



JUNE, 1966

# TV & Communications

The Professional Journal of the Cable Television Industry



*In This Issue—*

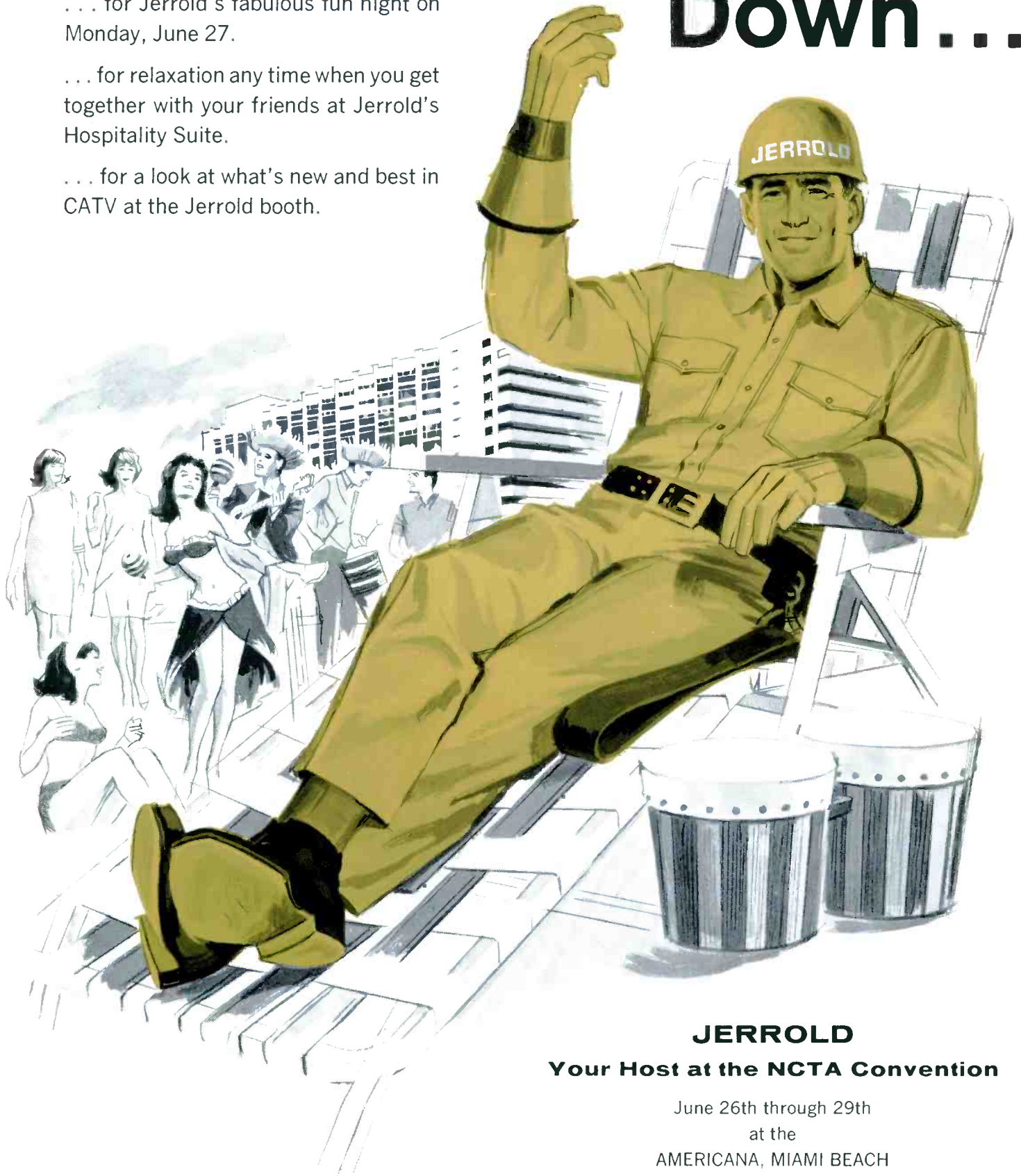
**REVIEW OF NEW REGULATIONS  
NORTHWEST CATV HISTORY  
THE PUBLIC UTILITY THREAT**

# Come on Down...

... for Jerrold's fabulous fun night on Monday, June 27.

... for relaxation any time when you get together with your friends at Jerrold's Hospitality Suite.

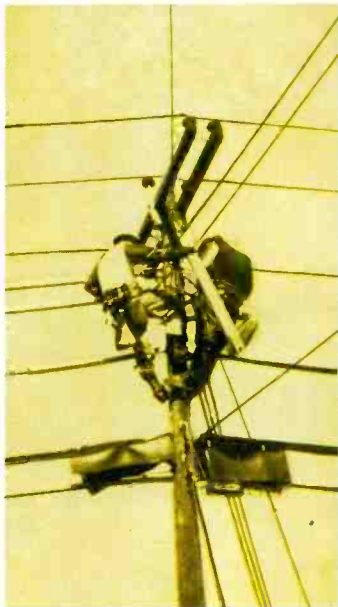
... for a look at what's new and best in CATV at the Jerrold booth.



**JERROLD**

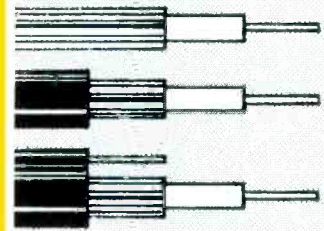
**Your Host at the NCTA Convention**

June 26th through 29th  
at the  
AMERICANA, MIAMI BEACH



AT  
**viking**  
 WE DO  
 MORE  
 THAN WE  
 HAVE  
 TO

WE  
 HAVE  
 TO!



Viking was always known as "that other company". The old Viking products weren't much to look at, but they worked. We continued engineering, testing and trying, and soon things began to happen.

Viking produced solid seamless, aluminum coaxial cable second to none! Every inch quality controlled with the lowest attenuation factor in the business. And, we make it in half mile lengths!

Last year we introduced the Solid State, Goldline Series of high level, modular, inline amplifiers. Now in full production, they are outperforming every other amplifier in the field.

Systems Construction Company, our turnkey division, is engineering new systems throughout the country.

Other Viking electronic equipment and accessory products are also better. New innovations, engineered

and designed for the technician are setting new standards in the industry.

Viking has come a long way and we appreciate the confidence so many CATV operators and technicians have in our products.

We've had to prove ourselves every step of the way — so when we say, "Viking gives you more", we mean it!

**viking**

... MOVING AHEAD WITH CATV



CATV's

# GREATEST SHOW ON WORTH!

# APS\*

\* **AUTOMATED PUBLIC SERVICE**

At Miami . . . See the premier performance of TeleMation's new product line-up. Versatile performers every one! Three rings chalk full of exciting, inexpensive, reliable equipment. Don't miss it!

**NEWS CHANNEL™**  
**WEATHER CHANNEL™**  
**NON-DUPLICATION SWITCHER**  
**NCTA Convention Booths 110-111-112**

**Excitement for all - FREE fun for some!**



**TELEMATION, INC.**

2275 SOUTH WEST TEMPLE  
SALT LAKE CITY, UTAH 84115  
TELEPHONE (801) 486-7564

Spotlight your public image with

**A.P.S.\***

**\*AUTOMATED PUBLIC SERVICE**

FOR CATV



Pat. Pending

**NEWS/CHANNEL™**

You're first with **NEWS CHANNEL™**... and news is first with your subscribers.

FOR WEEKLY RATES CONTACT:



**THE ASSOCIATED PRESS**  
50 Rockefeller Plaza  
New York, N.Y. 10020  
Phone (212) 757-1111

or



**TELEMATION, INC.**

2275 SOUTH WEST TEMPLE  
P.O. BOX 15068  
SALT LAKE CITY, UTAH 84115  
TELEPHONE (801) 487 7646

**IN THIS ISSUE**

**THE PUC LABEL**



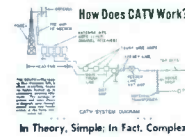
Efforts to push CATV regulation as a public utility have been in evidence almost as long as the industry itself. The recent NARUC resolution calling for public utility regulation of systems has moved NCTA General Counsel Robert D. L'Heureux to formulate a refutation of the resolution and a defense of CATV's struggles to avoid the "utility" label, see page 54.

**NORTHWEST CATV**



CATV in the Pacific Northwest came into being long before exchange of technical information was the standard problem-solver it is today. Early system operators had to rely on ingenuity and creativity to get their systems going and keep them functioning smoothly. CATV pioneer Philip D. Hamlin spins a "yarn" of enterprise and success, on page 32.

**SYSTEM PUBLICITY**



The manager who leaves the job of publicizing his system opening completely to the staff of a newspaper is overlooking an opportunity to effectively focus the attention of a large number of potential subscribers on exactly what his system has to offer. To get the most out of system publicity, read Lon Cantor's step-by-step pointers on page 42.

**OUR COVER**

This month's cover pictures the Vancouver, British Columbia skyline and an installation crew from Vancouver Cablevision—the world's largest CATV system.

Stanley M. Searle, Patrick T. Pogue PUBLISHERS

**STAFF**

- Stanley M. Searle • Editor
- Robert A. Searle • Managing Editor
- Charlene Williams • Associate Editor
- John Paul Johnson • News Editor
- I. Switzer • Technical Associate
- Lon Cantor • Contributing Editor
- Robert L. Cowart • Contributing Editor
- Charles Wigutow • Contributing Editor
- Jean Schaefer • Art Director
- Patrick T. Pogue • Business Manager
- R. Wayne Wilson • Advertising Sales
- John Bryant • Circulation Director

**BPA MEMBERSHIP APPLIED FOR**



1965: AMECO  
PIONEERED LONG-  
TERM PAY PLANS  
FOR TURNKEY AND  
COMPONENT  
FINANCING

Write to  
Ameco Acceptance Corp.,  
for custom financing details.



**ameco**

AMECO, INC., 2949 West Osborn Road  
P. O. Box 11326, Phoenix, Arizona 85017  
(602) 262-5500



JUNE, 1966  
Volume 3, Number 6

# TV & COMMUNICATIONS

THE PROFESSIONAL JOURNAL OF THE CABLE TELEVISION INDUSTRY

Published by Communications Publishing Corporation, P. O. Box 63992, Oklahoma City, Okla. 73106

## TABLE OF CONTENTS

<b>A Harvest of Chaos</b> FCC involvement in CATV grows; a comprehensive report .....	18
<b>CATV History in the Pacific Northwest</b> Part I of a series, by Philip D. Hamlin .....	32
<b>Preparing a CATV Newspaper Supplement</b> A step by step formula, by Lon Cantor .....	42
<b>An Objective View of CATV Regulation</b> Comments by Pennsylvania's Congressman Fred Rooney .....	49
<b>Public Utility Regulation of CATV</b> An analysis of the coming threat, by Robert D. L'Heureux .....	54
<b>Why 75 Ohms?</b> A look into CATV theory, by I. Switzer .....	62
<b>Making the Most of Trade Shows</b> Personal preparation for industry conventions, by Edith L. Johnson .....	66
<b>The New CATV Rules—A Review</b> An analysis of the Second Report and Order by Atty. Arthur Blooston .....	68

## CATV TECHNICIAN SECTION

<b>The Technician's Alphabet</b> The funny side of CATV, by Canadian cartoonist Chris Evans .....	77
<b>Coaxial Cable Powering</b> A discussion of design problems, by Gay Kleykamp .....	82

## DEPARTMENTS

Editorial .....	8	Focus on Progress .....	30
Industry Perspective .....	11	Tower Topics .....	80
Letters to the Editor .....	12	Cable System Safety .....	81
Management Corner .....	14	New CATV Products .....	84
News Spectrum .....	18	Index to Advertisers .....	85
Financial Reports .....	24	Classified Advertising .....	85



**CIRCULATION:** TV & Communications is circulated through United States and foreign mails on the tenth day of each month, to individuals and firms dealing in products and services for closed circuit and community antenna television, television broadcast, and microwave. A detailed circulation breakdown is available upon request. **SUBSCRIPTIONS:** TV & Communications subscription rate in the North American continent is \$5.00 per year for surface mail. Subscriptions outside continental North America are \$7.00 per year, remittances to be made by bank money order or check, negotiable in United States banks. TV & Communications is published 12 times per year. **ADVERTISING:** Commercial display advertising is accepted from manufacturers and suppliers of electronics equipment and allied services, at the discretion of TV & Communications management. Advertising rate card and circulation breakdown are available upon request. **COPYRIGHT:** Contents of this publication are copyrighted by Communications Publishing Corporation. No material, either written or graphic, may be reproduced without the written permission of the Publishers. **TV & COMMUNICATIONS** (title registered at U.S. Post Office). Second-class postage paid at Oklahoma City, Okla. Subscribers should allow six weeks for change of address. **PUBLISHERS:** Patrick T. Pogue and Stanley M. Searle. **GENERAL OFFICES:** 1839 N.W. 16th, Oklahoma City, Okla. 73106, (405) JA 8-3523. **WEST COAST REPRESENTATIVE:** Albert D. Shonk Co., 681 Market Street, San Francisco Calif. 94105, Phone: San Francisco 392-7144, Los Angeles 388-2981.



**At Miami**

**if you don't see the Vizcaya,  
Seaquarium, the Everglades  
and the Ameco Pacesetter  
... you ain't seen nothin'!**

AMECO BOOTH #200, NCTA CONVENTION (JUNE 26-29), THE AMERICANA, MIAMI, FLORIDA



## EDITORIAL

By Stanley M. Searle

# A Question of Ownership

Forty million American homes will be wired for television in our time. Just as certainly, we will see 100,000 class rooms served by cable television. If this sounds like a completely rosy picture, that is because it is only part of the story. The big question facing the CATV industry today is "who will own the cable" that will serve America? In fact, this is the basic underlying economic issue behind the current FCC and legislative efforts to curtail cable television. While CATV operators expend time and money trying to surmount the obstacles of the Second Report and Order, the financial giants are jockeying for position. Bell Telephone, the television networks and big movie interests are "waiting in the wings," ready to contend in earnest for control of the coaxial cable into the homes, schools and businesses. Unfortunately, these entities aren't looking for a few franchises or a few million subscribers; they'd like the whole pie—or at least the lion's share!

What will be the role of the independent investors, the rugged individualists who pioneered the CATV business? This is a question of considerable importance to most of the companies and individuals now

engaged in system operation. When sheer public demand finally over-rides the FCC's protectionists/obstructions, a great demand for a broad range of cable services will occur and the consumer, with his appetite for more and better television, cannot be relied upon to patiently wait while a neophyte industry belatedly recruits men and money to satisfy viewer demands. The demand for new cable systems will undoubtedly be met — mostly by corporations that have planned and equipped themselves years in advance for this specific objective.

Consequently, many of the "rugged individualists" still operating community antenna television systems may be working for the big "outsiders" who are now eyeing CATV. Farsighted and imaginative planning, along with genuine confidence in our industry's future can keep principal control of cable television in the hands of the various competitive companies currently engaged in the business. The alternative would be domination of cable TV by semi-monopolies.

The future of cable television belongs to those who believe in it . . . and who are willing to prepare for it. Incidentally, it will be an exciting future.

## Let's Get Organized!

Have you ever tried to visit Spokane, Biloxi, Chicago, Phoenix, Kansas City, Dallas, Hershey, San Francisco, Rockton, Lexington, and Vancouver, B.C. — all during a single week? A few folks tried it recently; some even tried to ship exhibits between the cities and set up their displays for nearly simultaneous cable television association meetings.

When an industry grows up as fast as CATV has, meeting a host of tremendous challenges and opportunities, it's no wonder that it becomes disorganized. But it is time we gave some thoughts to coordination of the many regional, state and the national meetings and trade shows related to CATV.

Many manufacturers have privately expressed their indignation at the brutal grind of the convention circuit. And the personal inconvenience of scampering from one regional meet to another is not the only bind. There's the heavy cost of rapid shipment of booths and samples to try to hit display set-up deadline. There's always at least one manufacturer's display missing from every small convention because it wasn't delivered on time.

State and regional CATV associations are more important today than ever before. I hope that every-

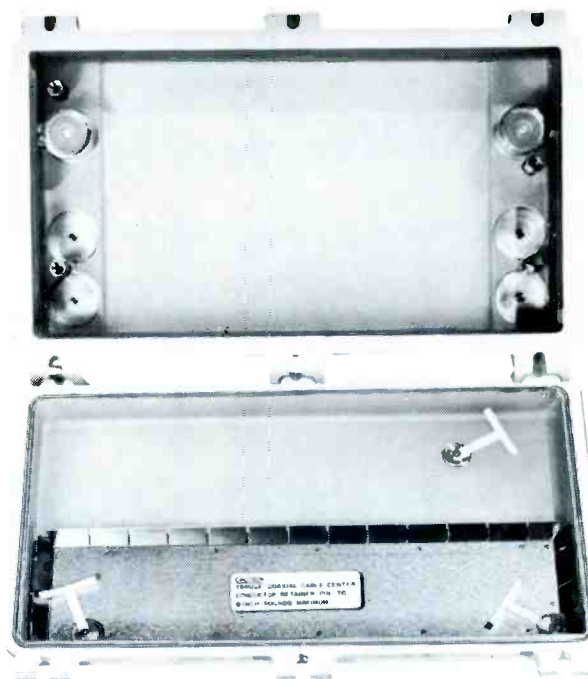
one of them becomes stronger, larger and better supported. But we besiege the leadership of each group to make life easier for national leaders and industry suppliers to attend and display at your meetings. Such an effort on the part of associations will certainly make it easier to obtain financial support from the manufacturers and suppliers.

A calendar of events is published in this magazine each month and in CABLE TELEVISION REVIEW each week. We'll gladly expand this service to include a schedule of year round meeting dates for the benefit of association officers who wish to contact us for such information. Cable system operators, as well as suppliers will genuinely appreciate any association's efforts to provide accurate advance information on meetings and to avoid conflicts of dates. It will be easier to get key industry leaders as convention's speakers when all of the meetings are not scheduled closely together. Interested association secretaries are invited to send us their comments, questions or information on this subject.

*Stan Searle*



**WHY DOESN'T  
KAISER-COX  
BUILD SOME OF ITS  
CIRCUITS RIGHT  
INTO THE HOUSING?**



**If you ever climbed a pole you'd know!**

For one thing, built-in components are extremely difficult to service on the pole!

For another thing, each time the cable is disturbed or bent to remove the entire amplifier housing, the cable is dangerously stressed.

We've designed our equipment so the whole module can be unplugged and replaced by another in seconds . . . then serviced at your convenience.

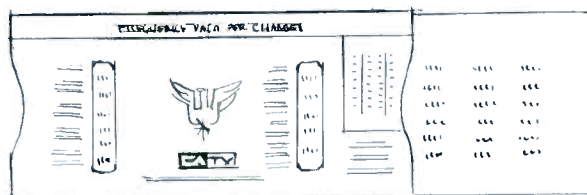


The Phoenician Series

*For more reasons write, wire or phone collect:*

**KAISER-COX  
CATV**

**GET YOUR FREE CATV REFERENCE DATA SLIDE RULE AT  
OUR BOOTH, NCTA SHOW, MIAMI!**



**KAISER-COX CORPORATION / P. O. Box 9728, Phoenix, Ariz. 85020, Phone (602) 944-4411**

*When you install Kaiser-Cox equipment, you never wonder what's new in CATV—you know!*

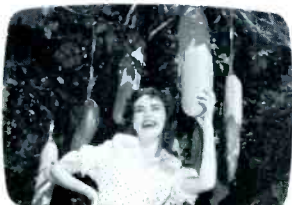
# Come on Down!

FOR "MILLIONAIRE" FUN  
ON A BEACHCOMBER BUDGET...



CATV • HORIZONS

UNLIMITED



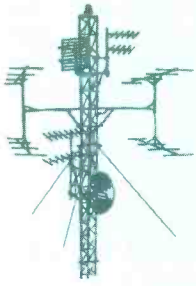
## NCTA 15<sup>TH</sup> ANNUAL CONVENTION!

MIAMI BEACH • JUNE 26-29

Join your fellow-members in a full program, keynoted by a renewed dedication to improving TV services and to bringing the widest variety of news, entertainment, sporting events, educational and informative programs to areas where such service is otherwise unobtainable. The purpose of this convention is to take a look at past accomplishments, and to examine our potentials for increasing our service to the public in the future.

June is a marvelous month in Miami Beach... warm sunshine, cool trade winds, tropic magic of palms, surf and sand... with Florida's fabulous array of sports and attractions scaled down to fit summer budgets!

**RESERVATIONS NOW!** Reservation Forms have been sent to NCTA members. To assure your choice of accommodations, get yours in promptly!



## CATV Industry PERSPECTIVE

Recent decline in CATV manufacturers' stock prices should be viewed primarily as a result of overall stock market activity and of tighter financing for all industry, rather than a reaction to Federal move into CATV. Although most CATV equipment stocks advanced very rapidly during 1965 and earlier this year, the ratio of market value to earnings is still very conservative in most cases (between 10 and 20 to 1 as compared to 40 or more to 1 for "high flyers"). Also, many CATV manufacturers are engaged in telephone, aerospace and other areas which must be considered apart from cable television activities. Tight money will continue to affect CATV economy, but trend will be upward over 12-18 month period.

The future of cable television will be full of surprises--especially for those who believe that CATV's big boom is over. Within the next several years, America will be wired for television. Urban, suburban, and even rural residents will be "on the cable." An increasingly affluent society wants more entertainment--and is willing to pay for it. New technological advances will accelerate expansion of the antenna service, making possible service to areas now considered completely unfeasible.

City and county governments are growing increasingly more resentful of Federal controls over CATV--especially where cable systems are already installed and have been operating for years. At the same time, many city and county officials have been inspired by the ponderous FCC rules to create complex and costly franchise agreements. Sensing that they hold a "plum," some local officials have discouraged experienced CATV'ers from pursuing franchises by adopting complicated requirements, and adding high franchise "taxes" and/or outright prices for the original grant. These added costs come "off the top" of an operator's revenue, and extend length of pay-out for the system. Combined with current tight money situation, this approach will only delay cable service to such communities.

CATV is one key to teacher and classroom shortage in hundreds of communities. By 1980 there will be several hundred per cent more students than there were in 1960. Cost to taxpayers to build and staff schools will be substantially reduced by Educational and Instructional television. Computerized curricula may revolutionize learning process by two-way coaxial cable. CATV operators who make their cable facilities available for educators' use have made a lot of friends and created a strong public image in their communities. Reliance on cable television will increase as educators and the National Association of Educational Broadcasters gain understanding of its advantages.

Watch for more new manufacturers in the amplifier and cable business. In response to new competition, companies presently supplying the industry will broaden equipment lines, and become more competitive in providing supplemental services such as engineering and system financing. The scramble for qualified design and sales personnel will become more frantic than ever. Salaries will climb; many high caliber men will be recruited from broadcast and communications related firms to staff CATV equipment manufacturing and sales.

# LETTERS

## ROONEY'S REMARKS

● In accordance with your request, I am pleased to send you copies of my remarks made at the Pennsylvania CATV Association meeting in Hershey, Pennsylvania on Friday, May 6. If it is at all possible, I would like to see a copy of your magazine when it is ready for distribution.

Fred B. Rooney  
Member of Congress  
15th District, Pennsylvania

*We are pleased to reprint Congressman Rooney's comments in this issue (they appeared in the May 9 issue of Cable Television Review).*

## THE RIGHT APPROACH

● Congratulations on your editorial, "Fair Comparison of Standards." It is good to see this aired in print, and your attitude of co-operation as the answer to problems concerning both industries is exactly right.

Lex Walters  
Savannah TV Cable Co.  
Savannah, Georgia

## VIEWED WITH DISMAY

● In politics people are always "viewing with alarm," or "viewing with dismay." I fall into the second category this month after noting that you left us out of your list of system contractors in the March Construction issue of *TV & Communications*. We would appreciate very much being included in any future compilations of this type.

Congratulations on the ever-improving quality of your magazine.

William F. Karnes  
Vice President, Sales  
TeleSystems Corporation  
Glenside, Pennsylvania

*As it well deserves to, TeleSystems will be included in the Construction Contractors listing to appear in our Fall Construction issue to be published in November.*

## NEED CATV PR DATA

● The students in our Public Relations class have been studying various members of the broadcast industry. We have found that there is very little written about the public relations activities in CATV in the periodicals available to us here.

Having received a copy of your magazine at the NAB convention last month, we are now writing concerning articles about PR as published in

past issues of your magazine. We would greatly appreciate any tear sheets, clippings, reprints, and/or photostats that you could possibly send.

J. A. Bastian  
Graduate Assistant  
Indiana University  
Bloomington, Indiana

*Copies of recent issues are on the way, with articles about PR in CATV marked for your reference.*

## BUCKET TRUCK INTERESTING

● In the March issue of *TV & Communications*, on page 40, you show a utility truck using a Pitman "Pelican" aerial bucket unit. We are very interested in this unit and wonder if you could supply us with full name and address of the company that makes this unit.

Ralph Hillard, Gen. Mgr.  
Intercity Cable Corporation  
Galena, Illinois

*The "Pelican II" utility truck unit, available in 28', 32' and 36' models for lone-man operation, is built by Pitman Manufacturing Company, Grandview, Missouri.*

*Letters may be addressed to:  
Editor, TV & Communications,  
P.O. Box 63992, Oklahoma City,  
Oklahoma 73106*

# TeleWeather

The Sophisticated  
Weather/Time System

## COMING ON STRONG!

DESTINED TO BECOME THE  
STANDARD OF THE CATV INDUSTRY

- No scanning — stationary presentation
- Solid-state reliability
- Trouble and maintenance free
- Compact and attractive
- Versatile slide presentation



See *TeleWeather* at the NCTA Convention

**ELECTRONIC SYSTEMS DEVELOPMENT, INC. 1818 Westlake Ave. No., Seattle, Washington**

Time/Weather Systems — Switchers — CATV Video Accessories



**relax!**

**Your CATV cable is safe when it is supported**



**with ALUMOWELD®—the long-life messenger**

Relax, settle back and enjoy the comfort of knowing that with Alumoweld® messenger on the job your CATV cable will remain in service year after year. It lets you say goodbye to those revenue-robbing, customer-upsetting outages caused by weather damage and corrosion.

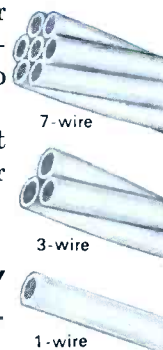
Alumoweld has the highest strength-to-weight ratio of any messenger. It is as strong as steel, weighs less, lasts longer and is easier to handle. The thick aluminum cladding of each wire, never less than 10% of the radius, is perma-

nently welded to the steel core to give greater corrosion resistance. And Alumoweld is completely compatible with your CATV cable, so there's no danger of electrolytic corrosion.

Specify Alumoweld messenger . . . you can't buy better, more economical protection for your CATV system.

*World Leader In Bimetallic Wire*

**COPPERWELD STEEL COMPANY**  
 WIRE AND CABLE DIVISION, Glassport, Pa.  
 For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

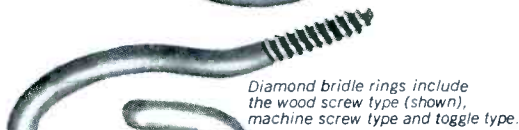


**ALUMOWELD® CATV MESSENGER**

**FAST SHIPMENTS** from our warehouse stocks in New York, Chicago, Pittsburgh, Memphis, Reno—and from warehouses of leading distributors.

Designed and built to highest telephone industry standards...

# DIAMOND POLE LINE HARDWARE



Diamond cable lashing clamps come in both one-piece and two-piece plate constructions.



We show here only a sampling of Diamond pole line hardware items. For full selection, sizes, weights, standard cartons, etc., refer to our 40-page illustrated Catalog SD-5.



**DIAMOND EXPANSION BOLT COMPANY, INC.**  
GARWOOD, N. J.

A Division of General Cable Corporation



MANAGEMENT CORNER

## PRODUCING LEADERS

Every company, every organized effort requires order, managerial technique and leadership. A few men may be naturally gifted as leaders, but for most of us, leadership consists of skills that can be acquired, if we are willing to devote the necessary time and effort to develop them.

First, the CATV manager must have the ability to analyze a problem, a situation, or a set of circumstances and arrive at a reasonably satisfactory conclusion. The higher he goes in management the more important this qualification becomes.

The second qualification is the ability to set up a proper CATV organization, including not only its structure but the selection and assignment of people to fill the organization. This qualification also becomes increasingly important at higher levels of management, because that is where organization structure is usually determined and where final selection of people to staff the organization is customarily made.

The third qualification is the ability to make the organization function. To transmit to others the objectives, ideals, and decisions of higher management, to get those objectives and decisions accepted, and to get all members of the organization working effectively toward their goal and the production of the results is the key to the success of the undertaking. This qualification is the greatest test of management today, a "must" at all levels of CATV management.

The tools of leadership are as simple and as basic to the profession of leadership as the wheel is to our modern civilization. These tools must be part of the "kit" of every manager. They are neither complicated nor difficult to use. Close and frequent contact with people is most important. There is a type of manager who would rather write a note to a subordinate than get out of his chair and stroll into the shop for a discussion. This manager does not understand that personal contact serves to cement the essential relationship of real cooperation.

All interested parties should be kept informed. The leader can forge a tremendously effective tool to win the cooperation of his group by appealing to their natural curiosity. He will grow in stature with his men as he purposely sets out to keep them informed about what is going on and how it affects them. Furthermore, he will minimize the problem of misinformation.

Closely akin to leadership is teamwork. It is not necessarily true that if we have good leadership we also have good teamwork. There is a distinction. Teamwork cannot exist without team play.

The man who is filling a position of responsibility knows that he must give his subordinates maximum leeway in determining their own methods of approach, that in itself develops their leadership ability. But he must also be sure that when he, as the leader, decides that it is necessary to use a particular approach, he can depend on his subordinates to work as a team without hesitation.

The job of a manager is not a lazy man's job. It requires constant application throughout your career. The leader is important in his job not because of his own production, but because he leads people toward the achievement of their objectives. Whether we call his ability administration, leadership or management, it is one of the cable industry's scarcest commodities, and at the same time a commodity that will be needed in increasingly greater amounts to meet the demands of our dynamic business. □

**When the new SKL**  
**goes after something,**  
**it gets it!**



A while back we went looking for the country's top CATV financing expert . . . that one man who could come up with really creative financing plans for SKL customers.

Actually, it wasn't much of a search. We knew all along it was George Green. With a reputation like his, whom else could we consider? And that perfect name! Anyway, George took a good look and joined the new SKL team. Now he's Vice-president of Finance and Marketing.

George moves fast. He has already found more money and easier ways for our cus-

tomers to get it away from us than most of them are willing to believe. Nevertheless, when they see the color of George's green, they're convinced.

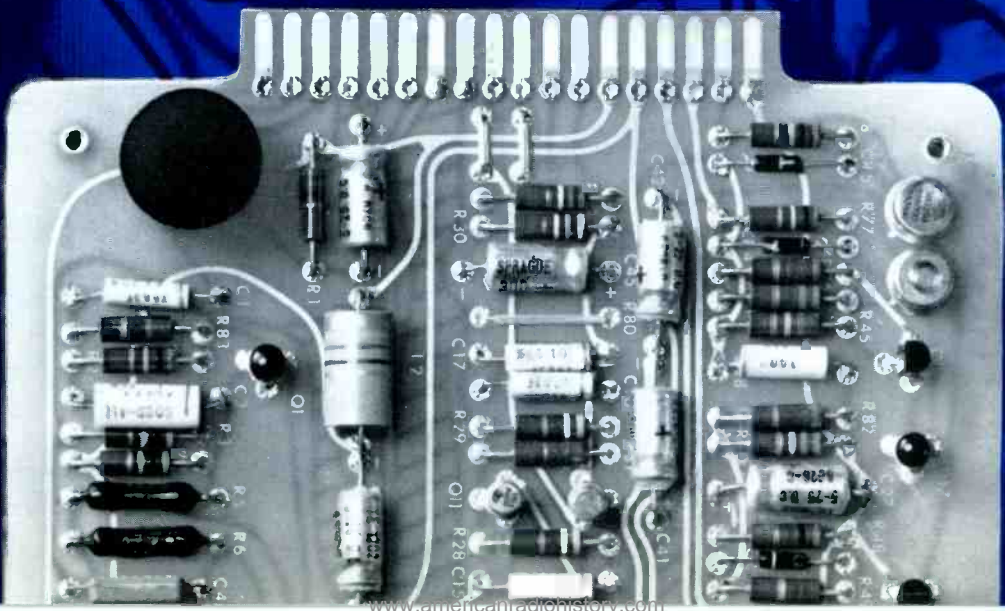
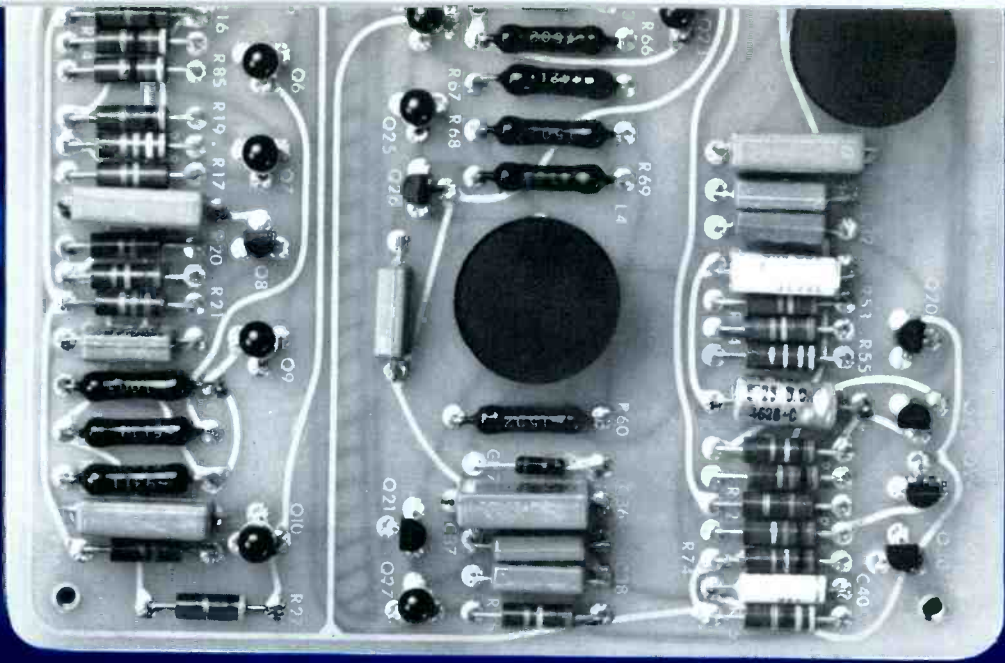
If you're looking for new money ideas . . . if you want the maximum leverage from your own capital, then make George live up to his name. He'll be at the NCTA meeting in Miami, or if you can't wait, call him at 617/254-5400.

But remember . . . George isn't bashful. He'll ask you to spend his money on SKL equipment. Why not? It's still the best.

**SKL**

**SPENCER-KENNEDY LABORATORIES, INC.**

1360 SOLDIERS FIELD ROAD • BOSTON, MASS. 02135 • TEL. 617-254-5400





# Advanced Electronics for CATV

Anaconda Astrodata opens a new era in CATV with the most advanced circuitry and electronic manufacturing techniques and facilities in the industry. New applications of electronic research and development now permit total systems design above and beyond all previous standards for CATV.

Anaconda Astrodata's field proven electronic equipment features new solid state components and an improved Marosi Process printed circuit board.

Advanced Electronics is one of many ways the Anaconda Astrodata concept of *Advanced Responsibility* serves you. It represents the high standard of systems design and installation, component manufacturing and performance that makes Anaconda Astrodata the symbol of progress in the CATV industry.

Send for details of our *Advanced Responsibility Plan* for the finest in CATV.

**ANACONDA**  
**astrodata**



ANACONDA ASTRODATA COMPANY  
1430 SOUTH ANAHEIM BOULEVARD  
ANAHEIM, CALIF. 92803 • (714) 635-0150

SEE ANACONDA ASTRODATA IN ACTION. VISIT OUR EXHIBIT AT THE NCTA CONVENTION.

# News SPECTRUM

## FCC REAPS HARVEST OF CHAOS

The Federal Communications Commission planted a seed of pandemonium when it assumed jurisdiction of CATV, and the crop is just beginning to ripen. NAB and AMST, consistently stoic in their determination to encumber the progress of CATV, have filed with the FCC for reconsideration of the rules, advocating, of course, stiffer regulation. A long list of CATV interests, with much different arguments, have also filed for reconsideration. And the Commission itself, understaffed, overworked, and, doubtless, a little weary of the self-inflicted chaos, began preparation of the CATV information filing form, tackled another "top 100 markets" case, and found time to adopt minor procedural amendments to the rules.

### NAB Wants Tougher Rules

The National Association of Broadcasters' suggestions were in line with its earlier filings and Congressional testimony in that they support FCC jurisdiction over all CATV systems but want rules that would more completely "protect" broadcasters from the CATV industry.

The NAB asked for three major modifications of Commission rules: (1) A general rule applying to all CATV systems, not just those in the top 100 markets, should restrict the importation of distant signals. (2) The same-day non-duplication rule for network programs should be expanded to 15 days before and after. The Commission originally planned to impose the 15-day rule, then reconsidered, and the NAB wants it to go back to its original proposal. (3) On the subject of feature and syndicated films, the NAB filing maintained that local stations should have exclusive rights to first run showings of such programs up to a maximum of one year after the date of signing the contracts to show them.

The NAB said the current rules would not keep CATV in its "proper supplemental role," but would allow it to continue on "its present destructive path which the Commission itself has made clear threatens the future of television broadcasting." Unless "harmful CATV proliferation" is stopped, the NAB said, "This proliferation threatens

to impair existing service and the institution of new service by broadcast stations, first in the smaller markets and then progressively in the larger markets as well. We fear that UHF expansion, which has been stimulated through all-channel legislation sponsored by the Commission and costing the American public hundreds of millions of dollars in additional receiver costs, will be aborted."

"If this comes to pass, and we fear it will," the filing concluded, "the American system of broadcasting will have been converted from a free local service to a system largely of pay television originating in a handful of major population centers."

### AMST Demands Harsh Rules

The Association of Maximum Service Telecasters also filed with the FCC for reconsideration of the rules, and likewise recommended stiffer regulation. AMST advanced a ten-point adjustment: (1) No CATV should be allowed to carry a TV signal beyond its Grade B contour into an area already served by a TV station unless that CATV's community doesn't receive adequate TV service and the CATV would not impair any TV service there. (2) As an alternative, the FCC should extend the distant signal rules, which now apply to the major markets, to all markets "without discrimination."

(3) The pertinence of the distant rules to the expansion of existing CATV systems should be clarified. (4) The CATV rules on station carriage should be tightened to ensure that all possible steps are taken to avoid signal degradation. (5) The carriage rules should be clarified with respect to stations that must be carried. (6) Every CATV system in every case should be required to install a switching device so that a subscriber can choose between CATV reception and regular off-the-air reception. (7) The duplication of prime-time network shows should be allowed in special cases only where the stations involved are both primary network affiliates. (8) The non-duplication requirement should be expanded from 24 hours to 15 days before and after the airing of the program. (9) Non-dupli-

cation should not be limited to stations carried on the CATV system, but should be extended to all area stations, on the cable or not. (10) The information filing requirements — ownership, channels carried, etc. — should be on a regular and continuing basis, not just a one time effort.

### CATV Filings Continue

The consensus of the multitude of CATV filings, many of which duplicated one another, was that the new rules impose drastic financial burdens on CATV systems and force a contortion of operations to comply. CATV is not hurting the television industry or broadcasting generally, the filings argued, and the ultimate loser in the wake of the new Commission regulations will be the very public that the Commission wants and is supposed to protect. The Commission, many said, should delay the effective date of its rules until they could properly be tested in the courts.

Among the many CATV filings for reconsideration on record at the FCC last week were comments from Malibu Cable TV Inc., which has a number of non-microwave CATV systems in the Malibu, Calif., area; Al-Pines Cable TV Inc., a non-microwave operation in Alexandria, La.; Savannah TV Cable Inc., which has a non-microwave system in Savannah, Ga.; a filing on behalf of Newhouse Broadcasting Corp., Newchannels Corp., Delhi Video Inc., Cabletron Inc., and Cablevision Co. of Anniston, Ga., a chain of CATV systems; Cox Broadcasting Corp. and its CATV subdivision, Cox Cablevision Corp.; Television Communications Corp.; Cosmos Broadcasting Corp. and its CATV arm, Cosmos Cablevision Corp.; Jerrold Corp. and a number of its CATV affiliates; Columbus Broadcasting Inc. and Chattahoochee Valley CATV Inc.; Rollins Inc.; Akron Telesrama Inc.; Entron Inc.; Telesystems Corp., which owns more than 20 CATV systems; and Courier Cable Co. The Commission, in other words, is being swamped with pleas from CATV operators who want relief from FCC rules that they think are unreasonable, illegal from the standpoint of FCC jurisdiction, and eventually harmful to the public.

### Third "Top 100" Order Issued

With its "show cause" order against Mission Cable TV (Poway, Calif.) still pending, and the Buckeye Cablevision (Toledo, Ohio) hearing in full force, the FCC took another glance around the nation and placed its regulatory thumb on the city of Buffalo, New York. Courier Cable Co. became the third system to face enforcement of

the "top 100 market" rule when it was ordered not to extend its cable lines in Buffalo until the Commission could review the case. The FCC ordered Courier to submit a map of Buffalo, ranked 22nd on the list of TV markets, "delineating those areas and streets where cable lines have been wired and those areas and streets where subscribers connections have been made thereto, indicating the status of wiring and connections as of February 15 and as of date of this Order." (CATV expansion was frozen February 15, when the Commission issued its rules. Only CATV systems in markets under the top 100 or systems that do not carry distant signals can expand without Commission permission. The expansion provision does not apply to adding homes already near wires; it applies to a system spreading its cables into new geographic areas.)

Although the Commission, after weighing the Courier case, may grant it permission to expand, a permanent freeze on Courier is requested by Ultravision Broadcasting Co., an applicant for UHF channel 29 in Buffalo. The added twist to the case is that Ultravision is competing for channel 29 with WEBR Inc., which is owned by the Buffalo Courier Express, of which Courier Cable is, in turn, a subsidiary. The Commission said: "The system is commencing operations in the heart of an important television market in which there is currently considerable UHF interest and activity. The system's operations have commenced only very recently and it has relatively few subscribers (but a potential of hundreds of thousands) so that minimal disruption to the public will result from a temporary cessation of expansion. We have also taken into consideration in this latter connection, indications of intent by Courier to expand as rapidly as possible throughout the entire city and western New York. Additionally, at this date, we have little concrete information which would enable us to establish an appropriate geographic area within which the system could be allowed to expand, pending action on the Ultravision petition for permanent relief."

#### Buckeye Hearing Gets Slow Start

The first face-to-face confrontation between the FCC and attorneys for Buckeye Cablevision was, as one lawyer aptly put it, largely "legal skirmishing." The hearing itself lasted only two hours from start to finish.

Buckeye is the system accused of bringing two TV channels into Toledo, Ohio (one of the top 100 television markets), even though the two channels are technically distant signals. One

of the forbidden signals is a UHF from Detroit; the other is from Lansing, Michigan. The system is allowed to carry several Detroit VHF signals because they have stronger power, and hence in Toledo are not considered distant signals under FCC rules.

The Commission denied Buckeye requests to enlarge the scope of the hearing. FCC Chief Hearing Examiner James Cunningham listened to the arguments, then restricted the proceeding solely to compliance with the rules as they exist. Buckeye was given seven days from the day the hearing record closed to file its legal brief. That seven day period was unwillingly accepted by Buckeye, which maintained that under usual Commission rules it should have 30 days.

Buckeye argued that the Commission had no jurisdiction over CATV, and that it should not have to answer to the FCC in the case.

#### Rules Amendments Issued

An attempt to clear up any possible confusion that might arise from the wording of its original documents did result in the FCC's adoption of minor procedural amendments to its new CATV rules. In the section of the rules which spells out that CATV systems must carry local stations unless a special waiver is granted, the Commission made a further clarification. Effective June 17, the FCC said, when a CATV system petitions for a waiver within 15 days after a request by a TV station for carriage on the CATV system, the CATV does not have to carry the station until the Commission rules on the waiver request or grants temporary relief until the issue is resolved.

The Commission also advised all television stations that want to be carried on an existing non-microwave CATV system by June 17 that they should file requests with systems on which they want carriage by June 1, "in order to obtain a prompt determination of any channel capacity question which might arise."

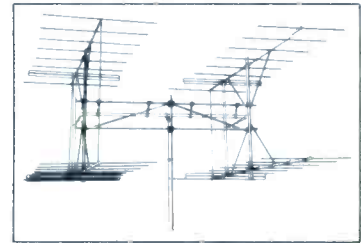
Also to straighten out possible confusion, the Commission said that effective April 26 any television station "or any other interested person" could request a hearing on the extension of service into new geographical areas by any existing CATV system in the top 100 markets. The original rules had just provided for TV station requests. Commissioner Robert T. Bartley, a strong opponent of the assumption of regulatory jurisdiction over CATV by the Commission, abstained from voting on the amendments, which also encompassed other relatively minor matters.



# SITCO

*Antennas*

Designed by SITCO for  
Community TV and extreme  
fringe area requirements.



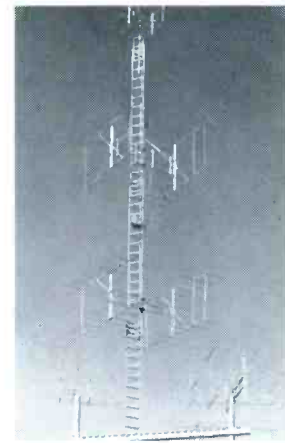
Model No. SHD 32-4 Channels 2 to 6



Model No. SHD 48-4 Channels 7 to 13

The SITCO Models SHD 32-4 and SHD 48-4 Quad Mount Antenna Arrays are designed to produce high gain, high front-to-back ratio and large aperture to weak signals. A completely balanced system which reduces noise pick-up and greatly improves the signal-to-noise ratio.

## HEAVY DUTY QUADS AND YAGIS



Ask about SITCO MD Series Antennas  
WRITE FOR FREE SITCO CATALOG

These antennas have been improved with sleeve strengthened SOLID BAR elements, larger diameter brooms, heavier reinforced braces, and improvement in aluminum alloys.



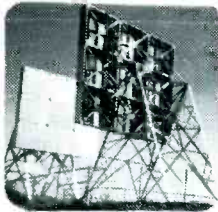
PATENTED SITCO  
WEDGE SCREW FASTENERS

# SITCO

*Antennas*

10330 N. E. MARX ST. • P. O. BOX 7691  
PORTLAND, OREGON 97220

## MICROFLECT



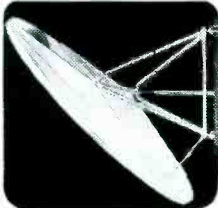
### REPEATERS

Ground mounted, flat, billboard type passive repeaters. 30 standard models up to 30' x 48'.

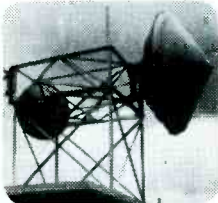
## MICROFLECT

### REFLECTORS

Tower mounted elliptical reflectors. 5 models up to 12' x 17'. Exclusive Omni-Mount.



## MICROFLECT



### ANTENNA MOUNTS

Rigid swing pipe, pylon, tripod, tower & frame antenna mounts.

## MICROFLECT

### SELF-SUPPORTING TOWERS

Quality self-supporting towers. 3 and 4 legged. Heights to 300'.



## MICROFLECT



### FIELD ERECTION

Experienced personnel. Dependable construction and erection on schedule.

## MICROFLECT

QUALITY MICROWAVE PRODUCTS . . . . 13 Gc RIGIDITY

FLAT, BILLBOARD TYPE PASSIVE REPEATERS  
TOWER MOUNTED REFLECTORS  
SELF-SUPPORTING TOWERS  
STUB TOWERS & ROOF MOUNTS

Write for literature

## MICROFLECT CO., INC.

3575 25th SE - Salem, Ore. 97302  
AC 503 PHONE 363-9267

## COPYRIGHT BILL DUE

June 1 was the target date for reporting out a House Copyright Subcommittee bill completely revising copyright law. CATV, one of the major areas under consideration, has always been free from copyright liability, although the revised bill drawn up by the Copyright Office would put CATV squarely under copyright law. The National Community Television Association opposed this provision, of course, as did many others from the industry, and the subcommittee, trying to weight all arguments, met twice a week in closed session in an attempt to report the legislation by May 1. However, work on several parts of the bill — including CATV — took more time than at first was scheduled.

Rep. Robert W. Kastenmeier (D-Wis.), Chairman of the subcommittee, spelled out plans for dealing with CATV in a letter to House Commerce Committee Chairman Harley Staggers (D-W. Va.). Although it had not been reported as a bill yet, Kastenmeier said he wanted to notify Staggers of their decision on CATV before the Commerce Committee began executive hearings on a CATV bill.

Kastenmeier said that the subcommittee's proposal would divide CATV activities, "upon the basis of geographic and other characteristics, in three broad categories or 'areas' which we call 'white,' 'black,' and 'gray.' In very general terms, the subcommittee proposes to exempt CATV operations from copyright if they are entirely in the white areas; make them fully liable if they are in the black areas; and subject them to limited liabilities in the nature of a 'reasonable license fee' if they are in the gray area." Kastenmeier said that the white area would embrace the CATV retransmission in the Grade B contour of a given station to fill in gaps or improve poor reception caused by technical interference. As an example, he cited a CATV system operated in New York City and retransmitting New York City stations only.

The black area outlined by Kastenmeier's subcommittee "embraces CATV retransmissions beyond the area served by primary broadcasters, into an area already served by one or more other broadcasters, none of whom is licensed to carry the same program." As an example, he cited a CATV system bringing a New York City station's broadcast of a motion picture to Philadelphia subscribers where no Philadelphia station is licensed to broadcast that picture. Kasten-

meier said the gray area outlined by the subcommittee "embraces retransmissions beyond the area served by the primary broadcaster into an area already served by another broadcaster who has a license to carry the same program or into an area not served by any primary broadcaster." Kastenmeier said the subcommittee believes that in the white area, CATV systems primarily serve to expand the audience by which the value of the copyright license is determined. In the black areas, the subcommittee proposed full liability for the copyright including "injunctive relief."

"Intermediately in the gray area situation, where the copyright holder has already licensed the use of his work in the area or there is no broadcaster to license, there is no direct loss of market exclusivity. There is, however, an uncompensated 'free ride' at the owner's expense. Advertisers will not pay for viewers living outside their area, and CATV service in these areas may keep out local broadcasters who would pay. Here the subcommittee believes that a reasonable license best meets the equities," Kastenmeier said. He noted that the subcommittee took into account the arguments of the CATV operators about difficulties of obtaining advanced clearances and the dangers of the unlimited liability statutory damage in this field. The subcommittee, therefore, proposed on CATV operation in the black area to impose full liability "only on the operator who proceeds with the unauthorized retransmission after having received advanced notice of the copyright holder. If the owner does not provide advance notice, the retransmission will be treated as if it were in the gray area." Pertaining to the CATV operations in the gray area the subcommittee wanted to withhold the possibility of an injunction or statutory damages and limit the operator's liability to a reasonable licensee to be set by the court in the absence of agreement. In order to induce negotiation, Kastenmeier said the proposed amendment "will provide the court with discretion to triple the recovery if it finds the infringer failed to accept a reasonable offer, or to withhold any recovery if it finds that the copyright holder refused to accept a reasonable offer." Kastenmeier stressed that the subcommittee's proposal was not intended as an expression of any opinion as to the present law or to try to influence the courts on how they should decide any copyright question.

**TELEPROMPTER TRIES  
EXPERIMENTAL SYSTEM**

A concept which could feasibly alter the face of CATV in America has reached the experimental stages in New York City. The experiment—conducted by Teleprompter Corp. in association with Hughes Aircraft, utilizing jointly developed equipment, proposes to substitute air transmission for cable relay in CATV trunk line circuits. If successful, TelePrompter anticipates that the short-haul microwave technique, by making underground cable virtually unnecessary, could provide a major short-cut in construction of big city CATV systems such as it is building in upper Manhattan. In addition, it is hoped that the innovation will make CATV service possible in sparsely populated areas where the conventional pole-and-cable method is now too costly.

The Manhattan project proposed by TelePrompter would set up equipment capable of picking up all New York television and FM signals and retransmitting them in a band over 18,000 megacycles at a power of five watts. The retransmitted signals would be picked up by receiving dishes serving a small residential area. The signal would then be cabled into homes. One receiving dish might serve a city block, for example. If successful, TelePrompter could avoid the cost of using city telephone facilities, which are underground in New York.

A possible major development from the experiment, although undoubtedly far in the future, would be the evolution of a receiving dish of low price that could be purchased by one or a few individuals. If the low price allowed, CATV could thus serve rural areas that it now cannot afford to reach. Harry Graham of the National Grange stated that the Grange's "opposition to CATV would fade into nothing if a way could be shown to bring signals to rural areas." He went on to say that "We don't give a darn who gets it to us, as long as farmers and rural communities are able to receive television signals." TelePrompter and Hughes expect to apply subsequently for permission to conduct a test in a rural environment.

Hughes Aircraft Co., which is a growing power in the communications field, suggested the short-haul microwave technique. It has been reported that Hughes has been secretly field testing the equipment and is confident that it will do the job under both urban and rural conditions. When contacted about this, a Hughes spokesman declined comment, but did point out that the aerospace firm has established a com-

mercial diversification program of which this is one program slated for implementation. Industry observers have been expecting Hughes to make a CATV move, because within the past year it had joined both the NCTA and the California Association as associate member.

A request for permission to experiment with the idea was put before the Federal Communications Commission late in April, and received immediate FCC approval, along with the warning that "the grant should not be construed as a finding that such regular service should be established," and that "detailed reports are required to be sub-

mitted at quarterly intervals."

In its application, TelePrompter cited three objectives for the tests: (1) to determine effects of atmospheric conditions upon transmissions in this frequency range, (2) to observe the nature of interference, if any, from stationary and moving objects, and (3) to evaluate equipment performance under field conditions.

Both companies emphasized that the project is in a test and experimental stage. Even if the equipment is tested successfully, there is no assurance that its use will be licensed by the FCC or that it would have commercially profitable applications.

**CTR: CONSISTENTLY FIRST  
WITH CATV NEWS**

**TIME AFTER TIME  
AFTER TIME  
AFTER TIME  
AFTER TIME  
AFTER TIME**

**CABLE TELEVISION REVIEW**  
The Weekly News Service of  
FIA Communications Magazine

**COMMISSIONER HENRY STEPS DOWN**

FCC Chairman L. William Taylor formally announced that he plans to resign from the Commission Friday, April 15, after serving in the position for 11 months.

Taylor's resignation was announced after he had served as chairman of the Commission since the death of FCC Chairman Albert W. Klein in 1970. Taylor had been in the position for 11 months.

Commissioner Henry Stepien was named as Taylor's successor. Stepien has been in the position since 1971.

Stepien's appointment was pending until the FCC had approved his nomination. The FCC will act on Stepien's nomination within 30 days of the date of his nomination.

Stepien's appointment will result in the Commission being composed of five members. The FCC is the only agency that oversees all TV and radio stations.

If you're a CATV decision-maker, you know how important it is to stay informed about competition and industry trends. You need to know about progress or change as it happens, not afterwards. Making a profit depends on it.

It takes an alert publication to be first with CATV news. One that knows CATV . . . an editorial team with industry wide contact. **CABLE TELEVISION REVIEW** specializes in getting news to you fast. No delay . . . no dependence on secondary sources. Direct line news is gathered nationally every week to keep you on top of important issues. It's the consistent kind of service you expect from a news hotline. From FCC actions to the latest financial reports, if you need to know about cable television, you'll read it first in

**SUBSCRIBE TODAY • ONE YEAR \$50 • TWO YEARS \$95**

**CABLE TELEVISION REVIEW**  
P.O. BOX 63992 • OKLAHOMA CITY, OKLA. • (405) JA 8-3523

## NCTA NOMINATIONS ANNOUNCED

Alfred R. Stern, president and chairman of TeleVision Communications Corp., New York City, has been designated by the NCTA nominating committee as its choice for national chairman. Stern, the present NCTA secretary, heads the slate of nominations for national NCTA offices, including: Jack R. Crosby, Westex Cable Corp., Del Rio, Texas, as vice chairman; Ralph L. Weir, Jr., Junction City (Kansas) Television, Inc. as secretary; and Harry C. Butcher, Cable TV of Santa Barbara (Calif.) as treasurer.

The nominating committee, headed by Bruce Merrill, placed eight names in nomination for selection to the board of directors: Marcus Bartlett, M. William Adler, Richard A. Moore, Terry H. Lee, Monroe M. Rifkin, Robert H. Huston, Robert F. Jernigan, John J. Morrissey, and Bob Magness. The latter three are currently directors, but have terms which expire this year.

In addition to Merrill, the nominating committee consists of Robert M. Clark, Warren W. Fribley, Jr., Buford Saville, and Bob Magness. Election of officers and board members will be held during the 15th Annual NCTA Convention June 26-29 at the Americana Hotel, Miami Beach, Florida.

## NORTH-CENTRAL GROUP HOLDS TWO-DAY MEET

Over 100 CATV'ers gathered in Rockton, Illinois for the spring meeting of the North Central CATV Association last month. Noting that it was the group's first two-day meeting, Association President Robert Loos said he was "really pleased with the turnout for the meetings."

NCTA Chairman Ben Conroy headlined the first day's agenda, speaking on CATV-related activities in the nation's capitol. Following his report, the group split up for simultaneous technical and management sessions. Other speakers on the first day's program included Bill Thomas of Northwestern Bell on telco-CATV relationships; George Green of Spencer-Kennedy Labs, on cash-flow projection; Fred Weber of American Cablevision on subscriber promotion techniques; and Tom Bloosfield of Associated Agencies on CATV insurance problems.

On the second day of the meeting Washington attorney Jack Cole discussed system grand openings. Bob Loos talked on unionizations of cable systems; Bill Daniels spoke on public relations; Joe Baisch spoke on CATV-broadcaster relations; and Tom Johnson (Daniels and Associates) discussed system grand openings.

In a closed NCTA meeting following the regular North Central sessions, Frank Thompson and Washington Attorney Strat Smith spoke on a variety of timely subjects, including the status of the copyright cases, and the current legislative picture.

## ROONEY SPEAKS TO PENN. OPERATORS

Attendance at the spring meeting of the Pennsylvania CATV Association swelled to 125 as operators gathered to hear featured speaker Congressman Fred B. Rooney discuss the new CATV rules. (Rep. Rooney's speech to the association is reprinted elsewhere in this issue.) The meeting, held at the Hershey Hotel, Hershey, Pa., also featured a panel discussion of the new rules. E. Stratford Smith, John P. Cole, Jack Matthews and Mort Berfield led the discussion. Bruce E. Lovett, NCTA Assistant General Counsel, spoke on the relationship between CATV and the various State Public Utility Commissions.

The meeting of the board of directors of the association resulted in a resolution supporting the nomination of Robert Tarlton for the position of NCTA Chairman, and of Yolanda Barco and John Walson as NCTA directors.



SYSTEM CONTRACTORS SERVING  
THE WESTERN UNITED STATES

# 3000 MILES CATV CONSTRUCTION EXPERIENCE

... Is your assurance that CAL-TEL CONSTRUCTION CO. has the capability to handle every type of CATV construction or rebuilding project. CAL-TEL uses the latest equipment and techniques to give your system the highest reliability possible under any weather or use conditions. Special capabilities include efficient aerial construction methods... extensive underground system experience... the performance of all phases of construction from strand layout and pole maps to installation and testing of system equipment. A decade of professional CATV system building guarantees work of the highest quality.

If you're considering a system construction or rebuild project, call or write CAL-TEL. You'll receive courteous, professional recommendations on your specific needs.

## CAL-TEL CONSTRUCTION CO., INC.

1698 E. 25th STREET • SIGNAL HILL, CALIFORNIA • (213) 426-7041

# Now—TWO from the leader!

## **SUPERIOR**

# Coaxial Cables for CATV

75 ohm coaxials with  
**"Coppergard"**  
corrugated copper shield



Cello-O-Air® expanded polyethylene dielectric for aerial installations.  
"Solid-D" solid natural polyethylene dielectric; for direct burial installations.

75 ohm coaxials with  
**"Alumagard"**  
solid aluminum shield

*Newest addition to the quality line!*



For aerial installation.

Cello-O-Air® expanded polyethylene dielectric; extra high strength solid aluminum sheath.

As the community antenna market expands, decisions concerning choice of coaxial cable become more critical. Installing less than the best can be an increasingly costly mistake.

That's why it is important to know that millions of feet of Superior's Coaxial Cable are already in service; and performance records for each passing year continue to confirm their built-in reliability.

Long-term transmission stability and full spectrum capability are assured. You can count on the use of all available frequencies, with no attenuation discontinuity; none of the skipping and jumping frequencies often found in ordinary cable.

**BOTH TYPES—"Coppergard" Coaxials and "Alumagard" Coaxials—  
CARRY SUPERIOR'S FIVE-YEAR GUARANTEE!**

*For performance—  
call Superior!*



## **SUPERIOR CABLE**

Superior Cable Corporation • Hickory, North Carolina 28601

## MID-AMERICA ASSOC. HOLDS TECH. SESSION

The first technical session of the Mid-America CATV Association attracted over 80 members of the industry to the Kansas City meeting of that group. Program speakers for the technical session included Vic Nicholson (Jerrold), who spoke on head-end equipment; George Green (SKL), who talked about cash flow projection; and Bunk Dodson (association president), who discussed time domain test equipment. Ameco representatives conducted a discussion of amplifiers and cable towered equipment.

Featured speakers for the general meeting were Richard Shively (Telesis), Grover Cooper (D. C. attorney), William Carlisle (NAB), Donald Royce (association legal counsel), and George Lawler (Comsat).

In his presentation "CATV—Friend not Fiend," Shively expressed many of the same ideas which he presented at the NAB CATV Seminar in Chicago. Concerning the CATV — broadcasting relationship he said "cooperation between TV and CATV—important as it is to both of them — will be hampered by both past relationship and a lack of rapport, in addition to the retarding effect of the Second Report and Order . . . unless broadcasters

who are in CATV, and understand CATV, can show their fellow broadcasters that cooperation will be mutually beneficial. And that is quite a task. Many broadcasters have long since made up their minds that CATV is a menace — and as the saying goes, they don't want to be confused by the facts."

## KENTUCKY ASSOCIATION

Members of the Kentucky CATV Association, meeting in Lexington, Kentucky last month elected officers for the coming year. William Betts, Maysville, will serve as president; Tom Gullett, Winchester, is the new first vice president; William Breeding, Monticello, is second vice president; and Joe Simmons, Glasgow, is new secretary-treasurer.

## FCC APPROVES H&B TRANSFER

RKO General, Inc. has at last received approval from the FCC to transfer the H&B American stock, which has been held in trusteeship, to its control. RKO made an attempt to take over H&B in 1963, and worked out an agreement with the firm to combine H&B with Vumore, but the proposed merger did not materialize due to the Commission's failure to take action by March, 1964. Now the combination of the two creates the largest group owner

—with an estimated 125,000 subscribers. RKO currently owns 29% of the H&B stock, but if it chooses to convert the debentures it holds, it will hold a controlling interest in 36% of the company.

## N.Y. CATV'ERS BACK TARLTON

The board of directors of the New York State CATV Association has announced a unanimous decision to support the nomination of Robert J. Tarlton, president of Panther Valley TV Co., Lansford, Pennsylvania, for NCTA chairman. Tarlton, currently serving as NCTA vice chairman, was a director of the NCTA from 1957-1960 and 1962-1965.

## GAINER TO HEAD MID-ATLANTIC OPERATORS

Carl Gainer of Richwood, West Virginia was installed as president of the West Virginia and Mid-Atlantic CATV Association at that group's spring meeting in Charleston, West Virginia. Other new officers for the association are Gary Dent, Beckley, W. Va., vice president; and Bert Cousins, Fairmont, W. Va., secretary-treasurer; Directors for the group are M. William Adler, C. F. Erickson, John Lewis, Sandford Randolph, Ralph Shepler, Randolph Tucker, William Turner and James Vickers.

*Your Answer to FM Equalization:*

THE NEW TELSON

# FM CHANNEL GOVERNOR



This sensitive and highly selective crystal controlled dual conversion F. M. leveller is now available for CATV systems. Maintains a constant output level through limited and delayed A.G.C. circuitry. Available for any F. M. frequency . . . operates on input signal levels as low as -30 DBJ. Handles the strongest off the air signals without overloading. And . . . check these Channel Governor performance pulses:

- Sensitivity equals top quality F. M. tuners. Dual outputs and inputs enable linking any number of levellers to control any number of stations from one or more antennas.
- Beats are eliminated by operating all oscillators outside the F. M. band.
- Adjustable output level enables you to equalize individual stations in output.
- Stations with as little as 400 KC may be served on frequency.

Be sure your F. M. channels give top performance. Assure your subscribers high fidelity F. M. service by specifying the new TELSON CHANNEL GOVERNOR for your CATV system. Write today for complete specifications.

## SPECIFICATIONS

FREQUENCY RANGE	88-108 MC	OPTIMUM INPUT	0.5 MILLI-V
BAND WIDTH	250 KC	OUTPUT LEVEL	ADJUSTABLE
MINIMUM INPUT	30 MICRO-V		+35 DBMV to +45 DBMV



**TELE-SIGNAL ELECTRONICS, Ltd.**  
1915 Stainsbury Avenue • 604 876-6213 • 604 876-3711  
Vancouver 12, B.C., Canada



**ARIZONA OPERATORS MEET IN PHOENIX**

The Arizona Community Television Association held its annual spring meeting last month at the Caravan Inn in Phoenix. Scheduled speakers for the meet included Frank O'Classen, American Television Relay; Gay Kleykamp, Kaiser-Cox; Gay Rogeness, Ameco Engineering Corp.; Art Wallenstin, Ameco, Inc.; and Frank Jackson, Co-Ax Construction Co.

Key spokesman for the industry was Bruce Merrill, who discussed the current problems CATV faces with the Federal Communications Commission. "The Commission," said Merrill, "is very dedicated and capable — dedicated to the destruction of CATV, and capable of doing it." He pointed out that the FCC's First Report and Order was very "harsh and oppressive," and that the Second Report was more lenient, possibly due to the recent industry-wide Congressional campaign. Noting that the FCC is obviously still unaware of the problems of the industry, Merrill cited the example of a visit he paid to the bureau of the Commission, where he found two part-time employees who did not know what they were doing, and had no answers to the questions they were asked. "At the staff level the FCC wants to stop the

growth of CATV," he emphasized. "And that is all for sure that they know about it . . . The attitude of the FCC is destructive."

Merrill encouraged operators to back the Mackay Bill. "We want the bill passed," he said definitely, because "the industry must press very strongly for some type of legislation to prohibit the FCC from winning by default. We are having a few problems," he concluded, "all operators — now, more than ever before — need to be alert, because many decisions will be made in the next year or two that will vitally effect CATV."

Election of officers highlighted the convention: new ACTA president is Earl Hickman, owner of cable systems at Williams and Douglas, Jess W. Allen, owner of Clearvision Television at Nogales, was elected vice president; and Charles Wigutow of American Cable Television Inc. was elected secretary-treasurer.

**BRAND-REX PLANS EXPANSION**

The Brand-Rex Division of American Enka Corporation has announced plans for a major expansion program to include the construction of a new telephone and communications cable factory in Siloam Springs, Arkansas and an addition to its main plant in Willimantic, Connecticut.

**NORTH CAROLINA CATV'ERS MEET**

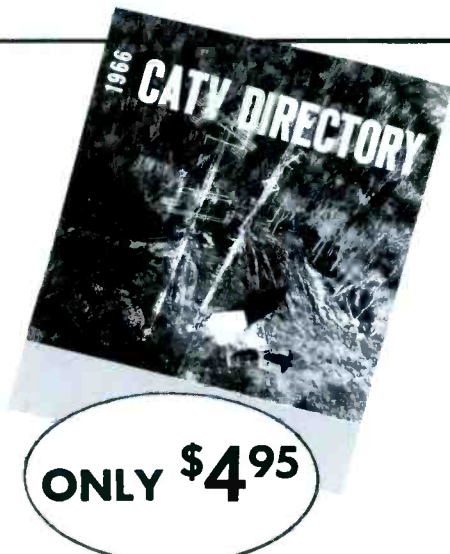
The North Carolina CATV Association held its first annual spring meeting last month in Fayetteville, N.C. Wally Briscoe of the NCTA brought members up-to-date on the Washington scene; chief topics of discussion were the Second Report and Order and the Mackay Bill. Allan Phillips, Gastonia, spoke on system promotion. Registered attendance at the meeting totaled 33. Donald W. Curtis is president of the association, which was formed in July of last year.

**TELESYSTEMS FORMS CONSTRUCTION SUBSIDIARY**

TeleSystems Corp. has expanded its construction division into a larger, independent subsidiary company. Name of the new entity, which is devoted solely to CATV design, engineering and turn-key construction, is TeleSystem Services Corp. William F. Karnes has been appointed vice president of sales and general manager of the new subsidiary.

Establishment of Telesystem Services Corporation is part of a larger financial and physical re-organization within the TeleSystems organization. The company recently procured a \$9,000,000 loan to finance new ventures and for expansion of its own plant.

**NEW FOR '66!**  
**THE ALL NEW 1966 CATV DIRECTORY**



Bigger . . . better than ever before! This comprehensive new CATV DIRECTORY is your key to the entire CATV industry. More equipment components and accessories, more manufacturers and service suppliers, more associations and more system and group owner listings make this third annual directory the most complete ever published. An indispensable tool for purchasing, analyzing competitive trends, correspondence, etc. It's a 150 page CATV dictionary. Order yours now! (Yearly subscribers to CABLE TELEVISION REVIEW receive a complimentary copy.)

GET THIS HANDY CATALOG OF THE

- LATEST CATV EQUIPMENT
- CATV SERVICES AND SUPPLIERS
- MANUFACTURERS
- ASSOCIATIONS AND OFFICERS

**SEND FOR YOUR DIRECTORY TODAY!**

Gentlemen:  
Please send \_\_\_\_\_ copies of the 1966 CATV DIRECTORY immediately. I understand my complete satisfaction is guaranteed.

- Enclosed is payment of \$4.95 each.
- Please bill me \$4.95 plus handling.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City/State \_\_\_\_\_

**1966 CATV DIRECTORY**  
P.O. Box 63992 • Oklahoma City, Okla.

## FCC CITES CATV AS ADDED EXPENSE

Former FCC Chairman E. William Henry cited CATV as the best example of the Commission's "expansion of its basic regulatory responsibilities" in justifying the agency's request for a budget of \$17,520,000 for the fiscal year. Speaking before a House Appropriations Subcommittee, Henry noted that "We don't know how serious the effect of CATV on UHF stations is," that the commissioners differ on how strongly to regulate CATV, and that the FCC will need more staff members to handle CATV.

## ALABAMA CATV'ERS MEET

As many as 19 members and associates attended the annual meeting of the Alabama CATV Association at the Guest House Motor Inn in Birmingham, Alabama. Noel Morgan, outgoing president, presided over the general business meeting, at which a new slate of officers was elected for the following year. Milton Underwood will serve as president for 1966-67, with Bill McDonald serving as vice president, and Otto Miller serving as secretary-treasurer. Directors for the group are Bill Neal, Asa Goldman, Noel Morgan, Carroll Eddins, and Mary DeArman.

## ITT-ABC MERGER APPROVED

Meeting separately in Baltimore and New York City, shareholders of International Telephone & Telegraph Corp. and American Broadcasting Co. voted to approve the acquisition of ABC by ITT. Harold S. Geneen, ITT chairman and president, later reported that the merged companies would rank among the 20 largest corporations in the country, with a combined revenue of more than \$2.5 billion in fiscal 1966. He also stated that while the merger had yet to receive final approval from the FCC, it had received a favorable tax ruling from the Treasury Department. Geneen told the stockholders that the one factor which made the ITT-ABC link attractive was that ABC is "readily recognized by the consumer public." ITT, which has extensive foreign holdings, has been striving to become better recognized in this country.

The approval by the shareholders of ITT included the authorization of 5 million shares of cumulative convertible preference stock, \$10 stated value, for use in the merger; authorization of an increase in common stock to 50 million shares from 30 million shares; and an amendment of ITT's stock option plans to add a maximum of 150,000 common shares to the plan for options to ABC employees.

## KAHN SPEAKS TO EIA

Irving B. Kahn, speaking before the executive committee of the Electronic Industries Association at a seminar in Washington, stated his belief that "television and electronic communications are now on the threshold of one of the most exciting growth situations in history." Kahn, chairman and president of TelePrompTer Corp., told leaders of the TV equipment manufacturers industry that CATV offers "both a great opportunity and a great challenge" to them. "The opportunity — and the challenge — are there to be grasped firmly by your segment of the industry as well as ours," he said.

CATV is a superior reception service, Kahn explained, that offers viewers uniform picture quality on all channels of their TV sets and greatly improves color reception. In addition, he added, CATV — because it uses cable and microwave rather than the overcrowded radio spectrum — has the "capability to make better use of existing channels and also of a great many more channels — not for entertainment alone, but also for a great many other important communications purposes."

This constitutes an opportunity for equipment manufacturers, he suggested, to bring to bear their "know-how and powers of invention." The accompanying challenge, he said, is inherent in the fact that "CATV remains a reception service."

## JERROLD ENTERS INTERNATIONAL MARKET

The Jerrold Corp. has announced its first significant entry into the international market through the signing of a CATV equipment licensing agreement with Teleng, Ltd. of Romford, Essex, near London. Teleng, reputed to be Britain's largest manufacturer of cable television equipment, is a subsidiary of Telefusion, Ltd., British TV set rental firm and operator of CATV systems.

The Teleng-Jerrold agreement was negotiated by Jerrold's recently-formed International Division. According to Max Kraus, director of the division, the company intends to market its CATV, master antenna TV and high fidelity products throughout the world, with immediate emphasis on Europe, Latin America and the Far East.

## ENTRON DOUBLES FACILITIES

Entron, Inc. will double its current production facilities in Silver Spring, Maryland, according to Robert J. McGeehan. The new facility, located at 2140 Industrial Parkway in Montgomery, will be located directly across from the company's main office and plant, located at 2141 Industrial Parkway.

## SYSTEM SALES

**Coachella Valley Television**, a division of Palmer Broadcasting, has purchased **Television Systems, Inc.** from Dave Stratton. Coachella Valley Television is currently operating systems in Palm Desert and Indio, California.

**Rust Craft Broadcasting Co.** has acquired the CATV assets of **Neptune Broadcasting Corp.** The two operating systems in Steubenville and Martins Ferry, and the franchises in Marion, Lima, Lisbon, East Liverpool, and Wellsville, Ohio, and a franchise in New Castle, Pennsylvania, were obtained in an exchange of 20,000 shares of Rust Craft for all outstanding shares of Neptune.

**Brattleboro (Vt.) TV, Inc.**, headed by Elliott Barber, has been sold to **United Cablevision of Stamford, Connecticut.** The purchase price for the system, which serves over 2,200 subscribers, was listed as "in excess of \$500,000."

James Penno has announced that he has sold his system, **Curwensville (Pa.) TV Cable Co.**, to **Clearfield TV Cable Co.** The system will be combined with the Clearfield system.

Carrol Rollyson, president of **Bettersvision Systems, Inc.**, Charles, West Virginia, has purchased the assets of **Shinnston (W. Va.) TV Cable Corp.** from Sam Daniel of Shinnston. **Bettersvision Systems** is a subsidiary of **Mountain National Corp.**

**Soo Electronics, Inc.**, South Sioux City, Nebraska, has been purchased by the **Minneapolis Star-Tribune Corp.** **Blackburn & Co.**, Washington, D.C. was broker in the transaction.

Henry J. O'Neill, Jr., president of **Hightower Telesystems, Inc.** announced that his company has reached a tentative agreement with **Cornwall (N.Y.) Co-Ax, Inc.** to purchase the Cornwall plant.

Former Presidential aid, **Walter Jenkins** of Austin, Texas, has purchased **Rio Grande (Tex.) Television Cable Corp.**, which has over 1,700 subscribers. The former owner was **Telesystems Corp. Daniels & Associates**, Denver, handled the transaction.

Seven Hills Antenna Corp. has announced the sale of its two Southern California systems. The company's **San Pedro-Palos Verdes** division has been purchased by **Co-Axial Systems Engineering Co.**; the **Tujunga** division has been sold to **King Videocable** of Seattle. □

*Just as soon  
as we finish  
packing...*



... We'll be on our way to the NCTA Convention at Miami. Our bags are bulging with the newest in labor-saving, money-saving devices for the CATV industry. Things like our brand new Cascade amplifiers—solid state and solid performance to improve your transmission and reduce your service problems. And many, many more.

If you're looking for answers to supply problems see us in Miami. You'll find our staff ready to give you the authoritative answers on equipment and supplies that you have come to expect from Pruzan Company. If you can't make it to Miami, we'll miss you, but you can still get the same dependable answers and same-day-service by just dialing 206 + 624-6505.

**Communication, CATV & Power Line Supplies**  
***PRUZAN COMPANY***

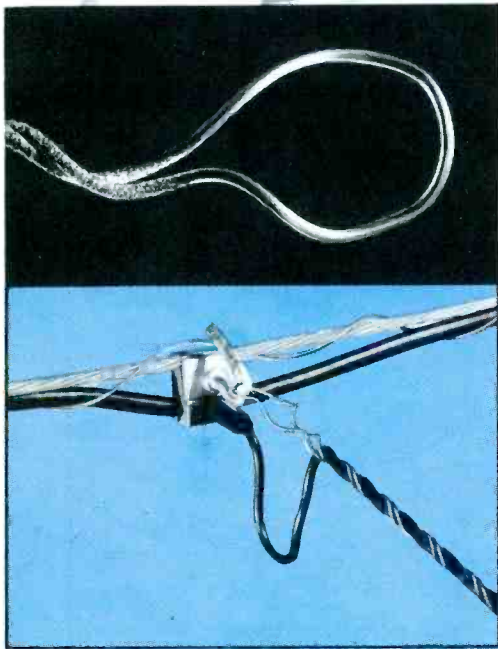
PHONE 206+624-6505

1963 FIRST AVENUE SOUTH, SEATTLE, WASHINGTON 98134

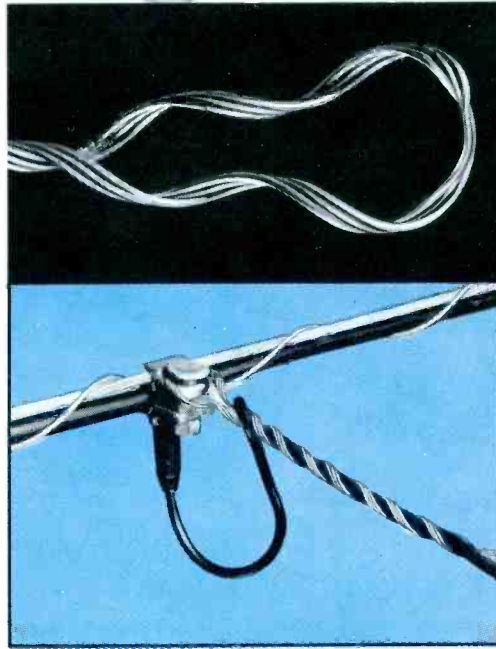
# *PREFORMED...*

*Your best connection  
for trouble-free*

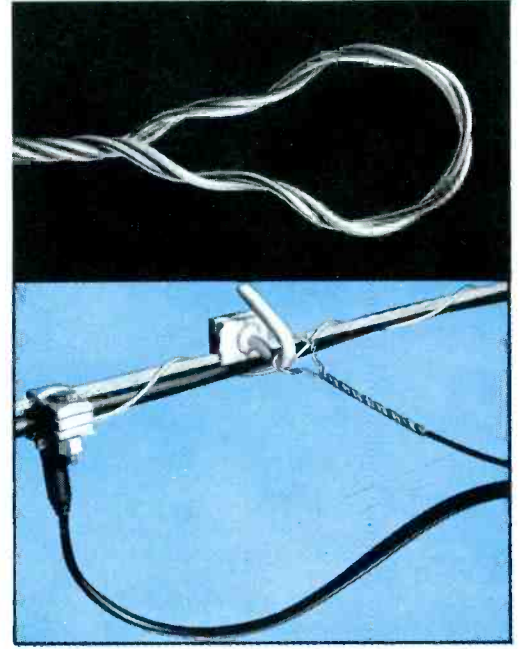
# *CATV*



TELEGRIP for attachment of RG 59/U Coaxial Cable at pole, tap, and house. Neoprene coated stainless steel. Holds full rated strength of the cable.



PREFORMED Stainless Steel Dead-End, for foam-type RG .59/U Cable. Unique design permits use with closed-eye fittings.



PREFORMED Dead-End provides fast, easy method of attaching Figure-8 Cable. Simply strip the messenger and wrap on the dead-end.

*You can look up to*

## **PREFORMED**

*In the WEST*



**PALO ALTO, CALIF.**

*In the MIDWEST*



**CLEVELAND, OHIO**

*In the SOUTH*



**TUCKER, GEORGIA**

# FINANCIAL REPORTS

Three superior holding fittings are now available from PREFORMED to provide truly maintenance-free connections at feeder tap-offs and house drops. These helical fittings are the outgrowth of dead-end designs employed universally since 1951 by electric power and communications utilities and other industries. They offer the greatest dependability at lowest cost.

The dead-ends illustrated are for different applications; but all three provide the following common benefits:

1. Hold 100% of the rated strength of the wire or cable even under wind or icing conditions.
2. Stainless steel for corrosion resistance, and long bail life.
3. Unique gripping principle eliminates kinking and coiling of the cable.
4. Long-length design eliminates concentration of stresses; prevents fatigue damage and distorted pictures.
5. No burred edges to cut into the cable.
6. Fully proved under laboratory and field operating conditions.
7. Lowest installed cost. Long, trouble-free service life.
8. Easily adapt to any construction requirement. Result: reduced system maintenance.
9. One-piece construction.
10. Hand applied in seconds; uniform application every time.

OTHER CATV PRODUCTS, such as GUY-GRIP® dead-ends, Lashing Rods, False Dead-Ends, Splices, Plastic Guy Guards, and Spacers are furnished by PREFORMED for the construction of inexpensive, safe, dependable systems. Write to PREFORMED LINE PRODUCTS COMPANY, 5349 St. Clair Avenue, Cleveland, Ohio 44103.



Anaconda Co.'s annual report to stockholders showed a net income of over \$79 million (\$7.27 per share) as compared with \$57 million (\$5.26 per share) in 1964. Total income for the system engineering firm topped \$1 billion.

C-Cor Electronics announced the results of its fiscal year ending December 31, 1965, at its annual shareholders' meetings. Net earnings per share were at \$1.55, up 33% from the previous year's \$1.16. Sales of \$727,000 were 52% above 1964. Total employment at the manufacturing firm was reported up about 45%.

General Cable Corp.'s first quarter earnings were reported the best in the company's history, exceeding by a third the \$4,593,513, or 68 cents a share, earned in the same period last year. A. Leon Fergenson, president, predicted record annual earnings for all 1966, saying that earnings should exceed by 20% last year's \$21,246,148, or \$3.16 a share.

Narragansett Capital Corp. reported earnings of \$2.20 per share for the year ended March 15. Capital gains accounted for \$1.50 per share of the earnings. The firm reported \$1.2 million capital gains after taxes as a result of the liquidation in April, 1965, of CATV, Inc., which was 74% owned by Narragansett.

Phelps Dodge Corp. president Robert G. Page informed the stockholders at the annual meeting that the Cable firm's estimated earnings for the first quarter were approximately 20% higher than earnings of the same period last year. The official estimated earnings for the quarter were \$19,600,000, or \$1.93 a share, up from \$16,187,549, or \$1.60 a share for the same period last year. In addition, Page told the meeting that the company has budgeted \$60 million for capital outlays, of which \$40 million to \$45 million will be spent this year.

Rust Craft Greeting Cards, Inc. has issued its sales and earnings report for the fiscal year, ended Feb. 27. The firm, which recently made a major move into CATV with the acquisition of Neptune Broadcasting's Ohio systems and franchises, reported earnings

were \$1,600,000, or \$2.20 per share, up from the previous year's net of \$1,563,000, of \$1.42 a share.

TelePrompTer Corp. reported that both its gross revenues and profits attained all-time highs in 1965. Earnings increased for the fourth straight year to \$504,321 or 66 cents a share—a gain of 25% over the previous record of \$401,070 established in 1964. Gross receipts were \$5,686,324, up from \$4,461,326 for the preceding 12 months. Cash flow also reached a high of \$1,437,985 last year. The CATV group owner now has 763,562 shares of common stock outstanding.

Reeves Broadcasting Corp. president J. Drayton Hastie reported that the broadcast and CATV group owner's sales and earnings set all time records for the year ended Dec. 30, 1965. For 1965, profits were up 40% over 1964, and the cash flow gained 27%. Earnings per share amounted to 28 cents compared to 20 cents in 1964. Gross revenues were \$5,789,000, compared with \$5,144,000 in 1964.

Tower Antennas, Inc. announced a net income for the year ended Dec. 31, 1965, of \$95,294. Net income per share was \$1.10. Total sales for the year were reported at \$742,787. Claude Stevanus, president, told the stockholders that the subscribers in the firm's 13 systems now number 13,315, up from the 9,656 subscribers at the end of 1964.

Carolina Telephone & Telegraph Co. reported that earnings per share increased from 21 cents on \$1,439,616 for the first quarter in 1965 to 23 cents on earnings of \$1,617,923 for the first quarter ended March 31, 1966. The phone company's CATV subsidiary is Carolina Communications, Inc.

Cox Broadcasting Corp. president J. Leonard Reinsch, reported that the earnings for the first quarter, ended March 31, were 41 cents per share on earnings of \$1,076,207. This represents an increase of 10% over the earnings of \$981,000, or 37 cents per share, for the same period last year. The total operating revenues increased 15% from \$6,963,095 in the first quarter last year to \$8,036,764 this quarter.

# FOCUS

... On Progress

## Systems

Bill Bresnan, formerly vice president-engineering, has been appointed executive vice president of American Cablevision Co. Bresnan will be assisted by Fred Weber, who will continue as vice president-sales.

Bob Hannon has been named manager of marketing of American Television Relay, Inc. Hannon will be responsible for all phases of customer relations among system owners and operators.

Mike Joyce has joined Jerrold Electronics as manager of system development for the community operations division. Joyce is responsible for the various stages necessary to develop Jerrold's CATV franchises into operating cable systems.

Edward J. English has been appointed operations director for Pioneer Valley Cablevision Inc. English will be in charge of the overall operation of presently operating systems.

Vincent E. Uricchio, moving up from his position as sales manager, has been named director of operations and promotions of the western division of American Cable Television, Inc.

Marilyn Sutorius has been named a director and corporate secretary of Pellin Enterprises, Inc.

Bernard A. Boyer has been appointed manager of Efillingham (Ill.) Cable TV Co. Boyer was previously employed with the National Bureau of Standards in Washington.

Charles Malone has assumed the position of manager of McKenzie Cablevision Co., McKenzie, Tennessee. Malone is formerly of Dexter, Missouri.

Robert Oltman has been named manager of Pontiac (Ill.) Cable Co. Oltman has been with the firm since 1963.

Donald Cameron has been named resident manager of Brockville Cable TV, Brockville, Ontario, Canada.

Earl Haydt has been named chief technician for Berks TV Cable Co., Reading, Pennsylvania. Haydt has ten years experience in CATV.

Richard Hammersley has been named general manager of Television Transmission Co. For the past 16 years he has been an engineer for Gisholt Machine Co., Madison, Wisconsin, and the Kartrig Pak Co., Davenport, Iowa.

John W. Roberts, formerly account executive with Angers, Bower & Associates, has joined Donrey Media Group, Fort Smith, Arkansas, as advertising and public relations consultant.

## Suppliers

Gay C. Kleykamp has been named director of products for Kaiser-Cox Corp. In his new position, Kleykamp will provide technical liaison at the management level between the firm and its customers as well as organize and supervise the establishment of technical training facilities.

Charles J. Evans has been named general manager of Redifon (Canada) Ltd.

Don LeMire and William McGuckin have joined the staff of Spencer-Kennedy Laboratories. LeMire will serve in the dual posts of program manager for SKL's instrument line and field support specialist for cable sales. McGuckin has been named as director of public relations.

Denis Sparks has been appointed to the newly-created post of vice president-technical operations at Spencer Kennedy Laboratories. The appointment of seven new district managers has also been announced at SKL: Robert Gault, formerly of Kansas CATV, Inc.; Bruce Frazier, William Asip, Lawrence Whitehead, Robert Hatter, and William Bryant — all formerly with Ameco, Inc.; and Robert Lemmon, recently of Kaiser-Cox, Inc.

Robert A. Fillingham has been designated eastern regional manager for Kaiser-Cox Corp. Fillingham will be responsible for sales development in that half of the U.S., through a staff of area salesmen working under his supervision.

Ernest Sisson has been promoted southern district regional sales manager for Blonder-Tongue Laboratories, Inc. Prior to joining Blonder-Tongue last year as a sales engineer, Sisson operated his own firm.

William P. Jones has been appointed district sales manager of California by Entron, Inc. Jones previously worked for Ameco, Inc.

Charles D. Leyrer has been appointed northern regional sales representative for Entron, Inc. Prior to joining Entron, Leyrer was associated with DeWald Sound Equipment, Inc. of Lansing, Michigan.

Homer P. Roelle, Jr. has been named northeastern district sales manager for Superior Cable Corp. A field representative who joined Superior in 1958, Roelle will continue to serve accounts in Ohio, Pennsylvania, New York, and New England. He maintains an office in Galion, Ohio.

Robert J. Swirbul has been appointed district manager of the Dallas sales office of Anaconda Wire and Cable Co. He previously served as district manager in Memphis, Tennessee, where he has been succeeded by Steve M. Francis, Jr. Robert W. Allen has been appointed district manager of Anaconda's New Orleans office, and Gordon M. McAleer has been assigned to that office as a salesman.

## Professional

William B. Carr & Associates, consulting engineers, has announced a change of address. The firm now has offices at the Walker Building, 4028 Daley, Fort Worth, Texas; new telephone number for the firm is AT 4-9311.

The Silverman Advertising Agency, Inc. has been named as advertising and public relations directors for Craftsman Electronic Products Inc.



Bob Hannon



Michael Joyce

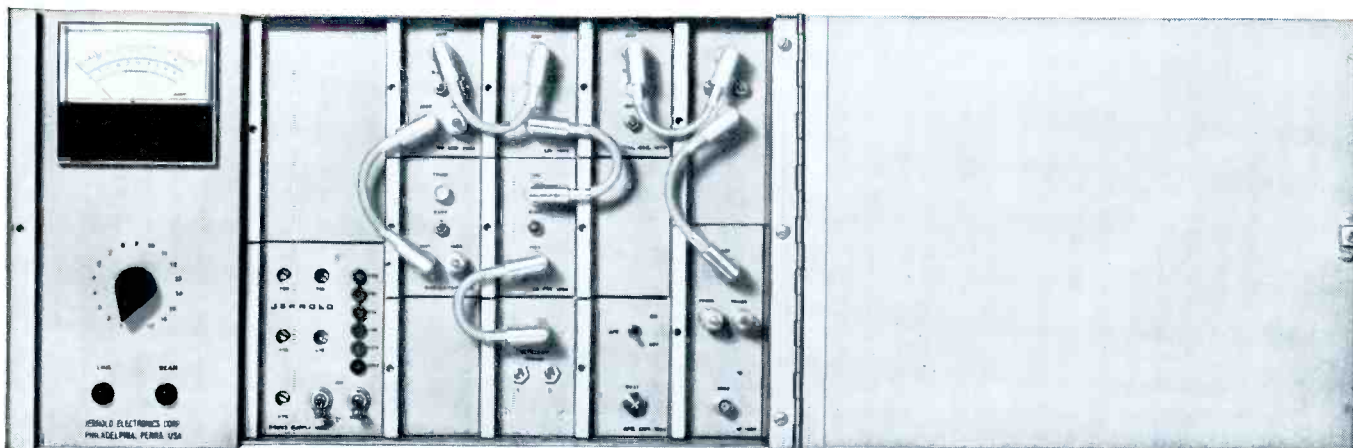


Vincent Uricchio



Gay Kleykamp

# the shortest distance between two points



## new **440** solid-state microwave by Jerrold

One point is your head end, the other a remote program source. Your requirement . . . melt the distance and deliver a first-class video signal. Solution? Specify Jerrold 440 Microwave.

This compact and ultra-stable equipment provides sharp, strong pictures over longer distances. Need only a short hop? The extra power and stability lets you use smaller antennas for overall reduction of system cost.

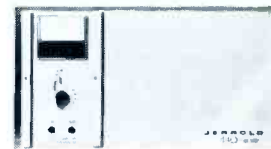
"Solid state—high-output klystron" design provides maximum reliability plus greater fade margins. In a word, the 440 Series by Jerrold is the finest microwave gear available from any manufacturer, at any price. Check the specs—then check the cost.

If you're considering a system in either the 6gc common-carrier band or the new CARS (Community Antenna Relay Service) 12gc band, speak with Jerrold first.

Write today for complete data.

### 440 features (6-8 gc)

1-watt (min.) transmitter output • 12mc baseband, flat within  $\pm 0.25\text{db}$  • Frequency stability  $\pm 0.005\%$  • Individually self-contained power supplies • Modular construction throughout • Receiver fully solid-state—no klystron • Vapor-stabilized transmitter klystron • Compact—only 10½ inches high.

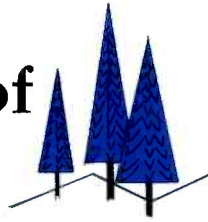


**JERROLD**

**JERROLD ELECTRONICS  
CORPORATION**

Communications Systems Div.  
401 Walnut St.  
Philadelphia, Pa. 19106

# The History of CATV in the Pacific Northwest



*First of a Series  
By Philip D. Hamlin*



CATV wasn't born . . . it "spawned" simultaneously, like a cluster of salmon eggs. All were fertilized by the insatiable desire for "radio with pictures." In the Pacific Northwest, in early 1949, systems were under construction from a quarter mile to 124 air miles of the pioneer Seattle station.

Before NCTA, communications between systems and the exchange of technical information was non-existent. This "preamble" is intended to portray conditions in the 1948 to 1952 "Dark Ages" during which the two systems covered herein were constructed.

It has been said that "hams" have contributed more to the art of communications than all the "ivory tower" researchers in recorded history. The thread of truth running thru this assertion is that "tinkerers" and "experimenters" refuse to shrug off apparent contradictions of natural laws and frequently force the boys in the "towers" to go back to the textbooks.

In 1950, an experience in Centralia, Washington . . . 75 air miles from Seattle . . . initiated the collision course I never subsequently avoided with the "brains in a vacuum" carefully nurtured by some of the leading manufacturers.

The Centralia system, using early series strip amplifiers controlled with a picture carrier actuated AGC, frequently suffered from "sound bars" . . . horizontal lines running thru the picture and synchronized exactly with the sound. Occur-

ring at the antenna site amplifier, with both inputs and outputs of the picture carrier well within conservative parameters, this was a real puzzler.

Commercial field strength meters then available were simply TV tuners and broadband IF's, incapable of measuring sound and picture separately. Using a pilot FM tuner converted to cover the 70 to 85 megacycle spectrum (we were only concerned with Channel 5), it was determined that sound and picture . . . 77.25 and 81.75 respectively . . . were like a couple of kids on a "teeter totter." Somewhere in the media thru which they passed, density varied in such a manner and at such a rate that these two frequencies, only 4.5 megacycles apart, could vary up to 40 db in relation to each other at the receiving site.

Fortunately, the variation was not around the average but was in the nature of rapid increases from the average to perhaps 34 db above and 6 db below. Since preamp input was never below 150 microvolts and the antenna site was relatively noise free, the problem was limited to the "cup running over" and could be solved if we could find a bigger bucket. Without the sound carrier increases, the AGC was doing an excellent job of holding the increases in check.

In this prehistoric period, common single channel strip amplifier outputs were one volt and as an early conservative, I was experimenting with reducing inter-amplifier spacing by 6 db and running at .4 to .5 volts, having determined that people were much happier if their TV sets did not roll vertically. Since the sound carrier level at the antenna site was received at approximately the same intensity as the picture, a -6 db fade on pix simultaneous with a 30 to 34 db increase on sound "slightly overtaxed" our conservatively operated amplifiers, resulting in cross modulation of the two carriers.

I well remember the first call to the manufacturer of the equipment. A part time employee in our Centralia system was a telephone lineman and never was without his company telephone. He stood on his "hooks" beside the first amplifier and, connecting his service phone to an available open wire line, dialed the operator and placed a call on my credit card. Within minutes we were in contact with the chief "brain in a vacuum" at the most advanced CATV laboratory of that period.

Sitting on a crossarm for more than an hour, I juggled the field phone and the home made field strength meter, reporting the "differential fades" exactly as they occurred. At the other end, "the brain" quoted at least a hundred reasons why I was crazy and proved, to his own immense satisfaction, that all field personnel were idiots. Carriers only 4.5 mc apart radiated from the same antenna and following the

Phil Hamlin built his first system in early 1949, using RCA 630 TS modified tuners, and serving a "shaded" area of Seattle via private property easements. In 1950, he obtained a franchise by copying the Fire Alarm Franchise of 1907, substituting the wording "coaxial cable" for "wires." His Seattle system was granted the first telco pole contract west of the Mississippi. Phil was a Jerrold distributor until March, 1953. Following formation of Jerrold-Northwest, of which he was a stockholder, he managed that firm until February 1957. Since that time, Hamlin has been involved in the manufacture of high fidelity equipment in Japan under the Hamlin brand. He is currently working on equipment items to be manufactured in Japan for the American CATV market.



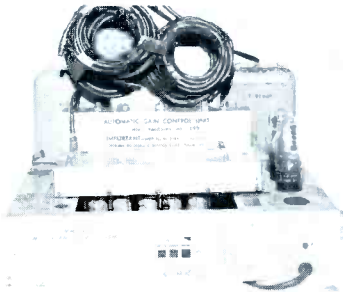


same path, simply cannot do what these were doing . . . and that was final.

The conversation and the crossarm are indelibly imprinted in the anterior and posterior ends of my anatomy. Meanwhile, in town, connections were at a standstill, suppliers wanted payment, and subscribers weren't in the least interested in the higher echelon verdict that the cause of the distracting squiggles didn't exist.

Sleep didn't come easily that night and about 2:00 AM I started thinking about some interesting "suck outs" noted a week before while aligning some amplifiers. A hunk of RG59 cable, momentarily unterminated and connecting to the old 1101 type "T" fitting had put two very sharp, very deep slices in the response curve of a strip and one had fallen right on the sound marker, completely obliterating it. Obviously this open line was a multiple 1/4 wave length at each of the two indicated spots and just as obviously a multiple 1/4 wave length was an excellent, high "Q" trap at each frequency for which simple arithmetic made it an odd quarter.

With an old Philco sweep generator and some associated equipment, I started "clipping" away at a 50' length of RG59 until I found precisely the length that would provide a high "Q" trap at 81.75 and then another at 77.25. With these two traps, fed from the output of a splitter fed by the preamp, I constructed a dual AGC. The sound section was



The original "Hamlin dual AGC" with multiple quarter wave length, high-Q traps, one megacycle sound strip, and 3.5 megacycle picture strip. Picture strip was standard Jerrold "W" strip, and sound amplifier was a CL strip drilled for second "spigot" and with two stages disabled to reduce gain.

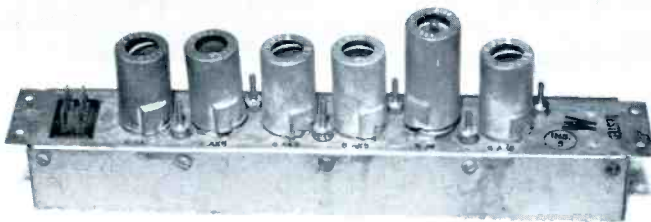


This CATV "museum piece" is the first antenna preamp, mixer, IF amplifier from the original South Bend system. It was bracketed to an apple box which was fastened to the mast. Underground RG59 connected it to first IF "reamplifier" in basement of house about forty feet away.

a strip amplifier narrowed to one megacycle and with two of the five stages by-passed to keep the gain low enough to avoid regeneration. The picture section was an identical strip, narrowed to 3.5. With the multiple stub traps to prevent interaction between the two, we licked our sound bars.

Although it took three months to get a representative of the "laboratory" to verify (a) that we did have differential fades, and, (b) that sound AGC was a necessary and valuable accessory . . . he wen back to the "ivory tower" and designed a superb system that hundreds of CATV systems are still using.

An interesting sequel to this Centralia experience occurred two years later. By then, the CATV equipment manufacturer



This CA-5 strip preceded the 5 tube "W" strip, and was used in the first "on channel" distribution at South Bend.

# WEATHER-SCAN<sup>®</sup> . . .



U. S. Patent 3,226,476

## CAN BE USED FOR LIVE STUDIO WORK!

This versatile time/weather unit can be easily adapted for televising live programs or other local services. A simple adjustment enables the camera to swing around as shown—and your studio camera is ready for action! It's a low cost way to increase your service to subscribers . . . and to add value to your system. This unique feature is available now only with WEATHER-SCAN—Leader in time/weather service.

WEATHER-SCAN COMES COMPLETELY  
EQUIPPED TO GIVE YOUR VIEWERS

- TIME
- RAINFALL
- TEMPERATURE
- WIND VELOCITY
- BAROMETER PRESSURE
- WIND DIRECTION
- YOUR MESSAGE FROM 3 CARD HOLDERS

The dual-service WEATHER-SCAN features precision-manufactured Texas Electronics time/weather instruments plus the high fidelity General Electric TE-20 camera (Wide Angle Lens included) —all for the low price of . . . **\$4575.00**

CONTACT YOUR DISTRIBUTOR TODAY . . . OR  
WRITE OR CALL

## R. H. TYLER CO.

ORIGINATOR OF TIME/WEATHER EQUIPMENT FOR CATV

1405 15th Street • Wellington, Texas 79095 • (806) 447-5841

had grown at least 30 db and had a magnificent lab, isolated from the main factory and literally an "ivory tower."

In Ellensburg, Washington, I had elected to run thirteen miles of "open wire line" from the antenna site to service a town of only 10,000, and was using eight inch spaced, No. 6 copper wire supported only at the crossarms, with no inter-span spacers. Vitally needed was a 450 to 75 ohm transformer to step down to the cable before and after each amplifier.

While I listened intently to this same, highly competent engineer explain why such a transformer was impossible, I watched an associate over his shoulder. In the time it took my negative friend to prove his point, the other fellow had wound the prototype transformer, tested the input and output match on a scope, then interrupted the conversation to display his "impossible achievement." With a dozen of the "impossibles" in my pocket, I returned to the system in question, cleaned up the slight "ghosting" on one of the three channels, and the system enjoyed seven years of unparalleled prosperity before microwave obsoleted the "impossible antenna run."

### Early Northwest Systems

Earliest Pacific Northwest CATV systems were Astoria in Oregon and Bellingham, Seattle, Centralia, Montesano and South Bend-Raymond in Washington.

The "wide open spaces" make the West the *only* place to live . . . but 25 to 85 homes per mile, plus the less sedentary nature of Westerners makes a CATV system infinitely more hazardous than in the East . . . with "cliff-dwellers" piled up vertically to equal 150 or more families per mile.

In spite of prodigious effort, several Northwest systems failed. Oddly, the failures were not associated with picture excellence, which in many instances was superior to their more successful contemporaries. Always, success seemed to depend upon strong local identification and strong public relations. Best example of the latter is Aberdeen, Washington, about which I will have more to say later. First, let's look at South Bend-Raymond, which started a year and a half earlier and has many unique facets.

### South Bend-Raymond

South Bend-Raymond is my favorite for ingenuity and for the distinct personalities of the technicians. Even the received signal is different . . . a narrow beam focused by some undiscovered lens system somewhere in the terrain between Seattle and South Bend. The receiving antennas are at sea level.

South Bend first received television from an illegal radiator. Using a 727B WWII surplus transmitting tube, the same technicians who later built the cable system reradiated Seattle's Channel 5.

The purpose was to sell TV sets for their employer. Consequently, they used a simple but effective device to stymie competition. Picture was radiated from one location with a power of seven watts and with normal horizontal polarization. Sound carrier was radiated from a different location, with vertical polarization, and about .7 of a watt.

Competitors were thoroughly frustrated by failure to obtain the sound that came so easily to our heroes, but never suspected the reason for the inconspicuous vertical dipoles projecting upward and downward from the otherwise normal yagi antennas.

The wheels of Government finally ground to Raymond. The field engineer never did find the picture transmitter . . . it was twelve hundred feet from the receiving antenna and the cable was buried . . . but he quickly located the sound apparatus and accomplished its demise by simply noting the

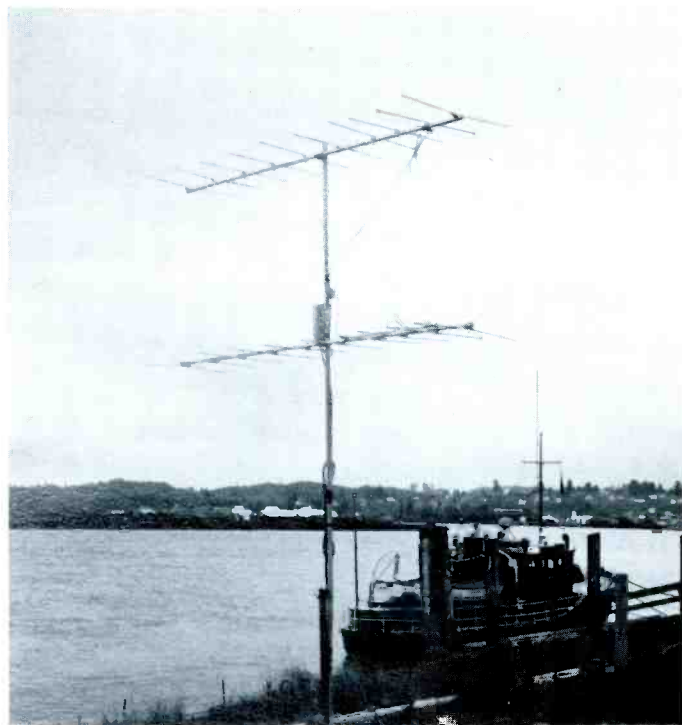
consequences of further activity by a holder of a First Class radio-telephone license.

So Raymond's "re-radiator" went black . . . and a lot of customers saw red . . . and a pioneer cable system was born of expediency.

First distribution was via utility district poles. Messenger was fastened by simple hooks (see illustration) and RG59 was "hog ringed" to the No. 9 iron wire messenger.

Studying the problem of cable losses, Merle Smith, the present owner, elected to distribute at the television set's Intermediate Frequency. At each tap-off, the set's oscillator was disabled and an adaptor plugged right into the mixer tube socket.

Head-end equipment was an RCA 630 TS tuner, followed by a homemade IF amplifier. Three tubes were used with



One of three antenna sites at South Bend necessitated by origination points of channels 4, 5 and 7 at Seattle, channel 11 three miles southwest of Seattle, and channel 13, Tacoma, about thirty miles from Seattle. Each point of origin determines focal point at South Bend, and oddly, difference of more than an octave in frequency between lowest and highest Seattle channels does not change their focal point.

stagger tuning. Subsequent line amplifiers were either home made or skeletonized TV sets in which just the IF amplifier was utilized.

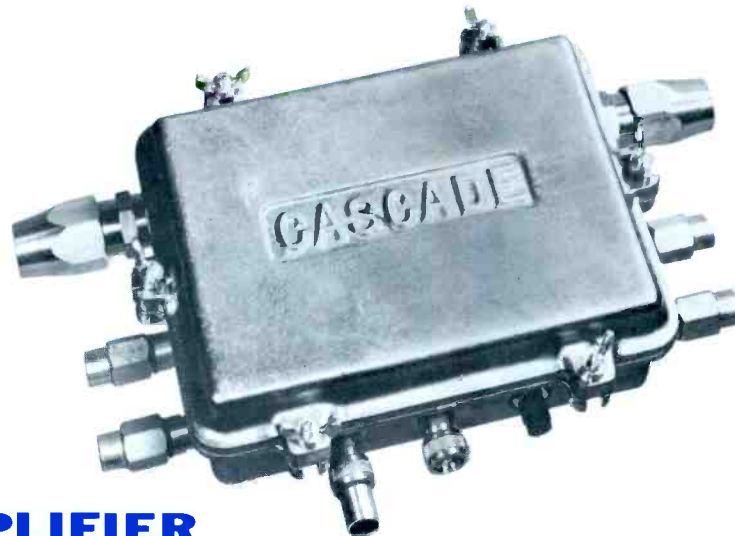
"Pandora's Box" of troubles . . . beats, smears, etc., increased as the square of the customers. After about twelve it was decided to go "on frequency." Jerrold CA-5 strips were chosen to do the job.

Pole contacts were available at the outset, but the cost of running power to pole mounted amplifiers led to another unique practice; amplifiers were mounted in homes, where power was purchased at \$1.00 a month. If the householder was a subscriber, his bill was simply \$1.00 less. If he wasn't, he was paid monthly.

Access was simplified by placing the amplifiers upside down under the roof overhang, on a back porch, or at any external point where power could be supplied with an extension.

Levels were set by measuring radiation with a home-made "field strength meter," similar to the author's (see picture). "Calibrated" parking sites were established near each amplifier. Knowing the normal radiation at the parking site,

# THIS IS A CASCADE...

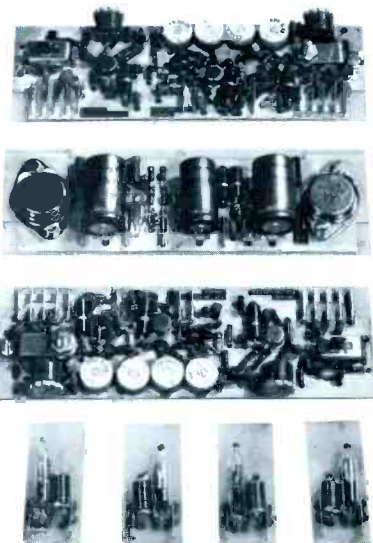


- TRUNK AMPLIFIER**
- TRUNK/BRIDGER COMBINATION AMPLIFIER**
- LOW GAIN BRIDGING AMPLIFIER**
- HIGH GAIN BRIDGING AMPLIFIER**

With these etched circuit plug in boards and cable system operator can program the housing to perform a specific function in the system. The amplifier housing is cast aluminum — waterproof. No special technical knowledge or tools are needed for service.

Each Cascade Electronics Amplifier is a superb, high gain unit, designed and engineered for years of excellent performance. Designed by engineers who know CATV system requirements.

Each Cascade Amplifier is backed by a written two year warranty, registered with the factory, which covers workmanship and materials.



**CASCADE ELECTRONICS LTD.**

ELECTRONIC AVENUE, PORT MOODY, BRITISH COLUMBIA. TEL. (604) 939-1191

## DISTRIBUTORS

Throughout Canada:

Fred Welsh Antenna Systems  
5594 Cambie Street  
Vancouver 15, British Columbia  
Phone: 604-321-2621

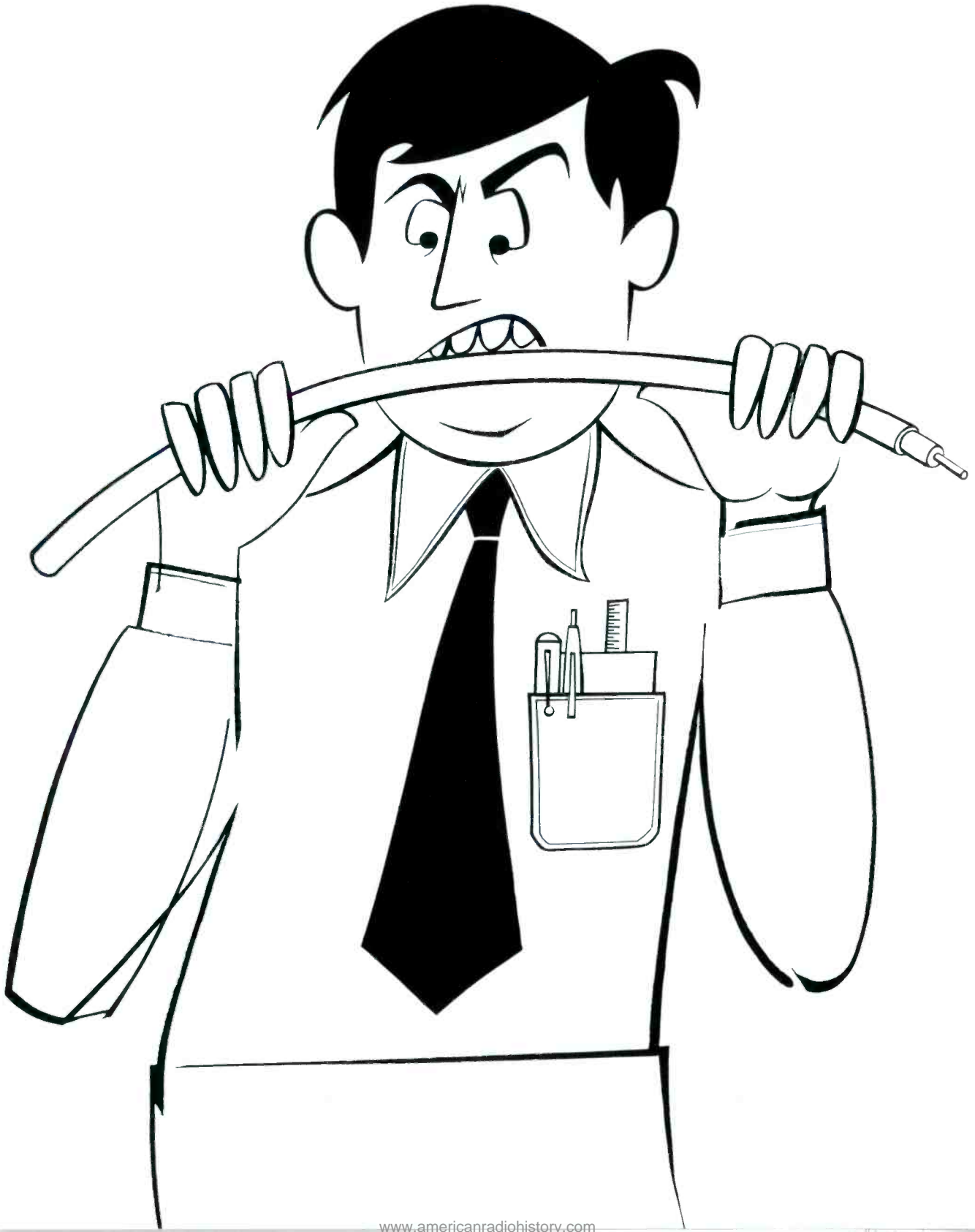
Western United States, including Alaska  
and the Hawaiian Islands:

Pruzan Company  
1963 First Avenue South  
Seattle, Washington 98315  
Phone: 206-624-6505

See the complete Cascade Series CATV amplifiers at the N.C.T.A. Convention, June 26 - June 30, booth 602.

# OUR ENGINEERS DRIVE US NUTS!

They know Plastoid makes the best aluminum sheath CATV cable  
in the world, but it's test, test, test—all the time!



### **We love them, but...**

Plastoid's engineers are too much. Long ago our engineers learned how to make a better aluminum sheath co-ax. They borrowed a technique from the makers of high-pressure boiler tubes and helicopter rotors. They learned to weld cable with beams of ultra-high-frequency radiation. This let them make aluminum sheaths longer than anybody else. Stronger, too. Because they started with precision-rolled strips of aluminum, wall thicknesses were more uniform. The cable was rounder, or more "concentric," as they like to say. Better for splicing. No worry about joining a round section to an oval one. Or two differently shaped ovals. That's good for us. It's good for you. But then all the testing began.

### **Plastoid's engineers are fiends.**

You think our people will take something on faith? Not on your life. They're fanatics. They measure every inch of the aluminum strip that goes into the cable sheath. From side to side. End to end. This is to insure even thickness. After the strip is curved up

around the polyethylene core and welded, our people run continuous eddy-current tests to make sure not even a pinhole would get by. Of course, they sweep-test, too. No cable leaves our plant with less than 26. db return loss at any frequency between 40 and 230 mc. Is this enough? Not for our people.

### **Maybe Plastoid's engineers are nuts.**

We see them all the time, chopping off hunks of cable to test the weld. The seam is stronger than the rest of the sheath, but our engineers like to prove it again and again with ATSM cone tests, flare tests. They even fill sections of the sheath with high-pressure water. To test the bursting point. And they've proved our welded sheath would make an excellent water pipe. It holds under pressures up to 2,000 lbs. per sq. inch. They say this proves strength and watertightness. And it does. If our sheath keeps water in, it will certainly keep moisture out. That's what breaks down dielectrics. Spoils CATV picture quality. It's very important to know about a cable's moisture resistance. But we wish our engi-

neers would stop testing so much.

### **Plastoid's proof is in.**

The best test for Plastoid's welded aluminum sheath is the working test: installation in a full-fledged CATV system, say a color system. That's where our cable shows its true colors. We've seen the results time and again. Superb quality that lasts. Ask us about our happy customers. Ask us, too, about our variety of sizes, our unique lengths. Plastoid and only Plastoid provides a choice of two cables in lengths up to 5,000 feet: TA-5 for .500-inch trunks; TA-4 for .412-inch feeders. For head-ends, there's TA-8 .750-inch (co-ax). It comes in lengths up to 2,500 feet. All sizes come both jacketed and unjacketed. All footage is certified.

For complete details and special price information, please contact us. Then, go ahead and break our engineer's hearts. Order your cable. They'll hate to stop testing it. But love them as we do, it's them or us.

# **PLASTOID**

 CORPORATION  
42-61 24TH STREET / LONG ISLAND CITY 1, N. Y. / ST 6-6200

Smith would drive to the exact spot and read the radiation. If low, he would increase the gain.

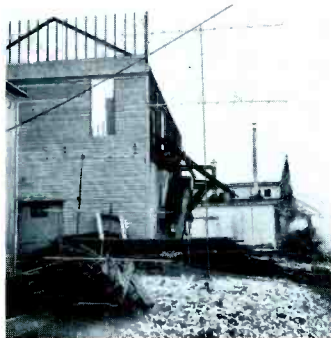
Overall system gain levels were even more unique. In February of 1950, when I first met Merle Smith, this was accomplished by two-way communication. The *ungrounded* messenger was one conductor and ground was the other for a "sound powered" telephone. Smith's assistant increased or decreased gain at the first amplifier while Smith watched a TV set. The parameters were snow at one extreme and "sync" clipping at the other. Since the only cross modulation was between picture and sound, and amplifier overdrive caused sync clipping long before "sound bars," the method was effective.

As of February, 1950, the South Bend system had 50 customers who had paid \$125.00 for the connection, plus one year's advance rental at \$3.00 per month.

The advance payment of annual \$36.00 rentals posed some problem with the surcharge authorized in the contract for each additional channel. Most customers paid without complaint but one was adamant and refused to pay the increase until the end of his first year.



Head-on view of the original South Bend antenna site. Merle Smith kept first amplifier in house behind the site—which is still used for some channels.



An increase of power and antenna height changed the focal point of channel 5, Seattle to this location. Channels 4 and 7 also focus here, barely above the high tide level.

Smith provided an answer satisfactory to all concerned. The basic problem was not the refusal to pay but the legal result of permitting one subscriber to "ride free" while the others paid. Using a "high Q" trap developed by the author for another purpose, Smith trapped out the new channel until the year was up, at which time the customer agreed to pay the new charge and the trap was removed.

Construction extended to Raymond, five pole line miles away, in June of 1951. Modern techniques were utilized, even to the mounting of amplifiers on poles and "lashing" of the RG11 cable to the messenger. Number 9 iron wire messenger was still utilized instead of the standard .109 telephone type, however.

In 1957, the appliance dealer who owned the cable system and had sold 90% of the sets to the subscribers, sold to Merle Smith. Connections at the time of sale totaled 700. Utterly devoted to the community, Merle soon found that the community was equally devoted to him. "Saturated" at 700 connections in an area less than 3500 population, the system doubled to 1400 in his first year of proprietorship and now exceeds 2000 . . . an incredible count considering the total number of homes!

Son of a Methodist minister, Merle worked his way thru high school with farm work in the summer and odd jobs in the winter. The comfortable affluence of sole ownership of a 2000 connection, debt free system has altered none of his depression-formulated values. A city commissioner, he tried to encourage others to improve the city by purchasing and removing run down buildings . . . an extravagance for which he can hardly be criticized.

A lucrative offer for the system was rejected a year ago, after long soul searching. The prospective purchasers wanted

to increase monthly rates by one dollar without giving additional services. Merle cast his one deciding vote for the community.

## Aberdeen

Aberdeen, Washington is the most successful Pacific Northwest CATV system and, for years, was the largest west of the Mississippi. Its operators are without a doubt, the pioneers in developing "formula" CATV.

The "formula" is simple. (A) have strong local identification. (B) issue non-voting stock to "key" employees . . . give them an incentive to work toward a common goal.

The architects of this formula are Homer Bergren, of Seattle, and Fred Goddard, of Aberdeen. As two of the principals in Tele-Vue, Inc., a Washington corporation, they now control a large network of systems in Washington, Oregon, and California. Consistency in their "formula" has been the dominant factor in their success.

Aberdeen, Hoquiam and Cosmopolis are situated on Grays Harbor. The primary reason for their being is "forest products." The hills that surround the Harbor are rich in forests and the resultant logs are either shipped in raw form or fabricated into every conceivable finished lumber product, including paper. The same hills and the distance to the nearest major metropolitan areas contribute to that unique isolation necessary to early day CATV success.

Many entrepreneurs considered Aberdeen for CATV but the first to start construction were Twin Cities TV and Best Vue. The principals of "Twin Cities" were Elroy McCaw, Bob McCaw, Don McCaw, Fred Goddard, and the late Harry Spence.

"Best Vue" was comprised of Homer Bergren, Don Heckathorn, Bob Hughes, and John Walker. Both systems started in the summer of 1952 and by November of that year were competing in the same streets.

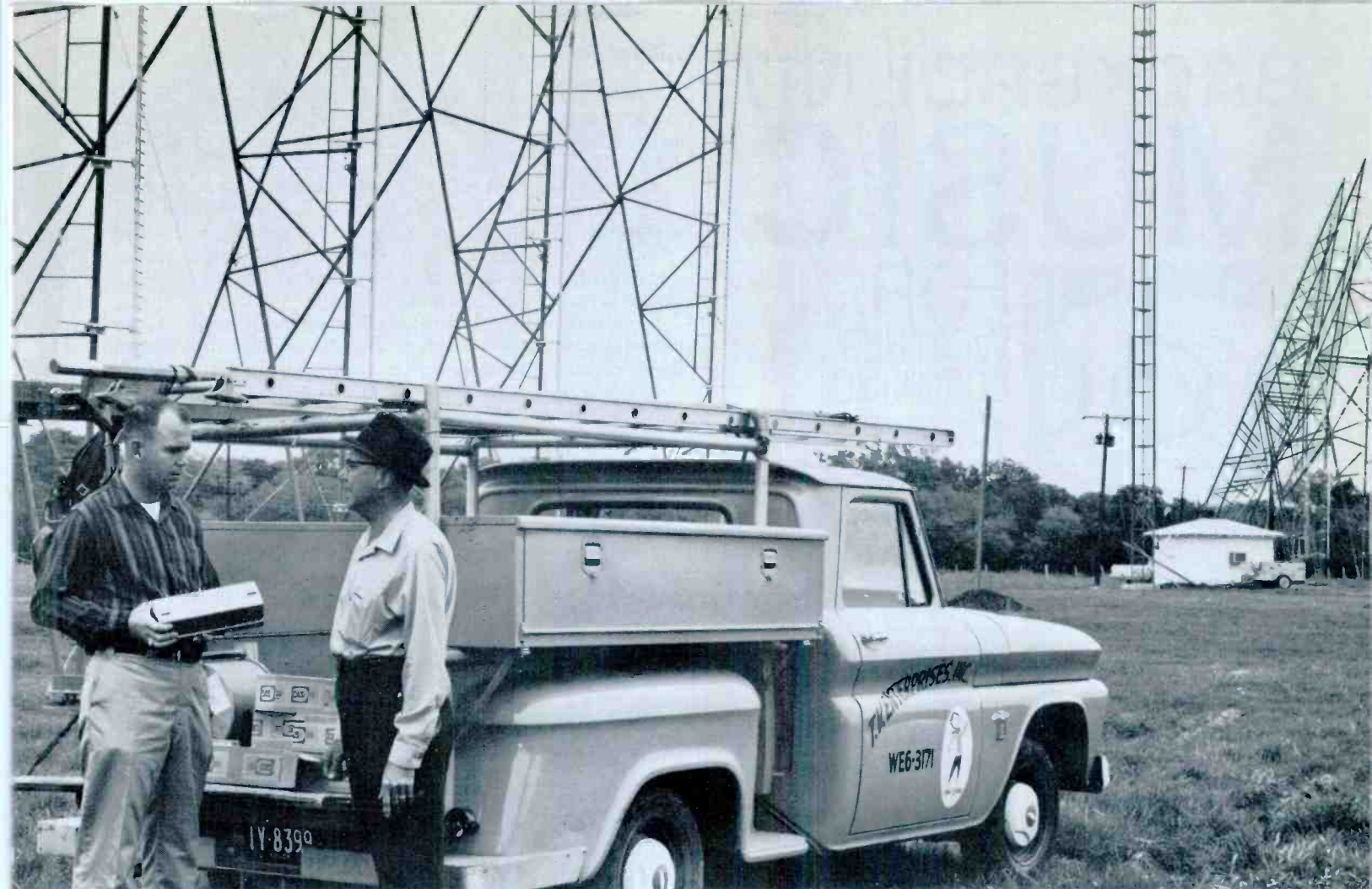
My association was with "Best Vue." In the hysteria necessarily associated with a competitive situation, there were numerous "innovations" not likely to be undertaken by contemporary CATV systems. Our "signal search" was conducted with hydrogen filled balloons, supporting a channel five yagi. Searching for "peaks" and "nodes," while slowly raising an antenna that required a half dozen control lines to keep its directional heading required most of a Sunday afternoon.

The antenna run crossed a rather large, "navigable river." The application to bury an underwater cable, addressed to the army engineers, arrived more than six months after we laid the cable . . . operating in the dead of night from a flat bottomed skiff. The war surplus 52 ohm cable, sheathed in lead, loaded the skiff down to within an inch of the gunwales. Log booms dragging underwater debris, cut it fairly regularly. The permit, authorizing doing the job properly, was greeted with considerable enthusiasm.

In March of 1953, Homer Bergren walked into the office of Radio Station KXRO, then operated by Fred Goddard and Harry Spence, and as Fred remembers it, introduced himself, laid down a briefcase with a large Boy Scout emblem on it (still a major interest of Homer's) and said, "Here we are putting cables on the same poles and running down the same streets, duplicating each other's efforts, and it just doesn't make sense. Why don't we join forces and quit knocking ourselves out?" They did and "formula" CATV was born in Aberdeen.

Meeting after the merger, they elected Fred Goddard President. His first assignment was to borrow from the local bank . . . it having been discovered, at the same meeting, that both groups were completely out of money!

Fred visited his "friendly banker" . . . their association dated back about thirty years . . . and stated he would like to borrow \$15,000.00. "Of course," said the banker, pushing



Jack (left) and John Threadgill inspect new CAS amplifiers. Tropospheric parabolic scatter antenna in background was designed by Jack to eliminate fadeouts in the Threadgill's Marlin, Texas, system.

## CAS stops common CATV malfunctions

**Father and son CATV system operator team depends on CAS amplifiers to eliminate system reliability problems.**

**M**ore and more experienced CATV system operators are turning to CAS for competitively priced, reliable line equipment.

Listen to what John Threadgill, experienced owner and operator of several Texas CATV systems says:

"We built our first CATV system in 1954 and have been in the business ever since. In the past 12 years we have built and operated systems using strip, sub-channel and low band amplifiers.

*These systems continuously had three common problems:*



1. Cross modulation
2. Noise
3. Outages from electrical storms

### Here's What CAS Did For Us

CAS eliminated these problems in the all band system which it turn-keyed for us in Marlin, Texas. The system is over a year old and uses the complete line of CAS all-transistorized amplifiers. Low power consumption of the CAS amplifiers helps keep our power bills down. They require only routine maintenance and minimize our repair costs."

*If you are interested in competitive pricing and reliability, call CAS today.*

### New Low Prices for System Operators!

Check the special new low "system operator" prices in the CAS CATV System Equipment and Accessories brochure. It also contains complete operating specifications and descriptions of the full line of CAS products.

**Write for your copy today!**



P. O. BOX 47066 • DALLAS, TEXAS 75207  
214/BL 3-3661

# BACKGROUND MUSIC

## FOR WEATHER SCANNING

It's so beneficial that most manufacturers offer Tape-Athon music as an integral part of their weather reporting system.

## NEWS REPORTS

Ideal way to fill the audio channel, and give a more personal atmosphere to print-out type news transmission.

## OPEN CHANNELS

To provide additional enjoyment for your present subscribers, or a background music service for commercial establishments in your area and without worry about performance fees. Banks, motels, supermarkets, department stores, physicians, retailers all offer a new source of revenue.

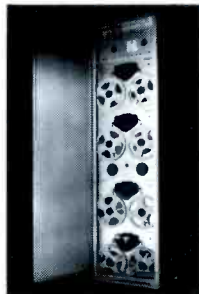
\* COMPLETELY AUTOMATIC  
\* CUSTOM PROGRAMMED

Tape-Athon background music is a must for any progressive CATV operation. It is the only system designed primarily for CATV stations and is the surest way to generate goodwill among subscribers. The addition of music to a news, weather, or open channel will be welcomed in any community, especially when Tape-Athon takes such pains to select, edit and program every reel of music it produces, even taking into account the type of music your local listeners appreciate most. Then, by rotating tapes on a regular basis, your "music" station always has a fresh supply of music on hand. Reel changing takes a few seconds, and operation of the playback unit is completely automatic. Tape-Athon has two popular systems for CATV installation.



The Librarian—  
Double tape decks  
with program indexer  
for mixing musical  
selections.

The Programmer—  
With 2, 3, or 4 tape  
decks and compre-  
hensive intersperser  
system for music and  
message program-  
ming on a weekly or  
monthly basis.



WRITE, WIRE OR CALL FOR BROCHURE GIVING COMPLETE  
DETAILS ON THE LIBRARIAN AND THE PROGRAMMER.

# Tape-Athon, Corp.

523 S. HINDRY, INGLEWOOD, CALIF. • TEL (213) 678-5445

a note across the desk for Fred to sign. Just as the note was 'within range,' with the hand still guiding it, he said, "this is for KXRO, isn't it?" "As a matter of fact, it isn't," said Fred . . . "it's for the new cable system".

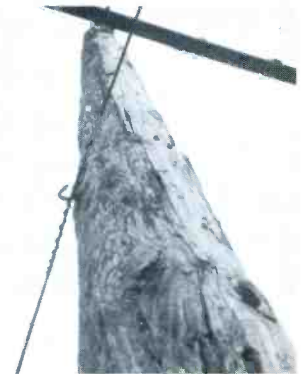
The vigor with which the banker snatched back the note . . . and the stern lecture that followed . . . are recalled with amusement by both friends to this day. Fred was warned of "technical developments" that would obsolete cable systems . . . and, of course, of the almost "immoral" idea of *charging* people for what was supposed to be *free!*

They obtained the loan . . . and subsequent loans . . . on personal guarantees. A year after the merger the system had 900 connections. Ten years after the merger, in 1963, it was sold with more than 10,000 connections. The underlying reason for their success was the "formula."

Fred Goddard provided the "strong local identification" . . . as a well known KXRO radio personality, his voice was known even to people who had never seen his face. Within the business and social community, Fred had occupied the presidencies or chairmanships of the Chamber of Commerce, the YMCA, Kiwanis, and virtually every charitable drive worthy of mention. His roots in the community were "thirty years deep" . . . and even with his business interests now far removed, Aberdeen is his home.



The original Hamlin single channel field strength meter, made by modifying a pilot FM tuner, is shown atop the latest piece of Hamlin-designed equipment, an all transistorized FM multiplex stereo tuner.



One of the first "pole attachments" in the South Bend system. About one-third of Merle Smith's cable is still the original RG11 . . . an almost unbelievable figure considering the quality of cable available in 1951.

Don McCaw was the dedicated Superintendent of Music for the Aberdeen School System. The interconnection of schools via the cable was a tremendous public relations move, and when translators threatened the system, Seattle and Tacoma educational channels were substituted for the entertainment channels during school hours. The system's enthusiastic and sincere interest in the schools reached the whole community, thru the teachers and pupils.

The internal part of the "formula," like the hidden part of the iceberg, guaranteed operating success. People with incentive perform. The application of the identical plan . . . 50% local ownership and employees-stockholder incentives . . . achieved the same success for the same people in Baker, LaGrande, Union, The Dalles, and Astoria, Oregon.

TeleVue, Inc., the firm formed by Bergren, Goddard, and many of the original employees of the former properties, plus additional principals who developed and sold Eastern Washington and Western Idaho systems, now represents every legal, technical, political, and public relations skill necessary to CATV operation. Their CATV equipment company, based in Seattle, provides all major brands of equipment and is prepared to provide everything from management/engineering consultant to "turnkey" construction and management.

Aberdeen started one of the industry's greatest "success stories." □

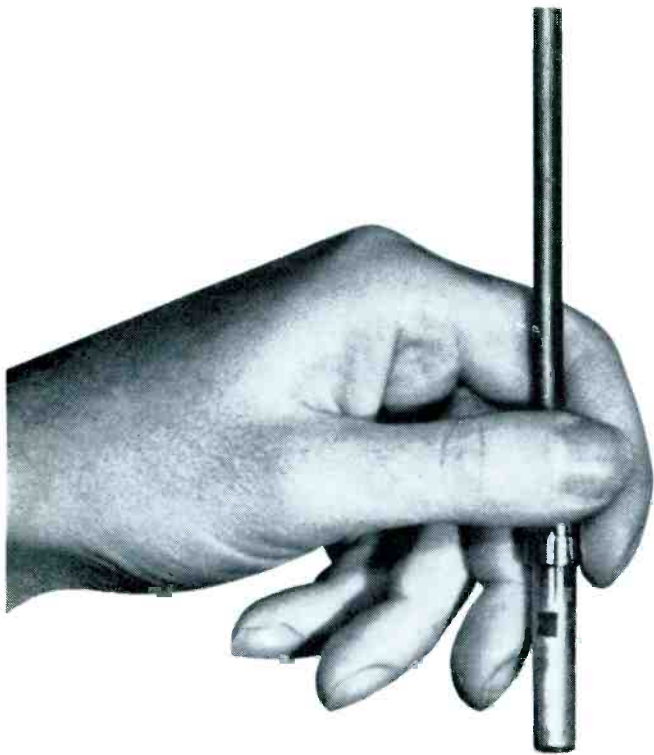


# CATV TECHNICIAN



Photo courtesy of Davco Electronics Corporation

- Technician's Alphabet
- Tower Topics
- Cable System Safety
- Coaxial Cable Powering
- Latest CATV Products



## STAINLESS STEEL JACKS & PLUGS

**Will not wear**

**Will not distort out of round**

**Will meet specs after years of hard use**



VSWR – 1.5 db maximum to 4 Gc  
Insertion Loss – under 0.4 db to 4 Gc

Complete line available  
panels • test plugs  
looping plugs  
and patch cords

*Write for information*

***Vitro* ELECTRONICS**

Producers of NEMS-CLARKE Equipment  
A Division of Vitro Corporation of America

919 Jesup-Blair Drive • Silver Spring, Maryland  
2301 Pontius Avenue • Los Angeles 64, California

# The Technician's CATV ALPHABET

By Chris Evans  
London TV Cable Service  
London, Ontario, Canada

**A** is for **Amplifier**.  
See the amplifier. Amplifiers blow fuses. Amplifiers blow fuses at night. Change the amplifier.



**B** is for **Barrel**.  
Barrels have different numbers. See the number. Installers should know about numbers.



**C** is for **Cable**.  
Cable carries signal. You cannot see signal without a meter. Sometimes you cannot see signal **with** a meter. Find the signal.



**D** is for **Decibel**.  
When we are measuring decibels we call them "dbs." When we cannot get a reading to measure them, we call them other names.

Little children should not hear these names.



**E** is for **Extension**.  
Extensions cost \$1.25 more. See the extension. If you cannot see the extension it probably means the customer ran it for himself. See his face.

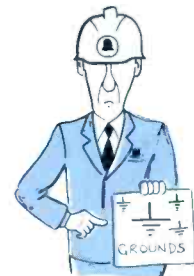


**F** is for **Fuse**.  
Amplifiers have fuses. Fuses break down. Fuses like to blow at inopportune times. (Would you believe, the 8th inning with a tie and bases

loaded?!) See the fuse. Change the fuse. Colour it blew!



**G** is for **Ground**.  
Installations must have a ground. Mr. Bell likes installations to have a ground. See Mr. Bell.



GROUND

## CASH IN ON YOUR IDEAS

Your own article on some practical aspect of CATV system design, maintenance, testing or plant rebuild can put **extra dollars in your pocket!** Submit typed material, double-spaced (or send letter outlining your ideas for an article for TV & Communications.

We are interested in articles of any length, on any subject relating to cable system management, technical procedures, equipment design or modification, etc.

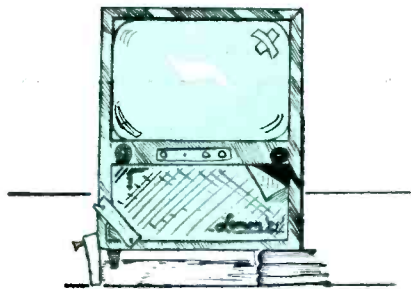
We also pay for top quality color photographs (4x5 positive) suitable for covers.

Contact: Stan Searle  
TV & Communications  
P.O. Box 63992  
Oklahoma City, Okla.

**H** is for **Hard-Hat**.  
Hard-Hats are various colours. My hard-hat weighs 14.5 ounces. After a while the decimal point drops out and it feels like 145 ounces.

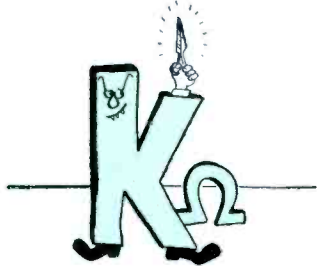


**J** is for "Junker."  
Sometimes installers connect junkers to cable. Some ladies won't believe they own a junker.



See the junker.  
All junkers have vice-grips for changing the channels.

**K** is for **Kilohm**.  
Sometimes it is written "K". It is a resistance. A K is not much of a resistance. Kilohms can steal channels.  
Find the kilohms.



### S/N AND NOISE FIGURE

"S/N and Noise Figure" in April TV & Communications contained the following typographical errors: on page 50, formula 5 should read " $N_a = (F_a - 1) (G_N i) = 9(G_N i)$ ." On page 52, the example under number 12 should read " $F_a = 10$  db,  $m = 10$ , and an input  $\frac{S_i}{N_i} = 60$  db."

On page 54, the approximate relation for equation 18 should read " $F_a > 1$ , and  $\frac{m}{N_i} (F_a - 1)$ " and in Reference Table 1 on that page, Channel 2 and Channel 13 are reversed.

**L** is for **Lashing wire**.  
Lashing wire holds the cable to the strand. We do not cut the lashing wire. See the service-man cut the lashing wire.

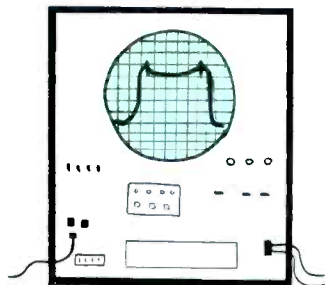


**M** is for **Modulation**.  
Modulation is good at the head end. When it gets into the distribution and becomes cross, we are not happy. See the customer watching cross-modulation.



**N** is for **Nail**.  
Nails are used to clip cable to a wall. Nails are put **beside** cable. Nails are not put **through** cable. See the nail through the cable. See the short!

**O** is for **Oscilloscope**.  
Oscilloscopes draw pretty pictures of signal. Pictures are not always pretty. This means lots of running around to make the pictures pretty. See the pretty picture.



**P** is for **Physics**.  
Physics has lots of laws, rules and stuff. When I am on standby, I find that if a body is

immersed in water, the telephone rings!



**Q** is for **Questions**.  
We are often asked questions. We don't always have the answers. Find the answers.

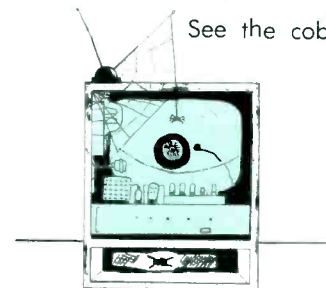


**R** is for **Rover**.  
Rover is a dog. Rover is a **big** dog. Rover is always in the yard into which I want to go. I would like to play with Rover. Rover does not seem to want to play with me. **R** is also for run. See me run from Rover.



**S** is for **Set**.  
All sets have "just been completely overhauled." Some sets have cobwebs in the back. These sets have not been overhauled.

See the cobwebs.





**TV, ETV, CATV  
Transmission Equipment**

**WANTED:**

Rugged, reliable type to help with top-quality color and black & white TV transmission. Should have solid background. Must be able to operate at peak efficiency in sub-freezing and desert conditions. Should make few demands and must hate repairmen. Price must be reasonable.

**DRAFTSMEN  
ELIMINATE FREEWAYS**  
from your before and after work hours. Eliminate the high cost of commuting from your budget. Exceptional opportunity for 2 experienced detailing draftsmen, 2 to 3 years mechanical experience to accept permanent positions in a young growing manufacturing firm. headquartered in Belmont. Call for VACU-BLAST, 593-7658.

**WOMEN, DESIGNERS**  
Tech. Serv. 744  
6563.

137-Help

**DRAFTSMAN**  
Parr Blvd., R.

**DRAFTSMAN,  
WESTERN GEAR**  
**ELECTRICIANS**  
Federal Elec. P.

**ELECTRONIC Bench**  
experienced. To 8  
sumer electronic pro  
2nd class license nee  
plan, vacation, perm.  
Electronics. 935-7353.

**ELECTRONIC Techs. M**  
Electronics. Palo Alto.

**ELECTRONIC technicia**  
F B M experience. Ca  
background desirable.  
ate placement. Call  
6620 or send resume  
Corp. P.O. box 2096,  
Cal.

**ELECTRONIC Technicia**  
ienced in C.C.T.V. co  
tions, sound and p  
tems required. Write  
Box 128, Stateline.

**ELECTRONIC TE**  
MACH  
Send  
Kirk Engine  
1038 W

**ELECTR**  
design  
1185

**ELECT**  
G  
1601 C

**ELECTR**  
ters. k

**ENGINE**  
ing  
D.

**So far, there's only one applicant**

It's Lenkurt's 76 TV microwave transmission system. This is the system that's bringing top-quality color and black & white TV into areas where they used to think something was wrong with their picture if it didn't have snow most of the time. For instance, take the 76 TV Studio Transmitter installation at station KOLO-TV in Reno, Nevada. Since the 76 is transistorized, the new system operates with practically no maintenance, quite a bonus to KOLO-TV because one of their microwave terminals is located on Freel Peak, where 20 foot snows and 100-200 mile winds are not uncommon. Another outstanding feature of the 76 system is its versatility. At the University of Kansas Medical Center, a 76 ETV system makes it possible for students to participate in classes being presented at a sister campus, 45 miles away. This is one of the few two-way ETV systems in existence. This system is significant because of the high resolution it provides for remote observation of medical techniques.

And the Columbia Basin Microwave Company is using our microwave to transmit two off-the-air pickups through an extensive 76 network to serve several CATV companies and school districts. So, whether you're planning a community TV setup, an Educational TV program, or want to join a network, and you want rugged, reliable equipment to help with top-quality color and black & white TV transmission, you'd be doing a smart thing to write us for the resume on our money-saving, solid-state 76 TV microwave system. Lenkurt Electric Co., Inc., San Carlos, Calif. Other offices in Atlanta, Chicago, Dallas, and New York City.

**LENKURT ELECTRIC**  
SUBSIDIARY OF  
GENERAL TELEPHONE & ELECTRONICS **GTE**

# HOW TO PREPARE A CATV NEWSPAPER SUPPLEMENT

By Lon Cantor  
Jerrold Electronics Corp.

The newspaper supplement is one of the most essential ingredients of a successful CATV opening. It serves to dramatize the opening and to focus the attention of a large number of potential subscribers on what the system has to offer.

Too often, however, the supplement does an incomplete job. The CATV system manager relies too heavily on the newspaper staff, with the result that the supplement is not nearly as effective as it could be. This article outlines a step-by-step procedure for producing a supplement of maximum effectiveness.

## MAKE ARRANGEMENTS WITH THE NEWSPAPER

Start at least two months in advance of the opening. Choose the leading newspaper in your area and approach them on the idea of the supplement. Talk first to their advertising manager. He'll be interested in the extra revenue the supplement will bring him.

But don't stop with the advertising side of the newspaper. Most of your work will be with the editorial staff. Contact the city editor, or whoever is in charge of the editorial portion of the newspaper. Take him to lunch. Establish a personal rapport. Explain to him as early as possible what you are trying to do — the kind of story you want him to tell his readers. Get him interested in the system and answer all of his questions about it. Make him your friend if you can.

**How Does CATV Work?**

CONGRATULATIONS to CLEARFIELD TELEVISION ... on being the first TV Cable System in Clearfield County to receive the Television Signal of Channel No. 11, The Independent New York City Station thru the "long distance" Microwave Facilities of ...

**In Theory, Simple; In Fact, Complex**

The New York-Penn Microwave Co.

A simplified diagram of system will interest many potential subscribers — and congratulatory ads give your local firm prestige.

But don't stop with the city editor either. Find out who will actually be writing the supplement. Take *him* to lunch and give him the same type of treatment you gave the editor. Work closely with him.

## PREPARE A SERIES OF STORIES

Newspaper editors and writers are almost universally overworked and underpaid. They live under a constant cloud of dead-lines and crises. The supplement which means so much to you is just an extra burden to them. They have to prepare it in their spare time.

Further, they generally know little or nothing about CATV. And they don't have time to do any extensive research. This is both a problem and an opportunity to you. It's a problem because in order to get a good supplement you have to give the newspaper's editorial staff a lot of help. It's an opportunity, because it gives you a chance to say pretty much what you want to say.

To a great extent, you have to write the stories yourself. If you're not a good writer, don't worry about it. This is a field in which the newspaper people are experts. You'll probably be amazed at their ability to take complex concepts and reduce them to language easy enough for their readers to understand. Besides, even if you are an excellent writer, the newspaper likes to rewrite most stories to conform to their general editorial style.

Your job, therefore, is to supply ideas and facts. Photographs, drawings and diagrams are also very much appreciated — and they're helpful in getting your message across. A picture may not be worth 1000 words, but it does attract a lot of attention.

What kind of stories can you prepare? It's easy to get help in this direction. Get copies of supplements produced in other CATV towns. Take the best stories from each and rewrite them around your own system.

Here is a list of the types of story you should consider:

(1) **CABLE TV COMPANY TO BRING NEW ERA OF ENTERTAINMENT TO (Your Town).** This lead story explains the benefits of your system to your subscribers. It tells what channels will be brought in and details the programming. It can be illustrated with stills from the major TV shows.

(2) **HOW CABLE TV WORKS.** A simple, non-technical explanation of what's involved in piping TV signals all over town. Diagrams are most helpful. This article will tell potential subscribers how difficult and complex a system is. They'll feel like they're getting more for their subscription dollar.

(3) **CATV STIMULATES CITY ECONOMY.** This article explains the economic benefits of your system to the community. It details your expenditures for trucks, office buildings, advertising, construction, employees, etc. It also talks about benefits to dealers and TV repairmen. Use quotes from city officials, bankers, dealers, etc. if possible.

(4) **CABLE SYSTEMS AID EDUCATION.** This is a round-up story on ETV and how cable systems around the country help education. Of course, you tie-in your own specific contributions to local ETV, such as providing schools with free outlets, carrying ETV programming, etc. Quotes from school officials on value of ETV will make this story especially effective.

(5) **SPECIFIC PROGRAM STORIES.** These can be run under such headlines as "Sports Fans to Enjoy CATV Benefits," or "117 Movies Per Week to be Carried by New TV System." These stories can be quite short and should be slanted to particular segments of the audience. Pictures, of course, will be very helpful. Often, just a picture with a caption does the job beautifully.

(6) **CHANNEL STORIES.** Be sure to contact the PR departments of the channels you expect to carry. They'll send you stories and photos on their top programs and personalities. If you're carrying network programs, write also to the network. You can do a story — or several stories — on each channel.

(7) **PERSONALITY STORIES.** These pieces will acquaint your community with the men behind the system.

Give your system manager an especially big play. Also, talk about your chief technician. If there are a number of owners or executives, they can be combined into a single round-up story. Be sure to use pictures and to play up the local angles as much as possible.

(8) GRAND OPENING STORIES. The newspaper supplement often coincides in time with the grand opening. Use the supplement to publicize the opening and to get people to attend. This calls for a series of stories on all the activities at the opening, the personalities, the entertainers, the prizes, the exhibitors, etc. Again, pictures are a must.

(9) TV DEALERS BACK NEW SYSTEM. Do a series of interviews with local dealers who are enjoying increased sales due to the coming of the cable system. Make sure quotes explain benefits of system in terms of better reception — especially color — and more program variety. Talk about second set sales and use pictures of dealers or their stores.

## THE PROGRESS

THE PROGRESS, Clearfield, Curwensville, Philipsburg, Moshannon Valley, Pa., Thursday, April 14, 1965

# TV Cable Customers Told of New System



HERE'S THE PLAN, MR. MAYOR, says Clearfield County Television Manager Fred Schwab as he outlines the new system being installed at Clearfield and Curwensville to Clearfield Mayor Edward A. Clark.

In The New Dimeling Hotel . . .

## Open House Tomorrow Offers Prizes, Gifts To Area Residents

TV7—Totally New Television—of only 25 instead of the regular 121.50. In addition, those who take advantage of this offer will get their choice of a free piece of framed Madras silver worth up to \$25. The silverware will be on display in the hotel.

The open house will be held in the downstairs dining room of the New Dimeling Hotel tomorrow from noon to 8 p. m. featuring everything from displays to refreshments to free prizes and gifts.

One of the highlights of the show and for 18 days thereafter will be the chance for non-customers to get on the Clearfield County Television cable system for an installation fee

of only \$5 instead of the regular \$12.50. In addition, those who take advantage of this offer will get their choice of a free piece of framed Madras silver worth up to \$25. The silverware will be on display in the hotel.

The open house will be held in the downstairs dining room of the New Dimeling Hotel tomorrow from noon to 8 p. m. featuring everything from displays to refreshments to free prizes and gifts.

One of the highlights of the show and for 18 days thereafter will be the chance for non-customers to get on the Clearfield County Television cable system for an installation fee

## Get 10 Channels, Better Service

Clearfield and Curwensville area television cable customers — and future customers — have a lot to look forward to, Fred Schwab, Clearfield County Television manager, said today.

Mr. Schwab delivered a triple salvo announcement with the news that his firm will: 1. offer 10 channels on the cable; 2. provide better service through a completely new cable system; 3. give area residents a chance to win free prizes at an open house tomorrow.

## New Channels Give Variety Of Entertainment

A variety of television entertainment will be available through Clearfield County Television's new cable system which goes into operation tomorrow. Eight channels have already been included in the system and the firm is awaiting approval from the Federal Communications Commission to add two New York City channels — 9 and 5 — to the list.

Included in the setup for stations in the Clearfield and Curwensville areas are channels carrying CBS, NBC, and ABC programs, educational programs, an independent, N.Y. York station and something different, a weatherman channel. Weatherman will be a local channel. Clearfield County TV Manager Fred Schwab said today that it consists of a camera at the firm's tower at Clearfield which constantly scans a series of 10 dials to give data on such things as the temperature, wind velocity, wind direction, humidity, barometric pressure, rainfall, time and date.

Thus, by tuning to the weatherman channel, a customer can get the full weather story at that particular moment complete with background music.

## Channel Position

They're best channels will be situated on the dial for Clearfield and Curwensville customers of Clearfield County Television:

- Channel 1, Pittsburgh, CBS, ch. 2.
- Channel 2, Penn State, educational, on 3.
- Channel 3, Pittsburgh, ABC, on 4.
- Channel 4, Johnson, NBC, on 5.
- Channel 5, Pittsburgh, NBC, on 6.
- Weatherman on 7.
- Channel 8, Illinois, ABC, CBS, on 10.
- Channel 11, New York, live broadcast, on 11.

Page one treatment is afforded system opening by small weekly paper. Entire edition was devoted to CATV and related topics.

(10) SUPPLIER STORIES. Emphasize that your system uses only the most modern of equipment by spotlighting your suppliers. Explain background and experience of your major suppliers. Tell why they were chosen and what is especially good about their equipment.

(11) HISTORY OF CATV. Explain CATV's role in communications. Give statistics on number of systems in U.S., size of systems, number of subscribers served, etc. Talk also about future of CATV.

(12) CABLE SYSTEM POLICIES. Explain your rates and policies in detail. Emphasize that you do not sell, lease or service TV sets. Mention guarantees, free trials, etc.

TV & COMMUNICATIONS

**FOR**

# POWER

**TO GROW AND EXPAND**

Use the CATV FINANCING most used by system owners across the nation—

## ECONOMY FINANCE

**MONEY** for acquiring systems  
**MONEY** to purchase new equipment  
**MONEY** for system expansion  
**MONEY** for turnkey construction

For money to step up or complete your CATV program, call us today. CATV system owners in 42 states have relied on Economy Finance, the pioneer in cable system financing. We are aware of the many problems and monetary needs of this fast growing industry, having financed more CATV systems than any other financial institution. Let us design a financing program for your particular needs that will give you room to grow and the power to expand. Call us collect—area code 317—638-1331. Ask for Gail Oldfather, Harold Ewen or Jim Ackerman.

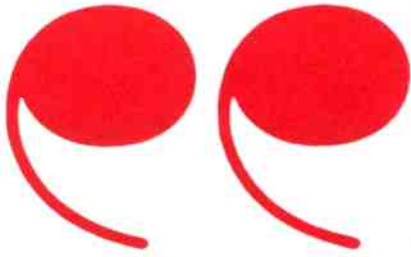
# ECONOMY

## FINANCE

Communications Finance Division

**108 EAST WASHINGTON STREET**  
**INDIANAPOLIS, INDIANA 46209**

*Financing the Economy of the Nation*



*So he said, "Charlie, let's paint  
"Red?" retorted Charlie.  
"Sufferin' colorcast!" said Denis. "Yo  
**Let's paint it chartreuse, blue,  
purple, yellow, green and**  
"Oh, come on," sniffed Charlie.  
"Sure, why not," Denis bubbled*

That's the way the dialogue goes at S.K.L. these days. Denis and his engineers have color on the brain, having just finished the first CATV line ever designed from the ground up to deliver color signals with all of their original fidelity.

There's a new co-channel filter for the head-end. There are new amplifiers with space-age advances, and a great new directional tap. Every unit is packed with ideas to make your system easier to install, more reliable and more profitable.

So there it is. Denis and company plan to paint Miami bright with surprises for you. Especially in Booth 210. Denis is the one with the British accent, and he's as colorful as his equipment. Look him up.

**SKL**

**SPENCER-KENNEDY LABORATORIES, INC.**

1360 SOLDIERS FIELD ROAD • BOSTON, MASS. 02135 • TEL. 617-254-5400



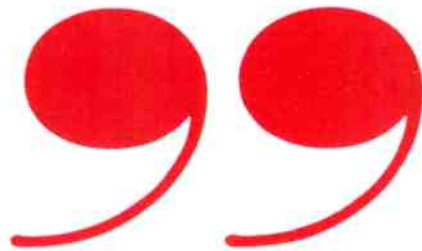
*nt Miami red.”*

*u’ve got a hot idea there, Chief.*

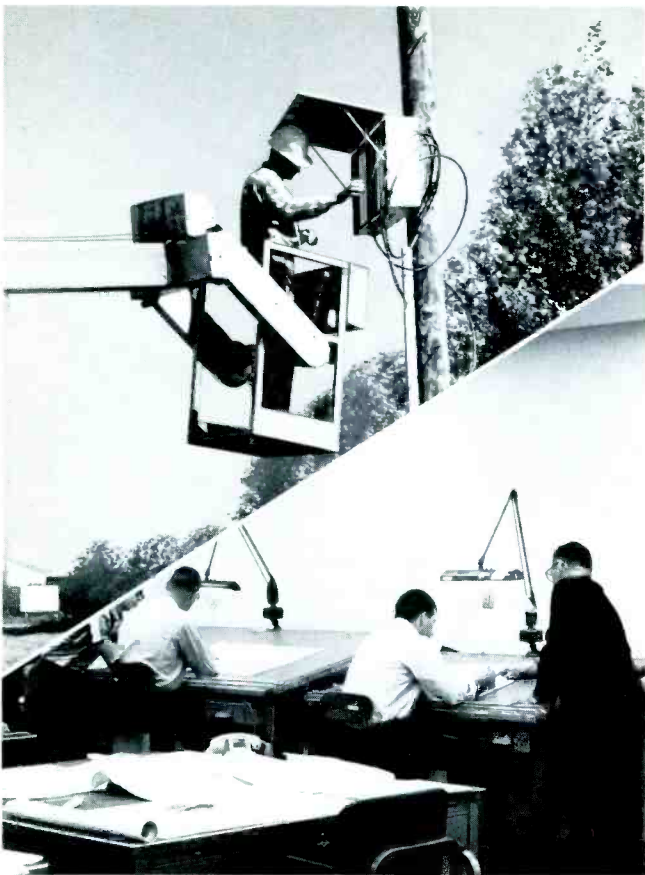
***orange, black,***

***red.”***

*convincingly.*



Prior to leaving for the Miami NCTA meeting, Charles Wright, president of the new SKL, tells reporters of his company's plans to wire the back side of the moon with its new CATV color line. Denis Sparks, v.p. of technical operations, shows obvious satisfaction with this challenging assignment.



# CATV

## construction and engineering

Consider the requirements of your CATV system.

Henkels & McCoy, Inc. provides you with skilled personnel, the latest equipment and valuable experience in:

- Outside Plant Engineering
- Transmission Engineering
- Installation of Head End Equipment
- Clearance Make-Ready
- Pole Line Construction
- Aerial Line Construction
- Underground Construction
- Placing Electronic Components
- Placing House Drops
- System Balancing

Eighteen years in CATV systems construction, and over 40 years in utility construction and practices have taught us what is needed—well versed in installation of all types of cable and electronic components.

This experience and capability as the nation's largest independent telephone and CATV contractor is available to you. Discuss your needs with your Henkels & McCoy, Inc. district office, or send for a brochure describing H & M services.

**EAST COAST**  
Jolly Road  
Blue Bell, Pa. 19422  
Tel. (215) Mitchell 6-8000

**CENTRAL STATES**  
1800 Johnson Street  
Elkhart, Indiana 46514  
Tel. (219) 264-1121

**WEST COAST**  
14531 E. Garvey Street  
Baldwin Park, Calif. 91706  
Tel. (213) 962-3271

**SOUTHEAST**  
2710 Varsity Place  
Tampa, Florida 33612  
Tel. (813) 932-0020



# HENKELS & MCCOY, INC.

(13) **CONSTRUCTION STORIES.** These stories should show various stages of construction, from towers to tapoffs. Use pictures profusely. The idea behind this series is to emphasize the great expense and care to which you've gone to bring subscribers the finest, most reliable reception possible. Of course, you will most likely have been placing stories like this in local newspapers from the time your franchise was signed. Simply update them, rewrite them, and have them included in the supplement.

(14) **PROCLAMATION STORY.** Almost invariably, the mayor of the town can be persuaded to proclaim "TV CABLE DAYS" or "TV CABLE WEEK." This proclamation should be printed in full.

### Industry Must Justify Its Own Existence

#### Cable Television Means Variety Of Channels for Viewers, Needs

It has been the subject of an editorial in the industry press that the industry must justify its own existence. This is the case, and the industry must do so. The industry must show that it is a necessary part of the community and that it provides a service that is not available elsewhere.

The industry must show that it is a necessary part of the community and that it provides a service that is not available elsewhere. This is the case, and the industry must do so.

### No Unsightly Roof Antennas Needed With CATV Set-Up

A community antenna system can be set up in a way that does not require the use of unsightly roof antennas. This is the case, and the industry must do so.

### CATV Serves School Needs At No Charge

Point-to-point systems of service can be used to provide CATV service to schools at no charge. This is the case, and the industry must do so.

### ETV Programming Via Allegheny EBC

The Allegheny Educational Broadcasting Company (EBC) is providing ETV programming to the community. This is the case, and the industry must do so.



The Allegheny Educational Broadcasting Company (EBC) is providing ETV programming to the community. This is the case, and the industry must do so.

A variety of short, informative articles can easily be worked up on CATV and television in general.

With ingenuity and work, you can develop a number of very useful stories. In general, ask yourself, "What would I like to have my community know about the system?" The tendency of most system managers is to prepare ads to tell the story. This is fine. But find a news slant for your message and it will often be considerably more effective as a feature story.

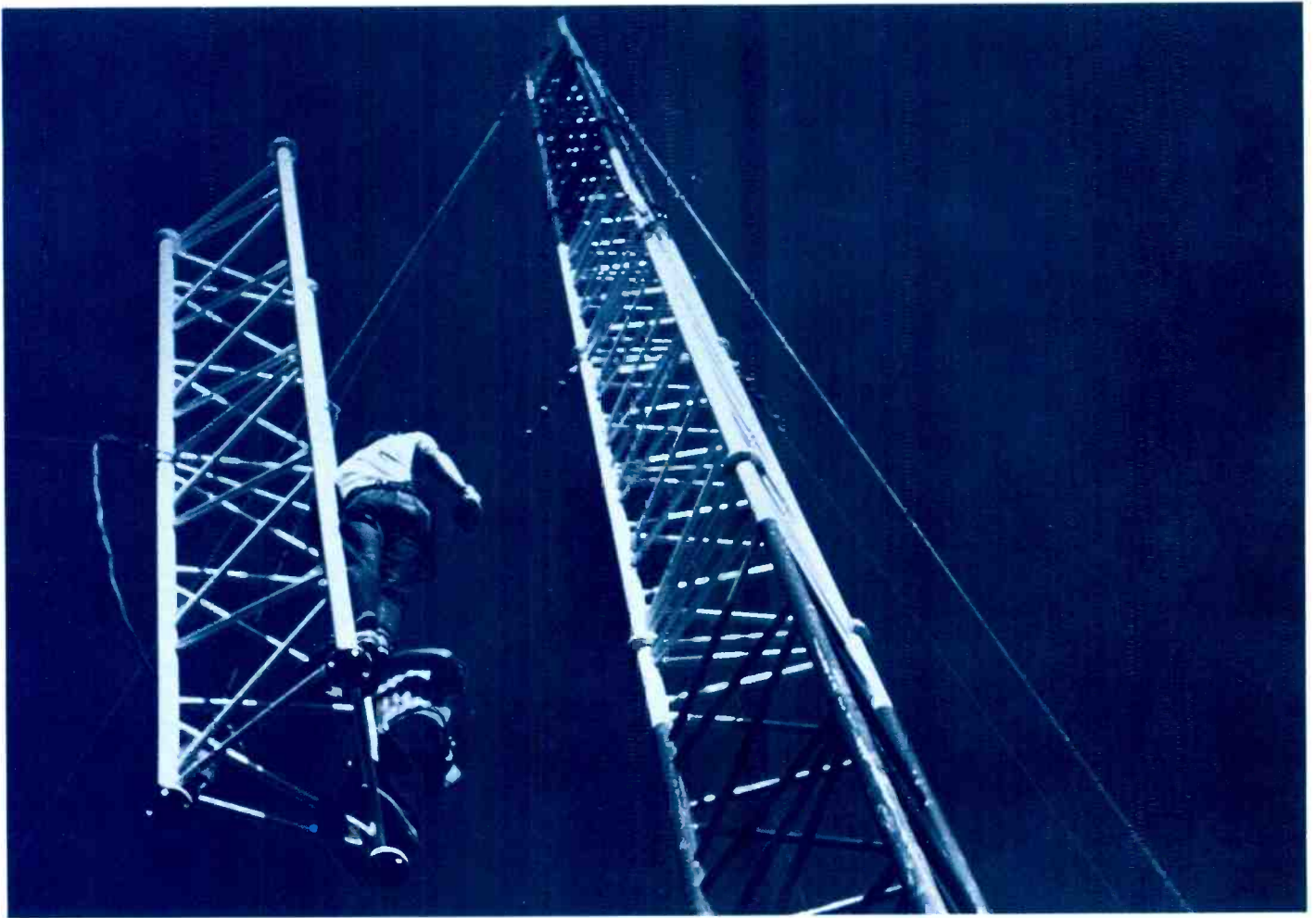
A most important note on story preparation — keep most of the stories short. Newspaper columns are narrow and newspaper readers don't like stories continued on subsequent pages.

### LINE UP YOUR ADVERTISERS

Naturally, the newspaper ad staff will help you with this. They want to sell as much space as possible. But selling ad space is vitally important to you, too. For one thing, the more ad space that is sold, the more editorial space you'll get and the bigger the overall supplement will be. For another thing, ads are a very important part of a supplement. Readers often enjoy ads and read them as thoroughly as the editorial material. Further, you benefit from association with leading retailers, suppliers, bankers, etc. Solicit ads well in advance from the following sources:

- (1) TV Dealers. Every TV dealer in town — or at least those exhibiting at your grand opening — should take an ad. Try to induce your dealers to make a special sale or offer tying-in with cable hook-ups.
- (2) TV channels that you will carry.
- (3) All of your suppliers — get congratulatory ads.
- (4) All of your bankers.
- (5) TV and parts distributors.
- (6) TV set manufacturers.

You'll never have a better chance to dramatize your system than the newspaper supplement. Make the most of it. □



## High wire act.

A tower man will tell you there's no feeling quite like topping off a 500 foot CATV tower. With the wind blowing. No easy job . . . and it's a long way down. It takes a certain kind of man to handle it. One who can fasten together tower sections or install antennas as coolly as if he were on the ground. An efficiency expert who doesn't think safety precautions are for sissies. It's no place for the careless.

But there's more to erecting towers than the ability to work at great heights. The job includes analyzing soils and pouring foundations; setting guy wire tension; painting tower sections to comply with FAA standards; installing antennas, cable, pre amps and lighting. A good tower

man knows how to do any of these tasks. Expertly. And more, he's a competent field consultant . . . able to quickly discern and fulfill all his customer's requirements.

That's why Utility Tower Company is so particular about its erection crews . . . the job absolutely requires it. Every Utility team is trained to handle **complete** erection projects (and maintenance programs). They're permanent, full-time crews backed by years of experience. Quality-minded professionals.

When you get right down to it, maintaining top-notch crews is something of a fetish with Utility. But then, that's understandable. Our objective is to offer you the highest-quality towers in CATV.

Write or call for further information.



# Utility Tower COMPANY

3140 N.W. 38th • OKLAHOMA CITY, OKLAHOMA • (405) WI 6-5551  
EASTERN DIV: P.D. BOX 163 • MAYFIELD, KY. • (502) CH 7-3642



**With Times' CATV cable  
send him up once ...**

**then forget it.**

**VISITING THE NCTA CONVENTION IN MIAMI?  
BE SURE TO VISIT OUR BOOTH #414-416**

**Timatch<sup>®</sup> perfect match connectors**

This trip won't be necessary again for at least five years when the cable you install is Times JT1000 seamless aluminum tube sheath coaxial cable. You can forget about the cable later if you remember this now: Times JT1000 lasts longer up on the poles — without costly repairs or continuing maintenance. Instead of degrading from the day you install it, your cable will have the same high-



**Cable: Available in seamless lengths up to 1/2 mile**

performance quality five years or more from now. Because it's seamless, it's water and vapor proof. Self-sealing when tapped. Gives a 30db return loss guarantee, and radiation protection when high power level amplifiers are used. So before you install a so-called "economy" cable that will send your men back up the poles for costly replacement, look into Times JT1000 cable. The payout makes the big difference.

**TIMES**  
CATV CABLE & CONNECTORS

# CATV REGULATION— AN OBJECTIVE VIEW

Comments of Rep. Fred Rooney

The following is a speech prepared by Congressman Fred B. Rooney of Pennsylvania for delivery to the Pennsylvania CATV Association last month. Representative Rooney is an outspoken proponent of *reasonable* CATV legislation, and is considered one of the most knowledgeable members of the House Commerce Committee on the subject. While his comments, unfortunately, do not represent a consensus of the committee, his objective views are certain to be reflected in some measure in the anticipated CATV bill put before the House by that committee. His comments:

“CATV has dominated Congressional mail this year more than any issue except the war in Viet Nam. Letters from CATV subscribers may number more than a million. Some Members of the House and Senate have been forced to use mimeographed replies to their constituents. Some have hired additional secretaries and typists. All are, by now very well aware that the American people are exercised about something called “CATV.” One House Member, a 30-year veteran in Congress and chairman of one of the most powerful House committees, called to say, ‘I’ve been getting a ton of mail on a thing identified as ‘CATV’. It must be good since all these folks are for it — but what does ‘CATV’ stand for and what the devil is it?’

“The letter-writing campaign has been a success. As Members of Congress now know better than ever, Americans are concerned about the quality of their television service. The average American can’t tell you off-hand who owns the TV stations he watches or name the owner of the CATV company providing his antenna service or outline for you the controversy now raging over CATV regulation. But he knows that a threat exists to good television service and he doesn’t like it. And the letters keep coming to Capitol Hill saying, ‘Do Something!’

“The CATV mail to Washington makes it plain that Americans want and expect wide television program choice and variety; a picture of studio quality; and the opportunity for good color reception. Television is a way of life in this grand and affluent country of ours, and Americans have

come to expect good television service. They expect their Government to establish the kinds of policies that provide good television service — *good* television service today and *better* television service tomorrow.

“I wish I could promise you that the Government is going to meet this responsibility in a proper manner. But as you know as well as I — and as I regret as much as you — the issue of CATV regulation remains a long way from settled. You and I and the American people can only guess at the outcome. With Congressional interest growing I am optimistic, but it is unfortunately true that the actions of the Federal Communications Commission have complicated your business lives and clouded the chance for an orderly solution. All question of content aside, I opposed the FCC imposition of CATV rules because I believe that regulation of CATV should originate with Congress and with Congress alone. It was my position that the FCC, in the absence of any clear authority spelled out in the Communications Act, should have waited for Congress to enact a national CATV policy. It should have waited for instructions from the people’s representatives in Congress on the kind of regulation it was to be permitted, in accordance with law, to impose upon your industry.

“As you know, the Federal Communications Commission did not wait for Congress. In my view, the Commission acted with complete disregard for the consideration and courtesy customarily accorded the legislative branch of our Government — and in so doing pointed up again the danger we face in this country from ambitious, power-conscious regulators holding positions beyond the reach of the electorate.

“Our subcommittee — the Subcommittee on Communications and Power — was given firm assurances that we would be notified of steps the FCC deemed appropriate in regard to CATV regulation. We believed Congress would then have time to take necessary legislative action. But the agreement was broken. The Commission moved without first consulting Congress. Many of you are familiar with the strong objection I raised and that expressed by the chairman of the subcommittee, Congressman Walter Rogers of Texas.

“In contrast with that arbitrary action by the Federal Communications Commission, there was the Federal Trade Commission’s agreement of a couple of years ago to delay imposing rules regarding cigarette labeling until Congress had time to act on legislation. We of the House Committee on Interstate and Foreign Commerce were able to consider a cigarette labeling bill in an orderly manner and send it along in due course to the full House, where it was passed. At no point was the cigarette bill attended by an air of crisis — and unlike you in the CATV industry, the cigarette industry at every step knew clearly where it stood with the Government.

“The experience with the cigarette labeling matter convinced me that a 180-day stay in imposing the FCC rules would help avert chaos in your industry by giving Congress time to act. I made this request strongly and repeatedly. However, the Federal Communications Commission declined to consider staying its order — and, as a result, CATV development in this country is now stymied.

“Congress needs to resolve the matter.

“In the absence of a law passed by Congress, the question of the Commission’s assertion of CATV authority is bound to be challenged in the courts point by point. Your industry, in the absence of Congressional action, faces the very real threat of judge-made communications policy set piece-meal. How much better would be a policy clearly and completely delineated by a law passed by Congress and signed by the President.

“You need a definitive decision — and you’re entitled to it. Congress needs to help you by taking action, and I’m glad to say that prolonged hearings on CATV legislation have been completed by the Committee on Interstate and Foreign Commerce. It is my hope that the Committee soon can tackle the difficult job of drafting a bill to submit to the full House of Representatives.

“Yes, I am for regulation of your industry. I’m for the kind of regulation that will regulate without punishing, that will provide for continuing CATV progress and development, that will recognize the partnership aspects of CATV and television broadcasting and

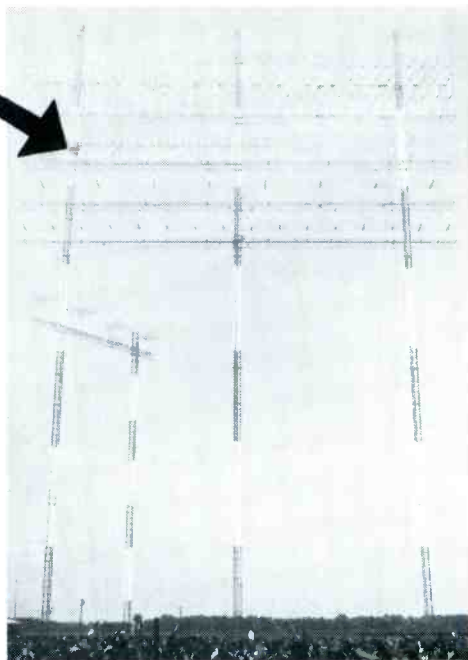
## What Makes ROHN CATV Towers Different?

Here Are Just A Few Reasons Why So Many CATV Owners Are Specifying ROHN Towers:

**EXPERIENCE** — ROHN engineers have more experience and are among the pioneers in tower construction and design.

**DESIGN** — ROHN towers are carefully and fully engineered to DO MORE THAN the job for which they are intended. They're proved by thousands of installations for every conceivable type job.

**COMPLETENESS** — The line is complete for every need. All accessories, lighting, and microwave reflectors are available from ONE reliable source. Entire job can be "turn-key" production if desired.



Shown above is a series of 4 special ROHN towers for a Jerrold-Taco CATV antenna installation. Towers engineered, manufactured and installed under complete ROHN supervision.

Write — Phone — Wire for Prompt Service

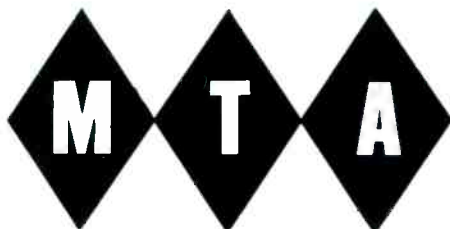
**ROHN Manufacturing Co.**

Box 2000, Peoria, Illinois

Phone 309-637-8416

— TWX 309-697-1488

*"World's Largest EXCLUSIVE Manufacturer of Towers; designers, engineers and installers of complete communication tower systems."*



**MALARKEY, TAYLOR & ASSOCIATES**

**CATV**

**Brokers — Consultants — Engineering**

**WASHINGTON, D.C.**

1101 - 17th Street, N.W.

Area Code 202 • 223-2345

that will make it possible for both to flourish to the end that the public is well served.

"I'm sure that Congress can do a better job of enacting regulations than the FCC did in arbitrarily imposing them through administrative action. A decision this year by Congress would end the confusion now experienced by you and by broadcasters and by the public and would permit CATV to move forward to expand needed service.

"Those of you in the CATV industry exemplify the wisdom of that old bit of advice to fledgling businessmen: "Find a need and fill it." The need you found was the public's desire for better television service. You in CATV have done a wonderful job of filling that need — and there's no limit to the opportunities awaiting you.

"One of the highlights of the lengthy testimony received by our Committee during the CATV hearings was this observation by Robert Beisswenger of Jerrold Corporation, who said: 'CATV subscribers have cast their votes for CATV in the traditional manner of the American free enterprise system; they examined a service that was offered to them; they compared it to their off-the-air reception; they decided it was better and they bought it.' Mr. Beisswenger added, 'All of our citizens must be allowed freedom to choose from the best that the miracles of modern technology can offer.'

"You of the CATV industry in Pennsylvania wrote Chapter One of the book. Faced with the challenge of mountains and valleys blocking conventional television reception, you who pioneered this young industry found a way to bring television service to people who otherwise would still be waiting for it. I know how much CATV has meant to my District and to Pennsylvanians in every section, and the thanks goes to you.

"The story of Pennsylvania CATV is one I like to tell my House colleagues. It is a story of free enterprise meeting difficult challenges to provide a new and needed service and it is a story that can be duplicated over and over again throughout America to the great benefit of our people. First, however, Congress must straighten away the confusion and dismay left by the FCC's recent actions. It is in the interests of sound communication policy in this country that Congress enact a CATV bill as soon as possible. With your highly valued support and encouragement, that is the objective I will continue to seek in the days and weeks ahead." □



# NEW! SOLID STATE DIGITAL READOUT WEATHER DATA



**CONVENTION SPECIAL!**  
**FREE** GE COLOR PORTABLE TV WITH  
**EACH ORDER FOR THIS EXCITING UNIT!**

**AT THE CONVENTION  
SEE THE ALL NEW**

# WEATHER-DATA<sup>TM</sup>



## AMERICAN CABLE ELECTRONICS

9888 WILSHIRE BLVD. • BEVERLY HILLS, CALIFORNIA • (213) 273-4450

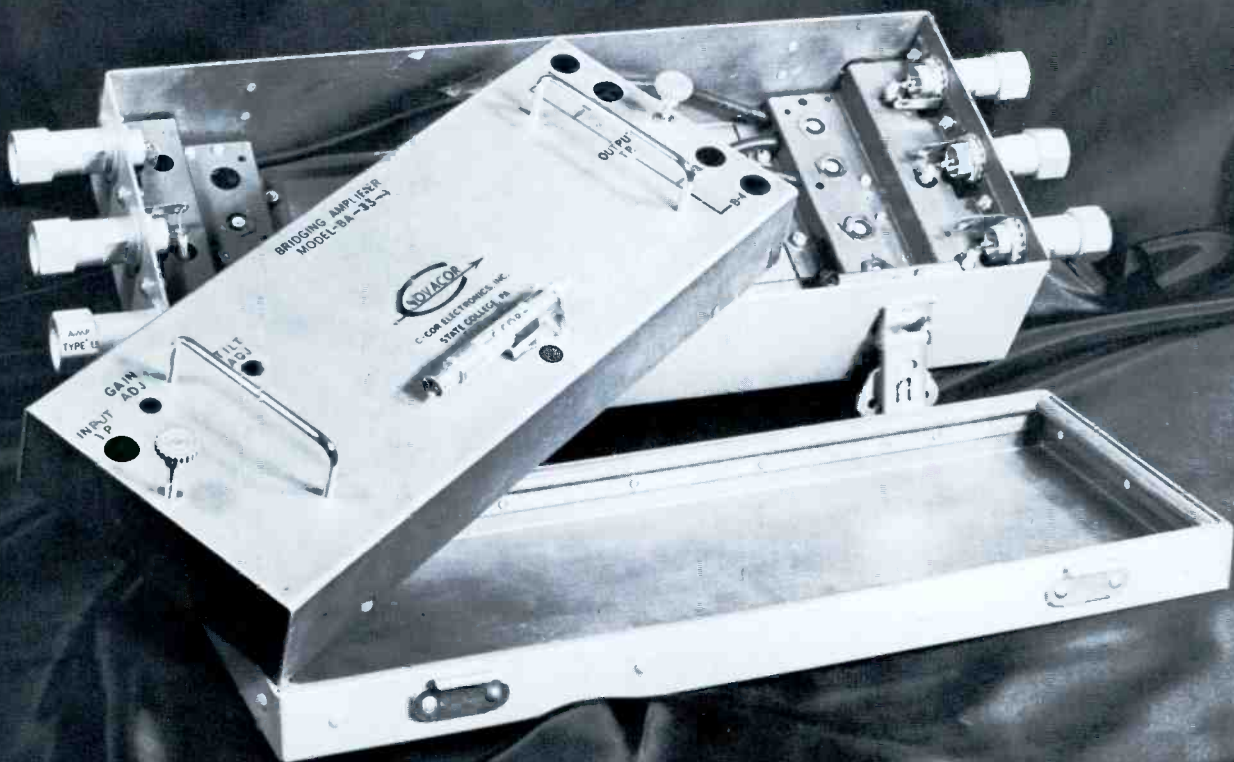
A DIVISION OF JACK KENT COOKE, INC.

# MEET THE GREATEST ENGINEERING BREAKTHROUGH IN CATV AMPLIFIERS



- HIGH OUTPUT
- NEW MODULAR DESIGN
- IMPROVED CIRCUIT DESIGN
- RADIATION-PROOF HOUSING
- 12 DIFFERENT MODELS
- FIELD-TESTED IN SYSTEMS

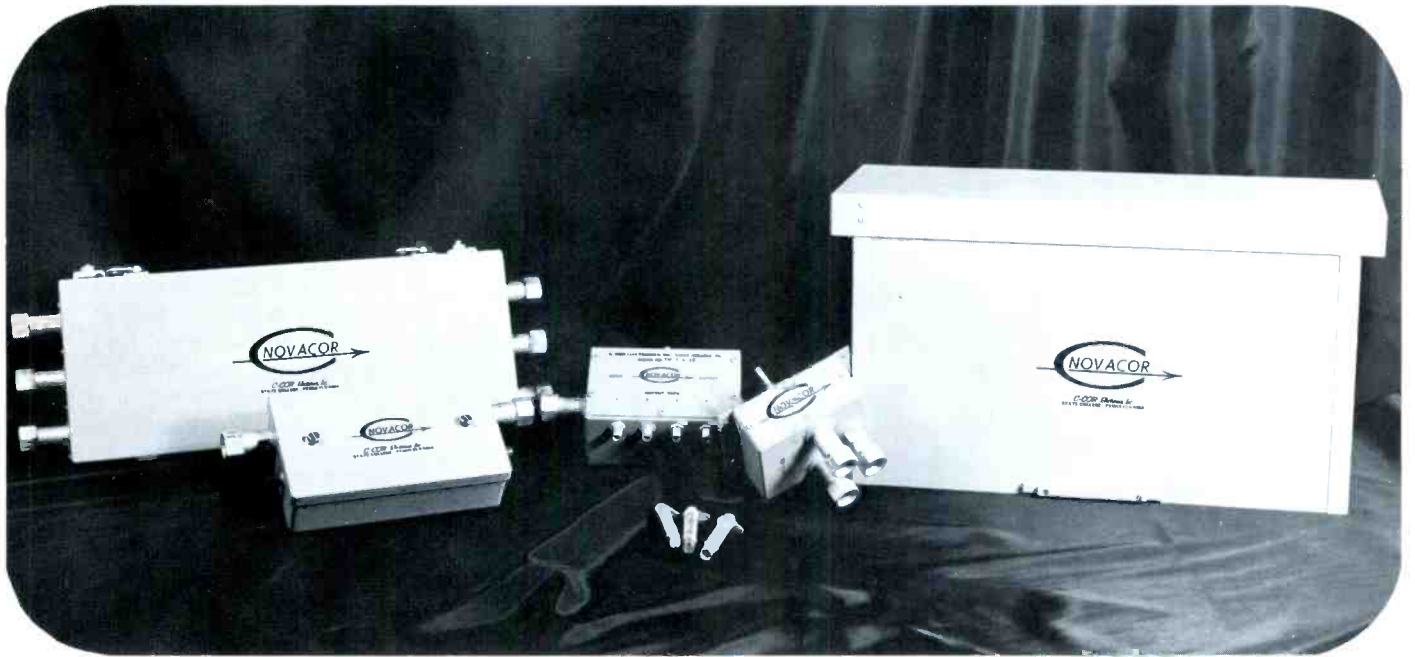
C-COR Electronics, Inc. introduces an advanced line of CATV products: NOVACOR. This is a breakthrough in engineering achievement, producing output capabilities at least 10 db greater than other units now on the market. The NOVACOR Bridging Amplifier shown on this page is modular in design, and incorporates significantly different and vastly improved integrated circuit designs. The weather-tight housing, with cables and connectors attached, can become a permanent part of the plant, with the modular electronic chassis unplugging. Bridgers, available in 12 different models, feature direct feed, and directional coupler feed configurations. The direct feed is designed to feed from a "bridger out" of a trunk amplifier, an external splitter, or directional coupler. The coupler feed is designed for insertion in the trunk without external coupler or splitters.







NOW MEET THE REST OF OUR FIELD-TESTED, SYSTEMS-PROVEN FAMILY ...



#### LINE EXTENDERS

NOVACOR Line Extenders utilize solid state circuit design for high output-low noise capabilities. Equipped with both fixed and variable attenuation for flexibility in system design, these line extenders are to be cable-powered with power feed thru or power "link" disconnect for feeding either end.

#### TRUNK AMPLIFIERS

NOVACOR Trunk Amplifiers supply 10 db more output than any other CATV Amplifiers. They are available in three basic models, which differ in gain and tilt capability to provide optimum spacing in systems of varying length and customer density.

#### POWER SUPPLY

The PS-30 Power Supply is housed in a weather-proof aluminum case. Power feed and distribution is made through the connectors on the bottom of the case.

#### TAP UNITS

NOVACOR Tap Units, a hybrid design for flatest response, are housed in epoxy sealed, aluminum cases, and come with pedestal mountings (TU) or messenger mountings (TM). These units feature true impedance match on service drops.

#### SPLITTERS

All NOVACOR Splitters are weather sealed with epoxy for long lasting, trouble-free performance. They feature a universal mounting for messenger or surface by use of a throw-away stud and messenger clamp assembly.

#### TEST PROBE

A NOVACOR Test Probe, TP-30, is supplied with each amplifier. It is designed with 30 db of attenuation  $\pm 1$  db with 3' of RG-59U cable. It can be utilized for measurements either at the input or output test points.



*C-COR<sup>®</sup> Electronics, Inc.*

60 DECIBEL ROAD • STATE COLLEGE, PENNA. 16801 • PHONE 814-238-2461

# THE COMING FIGHT— PUBLIC UTILITY REGULATION OF CATV

By Robert D. L'Heureux  
NCTA General Counsel



Following close on the heels of the major Federal move into CATV regulation, will be the introduction of measures in most State legislatures to put CATV systems under control of public utility commissions. This has been cited by many leading industry officials and counsels as possibly the gravest threat to the cable television entrepreneur.

The most formidable and widely respected force behind the anticipated surge of PUC bills is NARUC—the National Association of Railroad and Utilities Commissioners. This group has resolved to prepare a model law giving PUC's control over CATV, and it is this legislation which will be introduced in many State legislatures during the next session.

NARUC's General Counsel, Paul Rodgers, has drafted this model bill, and it is presently before a committee which will announce final action this November. The following is part of an extensive report on the CATV-PUC question by NCTA General Counsel Bob L'Heureux, which is directed primarily at the contentions of the NARUC proposal.

The National Association of Railroad and Utilities Commissioners (NARUC), at a meeting in New York in September 1965, adopted a Resolution which provides for the drafting of legislation to regulate CATV systems as public utilities.

When a powerful organization like NARUC attempts to transfer a private business into one whose property is devoted to the public by force of law, it becomes important to understand just what a CATV system is and whether it lends itself to regulation as a public utility.

## WHAT CATV IS; AND WHAT IT IS NOT

A community antenna television system means a facility utilizing a receiving antenna or antennas, connecting wire, cable or relay facilities and associated equipment for the reception by subscribing members of the public of the signals of one or more broadcast stations.

This is the same definition contained in the by-laws of the NCTA and is substantially the same definition which was agreed to between NCTA and the FCC staff and the NCTA panel and a panel of the National Association of Broadcasters in discussion with those groups.

It is equally important to know what a CATV system is not. It is not a broadcast service, such as a television station; nor a common carrier service, such as a telephone company. It is not a broadcast service because a CATV system does not make use of the air waves; it does not broadcast—

period. It is not a common carrier service, because it is not of a public utility nature, i.e., it is not a "necessity." It does not furnish the essential necessities of life, such as power, light, and telephone services.

Furthermore, CATV is not pay-TV. In pay-TV a subscriber is expected to purchase programs individually on a pay-as-you-see basis. Clearly, CATV is not an individual program service as is pay-TV.

In short, the CATV operator's business is to provide a superior master antenna receiving service, not a program service.

The CATV operator is engaged in performing a truly helpful service to subscribing members of the public: clear reception and a wider choice of television signals. He provides the lowest cost method by which a television set owner can enjoy the highest quality reception from a variety of television stations. In short, he offers the set owner a way to obtain maximum value from his television receiver.

## THE GRANT OF CATV PERMITS

Today there are CATV systems in every state. Only a few states have enacted legislation pertaining to them. Only one, Connecticut, has lodged in the Public Utilities Commission the right to grant franchises and has declared CATV systems to be public utilities. The CATV industry believes this is a deplorable development. CATV systems are a normal good business, but it does not enjoy a monopoly in the true sense of the word. If anyone

is dissatisfied with the service he receives from his CATV system, he can discontinue receiving service at the end of any month. Furthermore, he can organize a group to obtain a license for a translator from the Federal Communications Commission.

Except in Connecticut, the municipalities have granted permits to do business to CATV systems. Sometimes these are popularly referred to as "franchises." The term "franchise" is not a technically accurate one. A franchise is normally granted to a public utility, and we have already pointed out that a CATV system is not of this nature. Cities have done a very good job of granting to CATV systems permits to do business. They do this under their general authority.

In the case of utilities, it is generally the practice for cities to allow them to condemn land in order to put in a necessary service, such as the telephone service, electricity, gas, water, etc. Because a CATV system is not of a public utility nature and does not deal with those types of essentials which are characteristic of public utilities, states and municipalities do not grant to CATV systems the right to enter on private property or to string cable over such property without their obtaining the consent of private land owners.

## WHO WANTS PUC CONTROL OF CATV?

Initially, a few years after CATV systems originated, a small number of television broadcasters, several of whom had a monopoly or quasi-monopoly of television broadcasting in their particular area, hit up on the idea that they effectively could regulate their competition for the television viewing audience out of existence by having CATV systems declared to be public utilities.

These broadcasters knew that a CATV system is in the field of television reception and that it definitely is engaged in Interstate Commerce. They were aware that Title II of the Federal Communications Act of 1934 was the provision in which the Congress of the United States had given to the Federal Communications Commission authority over public utilities

in the communications field. Public utilities which were engaged as common carriers in the communications industry were directly regulated as common carriers under Title II of that Act.

Accordingly, those broadcasters filed a petition before the Federal Communications Commission, requesting the Commission to rule that CATV systems were common carriers and of a public utility nature and that, therefore, they must file their charges, classifications and rates with the Commission and obtain a license to do business from the Commission. The Commission ruled that a CATV system is not of a common carrier nature, that this is not the type of a public utility which the Congress had intended to regulate under Title II of the Commission's Act (*Frontier Broadcasting Co., v. Laramie Community TV Co.*, Memorandum Opinion and Order FCC 58-311, 24 F.C.C. 151, 16 Pike & Fischer Radio Reg. 1006-in 1958). Upon three other occasions, a similar attempt was made by other broadcasters and antenna manufacturers and salesmen, but the Commission ruled in the same way each time. The last time was on August 2, 1965 in the matter of the petition of *Philadelphia Television Broadcasting Co.; TAME, Inc.; et al.* on August 2, 1965. (A U.S. District Court of Appeals later upheld the FCC's decision in the TAME case. Ed.)

When these various interests, which were primarily desirous of hamstringing their competition, did not succeed before the Federal Communications Commission, they turned their attention to the state public utilities commissions and state legislatures in an attempt to saddle CATV systems with public utility type regulations.

Thus, although the first commercial CATV system was constructed in 1950, we find an Opinion of the Attorney General of the State of New Mexico, issued April 19, 1954, a similar Opinion of the Attorney General of the State of Washington on November 22, 1954, another Opinion of the Attorney General of Arizona on October 18, 1955, all ruling that CATV systems are not public utilities. The Public Service Commission of Utah on December 18, 1956 ruled likewise. The Wyoming Public Service Commission assumed jurisdiction over CATV systems, claiming that the Federal Communications Commission had not preempted the field of CATV, but the District Court for the First Judicial District of the State of Wyoming, in a case decided in October 1958, on appeal from an Order of the Public Service Commission of Wyoming, reversed the

latter PSC's decision that the CATV system was a public utility. The Court ruled that CATV systems were not public utilities and that they were engaged in Interstate Commerce (Community Television Systems of Wyoming, Inc., 17 Pike & Fischer Radio Reg. 2135, Wyoming District Court).

The Supreme Court of California had to reverse its own Public Service Commission, which had ruled that CATV systems were public utilities. The Supreme Court of California ruled that a CATV system is not a type of public utility nor a common carrier.

There have been many State Public Utilities Commissions which have ruled since then that they do not have jurisdiction over CATV systems. The most recent ones are those of Pennsylvania (1963) and Ohio (1964).

When the opponents of CATV systems found their efforts thwarted at both the Federal and the State levels, they turned to the U.S. Congress for a remedy. Several bills were introduced in the Congress of the United States in 1960, and a Bill (S. 2653) was reported favorably to the Senate of the United States by the Senate Committee on Interstate and Foreign Commerce, which would have strictly regulated CATV systems, but the Congress of the United States decided to leave the field of CATV strictly in the domain of private enterprise whose charges and methods of doing business are not as strictly regulated such as the field of radio and television.

It is not surprising that when the opponents of CATV were unable to accomplish their purpose of having CATV systems regulated as public utilities by the FCC, by the State PUC's and by the Congress of the United States, that they turned their attention to state legislatures.

#### **HISTORY OF PUC LEGISLATION IN STATES**

Commercial CATV began in 1950 in Lansford, Pennsylvania. CATV was a mere fledgling, a little more than two years of age when a bill (H.B. 1456) was introduced in the Pennsylvania legislature to declare systems in that state public utilities and to place them under the authority of the PUC in Pennsylvania. The bill became a perennial one, supported by only a few sponsors, and it was never enacted into law.

In 1955, similar bills were introduced again in Pennsylvania (H.B. 835) and in West Virginia (H.B. 397). In 1957, the same type of legislation was introduced in Arizona (H.C.R. 12), Montana (S.B. 184), Pennsylvania (H.B. 91) and in Washington (S.B. 425).

In 1961, efforts to control CATV systems as public utilities were made again before state legislatures. Bills designed to accomplish this were introduced in Maryland (H.B. 186 and H.B. 459) Mississippi, New Hampshire (H.B. 268), Oregon (H.B. 1564) and Vermont.

In 1963, PUC type bills affecting CATV systems were introduced in Arkansas (H.B. 309), California (A. 2743), Oklahoma (H.B. 914) and Utah (H. 914).

By 1965, two well-financed groups had determined to bring about strict control of CATV systems by the Federal or State Governments. These were the theatre owner group and the Television Antenna and Equipment Manufacturers (TAME). These groups began to appear before city councils, requesting that CATV systems be denied licenses to do business or that they be strictly controlled with respect to rates, conditions of service, etc. They, or groups which they organized, such as television set salesmen or television repairmen, began to urge state legislatures to place CATV systems under the jurisdiction of the various PUC's and control them strictly as public utilities. A few broadcasters at times took part in these efforts, particularly if they wanted to be the sole source of TV in a particular area.

Thus, in 1965, bills of this nature were introduced in Connecticut (H. 3860), Maine (H. 32 and S. 304), Minnesota, Missouri (H.B. 699), New Jersey (S. 206), New York (A. 1944), Ohio (S.B. 172), Oregon (H. 1543 and S. 395), Rhode Island (H. 1356 and H. 1756), Vermont (H. 32), and West Virginia (H.B. 678).

All of these bills which have been introduced since 1953 were considered by the various committees or went to debate in the legislatures, but they were defeated except the bill in Connecticut. In the State of Montana, the bill was passed by both chambers of the legislature but it was vetoed by the Governor, reportedly upon the advice of the Attorney General of the state because, the Federal Government had preempted the field of television including television reception; CATV systems, like other private businesses, were doing an excellent job of serving their subscribers without strict regulation; they are not of a public nature and transforming them into an enterprise that is devoted to the public use, raised grave constitutional questions.

#### **THE CONNECTICUT EXPERIENCE**

Connecticut has been a very discouraging state for CATV systems. If it were not for the very great need

for CATV service in that state, it is quite likely that there would be no application filed to render this service.

From the very beginning of CATV, licenses to do business as a CATV system were applied for in many Connecticut cities and towns. Over 40 municipalities in Connecticut granted such licenses but to no avail. The Southern New England Telephone Company (SNET) refused to allow attachments to its poles. Instead, that company offered to furnish CATV service to CATV systems under a tariff at prohibitive rates.

There are only two CATV systems in Connecticut, in New Haven and in West Port. However, they do not attach their cable to utility poles, as most other CATV systems do. They serve largely apartment houses and string their cable from one apartment house to the other.

Several bills were introduced at the request of CATV operators from time to time in the Connecticut Assembly, seeking to obtain a law that would compel telephone companies to permit pole attachments, and the matter came to a head in 1963, when the Connecticut Assembly enacted a law which lodged the power of granting franchises in the PUC (Sections 16-330 through 16-333, Chapter 289 of the General Statutes of Connecticut). At long last, after 13 years, it seemed that the log-jam on CATV development in Connecticut, caused by SNET's stubborn refusal to allow attachment to its poles, was about to be broken. However, more than three years have elapsed and not one single CATV franchise has been granted by the PUC. In their vain hopes and expectations, the CATV operators had not figured on the crucial factor, viz. that a PUC is not suited by its background, experience, training or temperament to supervise and properly regulate a business, such as a television reception service, which is not of a public utility nature.

Contrast the fifteen years of bungling in Connecticut since CATV was born with the experience of any other state and you will find that the public has had a free choice of subscribing to CATV service or not in all those other states within a few weeks, or at most within a few months, after the first application was made for a permit for CATV to a city council, the selectmen of a town or village or a county government. Is this the allegedly "wonderful example" which the PUC Chairman in Connecticut was holding out as an incentive to the membership of NARUC in September, 1965?

The Connecticut experience proves another important point. Although

some bills which were introduced in the Connecticut Assembly in 1963 would have made public utilities out of CATV systems in Connecticut, the Committee reported favorably to the Assembly the bill which simply lodged the granting of CATV franchises in the Connecticut PUC with the power to issue appropriate regulations.

During the hearings, members of the PUC and, particularly, its Chairman, Eugene S. Loughlin, started to "make noises" as though they were going to control CATV systems as public utilities. This was quite understandable, although contrary to law, because public utility regulation was all they were schooled in or familiar with. When the NCTA objected to this development and filed a brief with the Connecticut PUC on December 1, 1964, explaining that this was contrary to the General Statutes of Connecticut, efforts were made to lay the groundwork for a statute which would transform the CATV business in Connecticut from a private enterprise type of business to one whose property is devoted to the public. This is somewhat akin to the new medical doctor who threw all his patients alternately in a tub of scalding and then ice-cold water in order to give them convulsions, because he had much experience and was quite "expert" at curing convulsions.

Be the reasons what they may, the PUC convinced a Connecticut Assembly Committee in 1965 that CATV systems should be considered public utilities in Connecticut and regulated strictly as such. Representatives of the CATV industry were heard briefly in opposition, including the NCTA whose representative was given 15 minutes to explain the intricate problems which the legislation raised. A law was passed to convert CATV systems in Connecticut into public service companies, whose property is devoted to the public use. (Modified House Bill No. 3860, Conn. Public Act No. 175-1965). The CATV industry in Connecticut is expected to challenge the validity and constitutionality of this law at an appropriate time. To no one's surprise, a bill was passed at the same session, providing for a gross earnings tax of 6% on the operations of CATV systems, as compared to the 4½% tax on the gross earnings of telegraph and cable companies, and no gross earnings tax on television or radio broadcast stations (House Bill No. 4849, Public Act No. 169-1965).

Municipalities generally grant a permit in a few weeks. The Connecticut experience has already produced almost three additional years of confused and inexcusable delays in the

grant of CATV franchises. The public in Connecticut does not yet have a choice of subscribing to CATV service except in a small section of New Haven and West Port (and those were not authorized by the PUC). Those are the consequences of the Connecticut experience. The deadly arm of the PUC can only stifle, delay or reduce the service to the public rendered by CATV.

## THE BASIS FOR THE NARUC RESOLUTION

When a reputable organization like NARUC recommends that a private enterprise, such as CATV, be brought under public utility type regulation, it becomes important to determine what facts or considerations its members had presented to them as a basis for approving the recommendation of their Executive Committee.

Surprisingly and unfortunately, NARUC had not previously authorized a study of the operations of CATV systems in a number of states in order to arrive at a sound judgment, based upon the facts, with respect to whether a PUC type of legislation or another kind of legislation was necessary, suitable or desirable in the public interest. Instead, members of NARUC who had already made up their minds to bring CATV systems under PUC regulation were called upon to "explain" the proposed Resolution to the members.

Eugene S. Loughlin, Chairman of the Connecticut PUC, extolled the merits of the PUC bill pertaining to CATV in his state. His views and pronouncements and the Connecticut experience have already been commented upon sufficiently.

Another spokesman who touched upon all the points made by the proponents of the Resolution, was the young Chairman of the Vermont Public Service Board, Ernest W. Gibson, III, in a speech entitled, "The Case for Regulation of CATV."

As do most of the antagonists of CATV systems, Mr. Gibson paid a high tribute to the valuable service rendered by CATV systems. After stating that there has been no lessening in the desire for CATV service on the part of the consumer as the systems continue to grow and expand, he added:

"On the contrary, the public has indicated that the availability of adequate TV reception provided by the medium of cable television is indeed a service which the CATV consumer does not wish to be without."

Further on, Mr. Gibson stated: "In the State of Vermont there are present-

ly about seventeen CATV systems which are of great benefit to their subscribers."

Mr. Gibson then proceeded to argue that a CATV system, though not public at the inception of the CATV industry, "may fairly be said to have risen to be such and have become subject, in consequence, to some government regulation." To establish this, Mr. Gibson relied upon a discussion of the case of *Munn v. Illinois* (94 U.S. 113, 1877). He pointed out that this case dealt with a monopoly position of grain storage elevators. He quoted Chief Justice Waite as asserting that the grain storage elevators "stand in the very gateway of commerce and take a toll from all who pass. Their business most certainly tends to a common charge and is become a thing of public interest and use."

If Mr. Gibson had consulted the FCC or persons who are experienced in the conduct of the CATV business, he would have learned that the CATV industry certainly does not "stand in the very gateway of commerce and take toll from all who pass." CATV systems serve only one out of every 30 television homes in the United States. If there are only 17 CATV systems in Vermont, as Mr. Gibson states, it is likely that CATV systems in Vermont

serve a still smaller percentage of the television homes in that state.

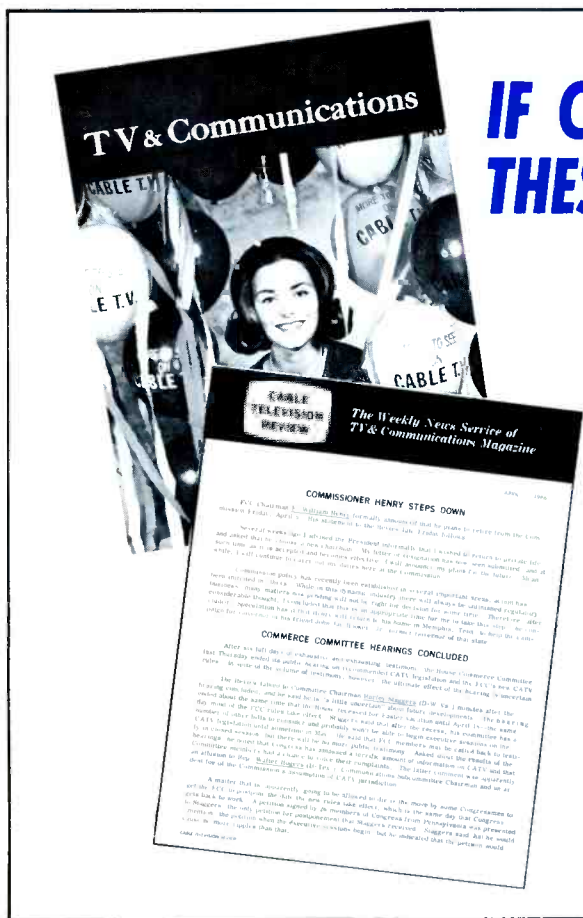
Instead of taking "a toll from all who pass," the CATV industry will ultimately be able to take a toll at most from about 6% of those viewing television, and even those 6%, unlike the grain owners in the case of *Munn v. Illinois*, can go back to their roof-top antennas and receive television signals in some other way, or they may receive television service from translators, satellites or other sources. The two situations, that of the grain elevator operators on the one hand and that of the CATV operators on the other hand, are not at all comparable.

If the members of NARUC at their 77th Annual Convention in New York City had heard both sides of the argument from knowledgeable persons, it is doubtful that they would have authorized the drafting of a Resolution designed to produce PUC type of legislation to be recommended by its members to the various state legislatures. Instead of getting the true facts, they were furnished erroneous information. For instance, Mr. Richard J. Thompson, President of the North Dakota Public Service Commission, stated that it was his feeling "that the CATV industry has deviated so far from the original purpose and intent and has so

out-run the law that in many cases where CATV is now being used, it is a creature outside the law, having taken upon itself certain characteristics which in fact make it a monopoly." There was not one example given of what Mr. Thompson meant by this alleged deviation from CATV's original purpose and intent.

CATV systems are subject to the Securities Act of 1933 and the Blue Sky Laws which exist in a large number of states. These laws are usually considered adequate to protect investors. Now with respect to the alleged "exorbitant charges and poor service," CATV subscriber rates have shown an extraordinary and remarkable stability in a study of the only available sources which could indicate the fluctuation of rates in a five-year industry rate study.

The NCTA has made a study of CATV system rates over a five-year period to determine trends in monthly service charges to CATV subscribers. The study involves CATV systems for which comparable data were available for the years 1960 and 1964. Comparable data were available for 449 CATV systems representing all geographical areas of the United States and almost one half of the estimated 1,000 CATV systems in operation in



## IF CATV IS YOUR BUSINESS . . . THESE ARE YOUR PUBLICATIONS

TV & COMMUNICATIONS Magazine and the weekly CABLE TELEVISION REVIEW news bulletin give you comprehensive thorough coverage of the CATV industry. Every month TV&C is packed with informative management and technical articles, in-depth commentary on industry developments, plus a report on the latest industry equipment. The REVIEW complements this vital coverage with timely reports of the latest CATV news—including FCC and legislative action, system construction, franchises granted, names in the news, and financial notes. You get concentrated coverage available in no other media. Order your subscriptions to TV & COMMUNICATIONS and CABLE TELEVISION REVIEW now—get the complete CATV information service.

Gentlemen:

Please begin my subscriptions to these vital publications immediately. I understand that my complete satisfaction is guaranteed, and that a complimentary copy of the 1966 CATV DIRECTORY is included with my subscription to CABLE TELEVISION REVIEW.

**TV & COMMUNICATIONS**

Three years \$12;  Two years \$9;  One year \$5

**CABLE TELEVISION REVIEW**

Two years \$95;  One year \$50

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE \_\_\_\_\_

**COMMUNICATIONS PUBLISHING CORPORATION**

P.O. Box 63992 • Oklahoma City, Okla. • (405) 528-3523

1960. In those 5 years, CATV's increased their rates by 16¢ or less than 4%.

Data obtained from the study revealed the following system rate trends during the five-year period.

326 or 72.6% had no rate increase

106 or 23.6% had a rate increase

17 or 3.8% decreased rates

449 100.0%

Of the 106 systems which had a rate increase:

36 increased the number of channels of service and reduced their installation charges.

17 increased the number of channels of service.

35 reduced the installation charge.

Data on installation charges for 30 systems were not possible of absolute comparison.

Thus, only 16 CATV systems increased rates with no increase in channels of service or decrease in installation charges. Or, put another way, 84.9% of CATV systems showing a rate increase improved their service or decreased installation charges or both.

Most significantly, out of the 449 systems studied, only 16 or 3.6% increased their rates without increasing service or decreasing installation fees; and of further note, the monthly serv-

ice charges of 6 of 16 systems are below the national industry average of \$4.49 per month, and 2 are only one cent above this national average.

In conducting its rate study, NCTA took particular note of those systems which changed ownership during the five-year study period, in view of unsupported allegations made by some persons to the effect that CATV subscribers are subjected to increased rates to support these system sales. The study reveals that of the 449 systems studied in the five-year period:

113 or 25.2% had a change in ownership.

On a simple arithmetical average, that would mean that only 22.6 systems or 5% change in ownership in any given year.

Of the 112 that had a change in ownership:

74 or 65.5% had no rate increase

37 or 32.7% had no rate increase

2 or 2.8% had a decrease in rates

113 100.0%

It can readily be seen that the increase or decrease in rates or no change at all in systems which change ownership was so close as to be almost identical with the national trend for all systems; the greatest difference being only about 9%, for those systems having rate increases.


A detailed inspection of the 37 systems that changed ownership and increased rates shows that: 16 increased the number of channels of service and lowered the installation charge; 7 increased the number of channels of service; and 7 lowered the installation charge.

Thus, only 7 systems increased rates with no increase in channels of service or a decrease in installation charges. On the other hand, 81.1% of the systems reporting rate increases showed an improvement in the number of channels of service or a decrease in installation fees or both.

Significantly, of the 449 systems studied, only 7 or 7.6% changed ownership and increased rates without increasing service or decreasing installation fees. And, the monthly service charges of 3 of the 7 systems are below the national industry average of \$4.49 per month, and one is only one cent above this national average.

These data completely discredit claims that CATV systems are "repeatedly bought" and that the CATV subscriber is "being compelled to pay higher rates" to support such transactions.

Upon the facts outlined above, the CATV industry challenges anyone to cite the record of any business provid-




**read what others say about the 'SS' men . . .**

We have told many people about, and have shown many more, the two fine CATV plants you built for us. The test of time has proved what we have known all along, that you build good, sound systems.

Believe me, we appreciate the personalized attention and good workmanship you provided in the construction of our plants . . . and the knowledgeable engineering you provided to make them operative.

HAROLD E. PHILLIPS, Manager  
Fidelity Cables, Inc.,  
Blackwell, Okla.

**STAN SOCIA CORPORATION**  
634 FAIR PETROLEUM BUILDING  
LY 3-0911 • TYLER, TEXAS



**INDEPENDENT SPECIALISTS IN CATV CONSTRUCTION AND ENGINEERING**

# COAXIAL RELAYS

*Our Specialty*

**OVER 15 YEARS**  
... THE NO. 1 SOURCE!

- ★ **DESIGN:** To your specifications or our proposal for your application.
- ★ **PRODUCTION:** Complete production facilities for every requirement.
- ★ **TYPES:** All types from dry circuit to 1 kw rating, DC - 4800 mc - Land based or airborne.

**TO Meet MILITARY OR INDUSTRIAL REQUIREMENTS!**

Many types now tooled for production!  
Use our Design and Engineering facilities. . . We may have it ready for you now!

**DOW-KEY CO., Inc.**  
BOX 1860, THIEF RIVER FALLS, MINNESOTA




DK78 Series



DK77 Series



DK67 Series



DK61 Series

# Win

The Rome Unifoam™ CATV Cable

# No-Contest Contest!



Figure out the amount of your own cash prize and declare yourself the winner. (No time limit, no limit on dollars. And no present users of Rome Unifoam CATV Cable, please, since you've already received your prize.)

Here's how:

Fill in the blanks below, making the calculations indicated.

1. Write in your present trunkline amplifier spacing \_\_\_\_\_ db
2. Write in cost of one trunkline amplifier.....\$ \_\_\_\_\_
3. Write in Channel 13 cable attenuation of your present 3/4" cable .....db/1000'
4. Multiply Item 2 by Item 3 and divide the result by Item 1. This gives the amplifier cost per 1000' of your present 3/4" trunkline cable. Write it here .....\$ \_\_\_\_\_
5. Channel 13 attenuation of Rome Unifoam 3/4" cable.....  
.....8.6 db/1000'
6. Multiply Item 2 by Item 5 and divide the result by Item 1. This gives the amplifier cost per 1000' of Rome Unifoam 3/4" cable. Write it here .....\$ \_\_\_\_\_

7. Write in the number of feet of trunkline to be installed \_\_\_\_\_. Now, ÷ this figure by 1,000. Put answer here \_\_\_\_\_

8. Subtract Item 6 from Item 4 and write answer here \$ \_\_\_\_\_

9. Multiply Item 7 by Item 8 and write it here.  
**It's your prize! \$ \_\_\_\_\_**

Now collect: just order Rome Unifoam CATV cable and save the amount of money you've just calculated.

Example:

Trunkline amplifier @ \$350: 22 db gain  
 Typical 3/4" cable Channel 13 attenuation: 11 db/1000'  
 Required: 1 amplifier every 2000'  
 Amplifier cost:  $\$350/2 = \$175/1000'$   
 Rome Unifoam Cable Channel 13 attenuation: 8.6 db/1000'  
 Required: 1 amplifier every 2,550'  
 Amplifier cost:  $\$350/2.55 = \$137/1000'$

**Savings (prize):  $\$175 - \$137 = \$38/1000'$  of trunkline**

Want more information? For a fact-filled folder on Rome Unifoam CATV Cable, write to Rome Cable Division of Alcoa, Rome, N.Y.

ing a service to the public which has a better or even an equally good record of not increasing its rates or prices. The main reason for this remarkable stability in subscriber rates, despite a constant improvement in the quality of service and a steady increase in the cost to the CATV operator of the new and more efficient equipment which an improved technology makes possible, is the undeniable fact that a CATV subscriber can discontinue service at the end of any month and revert to a rabbit-ear or roof-top antenna. CATV service is not, by any stretch of the imagination the "essential service" which Mr. Gibson tried to convince NARUC members that it was. It is, as Mr. Richard J. Thompson told them it was, a "luxury service."

The notable stability in CATV subscriber rates described above is still more remarkable when one compares them with the increases in telephone charges or in the prices of staples and other commodities in the last five years or since the very beginning of CATV.

We know that prices and wages were quite closely controlled in the period from 1940-1950 during the years of World War II and then the Korean episode. Most of the price and wage increases in other industries during the last 25 years took place in the period between 1950 and 1965, the exact period during which the CATV industry developed. This period from January, 1950, through August, 1965, is the period during which weekly earnings of workers in manufacturing adjusted to a dollar basis, have climbed from \$102.50 to 199.50, and the uptrend in earnings of other workers has been similar to the uptrend in factory workers' earnings. Although the buying power of the dollars earned and saved in this period has declined, the rise in the total of dollars earned has far exceeded the decline in the buying power of the dollars.

In the same period, wage rates increased about 88% and raw material cost levels increased about 36%. Consumer prices have more than doubled. Intrastate telephone rates, which are under the jurisdiction of the PUC's, have risen 45%.

So, although CATV systems have had to pay increased wages, increased equipment costs, although they have generally increased their service to subscribers, decreased their connection charges, kept their increases in rates to subscribers down to a far lower level than other industries, even much lower than the level of the telephone companies whose rates are controlled by the PUC's, Chairman Gibson of the Vermont Public Service Board

wants to convert these CATV systems from the private businesses which they are, into businesses whose property is devoted to the public use and all in the name of "protecting the public from discriminatory practices, exorbitant charges and poor service." How wrong can a public official be? If his reasoning is correct, then there is no business in America which cannot be brought under the control of PUC's under the same logic or "ill-logic." Would CATV continue to prosper under this type of a regulator? Mr. Gibson already has concluded that CATV systems are public utilities, because in his address to the NARUC convention he complained that "CATV systems are not required to file any reports or keep any records that would reflect the cost of providing service or the rate of return on investment. He bemoaned the fact that he has no information on their actual capital investment or any way to determine whether their rates and charges are fair and equitable or exorbitant. How many other private businesses are required to file such reports in Vermont? Why should a CATV system be required to file such reports when other businesses which are not public utilities are not compelled by law to do so? Mr. Gibson did not try to explain his reasoning with respect to this suggestion. He didn't say in what particulars the CATV industry differs from other private enterprises. Why should they of all private business have to reveal their trade secrets and actual profits and losses except to tax officials?

The CATV industry has voluntarily and wisely curtailed rate increases far below even the level of such increases by telephone companies whose rates are regulated by the state PUC's. CATV systems have done this mainly to remain competitive with other forms of television reception. They do not enjoy protection from competition, such as telephone companies do, or such as the television broadcast industry does now that the FCC has decided to protect them, without their having to prove a need for such protection, against competition for their viewing audience by CATV systems. In fact, a CATV system cannot even complain if an inferior translator interferes at its antenna site.

The CATV system gets no protection but it must give protection to TV stations and to translators, and if it were transformed into a public utility, a PUC could saddle it with an obligation, but it must give protection to TV CATV plant even when a sound business judgment would not justify serving such dwellings. The subscriber

rates would necessarily have to soar under this type of legislation, the CATV system would lose connections and the present stability of his CATV operation would be jeopardized. This just does not make sense. This luxury service is not the type of business which lends itself to PUC regulation.

Only true common carriers could be subjected to public utility type regulation under the Communications Act, and this Act did not rest in the state governments or legislatures the right to impose the burdens of public utility status upon an interstate business in the television field. Otherwise, the state legislatures could impose likewise upon commercial television broadcast stations the status and obligations of a public utility and common carrier and thus place them under Title II of the Communications Act. The mere proposition is preposterous, as it is equally with respect to CATV systems.

## CONCLUSION

The consideration given to the Resolution by NARUC members was inadequate, as were the discussions which led to its adoption. A thorough study of the CATV industry and of its current practices should have preceded consideration of such a far-reaching decision affecting not only the CATV systems immediately concerned, but potentially all other free enterprise types of business in the future. The Connecticut experience has proven already that a PUC is not suited by training or experience to regulate a private, free enterprise type of business like CATV and that it can only produce undue delays and stymie the growth of CATV systems. The CATV industry is convinced that any thorough, impartial study conducted by NARUC or any other responsible organization will prove, as Dr. Martin Seiden, the FCC's hired CATV expert, has advised the FCC, that the local municipalities are better suited than a central governmental agency to regulate properly the operations of a CATV system which are of a local nature. The municipalities for the 15 years of CATV existence have done an excellent job of ensuring that CATV systems serve the public efficiently and satisfactorily. No good reason has been advanced for ousting them from jurisdiction. That is why there are so few corroborated complaints by CATV subscribers, city officials or anyone else about CATV. That, also, is the reason why some 1900 additional applicants for permits have been filed with city councils to satisfy the public's ever increasing clamor for this wonderful superior television reception service. □



FIVE REASONS WHY FORT WORTH TOWERS  
ARE THE STANDARD OF THE CATV INDUSTRY:

*Advanced Tower Design*  
*Complete Fabrication  
and Erection Service*  
*Antenna Installation*  
*Head End Structures*  
*Maintenance Support*

Fort Worth Tower Company offers complete "tower package" service for all your CATV needs. From drawing board to total construction supervision, Fort Worth's professional tower men guarantee you the finest CATV and microwave towers. Each tower is engineered to the specific requirements of the job; pioneer construction experience assures that the job will be done right.

Fort Worth offers a complete array of support equipment, including fiberglass equipment buildings, power lifts, and microwave reflectors. Every item is engineered to give you the highest performance possible . . . the only standard at Fort Worth.

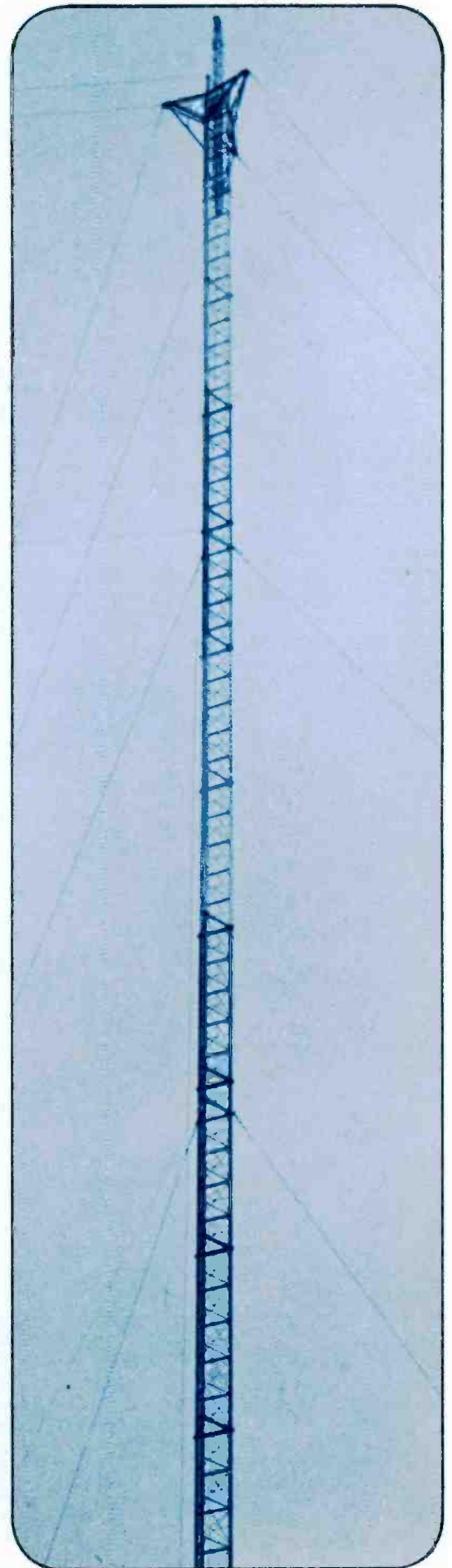
Quality-built Fort Worth towers give you an added feature . . . a premium product at a very reasonable price. Compare our quotations and specifications. You'll see that quality and economy go hand in hand at Fort Worth. Call or write for information today.

INQUIRE ABOUT OUR PARABOLIC TROPO-SCATTER ANTENNAS  
WRITE TODAY FOR OUR NEW BROCHURE

**FORT WORTH TOWER**  
**COMPANY**

P.O. BOX 8597 • FORT WORTH, TEXAS • (817) JE 6-5676

TV & COMMUNICATIONS



# WHY 75 OHMS?

By I. Switzer

Staff Technical Associate

The standard coaxial line impedance for power transmission in this country is 50 ohms while the standard impedance for CATV and some other small signal applications is 75 ohms. The question often arises as to why these values were chosen.

In concentric transmission lines (coaxial), the electromagnetic wave is propagated through a dielectric medium bounded by two coaxial cylinders. Since current penetration at VHF frequencies is small (skin depth at 54 mc in a copper conductor is approximately 0.00035 inches, and at 216 mc is approximately 0.00018 inches) the only important dimensions are the diameter (d) of the inner conductor, and the inside diameter (D) of the outer conductor.

For a coaxial line with small losses, such as used in the CATV industry, the characteristic impedance is

$$Z_0 = \sqrt{\frac{L}{C}} = \frac{138}{\sqrt{E}} \log_{10} \frac{D}{d}$$

where L and C are the inductance and capacitance per unit length, and E is the dielectric constant of the medium between the concentric inner and outer conductors. E for air = 1, E for solid polyethylene = 2.3, E for foamed polyethylene = 1.52.

A typical aluminum sheathed cable for CATV use has an outer diameter of 0.500 inches and the inside diameter of the outer sheath (D in the formula for characteristic impedance) is 0.450 inches. This cable has a foamed polyethylene dielectric with dielectric constant (E) of 1.52. Here are values of

diameter of centre conductor (d) for different characteristic impedance in cables with the same D (overall size).

Z (ohms)	d (inches)
30	0.2446
50	0.1629
75	0.0980
100	0.0590
150	0.0213

Different impedance values are optimum for different parameters. Figure 1 shows relative values of attenuation,

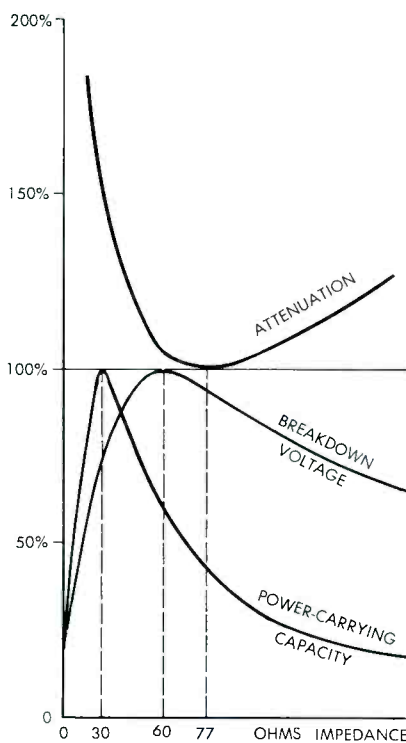


FIGURE 1

breakdown voltage and power carrying capacity for different values of characteristic impedance for coaxial cables having the same value of D (inside diameter of outer conductor), and the same dielectric material.

Optimum impedance for power handling capacity is 30 ohms. Optimum impedance for voltage breakdown is 60 ohms, which is, incidentally, a standard in West Germany and some

other countries. Optimum impedance for attenuation is 77 ohms. Although 77 ohms is the optimum impedance for minimum attenuation, such cables are limited to only about half the power handling capability of 30 ohms cables of the same size. Since the amounts of power handled in CATV cables is very small (a cable handling twelve channels at +60 dbmv per channel is carrying a total of 0.16 watts) the choice of 77 ohms for minimum attenuation is obvious. This impedance has been standardized to 75 ohms.

It may be surmised that in the early days of VHF and microwave when power at these frequencies was hard to come by and minimum attenuation was more important than power handling capacity, 77 (or 75 ohms) was selected as a standard for coaxial transmission lines. Early transmission lines had air dielectric and the choice of 75 ohm impedance led to use of hardware of fixed dimensions. Later on when low-loss dielectric materials were developed making flexible coaxial cables practical, the line dimensions remained unchanged to keep them compatible with existing hardware. The dielectric constant of polyethylene is 2.3. The impedance of a 77 ohm air dielectric line is reduced to 51 ohms when filled with polyethylene. The impedance of a coaxial line of fixed diameter ratio varies inversely as the square root of the dielectric.

51 ohms is still in use today along with 51.5, 52, 53 ohms, even though the standard for precision work is now an even 50 ohms. CATV systems find that many laboratory grade instruments for use in coaxial systems are manufactured for use at 50 ohm impedance level.

Use of such 50 ohm instruments in 75 ohm systems will usually require an impedance matching device. Some instruments, such as some signal generators, may be used directly in 75

Our thanks to Bird Electronics Corporation for permission to use materials from their bulletin "Watt's New From Bird" Vol. 2, No. 5, in preparation of this article.

## We Pay for Tech Tips

Short (or long) technical articles on any aspect of CATV maintenance, construction or equipment modification . . . can be worth extra dollars to you. Submit typed, double-spaced material to:

Bob Searle, Managing Ed.  
**TV & COMMUNICATIONS**  
 P.O. Box 63992  
 Oklahoma City, Oklahoma

ohm systems by calculating corrections to account for the impedance mismatch. Other instruments may be matched to 75 ohm systems by use of resistive attenuator pads designed to effect the required impedance transformation. Well made matching pads of this type designed to make the 50 to 75 ohm match with minimum insertion loss will exhibit very flat response over very wide frequency ranges due to their purely resistive nature, and will have a minimum insertion loss of 5.7 db. This is the theoretical minimum insertion loss for a 1.5 ratio of impedances.

Broad band matching transformers are also available which have very low insertion loss (typically less than 0.5 db) and which are reasonably flat over the range of frequencies used in CATV work. For most accurate results, in set ups which can tolerate the 5.7 db insertion loss, the use of a minimum loss resistive matching pad is recommended.

The required impedance match can also be accomplished over narrower bandwidths by use of tapered line sections, or coaxial transformer sections of proper length.

Users of such impedance matching devices as matching pads and trans-

formers should bear in mind that attenuation calculations should be made in terms of power because of the different impedance level on each side of the matching device. Voltage can then be calculated in terms of the appropriate impedance level. The following example illustrates this.

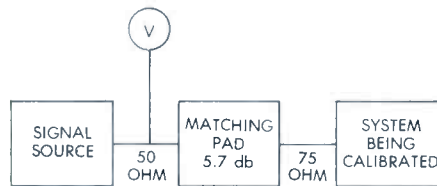


FIGURE 2

Figure 2 illustrates a voltage measurement being made in a 50 ohm system to calibrate a device in a 75 ohm system. The two systems are connected with a matching pad having an insertion loss of 5.7 db. Suppose that a measurement of 1 volt is made in the 50 ohm system. One might suppose that the voltage in the 75 ohm system is 1 volt attenuated by 5.7 db or  $1 \times 0.519 = 0.519$  volts. Such is not the case. The 1 volt reading in the 50 ohm system represents a power level of  $1 \times 1/50 = 0.02$  watts. This power level is attenuated

by the insertion loss of the matching device, 5.7 db, and appears on the 75 ohm side as  $0.02 \times 0.269 = 0.00538$  watts, representing a voltage level of  $.00538 \times 75 = 0.0635$  volts in the 75 ohm system. The difference is 1.7 db.

Decibel relationships are valid for voltages only in constant impedance systems. In systems involving impedance transformations, calculations should be made in terms of power and then changed to voltage by the well known relationships:

$$P = \frac{V^2}{R} \quad V = \sqrt{PR}$$

In systems which are properly terminated in pure resistances, these relationships will hold strictly true, since the characteristic impedance of a coaxial line may be considered a pure resistance at VHF frequencies. Rigerous analysis of systems involving mismatches or terminations which are not purely resistive are far more complex and involve application of transmission line theory. System measurements can be simplified by using resistive pads to isolate the system from the effects of mismatch and terminations which contain reactive components. □



**EVERYONE  
LOVES  
OUR  
CATALOG!**



It's because we have everything, and it's all in the catalog. Our quality is so high, it's almost as though you had it custom made. Our delivery is so fast, it's as though you had the stock room in your own office. Give us a try. A five cent stamp will get you the greatest catalog available. If you want something that's hard to get, with the highest quality, and you want it fast . . . then you'll want TVC's catalog. It's free.



**TV CABLE SUPPLY CO.  
BOX 38 • CARLISLE, PENNA.  
PH 717-243-4918**

## Want more "hookups"? Here's your BEST SELLER . . .

Already in its fourth printing, this lively, 16-page fact booklet is rapidly winning friends and signing up new subscribers everywhere.

- Shows how broadcast signals and CATV antennas work.
- Pictures a typical Cable CATV home installation.
- Illustrates how a Cable TV Community becomes a Better Community.
- Gives disadvantages and dangers of rooftop antennas.
- Answers frequently asked questions about Cable TV.



. . . and the entire back cover is available for your local company message (available channels, local coverage, rates, special offers, etc.).

**RUSH YOUR ORDER TODAY FOR A FREE COPY AND QUANTITY PRICES OF THIS SYSTEM SALESBUILDER!**

Mail to:

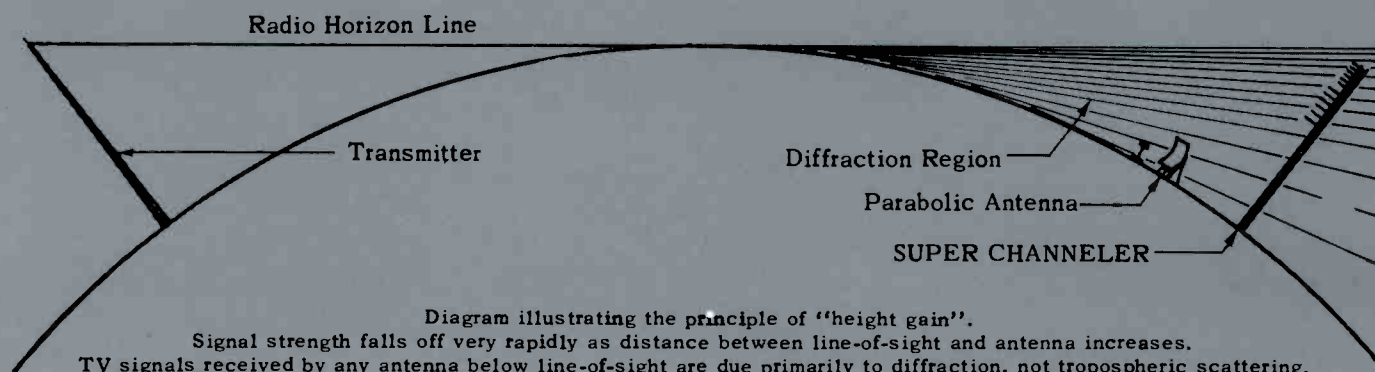
**SYSTEM PROMOTION SERVICES  
TV & COMMUNICATIONS**

**P.O. Box 63992 • Oklahoma City, Oklahoma**

# Two NEW antennas deliver

## Unequaled long-distance reception with "SUPER-CHANNELER"

110-130 miles, greater signal stability, no co-channel interference, no ghosting.



With SUPER CHANNELER 16 and 36 element Master Antenna Systems, you get more saleable pictures, more satisfied customers.

Tower-mounted SUPER CHANNELER insures much greater signal stability than ground-installed parabolic antennas. The added height greatly reduces such adverse effects as airplane flutter and weather interference. Proper selection of mounting tower height compensates for difficult terrain and low transmitting antennas.

Embodying the same engineering principles as the QUADRATE CHANNELER, these new multi-element arrays provide narrower beamwidths and significantly higher gain. And equally important, they eliminate co-channel interference and ghosting. They are ruggedly constructed of corrosion-resistant aluminum. The array supports are steel and all hardware is cadmium plated. The fully weather-proofed antenna is shipped complete, including antenna elements, cable harness, support structure, and hardware.

All VHF channels are covered with two arrays. They feature:

Maximum VSWR	1.25:1 Max
Sidelobe Level	-25 dB Min
Front-to-back-ratio	25 dB Min
Impedance	50 or 75 ohms
Connector	female type "N"

### 16 ELEMENT "SUPER CHANNELER" MASTER ANTENNA

Channels	2 through 6
Gain	20 dB free-space gain with nominal effective gain at 300 feet, with respect to 50 feet, of 29.5 dB
Beamwidth	vertical, 14° nominal horizontal, 12° nominal

### 36 ELEMENT "SUPER CHANNELER" MASTER ANTENNA

Channels	7 through 13
Gain	26 dB free-space gain with nominal effective gain at 300 feet, with respect to 50 feet, of 39.5 dB
Beamwidth	vertical, 9.5° nominal horizontal, 8° nominal

Scientific-Atlanta, Inc., offers complete engineering service featuring problem identification and solution. All our Master Antenna Systems are available in a "turnkey" package or modified to conform with existing facilities.

See us at the NCTA CONVENTION, booth 310.

**more saleable pictures:**

## **Unequaled UHF reception with "ULTRA-CHANNELER"**

New standard of reliability, simplicity and performance.

Developed by the people who developed the "Quadrate Channeler" VHF Master Antenna System, the ULTRA CHANNELER provides clear, interference-free reception of all UHF channels. New CATV systems now have greater freedom of design. Existing systems can utilize empty channel capacity, or replace duplicate or marginal VHF channels. Designed for long, trouble-free service, ULTRA CHANNELER antennas feature —

- Very high VHF signal rejection
- Simple pole or tower mounting
- One antenna for the entire UHF band (Channels 14 thru 83)
- High gain and low side lobe levels
- Performance can be optimized for any channel by simple factory or field adjustment
- Full paraboloidal reflector for maximum aperture efficiency
- Sealed electrical connections and rugged, corrosion resistant structure provide proof against all environments
- Two reflector sizes, one for ordinary situations, larger size for maximum performance.

Channel	Model UCA-8 8' dia Reflector		Model UCA-10 10' dia Reflector	
	Gain (min) dB	Max Hor. Beam Width deg	Gain (min) dB	Max Hor. Beam Width deg
14	19	20	21	15
50	22	13	24	10
83	25	10	27	8

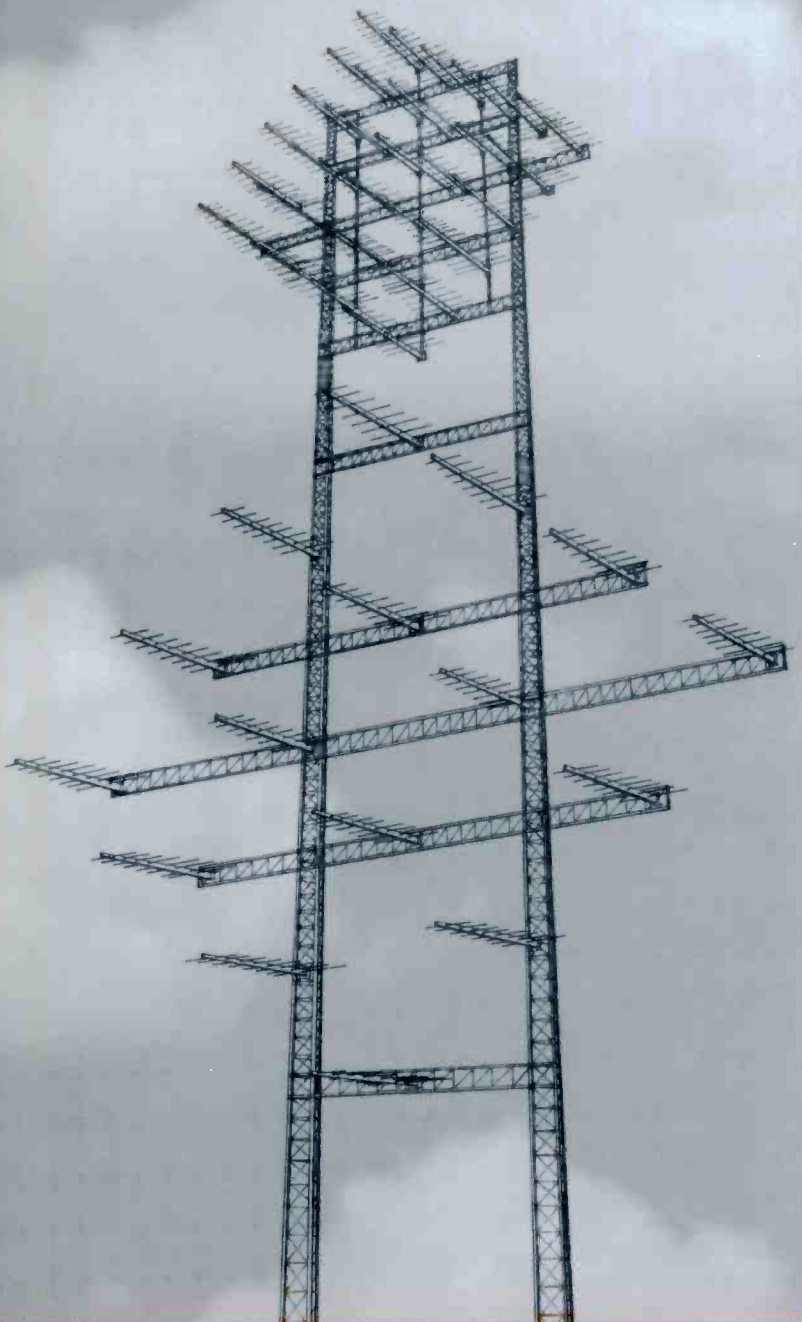
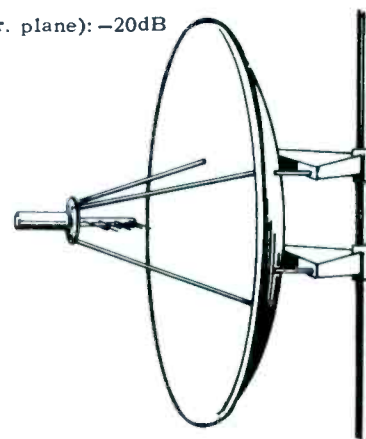
Freq range: 470-890 MHz (Channels 14-83)

Impedance: 50 or 75 ohms

Polarization: Horizontal, linear

Max VSWR: 2.0:1

Max Side Lobe level (Hor. plane): -20dB



**SCIENTIFIC - ATLANTA, INC.**

BOX 13654, ATLANTA, GA. 30324 • TEL. 404 - 938-2930 • TWX 810-766-4912 • WUX: PSO



# Attending a Trade Show

By Edith L. Johnson  
Director of Public Relations  
Kaiser-Cox Corporation

The show must go on and will go on as long as there are people to see it. Of course, this is the tradition of the theatre, but it's equally true of trade shows or any exhibit or convention. As long as people are interested there will be shows and more shows. The important thing, though, is what you, the customer, gain from these shows.

Months of preparation go into every trade show. It is highly essential that exhibitors present the finest and most educational display that their budgets will allow. It's up to you to take full advantage of this elaborate and costly preparation.

Before the show, trade journals, also, devote a great deal of time, effort and space to valuable show information, giving their readers a preview of what to expect.

A thorough study of these magazines can prove invaluable. A check list should be made of all the products, services and general company information that will be a part of the show display. Don't scan through the magazines hurriedly. Time saved this way will only be wasted at the show. Check every detail thoroughly and list, in order of importance, displays most valuable to your particular business.

Determine ahead of time, if possible, where the exhibits will be and set up a step-saving route.

"Oh my aching feet," is a common wail of the weary show visitor after miles of walking from one display to another. The unfortunate part is that often it's more than aching feet. The tired feet make every other part of the body tired, and it's the aching head or the tired mind that makes it impossible to get the most out of the show. So save every step you can and plan it ahead of time whenever possible.

Make an especially concentrated study of the magazine descriptions of the seminars, special meetings and speakers. Eliminate the ones not essential to your business activities so as not to crowd too much into the show period.

Among the essentials to be taken with you to the show are comfortable shoes for extensive walking, comfortable clothes to fit the weather conditions of the city in which the show is held, a good supply of business cards, an alphabetically indexed notebook and a clip-on ball point pen.

When at the show, rather than load yourself down with brochures and special ad sheets, give your card to each display and ask that he mail you the material after the show. This makes the displayer happy knowing that you want to be on his mailing list. It makes your booth-to-booth visit more relaxing because you aren't bothered with cumbersome folders and cards.

The alphabetically indexed notebook will make it easy for you to assemble necessary show information in a systematic manner, making recapping of the show more efficient when you return to your business. You can make notes of names and addresses in their proper places and even classify your general information notes alphabetically. This would be the type of information not available in brochures and special convention bulletins. It would be advertising ideas that you pick up from a standpoint of eye appeal, helpful suggestions or business information gained

## EDITH L. JOHNSON

Mrs. Johnson is director of public relations for Kaiser-Cox Corporation, Phoenix. She attended Woodbury College, Los Angeles and studied writing at Phoenix College and the University of Arizona. Mrs. Johnson has owned and operated a retail and wholesale gift import business covering the Southwest, and was an administrative assistant in a social agency for three years.

For five years Mrs. Johnson was part owner in a printing and newspaper business and was editor of two weekly newspapers. She has appeared in a number of national magazines and wrote a syndicated column for five years. Prior to joining Kaiser-Cox, Mrs. Johnson was assistant public relations director of Ameco, Inc.

As director of public relations for Kaiser-Cox Corporation she is responsible for all press relations, news releases and company publications.

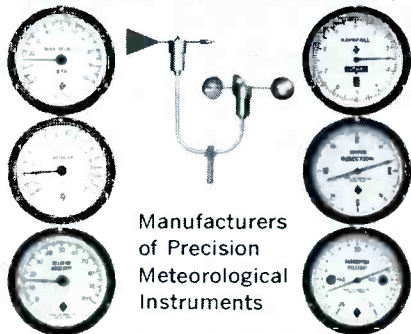
in personal contacts, and various miscellaneous data.

Speaking of personal contacts, this is a vital function of every show. It's one of the reasons for not crowding your schedule, for planning ahead and leaving periods of free time. Vital information can be gained in conversations with friends and new acquaintances—business experiences that they are willing and eager to share with you.

A word of caution, though. Personal contact and free time at the show can become unbalanced. Nights out after the meetings can be overdone. Good money has been spent to make these shows a success. Everything is there to help you make the best of your own business. Don't overemphasize the social life to the detriment of your mental capabilities. Get enough sleep. Keep your mind clear and fresh. It's fine to live it up, to enjoy yourself, to make friends and renew old friendships. All this is good, but moderation is good too. Keep first values first and always spend your time and energy where it will bring you the most gain.

So, on with the show. Have fun, learn much and return home to build a big and better business of your own. □

## WEATHER INSTRUMENTS



Manufacturers  
of Precision  
Meteorological  
Instruments

In Use Around the World

TEXAS ELECTRONICS, INC.

P. O. Box 7151

5529 Redfield Street Dallas, Texas

See You at Booth 707!

# Only complete test equipment line designed especially for 75 ohm cable distribution

*finest all solid-state all-channel sweep generator on the market*

## U/V sweep generator, model 4122

Solid-state. Has two switch-selected electronically swept ranges: entire UHF TV spectrum (470 to 890 mc); entire VHF TV spectrum including subchannels (20 to 240 mc).

Sweep widths are continuously variable from 5 mc to the entire VHF or UHF range in one sweep. Center frequency can be tuned across the complete band on each range regardless of the sweep width setting. An output level attenuator is adjustable over a 60 db range. Automatic Level Control (ALC) on both ranges assures constant output. Fully regulated power supply for stable operation.

The sweep oscillator is varactor tuned (no moving parts) for silent operation and long life. For VHF output the UHF sweep is mixed with a fixed oscillator signal at 900 mc and the resultant difference signal is amplified and level controlled to cover the complete VHF TV spectrum.

The horizontal sweep rate of 60 cps, derived from the power line, is available as a sine wave at the front panel for connection to the oscilloscope. Use of the sine-wave horizontal permits oscilloscopes to be fed by available local line voltage for summation sweeps of large distribution systems.

## UHF sweep generator, model 4114

Same quality features as the Blonder-Tongue 4122 UHF/VHF Sweep Generator but covers range of 470 to 890 mc only.

*only all-channel field strength meter in a single unit*

## UHF/VHF field strength meter, FSM-2

Solid-state superheterodyne circuitry. Accurate enough for the lab. Portable enough for field work. Instantly convertible from VHF to UHF with the flip of a switch. Measures RF signals at 75 ohm impedance (VHF/UHF balun supplied for 300 ohm measurements) in two ranges: VHF (52 to 216 mc) and UHF (470 to 890 mc). Sensitivity variable from 100 microvolts to 3v. for full scale meter deflection. Reads both average and peak level. AC line or integral battery operation. Fully regulated power supply. Indispensable for field strength surveys, MATV/CATV system maintenance, loss and gain measurements and percent modulation tests. Precise amplifier gain and attenuation measurements.

## RF switcher (dc to 900 mc) 4102

Electronically-actuated, high-speed switch, solid-state, permits two signal tracings to be simultaneously displayed on an oscilloscope, either superimposed or alternately, at the rate of 30 cps. Either tracing can be seen independently for making direct, immediate comparisons between input and output voltages of any circuit under test for precisely measuring VSWR, amplifier gain, or attenuation and other applications involving equipment performance evaluation against given standards. Provision for 360 degree phase adjustments.

## Delay line (dc to 900 mc) 4107

Compact and portable, fully shielded, precision 75 ohm coax delay line for use as a match cable for impedance measurements and other laboratory applications where a standard cable of superior quality is required. Designed primarily for use in conjunction with the Blonder-Tongue 4102 RF switcher, this delay line provides an accurate impedance standard to make fast and precise VSWR measurements over a very wide bandwidth. Designed to be one half wave length at 5 mc, the line allows convenient measurement of bandwidth, sweep width and sweep linearity.

*Blonder-Tongue offers a complete line of color-approved products for CATV:*

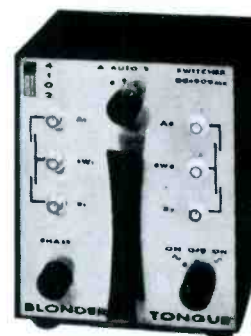
*Amplifiers (trunk line distributed, high output, single-channel and broad band); converters (crystal-controlled); accessories (Tap-offs, splitters, mixers, matching transformers) and the famous "Stinger" pressure taps. For details write.*



**BLONDER-TONGUE**

9 Alling Street, Newark, New Jersey 07102

SEE US AT THE NCTA SHOW



# THE NEW REGULATIONS-- THE GOVERNMENT DEAD HAND

*A Review and Analysis by  
Arthur Blooston*

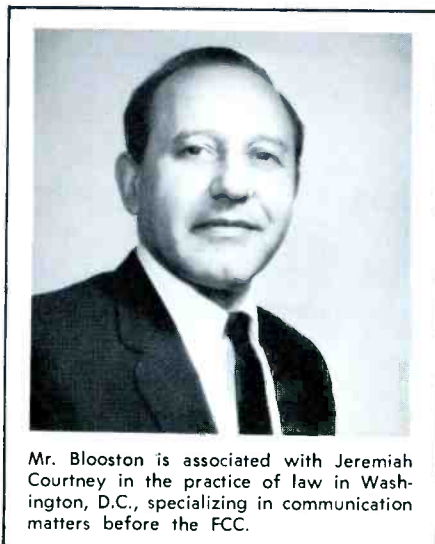
February 15, 1966 will long be remembered by the CATV industry. On that day an era came to an end — an era of free enterprise comparatively unfettered by federal regulations. Until that day, a prospective CATV operator contemplating a CATV cable system had very little concern with federal interference in his business. If he wanted to erect a tall receiving antenna, he had to obtain approval from the Federal Aviation Agency. But this was the only federal approval needed. If the CATV did not require a microwave relay link and abided by the FCC's radiation rules — the responsibility of the system engineer — it did not have to concern itself with that agency or any other federal regulation of its business.

Those carefree days ended on February 15, 1966, the day the Federal Communications Commission announced that it has assumed jurisdiction over all CATV systems serving more than 50 customers; and that detailed regulations governing both the operation of CATV systems and the entry into that business would be forthcoming. In this way, with one broad stroke of the regulatory pen, an FCC public notice transformed a free enterprise industry into one closely regulated and supervised. February 15, 1966 may also be long remembered in the annals of legal history for prohibiting new CATV systems from commencing operations in any one of the top 100 television markets three weeks before even the text of the regulations became available to the public and the CATV industry affected.

Why has the FCC, without express Congressional mandate and despite the serious legal doubts expressed by one of its members, asserted jurisdiction over CATV operations? There seems to be little doubt that the real reason is the Commission's desire, at all costs, to redeem its 1952 allocation error in committing itself, and the television industry, to an 82-channel television "economy," with 70 of these channels in the UHF band. But UHF television has hardly gotten off the ground. Congress came to its rescue in 1962 by

adopting the all-channel receiver legislation prohibiting the shipment in interstate commerce for sale to the public of television receivers not capable of receiving all 82 TV channels. And now the FCC has attempted a second shot in the arm by restricting CATV operations.

Congress noted that substantial time would have to elapse before a large majority of the public purchased all-channel receivers; and the Commission recognized that UHF stations faced considerable obstacles during this period. As indicated in the notice of inquiry and notice of proposed rule making in Docket 15971 which led to the adoption of the CATV rules, the Commission stated that it was concerned with "the mushrooming entry of CATV into major centers of population insofar as this affects the opportunity for new UHF stations." Here in a nutshell is the reason for the CATV rules. The CATV industry has become a tool in the hands of the Commission in forcing UHF television on an obviously unenthusiastic and largely unresponsive public and industry. In the process, the FCC has not only extended its regulatory umbrella over CATV's in the major television markets but over all CATV's in any market in which any television station, VHF or UHF, is authorized.



Mr. Blooston is associated with Jeremiah Courtney in the practice of law in Washington, D.C., specializing in communication matters before the FCC.

It is indeed ironic that the FCC has chosen to restrict the CATV's freedom of doing business in order to protect television broadcasting which, by statute, is to be ruled by the competitive forces of the market and which enjoys — and jealously guards — freedom from economic regulation. This anomaly has moved even *Broadcasting* magazine, whose pro-television credentials are beyond reproach, to editorialize thusly in its March 21, 1966 issue on the subject of the FCC CATV regulations:

"It is for the broadcasters' freedom that this publication has again opted in the CATV case: freedom to choose their own programming, set their own rates, establish their own business practices in response to the action of a free market. They can't have that freedom and a protected market too."

The following devices have been employed by the FCC to protect television — and whether or not they will help future UHF stations, the actual and immediate beneficiaries are the existing and entrenched VHF stations:

(1) The TV stations in the top 100 markets, as ranked by American Research Bureau net weekly circulation figures, are protected against the importation by CATV's of distant television signals into their Grade A contours by the device of requiring prior FCC authority for the carriage of such signals beyond a station's Grade B contour. Such authority may be granted, if at all, only after an evidentiary hearing, or a waiver thereof, and on the basis of a showing, approved by the Commission, that the extension of the Grade B signal of a distant station would be consistent with the public interest, specifically the establishment and healthy maintenance of television broadcast service in the area.

(2) All TV stations are protected from CATV competition by the device of requiring all new CATV's to notify every television station whose Grade B contour encompasses the CATV system, and all translators in the CATV community, at least 30 days prior to





# JUST HOW COMPLETE CAN CATV CONSTRUCTION BE?

When you employ a construction firm to build or renovate a CATV system, you have every right to expect total service — a complete package from initial feasibility studies to final system check out. You want a firm whose only standard for equipment selection is to do the best job — an independent firm without obligations to individual manufacturers. You expect professional, experienced personnel to handle every phase of your operation . . . to

provide detailed service to meet each unique requirement.

Communication System Corporation brings all these capabilities to your CATV project. Broad national turnkey experience includes every facet of system construction. Complete feasibility studies, antenna site surveys, system design and field engineering, layout, liaison with utility companies, installation of poles, cable, lines and equipment, thorough inspection, system testing and dozens of other duties are handled professionally and efficiently by experienced, full-time personnel

. . . friendly, courteous people. State-of-the-art system design concepts and the most modern construction techniques are used to save you time and money.

The overriding goal is to give you the most complete, most reliable, highest quality CATV system design and construction services possible . . . to give you the most for your investment. Planning to build or renovate a system? Let us help you. Make your problems our problems . . . write or call for further information.



**COMPLETE SYSTEM  
CAPABILITY**



**COMMUNICATION  
SYSTEMS  
CORPORATION**

140 EAST MAIN STREET • HUNTINGTON, NEW YORK 11743  
PHONE (516) 271-1262

the commencement of CATV service. The notice must list all the stations to be carried and must be given whether or not any signal of a distant station is extended beyond its Grade B contour. If no objections are filed, service may commence after the 30 day notification period has expired. But any interested person may file objections — and if an objection is filed, no service may commence until the Commission disposes of the issues raised. The FCC has stated that it will accord expedited consideration to the disposition of such matters.

(3) All television stations within whose Grade A or Grade B contour the CATV system operates, and all 100 watt or higher powered translator stations in the community in which the CATV system operates, are protected from CATV competition by the device of being accorded program exclusivity and one day non-duplication. All such stations may request the CATV that their programs be carried on the CATV system within the limits of its channel capacity and the prescribed order of priority. The CATV must comply, unless this requirement is waived, or supply each subscriber with a switching device to allow him to choose between cable and non-cable reception, unless the subscriber indicates in writing that he doesn't want this device.

A few examples will illustrate how these regulations apply to specific cases. CATV "X" is a new system not in operation on February 15, 1966. It is located within the Grade A contour of one or more television stations in one of the top 100 markets. It plans to carry the programs of these local stations. But in addition it wants to import the signals of three distant stations by extending them beyond the limits of their Grade B contours. The "X" CATV system cannot start carrying the distant signals without first obtaining authority from the FCC.

CATV "X" may either ask for a hearing or waiver of the hearing — more likely the latter. So far no CATV in the position cited has asked for a hearing; but several have requested a waiver. In either event, CATV "X" is exploring unknown territory insofar as anticipating what the FCC may do. There are no precedents yet on how the FCC will act on these waiver requests, or what standards it will employ in disposing of them. While it is admittedly too early for a body of precedents to develop, the Commission's decision and CATV rules, unfortunately, offer very little guidance to businessmen deciding to enter the CATV field, or their lawyers who would ad-

vice them. The result will, for a long time it is feared, be another example of the dead hand of government imposed upon business activities, in this case affording the public a richer choice of programs.

The governmental restraints operate with particular harshness on those CATV's in the top 100 markets which were partially constructed on February 15, 1966 but not in operation. The hapless CATV in that position is virtually checkmated by the FCC. It cannot start service with the carriage of the distant stations — at least not without risking a prompt cease and desist order and a hearing on that order before the FCC. Such orders have already been issued in more than one case and hearing proceedings are in progress. If the CATV does not want to risk violating the Commission's rules, which might be ultimately upheld by the Courts, it would have to limit its initial service to the carriage of the local stations. But this might destroy the CATV's economic base. So a hearing on a request to carry the distant stations might be the only alternative, with binding commitments previously made to be met, but no returns on the investment till the hearing is satisfactorily completed. And anyone familiar with the FCC knows that hearing proceedings are not notable for their expedition, including those cases afforded expedited consideration.

In our next illustration, CATV "Y" desires to commence operations in an area which is encompassed by the Grade B contour of one or more CATV systems. At least 30 days prior to the scheduled commencement of operation date, CATV "Y" must send notices to all such television stations and file the notices with the Commission. The notice is required, whether or not the signal of any station carried is extended beyond its Grade B contour. If no objections are filed by any interested party, CATV operations may commence on the noticed date or thereafter but not less than 30 days after the notice.

But if objections are filed, operations may not commence until the Commission disposes of the objections. However, if CATV "Y" proposes to extend any signal beyond its Grade B contour, the FCC may, on its own motion, decide to determine whether the proposed service would be in the public interest. In that event, service may not commence, even though no one objects, until the FCC decides the issue it has itself raised.

The Commission's rules provide that while at least a 30-day notice is re-

quired, the notice may be given also within 60 days after receipt of a franchise or the leasing or other arrangements for the use of the system. This offers some protection to new CATV's by enabling them to file a notice within 60 days after the issuance of a local franchise and, hopefully, sufficiently in advance of commencement of the construction of the distribution system to smoke out any opposition, or FCC objections; and, again hopefully, to obtain a quick and favorable Commission decision.

Both CATV "X" and CATV "Y" after starting service, will be required to operate in compliance with the following detailed provisions relative to program exclusivity and one day non-duplication of local programs. Upon request and within the limits of their channel capacity, all CATV systems are required to carry all TV stations placing a Grade B or better signal over the community of the system, and all 100-watt or higher power translators operating in the community of the system, in the following order of priority: (1) principal community signals; (2) Grade A signals; (3) Grade B signals; and (4) translator signals.

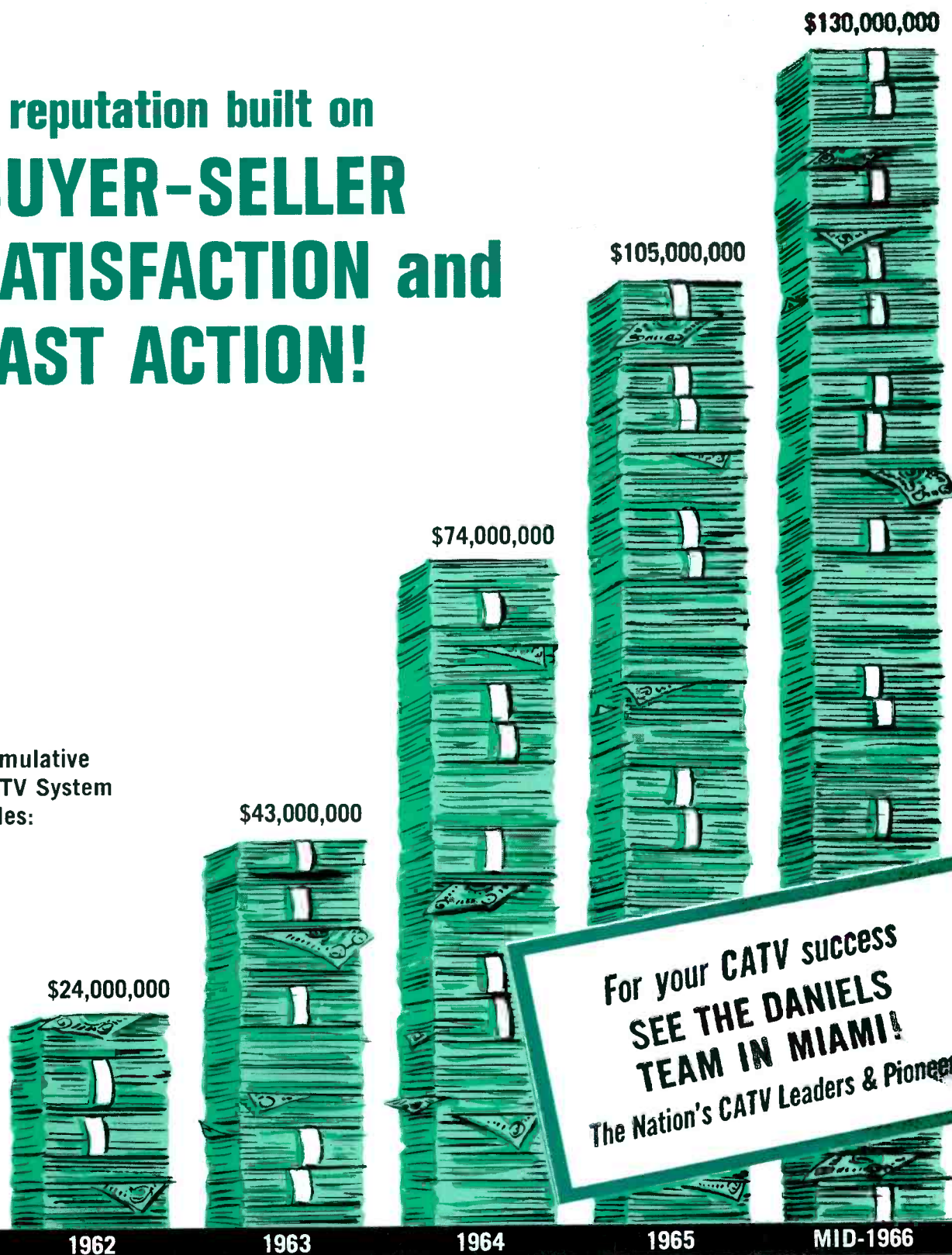
This means that any CATV which has not sufficient channel capacity to carry all the local stations and the distant stations, must carry all signals entitled to priority before carrying any distant signals, even though the programs of the distant stations may be superior to the programs of the stations entitled to priority. Perhaps in recognition of this unfairness to the viewing public, if not to the CATV business, the FCC has already amended the original rules to provide that where a petition for a waiver of the requirement for carrying the local stations is filed within 15 days after a request for carriage, the CATV need not carry the signal of the requesting station pending the Commission's ruling. Since the local station carriage provisions become applicable to existing non-microwave CATV systems on June 17, 1966, the FCC has stated that the stations desiring carriage after that date should make a request to the CATV on or before June 1, 1966 in order to obtain a prompt determination of any channel capacity question which may arise. This would also enable the CATV system to seek a waiver prior to June 17, 1966; and if such a petition was filed, the CATV would not have to carry the requesting station pending the Commission's ruling.

The same day non-duplication rule requires CATV systems, upon request of the station, to refrain from duplicating the programs of local TV sta-

# The CATV BROKERS with the proven track record!

## A reputation built on **BUYER-SELLER SATISFACTION and FAST ACTION!**

Cumulative  
CATV System  
Sales:



# DANIELS & ASSOCIATES, Inc.

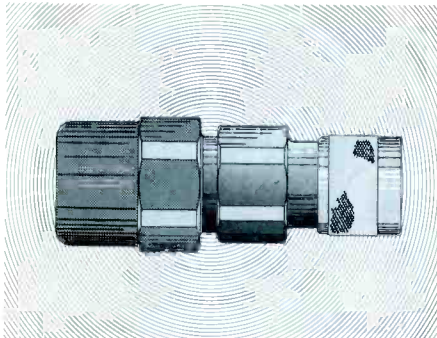
CATV Brokers • Appraisers • Consultants

2930 EAST THIRD AVENUE • DENVER, COLORADO 80206 • AREA CODE (303) 388-5888

from

## COMMUNICATION DYNAMICS

*the New Standard  
of quality in CATV*

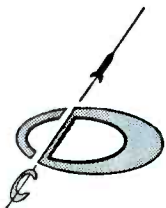


CDC offers a new high standard in its CATV connector series. Introducing the quality and reliability of missile specifications to the CATV industry for the first time at a competitive price, the complete line includes types N, F, UHF, Splices and amplifier entry fittings. Cable sizes .412", 1/2" and 3/4".

- TRULY WEATHERPROOF — SEALED TO 30 PSI
- SILVERPLATED, BERYLLIUM COPPER CONTACTS
- VIRGIN TEFLON DIELECTRIC
- UNITIZED GRIP ASSEMBLY — INSTALLED IN SECONDS
- LOWEST VSWR

Catalog and Technical Specification C-12627-V, available on letterhead request.

COMMUNICATION DYNAMICS  
CORPORATION



289 NEPPERHAN AVENUE  
YONKERS, NEW YORK 10701

tions carried on the cable on the same day as the local station broadcast. Color programs, which are presented by the local station in black and white, are excepted in that no non-duplication requirement whatever applies to them. Non-duplication protection applies to "prime-time" network programs (that is, those scheduled by the network between 6 and 11 p.m. eastern time) only if they are presented by the local station entirely within what is locally considered to be prime time. Where timeliness is important, only simultaneous non-duplication need be afforded. For example, the feature horse race in New York is usually televised every Saturday at 4:30 P.M. Since timeliness in showing it is unquestionably important, the local TV station carrying the race is entitled to simultaneous non-duplication only. The race can be shown on the cable as soon as the program, usually one-half hour, is over.

The Commission will, however, consider television station petitions seeking greater protection than that afforded by the rules, and CATV petitions seeking waivers of the rules.

Take heart. Free enterprise may not be completely dead. CATV "Z" happens to be located in an area outside of the Grade B contour of any television station. Also, there is no translator in the community in which CATV "Z" proposes to operate. This lucky system is not adversely affected by the FCC regulations. It can carry any stations it wants to without according priority or exclusivity to any one; and need not obtain any prior authorization from the FCC. The FCC could, of course, raise some public interest questions on its own motion. But this seems unlikely in any such deprived area since the CATV would be performing a true public service by any standard.

The CATV regulations have not escaped notice by Congress. Bills going much farther than the FCC rules and calling for licensing of CATV's have been introduced, as well as bills precluding the FCC altogether from regulating CATV, and bills intended to redress the balance and equalize CATV's position *vis-a-vis* broadcast television. An example of the latter is H.R. 14201, a bill introduced by Congressman Mackay, and reflecting the views of the National Community Television Association. Both the bill and the Congressman's introductory remarks on the floor of the House of Representatives are illuminating:

"Mr. Speaker, I am offering today what I believe to be a reasonable legislative approach to the problem of providing the greatest

possible diversity of program material to the American public.

"This bill will provide adequate protection for the broadcaster, and the people beyond the present service areas of CATV by requiring the CATV to make the local station available on the cable and not duplicate its programs from another source at the same time. It will provide for an equality of reception not generally available in most of the country, and it will also make it possible to provide services to the public not adaptable to or provided by broadcasting."

The Mackay bill would prevent the FCC from requiring any CATV system to receive on its system signals of a television broadcast station whose transmitter is located more than 30 miles from the main post office of the community in which the CATV system is located. The CATV system may choose to receive such signals; the Commission could not compel such reception. The FCC also could not prohibit a CATV system from receiving any signals it desires. This judgment would be left to the CATV operator and its subscribers. The Commission, however, in its role of protector for the local television broadcast station (i.e., one whose transmitter is within 30 miles of the main post office of the community in which the CATV system is located) could require that the programs of a distant television broadcast station (i.e., one whose transmitter is more than 30 miles away) not be received on the CATV system if and when the CATV system is receiving the same program on a simultaneous basis from the local station.

While opinions may differ on whether even this bill is too restrictive, it at least proposes a more reasonable definition of "local" station. To treat as local, as do the FCC rules, a TV station which places a Grade B signal over a CATV 70 miles away — and many a TV station's Grade B contour covers a radius of 70-80 miles — simply does not make good sense.

The present CATV regulations are, undoubtedly, not the last word on the subject. As time goes on, there are bound to be revisions. But whatever revisions of these rules may be ordered in the future, one may be excused for doubting if the Commission will ever repeal its regulations and restore the free enterprise status of the CATV industry unless it is forced to do so by Congress, or a court declaration that the FCC's rules are beyond the scope of the jurisdiction conferred upon it by the Congress. □

## Something old...



### TX-4A "DYNA-MOD" Solid-State Modulator

Provide broadcast-quality signals with a solid-state modulator that approximates FCC specifications. A tried-and-proven standard from a company with over 2000 modulators in the field, this unit will provide interference-free pictures in a full 12-channel system — with clear, crisp color! Requires only 3½ inches of rack space and 9 watts of power. List price: \$850.00

## Something new...



### TS-100A Solid-State Sideband Analyzer

For perfect color transmission from your head-end modulators, you can now check the over-all alignment of the video amplifiers, modulated stage, and RF amplifiers — under their normal operating conditions — without even removing the covers! (The same method used by the broadcasters.) Tunes to all channels for system flexibility. List price: \$950.00

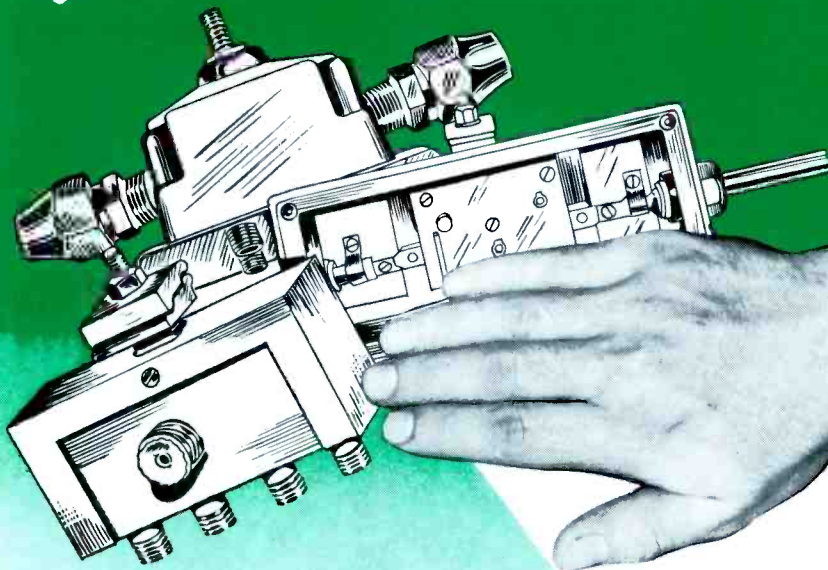
## A perfect marriage for producing and maintaining quality CATV pictures

See these and other DYNAIR CATV equipment demonstrated at the National Community Television Association (NCTA) Convention at the Americana Hotel in Miami Beach, June 26 thru 29. If you won't be there, write or call today for more information. We'll be happy to help you.

Look to DYNAIR for a solution to your CATV head-end problems. We have set the pace in modulator design for years. Our solid-state equipment is field-proven; no need to settle for second best. Provide the quality pictures your viewers demand: go first class...go solid-state DYNAIR!



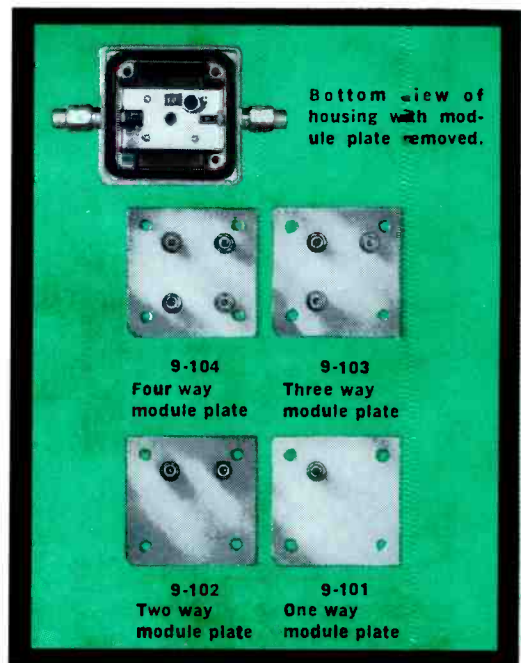
*If it's not* **CRAFTSMAN** *take it away!*



# *Modular Directional Tap*

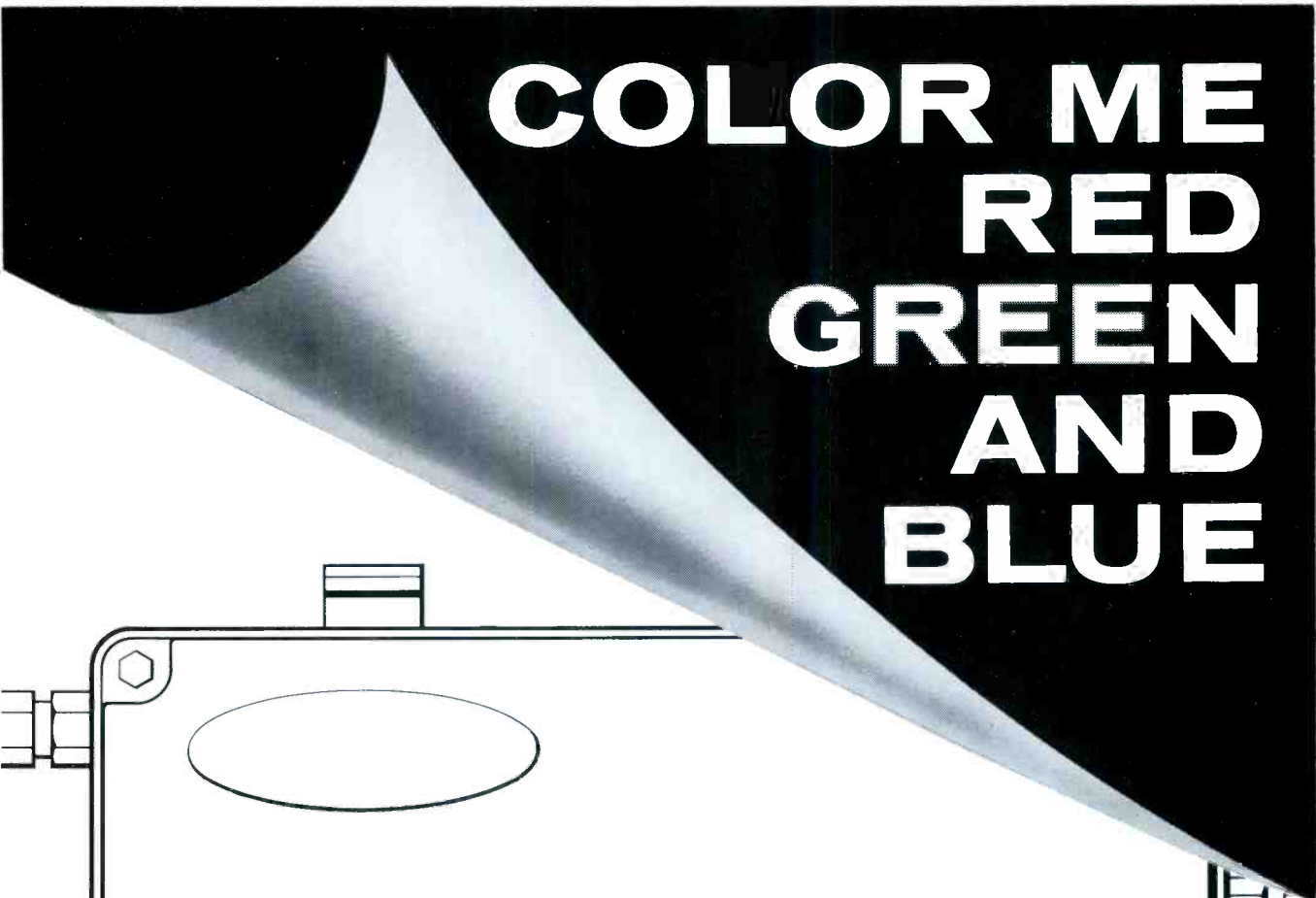
**SWEEP AWAY IMPERFECTION... CRAFTSMAN ELECTRONIC PRODUCTS MAKES THE BEST MODULAR DIRECTIONAL TAP ON THE MARKET.**

With the Craftsman Modular Directional Tap you can save money on in-line taps, not only on new systems but also on existing systems. To install the Craftsman Modular Directional Tap, all you do is cut the feeder line cable and attach it to the Modular Directional Tap. With the unit installed, tap-off subscriber changes may be made quickly and surely. The four bottom plates available with this modular directional tap are easily interchangeable in the bottom of the housing. It is a simple matter of unscrewing four permanently housed screws, removing one plate and replacing it with another. Each bottom plate has a cut off corner which allows it to be connected in only one way — the correct way. Thus in-line service changes are perfectly accomplished every time. For more information on the new Craftsman Modular Directional Tap ask for Data Sheet 1050.



**CRAFTSMAN ELECTRONIC PRODUCTS, INC.**

133 WEST SENECA ST., MANLIUS, N.Y. 13104 AREA CODE 315 OVERBROOK 2-9105



# COLOR ME RED GREEN AND BLUE



Now comes COLORVUE, the newest solid-state-of-the-art line of CATV trunk-line amplifiers that promises . . . and delivers . . . full color fidelity. High gain, high output, and an exceptionally low noise figure assure studio color quality to every subscriber.

And here at last is true modular interchangeability—five individual units that can be plugged

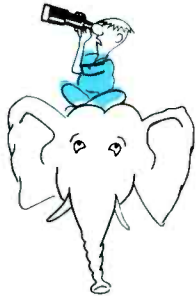
into one basic housing, or removed for test or replacement—in the field, and with the power on.

Quality? No doubt about that! The result of the highest order of technical competence in a company with more than 200 engineers, over 200,000 square feet of up-to-the-minute facilities, and a solid reputation for excellence in research, design and production.

*SEE THESE EXCITING AMPLIFIERS AT THE COLORVUE BOOTH AT NCTA*

**T** is for **Trunk**.  
Elephants have trunks. CATV systems have trunks too. Elephants do not have RF signal on their trunks. Some CATV systems do not have RF signal on their trunks.

Find the RF signal.



**U** is for **Underground**.  
Sometimes TV cable is buried underground. So are telephone and electric cables. It is hard to know if you have hit TV or telephone cables. This is not the case with electric cables. You know immediately. See the man hit the electric cable.



**V** is for **Video**.  
Video means picture. Video is very important. See the video. If you can't see the video. You have got either:  
A. A TV with no raster.  
B. A very large mantel radio with a glass front.

**W** is for **Water**.  
Water is good in its natural habitat. Water is not good in basements, scotch whisley and television cable. Water in cables makes a resistance (see Kiloohm). See the wet cable. See the compressed air tanks.



**X** is for **Xenon**.  
Xenon is a rare gas discovered in 1898 by Ramsey and Travers. It is used in neon tubes and certain electronic tubes called thyratrons. In case you're wondering why I brought this up, have you ever tried to find a word beginning with 'X' that is relative to our industry?

**Y** is for **Yagi**.  
A yagi is a type of antenna. We don't use yagi. We use corner reflector antennae. One of our antennae weighs about a ton. Some people give me strange looks when I tell them this.

**Z** is for **Zero**.  
Zero is very unpredictable. Zero db reading a TV set means one thousand microvolts which is very good. Zero ohms means a dead short in a cable which is not good.



See the good zero.

See the bad zero.



## TOWER TOPICS

BY J. BENNETT

### ANGLE, PIPE, OR SOLID ROD?

Many hours have been spent in the debate of which shape is best for use in tower manufacture: angle, pipe, or solid rod. There really isn't an answer to the question because each shape has an advantage over the others.

#### ANGLE

The angle has been in use as a tower medium for years. Mainly because a few years ago it was more plentiful and could be fabricated easily with the equipment available. Most angle towers are of the knock-down type and completely assembled with bolts on the job site. This also allows it to be shipped very economically as it may be packaged into a minimum of space. Angle towers are also used where the job location is highly inaccessible and the tower must be hand carried to the site.

In the disadvantage dept: the angle, being completely un-aerodynamic, catches the wind like a golfer's hat. More load requires more steel; more steel means more "green stuff." Nooks and crannies also allow corrosive deposits to build up.

#### PIPE

Not too many moons ago, the pipe tower came into being. Previously, pipe was considered "plumbers stuff," but improved manufacturing methods and quality con-

trol permitted pipe to enter the structural steel field. Today pipe is made to conform to the highest standards and is readily available in many sizes and strengths.

Pipe towers are usually shop fabricated into completely welded sections, making the erection much simpler and faster. One of the main advantages of a steel pipe is it's being cylindrical in shape. The wind loading on a pipe is two thirds that on a flat surface, and needless to say, the less load on the tower, the less steel required to support it. The smooth, streamlined pipe tower has no nooks and crannies for corrosive deposits to build up.

A major disadvantage is that shipment abroad costs more than the angle tower because it requires more cubic feet of space per pound.

#### SOLID ROD

In my book, the solid rod tower is the big daddy of them all. They have been erected as high as 2000'—probably more. The thing that makes them so terrific is their versatility. Solid weldable high strength steel rods are obtainable in any size in one eighth inch increments, giving the designer a good variety to choose from. Being smaller in size for the same strength, the solid rod has even less wind loading than the pipe. Corrosion is less of a problem because there is an absolute minimum of area exposed to the elements.

Any tower, regardless of the shape of material utilized, will be OK if properly designed, fabricated and erected. □



# CABLE SYSTEM SAFETY

By Jack Pruzan  
Pruzan Company

## PROTECTIVE EQUIPMENT PART II, CLIMBING EQUIPMENT

This article will discuss the lineman's climbing equipment: body belts, safety straps, climbers, pads, etc.

We would be remiss if we did not mention right at the offset the growing popularity of the hydraulic line truck. It is becoming more and more common to see a lineman in an aerial basket which in many cases provides easier access than physically climbing a pole. With the growing dominance of aerial baskets and ladders, we can visualize a day when men working on CATV, power or communication lines may not have the full knowledge and experience of today's climbing lineman.

Some safety equipment is common to either hydraulic or climbing work. In any event we believe that even if he does not do physical climbing regularly, every lineman should be familiar with the rules of safety and the protective equipment used by a climber.

Perhaps the most important item is the body belt. This is used in all cases, whether on a hydraulic ladder or basket or physically climbing a pole. Most important item in selecting a body belt is to have the proper length between the "D" rings so that the back is properly supported. The "D" rings should sit just forward of the hip so that when the safety strap is fastened maximum comfort and protection is achieved.

When working on an aerial ladder or basket, the safety belt should be fastened to a basket strap or a boom strap by means of a lanyard or strap harness. When climbing a pole, the belt should be fastened to a safety strap.

Most safety straps in recent years have been constructed of nylon, although in certain cases other fabrics and leather have retained popularity. Nylon straps usually have a red cord imbedded in the body of the belt. As every lineman knows, when this red color shows through it indicates his strap no longer meets full safety specifications and should be replaced.

Safety men and utilities generally recommend that linemen use safety straps with snaps that cannot open or be dislodged accidentally. Some



manufacturers now offer snaps which require double opening pressure to make an accidental opening virtually impossible. One new adaptation has changed the configuration of the popularly known "D" ring to what is now called an "S" ring which eliminates any possibility of roll-out.

Nearly all climbers sold today are adjustable and most have replaceable gaffs. New gaffs are readily obtainable in case of damage or other circumstances which suggest replacement. When climbers are not in use, the gaffs should always be covered with gaff guards. This not only prevents possible serious injury to workers, but it also protects the gaff point from contact damage.

Every lineman who sharpens his own gaffs should have a gaff gauge, and this should be used both before and after sharpening. Printed information on the use of such gauges as well as the use and care of gaffs is readily available.

Many shapes of climber pads have been developed over the years. More and more linemen today prefer the rigid type of pad which shapes to the contour of the leg. This rigid pad prevents climber pressure from cutting into the leg at the point of contact.

Training films on the use and care of climbers and climbing equipment have been prepared by several manufacturers. The writer will be pleased to assist any firm wishing to use such films or wishing printed information on gaff care. Merely write in care of TV & COMMUNICATIONS if you would like these free safety aids. □

FOR RUGGED  
DEPENDABLE  
PERFORMANCE



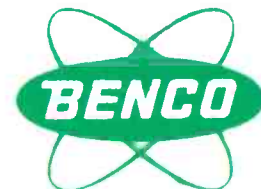
YOU CAN COUNT ON  
THE FULLY  
TRANSISTORIZED  
BENCO

## FIELD STRENGTH and WATTMETER

A rugged, reliable solid state instrument ideal for field or lab use. This compact unit weighs only 10 lbs. including rechargeable Ni-Cad battery power pack. Dimensions 5 $\frac{1}{4}$ " x 11 $\frac{1}{4}$ " x 7 $\frac{3}{4}$ ". Flat response over the entire VHF range eliminates need for tuning compensation. Optional adapter enables the FSP-3B to be used as a wattmeter.

### Specifications:

Selectivity .....  
All spurious response including image more than 80 db down  
4.5 Mc/s or more away from selected frequency.  
Frequency Range .... 52 to 220 Mc/s  
Bandwidth .... 0.5 Mc/s  
Input Impedance .... 75 ohm unbalanced  
or 300 ohm balanced.  
Sensitivity .... 5 microvolts minimum  
Overall Accuracy .... + 2 db - 1 db  
(0° - 120°F)  
peak microvolt ranges.  
VSWR ..... Better than 1.2 on 100  
microvolt range, all other  
ranges better than 1.1.



**BENCO TELEVISION CORP.,**  
1051 Clinton St., Buffalo, New York.  
Telephone. (716) 854-7448

IN CANADA:

**BENCO TELEVISION ASSOCIATES LTD.**

# Coaxial Cable Powering

By Gay Kleykamp  
Director of Products  
Kaiser-Cox Corporation

The comparatively recent application of transistorized line amplifiers in CATV systems has permitted the economic use of the cable powering technique. The low power consumption of transistorized amplifiers makes it possible and, indeed, desirable to provide the required electric power by coincident transmission of power and signal through the same coaxial cable. This utilization of the cable for both power and R.F. signal transmission has obvious economic as well as esthetic advantages. The cable powering technique has, however, presented several unique problems in system design and operation. It is therefore considered essential that we consider here the various aspects of using this technique in CATV systems.

## ELECTROLYSIS

Some of the early systems soon displayed evidence of the validity of Michael Faraday's 135 year old fundamental laws of electrolysis. In particular it became quite evident that the chemical reaction was proportional to the quantity of electric current passed as well as the atmosphere surrounding the conductor contacts. It is important to note that the "quantity of electric current" passed is not the same as the "current of electricity," measured in amperes. One ampere flowing for one second is the quantity 1 coulomb of electricity. Faraday was recognized by naming the quantity of 96,500 coulombs one faraday. It is also important to note that the chemical reaction of electrolysis in a given time is determined only by the current, and not by the voltage.

In order, therefore, to accomplish power transmission with minimum passage of quantities of electric current it would be necessary to "balance" the current flow so as to average a zero flow over a given period of time. Pure alternating current is so "balanced" and provides a practical method of achieving the ideal zero current flow per unit time required to prevent the undesired electrolysis which had occurred at conductor junctions such as splices, connectors, etc.

## ALTERNATING CURRENT

Achieving pure alternating current flow is not a simple matter of connection to an a.c. voltage source. The a.c. load cannot be disregarded; but, rather, must be carefully considered. In fact, connection of an a.c. voltage source to a length of cable having its a.c. terminus in a half-wave rectifier will result in a significant quantity of direct current flow through the cable. This can easily be observed by insertion of a series resistor in the line and connection of an oscilloscope across the resistor to view the approximate current waveform (see Figure 1).

Various solutions are available to prevent this component of direct current from flowing in the cable. Transformer coupling of the a.c. voltage to the a.c. load is one, as we all know that direct current will not be transferred from the primary to the secondary windings of a transformer.

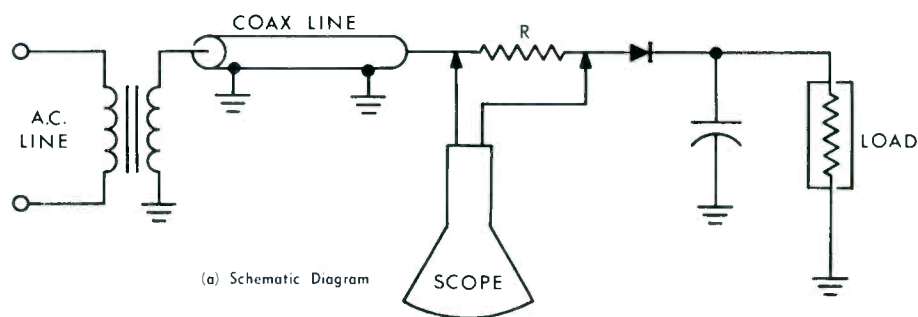
The isolation transformer has several disadvantages, however, which must be considered. Of primary importance is the efficiency of the transformer which can increase the power consump-

tion of the amplifier, resulting in larger voltage drop along the cable. Of secondary importance are factors such as size, weight, cost and the presence of magnetic flux which must be carefully controlled to prevent induced a.c. hum into the amplifier.

Another solution is the use of cascade voltage doubler rectification. This circuit has the advantage that no transformer is required, there is a common terminal between the supply and the output so that both may be grounded simultaneously, and functions so as to prevent direct current flow from the a.c. voltage source.

The operation of this circuit can be explained as follows (see Figure 2):

If diode  $D_2$  is disconnected, then capacitor  $C_1$  will charge to the peak supply voltage, and the instantaneous potential at the junction of  $C_1$  and  $D_1$  will fluctuate between zero and twice the peak supply voltage. That is, the peak supply voltage at this point will alternate above and below the steady-state charge potential now existent across  $C_1$ . If diode  $D_2$  is now connected, the voltage between this point and ground



Current Waveform

will attempt to charge capacitor  $C_2$  to that potential, which is now twice the peak supply voltage. The connection and disconnection is effected by diode action as the voltage source alternates and direct current is obtained for powering the amplifier circuitry by connection to the terminals of  $C_2$ . Of course, in actual application the circuit is further expanded to include adequate filtering and voltage regulation. Further, the output voltage developed across

the resultant average current will be zero. It can be shown that the negative half waves are equal in area to the positive half waves and there is consequently no average component over one complete cycle. If this wave is the current wave, this average is the "d-c" component.

#### VOLTAGE REGULATION

As transistorized amplifiers are quite critical in the matter of supply voltage, it is quite important that the d.c. volt-

to operate almost indefinitely with full voltage on the primary and with the secondary short circuited. This is quite advantageous in performing normal line revision and system changes inasmuch as momentary short circuits invariably occur in cutting the cable, etc.

It should be pointed out here, however, that not all regulating line transformers are so designed. Also, it is important that the output voltage waveform be symmetrical under all operating conditions as any gross asymmetrical characteristic present in the voltage waveform may have an undesired effect on the individual amplifier power supply regulation.

#### AC POWER COUPLING

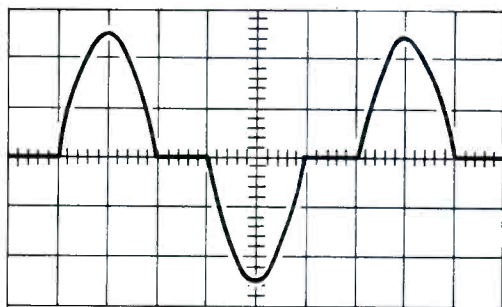
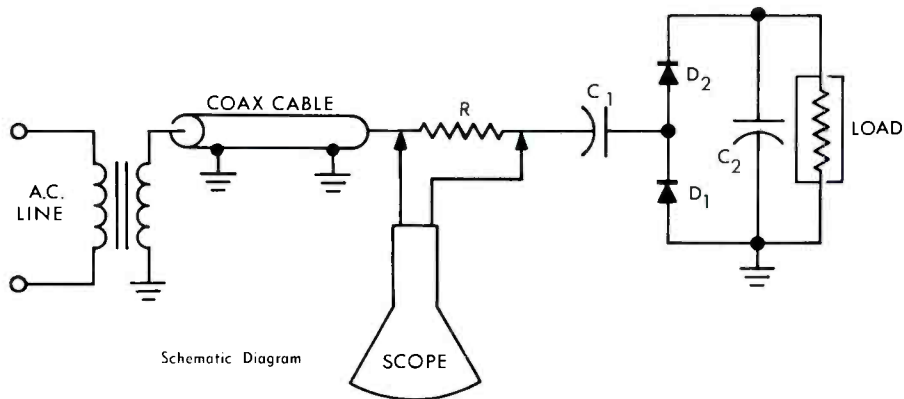
Coupling the a.c. power to the R.F.-carrying coaxial cable is accomplished by the use of more-or-less conventional filter techniques. The filter is designed to prevent R.F. from entering the power line while permitting the a.c. power to pass into the coaxial cable. It is carefully tuned to provide this isolation, as well as to present as nearly as practical a 75 ohm impedance to the coax terminals. This impedance match is important here, as it is elsewhere along the line, to prevent reflections from being conducted into succeeding amplifiers.

The use of remote power coupling devices, sometimes called "duplexers," permits the operator to make neat installations on the pole with the bulky regulating transformer located at a convenient height. The regulated a.c. supply power line (approximately 30 volts) is carried in conduit to the vicinity of the coaxial cable where the remote power coupler inserts the a.c. power onto the coax. This is more convenient than bringing the coaxial cable down the pole to the regulated a.c. supply source and back up to the line level again.

The economy of construction and operation of cable powered CATV systems needs little explanation. For one thing, the number of power installations may be reduced by as much as 10 to 1.

In calculating the power consumption at each of these locations, it is necessary to include the power loss in the cable as well as that actually consumed by the amplifiers and by the regulating transformer.

In summary, well designed and well constructed coaxial cable powered CATV systems provide an efficient, economical, and less obtrusive appearance than do individually powered amplifier systems. If proper engineering has been done, the results should be indeed pleasing to the utility companies, your customers and to you the technician. □



(b) Current Waveform

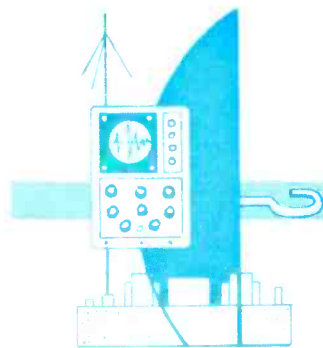
a load impedance by a voltage doubler system depends upon the voltage drop in the diodes caused by the d-c current drawn by the load connected to the output and is, therefore, seldom the full double peak value.

It is interesting to note that all current that passes into and out of this circuit must be passed by capacitor  $C_1$ . Inasmuch as current is the rate at which charge flows into the capacitor ( $i = dq/dt$ ) and conversely, charge is the time integral of current ( $q = \int i dt$ ), and as the capacitance  $C_1$  does not vary with time (or with charge) then the instantaneous current may be expressed by the equation:  $i = C dv/dt$  as the charge ( $q$ ) is known to be the product of capacitance and voltage,  $q = cv$ .

It can easily be shown that if, as is the case, the voltage is not increasing (or decreasing) constantly then the current cannot be constant — and, also, that if the rate of change of the impressed voltage ( $dv/dt$ ) is sinusoidal,

age supplied be as nearly constant as possible. Equipment manufacturers have, therefore, provided well-designed d.c. regulation in their amplifier power supplies. However, these power supply regulators have limits, however wide, over which they will function. In order to provide further voltage regulation, some type of regulating line transformer may be used. These regulating transformers step down the utility-furnished voltage to approximately 30 volts and, in addition to maintaining a constant output voltage when supplied with long-term varying input voltage, can also serve to provide effective short circuit protection to the cable powered system. Should a short circuit occur on the cable, the voltage will be reduced to zero with no resultant fuse or circuit breaker opening — and as soon as the short circuit is removed, the normal voltage will again be present.

Well designed cable powering regulated transformers are so constructed as



# PRODUCT REVIEW

## VIKING "PROGOMAT"

Viking has introduced a new automatic program timer and switching device for CATV applications. According to the manufacturer, the "Progomat 2400" has been designed to provide up to 288 switching operations which may be performed at any five minute period of a 24 hour schedule. Other switching functions may be utilized simultaneously within



the desired time cycle. The unit employs a synchronous driven motor and is self-contained in a wall mounted cabinet. Size is 12" high, 8" wide and 4½" deep. The Progomat 2400 is programmed on the front timer section without need for special tools. The unit may be remotely controlled by a wire system. Price is \$225.00. For further details, contact Viking Industries, 830 Monroe Street, Hoboken, New Jersey.

## TRUCK ACCESSORIES

A revised, illustrated catalog on truck add-on compartments is available from Pierce Auto Body Works, Inc. The AOC series of compartments is designed for stake and platform type truck chassis. Compartments can be stacked, butted together, or mounted under the truck platform. Lengths range from 26 to 108 inches, and flip-top compartments are available for top access. The 11-page catalog insert gives complete measurements, options available and illustrations of various actual installations. For a copy of the catalog, contact Pierce Auto Body Works, Inc., P.O. Box 616, Appleton, Wisconsin 54911.



## NEW 3M VTR

A new video tape recorder featuring instant play and a "long life recording head" has been unveiled by 3M Company, St. Paul, Minnesota. The unit, called the Wollensak VTR-150 Video Tape Recorder, is designed primarily for educational and industrial markets. According to the firm, the VTR-150 will be available in two package concepts: As a recording and playback device or installed in a mobile console. Tentative prices have been set at \$1,495 for the recorder alone and less than \$3,000 for the mobile console package which includes the recorder, one roll video tape, camera, television receiver, microphone headset and accessory cords. Tape for the unit is priced at \$39.95 per 2400' roll which will yield one hour of recording time, 3M said. More information on the VTR-150 may be obtained from 3M Company, Revere-Mincom Division 220-5E, 2501 Hudson Road, St. Paul, Minnesota 55119.

## SUBSCRIBER BOOKLET

A 16-page, illustrated booklet entitled "So What's This CABLE TV All About?" has been published to explain CATV. This public educational tool is said to be designed to keep the CATV story simple. What cable TV does, how it works, subscriber advantages, and community value are explained in a non-technical manner. The back cover is available for cable companies' local message. Free samples and quantity prices are available from Communications Publishing Corp., P.O. Box 63992, Oklahoma City, Oklahoma.

## NEW DAVCO CATALOG

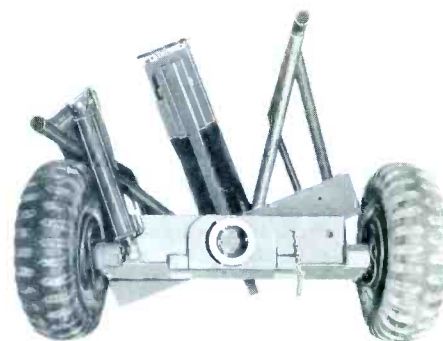
Davco Electronics Corporation, post office box 861, Batesville, Arkansas, has published a new 24-page catalog listing connectors and accessories. Listed in the catalog are 135 separate items said to include many popular and unusual coaxial connectors, adapters, etc. The new catalog may be obtained free of charge by writing Davco at the above address and requesting their new "connector and accessory" catalog.

## SIGNS AVAILABLE FROM PRUZAN

"DO NOT DISTURB" signs are available to mark location of buried cable and to protect cables against accidental damage. They are pressure-sensitive vinyl, 4¼" x 6½", will adhere permanently to cable pedestals, masonry, metal, wood, etc. They are available at 30c each from the Pruzan Company, 1963 First Avenue South, Seattle, Washington 98134.

## CABLE PLOW

A redesigned medium capacity plow for placing underground distribution facilities is available from Midwest Lawn-Saver Equipment Company. The Interline plow can bury cable up to 42 inches deep, with a 3½-inch outside diameter cable capacity. Options available include a complete self-contained hydraulic system for adjusting wheel height to control depth of plowing on uneven



terrain. A spring loaded colter cuts surface obstructions. The tongue leveling jack affords hookup height control through a hydraulic cylinder. For more information, contact Midwest Lawn-Saver Equipment Company, P.O. Box 588, Appleton, Wis. 54911.

## LOOP FORMING TOOL

Viking Industries now has available a Loop Forming Tool No. 555 for aluminum cable. The unit is made of hard oak and grooved to accommodate all aluminum cables up to .580" O.D. The price is \$12.95 each. For additional information contact Viking Industries, 830 Monroe Street, Hoboken, New Jersey. □

## ADVERTISER INDEX

Ameco, Inc. .... 6, 7	Diamond Expansion Bolt Co., Inc. .... 14	Rohn Mfg. Co. .... 50
American Electronics ..... 51	Dow-Key Corp. .... 58	Rome Cable, Division of Alcoa ..... 59
American Electronics Labs ..... 79	Dynair Electronics, Inc. .... 73	Scientific Atlanta, Inc. .... 64, 65
Anaconda-Astrodata ..... 16, 17	Economy Finance Corp. .... 21	SITCO Antennas ..... 19
Benco Television Corp. .... 81	Electronic System Development, Inc. .... 12	Spencer-Kennedy Labs ..... 15, 44, 45
Blonder-Tongue Labs ..... 67	Entron, Inc. .... C-3	Stan Socia Corp. .... 58
Cable Television Review ..... 21	Ft. Worth Tower Co. .... 61	Subscription Promotion Booklet ..... 63
Cal-Tel Construction Co. .... 22	Henkels and McCoy ..... 46	Superior Cable Corp. .... 23
CAS Mfg. Corp. .... 39	Jerrold Electronics Corp. .... C-2, 31	Tape-Athon Corp. .... 40
Cascade Electronics ..... 35	Kaiser-Cox Corp. .... 9	Telemation, Inc. .... 42
C-Cor Electronics, Inc. .... 52, 53	Lenkurt Electric Co., Inc. .... 41	TeleSignal Electronics Ltd. .... 24
Communication Dynamics ..... 72	Malarkey, Taylor & Associates ..... 50	Texas Electronics ..... 66
Communication Systems Corp. .... 69	Microflect Co., Inc. .... 20	Times Wire and Cable ..... 48
Copperweld Steel ..... 13	National Community Television Association .... 10	TV Cable Supply Co. .... 63
Craftsman Electronics ..... 74	Plastoid Corp. .... 36, 37	Utility Tower Co. .... 47
Daniels & Associates ..... 71	Preformed Line Products Co. .... 28, 29	Viking Industries, Inc. .... 3, C-4
Davco Electronics Corp. .... 86	Jack Pruzan Co. .... 27	Vitro ..... 76

### CLASSIFIED SECTION

Rate for classifieds is 25 cents per word for advertising obviously of a non-commercial nature. Add \$1.00 for Box Number and reply service. Advance payment is required; minimum order is \$4.00. Classified rate to commercial advertisers is \$30.00 per column inch (2 1/4" col.). Deadline for all classifieds is 1st of preceding month.

**ADDRESS REPLIES AS FOLLOWS:**

**DEPT. .... TV & Communications**

**P.O. Box 63992, Okla. City, Okla.**

#### FINANCING FOR THE CATV INDUSTRY

#### Inwood National Bank of Dallas

P.O. Box 7206 • Ph. (214) FL 7-9111  
Dallas, Texas • Clark Bass, President

**FOR SALE — Jerrold Equipment in operating condition.**

- (17) UBC-26-B Amplifiers
- (5) TD Demodulators
- (5) Univamps WVA99
- (1) Sweep Generator Model 95

Write Johnsonburg Comm. TV Co., P.O. Box 248, Johnsonburg, Pa.

#### GROUP MANAGEMENT EXECUTIVE

This advertiser offers a proven record of success in CATV administration, including: System Survey • Construction • Franchise Acquisition • Systems Operation • Budget Control • Internal Procedures • Promotion • Public Relations • Microwave Survey. Experience both stateside and overseas at executive level. Present position sound but without challenge. If you are looking for rewards in CATV (as I am) let me show facts on what has been accomplished. I happen to believe that proof far outweighs promises. Reply immediately for appt. at Miami. TV&C Dept. 51

**3 1/2 YEARS EXPERIENCE** in CATV Engineering and Maintenance Supervision. Desire to relocate into a manager/chf. technician position with a growing organization. Resume on request. Write Dept. 60.

#### LEADING CANADIAN CATV MANUFACTURER

## WANTS MANUFACTURERS REPRESENTATIVES FOR U.S. TERRITORIES

(ALSO SOME GOOD CANADIAN TERRITORIES STILL OPEN)

Featuring a full line of the latest design transistorized amplifiers and accessories. Most recent advances in log periodic antennas for outstanding CATV performance.

Contact John Thomas, president, at the NCTA Show or write ...

## LINDSAY ELECTRONICS

50 MARY STREET • LINDSAY, ONTARIO, CAN. • (705) 324-2196

### WE BUY YOUR SCRAP CABLE

Nation's Highest prices. We pick up.  
Service throughout U.S.

**Inter-Con Scrap Cable Co.**  
454 N. Indian • Palm Springs, Calif.  
Call Collect (714) 325-5283

**CHIEF TECHNICIAN & ALSO ASSISTANT CHIEF TECHNICIAN**—1st or 2nd Class FCC License—Microwave and Distribution system experience—good salary—optional. Write to Box 53.

### SPlicing ENCLOSURES

- Heat shrinkable thick wall tubing and molded parts for encapsulating splices, splitters, etc.
- Ideal for buried plant and overhead use.

CATV REPS AND DISTRIBUTORS —  
SEE US AT NCTA BOOTH 718

**SIGMA INDUSTRIES, INC.**  
1115 O'BRIEN • MENLO PARK, CALIF.  
(415) 322-6691

**BUY CATV SYSTEMS** or franchises through a "TV&C" classified advertisement. Many of our regular readers have choice investment opportunities in CATV.

"I WOULD LIKE TO BUY A  
COMMUNITY ANTENNA SYSTEM!"

"SHALL I WRAP IT SIR?"



**DAVCO** **ELECTRONICS  
CORPORATION**

P. O. BOX 861 • BATESVILLE, ARK. • TELEPHONE (501) Riverside 3-3816

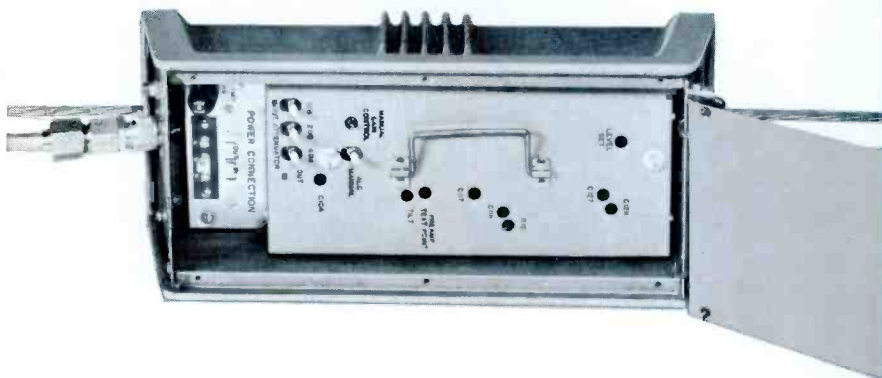
**SEE IT FOR YOURSELF  
ENTRON QUALITY  
AT THE NCTA CONVENTION**



entron solid-state and you'll



entron quality



Whether it's a complete turnkey job or a rebuilt, go Entron solid-state quality. Entron's R-3 solid state trunkline amplifier, its B-1 transistorized bridging amplifier, the E-3 solid state extended amplifier. All are in-a-line, and — most important—all are Entron quality.

For example, the R series modular remote powered solid-state trunkline equipment. With the R-3 you have 25 db spacing, absolute solid state reliability, and fittings to adapt to any system. It features continuous bandwidth (50 to 220 mc) with low noise, automatic gain and tilt control. It's strand mounted for simple installation and enclosed in a heavy cast aluminum housing to protect it from the elements. Yet, with all that Entron quality and Entron features, it costs far less than you'd expect.

**B-1:** Solid-state bridging amplifier... four outputs, your choice of connectors. Remote powered. Modular construction.

**E-3:** Solid-state extender amplifier . . . High gain. High output. Modern in-a-line construction. Low priced!

Whatever your CATV needs, from equipment (Entron makes over 250 items) to financing to engineering to installation, you need only contact:

**B-1**



**E-3**



entron

**INCORPORATED  
SILVER SPRING, MD. 20904  
(301) 622-2000**



**VIKING "COLOR '66" \* NEW FUTURA SERIES**  
**NEW PRODUCTS - NEW CONCEPTS - NEW PEOPLE**  
**THE NEW VIKING ... MOVING AHEAD WITH CATV**  
SEE US IN MIAMI ■ NCTA CONVENTION ■ JUNE 26-29 ■ BOOTHS 303 - 316

**viking**

Viking Industries, Inc., 830 Monroe Street, Hoboken, N. J. 07030 ■ N. J. (201) 656-2020; N. Y. (212) 943-5793