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January 1971

TV Communications

The Professional Journal of Cable Television

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TV

TV Communications

The Professional Journal of Cable Television

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Editor

Robert A. Searle

Executive Editor

B. Milton Bryan

Managing Editor

D. Stuart MacPhail

Technical Editor

I. Switzer

Associate Editor

Jacqueline B. Morse

Contributing Editors

Jack A. Rickel

Kenneth D. Lawson

Robert D. Bilodeau

Art Director

D. A. A. Lindmark

Artists

Steven E. Riley

Betty Martz

Production Assistant

Jayne L. Barrick

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Advertising Sales

Phil D. Cook

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Circulation Manager

Buford S. Marsh

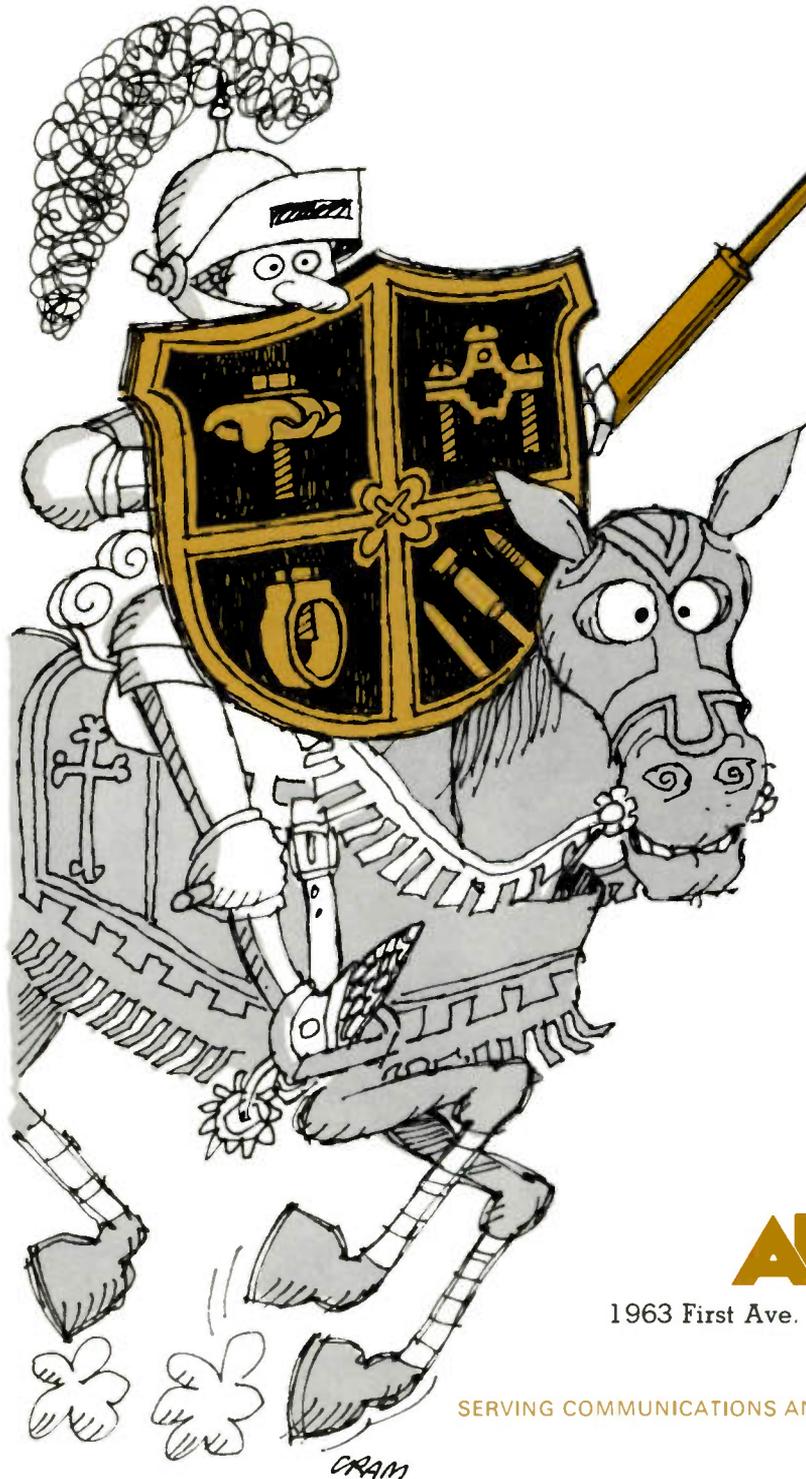
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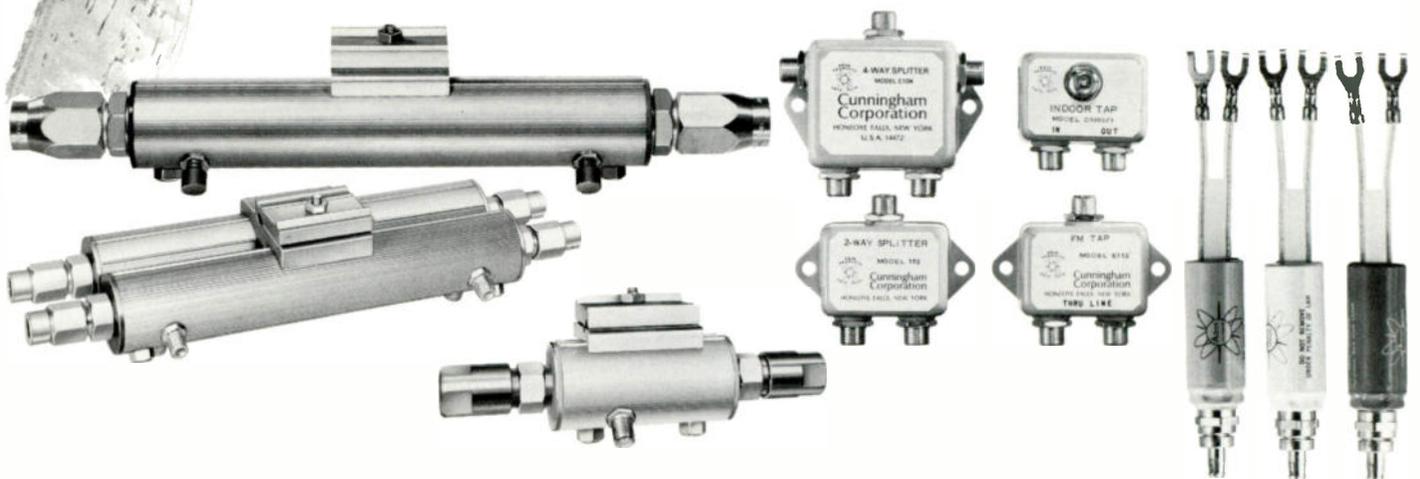
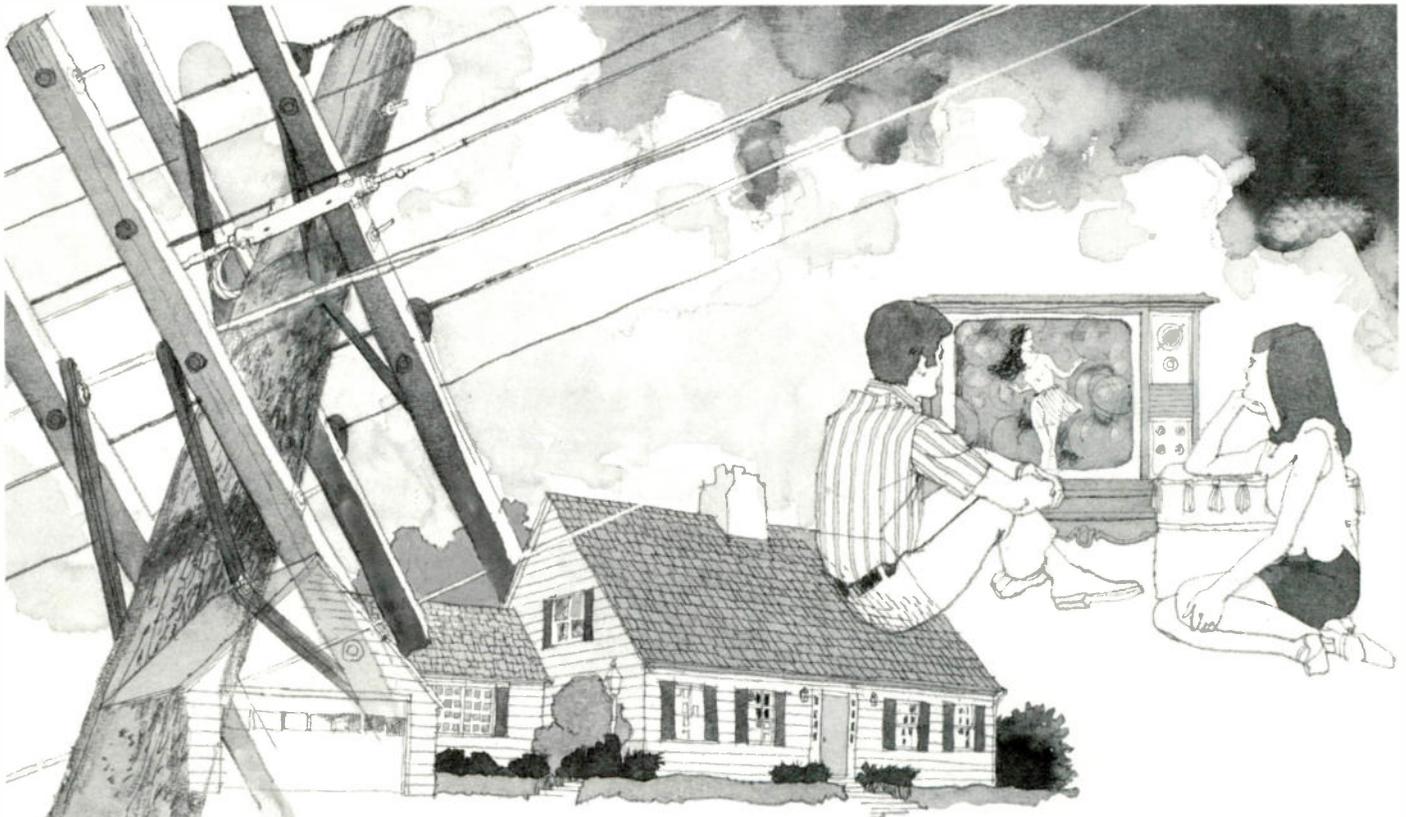
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TA-4J*	.0752	.362	.412	.480	100
TA-5	.098	.450	.500	—	102
TA-5J*	.098	.450	.500	.575	132
TA-8	.146	.690	.750	—	218
TA-8J*	.146	.690	.750	.850	274

ATTENUATION IN DECIBELS PER 100 FEET

CHANNEL	ATTENUATION IN DECIBELS PER 100 FEET												
	2	3	4	5	6	7	8	9	10	11	12	13	
TA-4, TA-4J	.77	.82	.86	.93	.96	1.46	1.49	1.51	1.54	1.56	1.59	1.61	
TA-5, TA-5J	.63	.68	.71	.74	.79	1.12	1.15	1.17	1.20	1.22	1.24	1.26	
TA-8, TA-8J	.42	.44	.47	.51	.53	.80	.81	.82	.84	.85	.87	.89	

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The TVC Viewpoint

EDITORIAL



Robert A. Searle
Editor

From Promise to Progress

Nineteen hundred seventy — a year of promise and new hope for cable. A new Chairman at the FCC — a straightforward statesman bent on giving cable a fair shake. A new president at NCTA — a strong leader with keen business sense and the charisma it will take to unite the industry. A new CATV Bureau at the Commission — giving operators hope that cable matters would be handled more quickly and intelligently.

Cable saw hope for a new freedom, as the FCC 214 mandate slammed the door on further telco leaseback encroachment into CATV, and “requested” that major telcos “defer any and all proposed rate increases” on pole attachments.

From the Hill, operators received a shot in the arm when more than a third of the Senate and half of the House turned out for the NCTA Washington reception. Promise of further objective direction regarding cable’s future came when President Nixon announced the formation of the Office of Telecommunications Policy.

The exodus of two long-time adversaries of cable — Ken Cox and Henry Geller — from key FCC staff positions also added new hope that cable would get a “fair shake.” And further reassurance was received when the Commission dared to take a big slice of prime time programming from the powerful networks.

Most reassuring of all was the promise that CATV would be unshackled in the major markets, and would have its long-coveted room to grow. Chairman Burch’s Commission had indeed kept its promise at least as far as drafting new and sweeping proposals with regard to CATV.

At year’s end, the prevailing attitude in the industry is one of hope. Gloom has given way to downright cheer. Cable is an industry beaten and bloody, and some of its suppliers are staggering, but it faces nineteen hundred seventy-one with new heart.

But if nineteen seventy was a year of *promise*, seventy-one will surely be a year of *progress*.

The year will bring the reality of new and fair regulation for cable to thrive in. It will yield the completion of new copyright rules, and the solidification of federal and state jurisdictional boundaries. In this context, the fledgling cable television industry will enter the growth spurt of its adolescence.

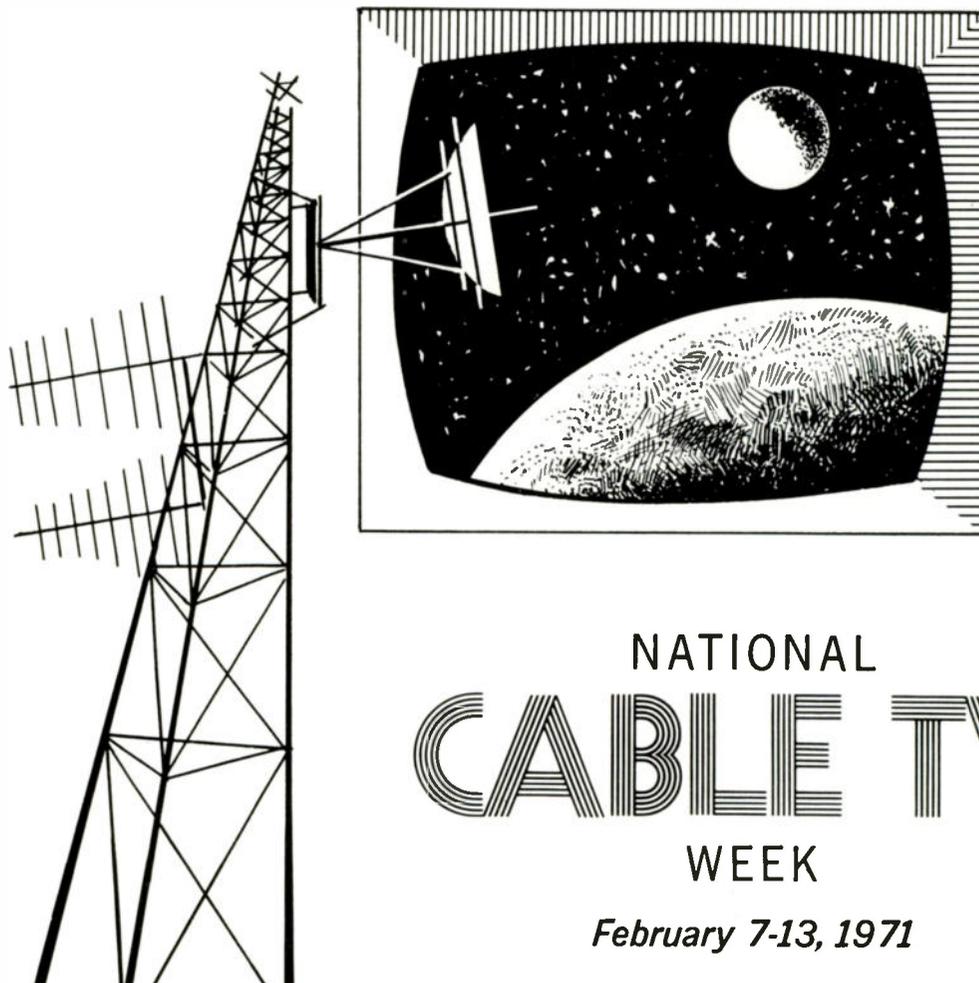
But adolescence years are never easy. They are years of conflict, and are marked by the pain of growth. Major battles are already shaping up on the franchise front lines in major television markets. A lot of mistakes will be made, as the “over-eager” overcommit themselves in order to get in on the action.

Working out the bugs in the FCC’s new rules will be hard, grinding labor, and will probably turn up some of the most complex problems CATV has ever faced.

As more mergers take place and new conglomerates are born, there will be even greater forces widening the rift between “big-time” and “mom-and-pop” operators. NCTA will find it harder than ever to please everyone all the time.

Nineteen seventy-one will be a critical formative year for cable television. Those who succeed in it will be those who succeed in keeping cable “straight.” More than ever, the CATV industry needs mature leadership.

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Gain Control (flat)	10dB	10dB	10dB	
Tilt	Adjustable for 0 to 30dB cable.	Adjustable for 0 to 30dB cable.	Adjustable for 0 to 30dB cable.	
Input and Output	18dB return loss	18dB return loss	18dB return loss	12dB minimum
	Regulated power supply	Regulated power supply	Regulated power supply	Regulated power supply

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Perspective

on the news



B. Milton Bryan
Executive Editor

Encouraging news from the money market. The cost for home mortgage money has definitely started to go down. According to recent article in The Wall Street Journal, more and more banks are dropping the home mortgage rate to 8 percent.

As one S&L president is quoted, "There's just an awful lot of money available." S&L deposits have been increasing, due to individual cutbacks in spending and less competition from the bond markets.

When interest rates begin to drop, first sign is usually in home mortgage market. If present rates are indication of a real trend, cable operators can expect lenders to begin to loosen up money for system construction and expansion soon.

Looser money is important if cable is to develop in the major markets. Rules allowing importation of distant signals won't do a lot of good unless there is money available for this very expensive system construction.

Likelihood of fairly expeditious FCC action on proposed rules has been increased by President Nixon's nomination of a new man to fill the vacancy at the Commission. Unless Thomas Houser runs into an unexpected stone wall, as Sherman Unger did with the tax inquiry, he should be at work before too long. See page 30 for background on Houser.

Seventh commissioner is essential, says Burch, before hearings can be held on CATV proposals. But now that a new candidate is in the wings — and you can bet Nixon checked his tax status — delay due to seventh man absence will be overcome. Houser should receive a recess appointment early in January.

Extra-industry filings on Commission's CATV proposals are very encouraging. The Justice Department, Office of Economic Opportunity and Department of Health, Education and Welfare have joined in unison to encourage cable's freedom.

Advertiser interest in CATV appears to be growing rapidly. As Colgate-Palmolive considers test purchases of CATV time and MacDonal Corp. starts buying time on TVC Pittsfield, Mass. system, Alden's Inc., large Chicago catalog house, announces plans to begin advertising merchandise on cable.

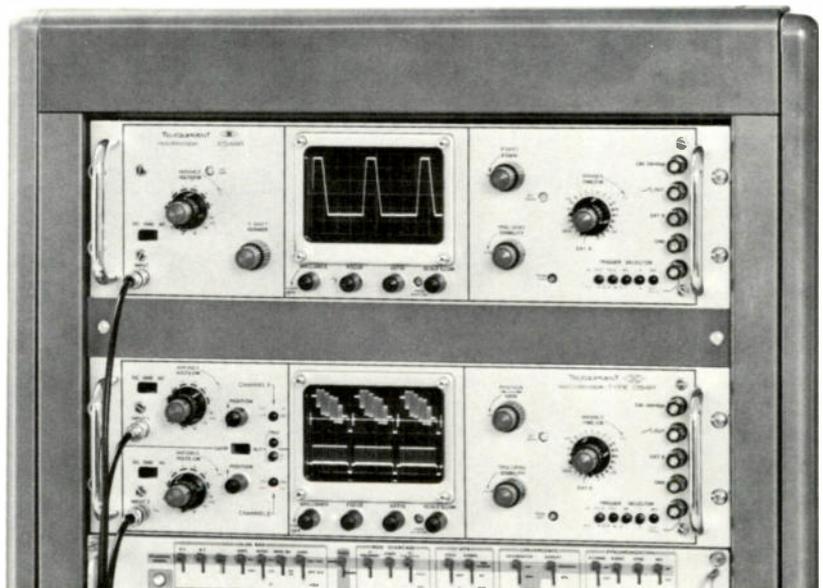
One ad agency reports it has eleven advertisers, nine of whom are national, who will spend at least \$250,000.00 on CATV advertising in '71. Interest will continue to grow, and the first quarter of '71 will see considerable experimentation in this area.



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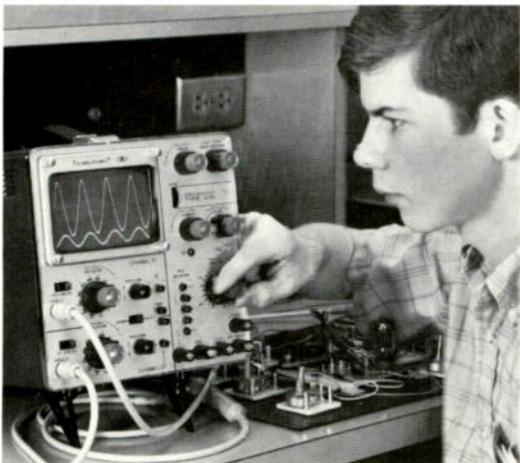


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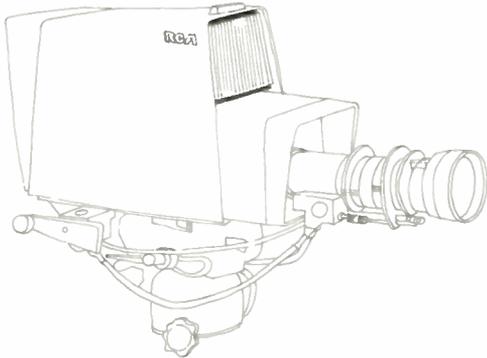
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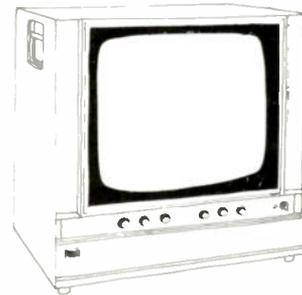
Quality color—what your subscribers are looking for more and more. RCA pioneered color. We can help you pioneer it in Cablecasting. With The System.



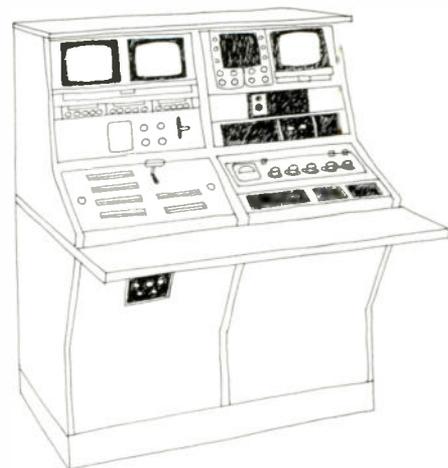
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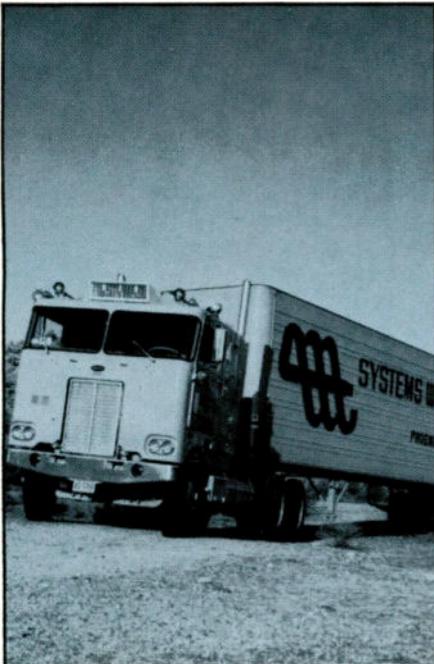
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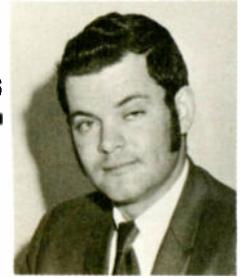
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Management Guidelines

D. Stuart MacPhail
Managing Editor



A Code of Ethics

Management people need a code of ethics. A code that sees that the rights and privileges of those under their direction are observed and respected. At the same time it should see that subordinates discharge and fulfill their responsibilities and obligations.

If we could make such a code, what would it be? What would you put in the code? Here are a few suggestions that should be included in such a code. It might be called the Ten Commandments for managers.

First, Thou shalt have respect for individual dignity. Respect for individual dignity manifests itself in the supervisor's every contact with his employees. It is especially important when it is applied to the way an employee is criticized.

Second, Thou shalt have personal courage. Personal courage is a must if the manager or supervisor is to be able to accept full responsibility for all his own actions and his employees' actions on the job.

Third, Thou shalt have loyalty. Loyalty is on the other side of the "courage" coin. A supervisor must have the courage to state his convictions to his superior and to support them factually and logically.

Fourth, Thou shalt be humane, respecting your superiors, equals and employees by being calm, courteous, friendly, helpful, kind and understanding.

Fifth, Thou shalt keep an open mind, keeping your door as well as your mind open,

available and receptive to give time to obtain facts, opinions or suggestions.

Sixth, Thou shalt not operate alone. Ignoring the suggestions, planning or advice of others limits the scope of your operations and reduces your effectiveness on the management team. It should be always remembered that there is strength in unity.

Seventh, Thou shalt be acquainted with fields of endeavor other than thine own, permitting yourself to be conversant with fellow employees on many subjects and to give assistance willingly without being an oracle.

Eighth, Thou shalt be willing to train and assist fellow employees. Relieving yourself of details increases your fellow employees' knowledge and strengthens your organization, but requires you to check and verify the results of your plans and operations.

Ninth, Thou shalt not "pass the buck." Refusing to assume your proper responsibilities is a sure way to lower fellow employees' respect for you and serves only to undermine your authority and responsibility.

Tenth, Thou shalt not be evasive. Replying without conviction should be beneath your dignity, for you should take your time, and be temperate, but never abrupt in deliberating, talking or making a decision.

These are some of the things I would include in a code of ethics if I were writing one. What would be yours? 

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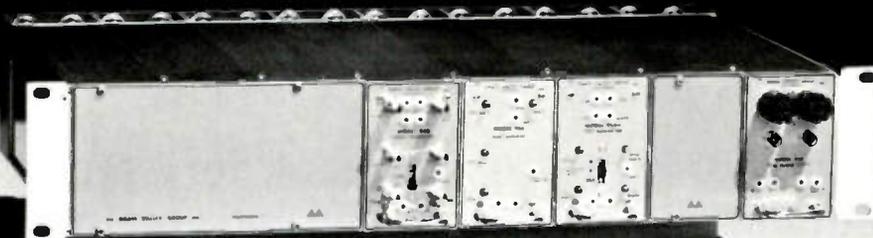
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LETTERS

TVC Authors Invest in Others

● Irving Kahn asked me to respond to your letter of Oct. 28 and to thank you for the honorarium (for his article in October TVC). He makes a practice of turning over such stipends, with appropriate credit, to some worthy cause or other. In this case, we are in the process of developing a source of funding to help underwrite minority and ghetto programming.

John R. Barrington
Vice President
Public Relations
TelePrompTer Corp.

● Thanks for the check for the article on CATV technical standards, (September TVC) but I

really can't accept it since I am paid by NCTA to do just this sort of thing. However, I would appreciate it if you would re-issue the check in the name of the Bob L'Heureux Scholarship Fund and send it on my behalf to Martin Malarkey.

G. Norman Penwell
Director of Engineering
National Cable Television
Association

Terminology Use Is Questioned

● I would like to call to your attention the misuse of the terminology "Field Intensity Meters" which occurs largely in the CATV-field. It seems to us that the Field Intensity Meter is by definition an instrument which contains a calibrated antenna as intrinsic part. A number of manufacturers, for instance, Jerrold use this term for instruments which in our opinion are Selective Voltmeters. This practice puts us at a considerable disadvantage, since accuracies given for a true Field

Intensity Meter include always the antenna and are therefore by definition below the accuracy of corresponding selective voltmeters.

I believe your magazine could contribute greatly to elimination of this confusion by applying the proper terminology in publications, releases, ads etc. Thank you for your consideration.

Rohde & Schwarz Sales Co.
111 Lexington Ave.
Passaic, N.J. 07055

*Reader comments are invited.—
Ed.*

Catalog Lists Articles

● Our new 25th Anniversary Catalog is now being mailed and we have listed various articles from your magazine by month and year of publication.

We feel that these referred articles will be of help to our readers and have given the above address to which this letter is addressed suggesting they contact you directly for subscription rates



Robert Searle
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Milton Bryan
Executive Editor



Bob Titsch
Adv. Director



Stuart MacPhail
Managing Editor



Phil Cook
Account Exec.



Sid Black
Account Exec.

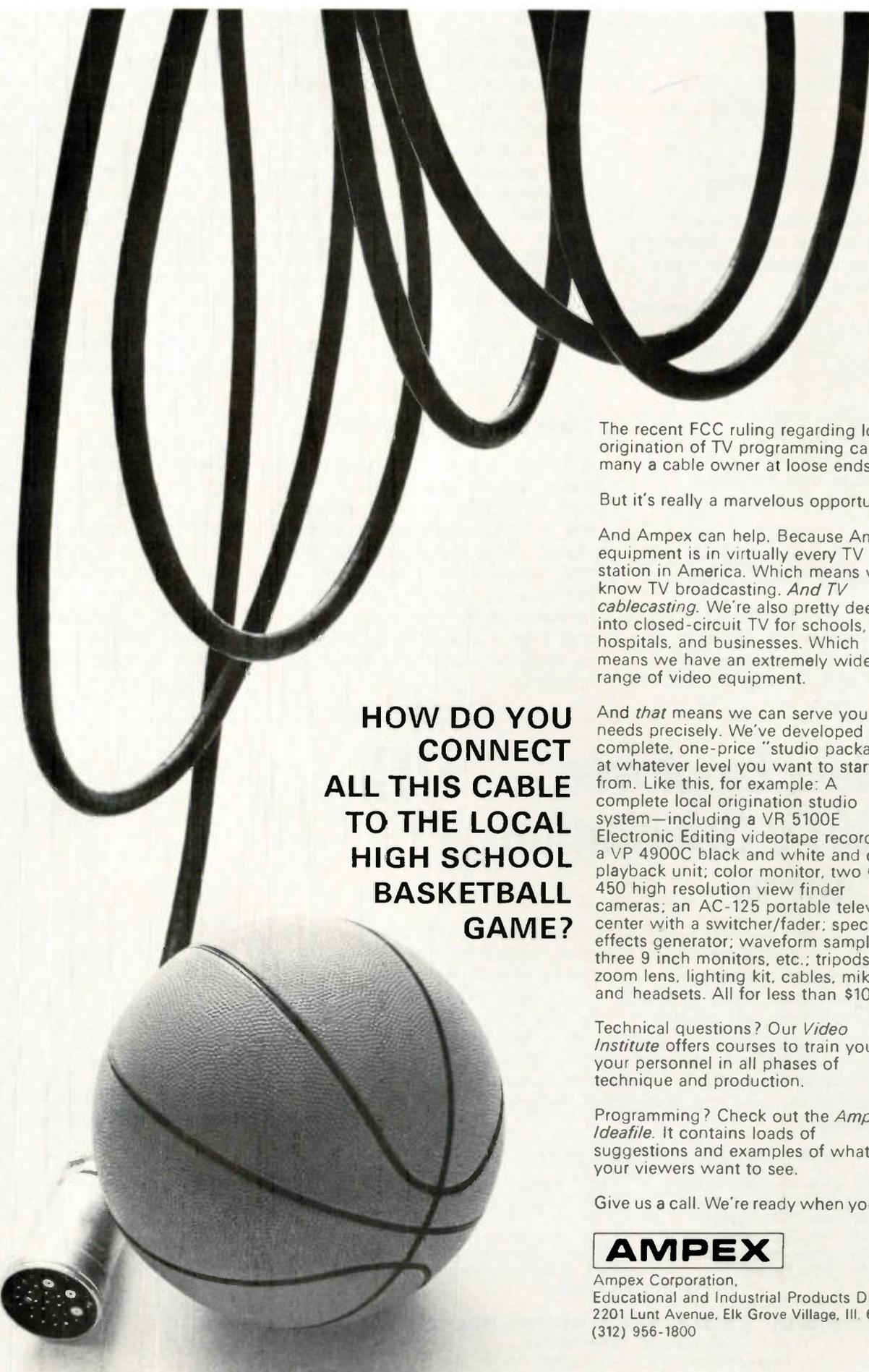


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Services Manager

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TVC Effectiveness Praised

● As you already know, CPC participation in this company's advertising program has been a huge success.

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We look forward to many more years of association.

Donald Edelman
Executive Vice President
Cama Electronics Inc.

Help Sought From Cablemen

● January is March of Dimes Month, and for the first time, this organization, which is a leader in the fight against birth defects, has

prepared a kit of cablecast materials specially designed for cable television systems.

The March of Dimes is sending this kit to cable TV systems throughout the country, and it is urged that they be cablecast as often as possible during January.

Further information may be obtained by contacting Drex Hines, Director of Broadcast Services, The National Foundation-March of Dimes, 800 Second Ave., New York, N.Y. 10017.

Drex Hines
March of Dimes

Readers Express Appreciation

● I don't have to tell you how many media publications come into our office over a period of one month, covering the various phases of television, both in cable and broadcasting. My time for reviewing these publications becomes more and more limited and I am lucky to read the name of some of them that come across my desk.

I thought you should know however, that I do take time to read through your *CATV* news weekly and the monthly publication of *TV Communications*. Both of these publications are circulated to all our executives in Cypress's home office and copies are also in the hands of our various system managers throughout the country.

Certainly your entire staff are to be complimented on serving the cable industry as well as you have.

Burt I. Harris, President
Cypress Communications Corp.
Los Angeles, Calif. 90024

● The articles (in *TVC*) are very interesting and informing. Our city of Chesapeake (Virginia) is now debating whether to have cable television or not. *TV Communications* magazine helped me to a better understanding of how cable television works, its advantages, and disadvantages.

David Williams
2500 Rodgers Street
Chesapeake, Va. 23324

TVC

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Want to learn all about CATV in a very short time? Enroll today in the "New Employee CATV Orientation Course." For a limited time you can receive this \$214.95 value for only \$129.95. Send cash or money order, or charge it to your Bank Americard or Master Charge. All materials will be sent immediately upon receipt of order. We will grade all lessons in the course and award you a certificate of graduation upon completion. The thirteen (13) lessons listed come to you handsomely bound in a loose leaf folder for easy reference. Write today. Start yourself on the road to success.

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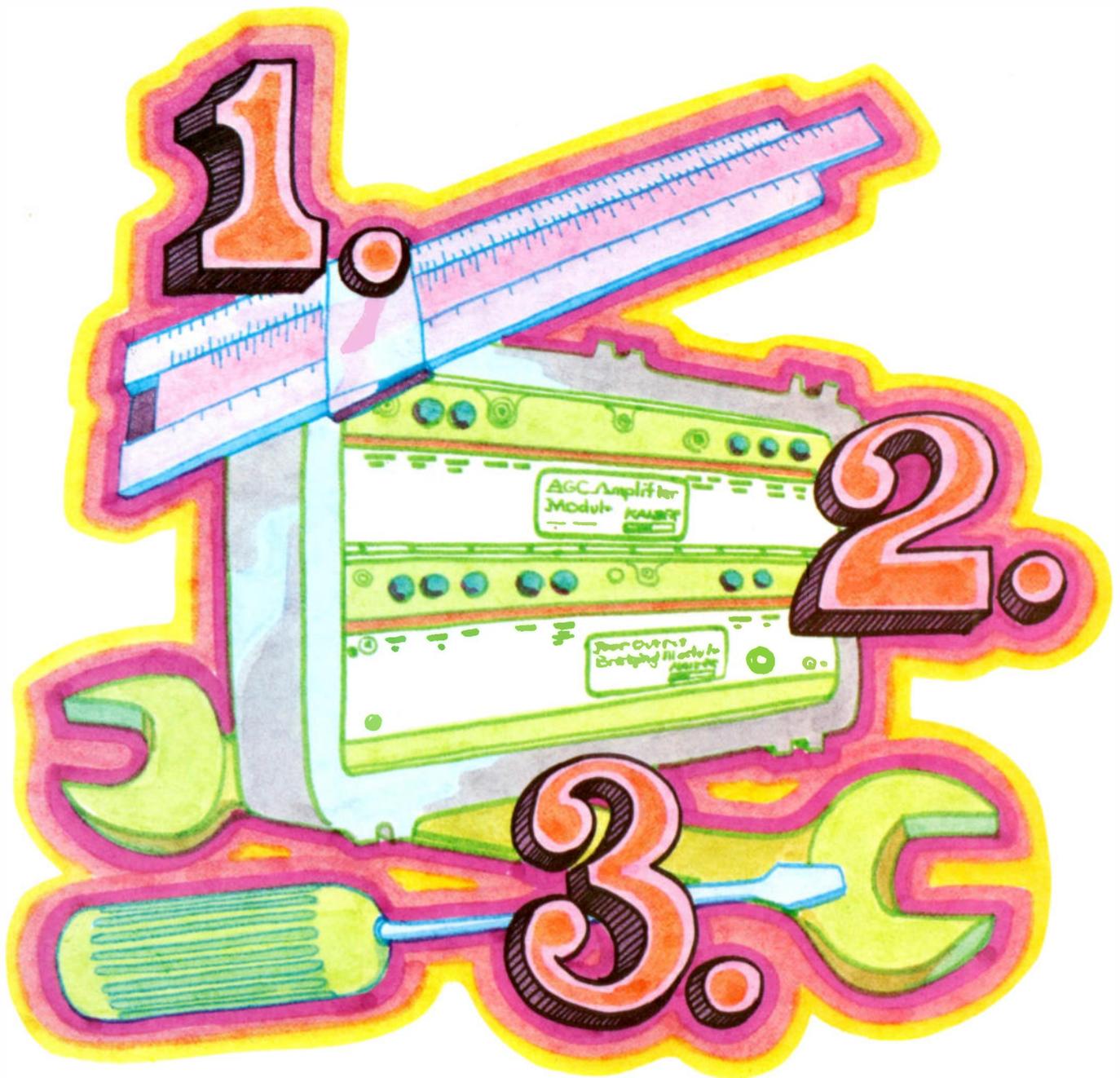
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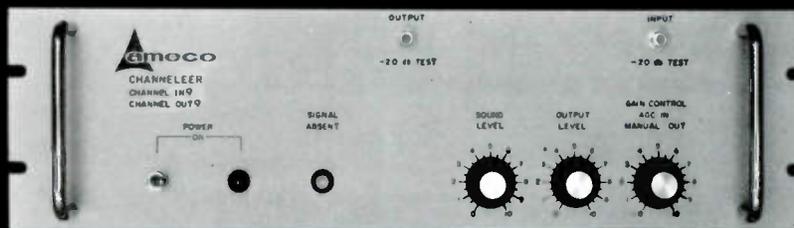
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VIACOM HALTED AS FCC STEPS IN ON CBS SPIN-OFF

A last minute action on the part of the FCC has delayed the CBS spin-off of its CATV and program syndication divisions into Viacom International Inc. This halting action took place on December 31, just an hour or so before the official spin-off was to take place.

The FCC entered the Viacom situation when, in mid-December, it was petitioned by a group of minority stockholders in a San Francisco CBS cable system. Those stockholders, including Marino L. Iacopi, Frank Vericci Jr. and Louis Benedetti, charged that Viacom essentially has the same ownership and management as CBS, and therefore, they charge, CBS will circumvent FCC proposed rules. The complaint, joined by Columbia Pictures and a group of program owners, further charges the spin-off violates the antitrust laws, frustrates the FCC rules, freezes out minority stockholders and should not be allowed by the Commission or the courts.

CBS was given one week to reply to the charges. The network reply said the charges were without foundation. CBS said, "the spin-off does not, in and of itself, raise questions now cognizable by the Commission either under its licensing powers or under existing rules presently in effect."

In strong language, the network pledged that "Viacom will be a totally independent company not controlled either de jure or de facto by CBS or principals of CBS." It noted that all CBS directors will put their Viacom stock into voting trusts with independent trustees "so that they will have no conceivable voice in the operations of Viacom."

In the December 31 action, the Commission told CBS to hold up on its intended issuance of Viacom shares. In halting the network move, the FCC said that "there is a substantial probability that the transaction in its present form will be found not to comply with our rules. Permitting the transaction to be consummated may result in creating a new situation which either cannot be remedied in the event of an adverse ruling, or can be remedied only with substantial attendant dislocation."

Those opposed to the spin-off now have until February 10 to file with the FCC. CBS will then have another week to reply to any filings.

CANADIAN CABLE OPERATORS HEAR REPORT, AWAIT REGULATIONS AND HEARING

A special Senate Committee Report on Mass Media, presented during December to the Canadian House of Commons, said that on the basis of actual experience it has been proved that cable television has not imposed undue hardship, generally, on broadcasters.

The three-volume, half-million word report took one year to complete. It covers the potential of cable television, its effect on media, and its viability as an investment.

Meanwhile, Canadian Federal Liberals recently passed eleven resolutions in a policy conference on broadcasting. Hugh majorities voted to keep the airwaves Canadian, but they also made it plain that if Torontonians can receive U.S. shows by cable, then the same right should be there for any other Canadian community. The delegates came out strongly against multiple media ownership.

The three hundred sixty cable operators in Canada are currently awaiting the first regulations in that country's twenty years of CATV. A public hearing slated for April 13th will review and discuss regulations which the CRTC is expected to announce during January or February.

Late News (Continued)

NEW YORK REGENTS CALL FOR STATE CATV COMMISSION

The Board of Regents in New York state . . . governing body of all education in the state . . . has adopted a position paper containing a series of recommendations concerning CATV. Among other things, the position paper calls for a Temporary State Commission on Cable Television to provide guidelines on such things as the "appropriate number of channels in each system that should be made available at no cost for educational and public service needs."

Just before Christmas, Michael B. Arnold, Legislative Chairman of the New York State Cable Television Association, released a reply to the educator's position paper. Essentially, he agreed with the Regents on the desirability of cable and schools working together . . . but he strongly argued against a new state commission. Arnold also encouraged educators and cablemen to continue working together on a voluntary basis . . . "in an atmosphere free of state control."

SIGNAL IMPORTATION APPROVED FOR FOUR SYSTEMS

The FCC has granted four cable operators' requests for carriage of distant signals. TelePromp-ter of Florida Inc. (Pahokee, Fla.) was authorized to carry five Miami signals and four others. Marcus CATV Corp. (Marinette and Peshtigo, Wisc.) was granted permission to carry a Fond du Lac, Wisc. signal. Rapid Corp. (Big Rapids, Mich.) can import eight signals and Vumore Video Corp. of Colorado will bring Denver, Pueblo and Colorado Springs signals to sixteen, previously unserved, Colorado communities.

HUGHES AIRCRAFT APPLIES FOR COMMUNICATIONS SATELLITE SYSTEM

Hughes Aircraft Company has become the third applicant for a domestic communications satellite system. The application outlined plans for beaming multiple program channels to CATV systems throughout the nation.

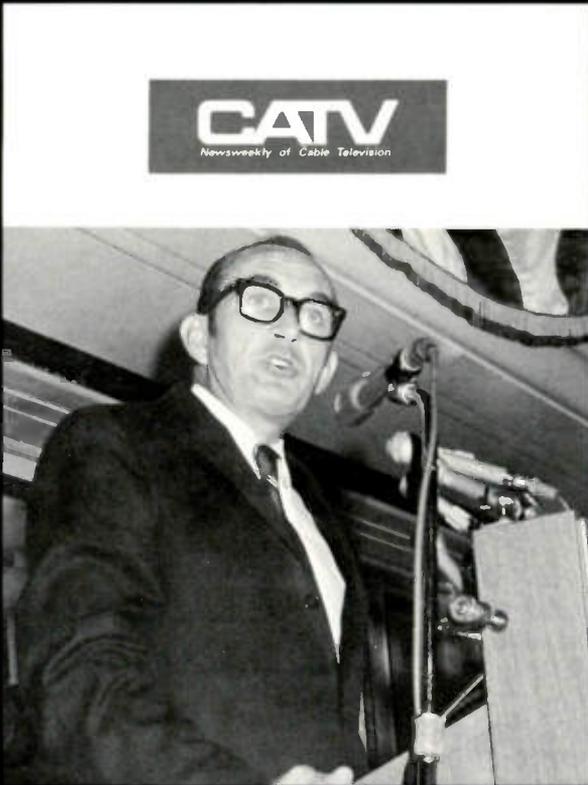
The proposal indicated that specialized programming would be carried over the system. Suggested was a sports channel, a science channel, a news channel, a public affairs channel, etc. Two transmitting stations are included in the proposal, along with 100 to 500 receiving stations. Each receiving station would cost \$100,000.

REPLY COMMENTS NOW DUE ON FEBRUARY 1

Broadcasters won their battle to have the FCC delay the deadline for reply comments in the three CATV proceedings on which comments were filed December 7.

The Commission moved the deadline from January 8 to February 1. The delay was requested by ABC, National Assn. of Broadcasters, All-Channel Television Society, Assn. of Maximum Service Telecasters Inc., and the National Assn. of Educational Broadcasters.

Authoritative.



In reviewing past issues of CATV Magazine you'll find a notable quantity of very direct statements. They weren't made for the sake of controversy . . . but to fully inform the people of the cable television industry. And they're backed with the authority of thorough factual reporting by the industry's pioneer publisher.

CATV gives you the necessary news coverage to protect yourself and your system against the volatile politics that surround the CATV industry . . . and to help you toward better management through timely information.

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News SPECTRUM

Scores File on FCC Dividend Plan, Technical Standards, Cable-City Relations

Literally hundreds of filings swamped the FCC on and before December 7th as comments came in on the CATV Public Dividend Plan, technical standards, and federal-state-local relations.

Government agencies, foundations and citizens' groups joined the parade of cable systems and broadcasters in the massive tug of war for the collective mind of the FCC, and virtually any point of view imaginable — as well as some that seem all but unimaginable — could be found in the stacks of documents in the Commission's public information office.

The Public Dividend Plan, one of the Commission's proposals to resolve the dilemma of distant signal importation, drew some of the most animated comment.

Justice Dept.: Copyright Is Separate Issue

The Justice Dept.'s antitrust chief, Richard W. McLaren, continued its championship of CATV's freedom to compete. Justice opposed the "adoption of the Commission's proposals to affirmatively assist over-the-air broadcasting by various subsidies and restrictions against CATV." The Department said that the question of copyright is a separate issue and should be resolved by Congress. But if CATV is to grow into the kind of service industry it promises to be, Justice said, its fetters should be removed.

Restrictions should be imposed on distant signals only in individual markets where an adverse impact can be proved, Justice said. McLaren's filing further pointed out that the proposal to take 5% of CATV's gross for the Corp. for

Public Broadcasting is "discriminatory" against cable.

While a large number of cable systems generally supported the Dividend Plan, the copyright owners unsurprisingly opposed

any incursion on program exclusivity, such as they believe is caused by distant signal importation. A filing by the New York law firm of Phillips, Nizer, Benjamin, Krim and Ballon presented the views of major program suppliers as well as entertainment industry labor unions.

Kaiser Broadcasting: Subsidize Cable Television

Black Efforts for Soul in Television backed the FCC concept of local program origination centers, and said that all systems with more than 3,000 subscribers should offer such community service. Kaiser Broadcasting, a UHF-TV owner, said that distant

Nixon Withdraws Unger Nomination Thomas Houser Now Slated for FCC Post

President Nixon has withdrawn his nomination of Sherman Unger to the FCC. He has substituted, instead, the name of Thomas James Houser, a 41-year-old attorney who has been serving as Deputy Director of the Peace Corps since May 1969.

The Houser appointment is to the unfulfilled term now being held by Robert Wells, who is being named to a full seven year term. The Houser term expires next June 30.

Unger, former General Counsel of the Department of Housing and Urban Development, was appointed to the Commission last July, but his nomination was immediately held up because of an Internal Revenue Service audit of his 1968 tax returns. Although the audit was described as routine and has been completed, there were reports of administration politics involved in the selection of Unger and the subsequent delay in his appointment. The White House said that Unger asked that his nomination be withdrawn.

Houser is a Chicago native



Mr. Houser

who has long been a political aide of Senator Charles Percy, Republican of Illinois. Houser early in his legal career was associated with the Chicago law firm in which former FCC chairman, Newton Minow is a partner. He was also a former attorney for the Association of Western Railroads and for the Chicago-Burlington and Quincy Railroad.

signal importation could seriously harm UHF stations. However, Kaiser suggested that in order for cable systems to be able to adequately serve the public, there might have to be some form of government subsidy of cable, so that it could be wired into a sufficient number of homes to function properly.

ABC Network: A Delaying Tactic

ABC, the network that has been most hard-line in negotiating with NCTA, said that the Public Dividend Plan deals with issues that properly should be left to Congress. The network said that cable systems should be federally licensed. They called for a study of federal-state-local regulatory authority.

General Electric noted that distant signals hold the key to CATV's success, though it called for a "more conservative" approach than the Public Dividend Plan. Distant signal importation should be allocated in some test areas, GE said. It called the 5% CPB levy "unwise."

Time-Life Broadcast said that the Public Dividend Plan has merits that should be tested.

The NCTA supported a tidied-up version of the CATV Public Dividend Plan while the National Assn. of Broadcasters slammed the distant signals proposal as "unworkable," "confiscatory" and potentially destructive to regular broadcasting service.

Since the complex Public Dividend Plan calls for the substitution of local UHF-TV commercials in distant signals, and the payment of 5% of each CATV system's annual gross into the Corp. for Public Broadcasting, among other things, the proposal has been attacked from many sides. Even many within the cable industry have been leery of it.

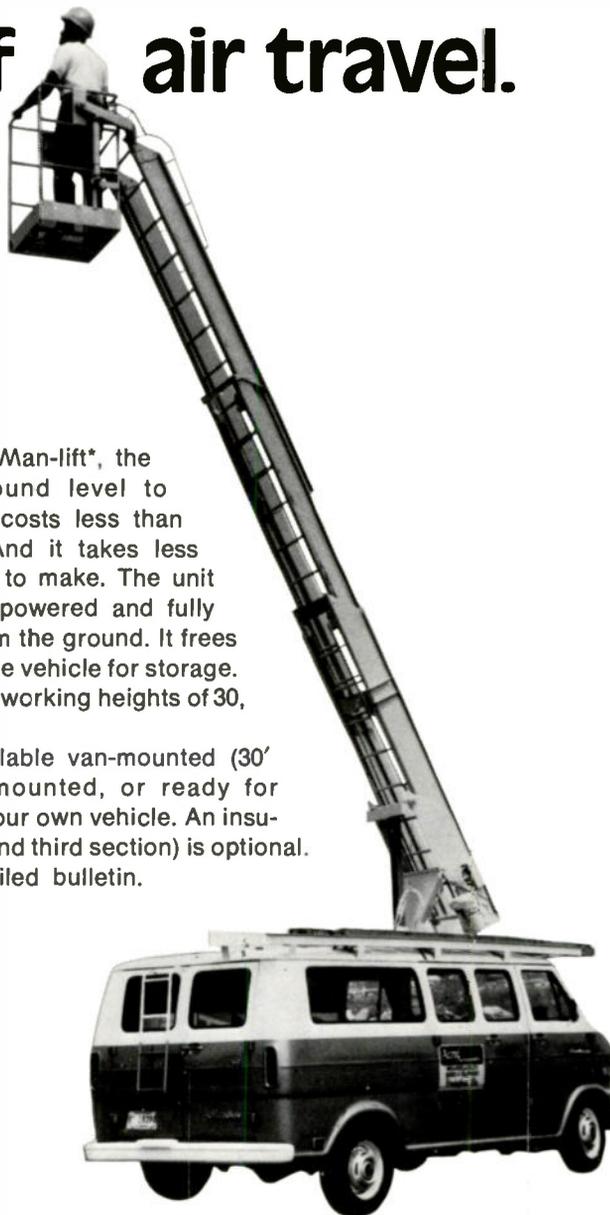
National CATV Assn.: "Break the Freeze, Immediately"

NCTA, however, stressed "the crying need to break the freeze on CATV immediately and let it develop without further significant delay." It suggested that

cable systems pay 1.25% of their gross for each distant signal carried, asked that the rules be clarified to allow carriage of all signals in overlapping markets, said that local stations should bear the cost of inserting their commercials, recommended simplified leapfrogging rules and said that legislation might be necessary to enact the 5%-to-CPB proposal. On that score, NCTA also said that such legislation might specify aid to ETV from other aspects of the communications industry.

With its Public Dividend Plan filings, NCTA included an extensive economic study, "The Economic Consequences of the Proposed FCC Regulations in the CATV Industry," by a pair of Stanford U. economists, William S. Comanor and Bridger M. Mitchell. The study concluded that the adoption of the FCC rules, without the modifications suggested by NCTA, might reduce the profit margin of the typical CATV system to a degree that the fledgling industry would be unable

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to attract sufficient outside capital for development.

Association of Broadcasters: Diversity Is "a Delusion"

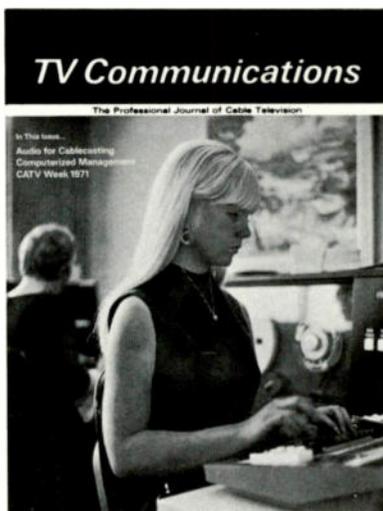
The NAB, on the other hand, flailed the FCC proposals as a "complete reversal" of its earlier CATV stands and cited extensive studies backing the NAB view that the proposed signal importation would severely damage local stations.

The substitution of local commercials in distant signals, says NAB, "is repugnant to broadcasters and . . . our entire system of competitive enterprise and private property," NAB said it amounts to governmental sanction of the confiscation of private property.

The argument that distant signals would add to program diversity is "largely a delusion," the NAB argued, as "Locally oriented programming, particularly local news and public affairs, requires considerable amounts of time, effort and financing, and more often than not is handicapped by an expression of public apathy which takes the form of merely tuning to another channel. Introduction of distant signals into a market serves to frustrate local programming to an even greater extent, since audiences are fragmented with the result that fewer viewers are reached."

Dept. of HEW: Guarantee Community Access

HEW said that "the rapid development of low cost, full service cable TV systems is in the public interest. Any national policy-making in this area should give emphasis to the promotion of maximum service at minimum cost to the public, and include some provision for a guaranteed right of access." A number of channels should be reserved for public use, HEW said, as "an important aspect of CATV is its ability to deliver local community programming. To fully realize this potential it is essential that resources be made available to support local program production, and we feel a tax on CATV gross



This Month's Cover...

The young lady on our cover helps emphasize our lead article this month . . . a look at ways the computer can aid CATV system management. She is "keypunching" information into a computer system. The article, beginning on page 40, tells how the "products" of such a computer system can save office headaches . . . give help on decision-making . . . and keep your system profitable. Computer billing is a tremendous savings by itself, but that is just the beginning of a long list of tasks the mechanical brain can perform. (Photo courtesy U.S. Computer Systems.) 

receipts should be considered as a possible method of supporting local public service programming over the cable system."

New York/San Diego: Two Different Concerns

New York City said the franchise fee "is unsound in terms of public policy" and urged if limits are adopted, present fees should be grandfathered. But where New York apparently filed out of concern for city revenues, the City of San Diego seemed to echo the immediate concerns of its citizens. City attorney John W. Witt said: "On behalf of the citizens of the City of San Diego, we submit that the overwhelming desire of the citizens of this city is to be able to receive distant signals from CATV and respectfully request that the Commission adopt the proposed rules as soon as is practicable."

San Diego's remarks were directed to the hotly contested portion of the FCC proposals known as the CATV Public Dividend Plan, a new proposal to deal with importation of distant signals. CBS said the plan should be scotched in favor of the old "retransmission consent" idea.

The Public Broadcasters: Want To Administer the 5%

The Corp. for Public Broadcasting, in general, supported the segment of the plan calling for the

dedication of 5% of CATV's grosses to CPB. But, CPB said, the FCC should instead call for 1.25% of the gross for each distant signal imported, and the money should not go directly to CPB but to the fostering of local programming capabilities for CATV.

The money would be administered by CPB "for use in the process of planning, in conjunction with other appropriate entities, the appropriate uses of channel capacity allocated for public purposes. It would also be available for making grants to implement public uses, including grants for programming expenses and necessary equipment." CPB said that 50% of cable systems' channel capacity should be dedicated to non-commercial uses.

The MCA Filing: Scrap the Public Dividend Plan

MCA Inc., a major supplier of television programming, has called on the FCC to scrap its CATV Public Dividend Plan and substitute mandatory arbitration of the copyright fees to be paid by cable systems.

The MCA proposal is a variation on the FCC's previous "retransmission consent" rule. A cable system would be able to import with the consent of the program supplier, but "If that consent should not be forthcoming, CATV could still import, but importation would then constitute CATV



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2. Q. **Where are they necessary?**
 - A. Primarily at Head End Signal Processors, at both input and output.
3. Q. **Why at outputs?**
 - A. To eliminate "leakage" of 45.75 IF and local channel oscillators.
4. Q. **How can 45.75 harm the pictures?**
 - A. Because of loose "tolerances".
5. Q. **How does that affect the matter?**
 - A. Plus or minus 100 KC means up to twelve different "45.75's", varying from 45.65 to 45.85.
6. Q. **So what?**
 - A. They "beat".
7. Q. **Then what?**
 - A. Their "beats" then modulate desired carriers".
8. Q. **Then what?**
 - A. A TV Receiver detects them and they appear as "wormy pictures" or "busy backgrounds".....or just plain noise.
Only \$144.00 per set of 12 channels, 2 thru 13. Less than 12 \$15.00 each.
9. Q. **Back to the Head End...how do they beat without a Detector?**
 - A. They don't.
10. Q. **Where is the detector?**
 - A. Every non-linearity from Head End "Mixing" to cascaded amplifier.
11. Q. **What's a typical example?**
 - A. Signal Processor outputs. They have steep slopes at 45.75 to minimize leakage. When interconnected to other Processors they make near perfect "slope detectors" for 45.75 MC "beats".
12. Q. **What else?**
 - A. Broad Band Amplifiers. They also have steep slopes at 45.75.
13. Q. **Why are the "wormy pictures" worse after cascading amplifiers?**
 - A. Because you cascade "slope" detectors.
14. Q. **Will Hamlin B.P.F.'s at \$12.00 actually cure this?**
 - A. Yes, unconditionally.
15. Q. **Have you sold many?**
 - A. More than 8,000.
16. Q. **Is that a lot?**
 - A. Probably more than sold by the whole Industry since 1949.
17. Q. **And what did you say the price is?**
 - A. Only \$144.00 per set of 12 channels, 2 thru 13. Less than 12 \$15.00 each.

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consent to private arbitration with the program supplier as to a fair price; in determining such a fair price, appropriate weight should be given to loss of exclusivity, fractionalization of the market and value conferred on the CATV system."

Even with importation allowed, however, the MCA plan still calls for "no importation if it would violate exclusive sales to TV stations, within reasonable limits on such exclusivity."

MCA claimed that "In most situations the operation of this proposal should be simple. The Commission rule would provide that upon request of the CATV system, the originating station would be required to advise the CATV system in advance of the names of all copyright owners, or their representatives, whom the station is compensating for the right to broadcast program material. Once the duty of the CATV system to compensate the copyright owner is established and the alternative to a failure to agree on the compensation is known to

both parties, it is to be expected that in most cases agreement on the compensation to be paid would readily be reached. Nor would our proposal require small CATV systems to enter into separate negotiations and potentially expensive arbitration proceedings with numerous program producers or the smaller programmers to deal with numerous CATV systems; on the contrary, it would permit, though not require, appropriate group agreements or even industry-wide negotiations subject to arbitration of the type now existing with respect to determination of the appropriate fees television stations pay for rights to use copyrighted music."

TPT Joins Suez-American In International Venture

TelePrompTer Corp. and Suez American Risk Capital Fund, S.A. have announced the formation of a jointly-owned company, Inter-

national Communications Systems, S.A. The new firm will develop cable television and broadband communications services in Europe.

Irving B. Kahn, chairman and president of TelePrompTer Corp., who will be chairman and chief executive officer of the new company, said, "This is a major move for us into international communications in association with one of the world's most respected financial organizations." He called it "an exciting development for TelePrompTer, for cable TV, and for the whole concept of broadband communications."

Suez American Risk Capital Fund, S.A., is an affiliate of Compagnie Financiere de Suez et de l'Union Parisienne. Stock in the new company will be equally held by TelePrompTer and Suez American. Other officers and location of the European headquarters will be announced at a later date.

Contract negotiations are under way for the acquisition of several cable TV systems on the European continent and discussions are



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Centre Video/TCI Merger Approved by Stockholders



The shareholders of Centre Video Corp. have approved the proposed merger with Tele-Communications, Inc. (TCI) of Denver, Colorado, according to Bob Magness, President of TCI and James R. Palmer, President of Centre Video.

The merger of the 15 Centre Video systems in the Pittsburgh area makes TCI the fifth largest group operator of cable systems in the country, with a total of almost 140,000 subscribers and increases the total number of TCI's potential CATV subscribers to 400,000.

Pictured here are (l. to r.): Bill Brazeal, executive vice president of Community Tele-Communications, an operating division of TCI; Palmer, Magness, and Byron "Doug" Jarvis, vice president of administration, and treasurer for Centre Video.

being held with representatives of government agencies in several countries for additional franchises. The new company plans to operate throughout western Europe including the United Kingdom and will be active in the construction, acquisition, ownership and operation of cable TV, microwave and other communications systems as well as the manufacture, distribution, and sale of equipment and products.

Gilbert Allard Is New General Manager for M-H

Maclean-Hunter Cable TV Ltd., Canada's largest MSO, has announced that its general manager, A. Ross MacGregor, has resigned. His replacement is Gilbert A. Allard.

MacGregor is leaving to join a new Canadian MSO called Cablecasting Limited. President of the new company is David Graham. Ross will be managing director.

Cablecasting Limited currently has operating systems in a part of Toronto and a part of Winnipeg.

The new Maclean-Hunter general manager, Gilbert Allard, is a pioneer in cable television, having spent twenty years with Rediffusion in many capacities. Since 1966, Allard served as president of



Mr. MacGregor



Mr. Allard

Rediffusion. He has served as president of the Canadian Cable Television Association, and was on the CCTA board of directors for ten years.

FCC Sets New Date For Microwave Band Shift

The FCC has decided to give CATV microwave stations, which are in the Business Radio Service band, five years to move into the Community Relay Service band. The cut-off date was formally extended from February 1, 1971 to February 1, 1976.

The business service is in 12,200-12,700 MHz band, while CARS is in the 12,700-12,950 band. The Commission long ago proposed giving CATV microwave stations an extra five years, and few adverse comments were heard, the Commission pointed out. 

Calendar

January 13-16. Rocky Mountain Cable Television Association Annual Meeting at the Sheraton Motor Inn, El Paso, Texas. Further information is available from I.E. Shahan, Cruces Cable Company, 3001 Karen Drive, Las Cruces, New Mexico 88001.

January 18-20. NCTA Cablecasting Seminar, Burlingame, California.

January 27-29. Illinois-Indiana Cable Television Association Meeting at the Hilton Inn in Indianapolis, Indiana. Contact C.J. Younger, (217) 222-5388, for more information.

February 4-5. Louisiana Association of Cable TV Operators at the Ramada Inn in Monroe, La. For more information, contact Chick Williams, 2716 North 7th Street, West Monroe, La. 71291.

February 7-13. National Cable TV Week. Plan now to take advantage of this national week of CATV promotion.

February 15-17. NCTA Cablecasting Seminar, Dallas, Texas.

March 1-3. NCTA Cablecasting Seminar, Boston, Mass.

March 5-6. Georgia Cable Television Association Convention will be held at the Augusta (Georgia) Towne House. For further information, contact Hugh Smith, P.O. Box 241, Rome, Georgia 30161.

March 22-25. IEEE International Convention and Exposition will be held at the New York Hilton Hotel and the Coliseum. 



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Systems

Ted H. Cox has been appointed advertising manager of Cablecast Channel 13 of Meadville Master Antenna Inc., in Meadville, Pennsylvania. William McDonald has been appointed assistant manager of Holdenville Cable Co. in Holdenville, Oklahoma.

Better TV of Zanesville Inc., has announced the appointment of Sam Still, Jr. as manager. Jack Chaney, general manager of Midwest Cablevision in Joplin, Missouri, has been elected vice president of the Mid-America CATV Association. John A. Pryor has been promoted to general

manager of Hornell Television Service Inc.

Silver King Companies has announced three recent appointments including William Ross, who is now chief engineer for Calgary Cable TV Ltd. and Cable Casting Ltd. in Toronto, Canada.



Mr. Ross



Mr. Hallet

Richard S. Jackson is the new Western Regional Engineer for Silver King Video in Clearlake Highlands, California. Also, Leland Hallet has been named general manager for Idaho Video in Jerome, Idaho.

Donald H. McGannon, Chairman of Westinghouse Broadcasting Company, has named William H. Keller Jr. executive vice president of the Westinghouse CATV Division, with systems in Georgia and Florida. Keller, who was formerly the CATV general manager, will also serve as executive vice president of Micro-Relay, Inc., a microwave common carrier.

Frank D. Thompson has been appointed general manager of El Paso Cablevision, Inc. as construction gets under way in El Paso, Texas.

Donald J. Phillips has been named vice president and general manager of Nation Wide Cablevision, Inc., a subsidiary of Kaufman and Broad, Inc. Prior to joining Nation Wide, Phillips was president and chief executive

officer of Optical Sciences Group, a scientific optics firm based in San Francisco. From 1964 until 1969, he held various marketing, financial and general management positions with Cole National Corporation of Cleveland, Ohio.

Thomas P. Willett has been appointed regional manager of Continental Cablevision of Ohio. Daniel G. Schmidt, manager of the Winona Division of American Cablevision Co., was recently awarded the National Exchange Club Distinguished Secretary Award.

Paul D. Deckman of Orange, Virginia, has been appointed manager of the new Suburban Cablevision Inc. systems serving the communities of Orange and Culpeper, Virginia.

Hayden A. Moore has been appointed as acting general manager of the cable division of International Telephone and Telegraph Corporation. The new cable system being built to serve Pt. Pleasant, Pomeroy, Middleport, Mason and New Haven, Ohio, will be managed by Richard P. Newell.

TelePrompter Corporation has announced the promotion of Robert E. Anderson to manager of its cable television system of Great Falls, Montana. Anderson was transferred from TelePrompter's system in Santa Cruz, California, where he had been plant supervisor. Rusty Lane is now in charge of local origination programming and retail advertising for McAllen Cable Television Corp. in McAllen, Texas.



Mr. Phillips



Mr. Thompson

Cypress Communications Corp. recently presented an achievement award to H.H. Harris, Jr., vice president and general manager of TV Cable Company of Fort

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Walton Beach, Florida. Steve Streeter has been appointed acting system manager of the Cypress Communications system at Malibu, California.

Suppliers

Dr. Alwin Hahnel, president of HTV Systems Inc., has announced the appointment of Donn G. Nelson as vice president of marketing and sales of the Rochester, New York based firm. W.J. Crane has been named a district manager for Sony Corporation of America, with responsibility for video products sales in a portion of the company's southern California marketing area. Crane was formerly West Coast Regional Manager for Shibaden Corporation of America.

J. George Harrar and W. Burleigh Pattee have been elected to the board of directors of Viacom International, Inc. Ray M. Unrath, who for five years was National Distributor Sales Manager for TeleMation, Inc., has resigned to establish his own television equipment sales and marketing service firm for manufacturers.

Konrad Schillebeeckx has been named manager of production engineering for the communications products division of General Cable Corporation. R.D. "Don" Webster has been named to head the Microwave and Cable Systems Operation of General Electric's



Mr. Crane



Mr. Weems

Telecommunication Products Department. Robert N. Weems has joined the staff of Lenkurt Electric as assistant sales engineer.

Anaconda Electronics has announced the appointment of

William K. Gaylord as CATV Marketing and Sales Manager. Gaylord joins Anaconda Electronics from Anaconda's Utility Division where he has held sales and management positions for the past 23 years. Prior to his appointment, Mr. Gaylord was District Sales Manager, San Francisco. He will direct the company's marketing and sales efforts in the CATV industry.

Vikoa, Inc. has announced the election of Charles Hermanowski as vice president of the firm. Spencer Kennedy Laboratories Inc. has announced that Richard S. Leghorn has been elected chair-



Mr. Weissman



Mr. Loscalzo

man of the board and Robert E. Weissman has been elected president and treasurer. SKL also announced the appointment of Joseph T. Loscalzo as Eastern district manager. Cohu Electronics has accepted the resignation of E.T. Clare as vice president and director of the company.

Professional

The former general counsel for Cablevision companies in New York, John L. Larkin is GOP candidate for the New York Supreme Court. Dr. James H. Mulligan, Jr. has been elected president of the Institute of Electrical and Electronics Engineers for 1971.

Bernard E. Karlen, having recently sold his Florida cable TV holdings, is now engaged in cable consulting from offices at 119 West 57th Street, New York, N.Y. Communications lawyers Cole, Zylstra and Raywid have announced that Joseph R. Reifer has joined their firm. 

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Computerized Records Can Improve System Management

Managing is basically a decision making function. If a cable system manager wants to make productive decisions, he must have accurate, current information. Properly applied, the computer can be the system manager's most profitable tool.

The CATV system office is a maze of large files requiring many employees to keep them current. Normally a high prob-

ability of error is inherent in any hand-filing system. Yet files are necessary, and accuracy is a prerequisite to business success. Large file maintenance, manipulation and accessibility is a specialty of the computer.

totalled, aged and broken out by franchise tax area. Such files are used to generate statements or issue coupon books, record and account for adjustments. They are also a basis for collection action.

In addition to the files for marketing and accounts receivable, there are more required for the technical or customer service end of the cable business. Where is the equipment? What is the inventory? How many service calls, and was it customer or system fault? Basically, another house file or drop file is needed.

The files in each department are the basis for reporting to top management. The progress and current complexion of the business can be determined from these reports. Such information is vital to making the profitable decisions so necessary to the continued success of a CATV operation.

The various files in each department have the subscriber residence as a common factor. Each file contains residences which have a common or related status. Examples: (1) The *potential sub-*

ABOUT THE AUTHOR



Robert J. Mathews is the president and founder of U.S. Computer Systems. The 32-year-old Mathews started his company in 1965 and has been serving the CATV industry with computerized management information for the past two and a half years. The firm now serves cable systems in 45 cities.

The Information Needs Of a Typical Cable System

To market the cable service, a file of the potential subscribers is needed. It contains all residences passed by cable and must be updated as subscribers are sold and disconnected. Mail labels, salesmen's call cards, and call sheets will result from the information in this file. Recaps of the file data are useful to measure sales and analyze saturation.

Receivables accounting requires a subscriber or customer file by account number to keep track of money. It also requires cross reference files in name order and address order. All three files must be updated with new customers and disconnects.

Payments and debits must be posted. The receivables must be



Larger cable systems and some MSOs will be able to afford the computer equipment and staff to operate them. However, most cable operators will have to rely on computer service firms. (Photos courtesy of U.S. Computer Systems.)

scribers might have a status of "never called on," "called and refused" or "disconnected." Whereas, (2) the customers might have a status of "sold-pending install," "installed," "free or promotional," "not paying bill" or "disconnected with balance due."

Computerized Records Provide Best Accuracy

The computer makes it possible to take advantage of the residence being a common factor. Through the computer, one file can be maintained, regardless of status of the residences in that file.

The one file contains all the information needed for marketing, accounting, service and management. The computer's flexibility, speed and accuracy make it possible to reproduce the file by status in any format desired. The file may be sorted by account number, name, or address order.

Having one file eliminates the problem of multiple files not matching one another. The multiple uses of each department

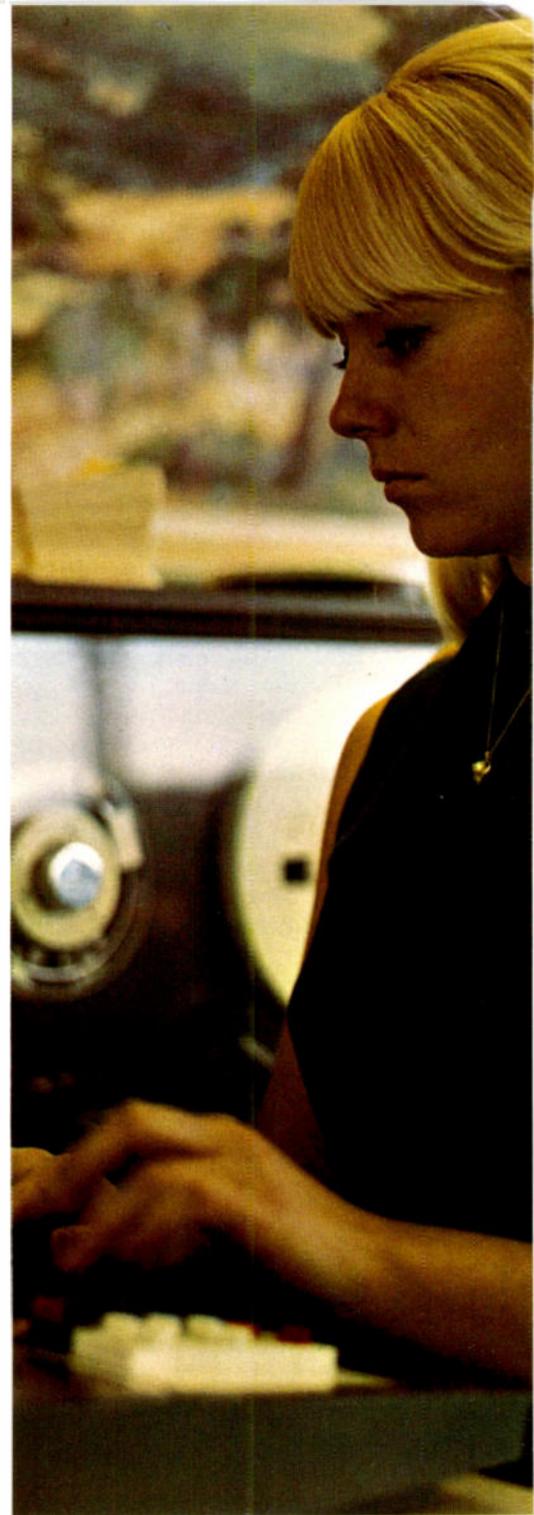
facilitate natural verification of data through use. Customers are moving in and out of residences and the status of each residence is changing, all in accordance with the daily transactions of each department.

This overall picture makes it appropriate to introduce transaction controls through computer logic. These controls will prevent mistakes such as putting a new subscriber in the files without removing the old subscriber . . . or disconnecting the wrong subscriber.

The computer, or more correctly the computer program, can do much more than maintain the file and keep it clean. It can automate and perform many of the work functions in each department.

Important Information For the Marketing Dept.

Mailing labels, salesmen's call cards and call sheets can be generated by the computer for the marketing department. Not only will the computer produce the



marketing tools, it will record the results of the marketing effort. Future sales promotions may be based on this information.

Using the flexibility of the computer system, the sales manager can develop highly specialized sales promotions. These can be directed to specific segments of the sales potential (an example would be a promotion designed to resell all subscribers who have disconnected for a specific reason).

The file records of sales

potential can be selected and measured by geographic area, sales personnel, previous sales responses and disconnect reasons. The computer can be a very powerful and accurate sales tool.

Help for The Accounting Dept.

Accounting functions which can be automated by a computer include posting the payments and adjustments, aging the receivables, generating collection and disconnect notices and recapping the sales and receivables. Statements produced manually or with semi-automated equipment are very costly. In the name of savings, statements are normally replaced by coupon books regardless of their shortcomings.

When using the computer, statements are inexpensive by-products of the total system. Statements should be punctual and provide informative means of communication.

The computer can indicate charges for service, including prorated amounts on new or disconnected subscribers. It can charge for installation, show account adjustments and sales tax, if needed. Statements generated on time with a complete breakdown of the account will increase cash flow and decrease questions from customers. The normally arduous task of recapping the charges, payments, adjustments and receivables is an easy task . . . when done by computer.

Computer Records Help The Technicians, Too

Drop records, equipment inventory and location can be included in the computer file. Trouble calls can be recorded and analyzed. Identification of serving amplifiers, converters and other related equipment can be recorded for each residence.

Production records and sales can be assembled by computer for each installer. All the record requirements of the service or engineering department can readily be fulfilled by the computer, using the same data base or file that is used to serve

the marketing and accounting departments.

By using one file and appropriate control logic, it is impossible to: (1) Pay sales commissions without installing the service and billing for the service. (2) Record an installation and use of equipment without billing for it. (3) Start billing a customer for service not installed.

Management reports can be recaps of the one file. This way, accounting, marketing and service reports are always in balance with each other. By recapping the status of each residence, the computer will give management an accurate and timely report of the entire cable operation.

Interfacing People And the Computer

One of the secrets of good computer usage is its relationship to the user. When office personnel make transaction mistakes the computer must indicate the mistake and the appropriate corrective action. Otherwise, it is easy for the medicine to become worse than the illness.

Information going into the computer system is a by-product of the normal office paper flow. If possible, information should never be recopied; it introduces extra work and mistakes. Multiple copy forms can be used with enough copies to serve each work station. One copy, containing final additions, is used for the computer input. This copy is filed for future audit purposes, with the file location indexed by the computer.

To insure accuracy, input paper work should be grouped into batches. Document totals and dollar totals can then be balanced with computer report totals.

Each batch of documents is filed intact with the computer recording the location of each transaction by batch file number. This procedure reduces the filing time of work orders and other like paperwork by as much as ninety percent.

All transactions are matched to the proper record by using an account number. Account number accuracy is of prime importance.

Therefore, each account number must contain a check or control digit. The check digit is the result of a mathematical computation applied to all the other digits of the account number. The computer verifies the account number authenticity on each transaction to prevent miscopied account numbers and the transposition of digits.

Account number check digits, plus logic to check transaction to master file compatibility are accuracy controls beyond the scope of manual systems.

Information In; Various Products Out

Most computerized bookkeeping systems are run or processed at month-end only. At that time the file is updated and the statements are generated. Due to the relatively large volume of customers in a CATV system, it is best to update the file at mid-month and month-end. The processing cost is twice as much; however, the advantages are numerous.

The majority of payments are received prior to the 15th of the month, therefore: (1) The customer ledger will show the latest payments received before the customer is likely to make inquiries. (2) The computer-operated system can scan payments to determine unpaid accounts. (3) Collection or disconnect notices may be generated at mid-month. (4) Erroneous computer input may be corrected prior to sending statements at the month-end.

When the file is updated each 15 days, it can be reproduced on paper along with various recap reports and special listings. A typical computer-produced file would come in two basic formats: the House Inventory Report (Street Address File) and the Customer Ledger Report.

The House Inventory Report would show all data related to the residence and would be sorted to address order. The Customer Ledger Report would show all file data related to accounts receivable, and should be programmed to appear in name order.

The reports act as a cross refer-

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MB-5375

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MS-1803



MS-1703



MS-1903



MS-1303A

SERIES UNITS



MW TYPE

BRANCHING UNITS



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MD-1812



MD-1312

BANDPASS FILTERS



MF-1007



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FIXED ATTENUATORS



MT-75-3

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Mitsumi Electric Co., Ltd., a specialized electronic component manufacturer which claims Japan's most modern production plants, has developed "CATV receiving equipment" by mobilizing its total engineering capacity.

The "Mitsumi CATV Receiving Equipment," which promises clear and sharp images and beautiful video pictures, both in areas of poor reception and in home viewing, are manufactured under outstanding design and processing techniques, scrupulous quality control, strict product inspection and with the use of streamlined and the latest production facilities that are available at Mitsumi—the specialized electronic component manufacturer. They are, of course, superb in reliability, performance and durability. They are products of international quality level that will offer every satisfaction to both domestic and overseas users. Mitsumi CATV Receiving Equipment that

satisfies the most severe specifications, claims a large number of features including:

- flat frequency characteristics
- wide band
- high separation
- low insertion loss
- extremely low unmatching attenuation
- miniature size and
- long service life

The electronic component manufacturer of international reputation, Mitsumi Electric Company, confidently recommends this "Mitsumi CATV Receiving Equipment."



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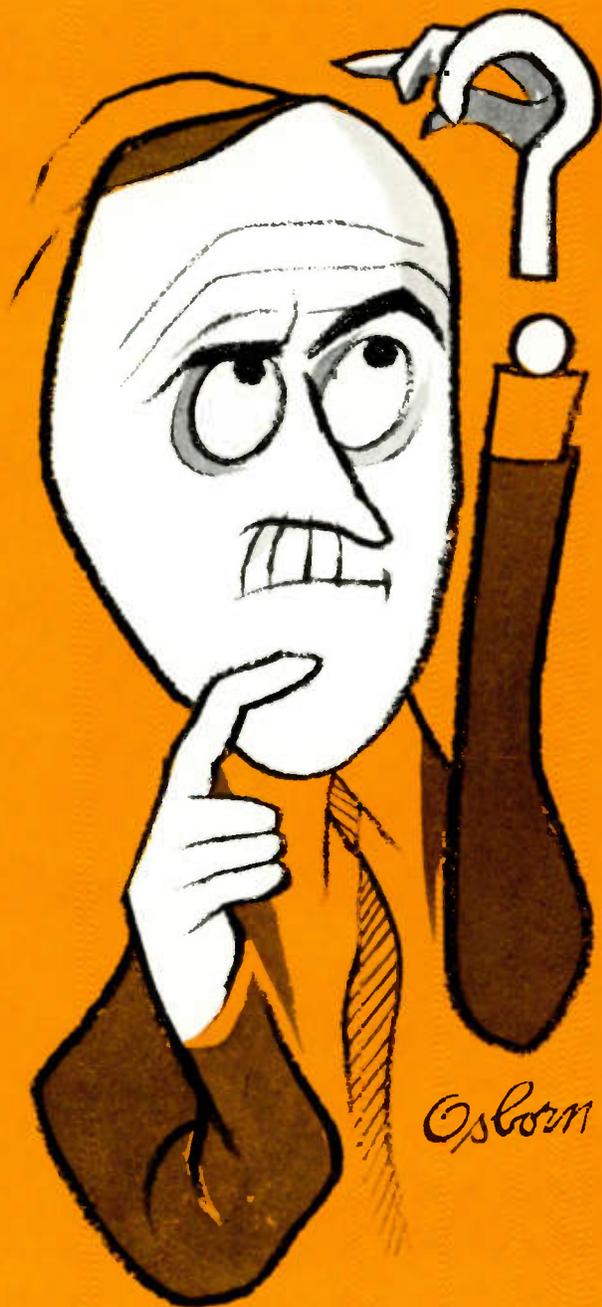
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★ Synchronous Motor ★ Trimming Potentiometer ★ CdS Photoconductive-Cell ★ Hybrid IC ★ Magnetic Head
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Go ahead. Challenge us when we say we can cut your maintenance costs.

Keeping a good, crisp picture on the home screens costs money. Manpower costs money. Equipment costs money. Time is money. We know that.

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For details, write TELSTA Company,
Division of General Cable Corporation,
1700 Industrial Road,
San Carlos, California 94070.
Or telephone (415) 591-7611.

TELSTA
DIVISION **General Cable**

ence to each other. Therefore, data can be retrieved if the customer name or the residence address is known. Sorting the reports to these two orders makes it unnecessary to know the account number in order to use the reports.

The House Inventory Report should contain every residence passed by cable. The status of each can be indicated along with account number, customer name and service being billed for, if any. Geographic areas such as franchise area, management statistical areas and sales routes can be indicated for each residence. Such a report can show all engineering and service call information as it pertains to each drop. The House Inventory Report can be recapped by status to form analysis reports for management. Such status recaps could show the status of unwired residences (for example: no sales call made yet, refused to subscribe, sold pending installation, cancellation prior to installation); and the status of wired residences (for example: on service with delayed billing, on free service, on service and paying, on service not paying, disconnected and reason). The House Inventory Report can also be recapped by sales route and salesman.

The computerized Customer Ledger Report will contain complete customer identification: name, address, telephone number and account number. Account information typically shown includes: monthly rate and subscribed service, amount billed by computer, accounting department adjustments, customers' payments, total balance due, aging of balance and status.

The computer allows financial information to be recapped, giving the total billing, payments, adjustments and accounts receivable. The receivables can be aged and the billing can be broken down to individual categories. The computer can calculate the amount of advance billing and advance payments to show an unearned income total. Numerous other financial recaps (by category) are possible, when computer technology is employed by the

manager of a cable system.

A suggested disconnect list (including all non-paying accounts), a delinquent list (comprised of all accounts which have a debit balance due) a sales report, and customer statements . . . these are but a few of the possible products of an automated, computerized subscriber management system.

Statements are produced by the computer as a product of the month-end file update. They are a combination of a customer account record and a return payment stub. This combination allows for the payment stub to be machine readable and for communication of the current account details.

Collection messages and disconnect notices can be printed right on the statements by the computer. They may be produced in the same format at the mid-month file update if needed.

The Computer Output Can Improve Your Operations

The marketing department can use computer-produced reports as a basis to determine future sales campaigns. The sales manager can pinpoint small pockets of low saturation and direct his efforts to them.

By comparing the reported disconnect reasons with the area's known demographic and off-the-air signal availability, the sales manager can determine the proper sales approach required. Specific groups of potential subscribers can be retrieved from the computer file, selected in accordance with status (not previously called, refusal reason or disconnect reason) and by geographic area.

The computer can present the selected potential subscribers in the required form for use as a sales tool. For example: mail labels may be used in the direct mail portion of the sales promotion . . . salesmen call cards would be used to direct the door-to-door salesmen to the proper residences . . . sales call sheets may be used to direct telephone solicitation or telephone follow-up of the door-to-door work.

Computer-produced sales

reports can measure the sales effort, success and retention of each sales person. This information helps the sales manager control and motivate his sales personnel. A sales commission computer-report can recap new sales. Use of this report to verify sales commission payments will ensure that all sales paid for are producing income.

The cable system's service department can benefit by using computer records. Past service call history may be referenced prior to making a current service call. Serving amplifiers and other equipment may be identified when trouble shooting. Equipment and its location in the residence is determined prior to scheduling new customer connects and current customer service changes.

Top management can use computer-produced reports to measure growth and detect trends. Use of this computer generated information will facilitate tight management controls on the daily operations. The same information lends itself to building "projection models" when planning for the future. The reports will help management be aware of gaps between sales and installations . . . and will pinpoint franchise costs that will aid management in future franchise negotiations. 



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Publication	Number of Managers Selecting Publication As Number One	First Place		Second Place		Third Place		Total Points
		Rank	Points	Rank	Points	Rank	Points	
BM/E	1	6	8	6	32	2	34	74
Broadcast Engineering	1	8	0	7	28	7	6	34
Broadcast Journal	0	9	0	9	4	9	0	4
Broadcasting	7	3	56	4	74	6	12	142
CATV Weekly	22	2	176	1	142	1	40	358
Cablecasting	4	5	32	3	82	3	32	146
TVCommunications	50	1	400	2	132	5	24	556
Television Digest	1	7	8	8	20	8	2	30
Television Fact Book	6	4	48	5	44	4	30	94

Cohu Electronics Inc. of San Diego, California wanted to determine the most effective publication for their cable television advertising.

The above are the results they received from their survey in which:

- 321 questionnaires were sent to general managers of CATV systems with 3,500 or more subscribers.
- 108 (34%) were returned.
- Managers asked to number the three most important magazines in order of importance.
- 1st place vote = 8 points. 2nd place vote = 4 points. 3rd place vote = 2 points.

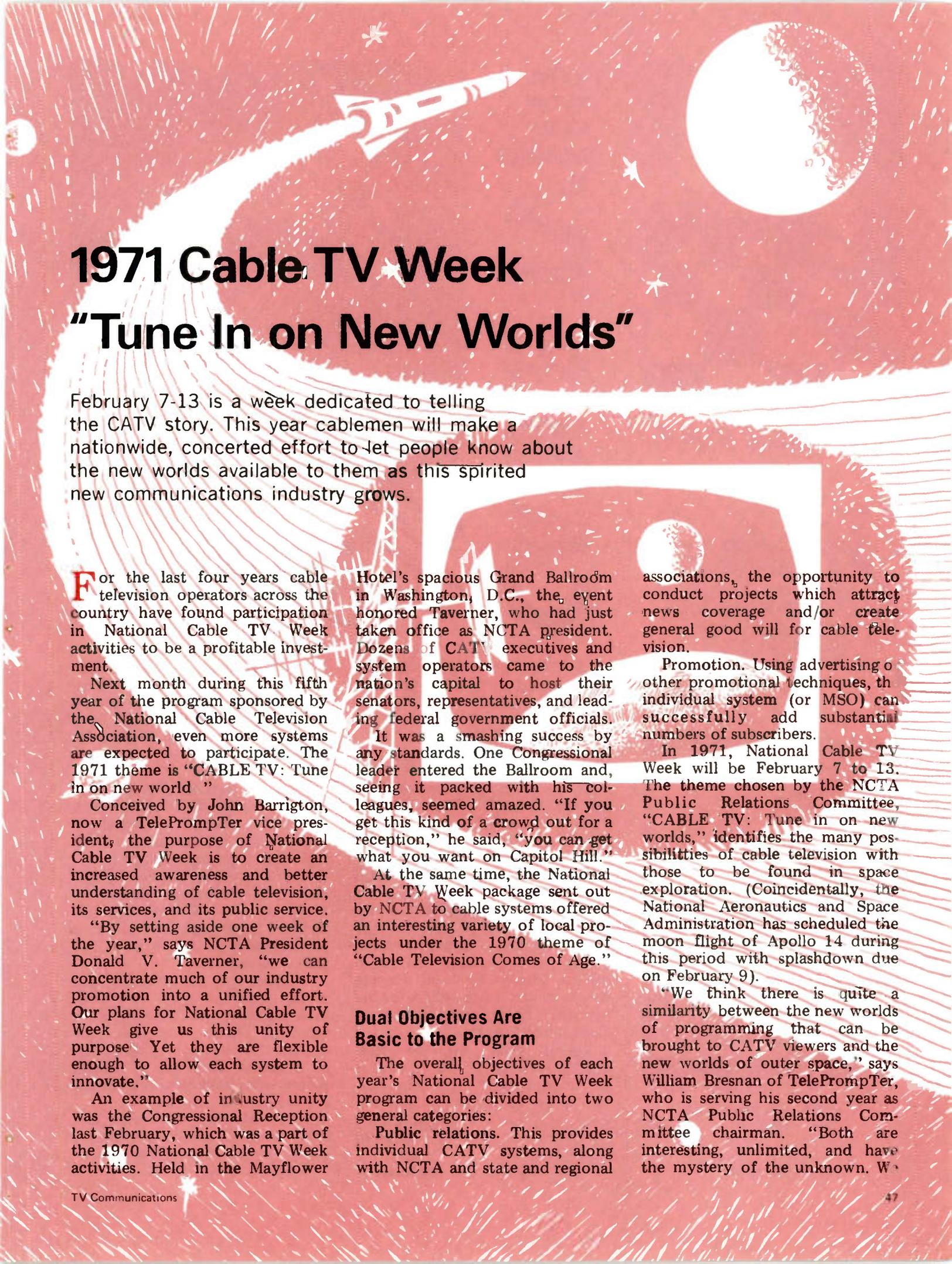
If you're going to use numbers to select your CATV advertising medium media—use numbers that mean something.

TV Communications

1900 West Yale

Englewood, Colorado 80110

(303) 761-3770



1971 Cable TV Week

"Tune In on New Worlds"

February 7-13 is a week dedicated to telling the CATV story. This year cablemen will make a nationwide, concerted effort to let people know about the new worlds available to them as this spirited new communications industry grows.

For the last four years cable television operators across the country have found participation in National Cable TV Week activities to be a profitable investment.

Next month during this fifth year of the program sponsored by the National Cable Television Association, even more systems are expected to participate. The 1971 theme is "CABLE TV: Tune in on new world."

Conceived by John Barrington, now a TelePrompter vice president, the purpose of National Cable TV Week is to create an increased awareness and better understanding of cable television, its services, and its public service.

"By setting aside one week of the year," says NCTA President Donald V. Taverner, "we can concentrate much of our industry promotion into a unified effort. Our plans for National Cable TV Week give us this unity of purpose. Yet they are flexible enough to allow each system to innovate."

An example of industry unity was the Congressional Reception last February, which was a part of the 1970 National Cable TV Week activities. Held in the Mayflower

Hotel's spacious Grand Ballroom in Washington, D.C., the event honored Taverner, who had just taken office as NCTA president. Dozens of CATV executives and system operators came to the nation's capital to host their senators, representatives, and leading federal government officials.

It was a smashing success by any standards. One Congressional leader entered the Ballroom and, seeing it packed with his colleagues, seemed amazed. "If you get this kind of a crowd out for a reception," he said, "you can get what you want on Capitol Hill."

At the same time, the National Cable TV Week package sent out by NCTA to cable systems offered an interesting variety of local projects under the 1970 theme of "Cable Television Comes of Age."

Dual Objectives Are Basic to the Program

The overall objectives of each year's National Cable TV Week program can be divided into two general categories:

Public relations. This provides individual CATV systems, along with NCTA and state and regional

associations, the opportunity to conduct projects which attract news coverage and/or create general good will for cable television.

Promotion. Using advertising or other promotional techniques, the individual system (or MSO) can successfully add substantial numbers of subscribers.

In 1971, National Cable TV Week will be February 7 to 13. The theme chosen by the NCTA Public Relations Committee, "CABLE TV: Tune in on new worlds," identifies the many possibilities of cable television with those to be found in space exploration. (Coincidentally, the National Aeronautics and Space Administration has scheduled the moon flight of Apollo 14 during this period with splashdown due on February 9).

"We think there is quite a similarity between the new worlds of programming that can be brought to CATV viewers and the new worlds of outer space," says William Bresnan of TelePrompter, who is serving his second year as NCTA Public Relations Committee chairman. "Both are interesting, unlimited, and have the mystery of the unknown. We



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think CATV systems of all sizes
can be a part of the 1971 program
under this theme.”

National Contest Aims To Involve Young People

The major project for the 1971
National Cable TV Week is a New
Worlds National Poster Contest
open to students in elementary,
junior high, and high school.

Under contest rules, local
CATV system operators run the
contest in their communities and
select a winner in each of the
three divisions. Prizes awarded
locally are provided by each
system. Posters by local winners
will be submitted to NCTA for the
national finals judging by a
distinguished panel.

Grand prize for the New
Worlds National Poster Contest is
an expense-paid trip for the
winner and his parents to Washing-
ton, D.C., for a VIP tour during
the National Cherry Blossom
Festival.

“This contest can stimulate a

lot of interest in each com-
munity,” Bresnan says. “More-
over, photographs and stories
about the winners should be a
worthwhile publicity project for
Cable TV Week on the local
level.”

Another part of this program
will be blocks of “CATV’s New
Worlds” stamps, attractively
designed for use on mailings along
with regular postage stamps.

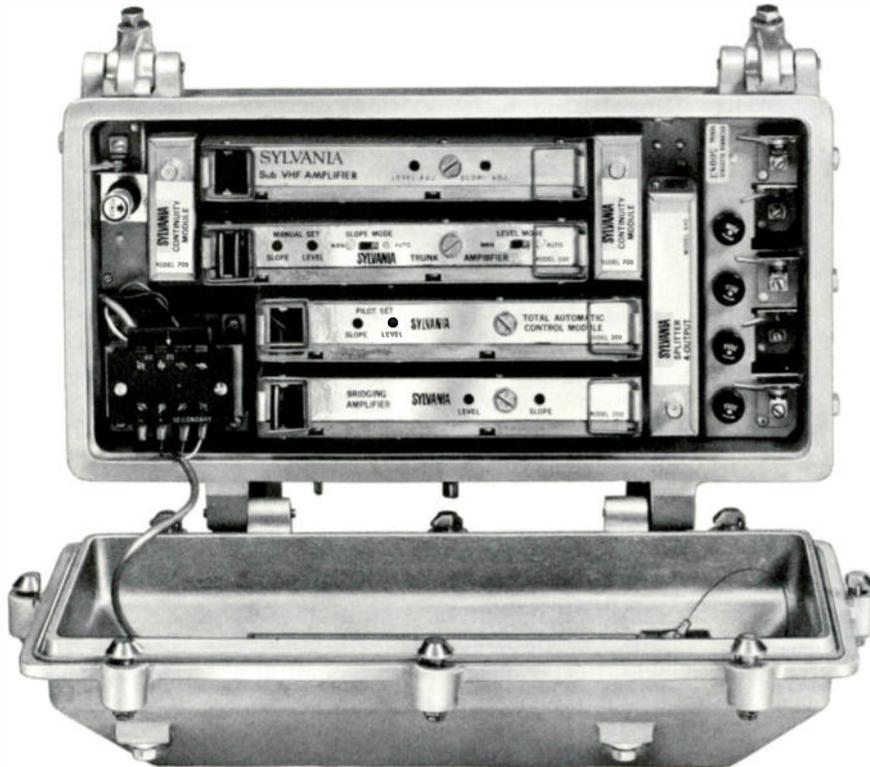
CATV systems will receive the
new 1971 National Cable TV
Week packet of materials. In
addition to giving instructions on
participation in the program, the
packet includes:

“Repro” sheets containing art-
work, suggested copy, and head-
lines featuring the Cable TV Week
theme. These materials are
designed for use in making up ads
of different sizes, use in mailing
pieces, or in promotional materials
for program origination.

News stories, editorials, and
features about cable television for
submission to local newspapers.

Suggested radio spots.

SYLVANIA introduces "HANDS OFF" OPERATION



We're in the cable communication equipment business and ready to give you the untinkerable performance you've come to expect from Sylvania.

Take our trunk amplifier station, for example. A dual pilot feature makes it totally automatic for 16-dB level and 8-dB slope control over wide temperature excursions. Increased cascading, up to 80 amplifiers, is provided by the high overload-to-noise capability of the station. The unit operates on either 30 or 60 volt cable power and over a wide spectrum band width of 50 to 270 MHz.

You're also designed into the future. As an optional feature, Sylvania's trunk amplifier station can be supplied for other *BROAD BAND COMMUNICATIONS SERVICES*. You get all the facilities for plug-in trunk amplifier, bridging amplifier and total automatic control, as well

as for an auxiliary service. This service includes sub-VHF (6-30 MHz) for bidirectional transmission, sub-VHF for long haul forward transmission, split-band trunk (54-110 MHz and 140-270 MHz) for multiplexing of octave bandwidths . . . and more.

In addition to CATV, Sylvania cable communication equipment may be utilized for ETV, ITV and surveillance applications. We also make a complete line of trunk and distribution equipment. Included are the line extender (in manual and automatic control models which may be used as economy trunks), the multi-tap, the power coupler, etc.

At the show, you'll see our lines of cable communication and studio lighting equipment. We'll even let you get your hands on them.

SYLVANIA

GENERAL TELEPHONE & ELECTRONICS

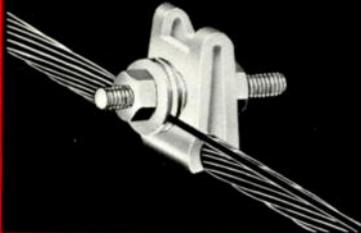
3 WAY BETTER HOOK UP...

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AISI Type 430 quality stainless steel. Superior resistance to corrosion under normal conditions. Fully annealed and coiled with wax coated finish.

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Permanent termination for lashing wire at the pole. Aluminum alloy plates fit and hold 1/4" strand. Hot dipped galvanized washers and nut hold lashing wire.

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ABERDEEN
COMPANY

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Newspaper Supplements Have Proven Successful

In previous years many CATV systems have taken advantage of the editorial materials in the packet which is complete with how-to-do-it instructions for producing a newspaper supplement.

One of the best that has been done came from the Centre Daily Times, State College, Pa., in cooperation with Centre Video. On the editorial side, the supplement included stories on the mayor's proclamation of Cable TV Week, history of Centre Video, and the news and feature articles from the NCTA packet.

Ads, which made up about 60 percent of the 8-page supplement, were taken by furniture and appliance stores and featured TV set sales.

For a special promotional project Centre Video (like many other systems) offered a 99-cent connection during Cable TV Week.

What were the results? The public relations benefits of the special supplement were intangible but, obviously, the community was better informed through the attractive supplement presentation of information on the CATV industry. The other benefits were measurable. As a result of the special Cable TV Week connection offer, spelled out in a front page story of the supplement, Centre Video gained 206 new subscribers.

For the 1970 National Cable TV Week program, Jerrold-managed systems had their own theme, "The dawning of the age of cable TV," and used newspaper ads, radio spots, and window signs. As a result of the combined effort the systems added 3,148 new and 500 second set subscribers.

Another successful 1970 program was conducted by TM Communications Co. at Costa Mesa, California. The public relations part of its program included press releases, bumper stickers, and premiums awarded in Blue Chip Stamps. A promotional effort run jointly with ads, door-to-door calls, and prizes brought

in 152 new subscribers in a market thought to be completely saturated.

In addition to promotional editorials, features, and stories such as the mayoral proclamation, another publicity idea is to name a "Miss Cable TV Week."

In Paris, Ill., the Cardinal Tele-cable Corp. held a contest and chose a "Queen of Cable TV Week" from among 15 high school beauties. The winner was crowned during intermission of a teen dance co-sponsored by the Paris High School Key Club and Cardinal Telecable. Publicity on the event included a story and three-column photograph in the Paris Beacon-News.

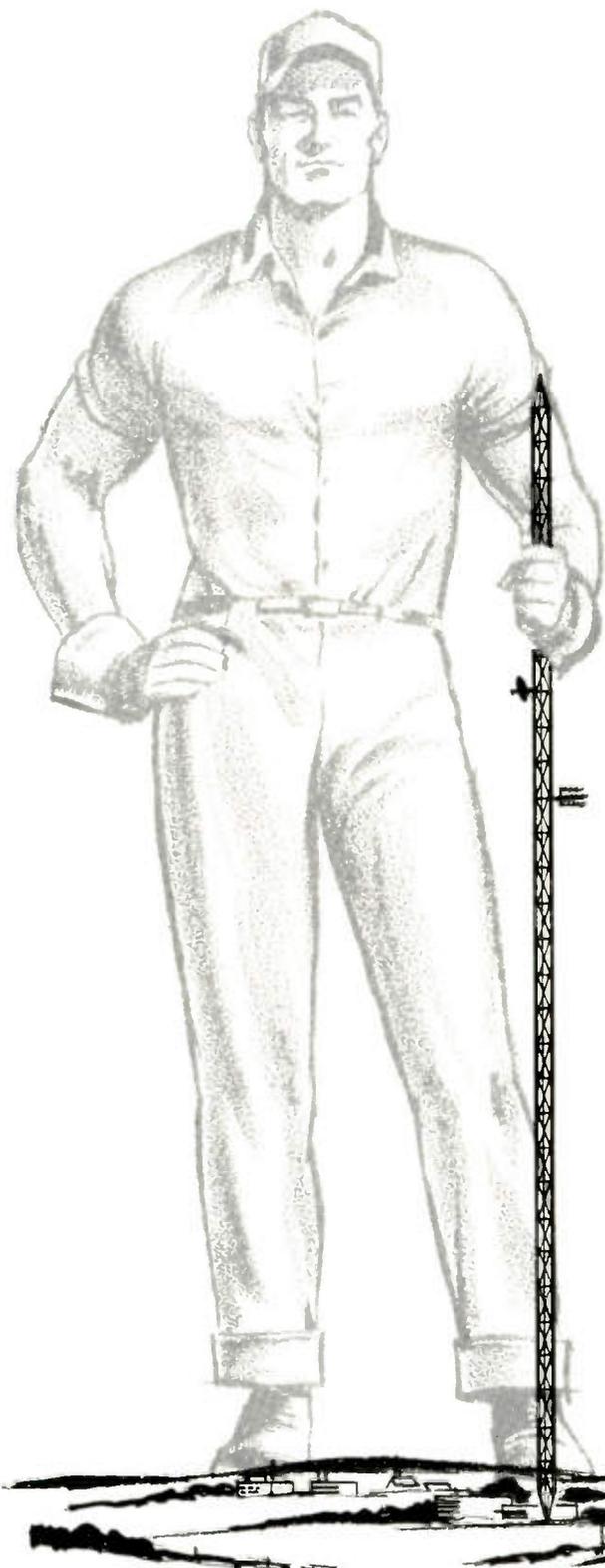
Telethons are also frequently held during Cable TV Week to raise funds for a worthy charity. And many operators hold an open house to acquaint local residents with the system and its personnel. When Tri-County Cable Television opened in Salem, N.J., it observed Cable TV Week with an open house featuring sports personalities and held the event at the American Legion Home.

Another part of the 1971 Cable TV Week program encourages systems with program origination capabilities to feature science subjects. NCTA expects to provide systems with a list of films available on the subject of science, but is hopeful that local innovations such as panel discussion by science students and teachers will also be produced.

In past years, numerous systems have held film festivals. Others have used films about cable television available through NCTA to help tell their story during the week's festivities.

Actually, most of the projects for National Cable TV Week are applicable at other times of the year. Anniversaries of system openings, national holidays such as the Fourth of July, and similar occasions can be used to create a better understanding of Cable TV.

"Our real purpose in having a National Cable TV Week is to bring favorable attention to our industry," says Bresnan. "And that really is something all of us should be doing every week of the year." TVC



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OKLAHOMA

OPINION

FROM THE INDUSTRY



Dr. Harold Livingston is Professor of Speech at Oregon State University. He specializes in Mass Communications and directs classroom TV developments at OSU. (See page 46, March, 1970 TVC for more background.)

An Educator Looks At the FCC Proposals

Government regulators of communications systems have a consistent record of dealing with each new proposed system as an industry. When a public communications system is regulated strictly as an industry, its potentials for creative development are smothered in the protection of the economic status of competitive, established services.

This is the story of the failure of FM broadcasting to seriously challenge AM broadcast station and network domination. This is the story of the failure of UHF TV stations to significantly increase the number of TV communities in this country . . . or to develop a viable, competitive network. This is the story of the FCC's reluctance to truly open the doors to pay-TV development.

On the record, the FCC has been more concerned with protecting the status quo of established communications services than promoting new, competitive

systems. The FCC thus far is treating CATV as an industry . . . a business enterprise, which may or may not threaten the economic good health of potential established communications systems.

Regulations which fail to consider the public service aspects of a cable industry will either destroy it, by over-regulation, or strangle its opportunities for maximum development in the public interest.

New communications systems should be evaluated on their public service values *first*, with secondary consideration given to their effects on the economic health of established systems. Otherwise, communications developments in terms of "public interest, convenience, and necessity" become impossible. If cable operators continue to let themselves be thought of as nothing but a competitive communications industry, the public's reaction to cable regulatory problems will

continue to be passive in nature.

CATV Must Be Known As a Service Industry

To speak bluntly, cablecasters in the majority have established a public image which suggests that cable operations are business enterprises . . . period! Such an image contradicts all efforts to enlist the support of *public* enthusiasm for cable development.

To be sure, the CATV system is a business endeavor. But, its public image must be based upon its potentials for serving special needs in our society . . . and *serving* as no other communications system can.

At the "grass roots" level, the most significant contribution of cablecasting is the provision of *local* TV origination channels for hundreds of communities. With these local channels, the community can deal with *local* civic

40 EXPANDED RANGE



FUTURA 300 EXPANDED RANGE AMPLIFIER SERIES

300

FOR CABLE COMMUNICATIONS SYSTEMS

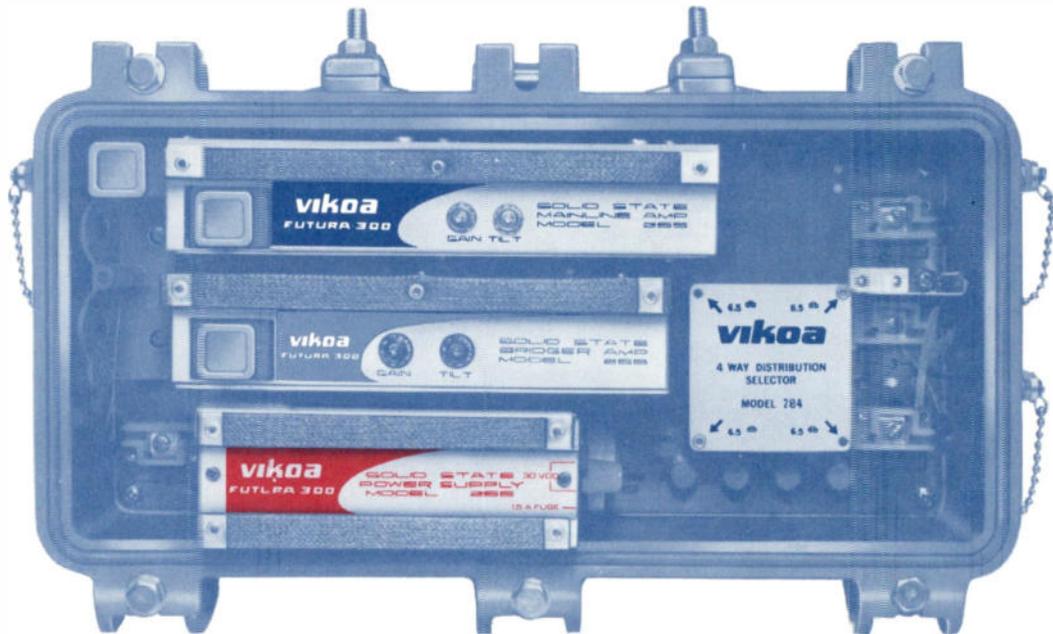
- **New Channels** — The expanded channel capacity you need to present the varied programming that will please your subscribers and attract new ones.
- **Expanded Range** — 40 to 300 MHz to carry the Super High Band Channels (individual amplifiers).
- **Lower Second Order Distortion** — Guaranteed by new circuit design techniques.
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FUTURA 300 EXPANDED



MODEL 253 MAINLINE-BRIDGER AMPLIFIER (less cover)

SPECIFICATION

INTRODUCTION

Designed for expanded channel operation with high output capability and low distortion and noise figure. New circuit design techniques result in lower second order distortion. Units feature dual pilot AGC, push-pull design, and feature completely modular solid-state construction. Expanded Frequency Range; 40-300 MHz.

MODEL 251 MAINLINE AMPLIFIER

Model 251 Mainline Amplifier consists of a Model 265 Mainline Amplifier Module and a Model 266 DC Power Supply Module plugged into a Model 250 Amplifier Housing.

MODEL 252 MAINLINE/AGC AMPLIFIER

Model 252 Mainline/AGC Amplifier consists of a Model 267 Mainline/AGC Amplifier Module and a Model 266 DC Power Supply Module plugged into a Model 250 Amplifier Housing. The Model 267 Mainline/AGC Amplifier Module contains AGC circuitry to maintain output level within $\pm 0.5\text{db}$ for an input level variation of $\pm 5.0\text{db}$. Output tilt will be maintained within 0.5db for an input tilt variation of 2.0db .

RANGE AMPLIFIER SERIES



MODEL 254 MAINLINE/AGC-BRIDGER AMPLIFIER (less cover)

HIGHLIGHTS

MODEL 253 MAINLINE-BRIDGER AMPLIFIER

Model 253 Mainline-Bridger Amplifier consists of a Model 265 Mainline Amplifier Module, a Model 268 Bridging Amplifier Module, a Model 266 DC Power Supply Module and a 1, 2, or 4 output Distribution Selector Module plugged into a Model 250 Amplifier Housing.

MODEL 254 MAINLINE/AGC-BRIDGER AMPLIFIER

Model 254 Mainline/AGC-Bridger Amplifier consists of a Model 267 Mainline/AGC Amplifier Module, a Model 268 Bridging Amplifier Module, a Model 266 DC Power Supply Module, and a 1, 2, or 4 output Distribution Selector Module plugged into a Model 250 Amplifier Housing. Model 254 Mainline/AGC Amplifier has the same characteristics as the Model 252 with the addition of the Model 268 Bridging Amplifier Module to provide up to four distribution lines.

Full specifications and prices for Vikoa Futura 300 Amplifier Series, including integrated circuit line extender amplifiers, and a complete line of expanded range passive equipment, available on request.

FUTURA 300

EXPANDED RANGE MODULES

MODEL 265 MAINLINE AMPLIFIER MODULE



Model 265 Mainline Amplifier Module contains a four stage, push-pull broadband VHF amplifier circuit utilizing solid state active devices. Front panel controls include continuously variable Gain and Tilt potentiometers. A receptacle is provided for Vikoa's Expanded Range plug-in equalizer pads available in various db values.

MODEL 266 DC POWER SUPPLY MODULE



Model 266 DC Power Supply Module contains solid state switching regulator circuitry for maximum efficiency. Current-Guard design reduces dissipated power and heat. Output nominal 30 volts DC at up to 1.25 amperes. Test points and protective fuse are mounted externally for accessibility.

MODEL 267 MAINLINE/AGC AMPLIFIER MODULE



Model 267 Mainline/AGC Amplifier Module contains a four stage, push-pull broadband VHF amplifier utilizing solid state active devices. Front panel controls include continuously variable Gain and Tilt potentiometers, AGC test points and a receptacle for Vikoa's Expanded Range plug-in equalizer pads available in various db values.

MODEL 268 BRIDGING AMPLIFIER MODULE



Model 268 Bridging Amplifier Module contains a four stage, broadband VHF amplifier circuit, with push-pull output stages for lower second order distortion. Front panel controls include continuously variable Gain and Tilt potentiometers and a receptacle for Vikoa's Expanded Range plug-in equalizer pads available in various db values, color-coded for identification.



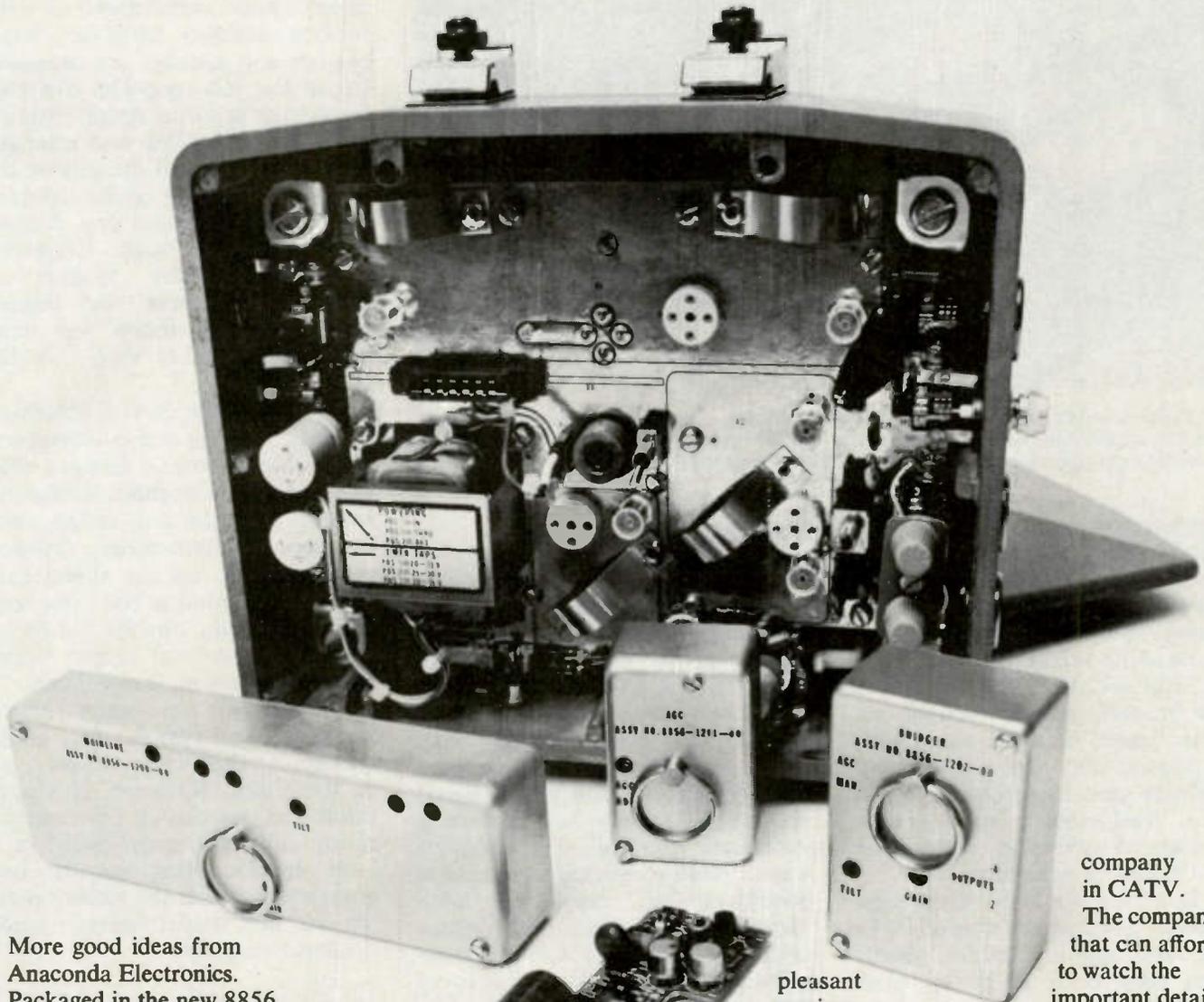
DISTRIBUTION SELECTOR MODULES

Model 281, 282 or 284, 1, 2, or 4 output Distribution Selector Modules available

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small wonder



More good ideas from Anaconda Electronics. Packaged in the new 8856 AGC Trunkline Bridging Amplifier. Enough good ideas to make it something of a small wonder.

Really small. Only 7½" x 9" x 3". And it weighs less than 5½ pounds. Smaller and lighter than any other amplifier of its kind. Just that much easier to handle and install.

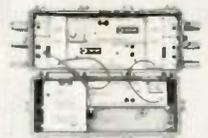
Of course it's modular. Plug-in power supply. Trunkline amplifier, bridging amplifier and

AGC, each completely self-contained in a shielded plug-in module. So, key components snap in, snap out. Tough, reliable design. Reduces maintenance downtime to just about zero. Saves man-hours. Saves money. Keeps the subscribers just a little bit happier. There are lots of other

pleasant surprises in the package. Like the way it stands up to moisture and lightning. (All parts are lightning/surge protected. And every amplifier is pre-tested against water penetration before it leaves the plant.)

There are more good little ideas in the 8856 than we could possibly describe here. It literally is a small wonder. Small wonder it comes from the big

company in CATV. The company that can afford to watch the important details.



Need two-way? Twenty-plus channels? Extra-high performance? For a super-sophisticated system, specify CENTURY amplifiers... with thin-film hybrid circuits.

ANACONDA electronics • A Division of Anaconda Wire and Cable Company • 305 North Muller St. • Anaheim, California 92803. Phone 714/635-0150



The audio portion of this CATV studio includes a professional turntable, two TAM-105 audio control units (just above the arm-rest portion of the console) and two audio cartridge tape units. (Photo courtesy TeleMation.)

transformer can be used to convert the output to a six hundred ohm line. A 600 ohm "T-Pad" inserted in the line can reduce levels to the point required by the audio mixer.

While all video tape recorders have provisions for recording one or two tracks of audio along with the video, they do not entirely eliminate the requirement for a good reel-to-reel audio tape recorder. You'll find many uses for it in the control room.

Don't overlook the advantages of audio distribution amplifiers to split and amplify audio signals when they need to go to more than one place. We covered these in detail in an earlier article.

Stereophonic CATV May Be In Your Future

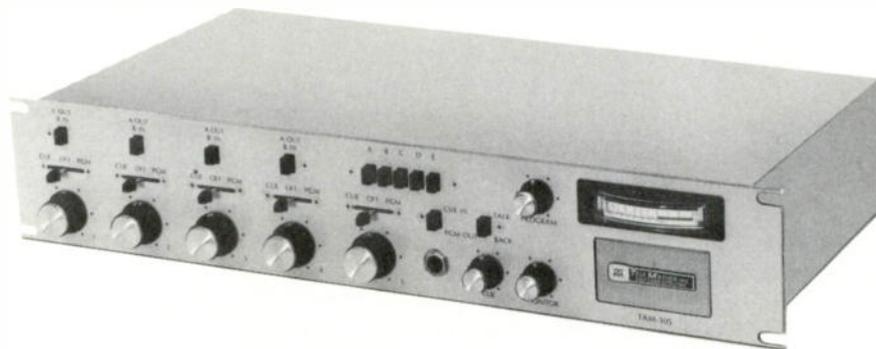
You might think it strange that we would suggest the use of stereo audio origination equipment in a CATV control room, but it does have some merit. For one thing, even though both channels are ultimately mixed into a single output, the stereo signal will sound a little better than a monaural one will. For another, stereo phonograph cartridges, tape recorders, etc. cost very little more than monaural. If the entire control room is set up for stereo operation you can connect it to an FM modulator and feed your own stereo audio channel out onto the

cable. Who knows? Maybe someday television sets will be designed for stereo audio reception and you'll already be equipped for it.

Audio monitoring is vital to proper control room audio. The better your monitoring facilities, the more likely you are to catch little disturbing sounds that will annoy your subscribers. A high fidelity monitor amplifier, headphones and speaker are necessary to do the job properly. For best results the monitor speaker should be properly baffled and arranged so that it is aimed directly at the person doing the audio controlling, so he can hear any discrepancies in the high frequency response. If the speaker or speakers, crossover and cabinet assembly cost much less than \$100, it probably won't do the job.

Finally, pay careful attention to audio cabling and interconnecting wiring. It should be done with two-conductor shielded wiring and should be balanced rather than unbalanced. Remember, shielded audio cabling has the shield connected to ground at only one end. Otherwise, you run the danger of setting up "ground loops" which become little hum transmitters.

There are so many manufacturers and prices for audio equipment that we won't even try to list them. However, if you're interested, we can go into control room audio in more detail in a later article. Next month: test equipment which the cable operator will find useful around a small origination studio.

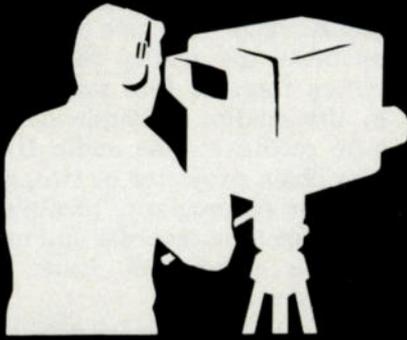


This is an enlargement of the audio control unit (TeleMation TAM-105) that is installed in the console above. The same unit is available in a portable case.

NEXT MONTH

In the February 1971 issue of *TV Communications*, Mr. Rickel's article will deal with test equipment for the local origination studio. Included will be discussion of the proper use of the oscilloscope for both video and audio testing, and the vector scope for video. The article will also cover the variable frequency generator, audio voltmeter, and distortion meter for audio testing.

TVC



STUDIO

Technology

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

The Cable Subscriber Deserves Quality Audio Too

Anyone who has ever watched a TV program with the sound missing will agree that hearing is as important as seeing. Here is a review of audio equipment needs for the well-equipped CATV control room.

The audio portion of a television program is important because it brings another one of our senses into play, to bring realism to the picture we are watching. Yet, audio equipment is the most neglected part of most small origination systems.

The distributor, or systems designer, or system owner will carefully plan all his video equipment, and then remember that he may need a couple of microphones or a speaker and toss a few hundred dollars into the budget to cover audio equipment. The

results are apparent to even the most non-discriminate of home viewers.

The sound portion of the program is full of clicks, thumps, rumble, and other assorted noise. Human voices sound like they're coming from a barrel and music sounds like a 1923 recording of Caruso.

The sad part of it is that it needn't be that way because good quality audio is not that expensive. In most cases audio equipment for a given situation will cost no more than 10% of the cost of

the video equipment. Thus, if you plan to spend \$50,000 for video equipment, your audio equipment should cost no more than \$5,000.

Commercial broadcasters never had problems with audio. Many of the older television stations were started by people who already owned or had operated radio stations and they knew the value of good audio. In the days of radio only, the entire information content of the program was carried by audio alone, and these people knew that no matter how poor quality the

home receiver might be, if they produced the best quality audio possible, they would never be criticized for it.

That was a wise decision because many of today's television receivers are in large expensive consoles with high fidelity audio amplifiers and speakers associated with them, and the quality of the audio becomes quickly apparent. It becomes even more apparent when the owner of one of these consoles switches from a commercial channel to the local origination channel of a CATV system operator with a low budget audio system.

What to do about it? Pay as much attention to the design of your audio system as you do to the video. Strange as it may seem audio systems are more complicated to design than video, even though they cost less money. Most pieces of video equipment are interconnected by a piece of coaxial cable with a choice of a UHF, a BNC, or an F connector, and the impedance of most of the equipment is 75 ohms.

Not so with audio. You have high impedance microphones and tape recorders with impedances of 50,000 ohms or more, low impedance microphones with impedances of 200, 250, or even less ohms, output lines of 600 ohms with impedance balanced, 600 ohms unbalanced, speaker lines of 4, 8, and 16 ohms and the widest possible variety of connec-

tors and cables.

Are there a few simple rules for the uninitiated? We think so. Let's try to formulate a few. Generally speaking, low impedance audio equipment such as microphones is usually of better quality than high impedance ones. They certainly will perform better over a long microphone cable than a high impedance one. Try putting the high impedance mike on the end of a 200 foot microphone extension cable across the lot to the football field and you'll "wonder where de hum come from."

Microphones Are Not Easy To Select

Speaking of microphones, this is a difficult item to select because the printed specifications do not tell the whole story. If you look through a typical wholesale catalog you may find the cheap, imported mike for \$9.95 carries the same frequency response as a professional broadcast mike costing two hundred dollars or more. The difference is in the smoothness of the response and its freedom from peaks and valleys.

The more expensive mike is also better made and more rugged. Select a microphone with a low impedance and a frequency response of at least 80 to 13,000 Hz of the type called broadcast dynamic. Condenser microphones and ribbon dynamics have excellent frequency response, but are usually too delicate for the rough treatment they will encounter around the typical CATV system. If in doubt, pick one of the name brands used by the broadcaster. Use two-wire shielded microphone cable and XLR-type connectors and you'll be compatible with most professional users.

Solid-State Mixers And Amps Are Best

A good rule of thumb for mixing and amplifying equipment is that solid-state construction is usually more rugged than tube-type equipment...and it produces less internal noise. The audio mixer should have at least

six inputs, and preferably twelve inputs, switchable to six fader knobs. This will give the CATV operator the ability to mix and switch three or four microphones in the studio, a couple of video tape recorders, the audio from a film chain projector or two, audio from a phonograph turntable, a cartridge tape recorder and maybe even a reel-to-reel audio tape recorder.

Ideally, the mixer should have a cue position on the switch or the mixer knob so the operator can check the signals from a source about to be switched up while the previous one is still playing. The mixer should have an illuminated VU meter so it can be easily seen when the lights in the control room are dimmed. There are several good quality audio mixers available which mount in a 19" rack panel and can be mounted right in the video control console.

Is a phonograph turntable necessary in the control room? We think so. It will allow the operator to put into his program little bits of fade-in or fade-out music and even sound effects. Watch those copyright laws, though. Try to stick to classical music, band music or any type that is in the public domain.

A cartridge tape recorder is a must if the operator hopes to do a little local advertising. It provides a quick, easy way to stick in a little 30-second or 60-second spot announcement. The CATV operator should try to get the type of cartridge tape recorder which is both a recorder and playback unit so he can make his own cartridges. Again, these can be had in rack-mount types, to mount in the console or rack, along with other audio and video equipment.

The audio track on most 16 mm motion picture films is usually not too good, but it can sound reasonably good if handled properly. Most projectors are designed for high impedance outputs and slight modifications are required to convert them to low impedance, but it is worth the effort. Some of the newer projectors have solid-state amplifiers built into them. Some projectors have only an 8-ohm speaker output. A simple 8 ohm-to-600 ohm



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financing these channels within the budget restrictions of the smaller cable systems. How can this be done?

The financing of community channels cannot be done by contributing to the Corporation for Public Broadcasting. There are no present plans for making "Sesame Street" or any other Corporation programs available to cable systems, only to ETV stations and some commercial TV stations for a price. ETV stations are vigorously protesting any infringement on their program sources, despite the fact that with use of cable system originations of "Sesame Street," over 20 million, instead of 6 million, children could be benefiting from this fine series.

Instead of Corporation support, 5% of the gross revenues of cable systems in the top-100 markets should be assigned to an Educational branch of the National Cable Television Association, under competent supervision to purchase instructional materials on both audio and video tape

and/or films. These materials should then be made available to all cable systems at minimal cost. This could have more impact on the strengthening of local educational systems than all the hundreds of millions of dollars which might be devoted to doubling the number of ETV stations in the country.

From vocational education to teaching Johnny to read and spell, cable channels *at the local level* open the door to *concentrated* attacks on specific educational problems. These problems would be different in each community, and school boards could select only those instructional materials that were needed. Cablecasting, in a sense, opens the way to *community-programmed* instruction with this proposal. Cable revenues would be used for the building of cablecasting in the public interest.

Cable systems outside the top-100 market areas should allocate 5% of gross revenues for providing cable instructional services to local school districts. Ideally, cable system license fees

or franchise fees might be returned to the local school district for such needs. When the local community realizes the values of meaningful public service cablecasting by demonstration, then local tax funds will begin to augment the cable system's original investment in education.

It is essential that the FCC and the public *must not* simply characterize CATV as another business to be regulated. The private citizen must be aided in recognizing cablecasting for what it is — a new, flexible, exciting system for public service. This new communications system has a unique and useful role to play in making America a better place in which to live.

Its great potentials are not competitive with existing systems; instead, CATV cables offer the public new services which cannot be handled by existing, established communication systems. Regulation should not strangle CATV development, but should encourage innovation for the public good. TVC

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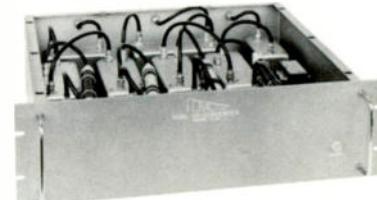
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and educational problems in a meaningful way. This is the public image of cablecasting that will generate powerful public support.

State, regional, and national cable meetings should feature sessions on the cable potentials for public service in the small communities that are without local TV stations and in the sub-communities of large urban centers. This public service image, properly demonstrated, will set the stage for cablecasters to talk to and work with enthusiastic opinion leaders in both education and government.

Instead of limiting CATV educational energies to the training of cablecasters, the industry should be sponsoring state and national conferences for mayors, school superintendents and school principals. Through such conferences, CATV people would have the opportunity to explain the unique potentials of cablecasting in our democratic society. This author has been amazed at the enthusiasm with which educators have reacted to the extensive cablecasting program at Oregon State University. The number of educators who are completely ignorant of cable's potentials for public service is appalling.

Only CATV Can Do It

Hundreds of communities that can support a cable system are too small to ever support a broadcast TV station, even if channel allocations were available. Cablecasting can fill this communications gap by providing *local* origination channels. Furthermore, these channels, primarily supported by subscriber fees, can deal with local issues freely, without revenue dependency upon vested interests.

Commercial TV stations and newspapers must exercise some restraint in attacking local issues that might endanger their major revenue sources. Only the Congress and the FCC could push TV stations into labeling cigarettes a menace to health. Few newspapers or magazines have followed this lead.

State-supported ETV stations do not have the cablecaster's

freedom of inquiry on all issues. "Sesame Street" is not carried by all ETV stations in the South despite its success elsewhere.

Only the *local* cablecasting channel can deal with *local* problems in a fearless manner without fear of revenue reprisal. This will continue to be true so long as the major source of cable revenue is the subscriber... the public citizen. While a national documentary on water pollution might excite the citizen, the local cable channel program on a nearby polluted fishing stream will likely be more important in solving the problem.

The educational potentials of local cablecasting are even more exciting. Compare the possibilities of over 2,700 local cable channels to 200 ETV stations when it comes to solving *local* school deficiencies. The limited influence of our ETV stations is largely concentrated in urban centers. Instead of a buckshot approach to instructional television, CATV offers a chance for school administrators to zero in on specific problems, using the local cable channel for a variety of video and audio functions.

In the author's opinion, all CATV systems, regardless of size, should have at least one TV camera for local origination of simple informative programs. There should be no further origination-related requirements for systems under 500 subscribers. The weather channel camera could be used for this purpose.

Systems with 2,000 or more subscribers should be capable of financing one camera, an inexpensive film chain and an inexpensive VTR for some program origination. At this stage of development, the amount of programming should not be specified.

This writer is deeply concerned about the assumption of the FCC that 3,500 subscribers is a magic number for providing studio facilities for effective local programming. A cable system with 3,500 subscribers in a limited population area has a limited revenue expansion future, as compared to a 3,500-subscriber system with a future potential of 10,000 subscribers. Rigid regula-

tions involving required originating facilities and extensive local programming at this stage of cable development could price some of the smaller systems out of existence. The FCC should not lump the cable systems into one package, but consider the systems in the top-100 market areas as a special group.

The Smaller System Should Have an Option

There are more than 400 cable systems in communities where colleges or public schools have TV origination equipment. Smaller cable companies should be given the option of contracting with such schools for production of local programs to be used exclusively on the local cable channel. Equipment duplication should not be required. The FCC should also encourage similar contractual agreements for use of local ETV and commercial TV station equipment.

All cable systems should reserve one channel for local origination and all 20-channel and 12-channel systems (under certain conditions) should reserve one channel for community programming and one channel for local instructional programming. The FCC should permit these channels to be used by cable systems as needed, until community groups can begin to develop full-time use of these channels.

The initial stimulus for use of local cable channels in a meaningful way must come from the cable operator. It will not be initiated by school administrators or city councils. It can be encouraged by the FCC and the Congress.

The first step must be the recognition by the government, that the most important function of a cable system is the provision of local origination channels for the hundreds of communities without local TV stations. The second step is to recognize these community channels as unique opportunities for dealing with local problems, in depth, without the limitations that are inherent with commercial TV stations. The third step is to provide methods of



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Local Programming for CATV: A Headache or an Opportunity?

This is the first of four articles by this well qualified author. The series is designed to help cablemen prepare for the April 1 deadline for starting local origination. Here are some down-to-earth suggestions for the new cablecaster.

Local origination — is it a monster that will overburden the CATV industry? Or, is it the first big step in creating a new and much larger concept of com-

munication within the U.S.?

Whatever your present beliefs, the odds are excellent that you and your company are about to join several hundred other cable systems in programming local origination.

Local origination or cablecasting is a tremendous challenge to all of us, a challenge that hopefully can be turned into a distinct advantage. We can, over a relatively short period of time, become a communications media that will please and serve at the local level.

Cable TV with local origination can program and accomplish exactly what the FCC had hoped the independent UHF could do. Obviously, time and economics have proven that independent UHF television will fall far short of its intended goals.

There is no doubt that cablecasting will be several years in the making. Few, if any, systems can expect to commence local origination on a profitable basis. It will be many months, perhaps years, before the average system reaches a point where advertising revenue and/or increased subscribers will compensate for operating costs.

What and how you program will be the key to your success.

There is a great deal of differ-

ence between CATV as most of us know it today and cablecasting. They are two different worlds. The world of CATV is basically technical. Your cable system functions on known and established technical and electronic methods. In spite of what some people might think, a cable system with good clean signals does not operate on a "by guess and by god" basis.

Such is not true in cablecasting. True, your studio and control room equipment is manufactured and maintained on established electronic standards. But, all of your audio/visual equipment is really only a means to an end. Studio and control room equipment will cost anywhere from \$20,000 to well over \$150,000. Unless you program intelligently and creatively, you might as well throw that money into the street.

Programming is the name of the game! And, in that game there are no hard and fast rules, no scientific formulas or equations, no instruction manuals. The success of your cablecasting efforts depends entirely on imagination, creativity and a thorough understanding of your community.

It is important to remember that, as stated earlier, there are no

ABOUT THE AUTHOR



Gene G. Cook is the Manager of Sales/Programming for General Electric Cablevision. In this capacity, he is responsible for all promotion, advertising sales and local program origination. His background includes sixteen years in broadcast television and radio. For six of those years he managed a small market independent UHF television station.

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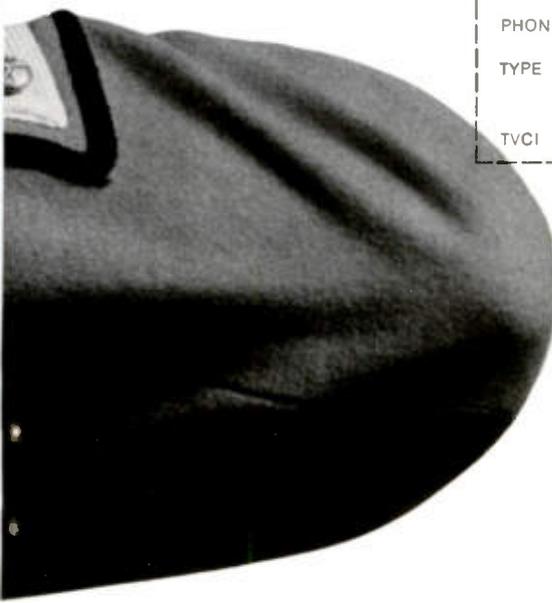
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CATV Programming

software news and tips

"Sesame Street" Test on Cable

"Sesame Street," the widely acclaimed educational television program for pre-schoolers, is currently being shown on the Tele-Cable CATV system in Winston-Salem, North Carolina.

The program is being shown via cable as part of a seven month test. Educational Testing Service of Princeton, N.J., has been retained by the producers of the program to determine its impact on the 3 to 5 year age group. Tele-Cable has made installations

to the homes of 130 economically deprived children. These 130 children will be compared with another group of 130 children who will not be able to see the program. At the end of the seven month test, ETS will re-interview all children in both groups.

Once the impact of the program is determined, it might be a good idea for its producers to consider the possible impact of releasing the program to all cable operators . . . so more children can benefit from "Sesame Street."

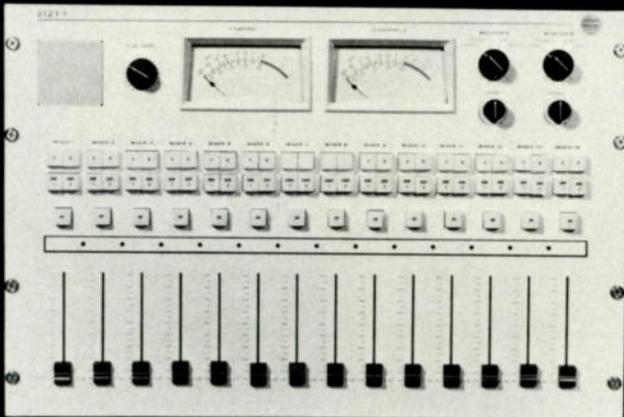
New CATV Software Firms

Speaking of "Sesame Street," one Kenneth Snyder of Ken Snyder Enterprises has been in charge of a new series of educational "commercials" for the series. This same Snyder has recently formed another company in Hollywood, called United Video Programming. This new venture will acquire and promote educational and other program material for such users as CATV. "The boom is on . . . for substantive programming," says Snyder.

Another new firm has announced it intends to create, develop and sell programming to cable people (among others). The new operation is a co-production arrangement between Chuck Barris Productions and Woody Fraser of Hollywood, California.

Jerrold Selling Programs

Cable Channels, Inc. has appointed Jerrold Electronics Corp. as exclusive CATV distributor of its sports videotape packages. They offer 14 hours per week of sporting events. 



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Collins has reduced the price of its 14-channel board to \$5,750. Now, even the most economy-minded station can have professional production capability with this 14-channel audio console.

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The control panel includes all necessary switching and control functions and has large illuminated 4-1/2-inch VU meters. This separate control panel permits remoting the amplifier section to an

adjacent room, free from lighting, powering, and video or sync signal interference.

A fully-regulated, rack-mounted power supply is included. For more information, call your Collins broadcast representative or contact Collins Radio Company, Dept. 400, Dallas, Texas 75207. Phone: (214) 235-7863 (direct line).



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Studio Notebook

answers to program problems



By Ken Lawson

QUESTION: What are the relative advantages of videotape and film for cablecasting?

ANSWER: This is the second in a series of columns answering this question.

This time I will concentrate on the use of 35 mm. slides.

Slides are a simple, but professional, graphic tool which is being grossly under-used by most cablecasters. Watch network and local TV advertisements for use of slides, and you will probably be surprised by how much work these professionals do with them.

The usual complaint voiced is that it takes too long to get slides processed, or that color film chains are too expensive to take advantage of cheap color slides. Let's look at what two cablecasters do to overcome these problems, and the advantages they obtain.

Rick Anderson, Program Director of the LVO Cable system in Grand Junction, Colorado, simply set up his own developing system. He has a ball shooting up local scenes and people for daily news shows and advertisements in color.

When he and his shutter-bugs are through shooting, it takes one of them about an hour to develop and mount their pictures for the evening show and subsequent cataloging.

He uses an E-4 Ektachrome processing kit (about \$10). A fairly sophisticated 35 mm. camera is recommended to allow use of ER 5257 daylight high speed 160 ASA film for

all possible lighting conditions.

Other inexpensive accessories include a long-stem thermometer, two plastic (dishwashing) tubs, some plastic quart bottles, plastic funnel, plastic apron, and a 60-minute timer.

Unless you are an addicted hi-fi fan, a modest audio tape recorder and microphone will serve as the mobile audio source. The camera should have a close-up adapter for photographing sponsor's brochures.

An optical multiplexer, mounted with a low cost color camera and 16 mm. and 35 mm. projectors, is used for projection.

A deeper analysis of the Grand Junction experience goes a long way in illustrating the proper perspective for the use of slides, motion picture film and video tape. For example, slides of news and advertising shots are developed for the daily live news show at 4:30 p.m.; 16 mm. film advertising spots supplied by the agencies for such sponsors as Chevron, International Scout, and McDonalds Hamburgers are inserted during the show;

John Long, Program Director of Cox's Mission Cable TV in San Diego, California, reports that they have employed the use of a color flying spot scanner, costing 1/4 that of a color camera, as a low cost solution for special slide presentations.

The advantages obtained by these cablecasters through the use of slides are: (1) a standard photographic and TV medium; (2) easy program production; (3) cheap graphics; and (4) low cost color.

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- Ten-Spot (10-cartridge deck)

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

TV Dolly Makes Any Room An Instant Television Studio

A unit on wheels which provides a mount for a television camera and monitor, a platform for a VTR unit, five integral quartz lamps and a microphone input on an extension boom converts any room into an "instant television studio."

The 220-lb. "TV Dolly-Lite," from TV Dolly-Lite Systems, 321 N. California, Lodi, California 95240, also has its own simplified control panel for the operation of the equipment mounted on the unit. It rolls easily from room to room. According to the manufacturer, "With only a few minutes' familiarization, any amateur operator can achieve near-professional results."

The TV Dolly-Lite does not come with a camera, microphone or video tape recorder. Thus, presently-owned equipment can be packaged on it, or new equipment can be purchased to suit the requirements of the user.

Virtually complete flexibility in equipment selection is possible. The TV Dolly-Lite accepts all TV cameras except the large RCA studio color camera. And it will accept all VTR's currently manufactured, with the single exception of the Ampex 7800 series. Any desired microphone can be mounted on the extension boom.

In operation, the integral quartz lamps can be pre-set to provide any desired degree of illumination. And once the lamps are set, the

camera remains on the light axis, even during panning and tilting. A single operator can move the entire unit easily for dolly-in or dolly-out effects. The unit draws 30 amps of power, and its single power cord permits easy maneuverability in operation.



No equipment need be dismounted for movement or storage. The lights fold in, the boom retracts and the boom and camera mount tilt to the full-down position. In this position, the unit can easily be moved from room to room by one person. With all elements in the storage position, the TV Dolly-Lite will pass through any standard 32-inch doorway, so any room can become an "instant TV studio." 



A local program in production at Beloit Cable TV, Beloit, Wisc. (Photo courtesy TeleMation.)

clear-cut guidelines. A local show or program that is highly successful in one town may well be the biggest flop of the year in your city and vice versa. Keep in mind also, that programming for a cable system in New York City, Chicago, Detroit or San Francisco takes on entirely different concepts than programming for a community of 15 thousand to 50 thousand people.

There must also be a different approach used in the suburban communities of the large metropolitan areas. In some ways these "bedroom communities" are the most difficult to analyze for program needs. There is usually a certain lack of "home town" pride and civic interest in such suburban areas and that can create a problem when it comes time to plan locally oriented shows.

No matter where your system is located or what the size of the community, there are several basic steps to take before you turn on the studio lights.

First, analyze your market. The success and acceptance of your programming will depend upon your understanding and knowledge of interests and needs of your city.

Without going into specific details concerning programs for

each group or organization, here is a partial list of people you should be talking to: Mayor, City Manager, Chief of Police, Fire Chief, City Councilmen, Superintendent of Schools, High School and Jr. College Coaches, Drama Teacher, Band Instructor, Chamber of Commerce, Presidents of various clubs and civic organizations, State Representative, Junior Chamber of Commerce, and Agricultural Agent. There are many others that may be of great help in presenting ideas on the type of programs you can produce.

The most important and productive supplier of local shows will be your high school and Jr. College. The potential for interesting and meaningful programming from the educational institutions is almost endless. Examples of programming available from the schools include: drama, choir, band and, of course, sports. All of these fall into the entertainment category. Naturally, the instructional and educational aspects offer interesting and needed supplements to your programming concepts.

You will find the schools cooperative and extremely interested in your endeavor as long as they feel you are not

merely taking advantage of them. However, permission to telecast high school sports may possibly become a problem. Most school officials do not understand the economics of cablecasting and you may find that as soon as you mention televising sports, the school starts thinking in terms of broadcast fees. This may be all right up to a point, but you must make it clear that you're not a major network dickering with the NCAA or the NFL. It helps public relations, with all concerned, to cablecast not only major sports, but wrestling, swimming, track and golf as well.

One of the most truthful and realistic discussions on this very subject was held at the California Cable Convention in San Diego. Mrs. Lynne Gross from Long Beach City College presented an excellent analysis on this problem. If you can obtain a transcript of her talk, I suggest you do so.

Now that you have talked to various people in your city, it is time to sit down and sift through the information and ideas you have received. Your main interests are specific shows or programs that can be scheduled on a regular basis. You have been talking to local people and, believe me, local people are interested in other local

people and, that's what "local" origination is all about.

In addition to talking with local people, I assume you have also analyzed the programming of the TV stations you now carry on your system. Keep in mind that you will be in competition with them for an audience. Obviously, attempting to program on a regular basis in prime time against the networks is self-destruction.

In general, you must present your programs at a time when the regular stations are at their weakest. Past experience has shown that the best times for a cablecaster are the daytime hours up to about 7:00 or 8:00 p.m. This means that your prime audience will be women. The male audience will be available for only a short period of time in the early evening. Therefore, the major portion of your weekday programming must be aimed primarily at the housewife.

In planning your program schedule, you *must establish specific times each day*. Do not attempt to put programs on your

local channel on a scattered "hit or miss" basis. Whether you program one hour a day or six hours per day, it must be at the same time each day.

For example, let's assume you block-program one hour of various ten- or fifteen-minute shows each day, Monday through Friday from 12 to 1 p.m. You can then play back certain portions from 3:00 to 3:30 and have another playback, with updated news, from 5:00 to 6:00 and again from 7:00 to 8:00.

Give Serious Consideration To Replays of Programs

Repeating your programming assures you a larger total audience. Not everyone is available to watch one time period. Before finalizing a schedule, several factors must be considered. The most important: Is the show interesting enough to attract viewers? You will seldom, if ever, achieve 40% of your total potential. In fact, if you can consistently attract 10% of the available audience, you will be doing quite well.

At this point you face the age-old dilemma of the broadcaster. If you don't have an audience you can't sell the advertised product and, if you don't sell products you don't obtain the advertising dollar and if you don't have the dollars, you can't afford to produce the shows. It's all very simple, isn't it?

I mention advertising because I assume most cablecasters will attempt to sell time on their local channel. Some systems are not going to sell advertising. They may hope to attract enough additional new subscribers to offset the cost. Past studies show that very few systems can honestly attribute enough increase in subscribers to compensate for production costs.

Once you have decided upon a program or series of programs, the next questions are: Can you produce it on a daily or weekly basis? And, do you have the proper equipment and manpower? Ideally, you want to produce shows from your studio; shows that require simple basic sets with absolutely minimal prop and lighting changes. In this case we are

talking about studio rather than mobile production.

If you believe the show will attract an audience, and you have the capability to produce it... can you sell it?

The ingredients that make a particular show saleable on a local level are sometimes hard to define. Often the personality or talent on the show will be a key factor. In most cases, a local sponsor will buy advertising on a program that will logically appeal to his customers. Banks are usually an ideal sponsor for news. Car dealers are attracted to sports. Women's Club news will be appealing to dress shops and department stores. Hunting and fishing is a natural for sporting goods stores. Fit the sponsor to the show and vice versa.

Frankly, most of your advertising will, at first, be sold on an emotional sales basis. By that, I mean the local banker or car dealer may not feel that advertising on your local channel is going to be all that effective, but he does feel that civic responsibility and involvement in the community dictates that he participate.

Another big factor is a local sponsor's personal interests. An example of this concerns a weekly bowling show I once produced from a bowling establishment, matching local bowlers against each other. The biggest car dealer in town was a natural, ready made sponsor. However, he had absolutely no interest, because he did not bowl himself. He was, however, an ardent golfer, and subsequently bought every golf show we had to offer. I guess the moral of the story is, don't try to sell the local dog show to a merchant who hates dogs.

Block Out Your Program Schedule

The next important task is blocking out your basic, daily program schedule. This does not include once a week sports or other specials.

For sake of brevity we will use one hour each day, five days a week, as a sample. Your first concern is local news. Investigate

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the possibility of working with a local radio station. Unless you can afford a good newsmen and all of the related expenses, it may be to your advantage (and to the advantage of the radio station) to have the station supply you with a newscaster and all news material each day. Several cablecasters have found this to be a most satisfactory arrangement.

You must, of course, stockpile visuals such as photos of all local, county and state VIP's plus pictures of the city hall, court house and all important buildings and landmarks in your area. A local photographer can accomplish this for you.

For the average cablecaster, the use of 16mm or Super 8mm film for local news is extremely expensive and time consuming. Polaroid snapshots show up very well on camera and offer you timely visuals within your newscast. Your one-man, fifteen-minute newscast should include local sports and weather. Fifteen minutes will be more than enough time and you can break that down into three

segments. Thus, you will have at least three natural breaks for commercials.

Following the hard news, you may decide to include five minutes of social and club news on a Monday-Wednesday-Friday basis. A local club woman who is interested in (and familiar with) social, civic and church organizations, makes an excellent hostess. She can, from time to time, include a brief interview with a club president or project chairman. The same five minutes on Tuesday and Thursday could be filled by League of Women Voters, PTA or birth announcements.

Yes, birth announcements. If your hospital will cooperate, you can obtain those 3 x 5 snapshots taken of the baby soon after birth. Then, obtain signed permission from the parents. The baby pictures are shown on camera along with a female narrator giving name of parents, weight and sex of baby. Don't scoff . . . that type of show is very popular in small towns.

Out of our one hour, we have now used 20 minutes. The next ten-minute segment is devoted to different subject matter each day of the week. *Monday:* "Civic Affairs;" chamber of commerce, VIP's, local merchants, civic projects, etc. The manager of the chamber of commerce usually makes an excellent host and interviewer for a show of this type. *Tuesday:* "City Hall;" mayor, city council members, police, fire dept., etc. On a rotating basis, each one would appear approximately once a month.

Wednesday: "School Report;" events, projects, announcements, meet the teacher. *Thursday:* "Hunting, Fishing, Camping;" local in content. Include State Fish & Game Department films, interviews with local sportsmen. The sporting goods store should be able to supply a regular host. *Friday:* "Coach's Corner;" coach discusses last week's game and prospects for next game. Include film clip or tape highlights of last week's action. Introduce the "player of the week." This show

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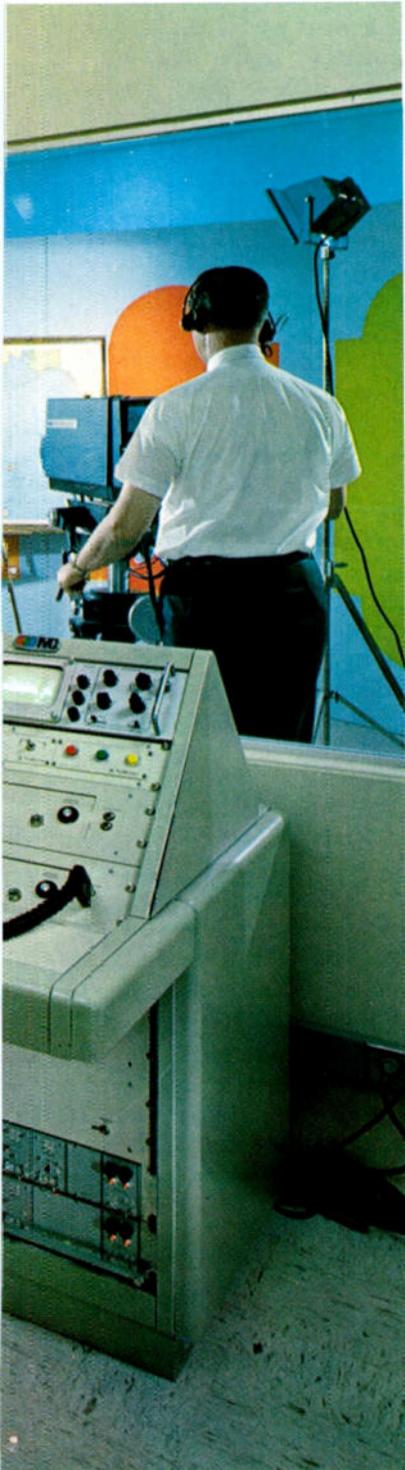


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will probably be taped earlier in the week for insertion on Friday.

Participation Shows Have High Viewer-Appeal

The last thirty minutes of your daily hour could be a viewer participation game show. Remember that housewives are your major audience at this time of day. Bingo or any other type of game will fill the bill. The local radio station could supply the emcee. He must be light and breezy and the type that housewives will like. Thirty minutes of Bingo every day can be a bit boring.

Your emcee might intersperse local announcements and topical comments on what is going on in town. You can sell some time to the local theater and have the emcee talk about the movie or movies being shown, including some film clips. The last three minutes can be a wrap-up of the day's happenings, including a capsule newscast.

All of the shows outlined, with the exception of the news and Bingo, utilize hometown people. Ideally each of these people is responsible for his own show. The woman doing the club news is responsible for obtaining the news items and guests she will use on her show. The school must delegate someone to be responsible for the weekly content and presentation of their 10-minute segments. The chamber of commerce is responsible for content and guests for their segment, etc. etc.

Your job, or your program director's job, is to obtain the proper people who are interested in working with you, and then outlining to each of them the type of show you expect. You cannot possibly afford, nor could you find, that much professional talent in your town to host each of these shows. Besides that, you should not have to pay a talent fee to the mayor, police chief, city councilmen, chamber of commerce, etc.

The list of additional programs that may be added to your basic schedule is limitless. Sports, either "live" or taped, will undoubtedly prove to be the most exciting and

profitable programming that you can produce. Football and basketball are the two most obvious; but don't overlook track, baseball, wrestling, swimming, etc. Little League baseball and Jr. League football and hockey can also be easily televised. Adult bowling and golf should also be a part of your local production efforts.

High school football and basketball will probably be played on a Friday night. If you are fortunate enough to be able to go "live," it will still be advantageous to tape the game for playback on Saturday, and perhaps during the early part of the week. If you must go with a taped, delayed cablecast, it may still be possible to start your playback at 10:00 to 10:30 p.m. and playback again on Saturday mid-morning.

The important thing is that your potential audience has every opportunity to view these events whether it is at 8:00 at night or 10:00 Saturday morning. Once you have gone to the trouble and expense of taping a game, it costs very little to do a replay one day later.

Showing only the "highlights" of the weekly game is seldom sufficient. Nor is it a good idea to try adding the voice track back at the studio. There is a certain excitement and immediacy that comes through when the sports announcer relates the action as it happens. If you are going to the expense of producing a game, why not do it all the way?

While on the subject of local sports, do not forget to televise the band and cheerleaders. There are more band members and cheerleaders than athletes, and their parents want to see them, too.

Opportunities Are Limitless For Local Program Ideas

Sports are by no means the only specials or "spice" that you can add to your schedule. Drama and little theater groups are an excellent source of occasional shows. Don't forget to pay the required copyright fee on certain plays and musicals. (It may not be worth it!) During the Christmas season, half-hour tapes of school

and church choirs are most appropriate.

Here is a partial list of seasonal or one-time specials that can be easily produced. *Meet the Team*, a thirty-minute interview with players and coaches just prior to the first game of the season. Have the players wear their game uniforms. *Salute to Seniors*, tape record graduation ceremonies. Include interview with principal and class president. *School Days*, panel discussion with superintendent of schools and principals . . . include question and answer period covering new classes, bus routes, time periods, etc. Run it just prior to the first day of school. If there is a parade or Soap Box Derby or county fair or any civic event, *be there* with your mobile equipment.

Through your cablecasting facilities, you can perform a much needed service for the school system. If you have not already done so, why not offer several hours (each morning) to the school district to program whatever instructional material they choose. The schools have programming available to them from various universities and NET. It may also be desirable to lease your studios to them for a classroom in basic audio/visual production for high school and junior college students.

What a boon to America it would be, if a program were created instructing parents on how to comprehend the new math. With the cooperation of federal, state and local educators, many informational and instructional needs for all age groups and all spectrums of society can be fulfilled via cablecasting.

This article has avoided discussion of films and syndicated shows. That is a major consideration by itself that will be covered in part-two of this four part series, next month. That article will deal with the complexities of securing film and/or taped shows. March TVC will include part three . . . an article covering rate cards, sales and selling techniques. Part four will deal with the production of local commercials . . . and with other ways of generating revenue from your origination facilities. **TVC**

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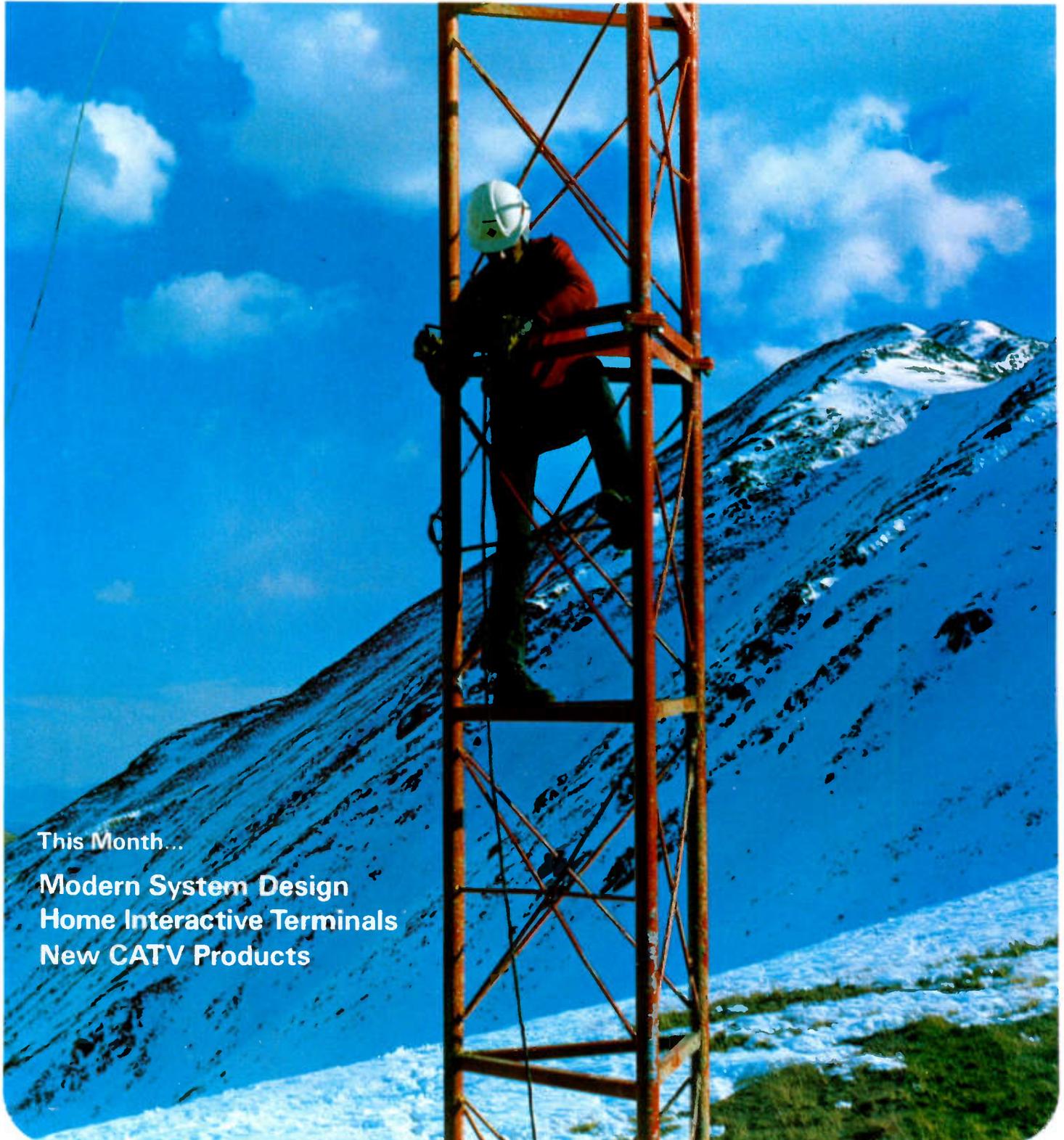
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MC	Nom. Attenuation per 100 feet			
	Belden 8228 db loss	RG-59/U db loss	Foam RG-59/U db loss	Foam RG-11/U db loss
50	1.5	2.4	2.1	1.0
100	2.1	3.4	2.9	1.5
200	3.1	4.9	4.1	2.2
300	3.8	6.1	5.1	2.8
400	4.5	7.1	5.8	3.3
500	5.0	7.9	6.5	3.7
600	5.5	8.9	7.1	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

January 1971

TV Communications

CATV Technician



This Month...

**Modern System Design
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Design Considerations For a Modern CATV System

The cable system to be built in the immediate years ahead will have to meet standards far beyond today's demands. This article reviews some of the exacting requirements the designers of those near-future systems should consider.

By Robert D. Bilodeau
CATV Engineering Consultant

Many CATV technicians are either presently, or will be in the future, faced with the decision of selecting or specifying a CATV system design. While the design of existing systems does represent an area of concern, it is somewhat trivial when compared to what lies ahead.

CATV in the next decade, if it only partially fulfills its promise, will explode at a rate similar to the world's population. The world's current population is made up of over 50% of the people that have ever been born since day one. And, 90-95% of the CATV system mileage that will exist in 1980 has yet to be constructed.

This "plant to be" is the target of this article. Existing systems will become obsolete via capability or performance and gradually be replaced. However, if some serious considerations are not given to designs presently on the drawing board, and those to follow, our exponential growth will be accompanied by exponential chaos.

It is important to note that this author's argument *will not* be based upon impending FCC Standards. These "Standards for Per-

formance," while they may be beyond the capability of some systems, generally are below the values cable operators will need to make a going business in the Grade B and better contours that comprise most of the market areas that will be penetrated in the next decade.

The argument here will be predicated on two basic real factors. First, the need for better performance, for product acceptance. Secondly, the need to keep maintenance and operating costs at reasonable economic levels. Historically, CATV has not done a good job in either area.

Steady-State Versus Dynamic

Most equipment manufacturers today will comply with their *published* specifications with regard to single piece performance. Most system designers, utilizing their own or others' equipment, will meet the design criteria at the design temperature. While there are still *some* published specifications that cannot be demonstrated and while there are still *some* system designs that fall short of their theoretical

projections, the situation has improved.

Generally speaking, equipment manufacturers are achieving better numbers and publishing more realistic values. While there have been some standard guidelines established for individual amplifier performance, this is not yet so for system designs. Construct 11 homes, each of a different material. Then huff and puff! Some will fall down and some will not.

Now it's this huffing and puffing that should be the real concern of buyer and seller alike. This exposure would reveal the *dynamic* characteristics of the equipment and the system design.

The question becomes: What happens when I connect together (in real life) 37 of these devices that meet all of their published specifications, and I set it up according to prescribed design, and I kick it with a 60 degree temperature differential? Are the pictures still usable at the end? Have they changed noticeably or are they still as good as they were at balance? This is a problem that has not yet been thrust into its rightful place in the pyramid of problems facing us today. You can

call this "system elasticity," "fidelity," "memory," "resilience," "tracking" or "whatever." The fundamental problem with yesterday's designs is that on a *dynamic* basis they will not satisfy tomorrow's requirements.

Two Variables: Active Equip. and Cable

The two major variables with temperature are the cable and the active equipment. Very little is published about either. Cable manufacturers do not publish temperature characteristics of their cables and most designers assume theoretical behavior. Equipment manufacturers are usually vague in this area, and simply state that the equipment will work within some specified temperature range (-40 degrees F to +140 degrees F).

In general, the open-loop and closed-loop control systems for temperature compensation are designed around theoretical cable behavior. In real life, cable doesn't behave on a clinical basis and the

gods have willed that all other "Misbehaved CATV Creatures" move in the same direction as cable with temperature! We don't even get the benefit of negating errors.

For the existing systems, if you are not fortunate enough to live in an area with very little yearly temperature swing, or do not have an underground plant, the most effective answer lies in the judicious use of the two pilot carrier slope correction amplifiers now available from several manufacturers.

If the system design is not such that you have long since run out of tolerance, proper use of slope amplifiers should keep the system in proper balance within its tolerance range. Some of these devices utilize two discrete CW carriers and others will operate on CW or modulated carriers of your choice.

These are, in effect, mop-up amplifiers. They compensate at some periodic placement for the accumulated infidelities of all contributing factors . . . within the cable equivalent range of their

capability.

For systems yet to be, there is an alternative to the solution stated above. A typical design from today's state-of-the-art suppliers would have AGC stations every third position and either an open- or closed-loop system for controlling slope changes with temperature. Sometimes these will be one in the same device. This would place "control points" roughly 60 dB apart on trunk. If there are no control devices dedicated to distribution lines, then the output of the last active device on a typical bridger plus two line extender configuration can be 70-80 dB from the last control device on trunk. This would be the case where a bridger feeds two line extenders from the second manual trunkline station (See Figure 1).

One worse situation in system design practice today is where a trunk terminating bridger follows two manual trunk stations by approximately 20 dB, and feeds cascaded line extenders. In this situation, there can be 95 dB of

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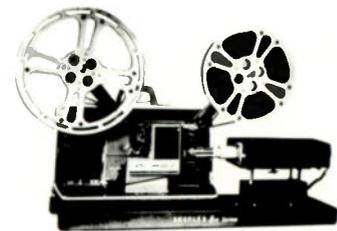
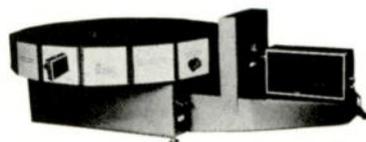
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Test Your CATV Techknowledge

Send your answers to NCTI. They will be checked and returned to you without obligation.

1. Marker frequencies needed in aligning the IF strip of a TV heterodyne receiver are:
 - A. .5, 1.5, 2, 3, 3.6, 4.2 Megahertz
 - B. The 18th and 19th line of the odd and even fields
 - C. 39.75, 41.25, 41.57, 46.5, 47.25 Megahertz
 - D. None of the above
2. What effect will elimination of the AC power by-pass coils on line splitters or directional couplers have upon their electrical characteristics?
 - A. None
 - B. AC power will not pass through to devices or amplifiers down-stream.
 - C. The impedance match will be affected unless compensation is provided for the change in shunt inductance and capacitance.
 - D. Both B and C
3. If a tap provides a plus 10 dBmV level at 70°F, and is 80 dB of cable (at Channel 13) beyond an AGC location, what is the predictable level at 20°F?
 - A. 5 dBmV
 - B. 10 dBmV
 - C. 15 dBmV
4. What is meant by 2% accuracy of a meter?
 - A. The error of *any scale reading* is plus or minus 2% of the indicated value.
 - B. The error is plus or minus 2% of the *full-scale* reading.
 - C. The error is two units more or less than the indicated reading.
 - D. None of the above.
5. What modulation frequency is normally used to determine differential gain and phase distortion in a modulator?
 - A. 4.5 MHz
 - B. 15.75 KHz
 - C. 4.18 MHz
 - D. 3.58 MHz
6. What is the primary advantage of a directional coupler combining network over a hybrid network?
 - A. Higher isolation
 - B. Lower insertion loss
 - C. Lower cross-modulation
 - D. Higher S/N ratio
7. What is the primary feature of the mod-demod pair that facilitates its use in a microwave relay link?
 - A. Retains vestigial sideband characteristics.
 - B. Never goes below IF frequency.
 - C. Eliminates differential gain and differential phase.
 - D. The signals are taken to baseband.
8. Maximum gain is always the design objective for antennas used in CATV systems.
 - A. True
 - B. False
9. AGC circuits must respond
 - A. Equally well to both high and low frequency variations of the input signal strength.
 - B. Primarily to high-frequency signal strength changes.
 - C. Primarily to low-frequency signal strength changes.
 - D. Only to low-frequency signal strength changes.
 - E. Only to audio frequencies.
10. If the directional property of an antenna sends less power in some directions than an isotrope with the same input power, would this non-isotropic antenna have directive gain? Would it have power gain?
 - A. Yes; Yes
 - B. Yes; No
 - C. No; Yes
 - D. No; No

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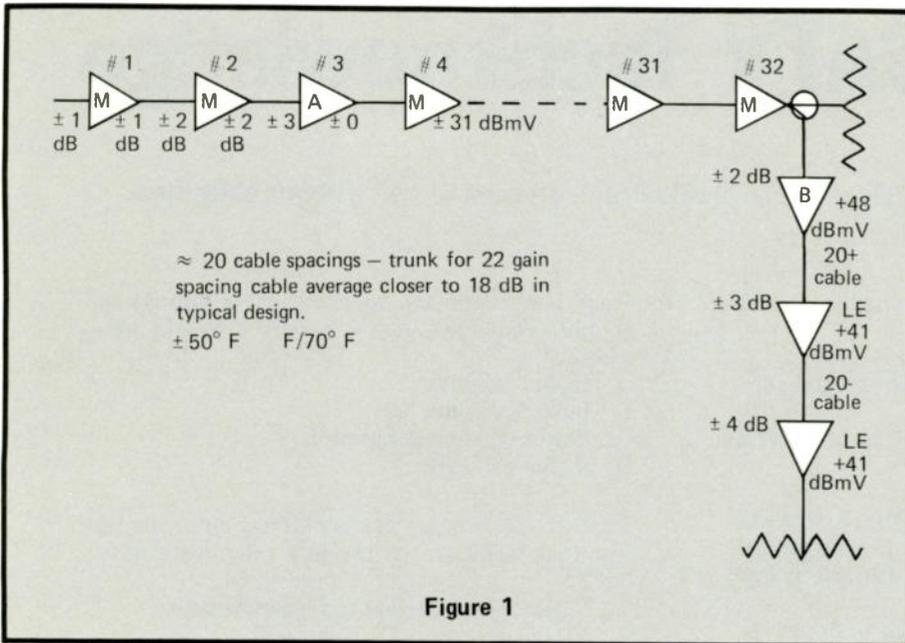


Figure 1

cable from the last control point!

These numbers, of course, all apply to the typical 22 dB spaced trunkline concept. For purposes of demonstration, let's analyze Figure 1 from a temperature standpoint, based on cable changes only, and assuming the conditions below:

1. 70 degrees F. temperature design and balance.
2. All corrective devices perform as designed.
3. Approximate trunk spacing 20 dB (cable).
4. Cable changes versus temperature, for analytical

purposes, at 1% per 10 degrees F.

5. All level changes are worst case for the parameter affected.
6. Cross-mod varies on a 2:1 basis over the variations studied.
7. Amplifier characteristics do not change with AGC or ALC rebiasing (noise figure, cross-mod.).
8. Theoretical voltage and

power addition applies for cascades.

9. Contribution of the distribution portion of the system to the overall system carrier-to-noise is degraded by approximately 1 dB.
10. System noise-figure changes versus temperature can be ignored.
11. Peak-to-valley changes versus temperature can be ignored.
12. Amplifier changes in gain with change in temperature can be ignored.
13. Design limitations are inherent noise and the cross-modulation component of third order distortion.

14. Output capability (12 Ch. Synchronous):

Trunk: +50 dBmV for -57 N_f = 10

Bridger: +50 dBmV for -57

Line Extender: +44 dBmV for -57

15. Operating at:

T: +31 dBmV (-95 XM)

B: +48 dBmV (-61 XM)

LE: +44 dBmV (1) +41 dBmV (2) (-57 XM)

16. A 32 amplifier cascade w/control points at 3, 6, 9, 12... 30.

Table I

AT 70° F.	TRUNK (32)	BRIDGER	LINE EXTENDER (2)	NET
X-mod.	-65	-61	-57	≈ -51.
C/N	43 dB	----	----	≈ 42.
AT 20° F.				
X-mod. (10 E _{out} N.C., 11 E _{out})	1 dB, 11 E _{out}	2 dB (trunk)		
	-63	-57	-50	≈ -45.5
C/N (10 E _{in})	3 dB, 11 E _{in}	2 dB, 11 E _{in}	1 dB (trunk)	
	45	----	----	≈ 44.
AT 120° F.				
X-mod. (10 E _{out} N.C., 11 E _{out})	1 dB, 11 E _{out}	2 dB		
	-67	-65	-64	≈ -55.5
C/N (10 E _{in})	3 dB, 11 E _{in}	2 dB, 11 E _{in}	1 dB	
	41	----	----	≈ 40.

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The performance of this design for this "best case" situation vs. temperature will be as shown in Table I.

A -48 synchronous cross-mod., worst case, and a 43 dB carrier-to-noise (4 MHz), worst case, are "good numbers" and can be competitively sold from a quality standpoint in most of the market areas under consideration.

It is obvious that this system design will not stay within those guidelines . . . even with the exclusion of those factors that will further deteriorate the worst case. This analysis also points out another common design limitation. The system operator is up against the wall on two sides. The trunkline is noise limiting and the distribution is cross-mod. limiting. In subsequent articles we will discuss ways to avoid this and the entire spectrum of specifications and how they should be analyzed from the standpoint of the operator. In the designs cited, *trunkline dictates noise* and *distribution dictates cross-mod.*

The cumulative variations, for whatever reasons, of a long cascade manifest themselves in two distinct ways. With an increase in levels, the *distribution* exposes

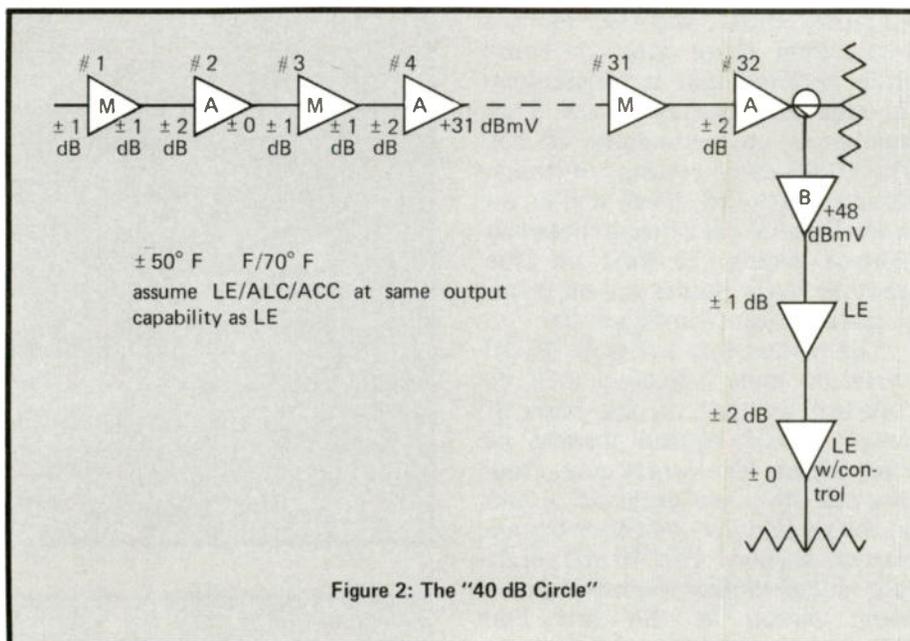


Figure 2: The "40 dB Circle"

cross-mod. and with a reduction in levels, the *trunk* exposes noise. A second situation should be obvious from this design. That is, this system will require daily, weekly, monthly, or seasonal rebalance. The frequency will be determined by the system locale.

If rebalance is not performed, poor quality results. If the rebalance is performed frequently, the attendant costs of doing this will be incurred. If the severity of

the problem is such that an average of one man year per system is required, the resultant dollars become quite large whether you use old math or new math.

The 40 dB Circle Concept of Design

This type of temperature analysis indicates that shorter spacing is dictated between control points. I like to think of these "spacings" as circles. If we have 75 dB circles for the case

Table II.

	TRUNK (32)	BRIDGER	LINE EXTENDER (2)	NET
AT 70° F.				
X-mod.	-65	-61	-57	≈ -51.
C/N	43	----	----	≈ 42.
AT 20° F.				
X-mod. (16 E _{out} N.C., 16 E _{out} 1 dB)	-64	-61	-56	≈ -50.
C/N (16 E _{in} 1 dB, 16 E _{in} 2 dB)	44.5	----	----	≈ 43.5
AT 120° F.				
X-mod. (16 E _{out} N.C., 16 E _{out} 1 dB)	-66	-61	-58	≈ -51.5
C/N (16 E _{in} 1 dB, 16 E _{in} 2 dB)	40.5	----	----	≈ 40.5

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examined above, and they are too great; then there must be some other number that is satisfactory for this temperature range. That number is approximately 40 dB. The 40 dB circle concept of design simply states that there will be no more than 40 dB of cable between control points. It shall be true whether these points fall on trunk or distribution (See Figure 2).

The easiest way to create 40 dB circles on trunk is to place AGC or "control points" on the basis of every *second* station instead of every third. The worst case situation for this configuration would be the second line extender from a manual station. The 40 dB circle rule would dictate a control point being placed at the first line extender from a manual station . . . independent of what follows.

A temperature analysis for this system design would be as shown in Table II.

By comparing the results of the two analyses, one can glean that the movement of the two parameters has been measurably restricted by applying the 40 dB rule. In case one, the subscriber X-Mod. varied roughly 2:1 vs. noise while in case two they exchange approximately 1:1, and over a smaller increment.

Let's experiment with this design with another departure from tradition. Change operational trunk levels up 3 dB and lower distribution levels by 1 dB! The new steady-state number will be as shown in Table III. Also see Figure 3.

What we have achieved here for our hypothetical case is a 3 dB improvement in noise at a cost of 0.5 dB X-Mod . . . at the receiver terminals! This was accomplished by selecting a more optimum center point about which these two parameters move. There is *one* optimum balance for every cascade. However, the approach cited above would satisfy almost all situations.

Realizable advantages after this step are trivial when compared to the effects of some of the factors that have been excused for this analysis. These same factors, however, are present for other designs and other balance levels. The significant difference is that with

Table III.

	TRUNK (32)	BRIDGER	LINE EXTENDER (2)	NET
AT 70° F.				
X-mod.	-59	-63	-59	≈ -50.5
C/N	46	----	----	≈ 45.
AT 20° F.				
X-mod.	-58	-63	-58	≈ -50.0
C/N	47.5	----	----	≈ 46.5
AT 120° F.				
X-mod.	-60	-63	-60	≈ -51.5
C/N	44.5	----	----	≈ 43.5

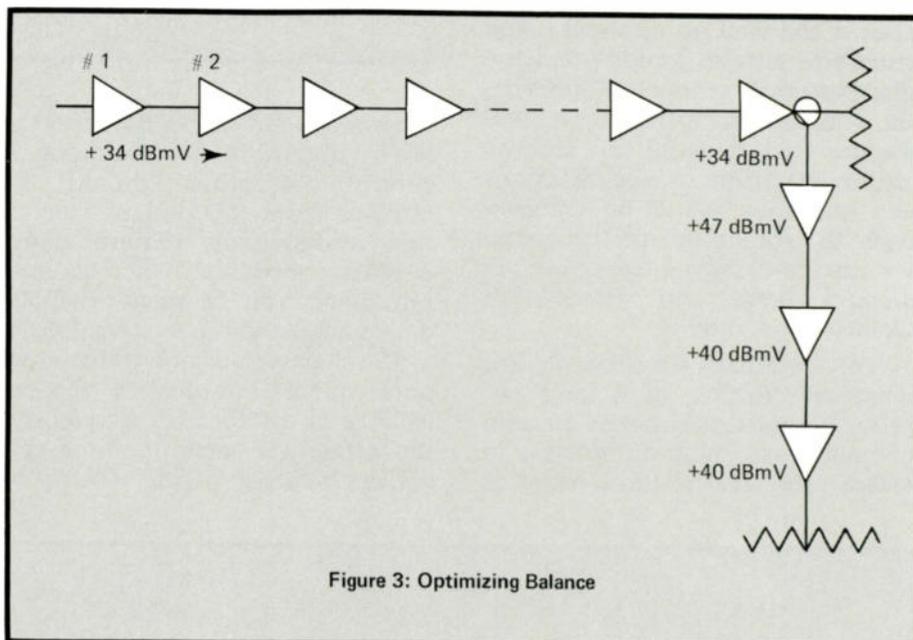


Figure 3: Optimizing Balance

the suggested approach they have much more latitude within which to distribute damaging effects.

Slope and level control amplifiers are not commonly designed into feeder systems. Although several manufacturers catalog equipment for this purpose, generally speaking you will have to specify the "AGC every second and control stations on distribution" in your design request. Stated more simply . . . a 40 dB circle system.

The additional costs per mile of equipment required to do this job properly will be more than offset by the benefits of improved performance and the savings in personnel and equipment for system rebalance. At this point in time, I would not attempt to

define what these "control point" devices will be on the feeder line. However, I should point out that the wisdom of numbers does not preclude the use of trunkline AGC stations as feeder line devices.

A trunkline AGC station, operating with its usually higher output capability, can replace from one to three line extenders for a given system design. This factor, with the lower cost of placement and subsequent maintenance, tempers the initial shock when you first consider using trunkline devices in distribution.

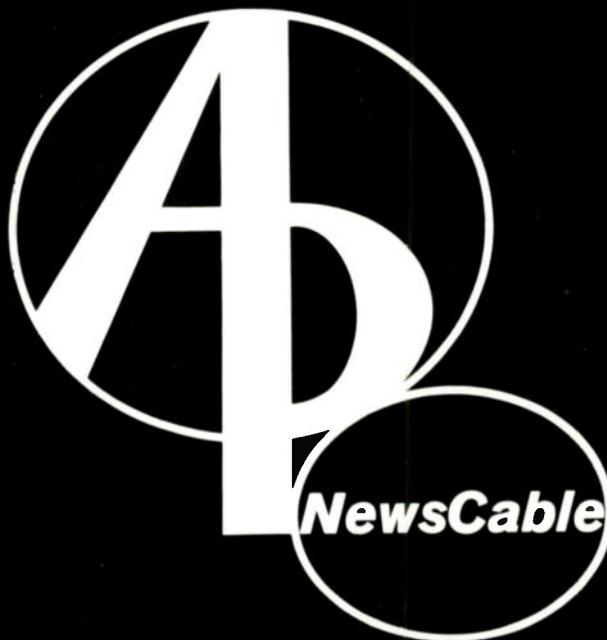
This discussion is not beyond state-of-the-art type reasoning. The technology exists. The hardware exists. It makes good business sense. It only remains for you to state your case.

TVG

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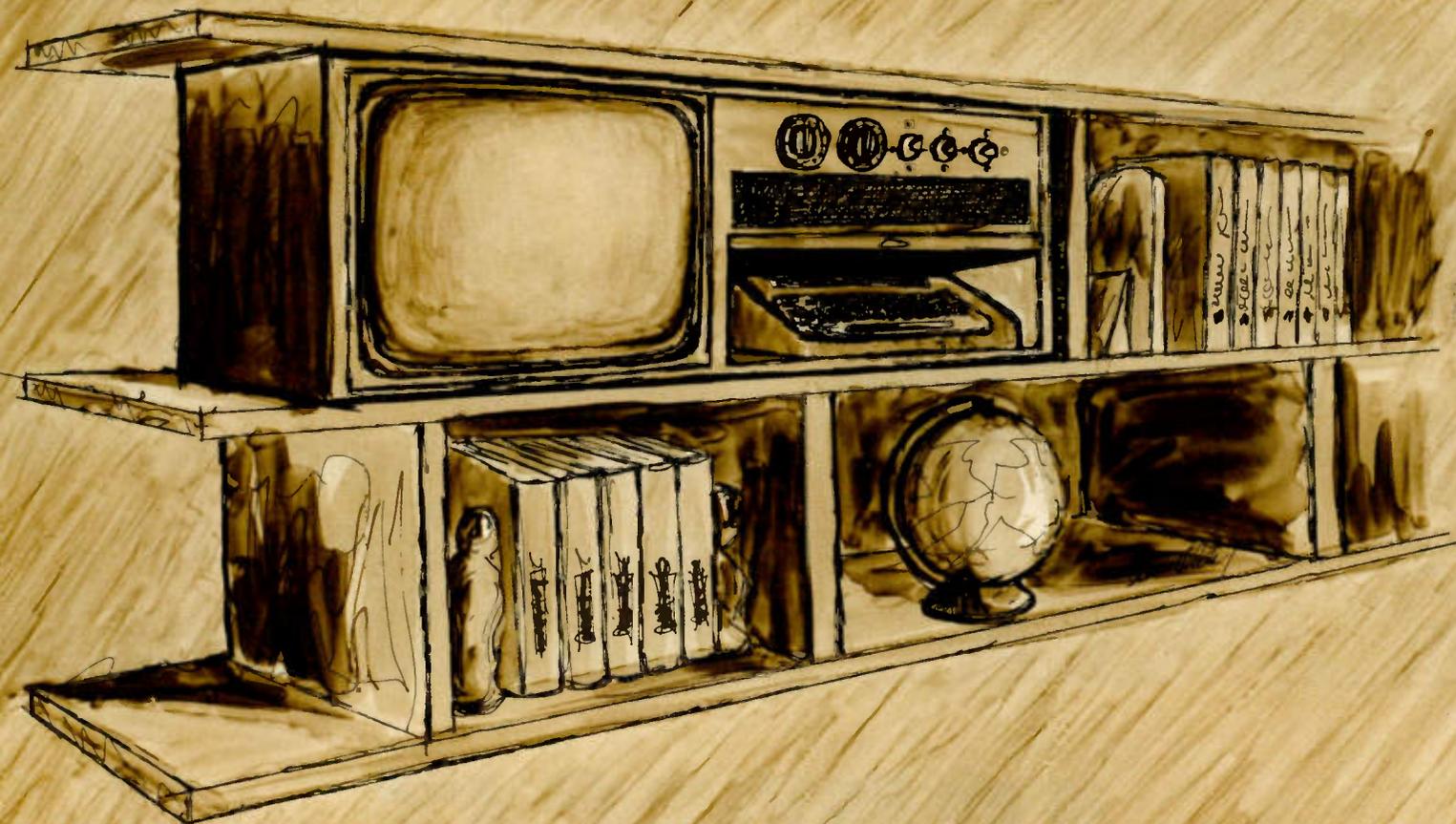
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Would You Like to Build A Home Interactive Terminal?

This is part one of a two-part discussion of some of the problems involved in the design of a truly versatile home terminal system.

Gaining attention and increasing in importance, the topic of home interactive terminals holds implications for the future. If a device could be built that would link the home with the computer, and if it could be bought cheaply (around \$500-750), it likely would have impact on education, economic processes, social activity, engineering developments, business and commerce. Above is an artist's concept of such a home terminal, complete

with color receiver.

A man in his home could have at his fingertips a communications device that could perform a variety of sophisticated tasks or services at his command. For example potential applications include:

- home management services
- home programmed education
- newspaper-type services
- home computer and calculator services
- library-type services

- entertainment (games, puzzles, stories, etc.)
- management and business functions
- advising and counseling
- company communications
- general communications
- special services for exceptional persons (e.g. handicapped persons)

Some specific functions could include stock market quotations, buy and sell orders, and auxiliary mail or messenger services.

Consider education. If home terminals become widespread, education in the home ultimately could account for most of a person's formal education. An individual would have computer guidance to map out his studies with a freedom of choice seldom available today to anyone. The terminal would become a tutor or a teacher which would be able to give individual attention to the student. Schools might evolve into educational computer centers with large libraries of audiovisual data.

Educational personnel would have more time and means to concentrate on pressing special problems such as education for the poor or for exceptional persons. Because this mode of home education would be more powerful and efficient and effective than today's modes, the taxpayer might pay less for more education than today. Contrast this with contemporary, inefficient mass education that taxpayers are becoming more reluctant to support.

If the terminal could have such profoundly revolutionary effect in education, consider the other fields. One might vote in a Presidential election through his terminal, for example. The terminal could also become an antidote for the April blues: it could calculate income taxes.

The Home Terminal And Its Components

Figure 1 shows the components of a home terminal. They are (a) a color television receiver; (b) a decoder-gate; (c) a television frame storage device, all of which are on the receiving end of the terminal. The transmitting end of the terminal includes (e) a keyboard (possibly touchtone expanded to full alphanumeric capability); (f) a buffer storage device; and (g) a transmitter. A hard copy (permanent) device (d), perhaps initially just a Polaroid camera, may be desirable.

How will the user get the still television picture that is meant only for him? The pictures from a computer center will be sent out to all terminals on a cable network. In the vertical interval of

the television field will be coded the address or identification code bits of the desired terminal. The decoder reads the address of the still television picture. If not for this particular terminal, the decoder will keep the gate shut to the cable signals.

If the address is correct, however, the decoder will open the gate and enable the cable television signals to go into the frame storage. The customer has the options of viewing immediately or later and of "playing back" the picture at his convenience, or have the field automatically erased on the receipt of another television field. Of course, the gate will automatically close as soon as the field is all in the storage.

The keyboard may have some additional special features along with its alphanumeric capabilities: a key which opens the gate for standard television viewing; a key for "playback;" and a key which signals the end of transmission of the keyboard message onto the outgoing line. The transmission, however, may go into a buffer storage first. Whether or not buffer storage is needed and, if needed, what capacities are sufficient, are questions that this article will touch on later.

Figure 3 is an overall picture of the terminal-computer-audiovisual information center system. (A) is the home terminal.

The still television pictures from the computer center will be carried by a CATV (or equivalent) network (B). The CATV network could ultimately span the nation since microwave links could be established between cities. The customer's keyboard signals may be relayed either by a CATV cable, modified for two-way capabilities, or by rented telephone lines. The problem of selecting one of the alternatives will be examined later.

The computer processing center (C) may consist of two parts: the computer itself, or rather a group of computers; and the "CATV station" that, under computer supervision and direction, convert the computer-coded bits to TV signals, or alternatively, take the appropriate audiovisual data from analog data banks, convert these into TV signals if necessary, generate the appropriate address or identification code of the customer and finally transmit the signals to the customer's terminal on the network.

Considerations For The Computer Systems

There are some considerations to keep in mind when designing the computer systems for the network that can handle thousands of terminals in, say, a large city.

ABOUT THE AUTHORS

Dr. William Lewis Hughes and Samuel Odell Campbell presented this paper at the I.E.E.E. Broadcast Symposium in Washington, D.C. this past September. Dr. Hughes (pictured here) is a professor and head of the School of Electrical Engineering, Oklahoma State University. He received his B.S. from South Dakota School of Mines & Technology in 1949. Both his M.S. (1950) and his Ph.D. (1952) in Electrical Engineering were earned at Iowa State University. Dr. Hughes was made a Fellow of the Institute of Electrical and Electronic Engineers in 1962. He is a Registered Professional Engineer and is a member of the Society of Motion Picture and Television Engineers. Dr. Hughes has served as a consultant to a number of industries including work for Zenith Radio Co. on subscription television.



Samuel Campbell, a graduate assistant at Oklahoma State University, assisted Dr. Hughes in the preparation of this paper. He holds a B.S. in Electrical Engineering and is a candidate for an M.S. from the College of Engineering at Oklahoma State University.

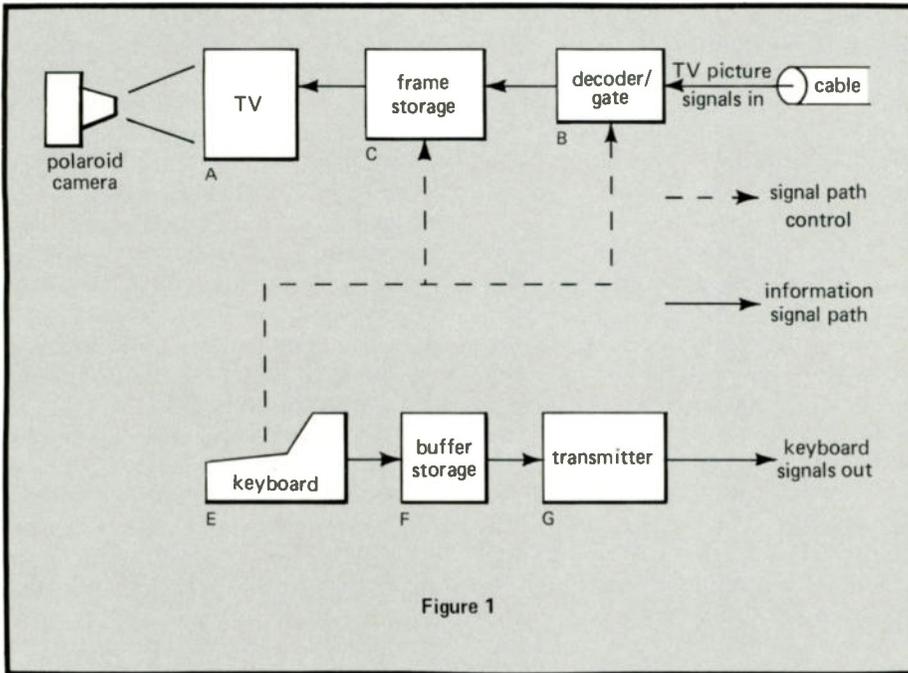


Figure 1

The customer must be billed for the computer services and the services of the message carrying lines. There are many schemes, of course, which complicates the decisions to be made. One way would be to have a computer keep track of the customer's usage (the time consumed), which computer services were required, etc., and handle the billing. Or have the customer rent some computer data bank by the period (week or month). Or the services could be prearranged and limits set on

frequency and duration of use, with the customer paying some flat fee or rent. Note that the amount of computer time required varies with every scheme. Since computer time is money, this points to the necessity for careful thinking on this problem.

Considering the state-of-art in speech analysis and synthesis, we should ignore the possibility of audio data handling for the present in designing the system. The exception, of course, is the use of "canned" sound and sound

tracks on films, should some service more than "still pictures" be considered.

The limiting rate at which the system can be used, rather than being the field time (1/60 of a second) in television, might well be the rate at which the analog data banks can serve up randomly addressed pictures for transmission.

It is much more expensive to provide moving pictures than it is to send still pictures to each individual customer. Motion could be provided, but at the cost of individuality to a given subscriber; that is, a group of subscribers could receive a movie, but all would need to watch it at the same time. This also is an inefficient use of a channel that could serve perhaps thousands of customers individually on a programmed still frame basis.

Customer wait time is the interval between TV frames (pictures), or between the time the customer keys in his request and the time that the computer responds on the TV screen. It would seem that there is a limit on the wait time beyond which the user would get impatient. We have no idea about a reasonable value for this limit, since we don't know of any studies on this question. May we suggest 30 seconds... this seems to be a "reasonable" value. Certainly it should be less

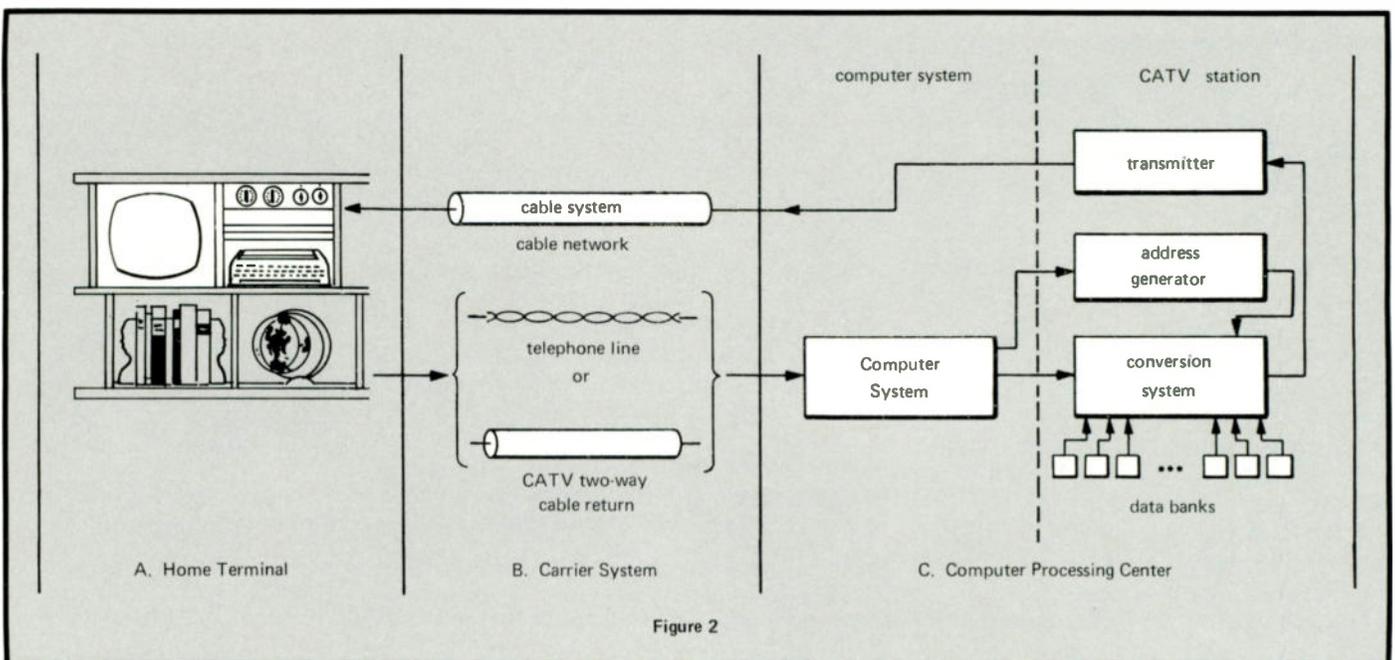


Figure 2

than one minute at the most. If we want to give the customer the feeling that he has the computer's undivided attention, we might want to consider a shorter time interval. However, obviously economic and engineering problems become more difficult as we decrease the wait time interval.

If current television and cable noise characteristics are any guide, analog pictures will probably have to be repeated 2 to 3 times to enable integration by the human eye to filter out the noise. This would not be so in the case of pure alphanumeric, since signal limiting techniques could be applied here. However, anyone experienced in "still framing" ordinary television pictures knows that one frame is inadequate for ordinary analog pictures.

If each customer is to get "custom tailored" service, the system must have his address or identification code for proper operation and correct information flow. We could have the transmitter in the terminal generate the address of the terminal as a part of

the keyboard signals when the "end-of-transmission" key is pressed. The computer center can store the address as it responds to the customer request and give it to the "CATV station" for proper labeling on the appropriate group of TV pictures. There may be other schemes, of course.

From earlier studies, a maximum load of about 900 customers per thirty seconds, on one single video channel, is theoretically possible if we assume one TV frame per transmission. That would be 9,000 customers per thirty seconds if we have ten video channels. How do we optimally program the computer to handle this many? Further, a sizable fraction of the customers will be tapping out their messages and commands back to the computer system. How can the computer system handle these inputs in a small period of time? This obviously depends on the "return line" scheme finally used.

There are many other aspects of planning the system . . . size of the

network, size and capabilities of the data banks, use of a large number of computers versus a large computer, keeping the access times realistic, transmission system bandwidths, and software problems such as computer control of data banks and of television conversion of the analog data. Some of these, of course, depend on the planned functions and purposes for the network that one may want to set up. TVC

NEXT MONTH

The conclusion of this article will appear next month, in the February issue of *TV Communications*. The authors discuss the design requirements for a CATV system using the home interactive terminals described in this month's installment. A detailed evaluation of the use of telephone lines and switching equipment versus CATV coaxial cable for return lines, will be included.

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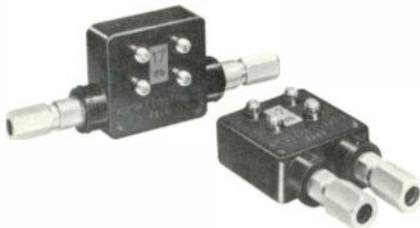
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PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

CRAFTSMAN DIRECTIONAL UNDERGROUND TAPS

Craftsman Electronic Products, Inc., 133 West Seneca St., Manlius, N.Y. 13104, recently introduced a completely new underground directional tap, Model 2600. Featuring 5-300 MHz response in the Flat Hybrid version, there is also a narrower bandwidth stripline version which incorporates the Craftsman tilted tap response. Both versions are available with field changeable major port connectors in either the bottom entry or side entry configuration.



All connector ports have the Craftsman Sleeve to accept connector sealants such as heat shrinkable tubing or tape. The 2600 incorporates a corrosion-proof poly carbonate outer case that encloses the die cast aluminum inner case which is internally potted with low density foam.

M. A INTRODUCES A \$5,400 MICROWAVE RELAY SYSTEM

Microwave Associates, Communication Equipment Division, Burlington, Mass., has introduced the MA-12C, a new \$5,400 microwave TV relay system. The MA-12C is currently available for fixed broadcast TV relay in the 12.7 to 13.2 GHz frequency band as well as portable for remote TV broadcast and CATV live program origination in the CARS band.

The MA-12C is a one-way simplex system consisting of both the transmit and receive terminals, antennas for each terminal and integral antenna mounts. A two-way duplex system is also available. The MA-12C has been designed to provide reliable, low-cost microwave communications, without sacrificing quality.

NEW MODULATOR OFFERED BY JERROLD

Jerrold Electronics Corporation, 401 Walnut Street, Philadelphia, Pa., has introduced an all-purpose audio-video modulator, priced under \$500. The



unit, designated Uni-Mod, is designed for school systems and similar applications where cost is a major factor, yet performance and quality cannot be compromised.

Uni-Mod accepts audio and video inputs and modulates them on RF carriers which are combined and filtered to provide an RF signal output conforming to standard TV-channel format. Uni-Mods are available with outputs on TV channels 2 through 13.

The modulator features monochrome or color operation; adjacent channel operation made possible by a helical resonator bandpass filter; a crystal-controlled visual carrier, and a 4.5 MHz AFC aural offset.

RCA ANNOUNCES FIVE NEW MULTIMETERS

A new line of five general purpose Volt-Ohm-Milliammeters (VOM's) are

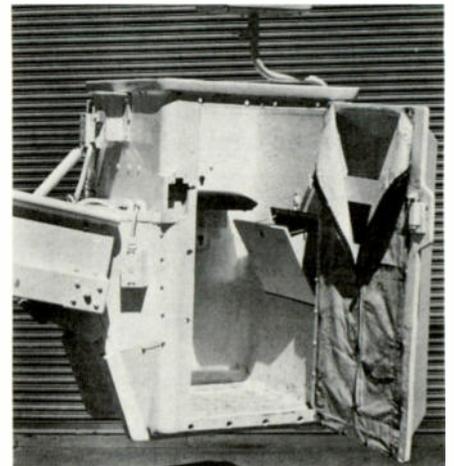


now available from RCA Electronic Components, 415 South Fifth Street, Harrison, N.J. 07029.

All of the meters in the new line feature meter movements that have protection diodes to prevent damage from accidental overload, and precision range resistors (plus or minus 1%) to insure accuracy. The five new RCA VOM's are the WV-516A, WV-517A, WV-518A, WV-519A and WV-502A. Prices range from \$9.95 to \$48.

BASKET DESIGNED FOR USE OF AIR-OPERATED TOOLS

Utility Body Company, 901 Gilman Street, Berkeley, California 94710, now has a new cable splicer basket. The splicer basket is designed for high speed construction splicing requirements, using automatic air operated splicing tools. The fiberglass basket comes standard with an "easy-access" door, fold-down seat and tilt-out storage compartment for air operated chipping hammer and impact wrench. A translucent lightweight tent, which makes



into a basket cover, can be supplied as an option. Also available are electrical, air and hydraulic outlets inside the basket. A thermostatically controlled heater can be mounted in the basket for added comfort. This splicer basket can be installed on the Utility Body Company's "LH" Ladders or "PB" Booms to provide the operator with a working height of 28 to 44 feet.

TRIGGERED SWEEP OSCILLOSCOPE FROM B&K

The Model 1460 Triggered Sweep Oscilloscope is the latest professional test unit offered by B&K (Dynascan Corporation), 1801 W. Belle Plaine Avenue, Chicago, Ill. 60613. The 1460 comes under the B&K-Precision brand name and is claimed to be one of the most versatile, most compact, easy-to-use scopes.

The 1460 features a fully automatic

triggered sweep that permits viewing the entire complex TV color signal or any portion thereof, including the Vertical Interval Test Signal (VITS) and the "back porch" of the horizontal sync pulse, with the color burst information, all automatically synchronized and "locked in." Two sweep selector positions, TVH and TVV, enable the user to switch back and forth and see rock-steady patterns of horizontal and vertical signals, without any adjustments being made.



Patterns on the flat-face, high-sensitivity 5" screen are exceptionally bright. There's no "dot blooming" with the 1460; 1650 volts on the accelerating anode insure sharp patterns at fast writing speeds of up to 0.1 micro-second/cm (with x5 magnification). The only tube in the 1460 is the CRT, all

else is solid-state. It is priced at \$389.95.

3M INTRODUCES VM TAPE FOR INSULATING, SEALING

Scotch VM tape, a new insulating and moisture sealing material for sheath repair, corrosion protection and general taping applications, has been announced by the Electro-Products division of 3M Company, 220-6W, St. Paul, Minnesota 55101.

According to 3M, the lightweight, rodent-proof product is actually more than a tape in that it can serve as a closure, end seal, and as a method for sheath repair and corrosion protection. It is also two tapes in one — a new rubber-based compound laminated to an all-weather PVC backing. The product is available in five roll sizes to provide the



versatility needed to handle all applications on aerial, buried and underground cable.

The company said the new tape gives the CATV industry a one-step method for sheath repair, end sealing and corrosion protection without requiring tools for application. Since the product will perform many of the same jobs as conventional materials, it helps reduce warehouse inventory of other items.

Major applications of VM tape are temporary and permanent sheath repair on non-pressurized lead and plastic cables, corrosion protection of splice cases and load coil cases, insulating drop wire and buried service wire splices, general taping such as end sealing splice cases, auxiliary sleeves and cable ends, and insulating CATV equipment including splitters, amplifiers, connectors and cable.

VM tape is supplied in 25-mil thick, 20-foot rolls in 3/4-inch and 1 1/2-inch widths, and in 45-mil thick, 10-foot rolls in 4-, 6- and 22-inch widths.

12 GHz ANTENNA FROM PRODELIN

The newest addition to Prodelin's "MASAR" line of fiberglass reinforced parabolic antennas is a 2 ft. diameter high-performance type for use in the 12.2-12.7 GHz communications band

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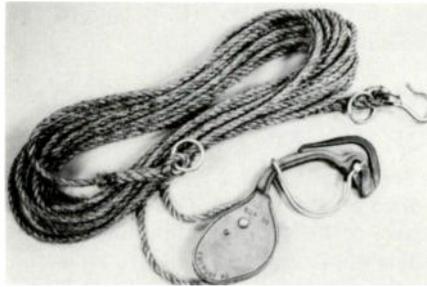
PLASMATECH CO.
9812 Klingerman Street
South El Monte, Calif. 91733
(213) 442-3450

and the 12.7 to 12.9 GHz CATV microwave service. Prodelin is located at Hightstown, N.H. 08520.

The new unit includes a planar radome for environmental protection and rapid ice shedding. The feed is dual polarized and is available with waveguide flange or miniature coax inputs. Both plane and dual polarized feeds are available from 5.9 to 15.2 GHz.

GMP's B HANDLINE FACILITATES AERIAL WORK

An aerial handline assembly designed specifically for raising and lowering



tools and material in aerial cable work is now available from General Machine Products Co., Inc., Old Lincoln Highway at Pa. turnpike, Trevoese, Pa. 19047. GMP's B Aerial Handline comprises

60 ft. of 3/8" dia. manila rope, a one-sheave, self-locking block with hook for supporting the handline from the suspension strand, a ring spliced in one end of the rope, another ring and open hook in the other end.

NON-DUPLICATION SWITCHER FROM RICH LABORATORIES

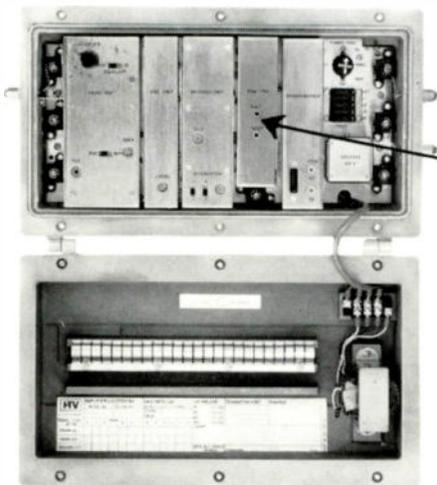
Rich Laboratories, Inc., 138 Fern St., Santa Cruz, Calif. 95060, manufacturer of standby power equipment, has announced production of a new remote switching relay unit. Designed to operate with a programmer, it is specified to perform non-duplication or other switching functions at a remote location, using selective tone oscillators and receivers. A service telephone line can be used, or transmission can be performed by carrier modulation over a program cable. Basic equipment



comprises a three tone oscillator unit and a three relay receiver unit, both mounted on 19" relay rack panels. Additional switch units can be added on the same line to extend the number of switching functions.

LOCAL ORIGINATION?

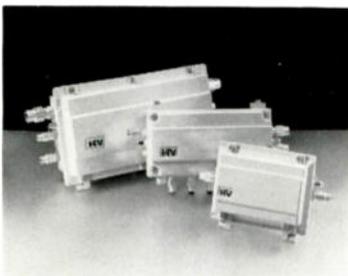
USE THE HTV L-20-L AMPLIFIER to transport local origination signals to the head end on the same cable that is carrying CATV programs. Can also be used for CCTV, for schools, banks, surveillance systems and other broadband communications.



Sub VHF amplifier or Jumper Module. (Separation filters under base plate.)

THE HTV L-20-L

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Filters and separate amplifier for the 6-30 MHz spectrum are housed in the same case as the CATV Trunk Amplifier. Proved in service... available for immediate delivery.

HTV offers a complete line of Trunkline, Bridging, Distribution and Line Extender Amplifiers, of advanced design and highest quality, at competitive prices.

JFD ORIGINATION CONSOLE DESIGNED AS INTEGRAL UNIT

A complete, professional studio console for TV local origination has been developed by JFD Electronics Corp., Systems Division, 15th Avenue at 62nd Street, Brooklyn, N.Y. It is designed for production of broadcast quality TV programs in the studio or on location.

The Model 807 JFD Studio Control Console performs the functions of the following conventional equipment: three 9" video monitors; one TV antenna input; two RF tuners, capable of providing audio/video outputs from VHF channels 2 through 13; three video buffer amplifiers; one sync generator; two sync distribution amplifiers; one



For complete information call or write ...



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*Now that CATV is
finally coming of age,
who do you think
was there helping
it along all the time?*

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Corp.*

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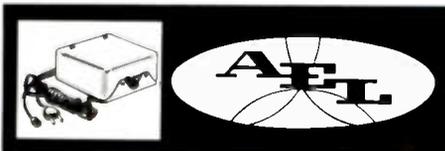
Because, at AEL, we realized long ago that CATV was something special. That it wasn't going to be a passing fancy. And now that CATV is finally coming of age, AEL is proud! We've helped it come a long way.

Since the beginning, AEL has produced, through research and development in the laboratory and the field, advanced electronic designs for today's CATV systems. Advanced designs such as the new AEL SUPER-BAND® *Tunerless* CONVERTER that expands any SUPER-BAND CATV system to 19 channels quickly and easily.

It's been developments such as this that has enabled CATV to come as far as it has.



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power regulator; one waveform generator; one special effects generator; a 2-way camera intercom; one 4-input audio mixer; one 10 position switcher-fader; one video mixing amplifier; one audio power amplifier, with monitor speaker; three Audio/Video Switchers; and a video tape recorder stand, with tape storage compartments.

For ease of maintenance, virtually all circuitry is on convenient, plug-in PC boards. Thus, trouble shooting is reduced to changing PC boards. The 807 can handle simultaneous inputs from two viewfinder cameras, two video tape recorders, a film chain; three microphones and a TV antenna. It provides three dual line video and audio outputs; two outputs to video tape recorders; and a sync output for synchronizing studio cameras. It is priced at \$3,500.

DYNASCIENCES EXPANDS TV STUDIO EQUIPMENT LINE

The Scientific Systems Division of Dynasciences Corporation, Blue Bell, Pa. 19422, has announced an expansion of its line of TV studio equipment.

Three new image enhancers are now available as well as the already widely used Model 468 vertical aperture equalizer (two line) and Model 234 vertical aperture equalizer (single line).



The scanning beam in a pickup tube has a finite size which tends to overlap adjacent picture elements. This results in the waveform having rounded rather than square corners. The Dynasciences enhancers are designed to correct for this, and thereby improve picture quality. All five enhancers are available in NTSC (525 lines) standards or PAL (625 lines) standards.

The new items are the Model 832 Image Enhancer, the Model 852 Contours From Green (pictured here), and the Model 444 Video Enhancer. Also introduced are the Model 54 Pulse Distribution Amplifier and the Model 72 Video Distribution Amplifier.

ANGENIEUX ANNOUNCES MOTORIZED ZOOM LENSES

Angenieux Corporation of America, 440 Merrick Road, Oceanside, N.Y. 11572, now has available two completely motorized zoom lenses for vidicon cameras which can be remotely controlled up to a distance of 1,000 feet. The 4x20BT, 20-80mm, f/2.5, and

the 10x15BT, 15-150mm, f/2.8., both motorized for all three functions (zoom, focus and iris), are available to fit all vidicon cameras with standard "C" mounts.

Added flexibility is provided for both lenses by the application of range extenders and a Retro-Zoom attachment. By the use of range extenders, the 4x20BT can be converted from 20-80mm to either 30-120mm (with a 1.5X range extender) or 40-160mm (with a 2X range extender).



The remote-controlled unit allows operation of the zoom lens under certain circumstances where it is not possible or desirable to have an operator near the camera. The zoom control unit has a speed range of 4 to 40 seconds. A special clutch arrangement provides an immediate stop of focus, zoom and iris motors without slowing down. 

ADVANCE ORDER BONUS

The Biggest CATV Equipment Directory Ever Published! Catalog Listings of Every Type of Equipment, Material and Service.

This new Equipment Directory, being prepared right now, will be the most comprehensive book of its type ever compiled in the cable television industry. It features catalog listings of virtually every piece of equipment, material and service currently marketed to cablemen. This Directory has been the authoritative source book in CATV for over seven years . . . order your copy of the 1971 edition now, and receive your . . .

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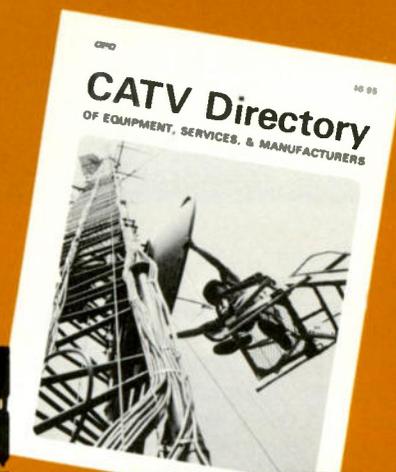
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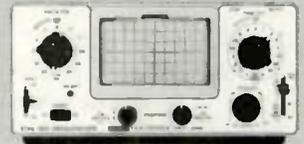
A NEW SPECTRUM ANALYZER SYSTEM

The New Tektronix 1401/323 Spectrum Analyzer System is for people who like to travel light.



The 3½ x 8½ x 13-inch 1401 Spectrum Analyzer Module weighs only eight pounds including an internal rechargeable battery pack.

Add a 323 Sony/Tektronix Oscilloscope for a display indicator: Total weight of both? Less than fifteen pounds!



For fifteen pounds, here's some of what you have: A portable, 1-to-500 MHz analyzer with 60-dB dynamic range and up to 500-MHz frequency span—plus a complete DC-to-4 MHz, 10 mV/div, DC powered (AC, too) oscilloscope.

AND FOR PRESENT SCOPE OWNERS: The 1401 Spectrum Analyzer Module is compatible with any oscilloscope with full-screen deflection of 5-volts horizontal (adjustable $\pm 10\%$) and 1.2-volts vertical.

WEIGHS ONLY 15 LBS.



When you make local service calls or field trips, climb towers, are in and out of airplanes and ships, and use spectrum analyzers and oscilloscopes, take along the New 1401 and the 323. With this pair of light-weight performers you'll travel easier and solve more field problems with much less effort.



For additional information contact your local Tektronix Field Engineer or see the 1970 Tektronix catalog supplement.

1401/323P7 Spectrum Analyzer System \$2860
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Contact Marketing Services Manager Phil Cook. Phil will assist you with full information on reprint and direct mail programs designed to supplement your total marketing effort.

Literature For CATV

Ampex Corporation has produced four pieces of literature of particular interest to the CATV industry. T529 is a listing of all reel-to-reel, helical scan VTRs. The chart lists manufacturers, recorder model numbers, recorder standards and type of Ampex video tape designed for each recorder. Brochure V69-30 details 52 VTR applications. V69-24 describes the features of the Ampex VR-5100E one-inch VTR, and bulletin A390 is a specification sheet for the model ABR-10/ABR-15 series VTRs. For copies, write to Ampex at 2201 Estes Avenue, Elk Grove Village, Illinois 60007.

Phelps Dodge Communications has published a new 68-page catalog completely covering the company's full line of antenna systems. For free copies, write: catalog 670, Phelps Dodge Communications Company, Route 79, Marlboro, New Jersey 07746.

American Pamcor, Inc. has a new series of product information bulletins that explains their entire CATV product line. Each bulletin lists features, applications plus physical and electrical specifications. For free copies, write to American Pamcor, Inc., Valley Forge, Pa. 19481.

Cohu Electronics, Inc. has produced a new technical application bulletin describing a combination closed-circuit and broadcast television system at a Baptist church in Greenville, Mississippi. The bulletin (8-99) is four pages and contains nine photographs and a block diagram of the system from church to station WABG-TV, Greenville. For a copy, write Cohu at Box 623, San Diego, California 92112.

International Video Corporation has published a chart which compares one-inch VTRs. Sixteen models ranging from low cost to top-of-the-line are compared on 24 points. The one-page chart is available by writing IVC at 675 Almanor Avenue, Sunnyvale, California 94086.

A new "Relamping Guide" (SS-3) to help users of stage and studio lighting equipment determine the proper General Electric light sources for their fixtures has been issued by GE's Large Lamp Department. Write to the Inquiry Bureau, General Electric Company, Nela Park, Cleveland, Ohio 44112.

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THE CATV

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- Future prospects of the Industry
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It is excellent in explaining the concepts of CATV to:

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- The clerical or non-technical employee
- The City Official, banker, or other professional person
- The manager of a multiple-subscriber installation, hospital, apartment house, hotel or rest home

This new book entitled "Introduction to CATV" is available for a limited time only at \$9.95 per copy. Marked down from its original price of \$14.95 to \$9.95 as an introductory offer, this book is designed to give a complete picture of the total CATV industry to the non-technical person. Write today for your copy and send your check or money order to:

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Used quad tape (3M 370) with plastic shipping cases. Tapes average 20 passes. No splices. Prices: 15.00 for 1200 ft. tape, 25.00 for 2400 ft. and 50.00 for 4800 ft. plus shipping.

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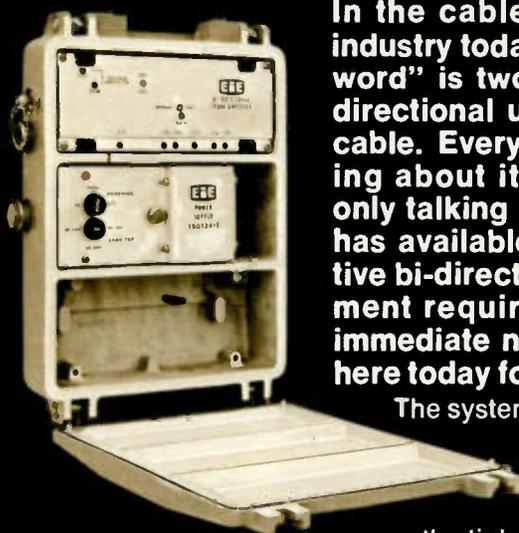


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BI-DIRECTIONAL MONITORING

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we're ready **now** to go **two ways** with your future!



In the cable television industry today, the "buzz word" is two-way or bi-directional usage of the cable. Everyone is talking about it; EIE is not only talking about it, but has available all the active bi-directional equipment required for your immediate needs. EIE is here today for tomorrow.

The system operator can efficiently and effectively accomplish the link for broadband

communications by integrating a bi-directional capability into his system now.

EIE is now ready with a complete line of distribution equipment that will extend your system into a two-way operation right now, and prepare you for new worlds of profitable service.

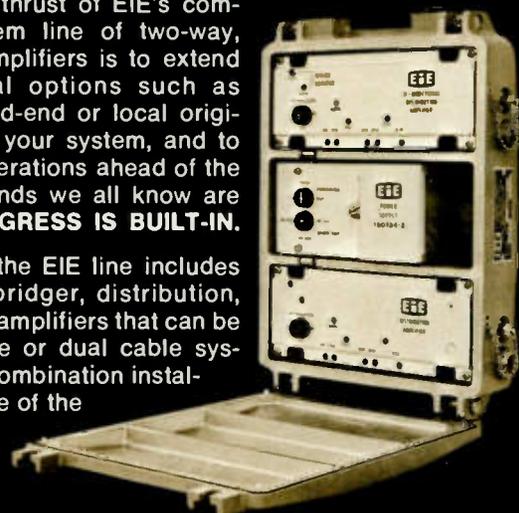
WE GET INTO YOUR SYSTEM

It's all put together...complete system capability that is compatible for new construction or readily inter-faced with your existing cable system. Everything from the head-end to subscriber's set, including a rugged line of trunk, trunk-bridger, distribution amplifiers and a new shielded, coaxial A/B switch.

EIE TWO-WAY AMPLIFIERS MULTIPLY CAPABILITIES OF CATV SYSTEMS

Total design thrust of EIE's complete in-system line of two-way, solid state amplifiers is to extend bi-directional options such as studio to head-end or local origination within your system, and to pace your operations ahead of the growth demands we all know are coming. **PROGRESS IS BUILT-IN.**

All modular, the EIE line includes trunk, trunk-bridger, distribution, and multi-set amplifiers that can be used in single or dual cable systems or in a combination installation with use of the 24 channel in-system converter.



COST IS LOW

Powering cost for EIE's dual cable amplifiers is the lowest of any other equipment used in a dual cable plant. And, think of it, you also have bi-directional capabilities.

MECHANICAL DESIGN

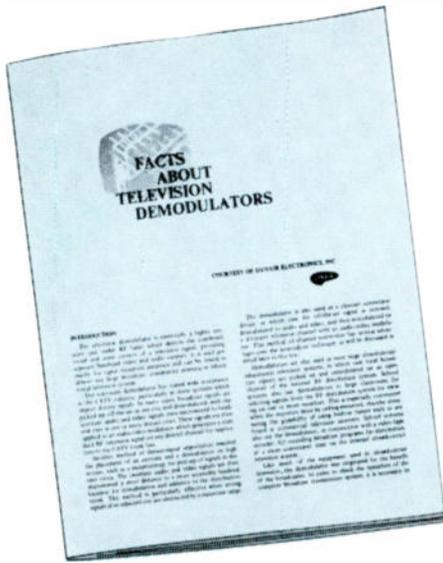
All models are designed for today's changing technology and contained in a heavy-duty RFI shielded housing. Completely weather-proof, they meet all environmental conditions in either underground or overhead installations.



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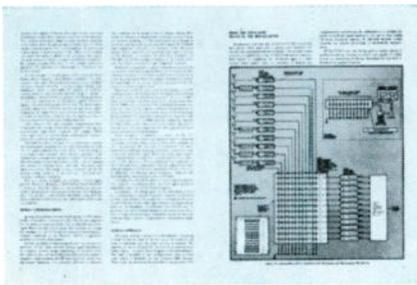




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this free paper.

You learn a lot while spending five years and several hundred thousand dollars in a research and development program. And, when you tell your story, wise people listen.

DYNAIR has included a wealth of original information about demodulators in an 8-page paper called "Facts About Television Demodulators." We think that you will find it very informative, particularly if you are planning a system which involves the pickup of off-the-air signals.



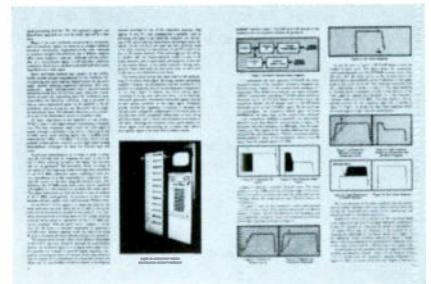
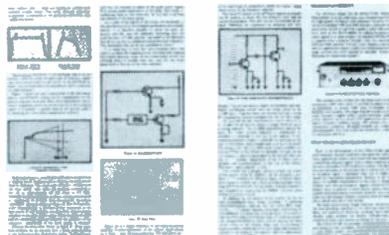
At first thought, it would appear to be a relatively basic design task to engineer a demodulator. Logically, it is often related to the tuner, IF and detector portions of a standard television receiver. However, it is one thing to design a demodulator which is acceptable for driving an ordinary viewing monitor and entirely another thing to design a demodulator which will be acceptable for testing purposes or for the regeneration of broadcast quality television signals. The demodulator portion of even the most sophisticated commercial television receiver

would prove highly inadequate for applications such as those mentioned earlier in terms of sensitivity, stability and the amount of distortion introduced in the process of demodulation.

Until recently, the only available demodulators were of vacuum-tube vintage. These were designed years ago for monochrome applications; however, the complex NTSC color signal and its critical phase relationships require a much more sophisticated approach.

DYNAIR has been involved in a continuous research and development program on the color demodulator problem. After experimenting at great length with virtually every known approach to demodulation, a design was arrived at which contains many new and unique circuits, particularly in the areas of trapping, the control of envelope delay and other distortions and signal restoration. The design is now a product and, at this writing, a large quantity of the units are in the field, performing to industry standards.

The paper we are offering describes many of the problems we encountered



in designing the first quality solid-state color demodulator. The product is also briefly described, along with the many problems it will solve for the cable systems and broadcast engineer.

Shouldn't you add it to your information file?

It's yours for the asking.



DYNAIR ELECTRONICS, INC.

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