation, Inc.

QUESTION: *Should mobile cablecasting equipment be fixed in a van or mounted in portable cases?*

ANSWER: This question usually arises when the CATV system must use the same equipment for both studio and remote program productions. It is not possible to give one answer which would fit all situations because of the different approaches to cablecasting from one system to another. But, it is possible to list advantages and disadvantages of different methods of gaining mobility.

The simplest method of doing a remote program is to detach a *single camera and videotape recorder* from the studio system, and carry it into the field in any available vehicle. There are certain features that the camera should have for best results: (1) an internal 2:1 interlace or EIA synchronizing generator; (2) a zoom lens with a wide range of zoom focus, preferably 10:1; (3) a superior pick-up tube of the separate mesh or Plumbicon* type for marginal light situations; and (4) self-contained video processing (no external boxes). Obviously, it is helpful if the camera is light weight without requiring heavy tripod equipment.

A *mobile van*, with all control equipment permanently mounted, permits the most professional assortment of equipment to be moved around town, but it creates inefficiencies in producing programs in the studio. The most serious deficiency is the separation of

film multiplexing equipment (mounted in the studio building) and the video and audio control console in the van. In the field, access to public buildings and athletic facilities can sometimes be a problem for a van, causing long cable runs across sidewalks, up stairs, down halls, and in aisles.

A good solution for smooth studio and field operations is to permanently mount your video and audio control console in a studio control room with good access to the studio and all associated equipment. Add a modest and *very portable* video control unit for synchronously switching and monitoring cameras, recorders (non-synchronous), and audio sources in the field. This insures a minimum of set-up time, and requires no dismantling of studio facilities.

If the budget will not permit the auxiliary mobile control unit, then my preference is a portable console, or small cases which can be used intact, both in the studio and control room and in the field. This requires a standby switching system in the control room for films, tapes, and message units operating on their own self-contained (switchable) sync when studio cameras are taken away for remote cablecasts. rvc

A \$10 check is yours when your question regarding cablecasting is used in this column. Send questions to: Studio Technology Editor, TV Communications, 1900 West Yale, Englewood, Colorado 80110.

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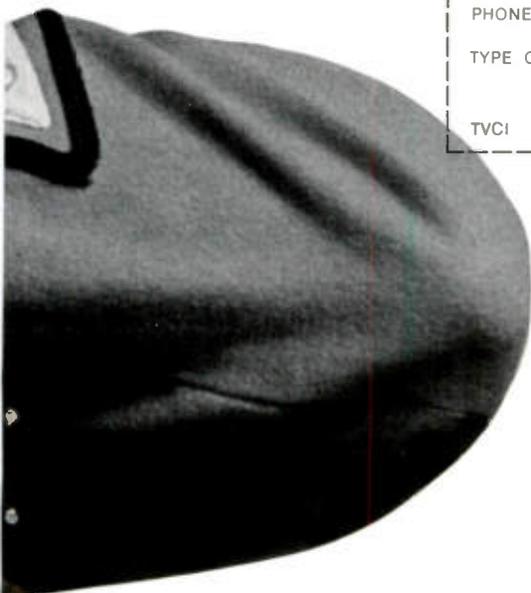
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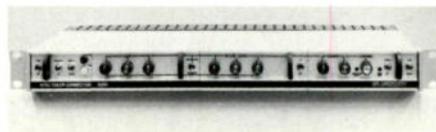
Equipment

A special monthly section devoted to TV programming operations in small studios

CBS Color Corrector; Quality for Low Investment

CBS Labs has recently introduced an electronic color television broadcasting device that enables CATV operators to correct color variations in programs as they are beamed to home television sets.

The CBS Color Corrector makes it possible for studio engineers to



adjust color variations in a television program after it has been encoded, and at any time during its transmission to home receivers.

According to CBS Labs, "The color corrector will make it possible for CATV operators to provide the highest possible quality color television programs. For the first time, CATV operators will have control over color quality in television programs, with the ability to make color corrections at any time during transmission without the viewer sensing any variation."

With the unit, it is possible to complete the final match of various signal sources at a central location, where all the program elements can be viewed continually rather than depending on corrections made previously in various locations.

Without the use of the color corrector, color balance adjust-

ments can be made only at the camera source, with no practical method of modifying this balance at subsequent program transmission stages.

In operation, the CBS color corrector performs small color balance changes on a television signal, closely simulating the operating controls of the originating camera and balancing one camera or videotape against another to maintain consistent color.

The device does not process the encoded signal, but generates a correction signal which is added to the incoming signal to produce balanced color tones. If no color correction is required, nothing is done to the signal.

The unit can be used to match color produced by television cameras of different manufacturers. It sells for under \$3,000.

CBS Labs encourages the use of its Mark II Image Enhancer with



the Color Corrector to enable low cost cameras to "approach professional broadcast quality for a fraction of professional cost."

A sophisticated vertical and horizontal aperture corrector, the Image Enhancer is priced at \$3,640.

TVC

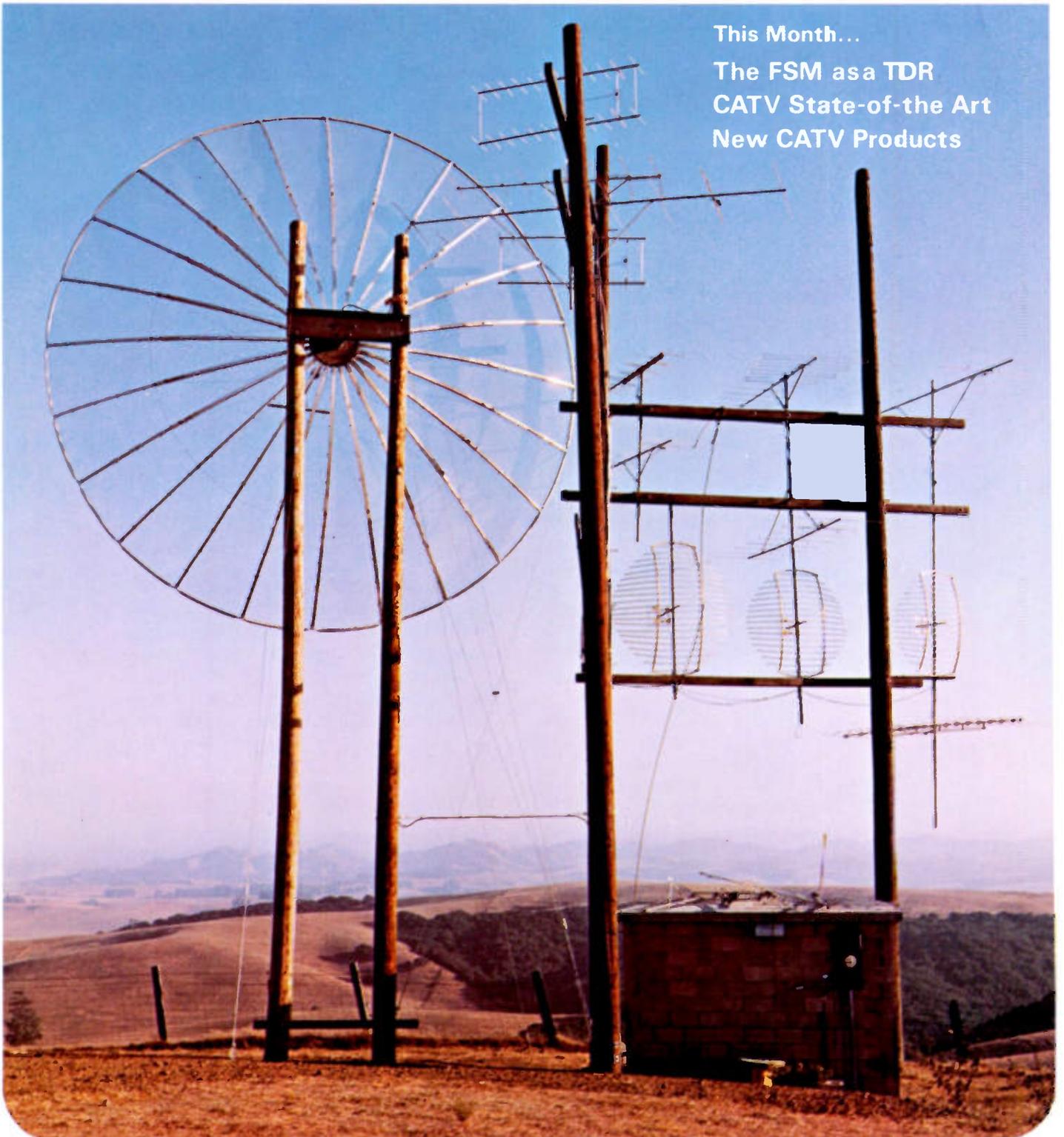
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TV Communications

CATV Technician

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System Performance Testing Using the Field Strength Meter

Cable television has spawned many new applications for the field strength meter. One of these special applications — use of the FSM as a tunable detector — is discussed below.

The February 1970 edition of *TV Communications* included an article by this author, regarding test equipment uses. That article was devoted entirely to a discussion of the singular applications of the field strength meter. This installment moves into some of the special applications that were mentioned at the end of the previous discussion.

The Field Strength Meter As a Tunable Detector

The demodulated voltages of the input RF energy to a field strength meter can be used for qualitative purposes, as opposed to the quantitative purposes for which the instrument is basically intended. A list of possibilities follows. In these applications, we will be primarily involved with qualitative system analysis — the system consisting of from one amplifier to many.

FSM extended measurement

uses: (a) Cross-modulation, (b) Hum, (c) Second order beats, (d) Third order beats, (e) Level changes vs. temperature, and (f) Co-channel.

There are several unique applications that are not qualitative: (a) As a sweep trace variable marker source, and (b) As a sweep trace oscilloscope triggering source.

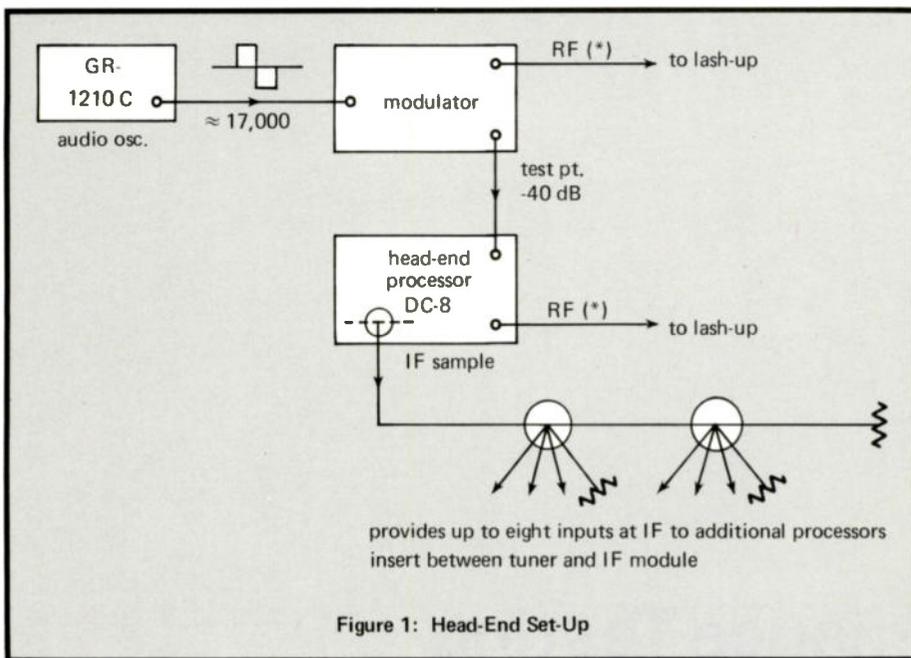
This discussion will focus on cross-modulation measurements, with particular emphasis on a low cost, reliable and accurate technique to perform same. The field strength meter in this special application is being used as a tunable detector. Due to its inherent bandwidth limitations (by design), it can only deliver at its detected output information that is low frequency in nature — compared to the video bandwidth. This would be hum, low frequency beats and low frequency components of the cross-modulation transfer phenomenon. N.B.



Robert D. Bilodeau was graduated from the University of Massachusetts in 1955 with a B.S.E.E. He and his father, Wilfred, established one of the earliest CATV systems in the United States.

From 1965 through early 1970, he served Jerrold Electronics Corporation, as a first field engineer and later as Technical Director of the CATV Division.

Mr. Bilodeau recently joined Goodson-Todman Cablevision, Inc., as Director of Engineering.



that the noise measurement does not violate this requirement.

Since it is uniformly distributed across the video spectrum of interest, we can measure the narrow band quantity passed by the field strength meter and make a correction for bandwidth that is accurate. In the case of cross-modulation, the transfer characteristics are also uniform across the frequency spectrum of interest. However, amplitude variations occur within the band with a maximum value occurring at the horizontal line rate (sync). In the transmitted video signal, it is a constant in terms of frequency and amplitude and, for the non-synchronous case (which is usual), becomes the first visible component to appear as an undesired signal (vertical black bar moving across the desired picture).

The frequency of this component in the spectrum is approximately 15,750 cycles. The test technique outlined below employs a frequency close to that to approximate real life conditions. For measurement purposes, it is not necessary that it be close to this frequency as long as the frequency used is within the tunable spectrum of the field strength meter and does not fall coincident with other beat products in the carrier sideband. A measurement technique, for example, based on a 100 Kc rate would be just as accurate, but

would continually raise the question in some minds of equivalent performance at 15,750.

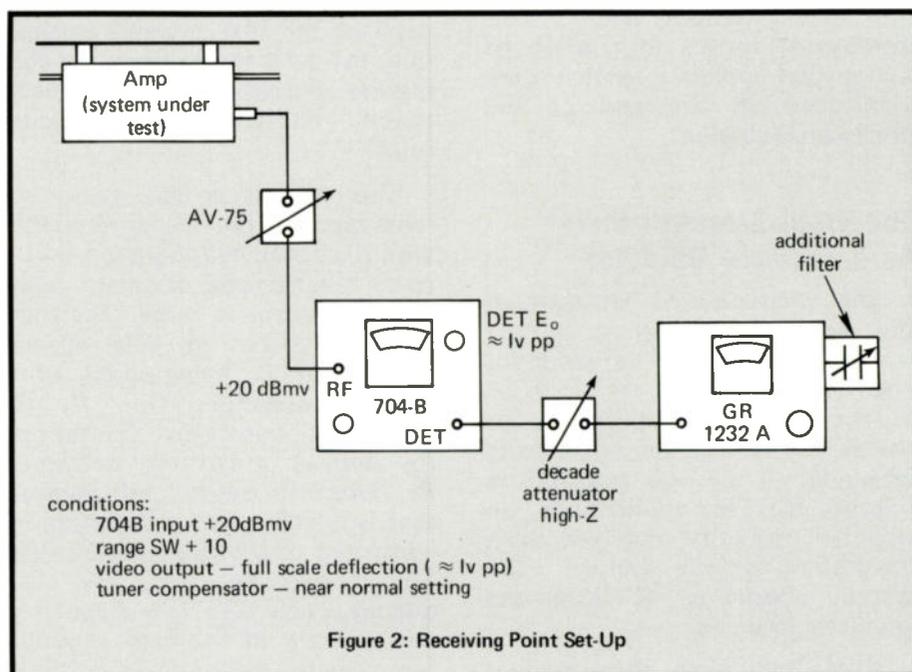
The Measurement Technique

The measurement technique described here is based on the presently recommended NCTA standard. This standard relies on the predictable addition of synchronous sources for absolute and comparable results. This is the only reasonable way that a true barometer of system performance can be calibrated. A system

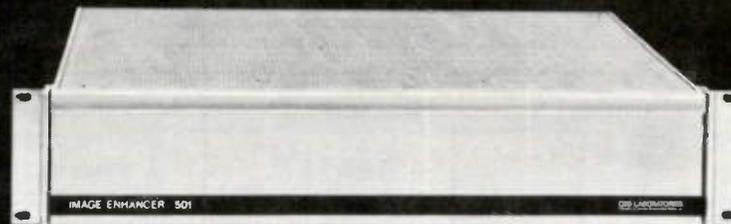
measurement taken at point A, specified by time and temperature, can be meaningfully compared to other measurements taken at any other time and temperature — and any other point. It is the only technique that can give consistent results from device to device, system to system, point to point. The twelve channel synchronous measurement of a 34 amplifier cascade of brand X equipment in San Jose can be accurately compared to an equivalent cascade (or portion thereof) of brand Y in Sioux City, Iowa.

Basically, it's a way of saying that we all have to live up to and be judged by the same standards. A measurement technique based on the random addition of a number of off-air channels is an exercise in futility. The sources themselves will change and their addition through any non-linear device will change on a random basis mathematically. The net result is that you will probably miss the worst case addition which the synchronous measurement will give you immediately and consistently.

The basic limitation of the synchronous technique is that it is dependent on free access to the system, which currently means early morning measurements. However, we do recognize the need for an on-line application of



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the synchronous technique viable during normal system use.

The Measurement Concept

Now, a description of a low cost and easily implemented application of the synchronous concept described above. The initial requirement is that of a multiple channel carrier source that can be modulated from a common signal. For our purposes here, we will limit our discussion to the typical CATV head-end equipment that is *heterodyne* in nature. These devices translate all incoming signals to a common IF frequency and it becomes a relatively simple matter to introduce a commonly modulated source at this IF point.

Figure 1 describes one possible arrangement for arriving at a multiple channel head-end output test signal. Descriptively speaking, we have an audio oscillator whose 17 Kc square wave output is feeding a modulator to provide an output signal at approximately 100% modulation. If this modulator is already part of the head-end lash-up, its output can be one of the synchronous carriers. In any event, its output can be attenuated and fed into one of the heterodyne units tuned to the output channel of the modulator. This heterodyne unit

can then provide one carrier of synchronous modulation and the sampling of its IF output can provide an input to other heterodyne units at IF.

One channel would be set to standby operation, typically a high band channel, and used in the system at readout points to determine the total amount of 17 Kc information transferred by the other carriers. A 9 channel complement is desirable to use, and it is usually available at most head-ends. A reliable mathematical extrapolation from 9 to 12 or 9 to 20, etc., can be made from there. A table of correction factors for synchronous addition can be located in the Technical Handbook for CATV Systems by Ken Simons, Third Edition, p. 42.

NOTES — Head-End (Points to Consider)

A good mix of low and high band outputs should be utilized and maintained for future measurements. Typical output might be chs. 2, 4, 5, 6, 7, 9, 10, 12 (100% modulation) and ch. 13 CW.

The CW carrier for measurement purposes should be free from local direct pickup.

The purpose of using IF into heterodyne devices is to avoid the need to retune all inputs to the

output frequency of the modulator, thereby saving a good deal of setup and breakdown time. This is important in a system that is providing service to customers. If RF inputs were used, one would have to wait for off-air channels to return to normal operation before they could retune the head-end for off-air operation.

Percentage modulation can be checked with an AC/DC coupled scope noting deflection before and after modulation of the carrier. 100% would be maximum carrier to zero carrier and would visibly be the point where "compression" of the wave shape begins.

The accuracy of the measurement is not sensitive to modulation percent — within reason. It is basically a comparison of indicated voltage on the "CW" carrier to its parent source on a modulated carrier by equating maximum carrier to 100% modulation. If percent modulation drops to 85, the trade-off by comparing the amount measured on "CW" to a smaller number is countered by the lower value of transferred energy. This is true down to an approximate error of 2 dB at 50% modulation where the value should read better than actual by that amount, i.e., Don't waste time trying to achieve 100% modulation.

Seventeen Kc was selected to avoid direct pick-up by the test equipment of the 15,750 component radiated by television receivers operating nearby. They are good transmitters at this frequency.

With a directional coupler lash-up for an output harness, a measurement for cross-modulation at the head-end would be very low and beyond the range of this technique, which in its present form is noise limited at -85 dB. Consequently, a measurement of the head-end should indicate noise in this neighborhood. The aural carrier of the modulator should be set for operation approximately 17 to 20 dB below the picture carrier to facilitate AFC tuning of the one device used for IF distribution. This is an important step since it then obviates the need to adjust any controls on the other units accepting IF input.

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Spool put-up



MC	Nom. Attenuation per 100 feet			
	Belden 822E db loss	RG-59/U db loss	Foam RG-59/U db loss	Foam RG-11/U db loss
50	1.5	2.4	2.1	1.0
100	2.1	3.4	2.9	1.5
200	3.1	4.9	4.1	2.2
300	3.8	6.1	5.1	2.8
400	4.5	7.1	5.8	3.3
500	5.0	7.9	6.5	3.7
600	5.5	8.9	7.1	4.1
700	6.0	9.6	7.7	4.5
800	6.5	10.3	8.2	4.9
900	6.9	11.1	8.7	5.2

A simplified version of the head-end lash-up is now available by virtue of a unique feature of one manufacturer's head-end equipment — the ability to externally modulate the standby carrier! A square wave generator and hook-up wire are the only hardware necessary. As off-air stations cease each night, the standby carriers eventually fill the spectrum — each with synchronous modulation. One would, of course, be left CW. The only obstruction to complete automatic head-end set-up would be the 24 hour stations. It would be possible to remote these for shut-down or standby operation during the brief measurement interval.

Receiving Point: (Trunk or Distribution)

The receiving point diagram is outlined in Figure 2. The field strength meter indicated for this test is the Jerrold 704B, which is ideally suited because of its high detector output capability. The test point for measurement can be

any point in the system at which sufficient level can be attained to maintain approximately +20 dBmV into the FSM. This is necessary because it falls within the bracketed range between noise and cross-mod contributions of the FSM itself. For very low level measurements, such as first trunk amplifier output, these contributions can be significant. While we recognize the fact that a bandpass filter could be utilized ahead of the meter to reduce the effect of cross-modulation, we would then introduce other variables; namely, the insertion loss of the filter which would have to be accounted for, unless a similar device was used for the reference carrier, and a family of filters would have to be available for various head-end configurations encountered.

In addition to the above, the normal system noise level for the bandwidth of the equipment employed here is sufficiently high so as to override the improvement of the field strength meter cross-mod characteristics with the use of the bandpass filter. In reality

that improvement is in a range that is not measurable with this equipment in the presence of normal system noise.

The output of the 704 detector is applied to a decade attenuator and to the input terminals of a General Radio null detector (model 1232A). In this application it is simply being used as a low frequency wave analyzer with gain which would be permanently tuned to the 17 Kc frequency.

The implementation of this procedure is as follows: On the assumption that we have successfully established our modulated carriers and one CW carrier at the head-end at normal output (see NOTES — Head-End), it is then necessary only to select the point in the system that satisfies the above condition, namely sufficient signal level availability.

Referring to the receiving point lash-up, note that the first device is a variable attenuator. This is very handy for making adjustments when referencing one carrier to another at full scale deflection.

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The output of the variable attenuator is fed to the 704 RF input and adjusted by using the indicated ranges for full scale deflection for one of the 100% modulated carriers. Since the measurement is independent of the source of reference and all carriers are modulated with the same percentage, then the carrier normally selected is that which is nearest the CW measurement carrier. If we were measuring on Channel 13, we would use the nearest highband carrier with full modulation.

The operation of the equipment is as follows: (a) Establish in the proper range of the 704B a full scale deflection of one of the (100%) modulated carriers.

(b) With this fully modulated carrier set for full scale and with the decade attenuator impedance at maximum (80 dB), tune the General Radio wave-analyzer to establish full scale deflection by adjusting its gain control. Its frequency control will be at 17,000 cps.

(c) Without changing any set-

tings on either the 704B or the wave-analyzer, tune to the CW carrier on the 704 and establish full scale deflection by adjustment of the variable attenuator.

Table I: Test Equipment List—X-Mod Test

1. Jerrold 704B	\$ 500
2. General Radio 1232A null detector	\$ 370
3. Hewlett-Packard 122A square wave gen.	\$ 250
4. AC/DC oscilloscope	\$ 600
5. Jerrold AV-75 attenuator (or equiv.)	\$ 165
6. Special filter — info on request	\$ 25
7. Decade attenuator — info on request	\$ 25
8. Modulator and associated hardware	\$1,200

Most systems will already own or have available all except items 2, 3, 6, 7. These total to \$670 and with this expenditure you will have accurate system x-mod measurement capability.

(d) Remove attenuation from the decade attenuator in steps of 10 until a usable scale indication is reached on the wave-analyzer dial.

(e) Add the attenuation removed from the decade attenuator to the downward scale deflection on the meter face of the wave-analyzer. This is the direct reading of cross-modulation

voltage imposed on the CW carrier by the presence of the eight others. (The twelve channel value is approximately 3 dB worse than this number.)

(f) Measure signal-to-noise on high and low band in the normal manner and record these values.

(g) Repeat this process at trunk, distribution, and line extender output points and look for a 6 dB degradation on trunkline values for a doubling of amplifier cascades.

NOTES — Receiving Point

While output levels are important, and it is necessary that they be close to design values in order to achieve expected cross-mod and signal-to-noise, it is not necessary that precise trunkline balance be a part of the measurement. These will tend to average when the cascade becomes sufficiently long. The important consideration here is to know the actual difference between cross-mod and signal-to-noise in order to determine system tolerance.

With well behaved equipment, in other words each active device making equal contributions to cross-mod and signal-to-noise, these two parameters will indicate the direction in which the system balance has been favored — or has otherwise shifted to.

With this technique we now have the capability of isolating major contributors that are providing more distortion than expected. Most important, however, is that this relatively low cost equipment can provide reliable, consistent repeatable results in a sensitive enough range for system evaluation.

Proper evaluation is the first step towards corrective action — which, when carefully applied, will keep subscribers from becoming noisy about noise and cross about cross-mod. TVC

The author wishes to acknowledge contributions to the development of this technique to Ken Simons and Larry Fawber of Jerrold Electronics; the latter being responsible for supplying daily precise weather data for the test site in the southwest part of the country.



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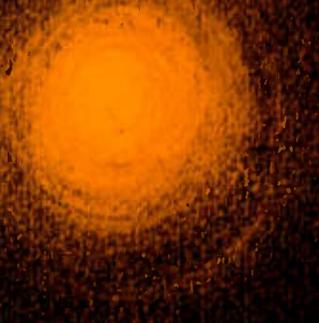
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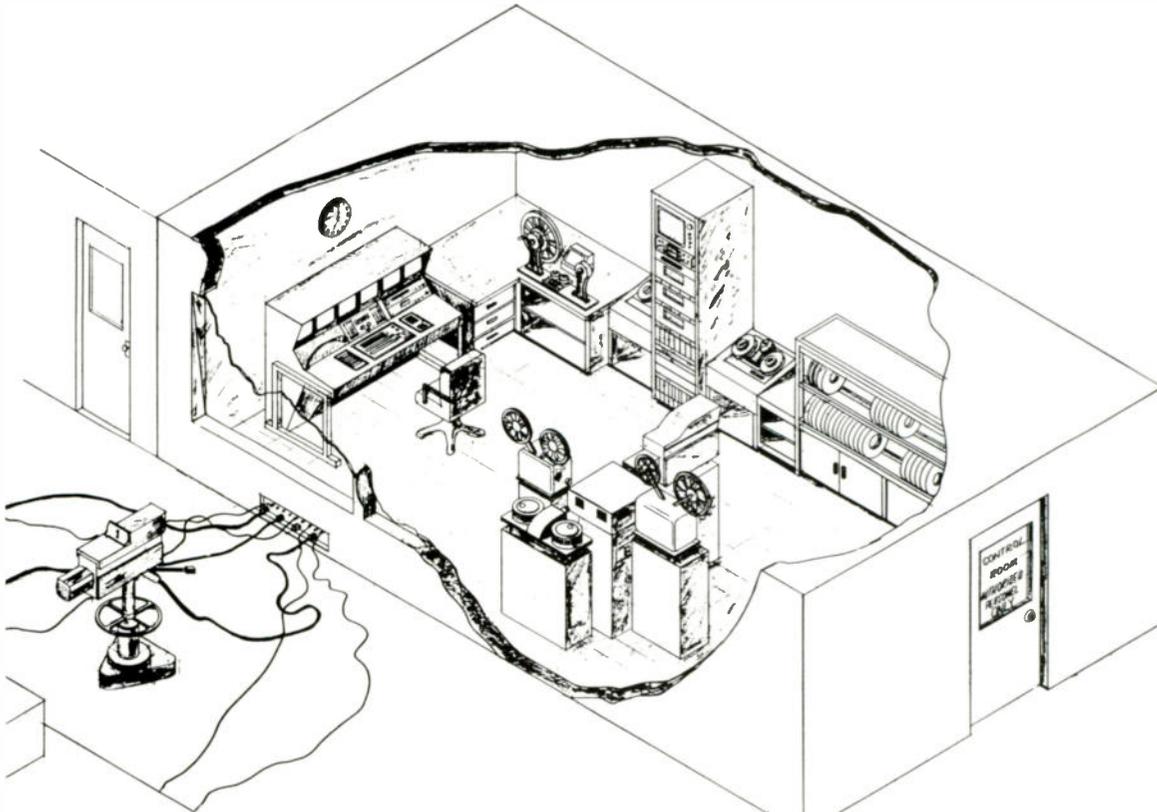
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Expanding Cable Capability: A State-of-the-Art Review

If the CATV operator is to expand as a "cable communications entrepreneur," he must first understand the technology behind two-way and multi-channel operations. Part 3

*By I. Switzer, Chief Engineer
Maclean-Hunter Cable TV Limited*

Multi-channel transmission systems are an important consideration for the forward-thinking cable operator. The thoughts included in last month's and this month's portions of this series were part of a paper presented by this author at the 1970 International Convention of the Institute of Electrical and Electronics Engineers (IEEE). The subject of the multi-cable approach to increased channels was introduced last month.

Multi-Cable System Without FDM

Rediffusion Limited, in England, pioneered and continues to use a multi-cable approach to cable TV distribution which uses a multi-pair cable, carrying high level TV signals at HF frequencies. Special receivers are provided, without tuners. The desired channel is selected by a suitable wafer-type switch. Only one channel is carried on each balanced pair. Converters are available to permit use with conventional VHF receivers. This is an example of

the ultimate multi-cable system—use of one cable per channel.

ADVANTAGES

1. This eliminates problems inherent in broad-band, multi-channel amplifiers.
2. This approach permits use of economical special receivers, or a simple converter system.
3. No new or untried technology is required.
4. Improved reliability is gained through redundancy of the cable systems. Only major problems would interrupt all channels simultaneously.
5. Low HF frequency can be used, reducing cable losses and number of amplifiers.

DISADVANTAGES

1. Capital costs are high. It is very costly to expand the number of channels if an inadequate number is initially installed.
2. This system is susceptible to cross-talk problems.
3. Home installation is expensive since a multiple cable bundle has to be run right up to each receiver. Remote controlled switching is possible but at extra cost.

Switched Systems

The discussion of multi-cable systems leads inevitably to switched systems. Why commit a whole bundle of cables to a television receiver that is only using one of them at a time? A switched system is based on a single transmission line from the subscriber's receiver to a switching center where a number of program channels are available on separate buses. Switching can be remotely controlled by the subscriber to connect his line to a selected program bus. Since the subscriber's line need carry only one program at a time, this program can be on a low frequency carrier to minimize transmission losses. Systems of this type which have been demonstrated, have shown that subscribers can be up to a quarter of a mile from the switching center.

A switched system has, no doubt, the greatest potential versatility of any of the cable television transmission systems proposed. One of the questions which arises in discussion of "more than twelve channel

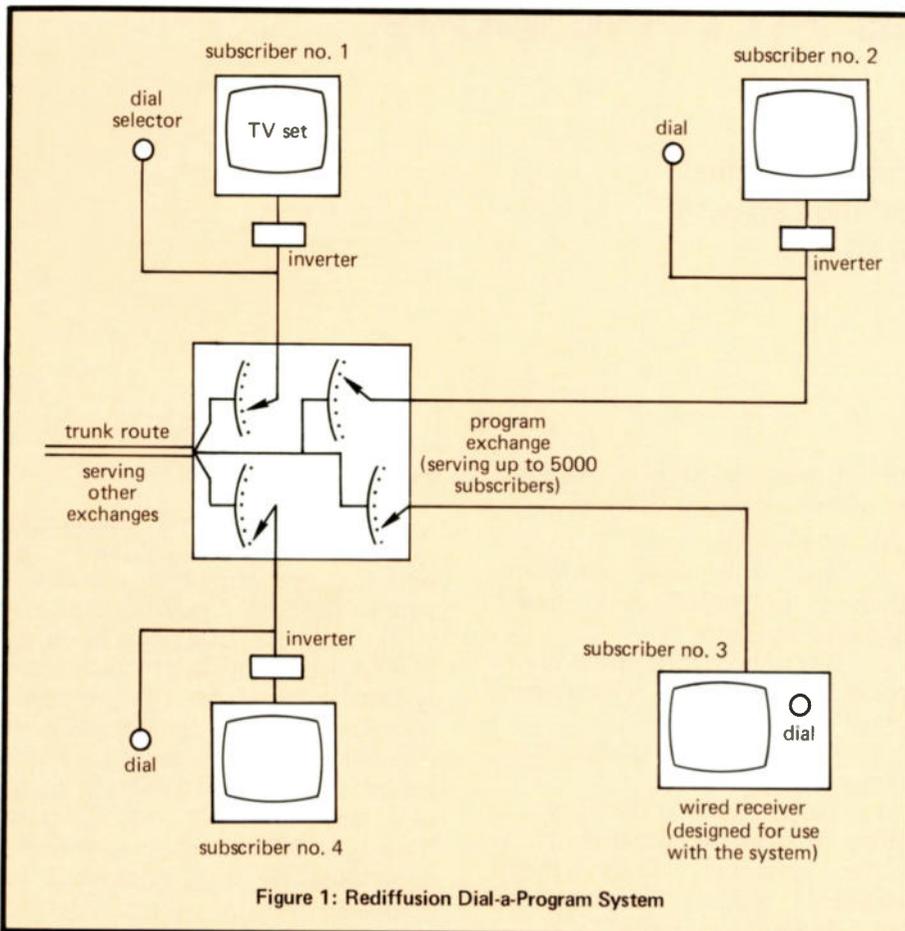
systems" is, "how many more?" A frequency-division-multiplex system operating at frequencies up to 1,000 MHz could have a capacity of about 80 channels in a single octave operation, and up to 150 channels if multi-octave operation is permitted. A switched system could have capacity limited only by the size and capacity of the switching centers and the trunk systems used to interconnect them. A hierarchy of switching centers could be envisioned which would give

Switched systems have more advantages than just versatile access to channels. They would usually have no amplifiers between the switching center and the subscriber. They would thus permit easy two-way transmission between the subscriber's home and the switching center. In fact, it is easy to visualize switched interconnection between subscribers, and the multiplexing of narrow band communications of various types on such a system.

Switched systems require a

such circumstances, possibly with the aid of a small intermediate amplifier.

The principle disadvantage of switched systems seems to be the high cost, particularly the cost of interconnecting switching centers. The problem of determining optimum capacity is also significant. The ideal system would have a hierarchy of switching centers, but the cost of inter-center trunking would be very high and there is some practical limit to the value of expanded channel access to the average household.



A "Systems" Approach

The problem of conversion of non-standard channels for reception on ordinary TV receivers is a vexing one. The set-top converters are double conversion systems with attendant complexity and susceptibility to distortion problems. They unfortunately transfer the responsibility for tuner maintenance from the receiver owner to the cable system operator. Other conversion schemes, leading eventually to dual-cable systems, add substantially to capital and operating costs. The typical home television receiver was just not designed or intended for reception of a large number of contiguous, adjacent channels. Conversions and adaptations are necessarily expensive or less than satisfactory. The use of ordinary receivers ties the cable system to transmission technical standards that are not ideal for cable transmission with frequency-division-multiplex techniques.

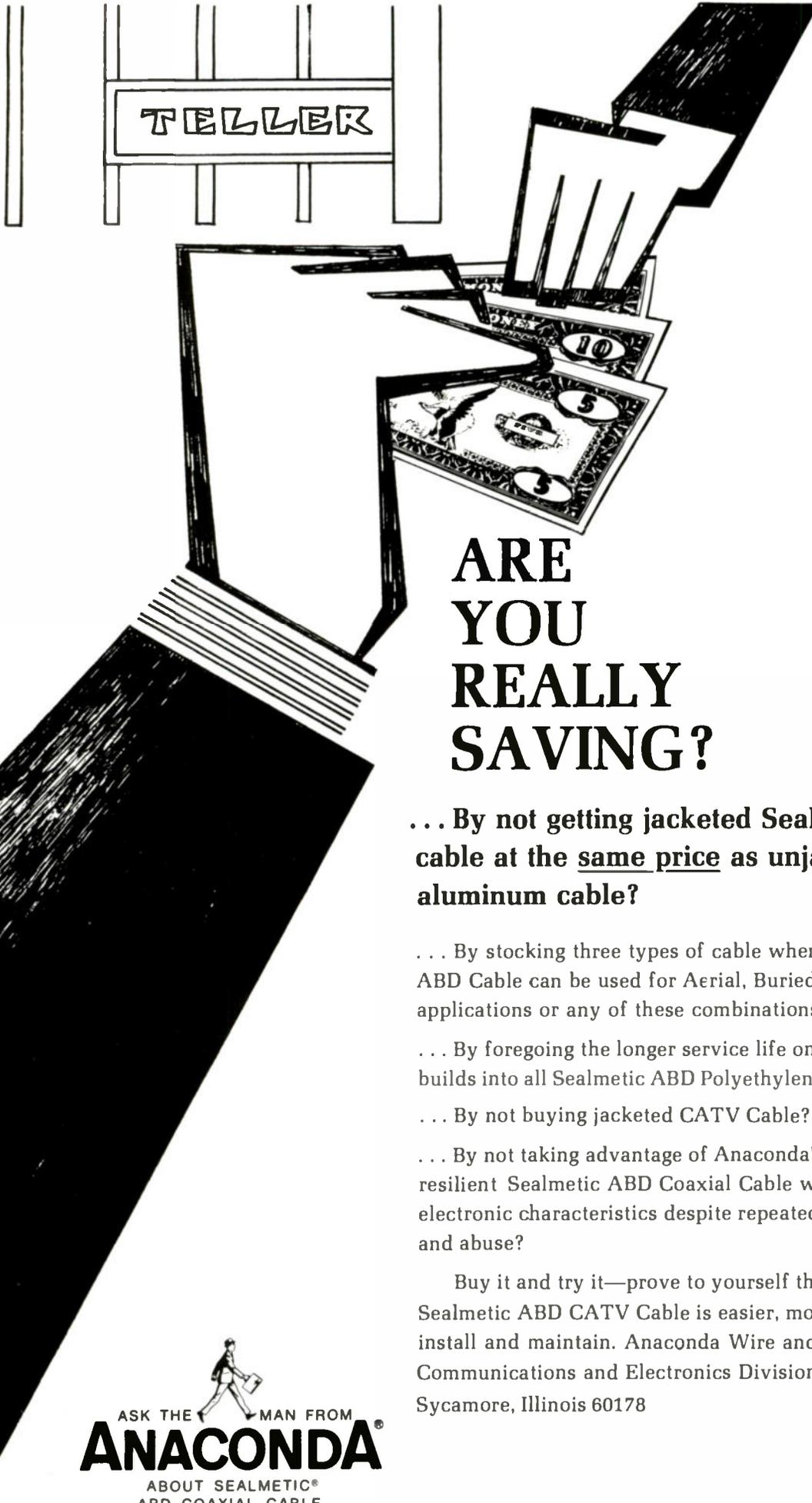
This series of articles has not dealt with the useful applications and functions of "more than 12 channel" systems. Assuming that such systems serve socially and economically desirable purposes, it becomes desirable to develop a new receiver that would function in a more satisfactory way as part of the entire system. Control over the receiver gives the system engineer the scope to contemplate and design a complete broad-band multi-channel transmission system.

It is doubtful whether the system designer would want to abandon AM frequency-division-

access to even more program channels.

Switched systems suffer from the problem of the concept of "more than 12 channel systems" being too new. No one yet knows how many channels are desirable, economical or available. The cost of expanding a switched system once it is built would be very high and might be a very serious deterrent to the addition of more channels. Such a system would probably have to be built "right" the first time.

separate service drop for each television receiver in a household. Extension telephones are usually installed to permit the subscriber to use the telephone from a variety of different locations within the home. However, this same subscriber has additional TV sets so that different programs can be watched at the same time. This requires a separate service right back to the switching center for each television receiver. It is possible that two-channel multiplexing might be employed in



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multiplex in favor of more exotic systems. Even a cable system has frequency spectrum problems if we consider modulation systems requiring more bandwidth than AN systems. FM modulation, with an index sufficiently large to give any transmission advantage, requires considerable bandwidth, as much as 20 to 25 MHz per channel. Pulse code modulation requires even more bandwidth. Delta modulation techniques would require very expensive receivers. The system engineer could, however, consider suppressed carrier, single-side-band transmission. The ability to handle wider bandwidth, high resolution transmissions could also be built into the special receiver. Complete shielding, and virtual freedom from local oscillator beat problems, image problems, etc. is assumed for a special cable TV receiver.

Adapter and conversion boxes could be provided for connecting standard receivers to the cable distribution system. Such converters would be somewhat incon-

venient and there might be some compromise of the special performance features built into a special cable TV receiver. A change to suppressed carrier would in itself be a significant contribution to the improvement of broad-band cable systems. Set-top converters have been criticized by many cable system operators because of several significant shortcomings. If a set-top converter was required to adapt conventional receivers to multi-channel cable systems, the converter could be used to improve the characteristics of the receiver to which it is attached. Presently available converters do improve adjacent channel selectivity. A set-top converter could be designed to act as a suppressed carrier, single-side-band converter; or if designed to receive UHF channels, could be designed to act as a high performance UHF front end for any receiver to which it was connected.

In the United States, only 7% or so of the television homes are presently connected to cable tele-

vision systems. In Canada this figure is 17% and growing rapidly. An even higher percentage of new receiver sales, particularly color receivers, are to homes on cable TV. There is a considerable interest among Canadian TV receiver manufacturers in the development of special cable TV receivers and we expect to see some practical demonstrations of such receivers before the end of 1970.

Resolution of the Problem

It is obvious that there are a great many approaches possible to the problem of "more than 12 channel" systems. There has been very little solid, professional research done into the question of complete evaluation of all the possibilities, with a view to coming up with scientific decisions on the questions which have been raised.

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channel VHF broadcast television receiver. Now that we have used up the capabilities of this receiver we do not clearly see in which direction to go. The problem has apparently not aroused the interests of the giant research facilities available to some of the communications interests, except perhaps to disdain it. That is, to decide in favor of switched systems over broad-band, frequency-division-multiplexed systems. The commitment of a cable system of a given design for a whole community is a rather serious matter. The capital costs are very high and pilot trials of various systems must be considered to be very expensive experiments.

The risk of making a mistake and saddling a company, and a community, with a less than optimum system is very high and such decisions are a serious responsibility for those engineers who are faced with making decisions of this kind without adequate resources. The Bell system can afford to have

hundreds of engineers and technicians spend years in the study and development of optimum systems. They can afford large scale experiments such as the pilot installation of an experimental electronic telephone exchange, writing off the cost of such development and experiment against their huge income from established communications systems.

No cable television company has such resources, nor has there been the evidence of a large enough market to attract speculative development by potential equipment suppliers. The development of new systems is therefore very slow and painful. There are a few experiments, on a very small scale, and usually not very scientifically conducted—not enough evidence on which to make large scale judgments. Most cable TV operators would rather wait than take a chance on untried systems. The road to success is littered with the bones of pioneers.

We face now a problem similar

to that faced some years ago when decisions had to be made on technical standards for color television, stereo radio, and even the basic television system itself. A number of alternative and complementary systems have been proposed. A significant economic potential and consequence has been demonstrated. A number of highly publicized but very unscientific demonstrations have been staged. It is possible that some government agency might sponsor the research and investigation necessary to arrive at firm recommendations on multi-channel, broad-band systems, or that industry co-operative effort might be arranged. Without such a large scale, intensive investigative effort, it is doubtful whether we will see a rapid development and proliferation of broad-band, multi-channel systems in the "Spectacular 70's".

Next month this series will conclude with a review of terminal devices related to two-way and multi-channel CATV state-of-the-art technology. TVC

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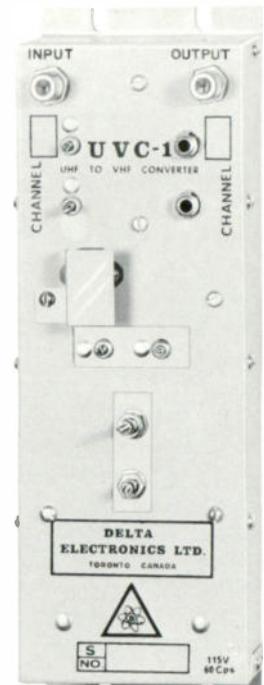
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- MODEL UV-1:** UHF/VHF, features an amplified output, recommended for MATV head-end use. Gain (typical) 12 dB on channel 2 to 6 dB on channel 13. Bandwidth 6 MHz: Min. Input 200 μ v, Max. Input 50,000 μ v, Noise Figure 9 - 15 dB, Input/Output Impedance 75 ohms.
- MODEL UVC-1:** UHF/VHF, crystal controlled, oscillator stability 0.005%. Specifications otherwise similar to Model UV-1.
- MODEL TC-3:** Deluxe UHF/VHF crystal controlled converter. Custom built to order to convert UHF channels to VHF channels. Gain better than 28 dB. Noise figure 6.5 - 9 dB. Max. Input Level +6 dB, Max. Output +40 dB, Input Impedance 75 ohms, Output 75 ohms.

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PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

AEL NOW MARKETING TUNERLESS CONVERTER

AEL Communications Corp. has recently introduced its Superband Tunerless Converter. The device adds 7 more channels to a 12-channel 270 MHz CATV system. The unit mounts on the back of subscriber's set and features a knife switch for selection of standard or "super" mode.

For further information, contact AEL Communications Corp., P.O. Box 507, Lansdale, Pa. 19446, (215) 822-2929.

JERROLD SHOWS COMPLETE TWO-WAY EQUIPMENT LINE

A complete package of new Starline Data Line equipment for two-way CATV systems has been developed by Jerrold. Only two Starline Data Line items are essential to two-way distribution capability for a dual-cable system. These are the broadband two-way Model FBB-series Flexitaps and the Starline Model SDV-30/60 two-way push-pull extender. Any dual-cable system with these items will provide one-way service, and needs only that a Starline Data Line Translator Station be dropped in any main-trunk station with distribution facilities to provide complete two-way service. A single-cable two-way system provides two-way capability for the main trunk and needs only a Starline Data Line By-Pass Station, one of the Model RPS-series, at every Starline main trunk station. The two-way broadband Flexitap introduced locally-originated programming into the main trunk.

For further information, contact Jerrold Electronics Corporation, 401 Walnut St., Philadelphia, Pa. 19105, (215) 925-9870.

NEW FROM KAY: SWEEP AND MARKER GENERATOR

Kay Elemetrics Corp. has recently introduced a new sweep generator, the

159D, which provides a full one volt RMS output into 75 Ω over a 300 KHz to 300 MHz frequency range. Two options include a triggered sweep function for sweeping the system during operation without interfering with subscriber service. In this mode, the test signals are sent down line during short periods of video off times. Secondly, new variable frequency markers, both pulse and birdie type, are available covering the range of the sweeper.

The unit features continuously variable sweep widths and center frequency over the 300 MHz range, providing coverage of video, IF, and VHF in a single tuning range. A multi-turn center frequency control includes a direct-reading, digital frequency dial for fine setting of narrow sweeps.

Performance characteristics include line lock, variable repetition rates, CW, manual, external modulation and switchable, blanked retrace. A triangular sweep output, synchronized with the RF output, is available for triggering the horizontal axis of an oscilloscope. A built-in precision RF step attenuator provides up to 79 dB of attenuation plus a 6 dB variable. Provision for operation from external ALC detectors (as in impedance plotter applications), is a standard feature as is a built-in RF detector.

The RF output is AGC'd flat for amplitude linearity of better than plus or minus 25 dB over the widest range. The use of a broad output amplifier in these beat frequency units permits light coupling of the mixed oscillators.

Pulse-markers are available in the PM7650 plug-in, which offers up to eight, optional, individually switched crystal marks at customer specified frequencies up to 100 MHz.

Birdie markers are available in the Model PM7660 plug-in which offers up to eight single frequency or 7 harmonic combs as specified. These marks cover the entire range of the 159D.

For wide-range coverage, the new Model PM300 provides two variable pulse marks which may be set at any

frequency along the response trace. Controlled by multi-turn digital readouts, these markers are complemented by one and ten MHz crystal comb markers.

The Model PM7670 variable birdie marker module provides a variable birdie combined with a crystal controlled 4.5 MHz sideband marker. A calibrated dial indicates marker position both in frequency and by channel. One and ten MHz harmonic combs may also be individually switched for wide band coverage. An external marker input is provided on the 159D so that a variable birdie marker may be developed using an external CW source.

For further information contact Kay Elemetrics Corp., 12 Maple Ave., Pine Brook, N.J. 07058.

CRAFTSMAN INTRODUCES TDR, VARACTOR CONVERTER

The newest addition to the Craftsman equipment line, the Model 107 coaxial cable fault finder is designed to be an economical Time Domain Reflectometer (TDR). It can be used with any type of oscilloscope found in CATV systems today. Operating on the TDR principle, the unit sends a fast rise time pulse down the cable under test (up to 2500 ft. of .412). The pulse is in turn reflected back and displayed on the oscilloscope. According to the manufacturer, the return pulse will pinpoint the location of cable faults to within plus or minus 2% accuracy and will indicate whether the fault is an open or shorted circuit and either capacitive or inductive mismatches.

Craftsman has also recently introduced a pushbutton channel selection converter. Channels on the selector can be blanked out by a screwdriver adjustment on any of the 26 potentiometers which control the varactor. This allows the FV25 to provide guarded service to doctors, educators, police or industry. Dividing the converter and the channel selector affords a remote control, putting the switching portion in the subscriber's hands.

For further information on these new products, contact Craftsman Electronic Products, Inc., 133 W. Seneca St., Manlius, N.Y. 13104. (315) 682-9105.

GE NOW MARKETING NEW VIDICON CAMERA

GE's new vidicon television studio camera features automatic light compensation and built-in master sync

for driving up to three other similar cameras in small studio systems. According to the manufacturer, the Model TE-34 provides full gray scale and full resolution performance with pickup tube faceplate illumination as low as one foot candle. The camera's circuits are completely solid-state. All its electronic components are mounted on a single fiberglass printed circuit board. The TE-34's resolution specifications of 600 lines, center, and 400 lines, corners, are said to be maintained without readjustment over a temperature range of 0 to 50 degrees, C, and over an input power range from 107 to 127 volts, AC. The camera is 8.25 inches wide, 8.50 inches high, and 13.90 inches long, less lens. It weighs 15.25 pounds, less lens. Video output may be switched from composite to a non-composite signal, for use with applicable special effects generators. Price of the TE-34, with a GE Type 7735 vidicon pickup tube, less lens, is \$1,295.

For further information contact General Electric Company, VCPD — A&SP, No. 2 Electronics Park, Syracuse, N.Y. 13201.

TELEMATION OFFERS SWITCHER WITH AUTOMATIC PREVIEW

In TeleMation's new TPS-8X2, the preview output is automatically switched to whichever of the two mixer busses is not in use. The video switch is effected by electronic crosspoints controlled by the fader arm position. Designed for color or monochrome use, the TPS-8X2 employs vertical interval switching. Crosspoints are all solid-state and are controlled by integrated circuit logic. It includes an integral video processor with average picture level compensation to eliminate switching transients and bounce. The unit is equipped with eight video inputs, either synchronous or non-synchronous, composite or non-composite video.

For further information contact TeleMation, Inc., 2275 South West Temple, Salt Lake City, Utah 84115. (801) 486-7564.

FUNG DEVELOPS CONVERTER FOR TWO-WAY SYSTEMS

The model TCC-77 sub to high VHF single-channel converter, specially designed for two-way CATV system use, has been developed by Fung Engineering Co. The unit is designed to provide low noise, and good color response. It features a crystal-controlled carrier.



For further information on this new product contact Fung Engineering Co., 111-4 Glenn Way, Belmont, Calif. 94002.

TEXSCAN MODEL 9500: NEW CATV SWEEP SYSTEM

Texscan Corporation has recently introduced a sweep system for doing complete system alignment without program interference. The system produces no audio distortion and disturbs only one or two lines of video information, allowing subscribers to continue to watch a program while system alignment is being performed. The system is comprised of two compact instruments: The model 9500T, which is the sweep unit for the head-end, and the model 9500R, which is the portable receiver unit.

The model 9500T is both a sweep generator and a sweep transmitter. In the system mode it behaves as a sweep burst transmitter with the normal sweep rate circuitry switched out and a new timing circuitry activated. This new timing circuitry has a front panel switch which allows selection of test rates of 1, 2, or 4 second intervals. All normal sweep generator controls are still operational in the system mode. The operator selects the frequency range and the output level required.

The model 9500R receiver unit contains all the circuitry necessary to view the sweep test signal without the need for additional auxiliary equipment for sync purposes. The range of signal levels which can be viewed with the receiver is +5 dBmv to +70 dBmv. One of the highlights of the 9500R receiver is the completely variable frequency marker. This calibrated marker produces two marker peaks 6 MHz apart. This 6-MHz spacing provides an easy reference for channel width, and a calibrated dial provides a method for easily determining the frequency of tune ups in the system.

The price for the 9500 system is

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\$3550.00. The price for the Model 9500R only is \$1875.00. Discounts are available as follows: 3-4 units 5%; 5-9 units 10%; 10-19 units 15%; 20-39 units 20%.

For further information, contact Texscan Corporation, 2446 N. Shade-land Ave., Indianapolis, Ind. 46219, (317) 357-8781.

TECHNO PRODUCTS INTRODUCES TWO-TUBE COLOR PLUMBICON

Techno Products Company has announced the availability of the Sony

DXC-5000 two-tube color camera with a Plumbicon in the luminance channel. Originally using a vidicon, this new camera has reduced lag and improved low light level capability. It is possible to get low lag color pictures with a light level of only 50 foot candles using the 28-pound camera. With built in color bar generator, the price is \$11,500. Additional accessories include: remote video controls, adaptor for the use of any C-mounted lens, and a rack mount for the camera control unit.

For further information contact Techno Products Company, 7405

Greenbush Avenue, North Hollywood, Calif. 91605, (213) 764-0110.

SPENCER-KENNEDY INTRODUCES VARACTOR TUNED CONVERTER

Spectrospan, a varactor tuned converter for increasing the capacity of a 12-channel cable system to 18 channels, is now being marketed by SKL. Spectrospan uses standard amplifiers and an existing 12-channel distribution system. Guardbands are placed between channels to eliminate second-order beat problems. These bands may also be used for voice transmission, telemetry signals and other types of data.

For further information contact Spencer-Kennedy Laboratories, Inc., 2 Lowell Ave., Winchester, Mass. 01890.

COLOR MONITOR/RECEIVER NOW AVAILABLE FROM SONY

Sony's new portable model CVM-1200U Trinitron color monitor differs from other color systems in that it employs a single gun to produce three electronic beams, one for each primary color, instead of the conventional three separate guns. Also, instead of the conventional shadow mask, the Trinitron system uses an "aperture grill" that permits more electrons to reach the screen, and is said to result in a picture of greater brightness. The Trinitron picture tube is 12" (measured diagonally). Additional features include automatic adjustment circuits; independent AGC pulse oscillator from the deflection circuit said to assure perfect electronic-to-electronic monitoring regardless of phase delay; three independent output connectors; and a built-in, 75-ohm output connector for single or multiple monitor operation. Suggested list price for the Model CVM-1200U is \$595. For further information, contact John McDonnell, Sony Corporation of America, 47-47 Van Dam Street, Long Island City, N.Y. 11101.

LOW-COST COAXIAL RELAY FROM DOW-KEY COMPANY

Dow-Key Company has announced the availability of the type 77 coaxial relay fitted with type "F" connectors. This low-cost 75-ohm SPDT relay, which is particularly adapted to CATV service, occupies a space of only approximately 2" x 2" x 7/8". The series 77 relay is available in a number of actuating coil voltages, from 6 to 115 volts, AC and DC.

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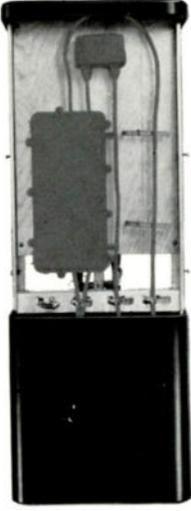
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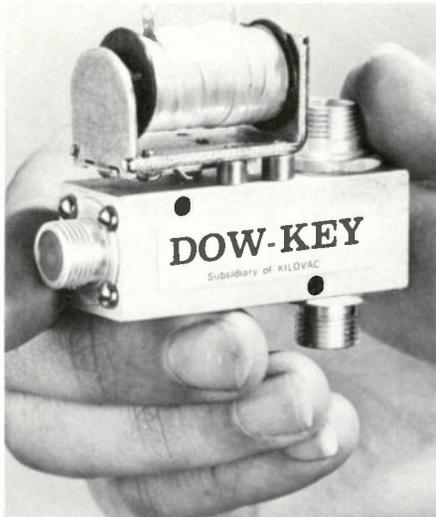
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For further information contact Dow-Key Company, B.J. Washisko, Box 348, Broomfield, Colo. 80020, (303) 466-7303. TVC

FCC Rules Analysis . . .
(Continued from page 34)

predecessor and companion media such as radio and TV. All of which leads to the basic issue of the wisdom and propriety of such conditions on the further development of what the FCC concludes is a valuable new service. Quite possibly such regulatory demands may be too great a price for CATV systems to pay for the carriage of distant signals (which many do not seek, and which others feel they already have a right to carry, either gratis or on the payment only of reasonable copyright fees).

Future of Proposals Seems Quite Unclear

For all of these reasons, it is currently far from clear as to whether (and when) the Commission may be able to adopt any substantial part (much less all) of this complex package of CATV proposals. This is particularly so in light of the determined and widespread opposition that seems in store from copyright owners, cities, many established CATV systems, the broadcasters and perhaps even from Congress. Such opposition may not materialize in full, or it may be overcome. But at this early stage it seems quite doubtful whether the new problems raised by the FCC's

CATV package can effectively be resolved in time to meet its asserted primary objective of developing a new CATV regulatory program for an early cutting of the "Gordian Knot" that has hobbled CATV development over the past several years.

Above all else, it is necessary for everyone in CATV and TV to consider and analyze precisely what the FCC is proposing for their industry's further development — and what it means to the industry as a whole, as well as to

each particular system or station. The situation calls for particular and pointed comments far beyond the general expressions of approval or disapproval that have been voiced in the past. But even a first review of this complex package of FCC actions/proposals makes clear just how demanding this task will be. It should be a hot summer and fall in Washington. During which time every system and station should be asking itself "Just What Hath the FCC Wrought" this time around. TVC



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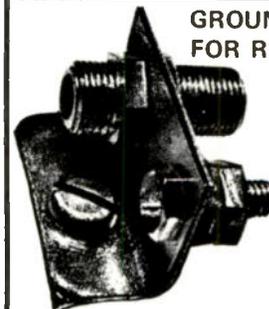
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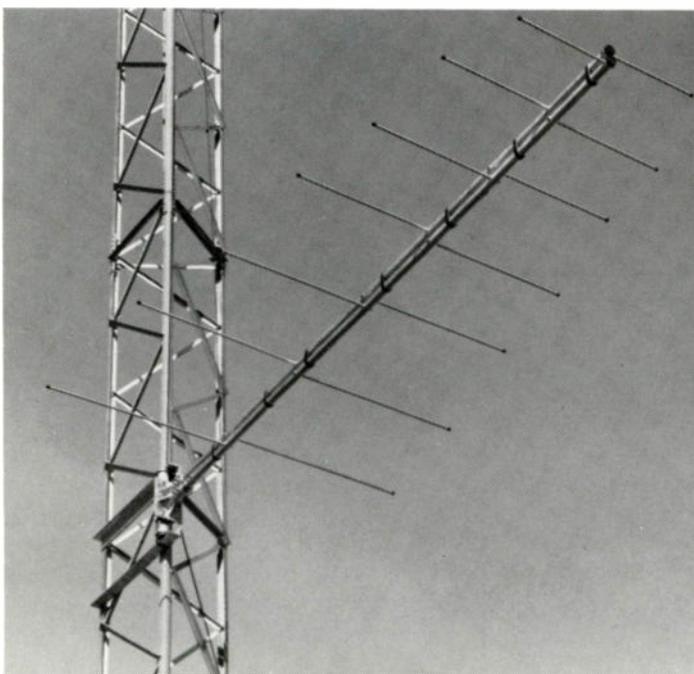
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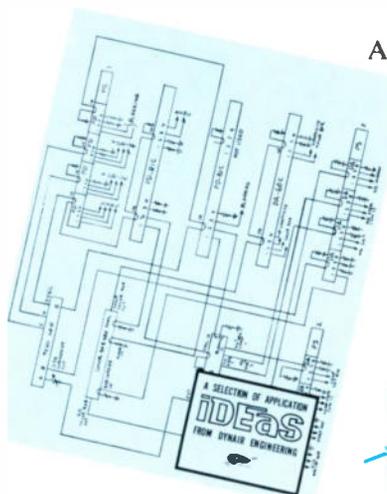
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Community television Association to the subscribers of subscriber drop equipment.

Consolidated Cable-Vikoa Sign 250 Mile Turnkey System Contract at 1970 NCTA Show in Chicago

Aurora, Ill. . . Mr. Phillip Schalz, President and Treasurer of Consolidated Cable Utilities, has confirmed that construction has started on the first phase of an extensive 250 mile, 21 Channel CATV Turnkey system by Vikoa, Inc.

The contract for this system between Consolidated Cable Utilities and Vikoa, Inc. was completed on June 8th at the 1970 National Community Television Association Convention, held in nearby Chicago.

Mr. Schalz stated that "This system, with a potential of 20,000 subscribers, will bring 'studio quality' television to the subscribers of Aurora, North Aurora, Montgomery and Oswego, Ill. with the added advantage of an increased selection of television programs plus additional FM stations.

The contract terms call for Vikoa to provide all cable and equipment, to install the system and turn over to Consolidated Cable Utilities the completed operating system. Equipment installed will include Futura 21 Channel Mainline, Mainline/AGC, Bridging and Line Extender Amplifiers (manual and AGC), a complete Head-End facility and all ancillary equipment, plus all subscriber drop equipment.

The system, although equipped for 21 Channels, will initiate service with 12 television channels plus FM and will gradually increase service to a full 21 Channels plus FM operation.

The channels carried will be; Channel 2, 5, 7, 9, 11, 20, 26, 32 and 44 generated from Chicago; Channel 13 from Rockford, Channel 38 from Chicago and Channel 60 from Aurora.

Mr. James Ascher, Vice President and General Manager for Consolidated Cable Operations and the reliability of its 21 Channel Amplifier Systems now in operation will assure us a successful and profitable system". This alone has demonstrated once again that Vikoa is the leader in Turnkey System Operations.



Mr. Phillip Schalz (seated center), President and Treasurer, Consolidated Cable Utilities, signs Turnkey contract with Theodore B. Baum (seated right), President, Vikoa, Inc. Looking on, left to right, Mr. James Ascher, Vice President and General Manager, Consolidated Cable, Mr. John Russell, Manager, Western Sales, Vikoa, Inc., Mr. Richard Reedy, Executive Vice President Consolidated Cable, and Mr. Charles Auer, Manager, Regional Sales, Vikoa.