

# *TV Communications*

The Professional Journal of Cable Television



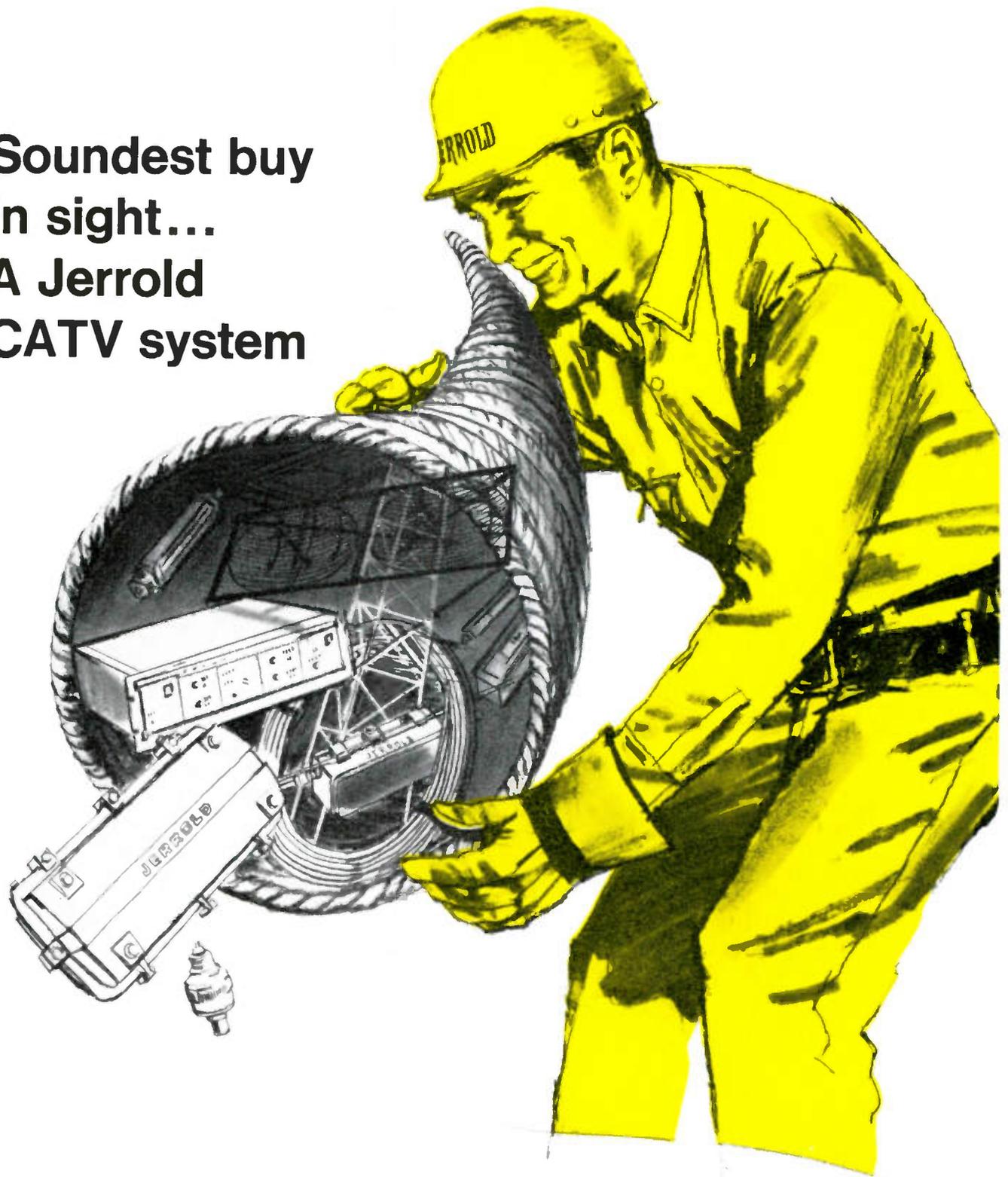
In This Issue . . .

Project "X"

CATV Direct Sales

S/N Calculator

# Soundest buy in sight... A Jerrold CATV system



Jerrold Total Turnkey CATV is the kind that's put together so it stays together—physically and financially. The kind that has turned most potential CATV system owners to Jerrold in the last 16 years.

Jerrold Total Turnkey CATV includes everything from the initial request for information to delivery of a complete operating system. Computerized signal surveys tell you about the area's TV channels. Marketing studies of quantity and quality of TV reception, income level, and potential demand for CATV back up the surveys. Advice on franchise application can be provided along with complete construction on the system

and training of operating personnel. In short, there need be no loose ends. Jerrold delivers a CATV system that is the best possible beginning for a solid business venture.

If you are interested in Jerrold Total Turnkey CATV services, our representative will be happy to give you a detailed presentation. Write or telephone Mr. Frank Martin, CATV Systems Division, Jerrold Electronics Corporation, 401 Walnut St., Phila., Pa. 19105. Phone 215-925-9870. TWX 710-670-0263.

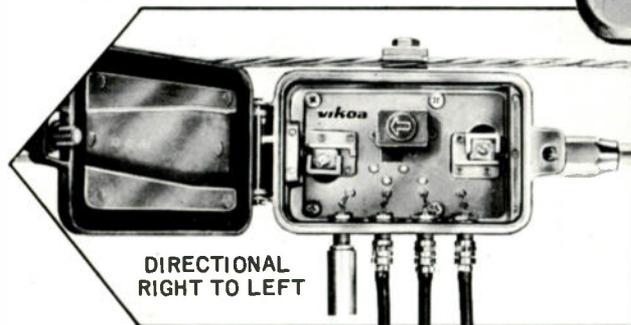
**JERROLD**

a GENERAL INSTRUMENT company

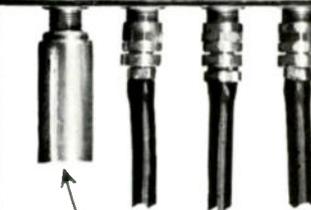
# look to **vikoa** versatility...

## **FUTURA** directional tap

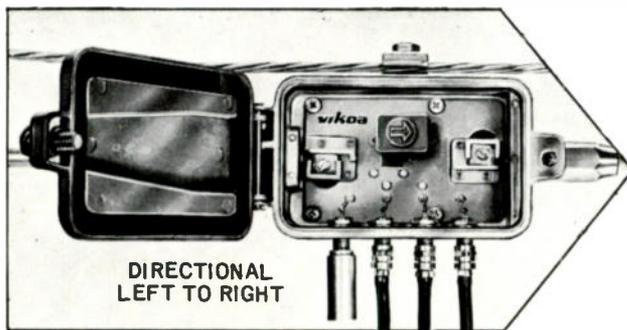
**No. 470**  
Without Fittings and Pad \$12.50  
VS70 Pad \$4.25



DIRECTIONAL  
RIGHT TO LEFT



SHOWN WITH NO. 464  
PROTECT-A-TAP  
WITH TERMINATOR



DIRECTIONAL  
LEFT TO RIGHT

The Vikoa Futura Directional Tap, model 470, is a high performance multi-outlet directional coupler, designed for the ultimate in versatility as a result of the plug-in directional feature. The tap levels are determined by the choice of plug-in directional (VS-70) and are given in the specification chart. A unique baseplate design within the housing allows the model VS-70 to be oriented for sampling of signal from either direction without necessitating the removal of the case. The directional tap is housed in a single bolt, hinged case, and is constructed of die cast aluminum alloy. It is designed to use "seized center conductor" feedthru fittings. The single bolt feature allows easy access to the plug-in directional and the "seized center conductor" terminals, while the hinged design assures even distribution of sealing pressure. The case design is such that, in conjunction with the sealing gasket, it provides complete weather and RFI proofing. The housing uses FT1412 or FT1500 fittings, and provides four "F" fitting, subscriber taps. The thru-line is capable of passing a maximum current of 8 amps AC or DC.

| VS-70 Plug-In Directional Value | Model 470 Subscriber Tap Lever | Maximum Thru-line Insertion Loss | Minimum Input & Output Return Loss | Minimum Tap Return Loss | Minimum Tap-To-Output Isolation | Minimum Tap-To-Tap Isolation (Any Two Taps) |
|---------------------------------|--------------------------------|----------------------------------|------------------------------------|-------------------------|---------------------------------|---|
| 3 db                            | -11 db                         | 3.5 db                           | 20 db                              | 16 db                   | 26 db                           | 20 db                                       |
| 8 db                            | -15 db                         | 1.3 db                           | 20 db                              | 16 db                   | 26 db                           | 20 db                                       |
| 10 db                           | -17 db                         | 0.9 db                           | 20 db                              | 16 db                   | 26 db                           | 20 db                                       |
| 12 db                           | -19 db                         | 0.5 db                           | 20 db                              | 16 db                   | 26 db                           | 20 db                                       |
| 14 db                           | -21 db                         | 0.5 db                           | 20 db                              | 16 db                   | 26 db                           | 20 db                                       |
| 16 db                           | -23 db                         | 0.4 db                           | 20 db                              | 16 db                   | 26 db                           | 20 db                                       |
| 20 db                           | -27 db                         | 0.3 db                           | 20 db                              | 16 db                   | 28 db                           | 20 db                                       |
| 24 db                           | -31 db                         | 0.3 db                           | 20 db                              | 16 db                   | 30 db                           | 20 db                                       |

Frequency Range: 50 to 240 MHz

Temperature Range: 40°F to 140°F



The Vikoa model VS-70 is a directional coupler designed to fit into a plug-in pad housing (see Vikoa model 456 and 457 pads). The pin contacts on its base, in conjunction with the receptacle design in the 470 housing, allow the unit to be inserted to accept signals from either direction. It then "couples" this signal, and depending on its value, delivers the signal to the hybrid four way splitter located within the 470 housing.



**vikoa**

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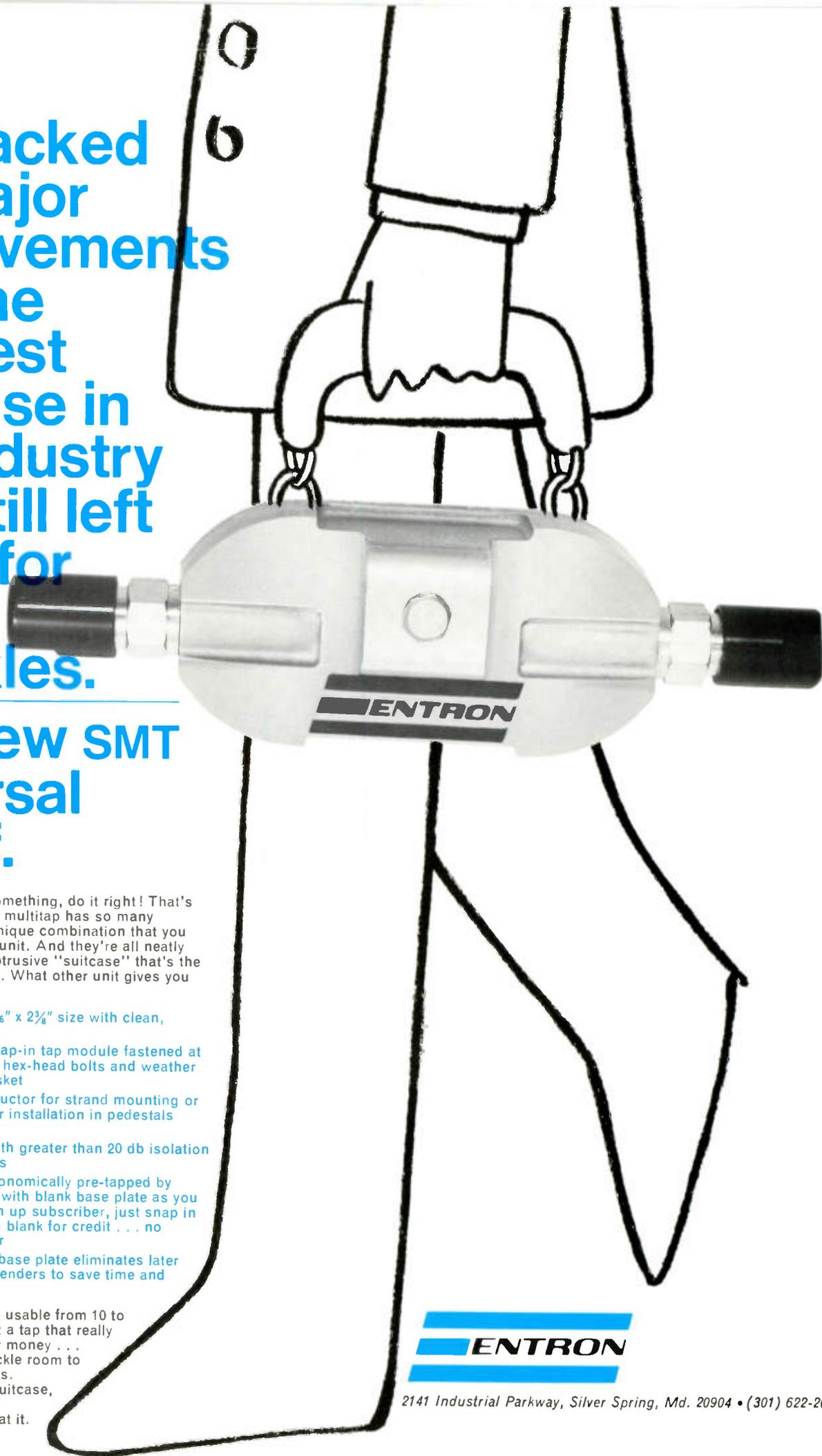
We packed  
six major  
improvements  
into the  
smallest  
suitcase in  
the industry  
and still left  
room for  
your  
knuckles.

## The new SMT universal tapoff.

If you're going to do something, do it right! That's why Entron's new SMT multitap has so many important features, a unique combination that you won't find in any other unit. And they're all neatly packed in a sleek, unobtrusive "suitcase" that's the easiest yet to work with. What other unit gives you all these extra values?

- compact  $2\frac{9}{16}$ " x  $5\frac{1}{16}$ " x  $2\frac{3}{8}$ " size with clean, modern appearance
- interchangeable snap-in tap module fastened at four points with slotted hex-head bolts and weather sealed with silicone gasket
- seized center conductor for strand mounting or 90° angle connection for installation in pedestals as small as 6" I.D.
- balanced output with greater than 20 db isolation between tapoff terminals
- systems can be economically pre-tapped by installing thru-line units with blank base plate as you build . . . when you sign up subscriber, just snap in base module and return blank for credit . . . no service interruption ever
- optional 4 db loss base plate eliminates later readjustment of line extenders to save time and money

Add a bandwidth that's usable from 10 to 300 MHz and you've got a tap that really gives you more for your money . . . including plenty of knuckle room to make fast, easy hookups. When Entron packs a suitcase, it's ready to go places! Write or call for a look at it.

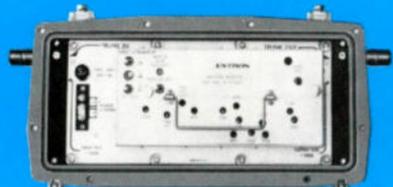


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**Combination Trunkline Bridging Amplifier RB-6T**

Up to four outputs. Operating level of bridging module is 35 dbmv on each of four outputs.



**Trunkline Amplifier R-6T**

25 db, operational gain, ALC. Switchable input pads, fullwave 30-v ac power supply. Remote-powered, through cable.



**Intermediate Bridging Amplifier B-3**

Inserted in the trunkline, provides up to four distribution outputs. Variable pads on input for flexibility of installation. Operating level is 35 dbmv on four outputs.



**Low-cost Line Extender Amplifier E-6C**

27 db gain, 10 db gain control, operating level is 42 dbmv.



**Universal Tapoff SMT Series**

New multiple tapoff is completely waterproof and pressure tight. Tapoffs changed without disturbing thurline signal. Dual thurline openings with seized center conductor for overhead or underground, fits 6" diameter pedestal. High, 20 db minimum isolation, response to 300 MHz.



**Remote Power Insertion Unit RPU**

Weatherproof. Provides diplexing 30 Vac or dc capability to cable-power remotely located amplifiers.



**VHF Preamp P-1**

Low-noise antenna preamp, all-solid-state, temperature-compensated cable-powered. Gain is 33 db, low band; 26 db, high band.

**IN THIS ISSUE**

**CATV and Local Expression**

In our world of centralization, specialization and mobility, the smaller community or suburban area has lost much of its identity—a situation which telecasters can do little about. The technology of coaxial cable distribution, however, gives CATV'ers ready means for providing local expression. Author Galen Gilbert develops a full case for originating programming on your system in his article beginning on page 48 of this issue.

**The Direct Sales Route**

Beginning on page 54, is Don Paynter's sales pitch for using hard-sell door-to-door techniques for subscriber promotion. In making his case, the author discusses the history, theory and practice of the direct sales method, in general, as well as specifically applied to cable customer contacts.

**Built for the Future**

The new system in Colorado Springs is without question one of the most advanced CATV installations in the industry (as well as one of the more controversial politically). In addition to being entirely underground construction, the system boasts some unique promotional/public service features . . . The concepts and management practices behind this operation are truly focused on the years to come. Read about it beginning on page 60.

**S/N Calculator Described**

The increasing complexity of system design considerations, due to advanced equipment design and larger plant sizes, has made it arduous for cablemen to lay out new distribution lines and rebuilds alike. Beginning on page 110, author Don Dworkin describes a signal-to-noise calculation technique which eliminates considerable work and reduces the chance of error in working out system design problems.

**Our Cover:** This month's front cover represents the communications scene of the future. Shown is Sam Street, director of NCTA convention and field services, who conceived the idea of this home communications center (see article beginning on page 44). Shown with Street is Jim Symons of Tasi, Gelberg and Symons, who developed the scale model of the television set of the future. (TV Communications pays \$20 for color photos supplied by readers and selected for publication.)

# TV Communications

The Professional Journal of Cable Television

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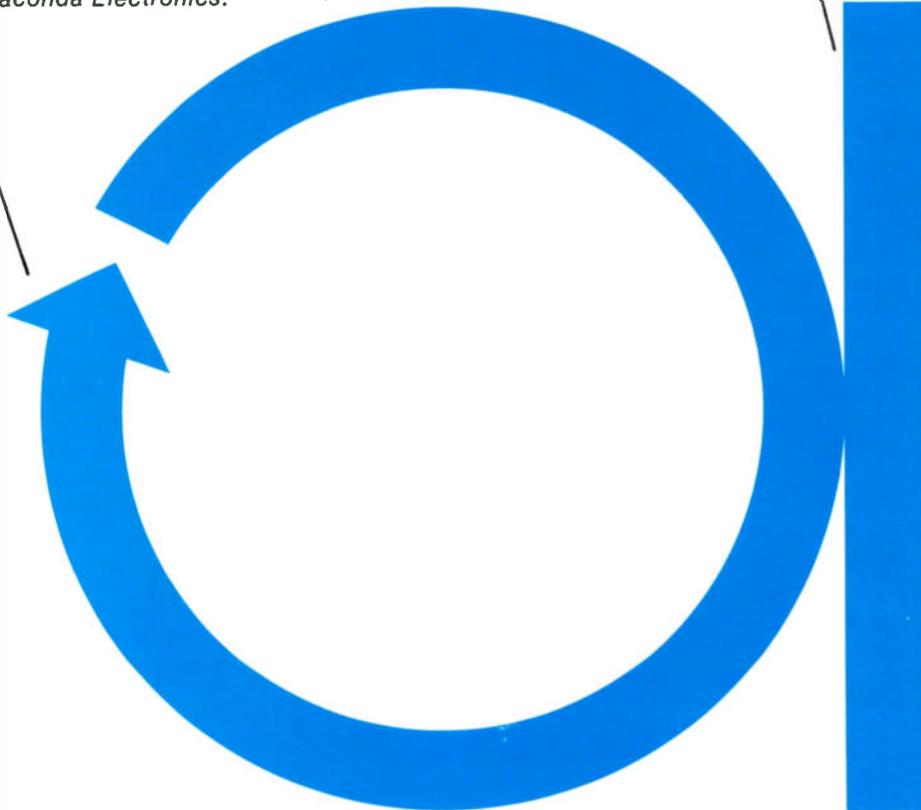


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*This is the new logo  
for Anaconda Electronics.*

*This straight line represents  
simplicity in product design.  
And it's one way of saying  
that we're pretty straightforward  
folks to do business with.*

*This feedback loop represents  
the total communications  
goals of Anaconda Electronics.*



*(Look again.  
It's a futuristic lower case "a.")*

This logo is an announcement: Anaconda has assumed 100% interest in what used to be Anaconda Astrodata Co.

We're now Anaconda Electronics Company.

Our business is electronic communications. CATV and Carrier, for example. It's a natural extension of Anaconda's years of leadership in cable transmission.

And the grand old name does have advantages—size, stability, and years of experience. Besides, it's easy to remember.



# The TVC Viewpoint

EDITORIAL



## Commissioners' Report Proves Point for CATV

A valuable boost for cable television has come from a rather unusual source: FCC Commissioners Kenneth Cox and Nicholas Johnson. It came in the form of a 305-page report aimed at tightening broadcast license renewal procedures. Basis for the study was a survey of Oklahoma radio and television stations which delved into the amount of public service programming aired by the broadcasters.

Reportedly, none of the commercial television stations questioned delivers a significant amount of "local public affairs programming." In fact, a reappraisal of the entire concept of local broadcast outlets may be in order, say the Commissioners, unless the FCC and the broadcasters "make local service a reality."

It's no secret that television stations have gravitated toward profitable network and syndicated material—and away from less profitable or non-profit public affairs programming. Just as obvious is the fact that the FCC's authorization of increased power and antenna heights has extended the broadcaster's coverage area so that his service is now *regional* rather than local. However, if Messrs. Cox and Johnson are correct in their contention that the citizens are entitled to *truly local* television service, there *are* at least three ways of achieving this goal. (Any any of the three would benefit cable television).

METHOD 1. Reduce transmitter power or antenna heights to localize coverage contours, thus providing broadcasters with some justification for truly *local* public affairs programming. *This would deprive fringe area viewers of signals now available and would necessitate cable distribution.*

METHOD 2. Require broadcasters to institute substantially more public affairs programming, while maintaining present broad geographical coverage. (This is apparently the "solution" advocated by the two Commissioners.) *Cable delivery of additional entertainment programming would be welcomed by the majority of viewers who would not care to watch the public service offerings. Residents of the many outlying communities and towns would be even more bored with*

*"local" programming presumably related to the city in which the studios are located.*

METHOD 3. Allow broadcasters to continue providing the regional service which has proven economically and technologically feasible, and permit cable television systems to develop into a true local communications medium. *By ceasing its efforts to restrain cable originations, the FCC could assure at least 2000 communities of far more public affairs programming than broadcasters are presently providing.*

Many cable systems are already providing extensive public service programming that is expressly suited to their individual communities—and also to the economics of CATV. For example: several thousand Seattle families are receiving, in addition to seven broadcast signals, the following cable services:

- Continuous news wire service with separate local and national summary newscasts (audio) on the same channel.
- Weather gauge display with continuous U.S. Weather Bureau reports (audio).
- Rotary card display channel (free advertising service for viewers) with music and public service announcements (audio and video).
- Teleguide channel (tourist and shopper information) with synchronized sound and rotating placards.

The news summaries are revised several times daily and programmed continuously, separated only by public service announcements promoting various civic affairs and charitable causes.

A significant aspect of the local programming provided by the United Community Cablevision in Seattle is the fact that the cable system can afford to incorporate these worthwhile—but low audience—public services, whereas a television broadcaster *cannot*.

The recommendations of Commissioners Cox and Johnson are not likely to affect FCC station licensing policy, either directly or indirectly. But their report seems to indicate that television broadcasters generally do not provide a meaningful amount of genuinely *local* public service programs.

Thus, the Commissioners have defined a vacuum which should logically be filled by cable television.

*Stan Seale*

## BENAVAC MARK II

### Solid State Automatic Video-Audio Control Unit



#### Completely New—Modular Design—All Channel Capability

##### MODULAR DESIGN

Enables quick channel change and efficient service.

##### 64 DB A.G.C. RANGE

Keyed to sync. tip reference.

##### PROGRAMMING FACILITY

Alternative 41-47 MHz input and output provided (AGC operated)

##### DELAYED STANDBY CARRIER

Crystal controlled—10 seconds 'on', instantaneous 'off'.

##### STANDBY BATTERY OPERATION

Facilitated by built-in trickle charger for external battery.

##### MAXIMUM CHANNEL CAPABILITY

Processes any TV Channel 2 thru 13 to any 6 MHz output channel between 54 to 240 MHz.



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## BENCO BENFEED



### New Flexibility for CATV Amplifiers

Benco's high gain, low distortion Benfeed feeder line amplifier uses a "new approach". It's a four-stage silicon transistor amplifier, ideal for feeder line, distribution line, and line extension duties.

This flexibility is a result of highly ac-

curate temperature "tracking" by use of manual and thermistor-controlled gain and tilt. This not only compensates thermal variations within the amplifier but corrects for changes in cable attenuation as well.

Write for full details and specification sheet.

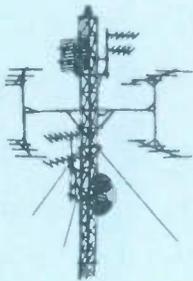


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## CATV Industry PERSPECTIVE

Litigation of certain FCC regulations, particularly the "top 100" market restrictions, is a certainty in view of Supreme Court decision upholding Commission authority over cable television. Legal challenge will focus on alleged violations of the First and Fifth Amendments to the Constitution. Exclusion of cable service from "top 100" markets, it is contended, amounts to an unauthorized and illegal form of licensing. This restriction also deprives cable operators of due process of law, as guaranteed by the Fifth Amendment, according to leading CATV attorneys. Further contention is that FCC non-duplication rule prohibits free speech, in violation of the First Amendment.

Any decision in such litigation (e. g. Black Hills case pending before 8th Circuit Court) is likely to be appealed. The present Supreme Court, which has favored broad powers for government agencies, has also established a record of liberality where constitutional rights are concerned. So CATV interests might fare much better than in June '68 decisions.

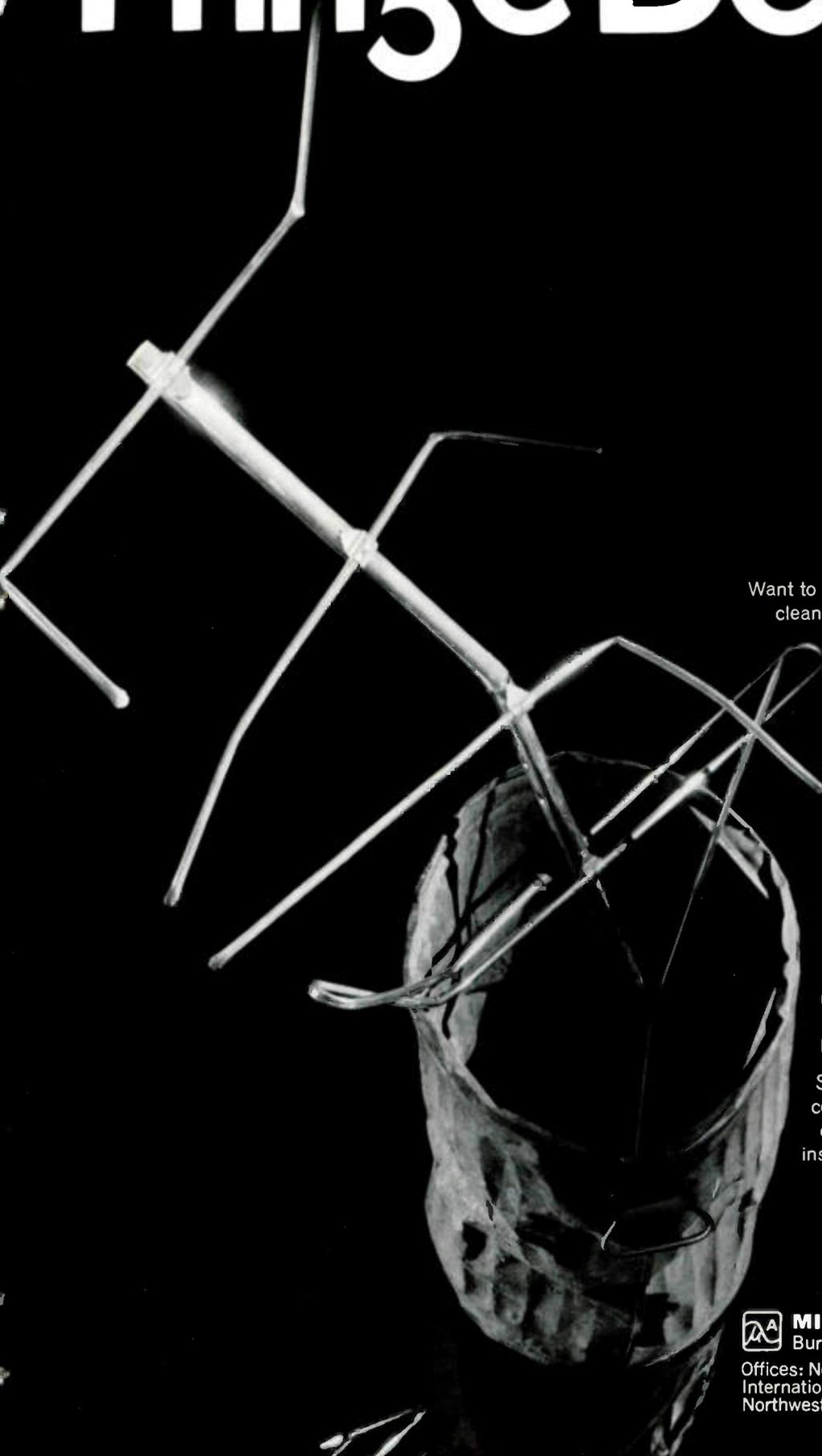
Canadian cable operators have taken a more aggressive position on local origination, through their national association, the NCATA. Having previously shied away from a formal position on closed circuit programming, the Association recently went on record in defense of the cable operators' "right" to originate. If enough operators in Canada begin originating meaningful material now, the CRTC is not likely to prevent them from continuing such programming in the future.

Several color studio packages, using new IVC color camera and VTR, have been sold by TeleMation during first half of '68. The next few months will see other origination equipment suppliers aggressively competing for this rapidly developing color equipment market. Results of competition will be steady improvement in technology, with prices staying in line with cable origination budgets.

Recently enacted California law limits franchise fees to 5% of cable system receipts. Auction type bidding for CATV permits has also been outlawed in California. Meanwhile, a bill to place cable operations under state PUC regulation was killed. Since many states pattern laws after California statutes, these legislative actions may set decisive precedents. Credit for CATV industry "victories" goes to members and professional staff of CCTA.

Side benefit of Supreme Court ruling on FCC regulatory authority is the clear finding by the court that CATV is interstate in nature, and that federal regulations apply. This ruling militates against comprehensive regulation of cable television at the state level.

# Fringe Benefits



Want to give your CATV subscribers crisper sound, cleaner pictures and better color? Don't fall back on taller towers, bigger Yagis or downtown head-end cable. Leap ahead with the total solid-state reliability and superior performance of FM microwave CATV intercity relay and CARS band TV links . . . from Microwave Associates.

Wideband linear phase and amplitude designs provide minimal differential phase, gain and group delay . . . for superb color quality, audio fidelity and picture resolution.

But great performance won't be your only fringe benefit. Our CATV systems use solid-state RF sources rather than klystron tubes. There are no high voltages anywhere. Cooling is unnecessary. Tube replacement costs are eliminated. Power consumption is minimal. Reliability is maximal.

Systems are available right now for 6 and 11 GHz common carrier and CARS 13 GHz bands, plus complete RF system engineering, installation and related services.

Call or write for Bulletin 9033



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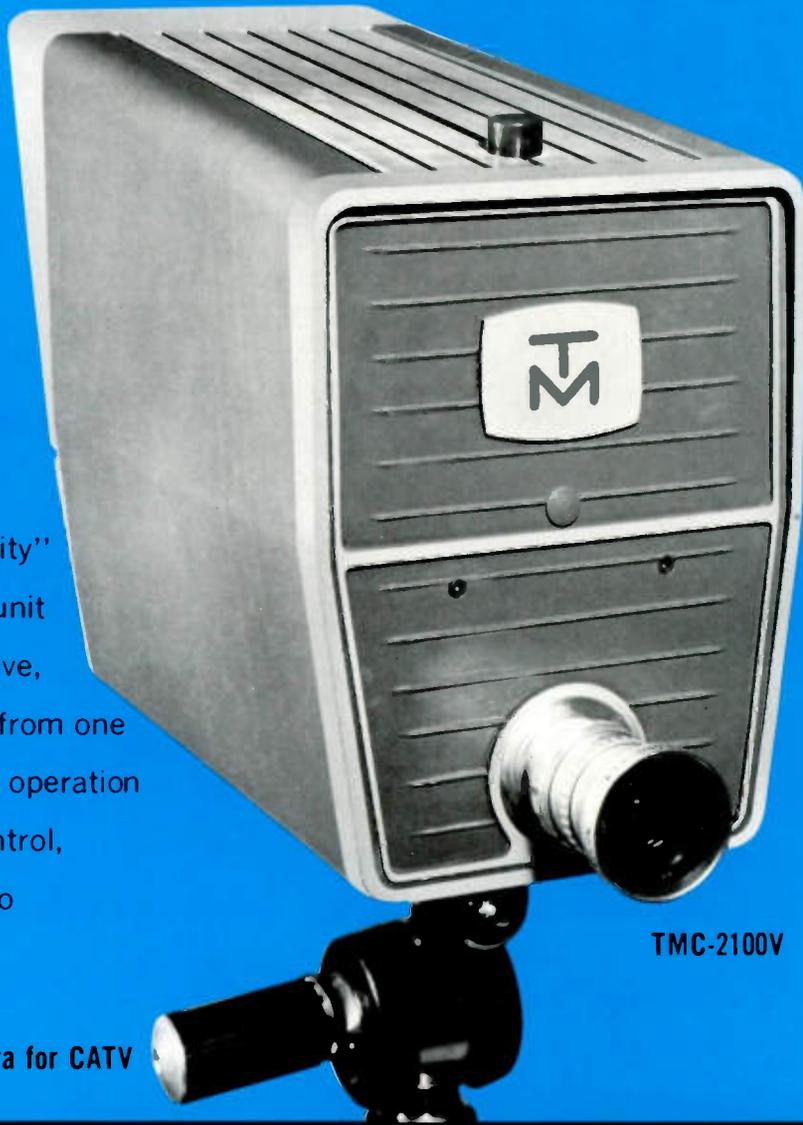
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# New from TeleMation.....

## The most versatile Television Camera ever designed for CATV

The TMC-2100 is the first camera to be designed with built-in "instant convertibility" from a self-contained operation to a two-unit system. Sync options include Crystal/Drive, 2:1 Interlace, and EIA. Change instantly from one of these self-contained modes to two-unit operation using TeleMation's Universal Camera Control, CABLECASTER™ / MULTICASTER™ Video Control Centers or Screen Splitter.



TMC-2100V

Designed to be the most reliable television camera for CATV



## TeleMation - The CATV local



MULTICASTER™  
VIDEO CONTROL CENTER



CABLECASTER™  
VIDEO CONTROL CENTER



UNIVERSAL  
CAMERA CONTROL  
UNIT



SCREEN  
SPLITTER

FROM AN ELABORATE EIA MULTI-CAMERA OPERATION TO A SIMPLE ONE-CAMERA SYSTEM

# ...the TMC-2100 Vidicon Camera



TMC-2100



TMC 2100 (rear view)

## Features:

- All modes of operation are "switch selectable." Camera may be operated in driven or self-contained modes. Sync options are CRYSTAL/DRIVE, 2:1 Interlace, and EIA.
- TMC-2100 non-viewfinder cameras feature all die-cast or extruded framework—rugged but good looking!
- Extruded side panels hinge upward for easy access to camera circuitry and vidicon assembly.
- All circuit boards are made of high-quality glass epoxy materials and "plug-in" for easy field replacement.
- Addition of 7" transistorized viewfinder is simple but permanent. "Piggyback" look is avoided by use of full-length side panels and front casting.
- 800-volt power supply and 60-gauss focus field assure maximum performance from all vidicon tubes, including new separate-mesh types; 800 lines resolution guaranteed.

## origination equipment supplier



WEATHER CHANNEL™  
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NON-DUPLICATION  
SWITCHER



OPTICAL  
MULTIPLEXER



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**SEE US FOR A COMPLETE LINE OF  
COLOR CABLECASTING EQUIPMENT.**

...TELEMATION HAS A PACKAGE TO FIT YOUR LOCAL ORIGNATION REQUIREMENTS.

# LETTERS

● Just received a solicitation brochure for TVC, with a picture of a technician on a ladder, adjusting a strand mounted amplifier.

Your attention is called to the article "THE DANGEROUS MINORITY" in the April 1968 issue. A picture showing a ladder being supported by a telephone cable, can most certainly create utility relations problems.

My question is, why would a Professional Journal of cable television, permit a picture to be distributed, that shows the same poor judgement as was described in a previous article? Thank you for listening.

Sam Gill  
Manager  
Western Television, Inc.  
Anaconda, Montana

*A valid question, Sam. We should have selected a different photo. (Incidentally, we suffer from a shortage of photos depicting proper and safe techniques.) Your point is well taken.*

● Congratulations on your editorial in the May issue of *TV Communications*. This is something I have believed in and advocated for years; make friends with the TV serviceman and dealer. We work with the dealers and servicemen and have for years, and it has paid off to our benefit and theirs.

Bob Cowley  
Flagstaff Television & Cable Co.  
Flagstaff, Arizona

● On behalf of the Board of Directors and members of the National Community Antenna Television Association, I should like to take this opportunity of thanking you most sincerely for your participation in our recently concluded Annual Convention.

The delegates were unanimous in their agreement that this had been a very successful meeting, and your presentation did a great deal towards making it so.

Jacques Chevalier  
Manager, NCATA

● One of your advertisers has played a major role in one of the greatest things that has ever happened to this little town.

Palm Desert is well-known as the home of the Bob Hope Desert Classic, and the winter-home of the Eisenhowers. But the recent local color cablecast

that originated at the College of the Desert here in Palm Desert was certainly a history-maker.

Through the cooperation of Coachella Valley Television and the International Video Corporation, this color cablecast was able to bring to literally thousands in their own homes, a program of one and one-half hours, sponsored by the Riverside County Department of Development. This was a public service of such proportions that recognition must be given to it.

We salute the CV Television company which has such a realization of its responsibility to the community—and we thank IVC for helping to make it possible. This is private enterprise at its best.

Hal Kapp, Chairman  
Internal Affairs and Publicity  
Committee, Chamber of Commerce  
Palm Desert, California

● Although we have been following *Communications* magazine and its excellent progress, I was very pleased to receive a copy of *TV Communications* for the first time in a number of months.

I feel that this publication is extremely well done, and certainly a credit to you and your organization. After seeing the quality of the publication, it is easy to understand how it has gained leadership in its field . . . Keep up the good work.

Frank A. Genochio  
Manager, Marketing Services  
Kaar Electronics  
Canadian Marconi Co.  
Mountain View, Calif.

● We certainly enjoy your fine journal here at United and especially value the CATV Industry Perspective section. Please keep up the good job of piping us the straight work—we need it.

Robert L. Finlay  
System Manager  
United Transmission, Inc.

● . . . I enjoy your magazine very much. It gives me a lot of helpful hints in my job and it also keeps me up to date on the latest news and equipment designs.

Larry S. Hunt  
Senior Technician  
Telesis Corporation

● We read with interest the "Performance Monitoring" article in May 1968 issue of *TV Communications* by L. A. Turner and J. A. Ayres of Advanced Research Corporation. The equipment mentioned will fill a long existing need. The article fell short, however, in not giving the address of Advanced Research Corporation and we have been unable to find their address elsewhere.

We would like to communicate with Advanced Research Corporation with regard to Performance Monitoring Equipment which apparently is being manufactured and on the market. We are interested in detailed descriptions of components, prices and availability.

William C. Watson, DAC  
Chief, TV Distribution  
U. S. Army Transportation School  
Fort Eustis, Virginia.

*The address of the firm in question (for which we have had several requests) is as follows: Advanced Research Corporation, 715 Miami Circle N.E., Atlanta, Georgia.*

● I read a recent article written by Andrew Simons, Jr., Assistant Vice President, South Carolina National Bank, Charleston, South Carolina, on the financing of CATV systems.

The article appeared in the April, 1968, issue of the "Journal of Commercial Bank Lending," and disclosed that an excellent brochure containing specific guidelines and outlines of information desired to evaluate a CATV system has been published by your magazine. The brochure is entitled "CATV Systems Cash-Flow Projection," and if it is still available, I would very much appreciate obtaining a copy. Thank you very much for your kind consideration.

Peter J. Illari  
Credit Director  
General Acceptance Corp.  
Allentown, Pennsylvania

● Please forward to the undersigned your brochure entitled "CATV System Cash-Flow Projection." Many thanks.

J. P. Healy  
Second Vice President  
The Chase Manhattan Bank  
New York, New York

● We should like very much to obtain a copy of a brochure which you published entitled "CATV System Cash-Flow Projection" according to a recent issue of the *Journal of Commercial Bank Lending*. Please let me know if there is any cost involved.

Thomas N. Flournoy  
Vice President  
The First National Bank  
Jersey City, New Jersey

*Thank you, gentlemen, for your inquiries on the availability of our Cash-Flow Projection Booklet. Copies of our revised edition of this publication are available at \$1.95 each (with quantity discounts available) from the Circulation Department, TV Communications, 207 N. E. 38th, Oklahoma City, Oklahoma 73105.*

TVC

No modifications to existing hardware. No adaptations of earlier designs. These are the *rules of Total Design*. These are the rules that helped create the Conductor C701 line extender.

**C701 line extender** The first unit of a complete distribution system developed to the concept of *Total Design*.

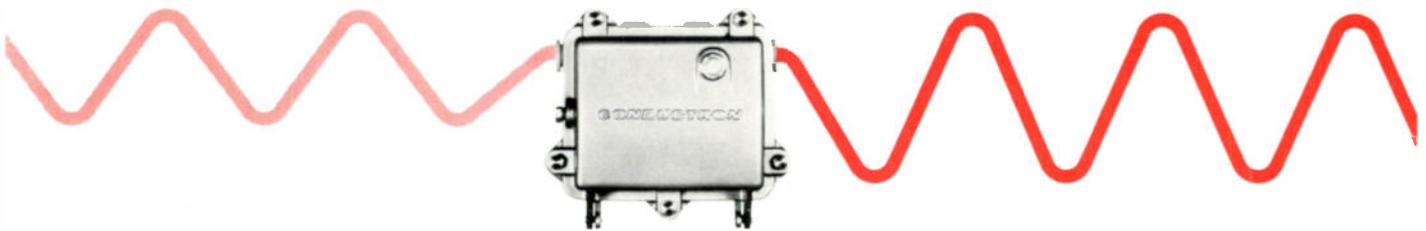
**Starting "from scratch,"** there was no need to make revisions of earlier designs as an economy measure. Consequently Conductor's amplification equipment is designed for today's cable system—capable of a minimum of 20 channels without modification.

**High output and low noise** characteristics permit the cascading of more stations on a given line to meet the need for increased system capacity.

**Specification integrity and performance reliability** are fundamental with Conductor. Space electronics experience-in-depth has been integrated in this new CATV equipment product line to complete the *Total Design* concept.

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|---|--|
| Minimum Full Gain—25db                        | Maximum Noise Fig. CH 13—10 db                                 |
| Return Loss Rel to 75 ohms in—17 db Min.      | Maximum Noise Fig. CH 2—15 db (12 db equalization)             |
| Return Loss Rel to 75 ohms out—17 db Min.     | CH 13 Output Capability—44 dbmv (12 channels,—57 db Cross Mod) |
| 12 db cable equalization $\pm \frac{1}{4}$ db | Frequency band: 50MHz to 240MHz $\pm 0.5$ db                   |

For complete specifications of the first solid state line extender with Cable Television *Total Design*, write or phone: Conductor Corporation, Marketing Department H, 3475 Plymouth Road, Box 614, Ann Arbor, Michigan 48107.



*Now from Conductor—the C701/a solid state line extender with cable television*

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It will appear on our wide range of Canadian-made quality connectors.

## Connectors for standard or custom CATV applications

Trim-Line Connectors Ltd. manufactures a wide range of cable connectors and fittings from RG-59 coax to 3/4-inch aluminum.

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United States dealerships are now available. See A. Davy at the NCTA Convention in Boston for further information.

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our NEW seized centre conductor series in the following popular cable sizes:

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## CATV MANAGEMENT CORNER

### Practical Vision

Some people are deeply concerned about what appear to be symptoms of apathy in the CATV industry. A lack of involvement in CATV associations at the state, regional and the national levels, as well as a seeming lack of active concern about the sometimes precarious political posture of CATV are just two of the symptoms. This "apathy" or lethargy, as the case may be, is perhaps the biggest threat to our future.

Many seem to think the CATV industry is *destined to be successful*, simply because of the technological needs of modern communications. It is their intention to simply "hang on" until the down hill joy ride brings them into inevitable prosperity. *They may be surprised.*

Two basic ingredients are involved in the success of any venture, including cable television: A *vision* for the future that maintains an optimistic viewpoint regardless of the circumstances and a commitment to the years and hours of *hard work* necessary to make that vision a reality. Today's operators who will also be *tomorrow's* operators must not only be visionaries, but pragmatists as well.

For every man that has a desire to succeed, there are many more who would rather wait and have success come to them. They are puzzled, that with all their talent and ability no one recognizes the geniuses they are. They have no push, no drive, no real will or desire to get into the thick of competition and sell their wares. Without the desire, the flame of ambition can never be fanned into a fire. Few inherit success.

It is unfortunate that in today's thinking, we push "equality" and "fairness" of rates rather than initiative. We are creating a division in a society that, whether we like it or not, will no longer be classless. For the millions who desire the same wage and put forth the same effort, the road to the future will be limited and predictable.

From the rest will emerge a new class of society, who will be the thinkers and doers, whose progress will create a gap of insurmountable proportions between themselves and the seething masses. This is an ultimate consequence of capitalistic democracy—a "natural selection" of a type. The opposite of this is paternal socialism. Socialism is simply a yearning for no risks, a quest for security in boring sameness.

*Without risks there is no gain*, and those who are afraid to lose the CATV race have no business entering it. Those who don't want to put themselves out, should stand aside and let those who do reap the rewards.

We'd love a world where everyone is king and wealthy whether he worked for it or not, where every industry prospered or failed, depending on its intrinsic merits. In this world, CATV *would* be destined to succeed. Unfortunately, because of human beings being the way they are, this is never to be. Each operator must assess his capabilities and desires and decide in which class he wants to be, and that is where he will end up. The future of the industry will depend on the majority decision.

TVC

We may have the only directional tap design philosophy in the industry... but we try not to act like it... **craftsman**



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- Return loss\* guaranteed not less than 30db at 5-220 MHz.
- Highest quality true color and black and white transmission characteristics.
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Not weighted; referenced to 75 ohm standard

**SIZES:** .412", .500", .750".

**Quality Cable Assured**

WB-10000 Series CATV Cable . . . has been designed to obtain:

- lowest signal degradation
- lowest obsolescence
- highest cascading ability
- highest utilization of frequency range

Having manufactured quality telephone and communications wire and cable since 1900, Whitney Blake knows the importance of proper engineering and design techniques. Close control of materials in process and tested manufacturing procedures contribute to a uniform cable. The know-how from the years of pioneering new developments for the telephone industry has kept Whitney Blake in the forefront in design, test, gaging, quality assurance, and product performance. The Independent Telephone Industry expects only the best from Whitney Blake. It's no wonder that our standard CATV cable requirements call for at least a 30 db rating at full frequency range for every length.

**Exclusive Automated Processing**

Only fully automated analog/digital computer controlled CATV cable extrusion line in the world.

System designed and developed by Whitney Blake engineers for the ultimate sophistication in quality coaxial cable production. Continuous monitoring of diameter and capacitance for computer controlled adjustment of line speed, extruder speed, and extruder temperature profile to automatically maintain cable characteristics to preset standards. Built-in recording facilities provide constant monitoring of cable physical and electrical properties and operating conditions of the machine. Every length automatically identified on the recorder for in-process QA.

**VISIT BOOTH NO. 126 NCTA CONVENTION**

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## COMPLETE COPYRIGHT VICTORY

On the heels of the disappointing San Diego Case decision (see story below), the cable industry scored a complete victory at the U.S. Supreme Court in the all-important area of copyright. On the final day of this year's session, a majority of the justices held in Fortnightly v. United Artists that cable operators are free of all copyright liability in distributing broadcast signals.

The language used by Justice Potter Stewart in stating the majority position was blunt and to the point. He said, "We take the Copyright Act of 1909 as we find it. With due regard to changing technology, we hold that the petitioner did not, under that law, 'perform' the respondent's copyrighted work." Thus, by a 5-1 decision, the Supreme Court reversed the ruling of the lower New York bench.

Justice Stewart was equally blunt in rejecting the Justice Department's suggestion to incorporate into the decision a scheme of varying liability for CATV systems, such as the plan outlined in bills before Congress. Justice Stewart said, "We have been invited. . . to render a compromise decision in this case that would, it is said, accommodate various competing considerations of copyright, communications, and anti-trust policy. We decline the invitation. That job is for Congress."

Alone in a bitter dissent, Justice Abe Fortas contended that the decision "may well have disrupting effects even outside the area of CATV." He said the Court's major objective should be "to do as little damage as possible" until a recalcitrant Congress acts, and he accused the majority of failing to do this. Justices Thurgood Marshall and William O. Douglas took no part in the consideration of the case or its decision; Justice John Harlan took no part in the decision.

## COURT UPHOLDS FCC JURISDICTION

In one of the two major CATV cases before it this term, the U.S. Supreme Court has ruled that the Federal Communications Commission not only has the legal power to regulate CATV, but must do so in order to protect local TV stations. The decision handed down was in the consolidated FCC v. Southwestern Cable and Midwest TV v. Southwestern Cable case (the San Diego Case).

The Supreme Court unanimously reversed the holding of the lower court and said the FCC has the right to issue temporary orders such as the one in San Diego which forbade the expansion of the cable system there pending a Commission hearing. Justice John Harlan, writing for the Court, said, "We hold that the Commission's order. . . did not exceed or abuse its authority under the Communications Act."

On the broad issue of FCC jurisdiction over the cable TV industry, the Court upheld the FCC's position that effective regulation of broadcasting "demands prompt and efficacious regulation of community antenna television systems."

The Court found ample base for FCC jurisdiction in the Communications Act of 1934, holding that the provisions of the Act are applicable to all interstate commerce. By the terms of that Act, the FCC was given a "comprehensive mandate," said the Court, with "not niggardly but expansive powers." Justice Byron White wrote a separate concurring opinion. Justices Thurgood Marshall and William O. Douglas took no part in consideration or decision of the case.

## UNITED VIDEO GROUP SOLD

The six-system United Video cable system group has been sold to the newly formed company, American Television & Communications Corp. of Boston, Mass. for \$1.5 million. The package is AT&C's first acquisition, but the company has several major CATV transactions in active stages of negotiation and expects to be making further announcements.

Over 5,000 subscribers are served by the systems located in Chillicothe, Marysville, Marshall and Boonville, Mo., and Falls City and Columbus, Neb. The all-band systems pass 17,000 homes. Daniels & Associates, Inc., Denver brokerage firm, handled the transaction.

## NEW YORK CITY APPEALS

The City of New York has filed an appeal with the Appellate Division of the New York Supreme Court against a recent ruling that cable systems using telephone lines do not require a city franchise. The appeal is expected to be heard early this fall. Morris Tarshis, Director of Franchises of the City of New York said at the time of the original decision that he was "deeply disturbed and amazed" and expressed the opinion that the presiding judge had not looked deeply enough into the case.

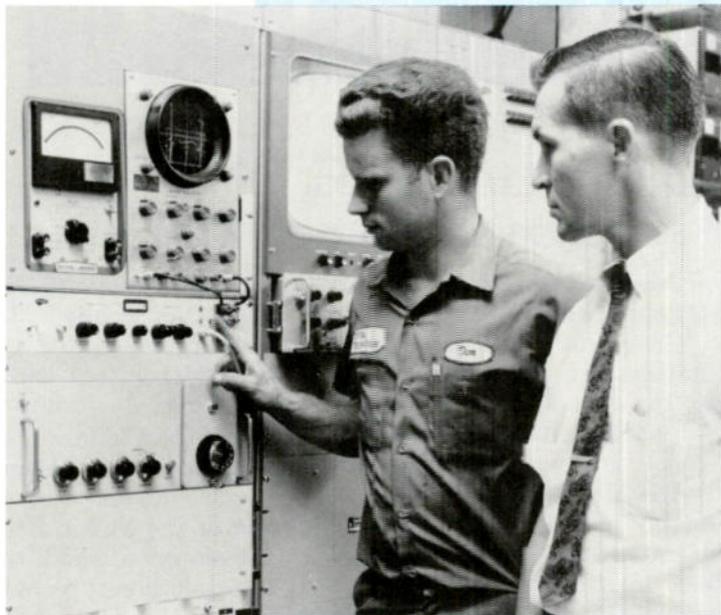
## PIONEER CALLS FOR PUBLIC SUPPORT

Pioneer Valley Cablevision of Greenfield, Mass., is continuing the campaign against Department of Public Utility regulation of CATV in that state. Latest move is an effort to marshal grass-roots support of the cable industry. James Marlowe, system operator, said a letter has been mailed to each of several thousand subscribers asking them to contact their legislators in protest against looming regulation.

The letter, signed by Al Ricci, Pioneer's president, enumerates the reasons why cable television is opposed to pending legislation, and what public utility regulation would mean to the subscriber. Ricci urges Massachusetts citizens to keep authority over cable TV in the "cities and towns. . . where we feel it properly belongs," rather than in Boston, where "it has been demonstrated that governing bodies do not understand the individual problems of small towns in Western Massachusetts."

# "EVERY CABLE TV SYSTEM USING MODULATORS NEEDS A SIDEBAND ANALYZER,"

says Don Cantrell of  
TOTAL TV,  
Santa Rosa, California



Don Cantrell, Chief Technician, demonstrates operation of TS-100B Sideband Analyzer to Jim Monroe, Mgr. of TOTAL TV.

TOTAL TV of Santa Rosa, California has been using a DYN AIR TS-100B Sideband Analyzer for over a year. Here's the way they feel about it . . .

*"The DYN AIR sideband analyzer allows us to check modulator operation at any time—precisely and in just a matter of minutes. It also greatly shortens the time required for modulator alignment."*

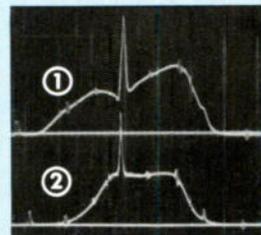
Yes, cable TV operators everywhere have discovered what broadcasters have known for years . . . *the only practical way to check transmitter operation is with a sideband-response analyzer.*

The DYN AIR TS-100B Sideband Analyzer is designed especially for the needs of the CATV operator. It is completely solid state and has a self-contained regulated power supply. It is extremely compact. And it is priced at only \$1250 . . . a small price to pay for the savings in time and the increased system performance that are immediately realized. (And an *especially* small price when compared with the \$8500-odd worth of standard precision test equipment you would have to assemble to do a roughly equivalent—but many times slower—job!)

These units are available for immediate delivery. Give us a call and place your order today. (If you're still not convinced, ask the man who has one . . . or see it in operation at the NCTA convention, booths 69, 71 and 73 along with the RX4000A Demodulator and the TX4A Modulator.)



Actual Sideband Analyzer waveforms indicating (1) poor modulator response and (2) Proper response.



The Dynair TS-100B generates a video sweep signal which is applied to the video input of the modulator under test. The RF output of the modulator is then directed back through the TS-100B, where the RF spectrum is analyzed and then applied to an oscilloscope for display. The display is a precise representation of the sideband response curve, showing both the visual and aural carriers. Markers for frequency measurement are provided at 0.2, 0.5, 1.5, 3.6 and 4.5 mHz to allow exact frequency determination.



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# News SPECTRUM

## California Bills Limit Fees, Eliminate Franchise Auction Bids

Two bills favorable to CATV have been signed into law by California's Governor Ronald Regan. The statutes are A.B. 383 and A.B. 384. The first limits the franchise fee which cities can charge to 5% of gross receipts. Significantly, A.B. 383 was introduced by Assemblyman Townsend, who last year introduced one of three bills aimed at bringing cable television under public utility regulation.

A.B. 384 exempts cable television

from a series of sections in the Public Utilities Code. These sections had provided for public utility district franchises and auction-type bidding. According to a spokesman for the California Cable Television Association, "Some of the cities and counties were using that portion of the Public Utilities Code as a basis upon which to call for bids," but auction-type bidding is now eliminated for CATV in California.

CCTA general counsel and

executive secretary Walter Kaitz credited the efforts of association members with these favorable pieces of legislation. "In California we have taken positive action; we don't take negative action. And we're striving for what is best for the industry," he stated.

Kaitz noted that the bill introduced earlier this year by George Miller, aimed at bringing cable television under PUC regulation, has been sent to the Committee on Public Utilities and Corporations, apparently forestalling passage of such a bill for at least another year. California has had a history of at least one PUC bill being introduced each year.

## Testing Approved For TPT/Hughes AML System

A revolutionary short-haul microwave system developed by TelePrompTer Corp. and Hughes Aircraft has been approved by the FCC for extensive testing in New York City and in two as-yet-unnamed rural communities. Irving Kahn, chairman and president of TelePrompTer, said he expects the tests to "prove that this use of the spectrum is in the public interest and will become the basis for a permanent nationwide allocation of frequencies at a later date."

According to Dr. Allen E. Puckett, Hughes executive vice president, the Amplitude Modulated Link, which can transmit 12 or more signals from a single microwave transmitter operating in the 18 GHz band, "can be a useful step toward easing congestion in lower portions of the spectrum."

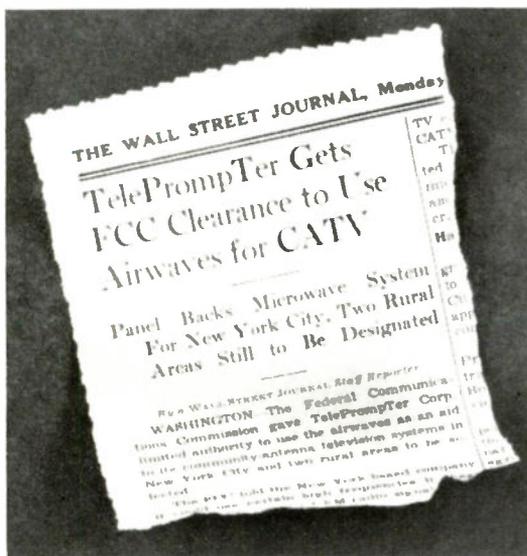
In New York, the AML site is located near the George Washington Bridge. From this point, signals will be transmitted to receiving dishes throughout the area and then distributed by cable to buildings. The Commission has directed that new applications must be filed in keeping with the limitations being placed on commercial use of the frequency. The 18 GHz band must be made available to other holders of CATV franchises in New York City, and one provision of use seems to foreclose origination of any programs. The FCC reserves the right to turn 18GHz over to satellite use.

## FCC Commissioner Visits System



FCC Commissioner Robert Bartley (center) observes Quincy Cablevision's weather scan service in operation during his recent tour of the system's facilities. Charles J. Younger (left), general manager, and H. I. Grousbeck (right), president of Quincy Cablevision, hosted the visit. Bartley, who stopped at the cable system after an address to the Illinois Broadcasters Association, was quoted as saying, "I am amazed and impressed that more than one-third of the homes in Quincy are Cablevision subscribers in such a short time."

# On May 17, 1968 we got the signal to go ahead.



That was the day we received authority to proceed with applications to use "short haul" microwave for distributing TV signal to CATV subscribers.

This commercial authorization would allow for tests in New York City and two rural areas.

For the present, application of this new system will be limited, but its promise for the future can be far-reaching. CATV systems can become economically practical in sparsely populated rural communities.

Many rural viewers can enjoy the full range of television programming, for the first time. The delivery of CATV signal to city dwellers can be accomplished without major street construction, public inconvenience, or delay.

Natural barriers can cease to be barriers.

We, at Theta-Com, who developed "short haul" microwave, are proud to see it move ahead. Through the combined skills of a leading communications systems company and a leading CATV operating company, it has proved something about electronic communications: There are no impossible dreams.

**THETA-COM**

Theta-Com is a jointly-owned subsidiary of TelePrompTer Corporation and Hughes Aircraft Company.

## Cable Spokesmen Rally Against PUC Threat at Massachusetts Hearing

NCTA president Frederick W. Ford journeyed to Boston last month to urge the Massachusetts legislature to delay writing any laws regulating CATV until next year in view of current litigation in other states.

At a public hearing to consider public regulation of CATV, Ford told members of the Joint Committee on Government Regulation that the cable television picture is still hazy because of the number of suits pending before federal and state courts.

"The state legislatures should have grave reservations about attempting to enact any comprehensive CATV regulation this year in the face of the legal uncertainties involving FCC regulation, copyright and the question of whether CATV can constitutionally be regulated in a public utility context," he said.

Ford added, "Good legislative timing requires that you have patience—that you avoid the pitfalls of hasty action—that you avoid legislation which will lead to bitter litigation." And he pointed

out that federal preemption and interstate commerce considerations may preclude Department of Public Utilities regulation as a matter of law. Ford was not the only CATV industry spokesman in opposition to the state Consumers Council-sponsored bill which would set up regulations governing CATV. John W. P. Mooney, CATV program director for High Fidelity Cable Television of Great Barrington, Mass., also spoke against the bill. He referred to CATV as a "fledgling industry, struggling for survival and beset by hostile broadcasters." He pointed out that it is still "an industry small enough to be killed." David Brickman, Malden publisher and part owner of several CATV corporations, said cable regulation should be left to local communities. "The great importance is to give local community antenna service and TV service rather than to just divide 30 channels. This is inhibitory regulation at this particular time that could freeze up and dry out this industry," he said.

Brickman was backed in his

argument by Malden Mayor Walter Kelleher and New Bedford Mayor Edward Frank Harrington.

Leading the support for regulatory control was Attorney General Elliot Richardson who described the state of existing laws as "chaotic." He advocated a system of local licensing under uniform state standards recommended by the Consumers Council.

State representative James R. Nolen (D-Ware), chief legislative advocate of CATV regulation, strongly urged passage of the bill. He asked his colleagues to consider the "real threats of cable systems and to be concerned with protecting the consuming public of Massachusetts from monopolistic companies." Nolen expressed the view that the bill did not go far enough. "The legislation before you . . . allows for rate control by the Department of Public Utilities after three years," he said. "I would urge your committee to amend that section of the bill, to make rate control mandatory and immediate."

### Controversy Sparks North Central Meeting

A lively interchange of verbal blows sparked the recent North Central CATV Association meeting. The exchange concerned aspects of membership and leadership of the National Cable Television Association. Frank Thompson, association vice chairman, launched an attack on what he termed the "nice guys" of CATV. He called NCTA president Fred Ford "completely ineffective" and demanded a stronger stand by NCTA officials on such issues as copyright.

Thompson, who has served as an officer or director of NCTA for 11 years, also criticized the Nominating Committee's choice of Robert Beisswenger as candidate for NCTA chairman. He warned against a "conflict of interest" since Beisswenger is president of Jerrold Electronics Corp. In rebuttal, another industry old-timer and fellow Minnesotan, Robert Regan, told members of the regional group that "we don't build up by tearing down." And NCTA director Ralph Demgen told operators that, despite some of Thompson's opinions, NCTA officials are indeed con-



New England system operator Al Ricci, right, confers with attorney Gerard F. Doherty during public hearings on cable television regulation in Massachusetts. At far left, Frederick W. Ford, NCTA president, waits to address the Joint Committee on Government Regulation.

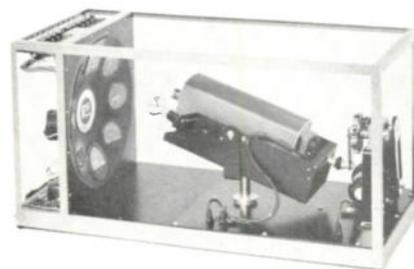
# When we began, we concentrated on CATV.



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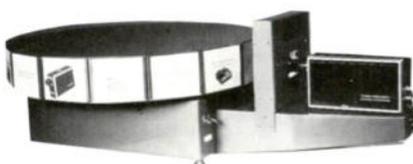
**WEATHER-SCAN**



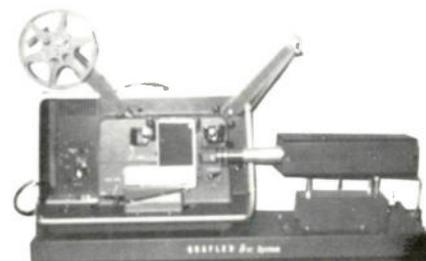
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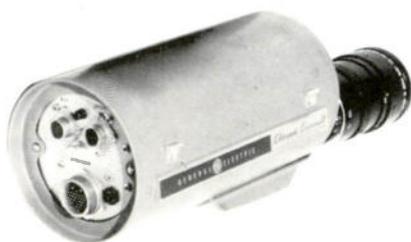
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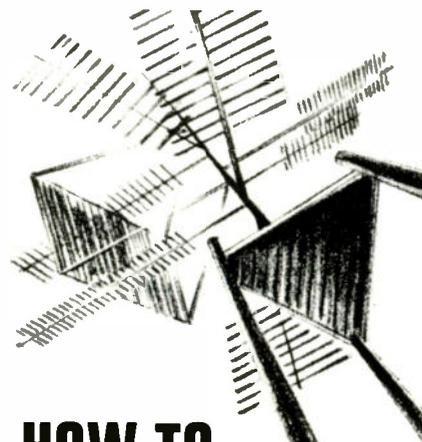
At Tyler, there is a low-cost equipment combination especially suited to your local-origination needs.

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From concept to completion... any portion... or an entire turnkey job... we focus more than eighty management years and thousands of miles of actual aerial and underground design and construction experience on your needs.

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**CAL-TEL CONSTRUCTION CO., INC.**

cerned with how a copyright settlement will affect system operators. He urged all operators to join the national association in order to form a broader base from which to launch legal and legislative efforts on behalf of the entire industry.

Stan Searle, publisher of *TV Communications*, had also come under attack from Thompson as one of the "nice guys," had told the



*Ralph Demgen of Willmar Video urges members of the North Central CATV Association to join fellow cable operators in strengthening the industry.*

group earlier in the day that "no one has the right to complain unless he is prepared to back his words with action." The answer is not to criticize, he declared, but "to use your voice and your vote" in NCTA.

### FCC's Bartley Proposes Break-up of Commission

The FCC should be abolished and its present duties should be split among present and new government agencies, according to no less an authority than Commissioner Robert T. Bartley.

The Commissioner with the second longest seniority, Bartley is also the strongest defender of CATV on the FCC. He has decried what he believes to be a Commission tendency to protect entrenched broadcasting interests against a new and needed service. He made his remarks in a speech prepared for delivery to the Illinois Broadcasters Association.

Bartley noted that the FCC

comes under fire from many quarters, and that one way to minimize the criticism is to abolish the Commission and to spread its functions among specialist agencies.

The Commissioner, who has served longer than anybody in that post except Chairman Rosel Hyde, suggested a commission to handle broadcasting and a separate commission to take care of common carrier regulation. He suggested Federal Broadcast Commission as the name for one of the new agencies and Telecommunications Common Carrier Commission for the other.

It was Bartley's idea that there be five commissioners and 15-year terms with no reappointment possible. At the beginning, however, the first five commissioners would have 3, 6, 9, 12 and 15 years respectively so as to stagger the terms, and the first 3 and 6 year commissioners could be reappointed. Retirement would be with pensions 80% of salaries. Political make-up would be almost the same.

The safety and special services responsibilities of the FCC should be transferred to the new Department of Transportation, he said, "and finally, in the all-important area of spectrum allocation for non-government use," Bartley said, "I think there should be created within the legislative branch a new office known as Telecommunications Resources Authority. The director would be solely responsible to Congress."

Bartley told the Illinois broadcasters that "the central fact of life which leads me to suggest the reorganization of our telecommunications regulatory structure is that Congress refuses to implement its delegation of responsibility with adequate resources in manpower and money."

Despite tremendous growth in all areas of communication, the FCC manpower authorized by Congress decreased between 1947 and 1955 and only reached the 1947 level in 1963. "And, in 1967, it had only 71 more employees than in 1947," Bartley said.

There has been speculation that the President's Task Force on communications policy may also come up with recommendations at least to split up the duties of the FCC.

## CCTA Attends PUC Hearing, Elects Officers for Year

California cable operators attending the annual meeting of their state association in Sacramento took time out for a visit to the capitol to hear state senator George Miller speak at a hearing before the Committee of Public Utilities and Corporations. CCTA's executive secretary and general counsel, Walter Kaitz, said the cablemen were "ready to debate with Miller" on the senator's bill to regulate cable through the PUC, but the bill was referred to interim study.

Speaking to the assembled operators on the PUC threat, newly elected president A.C.R. Stone called such legislation "10 to 20 years premature." And vice president Keith Burcham told the group, "We should prepare our own legislation." He drew applause from the audience when he said, "It's time we took the offensive instead of the defensive."

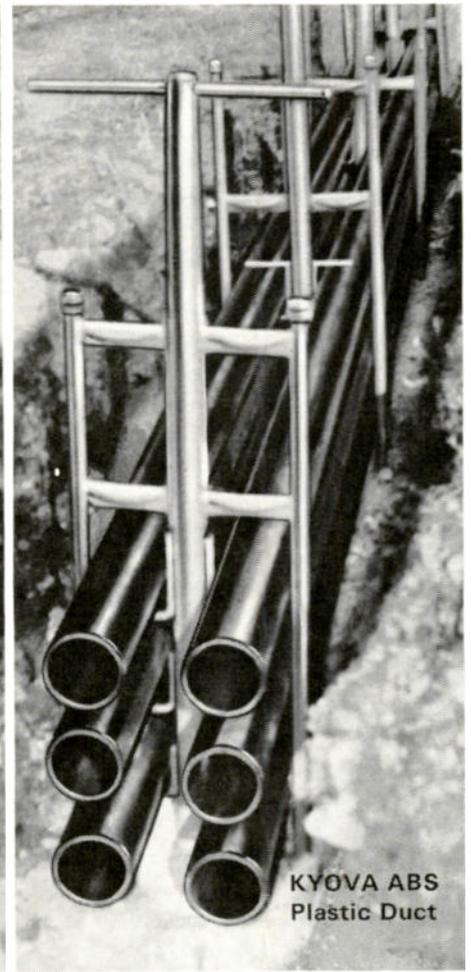
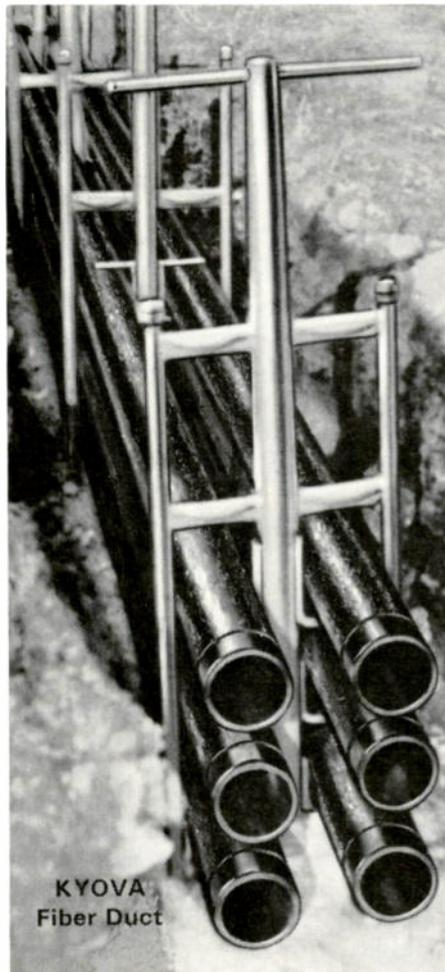
In other sessions, the group heard John Ray, general manager of Oroville Communications, and Joe



*CCTA general counsel and executive secretary, Walter Kaitz (left) congratulates A.C.R. Stone on his election as association president.*

Benes, Cable TV of Santa Barbara, speak on labor relations. Bill Bresnan, of Jack Kent Cooke, Inc., reported on copyright negotiations and stated that some progress has been made. He was encouraging concerning the willingness of copyright owners to negotiate.

TV Communications



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## Oregon PUC Rejects Bell Lease-back Tariff

In a decision applauded by CATV attorneys, the Oregon PUC has rejected a Pacific Northwest Bell telephone tariff and ruled that lease-back systems in that state are not public utilities and are not subject to regulation by the PUC.

PNB argued that since they are using telephone equipment for CATV, they are performing a telephone service. The Commissioner rejected this plea and ruled, "It is the character of the service that determines whether it's a public utility or not. The circumstances surrounding the rendering of service will determine whether or not it should be regulated. Who renders the service and what equipment will be used is not determinative of the issue."

In its statement, the PUC said that the service proposed is one offered for the convenience of private business. "Pacific Northwest Bell seeks as its customer for the service only CATVO's; the service, thus, is further restricted to only one very particular and limited type of private business, and the number in that business group in Oregon would be very small. PNB does not seek as its customers consumers of the general public or those who would be seeking the services of a telephone company."

The PUC said that the cable service described by PNB can be furnished economically and practically by others without imposing hardship or undue expense on CATV operators. The cable operator, the commission said, "does not have to rely upon PNB for the cable service segment as do individuals of a larger public, but only as any business enterprise seeks the best and cheapest way to get a part of its job done."

Bruce Lovett, general counsel for the National Cable Television Association, acclaimed the decision as "the first time that a PUC has examined the fundamental concepts of what a lease-back tariff really is and has reached not only a completely logical conclusion, but one supported by case precedents." In commenting on the significance of the ruling, Lovett noted, "If other states and/or the FCC adopt the

Oregon approach, it would mean that the Bell System would be out of the CATV business except to the extent that they offer pole attachment contracts."

## Canadian Operators Hold 12th Annual Convention

The two issues dominating the annual convention of the National Community Antenna Television Association of Canada were the right of operators to originate closed circuit programming and the granting of exclusive licenses to cable systems. Association members passed one resolution affirming cablecasting rights of operators and another resolution opposing exclusive licenses.

Some Canadian operators have been sympathetic to the idea of granting federal protection of a cable system's service area. But the majority supported the concept of non-exclusivity. Specifically, the resolution stated that the criterion for the granting of licenses should be the interest of the viewing public.

A featured speaker at the 12th annual meeting, held in Victoria, B.C., was *TV Communications* pub-

lisher, Stan Searle, who warned operators "not to become so engrossed in cable TV in its present form that we wake up one morning and find that important new cable services are being distributed on a hybrid waveguide and coax system bearing the familiar Bell trademark."

He urged operators to be open to change. "Be ready to reshape your business in the image dictated by technology, public demand and mature business judgment," he advised.

Over 300 operators and suppliers registered for the conference, which culminated with the election of officers. Omer Girard of Magog, Quebec was chosen to head the association for the coming year. Vice president is Claude Boucher. Louise Langlais was elected treasurer and Lloyd Gartrell was named secretary. The president-elect also announced the appointment of retiring president John W. Loader, Victoria, B.C. as executive vice president, Girard stated that the new position was created "in view of increasing complexity of problems facing the cable television industry." Loader will spend approximately two weeks per month at NCATA headquarters in Montreal.



1968-69 officers elected at the 12th Annual Convention of the National Community Television Association of Canada are (left to right): John W. Loader, executive vice president; Louise Langlais, treasurer; Omer Girard, president; Claude Boucher, vice president; and Lloyd Gartrell, secretary.



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The officers were selected by the board of directors, following their election by the membership. Those chosen as directors of the National Community Antenna Television Association of Canada are: Terry Keenan; Ted Jarman; Ross McGregor; Maurice Cliche; Frank Cassin; Norm Curry; Sid Welsh; Doug Shackelford; Alex Dworkin; Andre Auger; Jack Reid; John Loader; Dave Campbell; and B. Brousseau. Jacques Chevalier, a

permanent staff member, also sits on the board of directors.

Daily salmon fishing excursions and nightly entertainment shared the spotlight with discussions of satellite, sales promotion, technical developments and the future of cable communications. Sessions on sales promotion, technical topics and the future of communications were chaired by I. Switzer, Don Paynter and Omer Girard respectively.

## Cablemen Gather in Astoria To Dedicate First System Site

The site of the first CATV system in the United States was formally dedicated recently in Astoria, Ore. Civic figures and CATV industry representatives gathered to unveil the granite marker and pay tribute to L. E. (Ed) Parsons, builder of the first system.

On Thanksgiving Day, 1948, Parsons first received the television signal of KRSC-TV, Seattle (now KING-TV) 125 miles away. Erecting antennas atop a downtown

Astoria hotel Parsons piped the signal to his own apartment in the hotel and later to other residences and commercial establishments.

The granite marker commemorating the occasion was placed at the foot of the "Astoria Column" on Coxcomb Hill. It reads:

*"Site of the first community antenna television installation in the United States completed February 1949, Astoria, Oregon. Cable television was invented and developed by L. E. (Ed) Parsons on*

*Thanksgiving Day, 1948. The system carried the first TV transmission by KRSC-TV, Channel 5, Seattle. This marked the beginning of cable TV."*

G. L. Davenport, Pacific Northwest Manager of Cox Cablevision Corporation, owner and operator of the Astoria cable system, introduced Fred Ford. Ford cited the spectacular growth of cable television during its two decades of life and praised the public service CATV renders to over 3,000 American communities. Roy A. Duoos, acting mayor of Astoria also attended the ceremony.

## GBC's New Name Reflects Corporation's Activities

GBC America Corporation has changed its name to GBC Closed Circuit Television Corp., according to company president Harry Lefkowitz. Lefkowitz pointed out that the change of name was made to relate the company more closely to its activities which are wholly centered in the closed circuit and ITV fields. The New York firm supplies closed circuit TV cameras, monitors, lenses and accessories.

## Ohio Cable Group Elects Officers at Annual Meeting

New officers of the two-year-old Ohio CATV Association were elected at the group's annual meeting in Columbus recently. The president for the coming year is Bill Pitney, Cleveland Area TV, Lakewood; vice president, J. P. Hoey, Chillicothe Telcom, Chillicothe; secretary-treasurer, Bill Church, Logan Cable TV, Bellefontaine. Directors elected were: B. R. Vogt, C & R Cable Co., Shadyside; Paul Snyder, Tower Antenna, Coshocton; Bob Felder, Imperial Broadcasting Co., Canton; Ray Joslin, Continental Cablevision, Findlay; Wilfred Brown, Lima.

The meeting got under way with a showing of the NCTA film, "CATV: A Response To Public Demand." The program included a seminar on local origination, and a summary of current litigation given by communications attorney Morton Berfield of Cohen and Berfield. Luncheon speaker, CTA's Chuck



Participating in the dedication ceremonies at Astoria were (left to right): Frederick W. Ford, NCTA president; Marcus Bartlett, Cox Broadcasting vice president; L. E. (Ed) Parsons, builder of the original cable system; and Lew Davenport, regional manager for Cox. The Astoria system is now one of the Cox group.

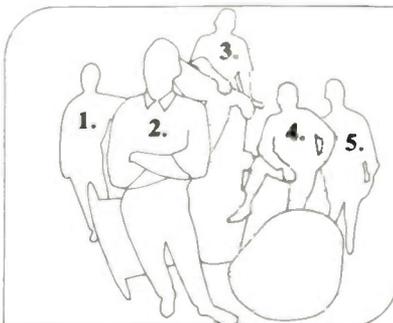


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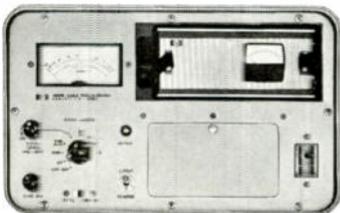
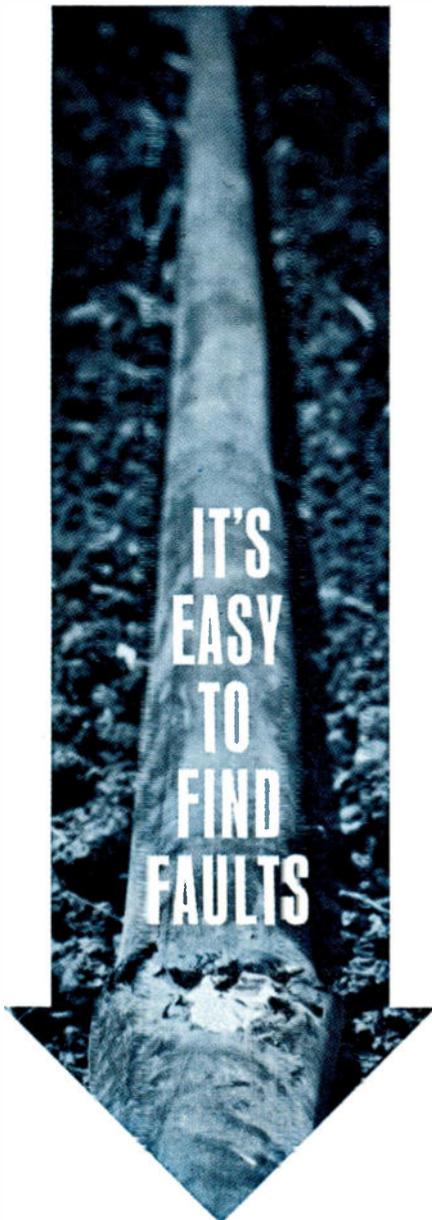
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Walsh, also spoke on national problems.

At a business meeting, the Ohio association members appointed their first legislative liaison, Ray Joslin. He will direct association efforts to mount a personal-contact program between state cablemen and their congressmen. According to vice president Hoey, the group hopes to institute a local origina-

tion feature program throughout the state, utilizing film clips of congressmen addressing their constituents. Amos (Bud) Hofstetter of Fostoria will direct utility relations efforts of the organization, and Jack Anthony of Chillicothe will handle relations with the state educational TV network and local school officials in cable-served districts.

## System Sales

The Jerrold Corporation, wholly owned subsidiary of General Instruments Corp. has announced a major expansion in CATV holdings through acquisitions of systems and franchises in 21 communities in Texas, New York, Virginia and Kentucky. The Texas complex comprises three systems which will serve 14 communities stretching from Mission to Raymondville in the Rio Grand Valley. These systems and franchises were acquired from Southwest CATV, Inc. The three upstate New York systems will serve the cities of Cortland, Penn-Yan and Wellsville.

Sale and transfer of the Malibu Calif., cable franchise from Malibu Cable TV, Inc. to Malibu Communications Corp. has been approved by the County Board of Supervisors. Malibu Communications is a subsidiary of Harriscop Broadcasting Corp. The franchise held by Malibu Cable was county-wide, but the franchise to Malibu Communications is limited to the city.

TV Communications Corp., a group headed by Al Stern, has purchased the interest of Cowels Communications in the Winter Haven, Fla., CATV firm, Universal Cable Vision.

Cornelia Corporation has announced the purchase of all of the outstanding stock of Shelter Island and 80% of Suffolk Cable of Smithtown. This, together with an earlier purchase of Suffolk stock, gives Cornelia Corp. the franchises in the New York communities of Shelter Island, Smithtown, Southampton and Brookhaven. The latter two systems are under construction and

the 34-mile, 11-channel Shelter Island system is already in operation.

See-Mor Television, Inc. recently purchased the Gulf TV System from Mr. and Mrs. Ruben Frels. The cable system, which serves Beeville, Texas, will be expanded and rebuilt by the new owners.

Advertising agency Foote, Cone & Belding has acquired all stock of Pacific Cable Service, Inc. in California. The agency now holds franchises in Newport Beach, Mission Viejo, Seal Beach and Leisure World. Plans call for a \$1.2 million underground system in Newport.

E. Kay Myers, former president of Highland Cable Corp., Latrobe, Pa., announced sale of the system to an Altoona group headed by Dr. H.R. DiGiacobbe. Included in the sale was Conemaugh Cable TV, Corp. which has a system under construction in Blairsville. DiGiacobbe announced that the corporation will be reorganized and, doing business as Highland Video Corp., will serve Latrobe, Derry, Youngstown and Blairsville.

The Vumore Co., headquartered in Colorado Springs, has purchased the stock interest in Total Television of Topeka (Kan.), Inc. formerly held by Stauffer Publications. Total Television is one of 10 applicants for the Topeka CATV franchise.

Electronic TV Cable Co., Middleburgh, N.Y. has been sold by its founder Frank Schmidt, Jr. to Paul and Robert Reed of Stamford. The Reeds own and operate the Stamford TV Cable System and the Grand Gorge TV Cable System as well. The 300 Middleburgh subscribers are currently receiving 5-channel programming. 

## Pennsylvania Operators Hear Labor Union Do's and Don'ts

In sessions open to member systems only, the Pennsylvania Cable Television Association directed its attention to labor relations negotiations and public utility regulation at its annual spring meeting at The Allenberry, Boiling Springs, Pa. The two-day meeting, with over 60 member systems represented, opened with a presentation by attorney E. Jackson Bonney, of Morgan, Lewis and Bockius, Philadelphia, Pa. who spoke on "Do's and Don'ts for Employers During Union Organizing Activities." Bonney discussed some of the union activities among cable systems in Pennsylvania and presented basic guidelines to operators in the handling of potential union negotiations.

George Gardner, meeting chairman, of TV Cable of Carlyle, indicated that 13 CATV suppliers and manufacturers had representatives in attendance.

The Thursday program introduced by Miss Yolanda Barco, program chairman, concentrated on various aspects of public utility regulation in Pennsylvania. The matter has been one of deep concern in Pennsylvania since PUC legislation was introduced in the last session of the state legislature.

George J. Barco, legal counsel to the PCATVA, opened the panel on public utility regulation with a pre-

sentation on the legal objections to Pennsylvania PUC regulation. He detailed how the industry in past years had explained its position on proposed PUC legislation.

The business objections to PUC regulation were presented by Ralph M. Fratkin of Ralph M. Fratkin & Co., Philadelphia accountants, while Gary Christensen, NCTA Attorney, discussed the danger of PUC regulation which is of industry-wide concern.

The Pennsylvania association's

public affairs committee, composed of Miss Barco, William G. Dimmerling, and Robert J. Tarlton, gave a detailed report of the association's legislative activities at the conclusion of the PUC session. At the business meeting of the association, members were urged to establish and maintain rapport with their state and federal officials, so that, as an industry, Pennsylvania cable operators will be in a position to meet any impending legislation on a personal basis.

## Calendar

**August 9-10.** The Rocky Mountain CATV Association will hold its semi-annual meeting at Teton Village, Jackson Hole, Wyoming.

**September 29 to October 2.** The Pacific Northwest CATV Association fall meeting will be held at the Sheraton-Portland Motor Inn, Portland, Oregon.

**November 10-13.** The California CATV Association fall meeting will be held at the Del Coronado Hotel, Coronado Island.

**January 16-18, 1969.** The Florida CATV Association will meet at Marco Island.

**January 24-25.** The Georgia CATV Association will hold its first annual meeting in Macon. Exact location to be announced.

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## Movie Industry Extends Copyright Suit Moratorium

Attorney Louis Nizer, speaking for the motion picture industry, has assured Senator John L. McClellan that there will be no copyright suits against CATV by members of his industry pending passage of a new copyright bill. The Arkansas Democrat who heads the Senate Copyright Subcommittee expressed the hope that the networks will also hold off on such suits as he introduced a bill to give another year of life to copyright that would otherwise expire before the end of 1969.

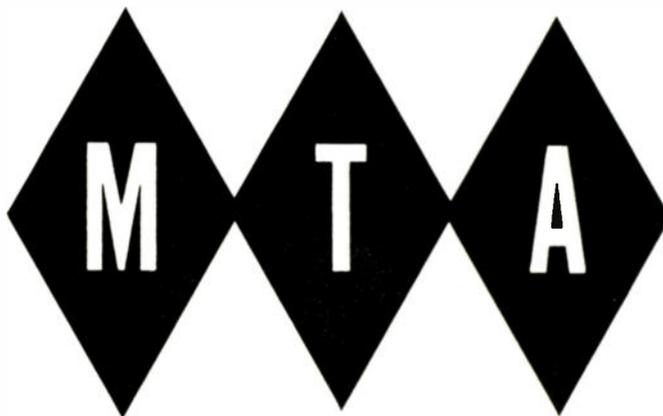
McClellan said there was absolutely no chance for passage of a copyright bill this year, and he pointed out that several sections are in controversy. "One of the most difficult questions remaining to be resolved is copyright liability of cable television systems," he told the Senate.

The subcommittee chairman said in a Senate speech that he had asked the various parties to submit their current views. TVC

## Alabama Association Elects



*Pictured above are the officers elected at the recent meeting of the Alabama Cable Television Association. Standing (l. to r.) are Jimmy Ballentine, secretary-treasurer; Otto Miller, president; Carol Eddins, past vice president (1967-68). Seated is Mrs. Mary DeArmen, past director (1967-68). Newly elected officers not shown are: Jim Ulrey, vice president, and directors Jerry Kelly, Bill Neal, Asa Goldman, Dige Bishop, Alton Elliott and William L. McNair.*



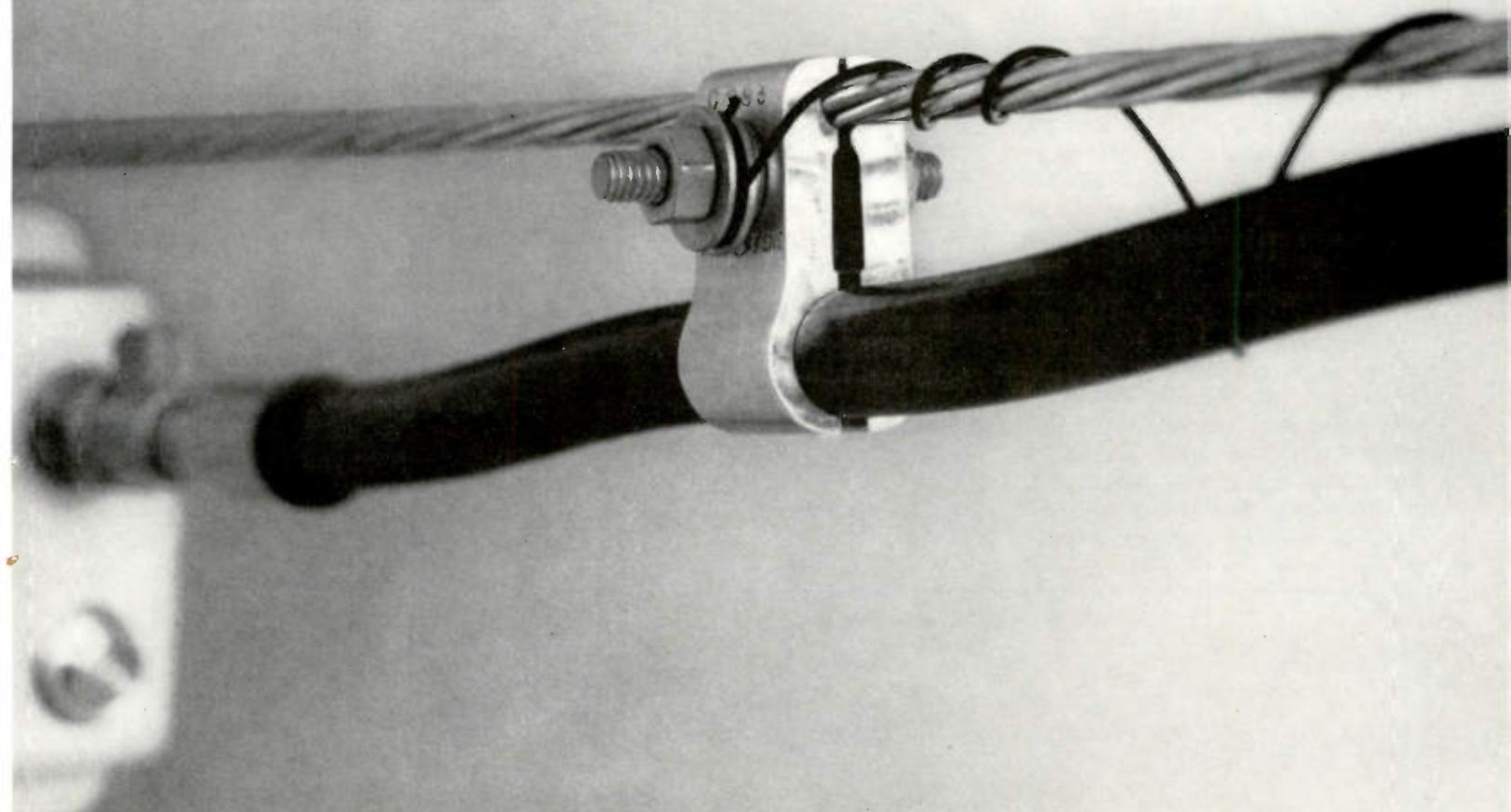
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Its job is to relieve strain on coaxial cable where it connects with electronic equipment—without the potentially troublesome expansion loops frequently used. (Besides being a nuisance to install, expansion loops contract and expand with every temperature change. This causes fatigue of the outer conductor, a source of signal blackout as serious as cable pull-out itself.)

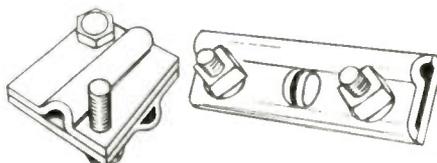
This new clamp grips so firmly that the coax cannot pull out from the electronic equipment . . . no matter how many contraction and expansion cycles occur.

It helps linemen, too. In addition to the fact that they no longer need to fashion loops, they can accomplish two jobs with one device. The new unit combines its primary

strain relief function with a built-in lashing wire clamp. The lineman simply positions the new clamp, tightens the nuts and both the coax and the lashing wire are secure.

The clamps come in five sizes to accommodate most commonly used bare and jacketed coaxial cable. Each is precision made of extruded aluminum for use with 1/4" bare stranded messenger.

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The *crossover clamp*, on the left, is the first to be precision made of hot dipped galvanized steel specifically for 1/4" bare stranded messenger. Partially assembled at the

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# FINANCIAL REPORTS

**General Instrument Corp.** reports per share earnings of \$2.18 for the year ended Feb. 29, 1968. This compares with per share earnings of \$2.22 for the same period last year. Earnings figures are based on incomes of \$12,082,107 and \$6,680,000 for the two periods respectively. Sales were \$233,679,000 and \$154,141,580 for the two periods. The figures reported include operations of the Jerrold Corp., acquired during the past year.

**Livingston Oil Co.** reports per share earnings of \$1.06 for the 9 months ending Feb. 28, 1968. This compares with per share earnings of \$1.02 for the same period last year. Earnings figures are based on net incomes \$4,804,000 and \$4,613,000 for the two periods re-

spectively. Revenues were \$12,890,000 for 1968 and \$12,594,000 for 1967. The earnings figures include the operations of the CATV companies recently acquired.

**Scientific-Atlanta, Inc.** reports per share earnings of \$.10 for the quarter ending March 31, 1968. This compares with per share earnings of \$.14 for the same period last year. Earnings figures are based on net incomes of \$88,000 and \$109,000 for the two periods respectively. Sales were \$2,875,000 for 1968 and \$2,687,000 for 1967.

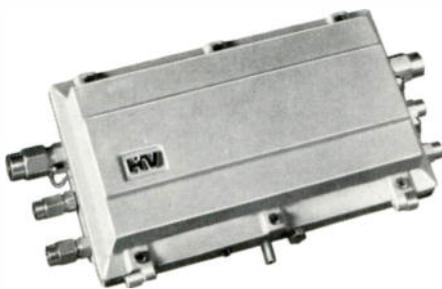
**Ameco, Inc.** reports per share loss of \$.38 for the 9 months ending March 31, 1968. This compares with per share loss of \$.86 for the same period last year. These fig-

ures are based on a net loss of \$459,447 for 1968 and \$1,033,621 for 1967. Sales for the two periods were \$4,910,960 and \$4,787,390 respectively.

**Plastoid Cable Corp.** reports per share earnings of \$.22 for the quarter ending Feb. 28, 1968. This compares with per share earnings of \$.19 for the same period last year. Earnings figures are based on net incomes of \$528,112 and \$437,862 for the two periods respectively.

**Amphenol Corp.** reports per share earnings of \$.52 for the quarter ending March 31, 1968. This compares with per share earnings of \$.37 for the same period last year. Earnings figures are based on net incomes of \$1,744,821 and \$1,085,593 for the two periods respectively. Sales were \$46,602,800 for 1968 and \$39,515,717 for 1967.

**Storer Broadcasting Corp.** reports per share earnings of \$1.02 for the quarter ending March 31, 1968. This compares with per share earnings of \$.49 for the same period last year. TVC



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Coachella Valley CATV system. Cable

management and subscribers

alike were enthusiastic about the

results. Color quality was as

good or better than any color

programming previously re-

broadcast from Los Angeles. According to Bill Daniels,

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"Outstanding local color will be part of our service in Coachella Valley

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recorders. IVC's equipment mates well with cable systems . . .

and IVC's price breakthrough now brings local color within

reach for nearly any cable operation. I sincerely urge other

cable operators to consider color equipment so they can take

advantage of rapidly increasing color set saturation."

To see how IVC can add color

to your cable operation, turn the page.

\* World's first local color cablecast was originated April 17, 1968. An IVC-100 color camera was set up in the auditorium at College of the Desert, Palm Desert. At a stage lighting level of 400 ft. candles, a one and one-half hour program of the Riverside County Industrial Development Council was taped in color on an IVC-810. This tape was played back the following evening (via the IVC-810) over the Coachella Valley cable system. Photo above is off-the-set image of actual cablecast seen by subscribers.



**\$14,000**



**\$4,700**



# LOCAL COLOR WITHIN REACH FOR CABLE SYSTEMS

## **IVC-100 COLOR CAMERA**

offers full broadcast-quality color at low cost. It is as easy to operate and maintain as standard monochrome cameras. The IVC-100 features: three-tube vidicon design, integral viewfinder, simplified controls, built-in sync generator and encoder. Options allow camera operation of a remote recorder, remote control of multiple cameras from a control room, use of external encoder and sync generator. Using the built-in sync generator and encoder, the IVC-100 requires only two wires (power in, video out) to produce NTSC-type pictures for input to the IVC-810 or cable system. A film chain version of the IVC-100 is also available.

## **IVC-810 COLOR RECORDER**

(IVC-800 monochrome version available for only \$4,200) offers accepted 1" IVC Format\* that allows one full hour of recording on small-sized 8" NAB reel of tape. Uses 30% less tape than other formats . . . at an average saving of \$15 per hour. Provides outstanding high-resolution NTSC-type color pictures with bandwidth exceeding 4.2MHz . . . with 400 lines of picture information. Electrical pushbutton controls make operation a breeze. "Alpha" tape path minimizes dropouts. Can be operated in portable case or fixed rack mount. Stop motion is standard; slow motion and electronic editing are available at extra cost.

\* Accepted format by Bell & Howell, GPL and RCA

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690 North Broadway • White Plains • New York 10603 • Ph. (914) 761-7820**

# FOCUS

## ... On People

### Systems

M. William Adler has been named executive director of Tele-Vision Communications Consultants, a newly created division of TeleVision Communications Corp., multiple cable system owner. Adler, who formerly served as a CATV consultant for such companies as ITT and GE, will serve clients in the areas of: system franchise acquisitions, management services, financing, system design, construction, sales promotion, government and utility relations and public relations. Adler also owns and operates systems in West Virginia and Virginia. He is a former treasurer of NCTA and a past member of the NCTA board, and former president of the Mid-Atlantic CATV Association.



Mr. Adler



Miss Schmidt

Centre Video, group CATV firm headquartered in Pennsylvania, recently named Miss Patricia L. Schmidt as its new sales manager. Miss Schmidt holds degrees in speech and English from Pennsylvania State University where she was a speech instructor.

Chester R. Conner has been appointed manager of G\*TEC Cable TV in South Haven, Michigan. Prior to his new assignment, Conner was a technician for the G\*TEC Cable TV system in Vandergrift, Pa. He joined the General System in 1952.

Dale W. Allen has been named general manager of the cable system in Greensburg, Pa. He has owned and operated CATV systems throughout Pennsylvania since 1950.

Fred T. McElroy is Cablevision's new manager in Colorado Springs. A native of Oklahoma, McElroy has been divisional manager for Vu-more Co. and Mesa Microwave in Western Oklahoma and the Texas panhandle.

H. Baird Hammonds has been named office manager of Clear-Pic Cable TV Co., in Easton, Pa. He was formerly office manager for Food Lane Markets.

J. C. Montgomery is the new manager of the Rolla Cable System, Inc., Rolla, Mo. He was previously manager of a system in Chippewa Falls, Wis.

Jake Showalter has been appointed office manager of the CATV Full-Vu Television system serving Vincennes, Washington, Lawrenceville and Bridgeport, Ind.

Ervin G. Ochs, Jr. is the new manager of Tri-County Cable Television Company's Salem-Pennsville (Pa.) system.

The appointment of Jerold Rogers as manager of Booneville (Mo.) Cable TV has been made by Rex Porter, general manager of United Video Systems, Inc., Kansas City. Rogers is a former employee of Decatur (Ala.) Cable TV.

Paul D. Formica has been named manager of Salamanca (N.Y.) TV Cable.

### Suppliers

Jerrold Corporation's CATV Systems Division has named Howard Lomax to the newly created post of marketing manager. Lomax previously served as eastern regional manager for the division. He has previously served as a field engineer, sales engineer and technical director for CATV Systems. Lomax joined Jerrold in 1954.

Martin Q. Sill has been appointed

manager of Jerrold's Philadelphia plant. He succeeds Maury Betchen, who has been promoted to manufacturing manager of the Jerrold Corp. Betchen has served as works manager of the Jerrold Electronics Corporation's Philadelphia plant since 1964 and now is responsible



Mr. Lomax

Mr. Sill

for the manufacturing operations at that plant and at the Technical Appliance Corp. (TACO) plants

Vikoa, Inc. has appointed Aaron L. Danzig as secretary of the corporation and promoted Allan W. Otto to the post of treasurer. Danzig is a partner in the law firm of Nemeroff, Jelline, Danzig, Paley & Kaufman of New York. A specialist in corporate and tax law, he holds law degrees from Columbia and New York Universities. Otto joined Vikoa in 1967 as accounting manager and was promoted to controller later that year. He is a graduate of Rutgers University.

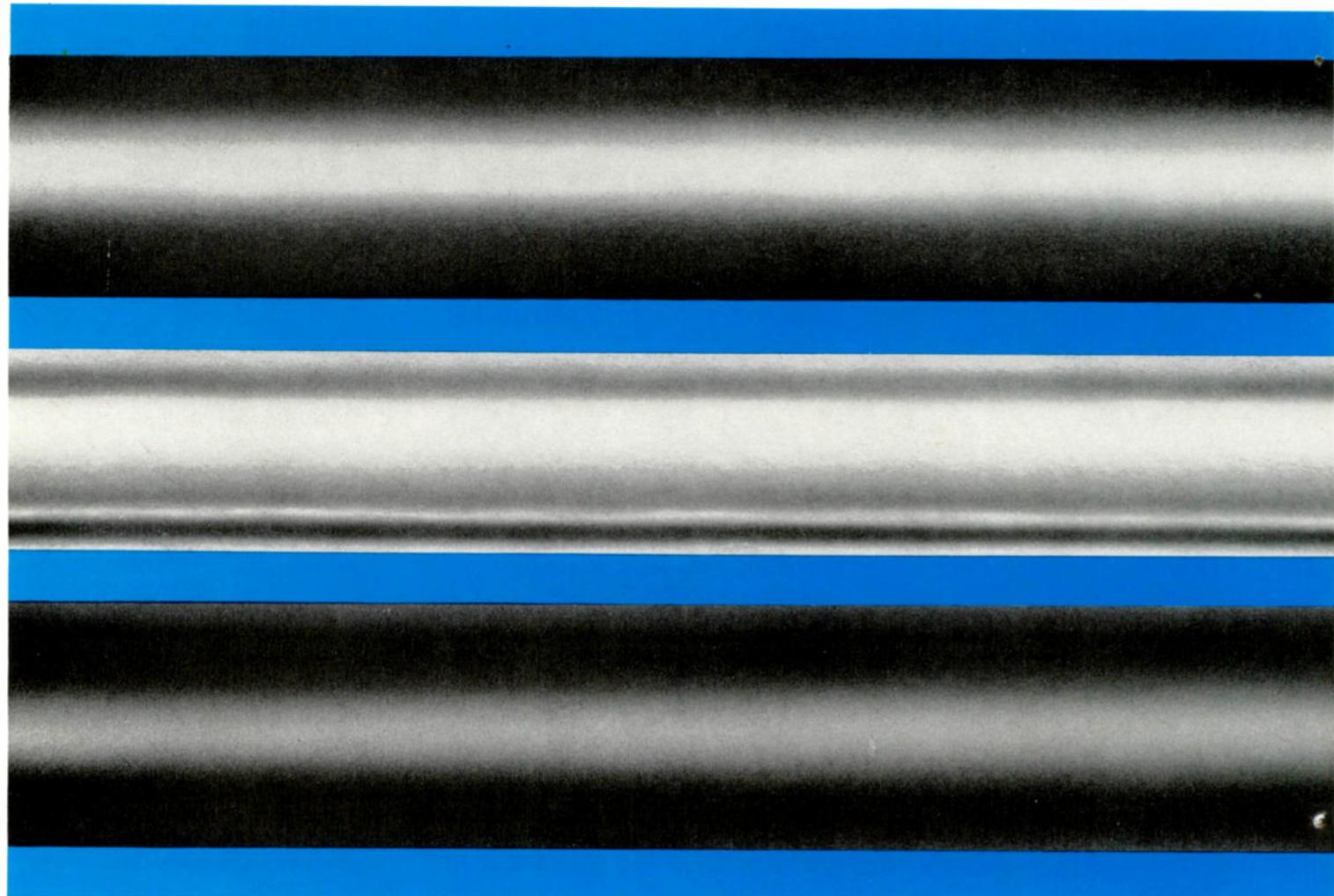
Craftsman Electronic Products, Inc. has announced the appointment of John D. Fannetti as chief engineer of the company's expanded new products development laboratory. Fannetti joins Craftsman from Syracuse University Research Corp. where he handled advanced microwave programs as research engineer.

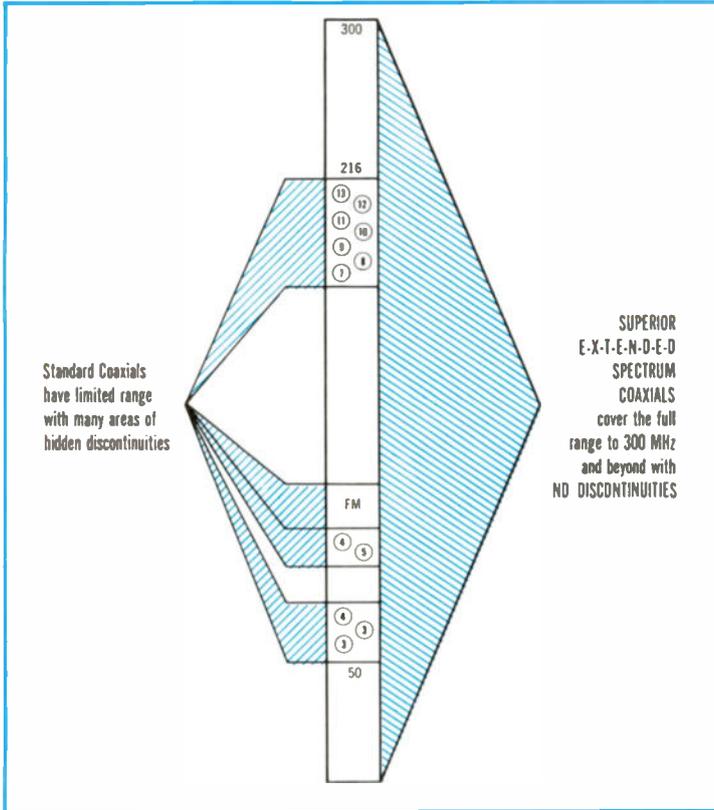
Donald L. Horn has been named personnel manager of International Video Corp., California, it was announced by Donald F. Eldridge, IVC president. Horn was formerly personnel manager of Dalmo Victor, Belmont, Calif. and Philco Ford's Micro Electronics Division, Western Operations. He graduated from UCLA in 1959.

Edward H. Michaelsen has been elected president of Phelps Dodge Industries, Inc., according to an announcement by Edgar P. Dunlaevy who moves up to chairman of Industries' board of directors and continues as its chief executive officer. Prior to his election, Michaelsen served as executive vice president of the corporation as

*Careful, your income  
tomorrow may be  
limited by the cable  
you install today.*

*Buy Superior Continental's  
E-X-T-E-N-D-E-D  
Spectrum Coaxials  
and take the lid off!*





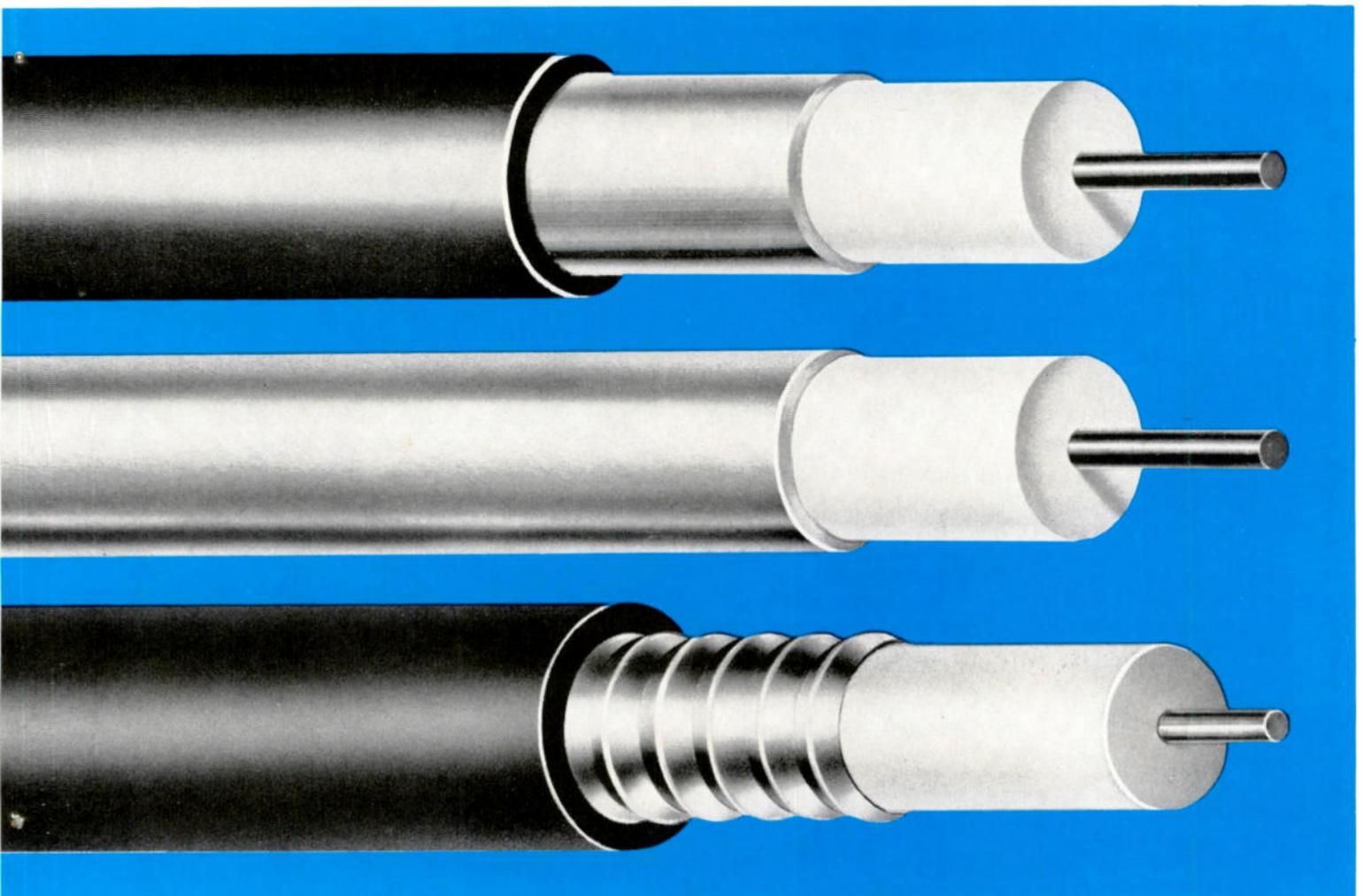
Because these coaxials cover the continuous range to 300 MHz and beyond with no discontinuities, you get more transmission space than with standard cables.

The additional 84 MHz segment from 216 to 300 MHz, together with full frequency utilization from 216 MHz down, opens up many opportunities for new services when you want to add them.

- CATV, new channels
- ETV and ITV programming
- CCTV for business and industry
- Data transmission
- Remote control telemetering
- Alert and alarm systems
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Install Superior Continental's Extended Spectrum Coaxials, Coppergard® or Alumagard® aerial or direct burial types. This way, your system won't outgrow the capability of your cable. Means more revenue because you can provide more services, now and later.

Superior Sales and Service Division  
 P. O. Box 2327 Hickory, North Carolina 28601  
 Phone 704/328-2171



president of Phelps Dodge International Corp., an Industries' subsidiary.

**Richard J. Hodona** has been named Western Division sales manager and **Raymond F. Sullivan** has



Mr. Michaelsen

Mr. Hodona

been appointed western district sales manager by Preformed Line Products, Cleveland.

**George C. Hanley** was elected comptroller of the Anaconda Wire and Cable Company at the company's recent board meeting. He replaces **Charles F. Wicker** who is retiring. Hanley has been assistant secretary of the Anaconda American Brass Co. since 1961. He previously served that company as administrative manager and in various staff accounting activities

**J. Thomas** of Lindsay Specialty Products Ltd., Lindsay, Ont., has announced the appointment of **Steve Richey** as product design engineer for CATV electronic equipment. Richey was previously with Cascade and Ameco.

**J. R. (Rod) Garey** has been appointed Midwest Region manager of American Enka Corporation's Brand-Rex Division. Prior to his new assignment, Garey was industrial market manager at the firm's headquarters.



Mr. Barco

Mr. Titsch

**Robert Titsch** has been named advertising account executive for *TV Communications* and *CATV Weekly* magazine. Advertising manager **Wayne Wilson** stated that Titsch's duties will include account servicing and market research for the two cable television trade journals and the firm's other CATV publications. Titsch previously served as state sales manager for the Travelers Motor Club, having studied marketing at the University of Oklahoma.

**Entron, Inc.** of Silver Spring, Maryland, has named **Emery Advertising Corp.** of Baltimore to handle its advertising, sales promotion and public relations programs. TVC

## Professional

**George J. Barco**, president of Meadville Master Antenna, Inc. and an attorney in Meadville, Pa., was elected president of Educational Television of Northwest Pennsylvania, Inc. The corporation owns and operates the community-educational television station WQLN. Barco was an organizer and incorporator of the corporation and served as chairman of the board of directors and vice president until his recent election.

# ASTROSCAT Designed/Priced for CATV

JUST THE DISH FOR —

### VHF

- Eliminates co-channel interference through high directivity and controllable nulls
- Excellent front/back ratios
- Single, multiple channel and broadband feeds

### UHF

- Highest gain at UHF frequencies
- Sharp directivity
- Multiple channel and broadband feeds

Tower-top mounting of the rugged ASTROSCAT permits optimum reception results. Specially designed for CATV applications, it may be used simultaneously for VHF and UHF channels and can receive from more than one direction. Both its performance characteristics and construction detail reflect RF Systems' extensive experience in designing and producing antennas for industrial and military systems.

*CATV-YAGI antennas, educational television, broadcast antennas and towers are also described in RF Systems literature available on request.*

**RF SYSTEMS, INC.**



Industrial Antenna Division

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SEE US AT BOOTH 38 AT NCTA CONVENTION



30' ASTROSCAT ANTENNA  
(20' Model also available)



a  
bird's  
eye  
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For earthy details, call or write Tom Smith,  
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Box 13654, Atlanta, Ga. 30324 Tel. 404-938-2930 TWX 810-766-4912

# PROJECT

# X



## Cablecasting's New Dimension

In ten to fifteen years, your television set may look as groovy as a space ship—and be capable of just as many far-out operations. You may shop or vote from your easy chair, make travel reservations, dial-a-play (or view), consult a reference library, or, your wife may want to tune in the kids as they roam the neighborhood.

Your set—and those of your subscribers—will be capable of all this and perhaps more. It may even accomplish these tasks in depth and breadth, that is, in 3-D or cinema-scope!

Sound impossible? Not at all. Though the applications are different, government and industry apply the same basic concepts to many aspects of government and administration every day. And experts are predicting that many basic communications services will be available to you through a home

communications center within the next ten years.

### Exploring the Concept

The modular keyboard diagrammed here demonstrates many of the services expected to be available through your home communications center. Designed by Jim Symons of Tasi, Symons and Gelberg, an industrial design firm located in Washington, D.C., this receiver and keyboard combination was conceived and commissioned by the NCTA's director of field services, Sam Street. Built for display at the NCTA convention in Boston, the design is not an artist's dream, but a home-oriented projection of the variety of programming possible and in use everyday in industrial computer application.

For instance, if you live in Los Angeles or northern Arizona, your copy of the Wall Street Journal has,

for the past six years, been printed via facsimile transmission. Using facsimile equipment called a Press-fax and a television channel furnished by the Pacific Telephone & Telegraph Company, exact full-page copies of each page are flashed from the printing plant near San Francisco, to a second plant near Los Angeles for reproduction.

Police departments in major cities use facsimile equipment routinely. Weather maps are transmitted via telephone network everyday of the week; one system uses more than 50,000 miles of telephone channels with more than 600 facsimile receivers stationed throughout the country. These systems simultaneously produce copies of the same weather map, incorporating regional differences.

Today, the television set is simply entertainment. Cablemen, aside from time/weather/news and some

This month's cover picture represents the communications scene as it will be — someday. Designated "Project X," this home communications center was conceived by Sam Street, Director of Field Services, NCTA, and CATV Consultant. Project X is a main feature of this year's NCTA Convention in Boston.

local origination, offer basically a better picture. The time is not too far off when you may be able to offer some of the services diagrammed here—available only on the cable.

## A Giant Step

From sheer entertainment center to master communications center is a long way—not to be attained all at once, but possible, taken a step or two at a time, over the next twenty-five years. Within ten years, we can expect that many of the following services will be available.

*Home Video Recorder;* With this recorder, you'll be able to leave the house at 7:30 for that important meeting, yet return later and still see your favorite program! Before you leave, set the automatic timer for time and channel. Later, when you have time, view the tape.

*Multiple Set System;* If you'd like the news or stock report, push the button marked "stock ticker." Now, suppose your 17 year old son has a term paper for English literature and he needs the "home library?" Your keyboard will be programmed to the number of sets, 1, 2, 3, 4, or more in the house; punch set 2 for him, then punch the home library information selection button. You get your stock report while he receives the research information he needs. Meanwhile your wife is tired of fighting crowds at the shopping center, she indicates set three and the shopping channel button. Later in the evening, if entertainment tastes differ—the kids want to watch a World War II movie, your wife wants "Peyton Place" and you want good old-fashioned entertainment without heartache, choose your room, select set and channel number and enjoy a peaceful evening.

Someday, you'll be able to pick up the phone, order your purchases and the charges will go directly to

your bank where the deductions will be made automatically. No more bills. When you're out of money, you're out.

Set repair will be easier. The modular concept (similar to your cable amplifier) will allow you to pull out a defective unit and plug in a new one, without calling in a repairman.

So far, we've touched on the conveniences which will be available. But your communications center will also provide protective, life-saving features such as a security system for your home and property. Well-placed outdoor cameras will allow you to check the premises without venturing out. Should you leave your home for an afternoon or a month you will be assured of constant "seeing-eye" protection through hookup with a central alarm station. When at home, if the alert button is "on", you'll be warned automatically of any emergency or "alert" situation.

## Services Beyond Imagination

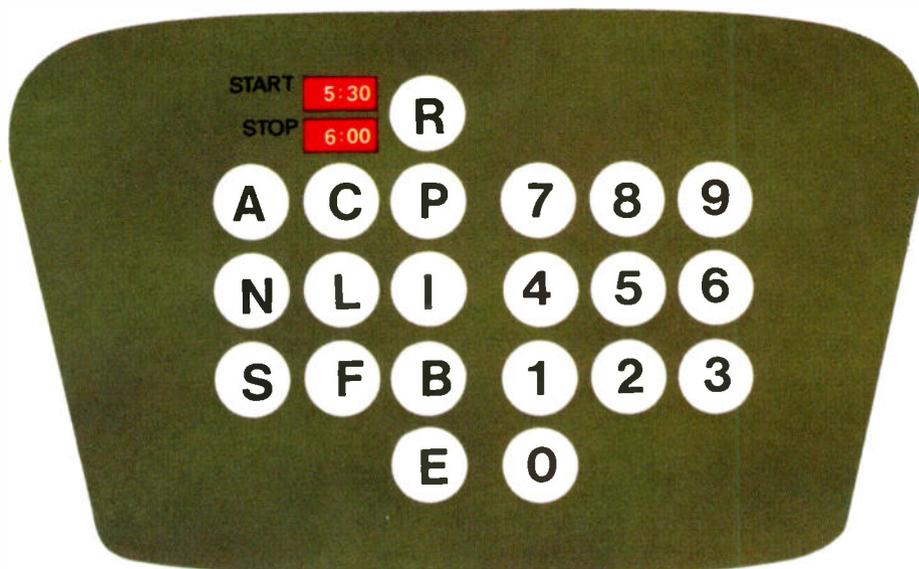
Some of the proposed applications are beyond our imagination (but not beyond the capability of much of today's technology). Following the concept of "mood music," some day we'll be able to choose a view—anywhere in the world—and settle back for a tour of the English countryside, the Swiss Alps, an African jungle. And, by use of some

of the new concepts involved in holography and laser technology, these tours may well be in three dimension.

It may even be possible to "call" a distant friend using your communications center, and to "have him over" for the evening, in life-size three-dimensional color. Then, you could call a group of friends, and "have a party" with guests from all over the world.

Sound impossible? Don't be too skeptical. Forty years ago, the concept of the television set would have sounded ridiculous to the most sophisticated technologist. And technology grows with ever-increasing acceleration. It's growth rate is not additive, it's multiplicative. The progress of the last ten years will be dwarfed by the progress of the next ten years. But most of these things will happen twenty-five to thirty years hence.

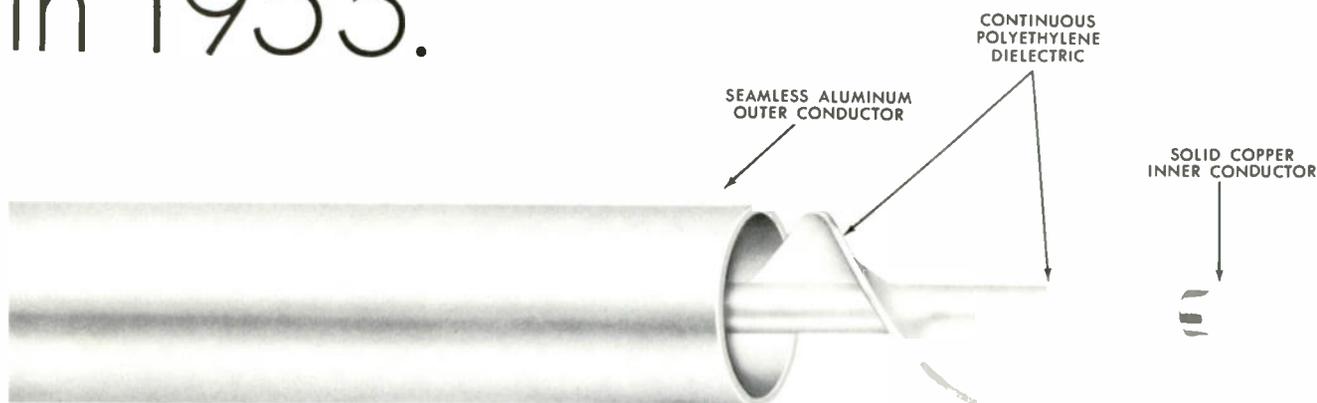
The applications we've diagrammed here are well within present technology and man's imagination. Soon, they will be within the cableman's power to provide to his subscribers. After all, television itself is just twenty-one years old; cablevision about nineteen years old. The industry has come a long way in a relatively short time. Our twenties and thirties promise to be full of exciting new concepts, applications and services. (rvc)



The diagram shown indicates the multiplicity and infinite variety of information and facilities possible with the modular keyboard concept. Fed via coaxial cable, this home communications keyboard can control one or many sets, depending on the needs of any given family — for information, protection or entertainment. **Key to Panel:** R-record, A-alert, C-in-home circuit, P-printout, N-news, L-library, I-information, S-shopping, F-financial news, B-bill or charge (home shopping), E-entertainment.

# SPIRAFIL<sup>®</sup> II

The first significant breakthrough in coaxial cable design since we introduced Foamflex in 1955.



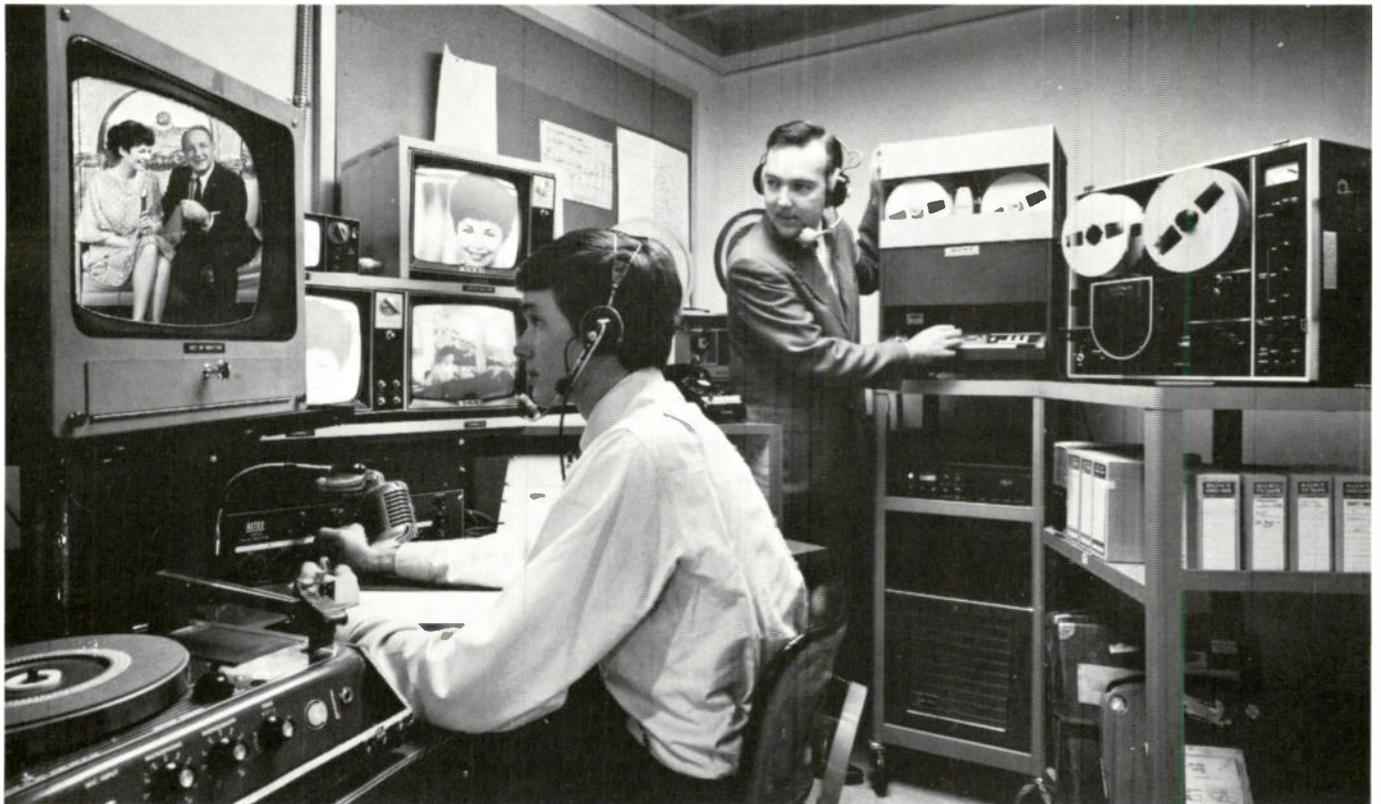
Lower Attenuation    32 db Return Loss  
Fewer Amplifiers    Less Maintenance

■ What makes Spirafil II so radically different is a solid polyethylene helix which completely covers the solid copper center conductor without interruption. Among other things, this means great mechanical stability and an absolutely non-collapsible helix. Add to this the advantage of unusually attractive electrical characteristics (attenuation at Channel 13 .412" 1.27 db/100', .500" 1.02 db/100', .750" 0.75 db/100') and a system

cost competitive with conventional foam cable systems.

Spirafil II comes plain or jacketed in .412", 1/2" and 3/4" diameters, 75 ohm impedance, in 1000-foot reels.

For a complete listing of Sales Service Stocking Centers plus up-to-the-minute technical data, write, TWX or telephone: Phelps Dodge Copper Products Corporation, 300 Park Avenue, New York, N. Y. 10022 (212) 751-3200, TWX (212) 865-7455.



# CLOSES THE CIRCUIT

— AT  
ROSSMOOR LEISURE WORLD



## SONY

RESEARCH MAKES THE DIFFERENCE  
SONY CORPORATION OF AMERICA  
INDUSTRIAL DIVISION

516 W. Florence Ave., Inglewood, California 90301

Nestled in a corner of Clubhouse No. 1 at Leisure World, the all-adult community in Laguna Hills, California, is a CATV station that boasts the world's largest single-cable audience.

More than 11,000 subscribers watch Channel 6 as it beams programs of information, education and entertainment over a \$1.5 million cable during its 30 weekly broadcasting hours.

In a studio that is unique in arrangement and design, station producer/director Thom Keith, program coordinator Elizabeth Livingston and technical director Dane Keller handle all station chores. Six Sony monitors are part of the specially-designed console. All taping is done on Sony BV 120U and EV-200 Videocorders.\*

"Stars" of the basic programs are residents of the community and members of the administrative staff. Lovely ex-actress Hope Sansbury and Director of Community Relations and former songster Harry Babbit are regular features on Channel 6. Programming on a variety of subjects is taped for replay and exchanged with Leisure World's sister CATV station in Walnut Creek, California.

Says producer Keith, "We've designed and specified the equipment here specifically to apply to the situation. All anyone needs to become a TV mogul in a station like this are Sony Videocorders and some Sony monitors...and away you go."

To find out how you can close the circuit on a CATV installation... and make it a profitable operation...write or call us today.

For complete details on this application, ask for APB 105.

# Cablecasting With Emphasis On Community Affairs

Unless cable system operators become willing to "take the leap" into local programming, the future may find the industry unable to provide some of the most useful public interest services coaxial technology will have made possible.



KBTN cable TV Weatherman Steve Milburn giving presentation of weather data on Neosho Profile, a popular daily news feature on Channel 9, Neosho Cable TV.

*By Galen O. Gilbert*

In many cases the need for local origination by cable TV systems is glaringly evident. In other cases, the needs are less, due to TV stations doing a good job of local programming in the same town. Some TV stations are doing little or no local programming, and in most towns with cable TV systems practically no local origination, is done for that town in particular by nearby TV stations. The reasons in most cases involve cost, and also availability of time for broadcasts of interest to only a small part of the broadcaster's coverage area. Therefore, most TV stations rely primarily on network and syndicated programs, leaving local programming beyond their major city to others.

One of the reasons CATV has the excellent acceptance it does in many places, is the appetite of viewers for variety, including a good coverage of local affairs. Cable TV can fill this need for local expression. And, incidentally providing opportunity for local expression is one of the avowed purposes of present FCC policy. In the case of our Neosho, Missouri cable TV operation, we are finding an unlimited appetite for local programs, and we are expanding this service in 1968.

In Neosho there is practically no TV coverage of local affairs, local school and government developments, sports, and local talent—except for the cable system's local origination. These events are cover-

ed well by radio, especially during daylight hours, but with a daytime radio station, night programming can only be done by cable TV.

In the area of government regulation, cable TV should be regulated in only the most flexible way, if at all. The basic purpose of government regulation is to insure that all communications are operated in the public interest. Radio and TV stations are granted and provided with licenses on proof that the licensee will operate in the public interest. CATV is being regulated, without legislative authority, but regulated nevertheless, for the purpose of protecting public interest, and to make sure that cable TV fits into a plan of communications for the public good. To insist that a limitation of local origination is a good regulation, promoting the fullest service to the people is most near-sighted.

In the field of TV and radio, FCC policy encourages the fullest use of broadcast facilities. An applicant for a radio station proposing a higher power, covering more people, is favored over one proposing a smaller power and with less coverage. The fullest use of the frequency is desired. Stations are granted wherever consulting engineers can work in the frequencies, regardless of competition. The objective is to provide the people with the most varied, and complete service possible.

In the same manner cable TV facilities should be utilized to the hilt. By providing local programs, cable TV is helping meet the desires and needs of the people, and, almost without exception, operators receive the wholehearted approval of the viewers when they enter this field. The people should have as great a choice as possible. Those who program and promote in a way to attract an audience, will be able to realize a satisfactory following of customers. Those who fail to provide good service, who fail to provide a good selection, with original programming, will fail to attract customers, and the support of local government representatives.

The official FCC position seems to be to throw the highest road block possible in the path of cable system operation—tending to limit, rather than develop, new features, includ-



KBTN Cable TV News Director Bill Ball (center) interviews Congressman Durwood Hall (R) Missouri, while Program Director Dick Keezer holds the mike. The lower photo shows Ball presenting the Neosho news roundup on Neosho Profile, cablecast daily.

ing local origination. This opposing front is rigidly upheld, in spite of the obvious fact that the offering of local programming on cable TV, especially in communities not now receiving such service, is an addition to the public interest programming available to viewers. As such it should have the full blessing of the FCC.

The field of local origination

offers one of the most challenging opportunities cable TV operators have had in the past ten years. It can be the answer to the growth that is needed in most towns. The citizens of Neosho, Blackwell, Parsons, Chanute, Nevada, and Woodward *deserve* local TV coverage just the same as citizens of Topeka, Tulsa, and Kansas City. Yet, without cable TV local origination, local

service for these communities is out of the question. Also, in a period of economic expansion, with a growing population, there will be ample opportunity for all parts of the communication industry to continue to grow. Cable TV can expand along with a growing television station service, as well as AM and FM radio, and the publication media.

We must realize that there is a strong need for local programming in most cable TV towns, and that it is possible and practical for most systems to provide this service. Providing such service should be considered by the FCC and other regulatory bodies as a distinct public service. Providing such service should be a source of additional income to our systems, both through new customers, and through advertising. Many new customers can be attracted by providing something additional that they are interested in receiving something that is not available elsewhere. This something additional is local news, local sports events, local civic affairs, local weather data, local election returns, religious services, local advertising, local interviews, and local events of every kind.

Our industry has moved with fear in this field until recent months. But now it is time to get into local origination with both feet! We should plan programming, purchase equipment, secure personnel, start programming, and commercialize it. Make it pay. This is the way to provide additional service for the public. This is the way to be sure of your market. With local origination, you can better serve your viewers. Cable TV can thus provide a local outlet for every community. It will allow local expression for local talent. It will give your community

a voice. And, advertising can finance the expansion of this public service.

We should do as much of this programming as possible, and we should blow our own horn about it. Promote it—advertise it—send releases to news media. Let your state and local governmental officers know of your work in this field. Let Washington know we are filling the void of local programming in our communities. The more these people know about our efforts, the better support we will have in the many legislative areas that involve the industry.

We consider ourselves amateurs in this local origination business. We are learning. We are making headway, and we are getting a very good response. For instance, on our featurette, a 5-minute part of our Neosho profile each evening, we have interviews set up for days ahead, and residents are *most* interested in getting exposure on this program. Granted, we have only 25% to 30% of the homes on our system, but we have a potential of several thousand viewers on any program.

At Neosho we have undertaken local origination in a simple economy package, but, whether you do it in this way, or in the grand style of a corporate research project, you will be building on a solid foundation for the future of your business. Your cable television service will be regarded as different from regular programming because the public will sense your interest in their local, personal needs.

Audience ratings should never concern you. You'll never approach the broadcasters coverage of the masses. Your audience will be the fragmentary audience interested in

intensely local happenings. It would be a mistake to over look this local appetite, and overconcentration on programming that duplicates broadcasting station fare.

Also, the concept of providing a television advertising service to retail and wholesale businesses in your service area is a fine way to bring in extra income needed to cover a part of your closed circuit expenses. The local merchants *need* such a service and may very well be entitled to it as suggested last year by a Justice Department spokesman. Unlike the weekly or bi-weekly service typical of most small towns and suburbs, your cable is capable of delivering ad impressions seven days a week. The added news value of local retail ads will attract more viewers, too.

The development of a worthwhile closed circuit operation takes time, money and hard work. The moment to begin is *now*. Even if you start in a small way and make mistakes along the way, keep at it with persistence and courage because you're building support under your own ability, not someone else's. As long as CATV depends wholly on the ability and talent of others, it will remain vulnerable. But when we develop to the point where our own ability and talent become a part of community life, we'll get the government support we lack today.

In October of last year *TV Communications* reported a survey of cable TV operators on the subject of local originations. A majority reported some type of local programming. But, very few indicated the sale of advertising. Only 7 percent indicated they make a charge for local advertising on the cable. Income from advertising was reported from a low of \$40 to a high of \$1000 per month. A trend toward much larger incomes from advertising was indicated. A number of operators indicated plans to start selling advertising, and many had questions about what to charge for cable TV advertising.

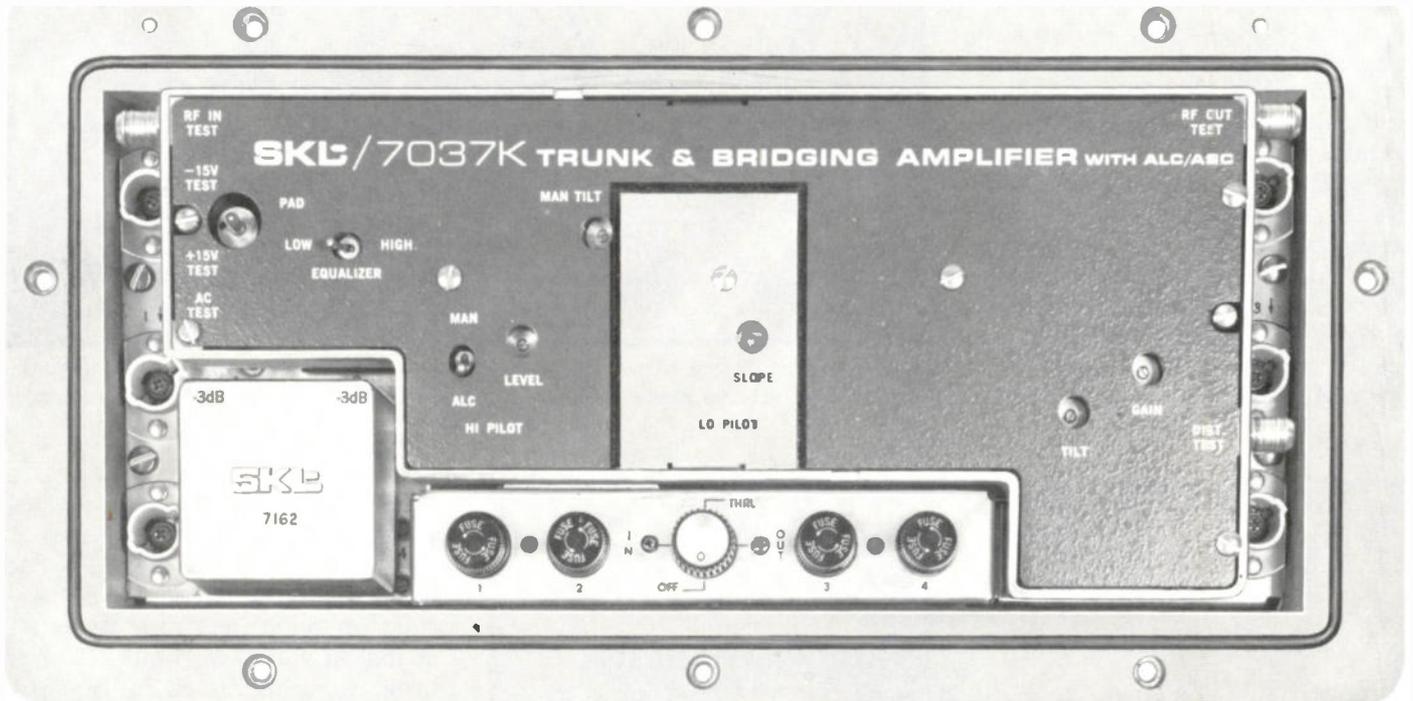
In our pricing of advertising on the cable, we were fortunate, in that we have had the experience of operating radio stations for many years, and have consequently developed a pretty good sense of the



#### ABOUT THE AUTHOR

Galen O. Gilbert is President of KBTN Cable TV, Inc., Neosho, Missouri. In addition to his experience in CATV, he has had extensive training and experience in the radio broadcast field. He was formerly manager of radio station KGER, Long Beach, California, and is now general manager of Community Service Radio Group, which includes 5 AM and 2 FM stations in the Midwest. Gilbert received his radio broadcast training at John Brown University, Siloam Springs, Arkansas, and at Elkins Radio School, Dallas, Texas. The 45-mile system at Neosho passes 3,000 homes and has been in operation since the summer of 1965.

# SKL/7037K FOR CABLE TELEVISION WITH FULLY AUTOMATIC SYSTEM CONTROL



## THE AMPLIFIER FOR ALL SEASONS

SKL/7037K TRUNK AMPLIFIER WITH AUTOMATIC LEVEL AND SLOPE CONTROL AND BRIDGING AMPLIFIER

SKL/7037K ALC/ASC is Cable TV's first solid-state amplifier with TWO-PILOT LINEAR AUTOMATIC LEVEL and SLOPE CONTROL. One pilot at 205.25 MHz controls the flat gain, while the second pilot at 73.5 MHz controls the slope. Over its operating range the SKL/7037K output level remains constant within  $\pm 0.5$  dB for a flat level variation of  $\pm 4$  dB and a slope variation of 3.5 dB.

Equipped with plug-in pads in 0 dB (standard) or 3, 6, 9, and 12 dB (optional) values. Two plug-in dual equalizers are available with equalization (cable equivalent) of 8/17 dB (standard) and 0/12 dB (optional). The high or low equalization is selected by a toggle switch.

The SKL/7037K has a minimum full gain of 25 dB and a bandwidth of 50-220 MHz, flat within  $\pm 0.25$  dB. Low noise and low cross-modulation permit long cascades.

The bridging amplifier has a minimum full gain from trunk output to bridger output of 15 dB, with a 5 dB gain control range, and a  $\pm 4$  dB (cable equivalent) tilt control range. Bandwidth is 50-220 MHz, flat within  $\pm 0.5$  dB.

The bridger output feeds one of the Series 7160 plug-in splitter modules listed below.

Characteristics of Series 7160 Splitters

|      | No. of Lines | Nom. Splitting Loss | Isolation |
|------|--------------|---------------------|-----------|
| 7161 | 1            | 0                   | —         |
| 7162 | 2            | 3.5 dB ea.          | 20 dB     |
| 7163 | 3            | 3.5, 6.5, 6.5 dB    | 20 dB     |
| 7164 | 4            | 6.5 dB ea.          | 20 dB     |

ALSO AVAILABLE WITHOUT BRIDGING AMPLIFIER: SKL/7027 TRUNK AMPLIFIER WITH ALC/ASC (Minimum trunk gain, 26 dB).

# SKL

AT THE NCTA CONVENTION: VISIT OUR BOOTHS 9, 11, 13, 14—AND HOSPITALITY SUITE, GARDNER A & B

**SPENCER-KENNEDY LABORATORIES, INC.**

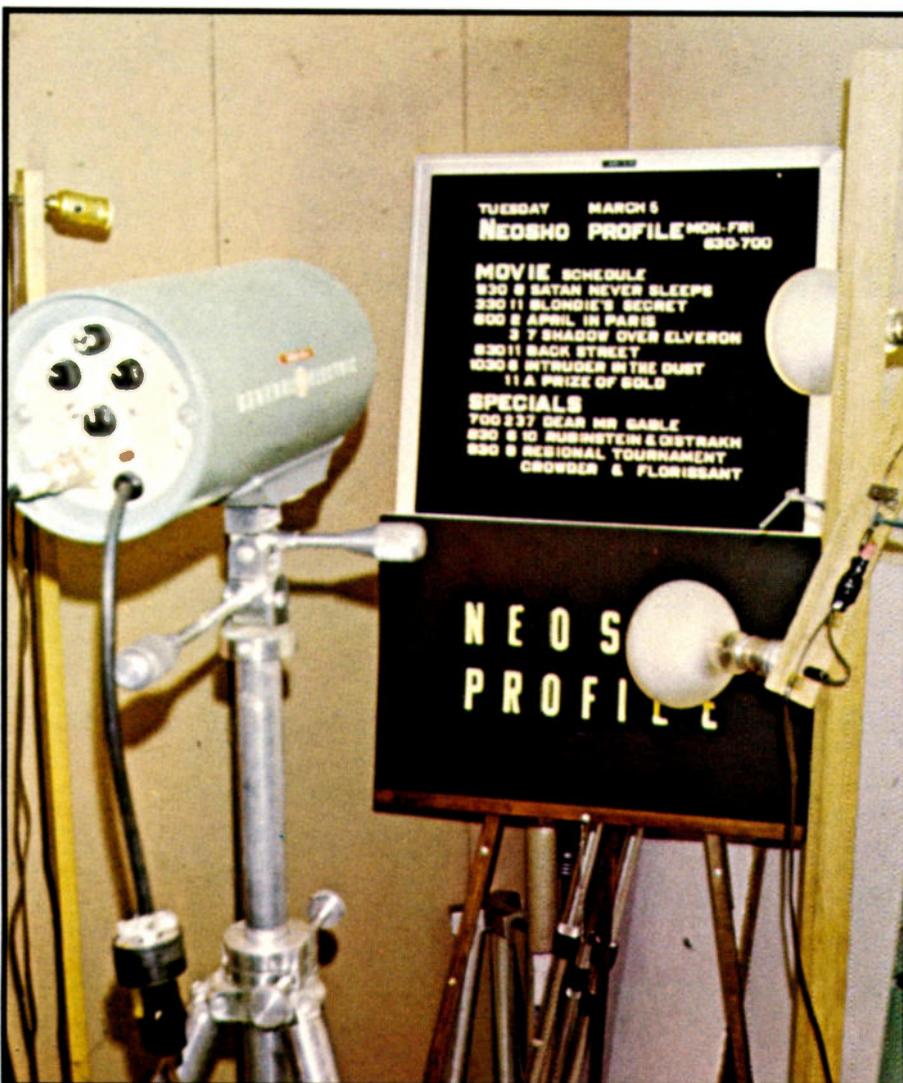
1320 SOLDIERS FIELD ROAD • BOSTON, MASS. 02135 • TEL. 617-254-5400

budget limitations of advertisers. We also made checks of audience viewing of our local programming. We decided to make our cable TV advertising rates about the same as our radio advertising rates on KBTN radio. For instance, a 60-second commercial between programs on our local segment costs \$3.00 per time on a 39 time order.

Several surveys have shown that most of the CATV operators who are not in local origination are planning some type of local TV programming. As Commissioner Lee Loevinger pointed out at last year's NCTA convention, local TV programming is not only an opportunity, it is a *responsibility* as well. Nicholas Johnson, newest member of the FCC, last year made a major speech on CATV. Referring to local origination he said, "I want to sug-



Program Director Dick Keezer interviews Neosho Girl Scouts on occasion of their drive for camping facilities funds. Interviews are an important part of KBTN programming.



This movie schedule board gives movie titles, names of stars and show times for Cable TV movies each day. It is also used for stock market reports and sports scores.

gest to you what I conceive to be your surest form of insurance against technical obsolescence and the antagonism of public authorities. You must turn your attention, as indeed you have begun to do, to program origination . . . The FCC should do everything within its power to encourage the cable industry's interest in program origination. Particularly respecting kinds of programs not now available from networks and local stations."

Color facilities for local origination will be within our reach very soon. Within 12 months, many systems will be able to secure color cameras, color VTR, and associated equipment at prices which will make such equipment a must for local origination. Some of our older CATV systems which have been built, rebuilt, depreciated, improved, and expanded, should now get into the local programming business. Granted, it is a move that you don't have to take. You are successful without it. But, it is a move in the public interest. And, we must operate in the public interest.

What is more logical than a full program of local origination? You can afford it. You have the experience to lead the way in this great movement toward better service. Tool up. Train personnel, and dive in. TVC

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# The Direct Route To CATV Subscriber Sales

**Door-to-door subscriber sales is used increasingly, especially in the larger markets now being wired. Here is a review of direct sales theory and practice which can aid in your sales program's effectiveness.**

*By Don Paynter  
Director of Marketing  
Vancouver Cablevision*

**I**n the field of direct sales, the changes in the last ten years have been nothing short of revolutionary. Direct sales can be defined as the method of getting together the buyer and the product, *not* at an emporium of trade such as a department store, but taking the product or service right to the prospect right in his own home.

This has been one of the most exciting and colorful eras in the history of marketing. Specifically, I am referring to the last 100 years. However, this century by no means marks the beginning of the technique of persuasive sales since, in fact, "direct sales" dates back to Adam and Eve and the proverbial Apple. More recently, Bathsheba used her wiles on David, Cleopatra on Anthony. Salesmanship per se predated Christianity by *at least* 1,000 years, in the form of the original hustler who, under the guise of a respectable medicine man, convinced an ailing cave man that the brew he was pushing, which contained all sorts of unmentionable contents and smelled and tasted quite as bad, would actually make him well. And in this pursuit he apparently succeeded, since the medicine man is most prominently recorded in hieroglyphic annals. These men must have been the first great salesmen.

Now let us advance a few thousand years to approximately 1850, when the early pioneers were just beginning to settle this great continent. The homesteaders were so scattered and remote that many housewives were not able to visit an established trading post because of the great distances. This problem caused the creation of a new wonder in the form of what came to be called a "Drummer." Later, this term was refined to that of the "Traveling Salesman." The Drummer drove a covered wagon, which was decorated by various sized pots and pans. As he approached the homestead, the Drummer pounded on the pots and pans with a large wooden spoon to announce his presence. The lady of the house would then meet him in the farm yard and the transaction of commerce would be performed as he showed his needles, thimbles, yardgoods, kettles and

so on. The Drummer was a welcome stranger and enjoyed the finest hospitality his clients could provide.

Progress, however, was inevitable—more goods and services became available, some of which had quality and value but were simply not easily marketed. These required persuasive selling. Life insurance is perhaps the best example of this kind of product. There is probably not a single man in the cable TV business who does not carry life insurance, *but* there are very few men anywhere who have walked into a store or office to buy it. It was sold to *them* by a *direct salesman*—in their homes—or perhaps their offices—but the point is that they did not go to the salesman to buy it—he had to go to them. And even at that, most of us didn't make it easy for him. He had to work—*he had to sell*. This is direct sales. Today there are all sorts of advanced, refined, sophisticated techniques, but the basics are the same. In direct sales the product or service or information about it is brought *to* the prospective buyer.

The direct sales system is simply the most effective method of moving, or marketing certain specific hard-sell items or services. To the best of my knowledge, prior to 1959 there was no concerted organized sales force of this type in the CATV business anywhere in the United States or Canada. It wasn't necessary, since all systems at that time were built in captive areas. The system was constructed, activated and the office staff got writer's cramp from taking applications while people stood in line.

In 1959, we built a system in urban Vancouver and expected the usual result. Did we ever get a surprise! We had less than 5% response with no prospect of more. The problem was one of education and sales. The answer was professional salesmen. The result is history.

In 1960 I was asked to speak on this very subject at the NCTA Convention in Seattle. Many were surprised when they learned we were paying salesmen intelligent commissions. We were paying \$10.00 a sale at that time—in fact, we still are. They were expecting to buy talent for \$2.00, \$1.00 or even \$.50 a subscriber. Today,



V30

The 30 h.p. trencher that delivers everything you expect from utility and service line equipment, plus a full line of options including backhoe, Roto Witch boring unit, and offset pivot for tight work. You get 4-wheel drive, full hydraulic control, power steering, *uphill ability and side-hill stability*, and trenching up to 24 fpm.

### HANDLEBAR SERIES



Ditch Witch rubber tire mount, selective digging speeds, 7 to 12 h.p. and trenching speeds up to 10 fpm. Here's unmatched economy . . . famous Ditch Witch dependability.

### H12

The first 2-wheel, steerable-drive trencher to dig straight or curves . . . a riding-type unit with superior maneuverability. Has power steering, hydraulic boom, variable crowd control. Optional 12½ or 18 h.p. engine. Trenches up to 12 fpm.



### J20

Teams compact maneuverability with 18 h.p. engine, 3 speed digging chain plus reverse, 4-wheel drive, floating front axle, power steering and hydraulic backfill blade. Trenches up to 18 fpm. Roto Witch boring unit optional.



### R60

Rugged 60 h.p. service and main line unit for trenching up to 36 fpm. Heavy-duty 4-speed transmission standard automatic optional. Features variable crowd control; 4 independent digging chain speeds, plus reverse; hydraulic drive system.



# LAST YEAR, MORE PEOPLE BOUGHT DITCH WITCH THAN ALL OTHERS\* COMBINED

No doubt about it! Ditch Witch is number 1. First in sales . . . first in performance, value and reliability. Ditch Witch out digs, out maneuvers, and out lasts all others. Every model from 7 to 60 h.p. is engineered to deliver more *fpm* for every dollar spent, while a long list of options adds unmatched versatility. It's no wonder that when other trenchers have to pull out . . . *Ditch Witch Lowers The Boom*. Here's why:

- **SELECTIVE DIGGING CHAIN SPEEDS** for greater trenching capacity.
- **MORE MOBILITY** on the job and more speed in moving from site to site.
- **GREATER VISIBILITY.** Why blindfold your operator? Ditch Witch lets him see his work!
- **HIGH FLOTATION, RUBBER-TIRED MOUNTING** for minimum turf damage, greater ground clearance, dependable traction.
- **4-WHEEL GROUND CONTACT.** Even on steep slopes, you get Ditch Witch uphill ability, sidehill stability.
- **A REPUTATION OF EXCELLENCE** . . . more customer acceptance than all comparable trenchers put together!

### DON'T TAKE OUR WORD FOR IT

Ask your Ditch Witch dealer for a competitive demonstration . . . *we can prove it to you!*

\*U. S. Dept. of Commerce Industrial Reports on Construction machinery sales, 2nd Qtr., 1967, Ladder Type Trenchers less than 5,000 lbs.

# DITCH WITCH

each customer is worth \$200 - \$400. Shouldn't the obtaining of that customer be worth \$25.00 or even more?

Nine years ago it was enough to hire a professional salesman (and incidentally this is the key) to provide an increased volume of *solid* sales without the pitfalls and crucifixion that can result from hiring a crook.

Today, with the changing times, we are constantly refining our techniques. It has become necessary to place particular emphasis on the careful screening and selection of the man and then on proper training, with the closest supervision during and after. Nine years ago color TV wasn't an issue—today it is a strong significant feature of the "pitch." FM and stereo are pushed strongly, as is background music. The weather board, too, is new and an important item in the pouch of sales ammunition. We never used display booths before at a local exposition—but we do today, with our professional salesmen dressed in smart, tailored blazers and slacks. We publish a four-color brochure and distribute premiums in the thousands. This is sophisticated evolution—but the backbone of the method is the guy who gets boney knuckles from knocking on doors to get the signature on the application.

### Selection and Training

We have indeed been most fortunate in finding out exactly what was required in the right salesman, and then in knowing where to find him, and lastly in knowing what to do with him once we found him. This may sound easy—but it isn't. In the first place, the man

must have been totally self-supporting in direct sales for at least 5 years, preferably 10. He may have been a book man, selling encyclopedias, or sewing machines or cook ware. *This* is our man—he has knocked on a million doors and is not ashamed of it. *Because* it has already rewarded him handsomely he possesses the assurance and initiative that are so essential. In addition, experience has taught him the most vital aspect of sales—*how to close*. A presentation without a signature has not been closed and is therefore *not a sale*. It is reasonable to say that we are looking more for closers than we are for articulate performers who are salesmen only in their generous evaluation of their own talents.

### The Pool Is Drying Up

We have, however, an immense problem at this time. They don't make men like this any more, and the well is running dry. These are the men who were earning \$15,000 to \$20,000 per year during the hungry 30's. Many of our men are in their 50's—some even older. It is a shame to see the passing of these pioneers.

The "Changing Times in Direct Sales" has been directly affected by the fact that the merchandising of products such as cookware, which used to be done by a mass invitation to a waterless cookware dinner in a private home, is now done over the counter in retail outlets. Sewing machines, which at one time were peddled door-to-door and demonstrated in the home, are now advertised extensively by the selling company on TV and demonstrated in smartly appointed air-conditioned stores.

Today, a book salesman doesn't knock on your door as he did a few years ago. But, even if you live in the most remote rural area, a salesman will arrive—providing you have already indicated your interest by filling out a coupon that is featured in a current expensive magazine such as *Time*, *Life*, *The Post*, etc.

Peculiarly enough, our industry is one of the few remaining places where the direct salesman can find himself a comfortable niche, such as those that previously existed with the foregoing merchandise.

Even so, we too are developing constantly, striving to come up with methods and techniques that will persuade those stubborn holdouts to subscribe to our service. We spend thousands of dollars renting, furnishing and staffing booths at National Exhibitions and Home Shows. We provide premiums in the form of give-a-ways such as matches, ball point pens, key rings, and shopping bags. We spend thousands on billboard advertising, bus cards, bench ads, brochures, and radio advertising—anything that will create an awareness—a primary requisite in creating desire.

The purpose of creating awareness is, as Stan McKelvie, manager of Victoria (B.C.) Cablevision, says, to "warm up the door knob" for the salesman. But, it is absolutely pointless to warm up that door knob if no salesman will be there. In every system in the country there are thousands of potential subscribers who have simply been sitting there, fully intending to subscribe, but have just not been able to get around to it—so give them a chance! People are funny—they just love to be sold, and we like nothing better than to keep them happy by selling them.



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- "TURNKEY" CONSTRUCTION OF HEAD END SYSTEMS

"Last year Beaver representatives, travelled 150,000 miles serving the North American Continent."

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# **FORT WORTH TOWER CO.**

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LEADER  
IN CATV  
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Fort Worth Tower Co. offers a complete array of support equipment, including head-end buildings, microwave reflectors, equipment lifts, and many other related items. You get maximum performance with a perfect match of equipment and accessories.

***Mobilt* HEAD-END  
BUILDINGS**

Designed expressly to house CATV and microwave electronic equipment, Fort Worth Mobilt Head-End Buildings withstand any climate or location problem . . . house electronic equipment according to the most rigid standards. Your building comes with supporting I-beams. Simply drop on your site, connect the service inlet, and you're in business. Mobilts save you time and money because complete wiring is installed at the factory. Many options are available in size, outside finish, wiring and ventilation. You'll find a Mobilt exactly suited to your needs . . . at an economical price. Write us for full information on all Fort Worth quality CATV products.

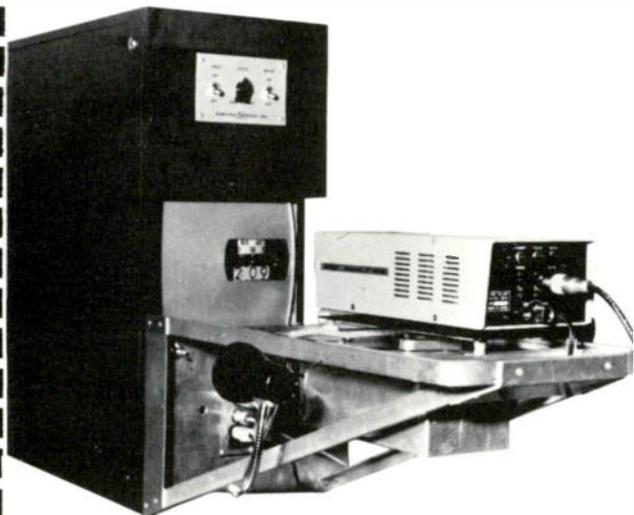
**SEE US AT NCTA! BOOTHS 185-186**



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Your secretary can type local news flashes . . .  
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Mark V Public Service Drum is planned for easy  
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For Details write:

Electra-Tronics Automated TV Prod. Div.  
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I want info. on New Mark V  Stock Ticker

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Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Phone \_\_\_\_\_

## Commission Structure

Once you've found and trained the right man, how do you pay him? First of all, we must realize that any employee *must* make livable earnings or he will leave, like a gypsy. At the same time we have to realize that most people, including good salesmen, are basically lazy, and need incentives to move them to top performance. Therefore, the logical method of payment is straight commission. But don't be niggardly; pay your salesmen well, because each additional net subscriber has a very definite substantial value to you as the operator.

Women sales people are not the proper instrument for presenting a technical service. We have only recently tried them again in Montreal and again it failed to work. Even at best, women sales people are effective for a maximum of from four to six weeks on a shotgun basis and then in the environs of their own home town. To get sales people who will stay with you permanently, you have to get professional salesmen.

## Pre-Sell

We lean very strongly on a selling program that we refer to as "pre-sell." For example, when we are expanding into a new area involving several thousand or even a few hundred homes, we will conduct a thorough and complete campaign of calling on each and every home—even if it requires twenty call-backs to find the people home, in order to get a decision.

The technique used is very simple—we merely advise the householder that we are conducting a survey in order to determine the amount of support we can anticipate *if* we were to make the cable service available on the street at this time, and we ask for a YES or NO answer. In the case of an affirmative reply, we fill out a tentative application and accept a check for the installation. The home owner is notified that we have to have a certain percentage of customers to justify this expansion and, that if this support is not forthcoming, certain streets will be deleted from the expansion.

The beauty of this is that it gets an instant decision from the "fence sitter." He is also advised that if we elect not to proceed with the plant, his application will be destroyed and his check or cash returned to him within sixty days. This is how simple it is and it works beautifully. The last two areas we have completed in Vancouver in the past few months, produced 54% and 57% respectively, in spite of the fact that they were excellent rooftop reception areas.

But how about outlying rural areas that have not had the benefit of our advertising campaign? I have three recent examples of this in British Columbia. Last year we undertook what, in effect, was a turnkey operation for the city of Abbotsford. This was a very small plant, passing approximately 1300 homes. We were forced to undertake the pre-sell in the month of August, when the temperature consistently hovered around 100 degrees and we had to face a strong ethnic element of Mennonites, whose religion prohibited TV viewing. Nevertheless, we were able to produce 26%!

After a successful blitz, there is little if any voluntary sales volume acquired in the following 12-month

period. In other words, the first year's potential subscribers are completely bled on the first go around.

The second example is the town of Haney in the Fraser Valley where the plant passes approximately 1100 homes and where we were not confronted with the sales problems of Abbotsford. Here we were able to produce 54%.

The third example is the system in Ladysmith, B.C., where we achieved 45%. In Ladysmith we used a pre-sell letter (which, incidentally, has been re-written and refined about 15 times so that we now feel that it is the best possible piece of informative literature). After sending the letter, we used newspaper advertising in which we *never* quoted the installation charge and monthly rate. Also the newspapers invariably provided us with additional editorial content in the form of news stories (coverage which has a distinct advantage of being free). Whenever a local radio station is available this is also used by making arrangements to be interviewed on a hot line program. This is ideal, and can invariably be arranged with little difficulty.

This is our pre-sell technique. There is no secret to it. It is just the practical application of a proven method.

### Results

The remarkable aspect of our sales operation is our total lack of employee turnover. The average direct sales force will replace itself 100%—3 times a year! It is remarkable that we have been able to keep the same men with us for such a long period of time. The key to this is in the initial selection of the man, and in the fact that we keep him working continuously and earning a livable income.

What has the practical application of this method done for us? Well—today, our Vancouver system is the largest in the world by a very comfortable margin, with 75,000 subscribers. Montreal is running 45,000 and Victoria about 30,000, not to mention Quebec City with 6,000. Toronto is still in its very early growth. These methods have also proven effective in smaller systems.

There are undoubtedly many potential subscribers or prospects in your community who are just waiting to be sold. Applying a direct salesman to this problem is not a complete panacea but its a large part of the solution. Try it. TVC

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- For a key employee?
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Emergencies are as routine to us as to police and firemen. A dozen times a day we take collect calls for immediate delivery of every conceivable CATV equipment item . . . saving you Western CATV operators the need to stock anything more than you use today . . . saving you the slightest operating delay for lack of a part.

## OVERNIGHT DELIVERY SERVICE

The \$300,000 stock in our two West Coast warehouses contains every most-needed CATV operation part . . . all lab-tested, professionally pre-evaluated . . . and mere hours from your door. So keep those numbers handy . . .

## CALL COLLECT

Ed Foust                      Royce Busey                      Greg Anderson



SEATTLE                      SEATTLE                      SAN RAFAEL  
(206) 325-6662                      (206) 325-6662                      (415) 479-5910

**CATV EQUIPMENT  
COMPANY**

1422 34TH AVENUE, SEATTLE, WASHINGTON  
150 MITCHELL BLVD., SAN RAFAEL, CALIFORNIA

# A Cable System Planned And Built For The Future

The cable system now being completed in Colorado Springs is, without question, one of the most advanced installations to date. The physical plant and management concepts behind it are all focused on the future.

“We’ve concentrated our most determined efforts in Colorado Springs. We’ve put an information center on the number one traffic corner downtown, with a small theater where potential subscribers can see and hear the cable TV story, and have a staff of pretty

girls to answer specific questions. We’ve built a service center out north of the city, and staffed it with qualified technicians, who have the finest electronic equipment and twenty-two brand-new service vehicles at their disposal.

“And by mid-summer, we will

have placed more than four hundred miles of coaxial cable, employing twenty-channel equipment, which will make up the world’s largest underground cable TV system.”

These are the words of Bill Daniels, president of Denver-based Daniels & Associates, Inc., CATV



The information center features a reception desk, graced by pretty hostesses in especially designed costumes. The bank of television sets on the wall is used to demonstrate the channels to be offered to CATV subscribers.



multiple system owner and well-known consultant and management firm. He was speaking of a system which, in many areas, will serve as a guide for systems of the future: Colorado Springs, Colo., a resort and aero-space industrial city 67 miles south of Denver.

Already operating more than 30 cable TV systems in the United States, during the past few months Daniels-affiliated companies have been granted permits to provide service to several communities in Colorado. More than two-thirds of the permits are in the metropolitan area of Denver, which is blanketed by grade A signals from three network affiliates, one independent and an ETV station. Many of the franchises were acquired by combining efforts with Vumore Company, Oklahoma City, Okla., another CATV MSO, and a subsidiary of General Tire & Rubber Co.

Colorado Springs is perhaps the

Bill Daniels, president of Daniels and Associates, Inc., and head of Cablevision in Colorado Springs, is shown at left with hostesses, service personnel and the fleet of service vehicles used in the operation. In the background is snow-capped Pikes Peak.

most desirable franchise of all. Vumore Video Corp. of Colorado, Inc.—known in Colorado Springs as “Cablevision”—was granted a permit by the city council in August, 1967, to furnish cable TV service to the city’s some 100,000 residents. Cablevision shareholders include Vumore Company, Daniels & Associates, and a group of Colorado Springs businessmen. Bill Daniels is its president, and Bob Clark, president of Vumore Company serves as its vice president.

Cablevision began construction of the underground system in October, 1967, with August, 1968 as the target date for completion. (At the time of this writing, it is estimated that the system will be completed at least a month earlier.) Its channel offering includes all five Denver television stations, two Colorado Springs stations, KKTV (CBS), KRDO-TV (ABC) and Pueblo, Colo. station KOAA-TV (NBC). The system also offers a 24-hour weather channel and a 24-hour Associated Press news channel, as well as eleven regional FM radio stations, five of which broadcast in stereo.

An “extra” on the system will allow authorized police, fire, Civil Defense and North American Air Defense Command (NORAD) personnel to interrupt all channel traffic in the event an emergency warrants the action.

Additionally, Cablevision will provide free service to the city’s thirty elementary, seven junior high and three high schools, and has set aside three channels on the cable for an exclusive, all-school closed-circuit system to be used in conjunction with the school board’s own new studios. Jack Prince, director of audio-visual services for Colorado School District 11, estimates the latter service represents at least \$150,000 a year savings to the district.

Eugene McCleary, mayor of Colorado Springs, in commenting on the city council’s selection of Cablevision over the other applicants, said “I feel the members of the council simply arrived at a common-sense decision. There was a choice of three fine, very impressive applicants, and it was a matter of checking credentials. We were interested in qualifications and experience in cable TV, what each applicant offered the city of Colorado Springs and how, over the long haul, the people would most benefit.” The mayor added that Cablevision’s bid to go underground with the system carried considerable weight with the council. “We are proud of our beautiful city,” he said, “and we hope the day is not too far off when all utility lines can go underground.”

Regarding the rationale for expensive underground plant, Vumore president Bob Clark stated,

# ***TV Communications***

**SPECIAL EMPHASIS ISSUES/1968**

1968 will be an exciting year for cable operators. The industry has reached new peaks in size and technological advancement. As in the past, **TV Communications** will continue to give in-depth coverage to this dynamic growth. To make **TVR** more useful to you, we are continuing our series of special issues on key CATV topics. Here's the line-up for 1968 . . . we hope you enjoy it

- March \_\_\_\_\_ **DIRECTORY OF CATV SYSTEMS & NATIONAL ATLAS\***
- April \_\_\_\_\_ **Spring Construction Edition**
- June \_\_\_\_\_ **Annual Pre-Convention Edition**
- July \_\_\_\_\_ **NCTA Annual Convention Edition (June 30-July 3, Boston)**  
**NCTA CONVENTION REVIEW\*\***
- August \_\_\_\_\_ **Annual NCTA Convention Coverage Edition**  
**NCTA CONVENTION SOUVENIR PHOTO ALBUM\***
- September \_\_\_\_\_ **Fall Construction Edition**
- October \_\_\_\_\_ **Special Emphasis: Local Program Origination**
- November \_\_\_\_\_ **Special Emphasis: Microwave, Antennas, & Towers**
- December \_\_\_\_\_ **Special Emphasis: System Financing and Promotion**
- January 1969 \_\_\_\_\_ **DIRECTORY OF CATV EQUIPMENT, SERVICES & MANUFACTURERS\***

\* Separate Publication (TV Communications space rates apply)

\*\* Published Daily at NCTA Convention (3 issues - rate sheet available upon request)

Watch for these outstanding publications covering special CATV events and topics. You'll see reporting at its finest, designed to help you and your industry. And . . . it will come from the publishers of **TV Communications** . . . the only journal devoted exclusively to the dynamic cable television industry.

## ***TV Communications***

**207 Northeast 38th Street**

**Oklahoma City, Oklahoma 73105**

# Sealmetic<sup>®</sup>: The Great Uncompromiser in CATV cable



Wouldn't it be great if you could get your hands on a CATV coaxial cable that wasn't a compromise?

That would mean it would have to be strong. It would have to be flexible. It would have to give you years of moisture and humidity protection, and it would have to offer fast, economical installation.

You've got it in hand with patented Anaconda Sealmetic CATV coaxial cable.

Of course we protect this cable with an aluminum shield. But it's a flexible one. However, we aren't about to leave the aluminum naked and exposed to moisture. We bond a special copolymer to the outside of the aluminum, which in turn adheres to the jacket. Exactly where it should all be to fight off moisture for years.

So you have a cable with the double protection of an aluminum sheath and a copolymer bonded to it. But Sealmetic will still go around some very sharp bends. The entire jacket takes the corners without kinking or deforming. That's why it's such a natural for fast and easy installation aerially, in duct or by direct burial.

All this makes Sealmetic very easy to work with.

With Sealmetic you also get electrical excellence, signal integrity and low attenuation.

Available with all the connectors you'll ever need.

For further information call or write Anaconda Wire and Cable Company, 605 Third Avenue, New York, New York 10016, or Anaconda Electronics Company, 1430 South Anaheim Boulevard, Anaheim, California 92803.

**Ask the man  
from Anaconda  
about Sealmetic  
Coaxial Cable**





Cablevision downtown "information center" occupies one of the busiest downtown street corners in the city. The ground floor of the Cheyenne Hotel was remodeled to express the traditional design of the building itself and the progressive personality of the CATV firm.

"Initially, we could have saved a lot of money by putting the system on poles in the Springs. But we all know the future of cable TV—as is the future of all wire traffic to a community—is in underground installation." Daniels adds, "Our firm is new in the community. We have everyone looking at us. It's just good public relations for us to do our part in helping to preserve and nurture aesthetic values. It has long been my contention that this is the way to install a cable system: a smooth, clean, efficient operation which can't possibly do anything but make friends. Also, there are many practical reasons for going underground. The cable is less liable to damage, and is not exposed to the elements and temperature fluctuations and, consequently, will require less maintenance.

"More important," he says, "we have complete control of our system, which is not true of pole-rental or lease-back operations. And we don't have all the pole re-arrangement costs, pole-rental costs and costly delays. We have been able to put more than sixteen miles of

cable underground every week in the Springs, consistently and without a hitch!"

Douglas Jardine, Inc. is prime contractor in placing the cable. The firm assigned eight separate crews to the project; a total of 119 men. It also put into service eight Model 300 Davis trenchers, eight Racine Rapak compactors, two modified 60hp Concut saws and two 18hp Concut saws, as well as an assortment of jackhammers, drills and other equipment.

The trenches are 5' wide and 24" deep, and are put into alleys where possible. When alleys are not available, the trenches are put between curbs and sidewalks (parkways) in the city's easement. Davis Hydra-Borers are used for tunneling under driveways, sidewalks and curb pans.

The cable goes down immediately behind the trenchers, and refilling takes place immediately. (No trenches are left open overnight). Where lawns are disturbed, the crews reseed and spread fertilizer. The city's street department has crews assigned to follow the cable-planting

crews to replace and patch asphalt. Such work is billed to the contractor, who himself is responsible for replacing all crushed rock and concrete.

Leads (in conduit) from the cable to subscribers' homes are also put underground. Using a trencher known as the "Pipe Piper," the crews cut knife-slit trenches and the Pipe Piper, doing double duty, pulls the leads behind it into the cuts. With a minimum of tamping, the cuts are indistinguishable.

Essentially, the only hardware above ground are feeder pedestals, amplifier housings and power supplies. On all parkways, Cablevision equipment, already protected by fiberglass housing, is additionally protected by concrete vaults, flush with the ground. James McPheeters, superintendent of the city's street department, said the entire project is well organized, and that there has been complete cooperation between Cablevision personnel, the contractor, public utilities and the city.

"In addition to regular city crews assigned to the job, I have what I call my 'light-footed crew,' to take

care of emergencies in a hurry. And we have regularly scheduled conferences, attended by members of the street department, Cablevision management, the contractor, and representatives of the public utilities to look at what we have done, what we are doing, and what we plan to do," he said. "We have had very few complaints from the people. The whole thing has gone very smoothly." McPheeter did admit, however, that one irate woman phoned him and threatened not to vote for him again. Even though his is an appointive office, he drove out to see the lady and managed to soothe her feelings.

Another woman of some years held one of the contractor's crews at bay with a broom for a period of time, insisting the crew had no right to dig up her property. Wayne Meur, who handles public relations for the Jardine firm, quickly arrived on the scene and succeeded in convincing the lady that the strip of lawn between the street and sidewalk—although maintained by her—actually belonged to the city.

Director of advertising and public relations for Cablevision is Tom Johnson, who says, "Of those people who have come into the information center with complaints, 75 percent eventually subscribed to the service." Johnson, who in the past 5 years has taken part in advertising and promotion for more than 150 systems in 30 states, went on to say, "I was concerned about people's reaction to underground construction. Unless you're fully aware of what's going on, it can be quite a shock to look out your window and see a crew of men and machines digging up your lawn and tunneling under your driveway. "But the contractor's crews and the city crews did such a great job of leaving everything just as they found it, you could sense, after a short time, that the people were accepting us as being honest and sincere with them, and that we were doing a good job. The crews are working close to the homes, with all trucks and trailers bearing Cablevision identification, "Here Comes Cablevision," consequently, the sales program has been given added impetus; more than would have been gained from an overhead system.

"An underground system quickly gains the public's interest, because of all the activity in several neighborhoods at one time. If the job is well done, with a minimum of inconvenience, you also gain the public goodwill—an invaluable aid to sales," he said.

Cablevision's advertising and

promotion of the system actually did not begin until the downtown information center and the service center were completed, which was in early November. The information center, formerly the ground floor of the Cheyenne Hotel, occupies one of the busiest downtown street corners in the city. The leased space



A Cablevision hostess welcomes visitors to the small theater in the information center. A 10-minute sound-film presentation which explains cable TV, and what it will mean to the city is shown here.



Cablevision hostesses, who make a number of club and public appearances, show two additional "advertisements" for the system: one of 30 residential bus-stop benches, and a city bus which has been completely repainted with Cablevision information.

was completely remodeled, inside and out, by Alexander DuHay, an associate of J. Marshall Morin Interiors, Colorado Springs. DuHay chose to maintain the traditional design of the old hotel itself by using vertical-ribbed redwood panels on the exterior of the center, combined with authentic gaslight fixtures in contemporary styling. He retained the existing glass space on the two sides of the building, so they could be utilized for dramatic showcase displays of what Cablevision was bringing to the city in the form of programming, information and services.

He carried the traditional feeling into the reception room of the center, through the use of cork wall covering and beige, brown and white floor covering. The furnishings, complete with hanging lamps, include a reception desk and lounge chairs, which are contemporary, and yet in keeping with the decor. On the wall behind the reception desk is mounted a bank of television sets, representing the channels which will be on the cable. On another wall is mounted a television camera, in closed-circuit with a desk monitor, which allows visitors to see themselves on the screen. Two floor monitors are screening local weather and Associated Press news.

Fred McElroy, Cablevision's general manager, and regional manager for a number of Vumore Company systems, maintains his office at the information center. He says it is a rather common practice for businessmen and office personnel in the area to come into the information center on their lunch-hour and stand around the monitor.

Other visitors to the information center are greeted by Cablevision's staff of pretty girls, who are wearing dresses especially designed for them by a New York designer. (The dresses are silk, imprinted with near-psychedelic designs in chartreuse, magenta and royal blue. The girls also wear knee-high boots of the latest fashion). The hostesses dispense Cablevision brochures—16 pages, including a double fold-out and a subscription blank, printed in full color—entitled, "*Cablevision . . . something to get excited about!*" which explains cable TV and what it means to Colorado Springs.

The visitors are then ushered into the air-conditioned Cablevision theater, which comfortably seats a dozen persons. After brief welcoming remarks by a hostess, a mention again of the brochure and its subscription blank, the hostess pushes a button which begins an automatic series of events:

The drapes at the front of the theater open to reveal a large screen. The theater lights are dimmed. Two Carousel slide projectors, activated by a pulse on the sound-tape unit, begin a 10-minute color presentation of the advantages of cable TV to Colorado Springs. The slide projectors, operating in tandem, are synchronized for lap-dissolves. This eliminates flashes of light and fram shadows on the screen. The tape cartridges used for the audio portion of the presentation are multi-dub recordings, complete with voice, music emphasis and sound effects.

Once the presentation is completed, the theater lights go up, the drapes close and the projectors reset themselves for the next showing. According to McElroy, 80 percent of the people who see the presentation sign up for cable service before they leave the building. (A duplicate of the presentation, employing a portable projector-viewer unit, is used by Cablevision's hostesses at club and business-group luncheons.)

Cablevision's service center, presided over by Bill Ross, vice president in charge of engineering, and George Milner, Vumore Company's chief engineer assigned to the Colorado Springs project, is a remodeled warehouse on the north edge of the city. The center presently employs 27 persons, including office and technical help. In addition to housing all cable and power and amplification hardware used in the system, the complex includes offices, a layout room, a map room, and a test lab where cable and equipment used in the installation is analyzed.

Cablevision's twenty-two air-conditioned, 2-way radio equipped service vehicles, vans, pickups, station wagons and one Scout—are painted a striking metallic gold. The Cablevision emblem, painted in red and peacock blue on a white field, is prominent on all vehicles.

Service personnel wear distinctive blue jump-suits, complete with the Cablevision emblem.

Cablevision has purchased land and is in the process of building a permanent home for its Colorado Springs operation. To be known as the Cablevision Communication Center, it will house all office and technical service functions. Head-end facilities have already been constructed on the site.

Despite continuing opposition by Colorado Springs, Pueblo and Denver broadcasters, as well as the National Association of Broadcasters, Cablevision will, upon completion of the system, have invested more than \$3 million in the project. (The Federal Communications Commission made a ruling on the cable TV service in favor of Cablevision in mid-April of this year. The matter is being continued, however, with subsequent protest filings.)

Cablevision management feels the investment is proper and justified; pointing to the fact that the system has been well received in Colorado Springs, and that it also serves as a standard-bearer for all the firm's systems on Colorado's Eastern Slope. (Cablevision's entire facilities in Colorado Springs were given close scrutiny in mid-June by municipal officials from all over the state, who met in the city for the 46th Annual Conference of the Colorado Municipal League. Cablevision held open-house—and provided a bus for delegates to tour its system and facilities).

Johnson said the only concentrated advertising that has been done in the area was during a period between November of last year and February of this year. "Naturally, our information center, the girls, the theater, our service center trucks and personnel, all are constantly advertising Cablevision. All the equipment that is out in the neighborhoods placing cable bears our identification. And we have thirty bus-stop benches throughout the residential areas which carry our advertising, as well as one city bus which was completely repainted as a mobile advertisement for Cablevision, and it is on a different route every day, which gives us a lot of exposure." Johnson said he believes the bench advertisements

# BC-6 and BC-59\*

## 30 db house-drop cables that take a whipping.

Amphenol wraps solid aluminum around the dielectric and bonds it to the jacket. You get a house-drop cable with:

- (1) 30 db structural return loss and 1.065 VSWR
- (2) 100% shielding that shares flexing stresses with the polyethylene jacket without fracturing
- (3) 90 db isolation
- (4) 35% lighter weight
- (5) Complete moisture-proof seal.

Choose the house-drop cable that suits your CATV system needs best.

\*Amphenol Bonded Cable

|       | Attenuation (db/ft.) nom. |              | V.P. NOM. |
|-------|---------------------------|--------------|-----------|
| BC-59 | 2.35 (Ch. 6)              | 4.5 (Ch. 13) | 67%       |
| BC-6  | 1.75 (Ch. 6)              | 3.8 (Ch. 13) | 79%       |

For a demonstration, call or write Jack Aylward, Amphenol Cable Division, 6235 S. Harlem Ave., Chicago, Illinois 60638. (312) 586-3000



### AMPHENOL

Specify Amphenol electronic components . . . produced in Canada, England, France, Japan, Mexico, United States, West Germany.

limits during December. Direct mail equipment is housed at Cablevision's information center, and mailings to subscribers and non-subscribers (progress reports, etc.) have been greatly facilitated by the effort that has gone into compiling accurate address-plate files. The brochures also are carried in colorful display units which have been made for the city's some 100 TV dealers.

"We haven't done a lot of advertising since the middle of February," Johnson says, "because the response was so terrific. However, we did run a short series of commercials on the Pueblo television station, which covers the Springs area with a grade A signal. And the crews that are out making installations to the homes are leaving doorknob-hangers on nearby non-subscribers homes, which say, in effect, 'Your neighbor, Mrs. Jones has subscribed to cable television and will soon be receiving Cablevision.' The idea is to get the non-subscribers to discuss cable TV with the subscribers."

An all-out campaign is planned to coincide with the introduction of signals over the cable. Additionally,

are much more effective, because of their neighborhood locations, and are much less expensive than billboards.

Johnson began the advertising campaign with 2-color double-truck ads in both of the city's newspapers and a 2-page spread in TV Guide. During the first half of December, several small ads appeared in both papers, and just prior to Christmas 2-color full pages were used in each paper on three different occasions. Johnson emphasized that from the time of the granting of the permit for the system, there have been "reams of free advertising, in the form of news stories, and interviews on radio—both Bob Clark and Bill Daniels participated in interviews, and had a very lively debate with a couple of TV broadcasters."

In early December, a schedule was set which averaged ten commercial announcements on four radio stations each day until the first of February. The 4-color brochure, "*Cablevision . . . something to get excited about!*" also went out to the 30,000 homes in the city

both newspapers have offered the covers of their weekend supplements—one in 4-color, the other in 2-color—plus inside articles entitled, "Cablevision comes to Colorado Springs."

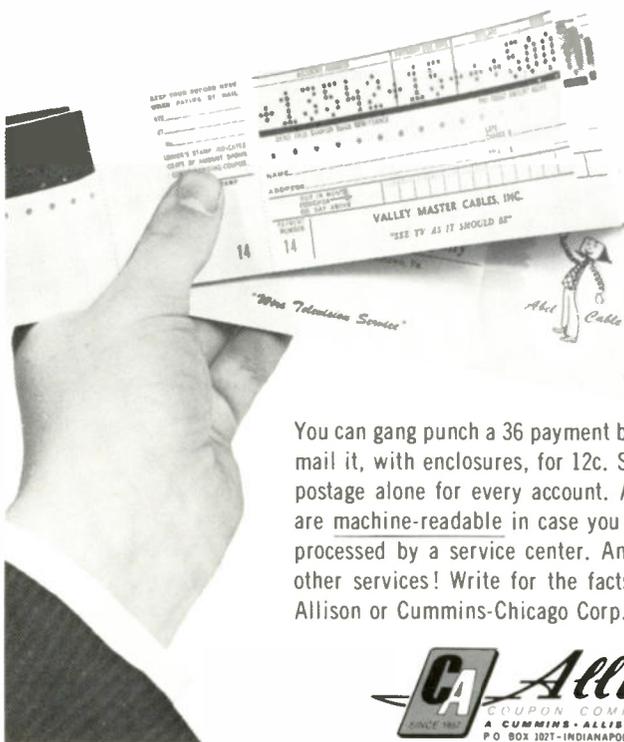
An especially designed trailer unit, one side of which opens up to display a bank of color TV sets under a colorful awning, will be constantly moving to appropriate locations, such as shopping centers, TV dealer-promotions, sporting events and the like. The Cablevision girls will accompany the unit and distribute promotional material, as well as operate the same audio-visual presentation used before various clubs and groups. "We should get a lot of response to the trailer unit," Johnson says. "The people can see all the signals on the system, learn from the presentation what it's all about, and sign up right on the spot if they wish."

He emphasized that the concept of promotion of the Colorado Springs system has been, and will continue to be, based on audio-visual sell. "All the things we've built, designed or have going for us in the Springs, including the personnel, are part of an effort to project an image, and one which we can all be proud of. Our sales messages are all audio-visual—before the various groups, in the Cablevision theater, on the trailer unit and, soon, in door-to-door campaigns." Johnson said the door-to-door campaigns will begin soon after signals are available, but that the campaign won't begin until cable service can actually be offered.

Bob Clark, commenting on the procedures followed in dealing with all segments of the public, says, "We've tried to put into use in Colorado Springs all the do's and don't's we've learned in the operation of other systems. We've made an effort to present ourselves as good neighbors in the community. We have one of the finest installations in the country, which will serve as a guide in all our future projects."

Vumore Video Corporation of Colorado, Inc. has run into a lot of opposition, but not unexpectedly. While it has been one of the most controversial CATV systems in the nation, it is also destined to become one of the most exceptional. TVC

## Bill 3 year's service for 12¢ postage by using coupons



You can gang punch a 36 payment book in less than a minute, mail it, with enclosures, for 12c. Saves over 66c per year in postage alone for every account. And the payment coupons are machine-readable in case you ever want your payments processed by a service center. And the books can promote other services! Write for the facts—or phone your nearest Allison or Cummins-Chicago Corp. office.

**Allison**  
COUPON COMPANY, INC.  
 A CUMMINS-ALLISON COMPANY  
 P. O. BOX 1027 - INDIANAPOLIS, INDIANA 46206



# Be an authority!

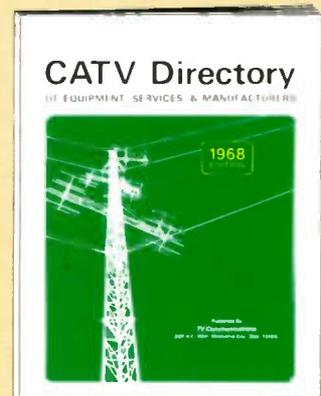
With this ultra-convenient reference book at your elbow, you're an authority.

Instantly available: Complete information on every CATV equipment manufacturer's *entire line* . . . plus hundreds of components, materials, tools, accessories and services required to build and maintain a cable television system. There is only one *CATV Directory of Equipment, Services & Manufacturers*. No other source provides even a fraction of the data included in this big 182 page edition (more than 3,000 products and services). This Directory will be indispensable to you if your job requires a general knowledge of the CATV state-of-the-art. Or specific knowledge of new cable television services . . . equipment manufacturers and the names of their principal administrative and sales executives. For equipment specification or cost estimates this new Directory is *obviously a necessity*.

## Important people (like you) . . .

. . . don't have time to search for data sheets, names, addresses and phone numbers of suppliers. Nor can you afford the days or weeks required to collect needed data by writing to suppliers.

Save your valuable time. Order your personal copy of the 1968 **CATV Directory of Equipment, Services & Manufacturers**. For just \$6.95 you will have facts at your fingertips — when you need them. (Fully indexed for your convenience). And this handsomely bound volume will make an attractive addition to your personal reference bookshelf.



Use the handy Order Card provided on page 133. Order Today!

# Is Your System's Overhead Getting Out Of Hand?

**Although most system managers probably keep pretty close guard on operating expenses, hidden expense items can often account for excessive overhead—and "money-saving" programs often are the worst offenders.**

*By Leonard C. Gregory  
System Manager  
Florida Antennavision, Inc.*

**S**o you're a good cable TV system manager. You wouldn't spend \$5 to save a 50-cent piece . . . or hire someone at \$3.50 per hour to wash your vehicles or clip the grass around the office . . . or pay premium prices for tires simply for the dubious honor of buying out of town . . . *or would you?*

Before you feel too self-righteous about your own ability to stretch a dollar, better look around your operation at some of your practices. If you are an average system manager, there is a good possibility that in some cases you are practicing false economy. And don't get the idea that just because you are a branch manager in a multiple system operation with central purchasing that you should not be concerned. There are a lot of areas in which branch managers control the purse strings.

To cite an example, one system manager was buying gasoline at 5¢ per gallon below regular retail price and was convinced he was getting a real bargain. And his home office was proud of him for saving all that gasoline money. But a closer look revealed that the savings were quite expensive ones. For one thing, the station was some distance away from the office, past a lot of stoplights and busy intersections and in an area where his service vehicles normally never went on calls. On the average it required 30 to 45 minutes for a serviceman to take his truck to the station, get it filled, and return to the office. What did this loss of

manpower and vehicle time cost the system? \$5? \$6? Or more, perhaps? At any rate, it was a costly way of saving only 50¢ on an average fillup of 10 gallons.

In some systems it is standard practice for the servicemen and installers to wash their own vehicles. "It saves us \$1.50 per van, and the men are going to kill a little time anyway in the late afternoons," one system manager said, in justifying this practice. The "little time" turned out to be well over an hour per van by the time the hose was rolled up and all the sponges, brushes and pails put away. Again you lose manpower and vehicle time amounting up to \$10, depending on the price of the employee and how much you figure your vehicle time is worth.

Tires are also big expense items, and to save a few pennies some managers will give all their tire business to out-of-town firms. Rarely taken into consideration are the costs of freight, of mounting and balancing (usually free, except for weights, if done by the dealer), or of the difficulty of getting satisfactory adjustments when a tire fails prematurely. That tire dealer down the street may charge you just a few cents more at the time of sale, but the extra service and the fair adjustments make up the difference.

There is certainly nothing wrong with servicemen "policing" up the premises if they show up at the office with their work completed 15 minutes before quitting time.

But making a regular practice of having your men trim the lawn and clip weeds around the warehouse or head-end is a different matter. That \$3 per hour technician usually pushes a lawnmower no better than a man earning \$1.60 per hour—and in most cases not quite as well. And if you are using your people for routine cleaning of your office, you might want to consider the advantages of a janitorial service, which can usually do the job much better and at much less overall cost.

A terrific amount of money is wasted in many offices on obsolete printed material, much of which is ordered in larger quantities than desirable. How many thousands of outdated sales letters; form letters to customers, letterheads, and even envelopes have you thrown away in recent months? A minor change such as a post office box number can make printed material obsolete in a hurry. If only a three-month supply was printed originally, you are not hurt. But a year's supply—well, that could be quite expensive.

Time is money in an office, too, so check some of those money-saving ideas of yours to see if they are costing more in time than they are worth. In some cable offices, rubber stamps are used to imprint the return address on late notice envelopes. On 25 or 30 envelopes the time spent is a trifling matter. But figure the time it would take to do 500, and you will be calling your printer. He can do a much better looking job for less money.

**COLORVUE**

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*Be Ready for  
Super-Band<sup>TM</sup>  
CATV*

... WITH **COLORVUE**

Now you can be ready for all the channels you'll need . . . with AEL's new 50 to 270MHz bandwidth CATV equipment.

Here's the line with the widest bandwidth available . . . in Trunk Line Amplifiers, Intermediate Bridging/Line Terminating Amplifiers, Trunk Extender Amplifiers . . . in fact, all the amplification, distribution and conversion equipment you require for more-than-twelve channel operation.

**50 to 270MHz BANDWIDTH!**

This complete line, including a full Turnkey capability, is the result of AEL's engineering leadership, and brings you the same studio-quality color signals, the same high reliability and stability, plug-in modularity and other outstanding features . . . including the Siemens-Halske surge arrester . . . as in Colorvue's 50 to 220MHz equipment.

*LOOK FOR THIS REVOLUTIONARY NEW EQUIPMENT  
AT THE NCTA SHOW COLORVUE BOOTHS 83-85!*



CATV DIVISION

**American Electronic Laboratories, Inc.**

RICHARDSON ROAD, COLMAR, PA. • Phone: 215-822-2929 • TWX: 510-661-4976  
Correspondence: Post Office Box 552, Lansdale, Pennsylvania 19446

A mail clerk in one cable office saved all the incoming 5x7 and larger manila envelopes. These were opened carefully, labels were patiently torn off, postal markings were scratched over with a black felt pen, and they were placed under a book to keep them flat. Then they were used for outgoing mail, but of course only after the flap was taped up along with any small rips. It saved money, it was argued, even if it was messy.

The cost of manila envelopes is simply not enough to justify this practice. If you only pay an office girl \$1.80 per hour, that figures out 3¢ per minute. It takes only a few minutes to run the cost of saving that dirty, wrinkled envelope to far more than the price of a new one. Not only that, you do nothing to improve your system's image by sending such an envelope to anyone.

By far the easiest way to spend money foolishly is to get in the habit of saying yes to every advertising salesman that comes along. It is amazing how many managers do an excellent job of buying equipment—getting more than

their money's worth in amplifiers, cable, pole hardware, connectors—then throw away the savings in worthless advertising.

Here we are not discussing the merits of newspaper advertising as opposed to radio, direct mail, or billboards. And we are not talking about the necessary advertising that goes along with being a part of the community, such as in school annuals, football programs, and the like. What we are talking about is saying yes to every special interest or ethnic group with a publication within 1,000 miles. It couldn't happen? Don't believe that. Here are actual examples:

—One system with a single railroad serving the community advertised at times in a regional railroad journal published 300 miles away in another state.

—Another system advertisement was spotted in a newspaper published 300 miles from its service area.

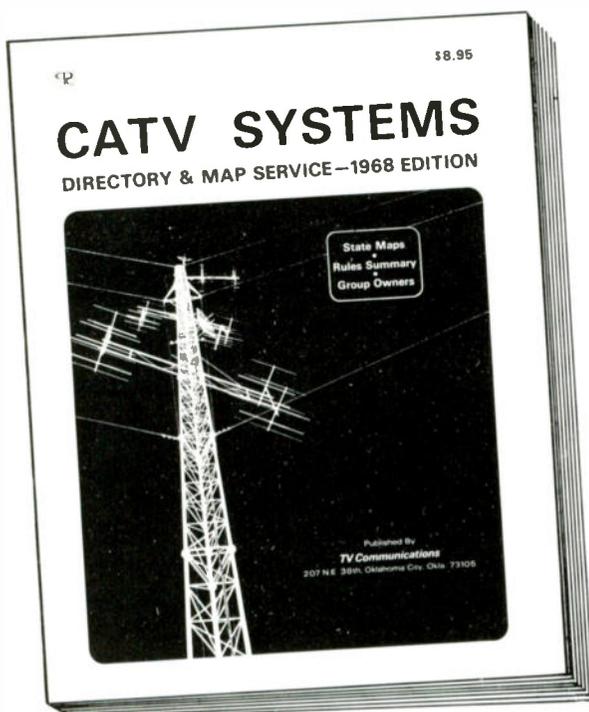
—A full-page ad extolling the advantages of cable service was sponsored by one system in a publication especially for tourists—all

of whom were staying in motels outside its service area.

It is easy to get in the habit of saying yes, if your advertising budget can stand it. It makes a great guy out of you with all the salesmen. Say no a few times and you will be surprised at how the number of gimmick advertising salesmen calling on you is reduced. They get their leads by checking the ads on items related to what they are selling. Go for one, and you are a ready-made prospect for the next salesman.

Managers by necessity cannot always be good guys in white hats. Continually, they must take cold, analytical looks at every facet of their operation. Routine office practices and expenditures should not be permitted to escape this penetrating stare simply because "it has always been done this way."

Start taking that look at your own operation now. If you fail to find at least a few places where you can save money and/or better utilize personnel or vehicles, then you are running about the tightest ship in the cable TV sea. TVC



**TO ORDER  
TURN TO PAGE 133**

## NOW AVAILABLE!

### THE MOST COMPREHENSIVE SYSTEMS DIRECTORY EVER PUBLISHED

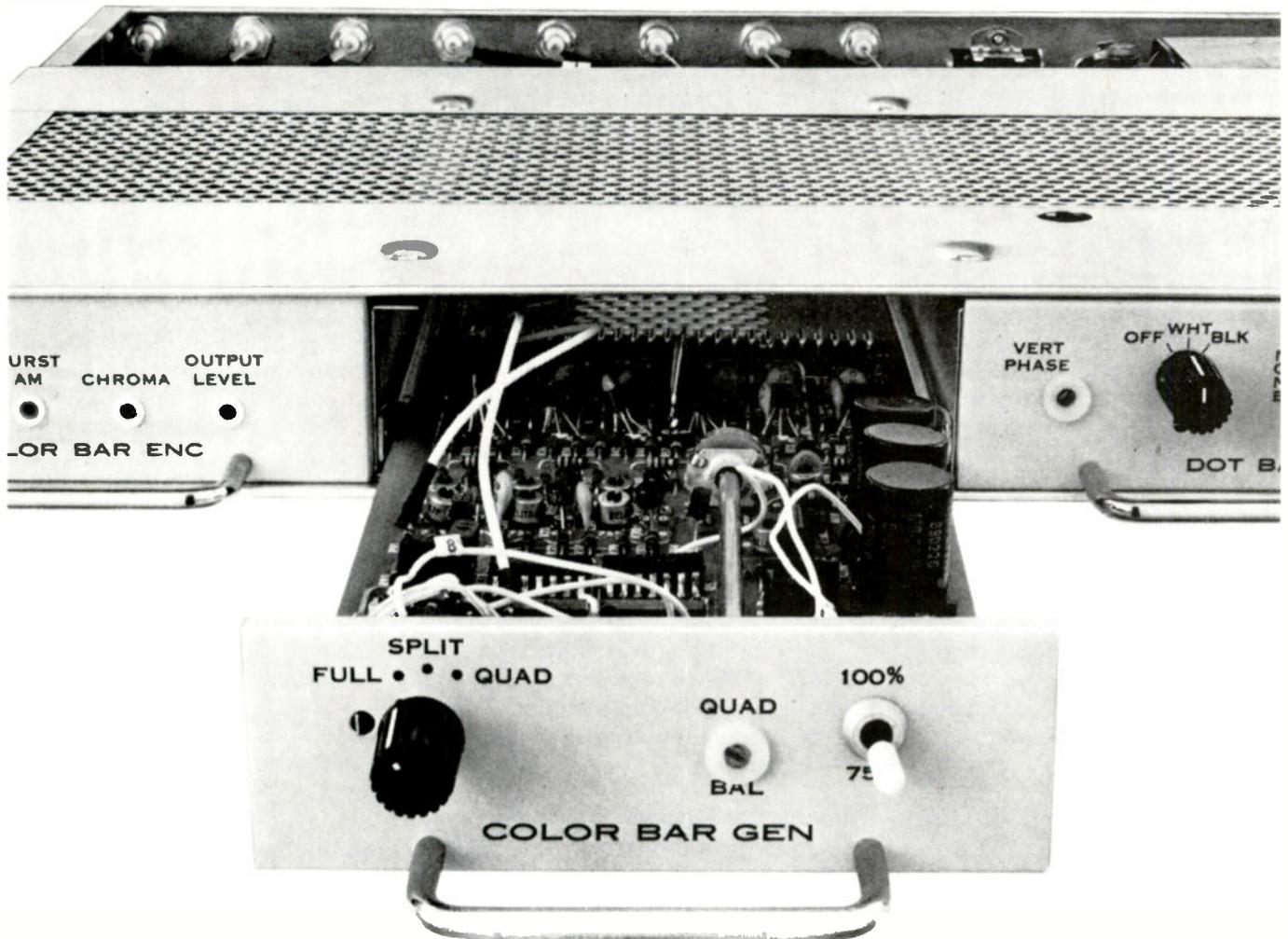
The all new 1968 **Systems Directory and Map Service** gives you the latest, most complete system information available. Divided into four key sections, the Directory includes CATV Associations, U.S. Systems, Canadian Systems and Multiple System Owners, and a map section showing the location of all U.S. systems. It's source information you need to evaluate your market potential, make preliminary studies, determine investment possibilities . . . contact industry organizations. This big **190-page** reference work is ready to work for you. Keep it on your desk for planning! Single copies are \$8.95. Multiple-copy rates are available. Order yours now!

**JUST \$8.95**

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# GROOVY!

*Cohu's new TV accessory modules fit in anywhere.*



Modular construction and solid-state design provide excellent compatibility between Cohu's new 2610/2620 Accessory Series and existing broadcast equipment. Each frame occupies only 1 $\frac{3}{4}$ " of rack space, has a plug-in power supply, and is prewired for a combination of three modules. Accessories include a drive generator, colorlock, black burst generator, dot • bar • crosshatch generator, color bar generator and color bar encoder.

Also available in the 2610/2620 Series is the chroma detector, which improves the quality of monochrome transmission by automatically removing all chrominance from the encoder output during transition.

For specific data on each accessory, contact your local Cohu engineering representative, or call Bob Boulio direct at 714-277-6700. Box 623 • San Diego, California 92112 • TWX 910-335-1244.

**COHU**  
ELECTRONICS, INC.  
SAN DIEGO DIVISION

# Why You Should Begin Local Origination

**Amid the growing discussion of CATV origination, many system operators may remain undecided on one basic point, "What could cablecasting do for their system?" The following may answer that question for you.**

*By Sam Street  
Director of Field Services  
National Cable Television Association*

**L**ocal System Cited for Contributions to Community." A real headline? No, but it could be your system in the headlines, next year at this time if you spend your time, money and efforts wisely. Why bother? A local award for community service is one thing; for another, actual facts and figures prove that cablecasting can be rewarding in terms of revenue and subscriber count.

Then there's the question of copyright. If it should prove excessively restrictive, the demand for cablecasting equipment and personnel could be explosive—and hard to come by. Copyright or no, local

origination can emphasize your system's involvement in the community. If done properly, cablecasting can only enhance your public image, while serving as a tremendous selling tool, as well.

How much local origination is really happening? Well, in June, 1966, NCTA President Frederick W. Ford urged members to begin local originations. Results of a recent survey by NCTA indicated that out of the 324 members and non-members responding, 168 (51.8%) have developed and are using cablecasting facilities. Of the 156 responding negatively, 65 plan to originate; 91 do not.

Of those originating programming, 153 use the standard time and weather equipment. Breakdown on other facilities is as follows:

News ticker—153; Stock ticker—19; Live/taped news—5; Sports commentary—30; Sports events—26; Town/country council meetings—27; School board meetings—15; Other municipal meetings—28; Feature films—10; Film shorts—33; Kiddie programs—16; Teen shows—22; Music shows—20; Talk programs—47. Other specified—47.

## If Not, Why Not?

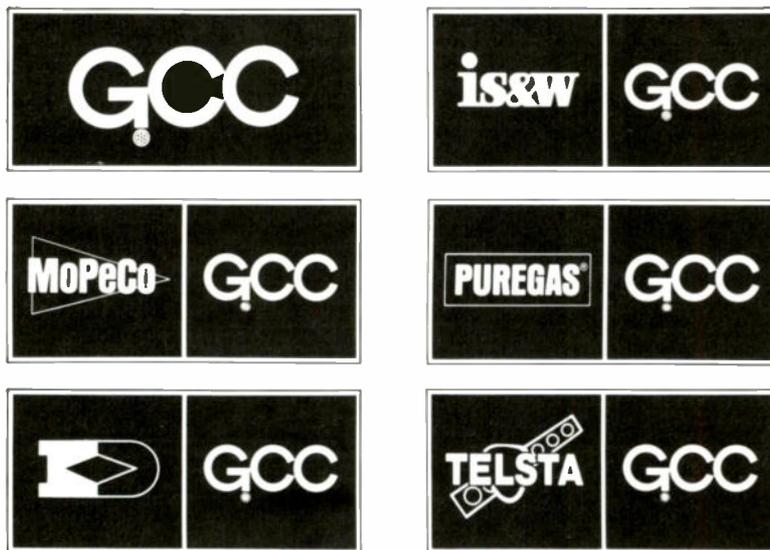
The question at this point is *why aren't more cablemen originating programming?* In the early days, just 19 years ago, cable operators tried very hard not to step on the venerable broadcaster's toes. However, being exceedingly careful not to offend has *not* kept the tempest from our doorstep. Cablecasting is not only a right, it is a necessary and basic part of our service to the community—one that the broadcaster does not and *cannot* fulfill. Preoccupied with selling "canned shows" nationally, the networks scarcely have the local scene in mind. Nor are they close to it. Your cable system is.

As Senator Frank Moss (D), Utah, put it in his telephone address to system operators attending the 2nd Annual NCTA Cablecasting Seminar in February of this year, "Cablecasting gives people in communities . . . their only opportunity to originate programs

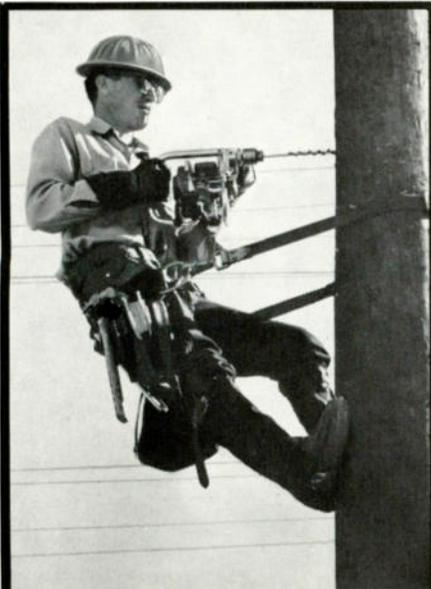


Interview shows are more interesting if the moderator faces the panelists at a slight angle, this adds depth to the picture and allows a variety of camera angles.

# If you're looking for wire, cable or support products for Cable TV, look for these General Cable trademarks:



**General Cable Corporation** Trunk (Foam- or disc-insulated), Distribution and Drop Cables. Aerial, conduit or duct and direct buried constructions. Armored types for submarine installation. **Indiana Steel & Wire Company** Messenger Strand, Guy Wire, Lashing Wire and Terminal Housings for buried CATV plant. **MoPeCo** Portable ventilating and heating equipment for underground work areas, Blowers, Aerial tent heaters, High-level traffic warning lights and signs. **Puregas Equipment Corporation** Refrigeration and heatless air dryers and meter panels. **Diamond Expansion Bolt Company, Inc.** Communications hardware for supporting CATV lines—figure 8- or messenger-supported. **Telsta Corporation** Aerial lifts for overhead cable installation and maintenance. General Cable Corporation, 730 Third Avenue, New York, New York 10017.



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- Accommodates a right angle drive
- Equal in power to 1/2 heavy duty electric drills



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about their local affairs—to discuss bond issues, to hear debates between local political candidates and to celebrate local events. In other words, cablecasting promotes democracy.”

Whatever the outcome of the copyright issue, cablemen will do well to think seriously of the potentials of cablecasting for their system. Local origination is not easy. It is expensive. It is time consuming. But, it is a new area for many cablemen, an area that gives them much-needed room to expand. As such, its potential should be examined carefully. If approached thoughtfully, it can open up new horizons for revenue and local expression. *It is a necessity for the continued growth of CATV.*

## Where Do You Start

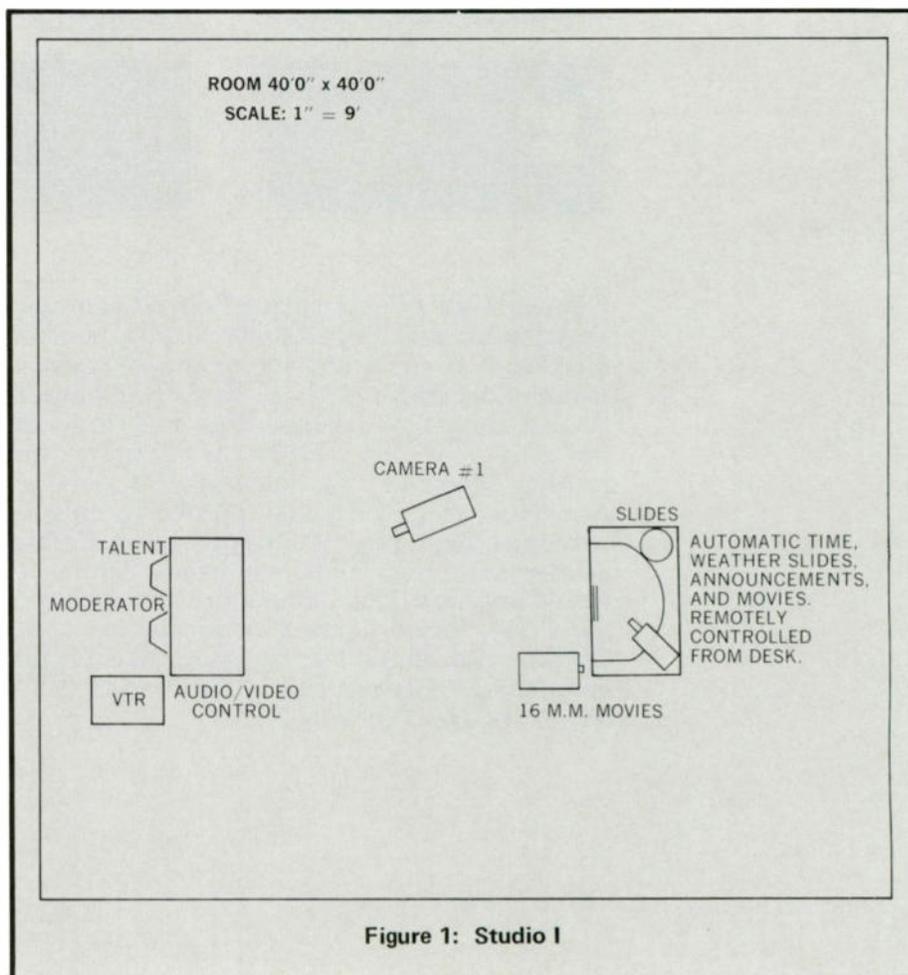
First, determine just how deeply you feel you can go into local origination. Take into account your system size, current revenues, studio space and available personnel. There is a wide variety of

equipment available for cablecasting, ranging from simple vidicon cameras to the sophisticated EIA sinc cameras and auxiliary equipment. Using a little ingenuity and creativity an operator can set up a workable, effective cablecasting studio on a modest budget.

Here are some examples of CATV system budgets: 1000 subscribers—weather display channel, 1 VTR, cost: \$2,000-4,000. 1000-2000 subscribers—basic one-camera system with VTR, weather display, cost: \$4,000-8,000. 3000-5000 subscribers—Two camera systems, two VTR's, film chain weather display, cost: \$12,000-\$24,000.

Smaller systems should start with the basic one-camera system. If additional programming is necessary due to nonduplication problems, a film chain (approximately \$1800) should be acquired. Many companies offer free films to CATV systems. The only cost is return postage.

Your budget limitations will determine studio size and complete-



ness. Basically, you need a backdrop, preferably wall curtains, portable and fixed lights, a desk or table from which to develop your programs. Props should be easily dismantled and completely portable. There are several manufacturers now making complete one-man studios. This equipment, if within your budget, would be most advisable. (See Figure 1).

There are many excellent devices on the market to aid you in local origination. Every system should consider a weather display channel. This is a basic tool of origination and is a good sales feature for your system. Besides performing a valuable public service, it acquaints the viewer with the idea that the cable system has the potential of producing its own programs and has something unique to offer.

A news channel is also a good investment. Daily programs include: world news, every hour; regional news and weather; market reports; sports scores—every few innings; news summaries and special features. News channels can also provide special "hot news flash" alert systems.

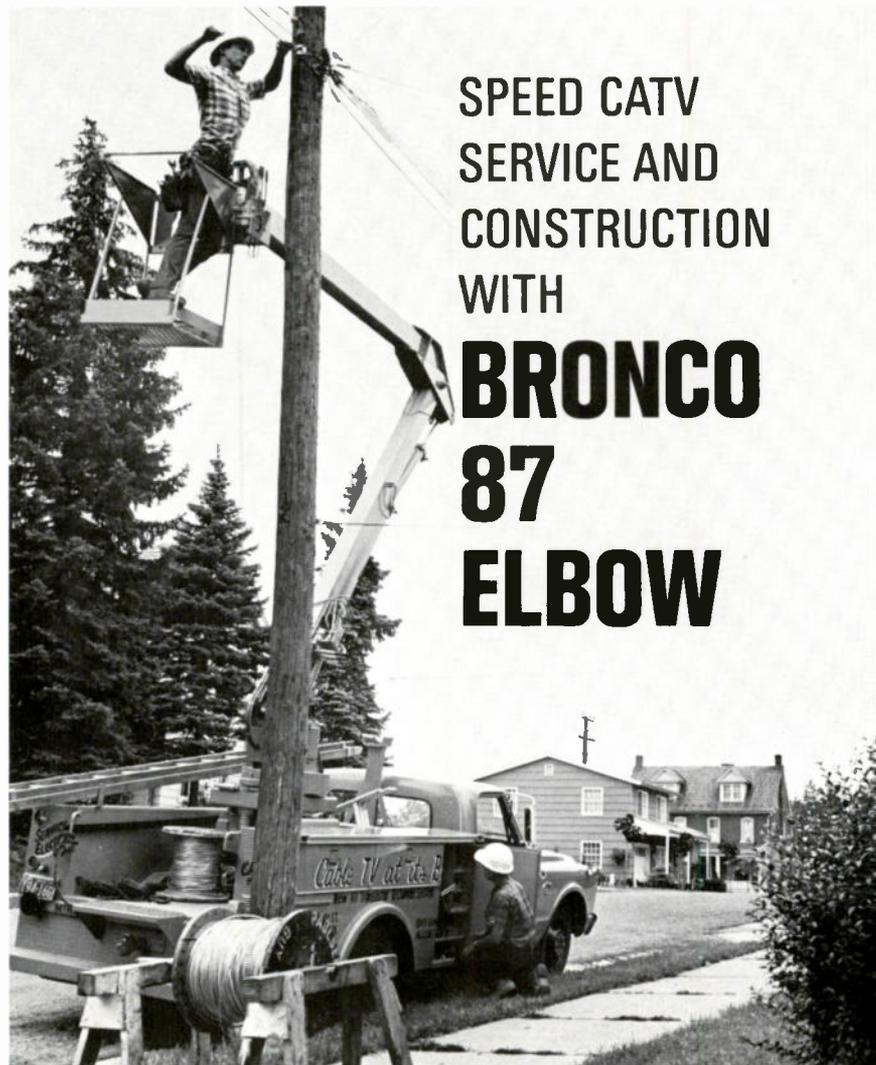
For larger systems and those wanting to add to present cable-casting equipment, Figure 2 diagrams a complete basic system. This system has the capacity to add additional camera inputs. This shows four important outputs: preview, program, line and video tape recorder. Each output has a looping output. Approximate cost of system—\$18,500.

System includes: Automatic time, weather, slides, and announcements; Film chain; Live camera system; Videotape recorder system; Video distribution and monitoring; Remote control of weather, slides, movies, VTR; Lighting; Audio system; and Installation.

## Programming

Equipment you can buy; programming you must create.

This is the most difficult part of cablecasting. How do you produce interesting, effective programs? As cablemen we should not try to compete with network or local broadcasting programs. Our market is the local, specific program which effects only our community.



## SPEED CATV SERVICE AND CONSTRUCTION WITH **BRONCO 87 ELBOW**

### One CATV operator puts his men on top the job with five Bronco 87's for his 36,000-subscriber system

Here's an economical, versatile aerial device to put your men on top the job fast — Bronco 87 elbow. It carries a 300-pound man- and tool-load quickly and smoothly to 32-foot working heights in the 87-27-1 model and up to 36-foot positions in the 87-31-1. With no outrigger jacks to set, your lineman is in the bucket and up to the job within seconds after arrival at the site. And, the Bronco 87's compact design provides excellent mobility in busy traffic or on narrow side streets.

On the job, the Bronco 87 may be used to speed service, cable stringing, patroling, and installation. Uniform-stress design of the all-steel upper and lower

arms assures even load distribution through the base frame and torsion-bar stabilizer. End mounting of the easy-access bucket permits straight-shot access to narrow work positions and provides a three-sided work area. The 95-degree lower- and 125-degree upper-arm flight pattern furnishes the flexibility to get into almost any work position.

Proved in the field on operating CATV systems, the Bronco 87 stands as an economical, versatile, and reliable aerial tool. Your Holan representative will be glad to show you how five Bronco 87's are currently speeding service and construction jobs on an Eastern CATV company's 36,000-subscriber system. Ask him how a Bronco 87 adapts to your system's work load. Or, write us direct for more information on the Bronco 87 elbow, Pack Horse bodies, and Mustang derricks.

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# TV6 PROGRAM SCHEDULE WEEK OF APRIL 6 to 13

## SPECIAL PROGRAM:

Friday and Sunday, 9:30 P.M. The Lakewood Cold Coast Chapter of the SPEBSQSA (Barbershoppers) in Concert. Traditional as well as popular tunes.

**MIDDAY** 1:00 - 2:00 P.M. Today, Angela Cook with sewing and Mr. Tom Wilson from the High Brow department of American Greeting; Friday, Mr. Dale Brooks from Ohio Judo and Karate and the Club of the Week; Monday, latest in hair fashion and the latest in women's ideas on 2¢ Worth; Tuesday, representative from Cleveland Electric Illumination and hints on home decoration and remodeling; Wednesday, Bill Hixson on table decorations and reviews on Helen Hayes' GHR of Joy.

**FOCUS ON LAKEWOOD** 2:30 to 3:30 (and 9-10 P.M.) Today, Army, Navy, Air Force, and Marine Corps recruiters on service opportunities; Friday, Lakewood Chief Librarian, Mrs. Mary Bloom; Monday, Guest from Lakewood Schools; Tuesday, "Chat With The Clergy," with Fr. E. Murray, Rev. D. Scott, and Rev. R. Uffelmann; Wednesday, Bud McCrovy of Highway Nursery Co. on design of your garden; Thursday, Carl Day from Social Security Ofc.

**JOURNEY TO UNDERSTANDING** 3:30 - 4:00 Topical health and science films of interest to all.

**TEEN TALK** 4:30 - 5:00 (7:00 - 7:30 P.M.) Panel of Lakewood teenagers discuss teen problems and prospects. Presented in co-operation with the YM & YWCA.

**QUEST** 5:00 - 5:30 Fast-moving action and adventure films. This week we highlight general sport action.

**THE LAKEWOOD REPORT** 5:45 - 7:00 P.M. Bob Buck reports Lakewood news. Tune in any one of the five, 15-minute periods. Also, student reports from Lakewood, St. Ed's, and St. Augustine's High Schools.

**TEEN TALK** 7:00 - 7:30 P.M. Video tape replay of afternoon programs.

**TV PLAYHOUSE** 7:30 P.M. FULL LENGTH MOVIES WITHOUT COMMERCIAL INTERRUPTIONS! Tonight, MICHAEL STROGOFF with Anton Walbrook and Akim Tamiroff. Jules Verne mighty novel skyrockets to rank of "great" motion pictures. Panoramic scenes of an army of 10,000. Friday, Sunday, and Monday THE SLIME PEOPLE with Robert Hutton and Susan Hart. Huge, scaly, prehistoric monsters from the slimy regions invade Los Angeles. They roam the streets, killing and suffocating everyone in sight. Tuesday, Wednesday, and Thursday, REBEL SON OF TARAS BULBA with Harry Baur and Roger Livesey. Story of Cossack revolution in Russia. Hordes sweep across the plains in one of the greatest love and war stories ever filmed.

**FOCUS ON LAKEWOOD** 9:00 - 10:00 P.M. Videotape replay of the afternoon programs.

**BIG MOMENTS IN SPORTS** 10:00 - 10:30 P.M. Films of great sporting events of the past.

**THE LAKEWOOD REPORT** 10:30 - 11:15 Lakewood news and sports. Tune in any one of the three 15 minute periods.

TV6 is a service of Cleveland Area TV, Lakewood's 8channel Cable TV system. For installation information call 228-3600

TV6 Program Schedule which appears in both Lakewood newspapers.

The program schedule shown is from Cleveland Area TV, Inc., a suburb of Cleveland, Ohio. This system devotes its talents to local origination. Presently, it is selling

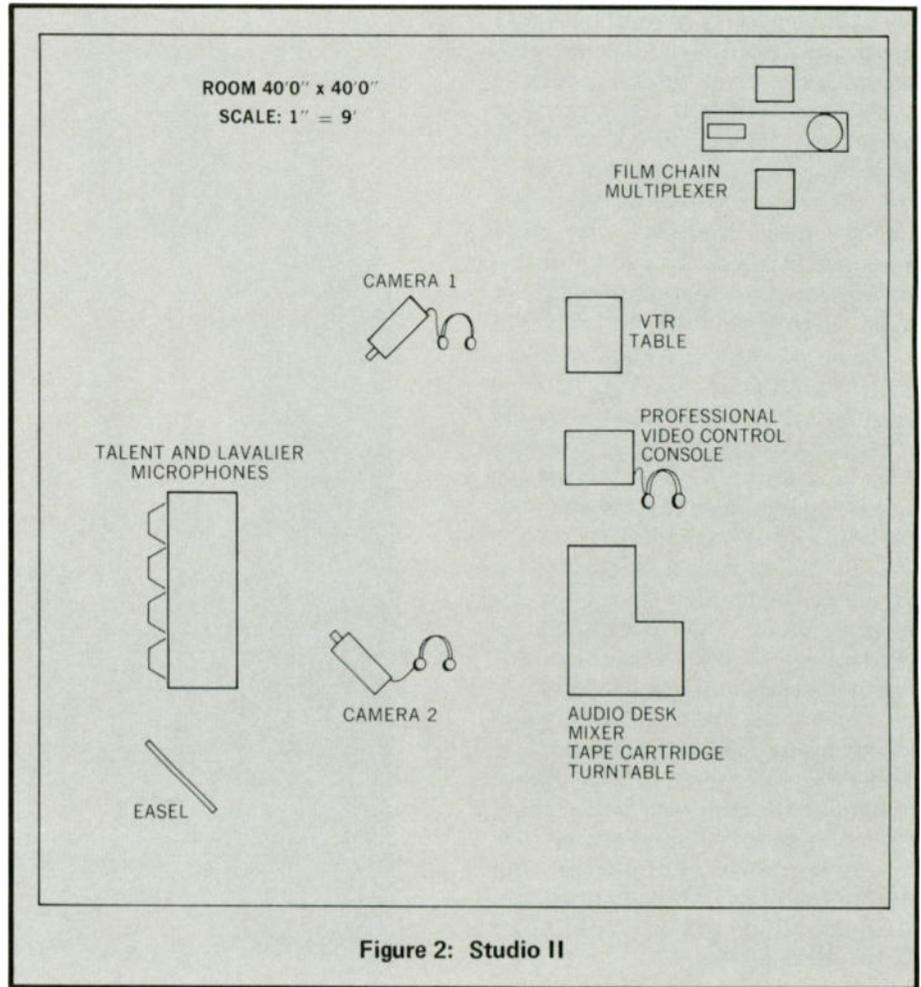


Figure 2: Studio II

only one channel off the air in addition to three local VHF's. This system demonstrates a high degree of professionalism. Subscribers receive quality productions.

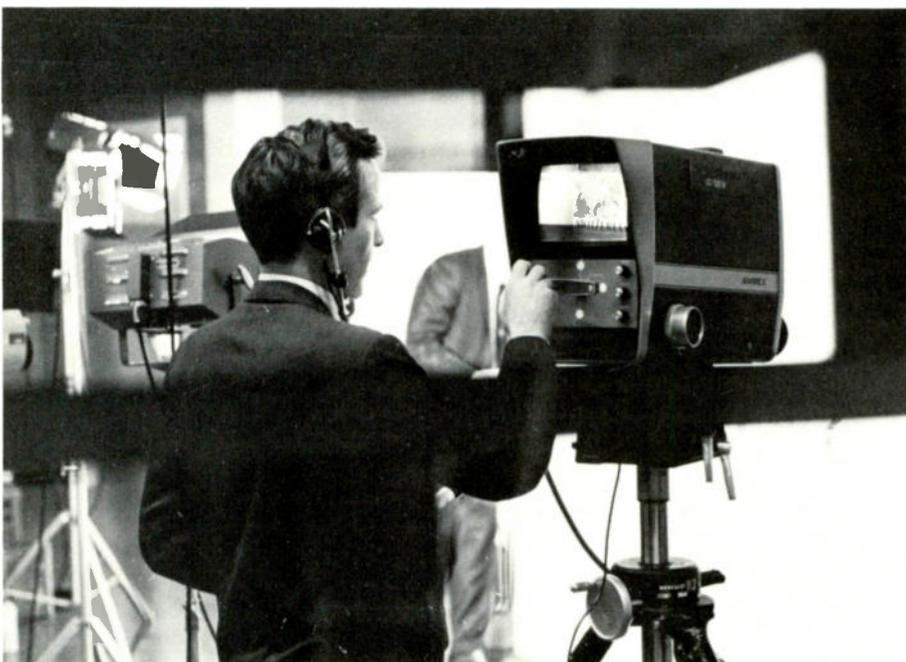
## Programming Costs

In its report to members, the Florida CATV Association estimated programming costs of member cablecasters. Of the 15 systems queried, nine reported only nominal expense, while five estimated their monthly cost at \$100-\$500 per month; one cablecaster incurred monthly expenses in excess of \$500.

Only four systems carry advertising on a regular basis; of these, three reported monthly revenues of \$100-\$500 from advertising; one system grosses over \$1000 per month.

Since most cablecasters feel that local origination aids subscriber retention and additions, it would appear that the basic cost of equipment installation could be at least partially offset by the increased subscriber revenues.

The total effect of implementing cablecasting then would be ultimately to increase both revenues and subscribers—in addition to adding a shine to your local image.



In focus: George Green as camera man, at the 1968 NCTA Cablecasting Seminar.

# What is this lift called 'S'?

*Unbreakable rotation drive system employs patented rubber-to-steel friction design. Never requires adjustment — virtually impervious to wear.*

*Separate engine generator (standard equipment) delivers safe, reliable electric power for boom operation and for power tools.*

*Single torsion bar of forged alloy steel resists side-loading pressures by transferring boom loads to the vehicle axle.*

*Aerial basket rests beside cab in travel position. At job site, operator selects tools from storage area and steps directly into basket from van interior. No need to enter the street. Dual safety brake-lock systems secure vehicle while driver/operator mans the basket.*

*Three direction-oriented toggle switches control boom movements. Optional single omnidirectional control initiates boom travel in any direction or combination of directions in response to light hand pressure.*

*Self-leveling aerial basket workshop provides full-depth entrance door for easy access, recessed door lock and safety chain, weather-proof grounded electrical outlet for power tools. Load rating, 300 lbs.*

*Main boom and tubular extension boom construction assures maximum strength-to-weight ratio. Inner boom telescopes on sealed ball bearings. Working heights to 36 feet available, horizontal reaches to 24 feet (to outer edge of basket).*

*Boom overhang eliminated! Heel rotates fully within the van framework.*

*Compact "Step-Van" houses revolutionary new "stress-cone" boom support structure and drive systems. Unitized construction of extension, rotation, and elevation drive assemblies facilitates replacement and repair. Roomy van interior provides ample storage space.*

These are the high points of "S," TELSTA's revolutionary Tel-E-Van — a high-production, one-man aerial workshop on wheels. Available now at prices comparable to powered-ladder trucks and small hydraulic lifts. Write today for complete information.

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Telephone (415) 591-7611



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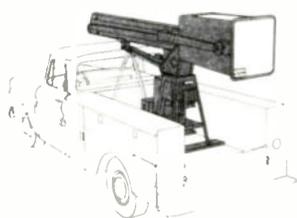
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## Programming Possibilities

First, chart all organizations in your town. The local Chamber of Commerce will have a listing of all service, professional, industrial, religious and business groups and organizations active in your community. They will also have a listing of schools, principals and school locations. These groups will provide a beginning nucleus for your cablecasting programming.

In addition, check the community calendar, usually available at your local Chamber of Commerce. You should know of special drives, events and seasons well in advance. Plan to give them complete coverage. For instance, health services such as the United Fund, March of Dimes, Heart, Cancer Crusade—all have certain "months" for which you can stimulate interest in addition to additional interest in your system activities.

Income tax season should receive special attention. The 4-month period from January through April is ideal for providing special income tax information. I.R.S. agents and CPA's can be recruited to offer detailed instructions relative to completing various types of income tax forms. If facilities provide for

live cablecasting, viewing audiences can direct questions to these authorities via telephone.

We've saved the best for last—it's election year! In 1968, with such a galaxy of runners and non-runners, what else but politics?

To avoid possible problems, follow the guidelines of the Fairness Doctrine (Federal Register, volume 31—Number 86, Part II—Federal Communications Commission, *Use of Broadcast Facilities by Candidates for Public Office*).

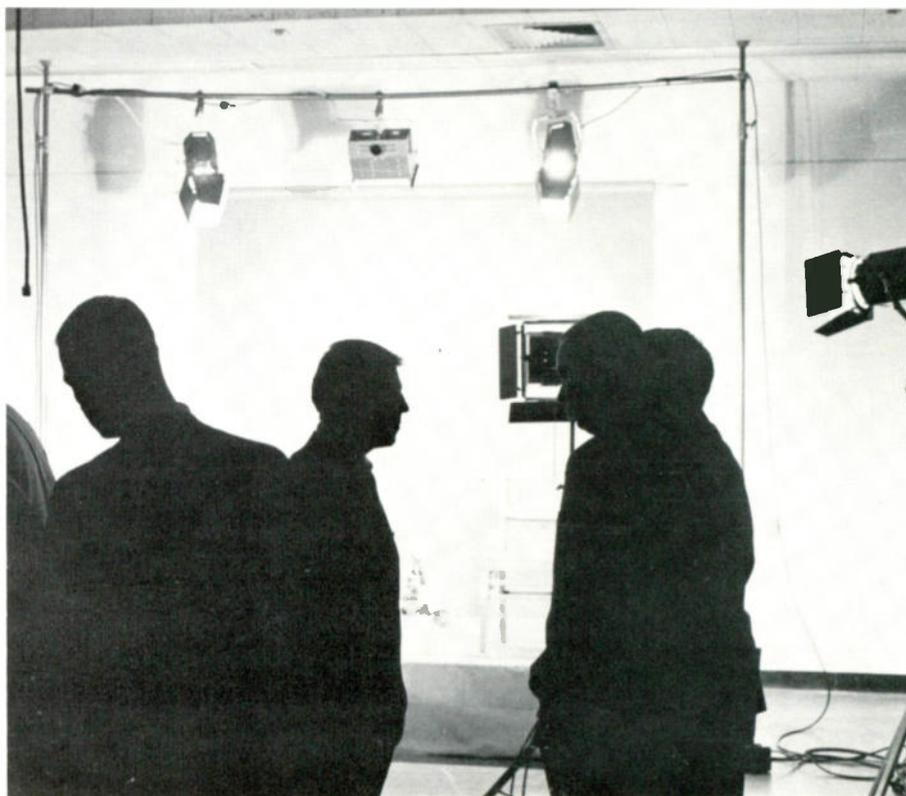
Before the Primary, offer "cable time" to all Cable TV service area congressional, state representative and senatorial district candidates as well as township, city, ward, precinct and party delegate candidates.

On election day, cover and report vote tallies to the central studio from all precincts in the Cable TV service area.

After the polls close, invite all candidates to the studio to tape a message to the citizenry.

Just before the November election, feature a pre-election presentation of candidates—twice in September; twice in October.

If a campaign is really spirited, you might consider even more



Getting ready to cablecast. Note the simple backdrop.

exposure for candidates involved. When the General Election finally arrives, again, cover and report tallies as they come in, allowing the winners and losers "cable time."

Because of the national election, next fall will really find you hustling. Systems that have tried complete election coverage find it hard work, but fun and rewarding.

### Cablecasting Personnel

The best approach to this aspect of cablecasting is to hire an experienced TV production man. If you can, hire someone specifically for cablecasting and let him delegate specific tasks to existing office personnel. Then hire part-time help as needed. Local high school and college students can be found who will prove enthusiastic and efficient when properly trained.

Some systems utilize their existing personnel on an overtime or special hourly rate rather than going outside the office. This is generally time and a half or on a flat weekly program basis.

Often, the small system manager must be able to act as director, programmer and all-around television man. If you enjoy good relations with local broadcasters, it is advisable to use local radio announcers to give your narration and also to allow the local newspaper or radio station to produce local news. An interesting variation on this is the growing practice of leasing a cable channel to the local radio station or newspaper.

### CATV in Communications

Local origination or cablecasting is a form of communications. Communications is the future of CATV. Without adequate distant signals and with the advent of copyright royalty payments, CATV cannot afford to offer just better TV reception. We must be involved in and prepared to project the total community picture.

What do the people want to see? Themselves, their friends and relatives—and cable owners are in a perfect position to give them what they want. The more local people and events and services you carry on the cable, the more interest you stimulate in your local television cable service. TVC

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See Jim Klungness or Charles Henry at the NCTA Convention in Boston.

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# Keeping Informed— A Key To Personal Success

**Maintaining an awareness of all aspects of the cable television business, and having good perspective on one's own role and potential in it are two vital elements in building a successful CATV career.**

*By D. Michael Ganley*

A problem rapidly coming to the forefront in American businesses which are to a greater or lesser degree involved with areas of technical concern is something called the "knowledge explosion." It has been estimated that by 1970 the total human knowledge will be doubling every 5 years. Information coding systems are beginning to break down; research is being paralleled. Money is being spent to learn things which are already known, but which are buried on some obscure library shelf. A recent example of this problem occurred at the American Physical Society Convention in Austin, Texas. At that meeting all papers were video taped when read (reading was done in two separate rooms concurrently,) and played back at various times on the hotel master system . . . all this in order that a scientist conventioneer had the greatest possible opportunity to learn of new advancements in the field.

## **CATV Destined to Be Affected By Knowledge Explosion**

CATV does not yet suffer significantly from this problem, but certain harbingers of the future tell us that this will not always be so. By and large we in this industry have managed to stay ahead, and hopefully in the future can keep even with what's happening. To a great extent, this is due to the unique circumstances of CATV. Few other industries offer as many news dis-

seminating and thought-exchanging avenues as this business.

In a great many systems, hardly a day passes when both vital and trivial information concerning many other places and situations is not heard about, seen, or discussed. Data on legislative situations, technical problems and solutions, the availability of trained personnel, the location of a friend or maybe even a minor scandal is absorbed, digested and perhaps acted upon.

## **Many Operators Oblivious to Available Information Sources**

Rather obvious, you say? Not necessarily; it has been this writer's experience that a significant number of CATV personnel are oblivious to many potential sources of industry information available to them. It is somewhat disconcerting to see a system manager attempting to rewrite the "book" on basic subscriber promotions, or to find a chief technician struggling with a problem which has only the month before been adequately dealt with in a trade publication or technical bulletin. In most other fields of nationwide business, the individual industries are so large as to preclude a truly meaningful cross fertilization of experiences; therefore, it is obvious that one factor which gives CATV its peculiar advantage is the nationwide character of the industry, coupled with its relatively small work force. Present also is a certain fraternal feeling resulting from our years of shoulder-to-shoulder battling.

Still another facet which adds immeasurably to the data flow in CATV is the tremendous mobility of our personnel. This business is radically different from any other, and yet so basically similar in all parts of the country. Because of these factors, plus a serious lack of trained CATV people, a never-ending parade of recently terminated, resigned, or disgruntled individuals can be seen shifting from one end of the country to the other at any given time.

Although we oftentimes don't like to admit it, CATV is a very significant wealth producing industry. This is not to say (as others have) that it's a gold mine above ground. But due to high original investment and heavy R & D expenditures, an awful lot of money does change hands in a relatively small number of places. This has made it possible for our little industry, in almost all

### **ABOUT THE AUTHOR**

D. Michael Ganley is a recent addition to the sales staff of Times Wire and Cable. He was previously associated with American Cable Television, Inc. and Ameco, Inc. Ganley attended Northern Arizona University, specializing in the field of business management. His articles, "Management Techniques for Cable Television Executives," "Getting Your System Designed," and "Programming Spare Channels" have appeared in earlier issues of TV Communications. Ganley is now southwest regional sales representative for Times Wire and Cable, and headquarters in Dallas, Texas.



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geographical areas, to have more sales representatives in the field than is normal in many similarly sized industries. Sometimes we tend to look on this fact as more of a bane than a boon. But, nevertheless, a very important channel of information and news dissemination is thus available through the continuous coming and going of sales representatives of various firms.

The methods of this information exchange range from the obvious to the most subtle. Besides the industry press, they include the national association, meetings, seminars, regional and state meetings, various company technical get-togethers, and so on. Also among the available communications devices are many manufacturing firms' house organs, usually available upon request.

### "Isolation" Contributes to Communication Between Operators

Another intangible ingredient is the isolation of a CATV installation. A system resembles a man lost in an impenetrable desert and longing for the sight of another person. Nearby systems fulfill the need for kindred souls with whom to talk, much like the old bar-room standby, "My wife doesn't understand me, but I can talk to *you*." This may exaggerate the point, but it is truly remarkable the amount of communication which exists between systems in the same general region, even when the distances are considerable.

All this harvesting of news assists us really in two basic areas; the first we might define as "location fixing," being simply a continuous determining of the system, company, or person's relative position in the industry. Eternally, ideas are started, plans are formed, alternatives are selected with the answers to such questions as, "Is my equipment becoming obsolete? Is someone else doing the same thing in a better way?" and so forth. Even such location finders as, "Is my generation in the business being replaced by the young upstarts?" or, "Where are all my old friends now?" are continuously if unconsciously being asked and answered in the normal day-to-day exchange of data.

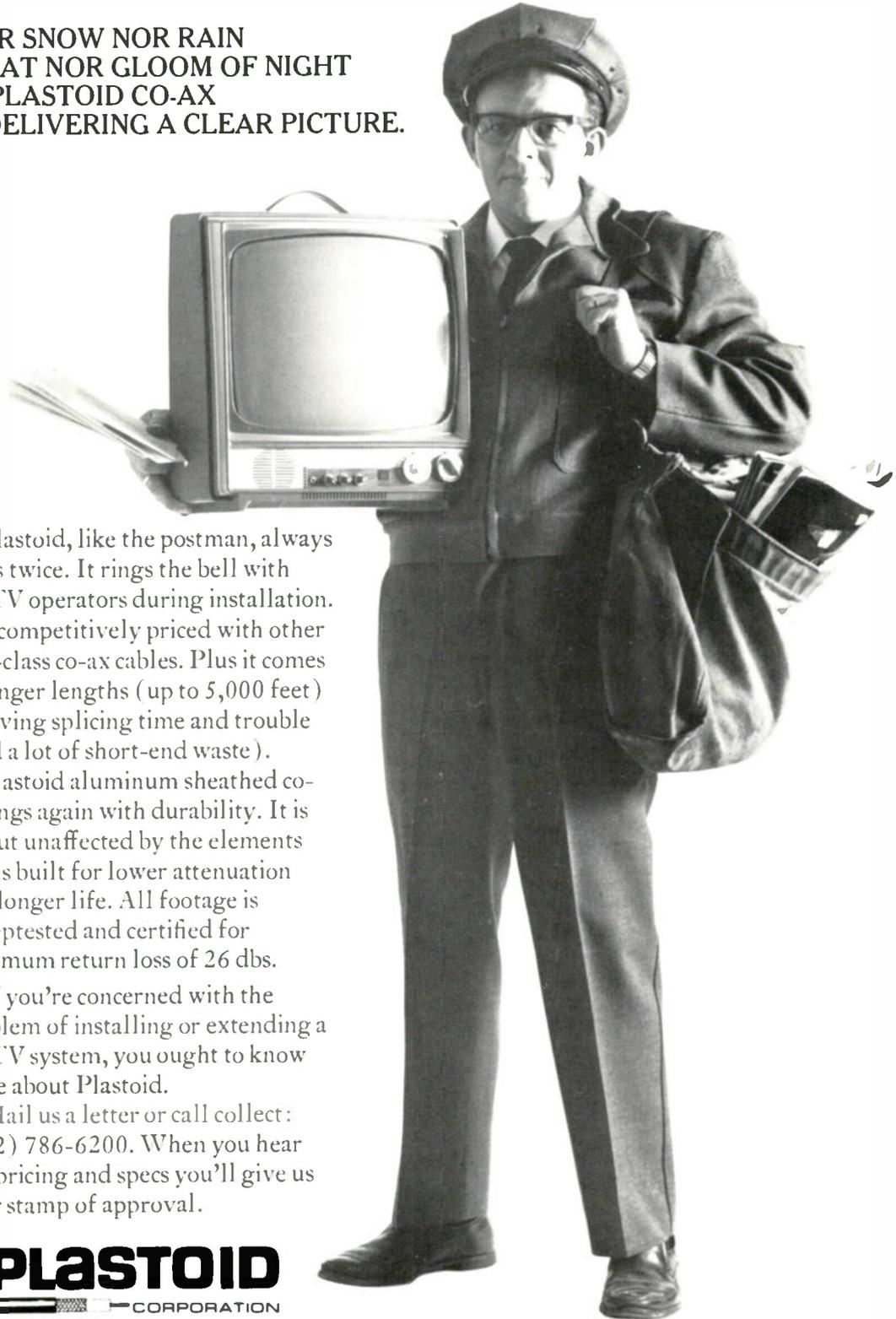
Secondly, we have our common, garden variety process of decision-making, as done in any business. Here the things we learn give us a greater perspective with which to work, for without the proper information needed to gauge the odds of right or wrong for any given course of action, a manager's job becomes nothing more than a stylized form of Russian Roulette. To know that a solution was tried two years ago in a system 1,000 miles away, and its results, can sometimes make the difference between the bullet and an empty chamber.

### It Takes Work to Stay Abreast

We can conclude that no person in CATV should deny himself *any* available means of information. It may be tempting to throw the latest manufacturer's brochure away unread, or miss this year's meeting of the state, regional, or national association, or perhaps brush off some salesman. It may seem like a lot of work to stay abreast of things in the industry, as well as do your job. But remember, it's your industry and your job. In the end, who gets cheated?

FVC

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KEEPS PLASTOID CO-AX  
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Plastoid, like the postman, always rings twice. It rings the bell with CATV operators during installation. It is competitively priced with other first-class co-ax cables. Plus it comes in longer lengths (up to 5,000 feet) —saving splicing time and trouble (and a lot of short-end waste).

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# Communications Technology: Its Impact On Modern Urban Living

**A farsighted analysis of the interrelationship of the concentration of our population; the present and future potential of electronic communications; and the business and government interests involved in formulating communications policy.**

*From an address by  
J. Leonard Reinsch, President  
Cox Broadcasting Corporation*

All of us in the cable television industry should be vitally interested in the role of communications in helping to solve some of the problems of our cities. It is interesting to note that almost all serious problems confronting our national communications policy today have arisen because of the city. For example, the pressure for mobile radio frequencies, such as police radio, taxi and air traffic control, is felt most acutely in our cities. This overcrowded condition on our electromagnetic highways has brought about problems of demand on other users of the spectrum, such as commercial radio and television broadcasting. Some of the most intense debate and controversy within our industry today is centered around the proper use of the spectrum.

For instance, the apparent scarcity of microwave frequencies in and around the top 25 metropolitan areas has recently caused the Federal Communications Commission to take steps to relieve this congestion. In a most unusual move for a regulatory agency, the FCC has asked one group of users—certain miscellaneous microwave common carriers—to vacate their position in the radio transmission band to make way for another set of users—the land-line carriers, such as AT&T and associated Bell companies.

## **Urban Centers Need Modern Cable Communications**

The increasing needs and demands of communications services in the city have created crucial issues of policy. Indeed, the top 25 metropolitan markets of the country contain about 35% of the nation's population—but only 2% of the land area. These same top 25 markets contain 430 AM and FM radio stations and 113 UHF and VHF television stations which combined produce between 65-70% of total TV revenue. These markets have about 40% of all the nation's telephones. In fact, when we broadcasters speak of "local service" today, we mean service to major metropolitan areas, not necessarily to the outlying communities although they receive the residual benefits.

In short, cities are where the people are, and people require and need the most modern communications

services that technology can provide. This fact also accounts for the increasing popularity of the medium of cable communications in our larger cities. Cable, of course, has the inherent capacity to transport many channels of information to the home or office, including standard television signals.

The technology of electronics is changing rapidly. It seems that we no sooner get used to new technical inventions and innovations than they are outmoded and forced aside. This is especially true in the communications field where change is occurring in all the techniques used to originate, communicate and receive information.

Coupled with this increased technical capability is the dramatic increase of knowledge in all forms. Knowledge is accumulating so rapidly that on the basis of its increasing dimensions, it stands to double about once every six months.

This "information revolution," or "knowledge explosion," or whatever you wish to call it, has been spawned by the dramatic advances that have occurred in the communications industry. Just within the last decade, we have developed systems of such speed and versatility that they are already having profound effects upon our society. In fact communications technology is transforming American life and American business just as did the automobile a generation earlier.

I think one way we can gauge the rapid growth in communications services is by recalling that less than 200 years ago George Washington said of his Ambassador to France: "We haven't heard from Ben Franklin in Paris this year. We should write him a letter." Today, the processes of communication are measured not in years, or days, but in microseconds.

I recently saw an advertisement for Radio Corporation of America that claims 80% of the 12,000 products RCA makes today did not exist 10 years ago. Solid-state electronics has accounted for a lot of this progress. In fact, less than 10 years ago the term "solid-state" probably would have been taken as a Republican reference to Vermont.

This widening application of electronic technology is forcing our individual businesses to change. Yet, ironically, it is converging all of them into a single great

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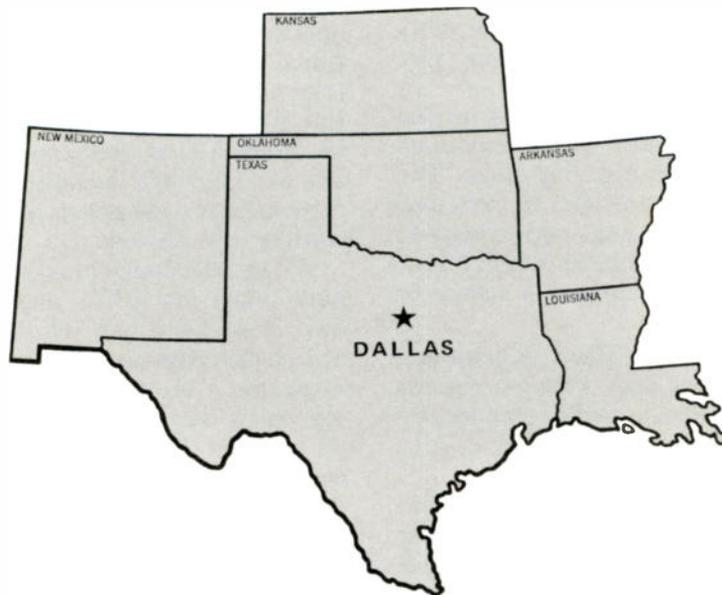
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task: that of generating, transporting and receiving information. This information revolution embraces all communications media—including broadcasting, publishing, speech and graphics. And since all media will one day be concerned primarily with the creation and electronic delivery of information from one place to another, the very distinctions which have separated them in the past will be eliminated.

### **Television: The Most Powerful Medium—Tremendous Responsibility**

While all of these technological advances will have profound impact upon traditional communications media, I suspect that their influence upon most individuals in our society will be indirect. The more personal and vivid influence of communications on the individual will continue to be the mass media that are available to serve his needs and wants. Among these media, none is more powerful or pervasive than the medium of television. Television is without equal as a tool of information and education because it alone of all the media has the capability to combine sight, sound and color with immediacy.

Television's role as the nation's basic communications medium carries with it a tremendous responsibility to serve the public interest. We do not normally think of commercial television as an educational force because its basic function is to entertain. But there are millions of Americans who cannot—or who do not—read books or magazines and whose newspaper reading is skimpy at best. Television has extended ideas, knowledge and customs to these people, whether they live in the poverty areas of our cities or the rural areas and small towns of the country. Television, as well as radio, has opened up their world not only through the news it presents, but also by its entertainment and, yes, even its commercials.

A University of West Virginia survey points up the relationship between the electronic communications media and the needs of those living in our cities. The study found that 100% of ghetto residents interviewed got their news largely from television, supplemented by radio (20%) and the grapevine (25%). Only 3% of those surveyed considered the newspapers a source of news information at all.

Broadcasting may perform this broad educational function in a general way—as it does with its regular fare of programming—or in a more specific manner, by combining with other communications media to upgrade and expand our educational system.

It is not in the province of my subject here to consider ghetto housing, education and similar pressing problems, but I am vitally concerned about the expanding number of uneducated and underprivileged people residing primarily in the urban centers of our nation. This situation poses one of the great paradoxes of our democratic society: how do we communicate the growing abundance of knowledge to the nation's millions who lack elementary job skills and, in some cases, even the ability to read and write? How do we communicate to these people the message that there is a better life, that a more promising living environment is possible for them?

It may be we will need to reconsider the basic role of The City. It may be that cities can no longer say, 'come one, come all.' At least we need to give serious thought to helping the new family that comes to the city, even if it means establishing 'adjustment centers' where they can receive advice and direction.

But meaningful progress in this area can take place only if the majority of citizens in our cities address themselves to these problems. For instance, the people who live in our finer residential and suburban areas must learn that a 'ghetto' does exist in their city, and in virtually every city of our land, and the problems cannot be removed simply by removing themselves farther away from the central city.

### **The Vast Implications of Broadband Service to the Home**

I believe communications technology has the opportunity to perform its greatest service in this area. It is remarkable to me that the professionals concerned with the future of our cities have paid so little attention to the potential of electronic communications. Modern technology has made electronic delivery of information to the home a reality. This has vast implications to those efforts being made to correct the major ills confronting our cities.

For instance, it will soon be possible through combined advances in communications and the psychology of learning to provide individual students with specific areas and levels of instruction. This will be possible by utilizing computer-based instructional systems in cooperation with educators. For example, the student may sit before a home console television receiver, which will be equipped with a teleprinter, and by merely opening a line to the computer be able to receive instructional material on the screen. The student will use the teleprinter to type his replies to questions posed by the TV lecture. Instant feedback, through the use of the home TV set, will show how the student performed and will allow the lesson to be repeated until the student demonstrates his grasp of the subject by correctly recording the answer.

When one considers that virtually all U.S. homes have television (94%), and about 25% of those homes have more than one set, the dramatic implications of out-of-the-classroom instructional systems become apparent. Moreover, the rapid growth of cable television has helped hasten this learning innovation. At present the main barrier to the development of computer based instructional systems is to find a way to permit a large number of students to use this answer-back method simultaneously and economically. This means that computer software systems will have to be developed which can handle this environment. It also means that we must solve the problems incident to ownership or control of the communications lines into the home. But most of the necessary audio-visual materials such as TV lecture series are already available.

The list of social and economic ills which face our cities—and which can be alleviated in part by communications technology—numbers more than just a faulty educational system. For example, traffic con-



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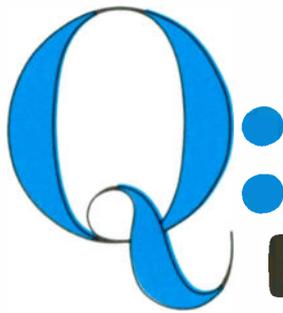
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In theory, compact construction means shorter leads and less stray inductance and capacitance to degrade performance. In practice, it means less bulk and weight to ship, store, hoist and install, and a better-looking cable plant.

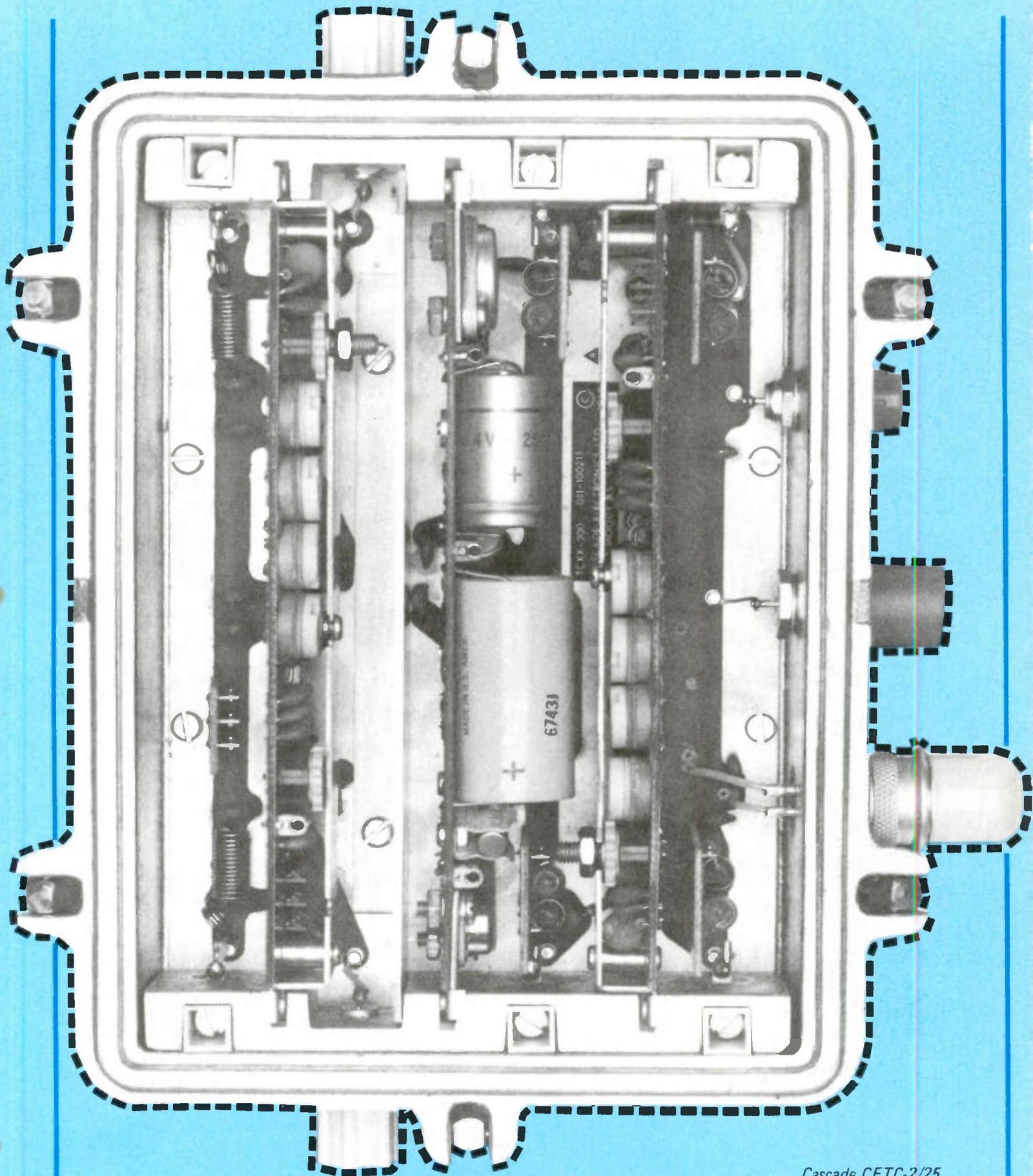
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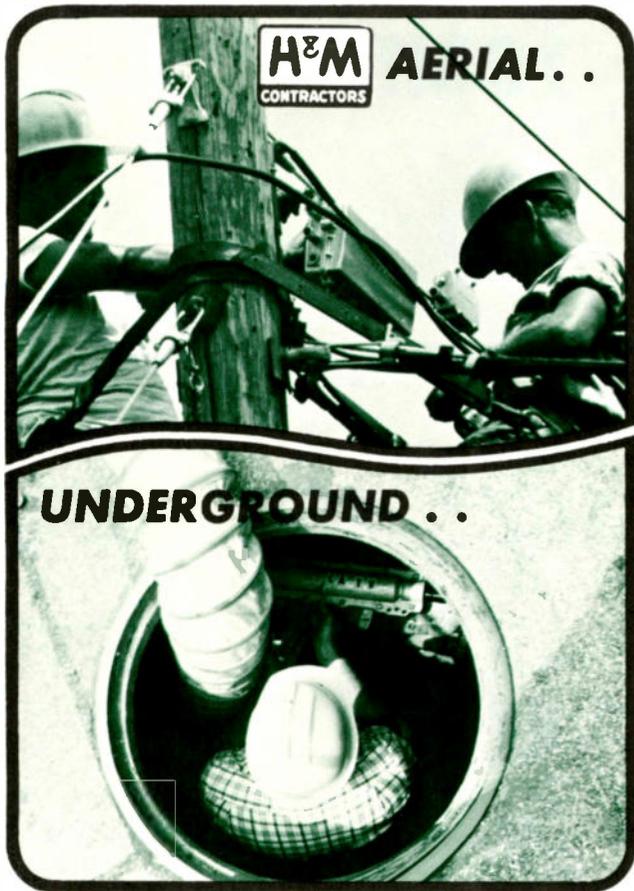
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gestion, both on the highways and airplanes around our major cities, is already overtaking existing facilities. Today's technology can combine electronic sensing devices and computers to form a traffic control system which would allow a more even flow in relation to capacity. Communications links would make it possible to detect—through television monitoring—a buildup of traffic at any point.

Technology can also be used to provide advanced management information systems to help in the conduct of public administration of our cities. Growing urban needs in such areas as welfare, housing and law enforcement could be assisted by employing computers and data communications networks. This systematic planning in an effort to attack urban complexities is already being studied by at least one state. Several leading aero-space, electronics, construction and architectural-engineering firms in California are now organizing a broad scale attack on the problem of making cities more workable. Communications technology will no doubt play an integral part in this and similar assaults upon major urban problems.

Because of the growing interdependence between computers and communication services and facilities, many innovations will take place in the near future. One day soon the computer will become a partner with television in a field we at CBC are calling Medical Electronic Journalism. Diseases, symptoms, and past histories of patients will all be stored in computers and made available via communications links between doctors, medical centers and hospitals locally and nationally. This is already being done on a small scale in some cities. For instance, Atlanta, Georgia has an advanced telecommunications interconnection system in operation already which serves as an educational tool for doctors at medical facilities in the area.

### Complex Services Available On Demand via Coaxial Cable

With the advent of broadband cable, it is possible to transport large amounts of information to the home at the moment of maximum need and want. Cable communication, of course, makes it possible to place services other than regular television programs on the standard TV receiver. We are accustomed to thinking of the home as a primitive communications center connected with the outside world by one-way radio and television and two-way telephone. One day soon, the home will become a highly complex information center capable of communicating with other homes, businesses and major communication centers. In short, the TV set will become more than a passive device; it will serve as a communications terminal capable of sending as well as receiving information. For instance, a facsimile reproduction technique for bringing printed material such as newspapers, magazines and library reference material to the home will be one application. And in a decade or more, we should see most U.S. homes equipped with three-dimensional television receivers probably of the type that can be hung on the wall in every room of the house. The TV set of the future will perform a whole range of household tasks such as banking, shopping and paying bills.

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As for the significance of cable communications on the problem of making our cities more livable, let me point out that a housewife who can see, select, and pay for an item through the use of her television set does not have to drive across town to her favorite department store. And the people of a community who have many channels of television available to serve their intimate day-to-day needs gain a certain amount of pride, involvement, and identification with the world in which they live. These, too, are important ingredients to urban living.

## The Forces Arrayed Against Advancing Technology

I would like to turn now to the matter of acceptance of this new technology. Resistance to the new world of communications is very much with us. In fact, this opposition can be identified quite easily by examining two separate sectors of our society: industry and government.

We all realize that the distance between the potential and the actual can be a long journey. There are many guardians of the older technology who view the current electronics and information revolution with suspicion. Some of my fellow broadcasters fall into this category. I will not comment on their wisdom in resisting change. I will only say that there is an excellent parallel available to those in the broadcasting industry who choose to resist new methods and new innovations in communications. It comes from some of our friends

in the railroad industry, who several years ago were too busy selling passenger tickets and laying rails to see that they were involved in the larger and radically changing business of transportation.

Another serious barrier to progress in the field of communications comes from the governmental sector of society. There is a general reluctance on the part of some of those who mold and administer national communications policy to recognize and foster the growth of new services of the type described above. Problems incident to new technology demand that new thinking evolve in the federal regulatory field. We simply cannot allow new technological developments to get ahead of us before enacting laws or regulations to meet their needs. In the past, government regulation has been important to the growth of communications. It is no less important today as we approach the more complex requirements brought on by new technology. It is time for positive exercise of government power in this area, and not for proposals based on abstractions or fears of what the future holds.

We can only speculate on the future course of government regulation. Its direction will depend largely on the views and attitudes of a constantly changing group of regulators. Their individual philosophies will no doubt differ sharply in the future—as they do today. But regardless, some of these men will need to possess vision and courage if the communications world being talked about today is ever to be realized.

## Serving Local, Intimate Needs—the Bigger Task

The decade of the Sixties has seen the dawn of a new communications era. The rapid pace of scientific discovery and technology is primarily responsible for this change. Soon, it will be commonplace for satellites in space to transmit voice, pictures and data across continents and oceans. But while the satellite holds great potential as a delivery system, it will not alleviate the task of serving the local, intimate needs of the people living in our cities and towns. That job will continue to be the responsibility of local communications media such as broadcasting and cable systems.

Many broadcasters and CATV operators have been slow to learn that "local" service means local involvement. We have learned, sometimes painfully, that it is no longer possible or practical to remove ourselves from the great events and issues facing our communities.

The recent report of the President's Commission on Civil Disorders describes vividly what broadcasters are doing—and can do—to help solve some of the more serious problems facing our urban areas. The report cites statistics which show the enormous influence television has upon ghetto residents. Having communications access to those urban dwellings gives broadcasters and CATV operators the opportunity to act constructively on urgent problems confronting our society. We cannot afford to abandon our responsibilities. We must find new and improved methods to put our channels of communications to expanded use in the greater public interest.

We, as communications people, face our greatest test in meeting this challenge during the next decade. 

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# Goodwill: A Basic Commodity For System Operators

**Goodwill is the most valuable asset of any business, and must be sought from fundamental beginnings of policy through all of an organization's activities.**

*By Robert E. Cowley, Vice President  
HarriScope Broadcasting Corp.*

An executive who participates in the formulation of policy should be skilled in the technique of public relations and able to supervise the activities of other employees. He needs executive ability to keep the various departments in a cable system working harmoniously; he must have the ability to unify their results into a cohesive pattern that permits prediction and planning; and he must be familiar with all phases of the cable business. The decision maker in CATV must possess judgment of public sensibilities.

The ability to consider a given situation and effectively judge what policy must be to assure acceptance is a trait more often inherent than acquired.

## Outside PR View Helps

For this reason it has been found more resultful to call on a man whose public relations abilities

have been proved and to teach him all that is necessary about a cable system than to attempt to move an employee into the position and then to develop his sensitiveness to human reaction.

This is not to say that some excellent public relations executives have not grown up in their industries and moved into their present positions. But many of them call on professional counsel frequently, to be certain that they have a point of view of the objective specialist as well as the internal attitude.

More and more, this type of executive is being given the recognition and remuneration that his importance merits. Many are vice-presidents and others are assistants to the president. They sit in on all meetings of company executives, and in most cases of boards of directors. When new actions are contemplated, they are called in for their views, just as the attorney or the banker will be called on.

When a plan is formulated, they map the activities of their departments which will help carry it out.

## Internal Relations Function

Another increasing practice is that of placing the company's relations with its personnel under the director of public relations.

The relationship between the employees and the public, and vice versa, is frequently so closely knit that no effective differentiation can be made. As we have seen, many of the tools of the personnel relations department are the same as those used to influence the general public, while the attitude of the employees will have an important effect on the public's regard for the organization.

At the same time, the policy of a cable system begins at home. If it is truly progressive, truly socially conscious, this will be reflected

*(Continued on page 128)*

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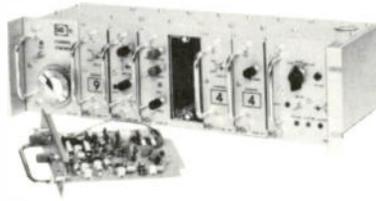
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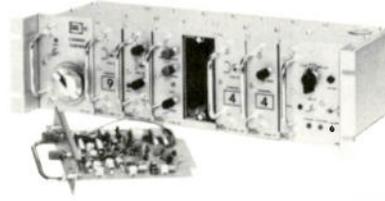
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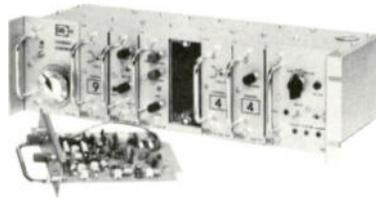
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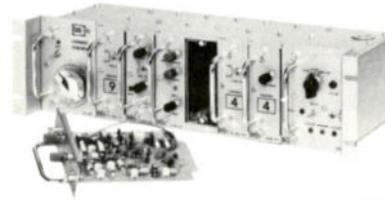
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## Construction Reports

**Attalla, Ala.**—Walter Hunt of Attalla Cablevision has announced that the construction contract for the system has been awarded to Vikoa Construction Co.

**Vestavia Hills, Ala.**—The first subscribers have been hooked up according to Telvue Cable president, M.M. Victory. Victory announced that viewers are receiving a Tuscaloosa UHF in addition to local stations, and that the company expects approval soon to add Huntsville and Montgomery stations. Telvue is now operating in Bluff Park, Green Valley, Hoover and other subdivisions surrounding Vestavia Hills.

**Dermott, Ark.**—Davco has announced that their recently acquired system at Dermott has been completely converted to all-band with the addition of 15 FM channels, a background tape channel and 7 video channels.

**McFarland, Calif.**—According to John Calvetti, vice president of Kern Cable TV, the first subscribers have

been hooked up. The 12-channel system head-end was supplied by Beaver Electronics, and Cal-Tel Construction Co. crews installed the distribution plant. Programming includes stations from Fresno, Bakersfield and Los Angeles as well as an educational station and a Spanish-language station.

**Sonora, Calif.**—Com-Cable TV, Inc. vice president Les Farey announced completion of a new 7-channel system. The 12-year-old equipment has been replaced with all solid-state.

**Pueblo, Colo.**—Pueblo TV Power, Inc., Foote, Cone & Belding's cable system, has announced construction plans for the 250-mile system. Thomas T. Farley, company secretary, announced that programs originating at the studio will be televised in color.

**Bonita Springs, Fla.**—A champagne preview showing launched cable television in Bonita Springs recently. W. Clarke Swanson, Jr., president of Swanco Communications, parent company of South Florida Cable Television Co., announced that the system's more than 1 million feet of cable can now service an existing market of 3,000 homes, 1,000 commercial outlets and 500 mobile homes.

**Atlanta, Ga.**—Grady Ireland, manager of Georgia Cablevision, announced the completion of 25 miles of plant installation. Residents within a 6-square mile area near downtown Atlanta will be able to receive six local channels as well as stock market and weather service channels.

**Malden, Mass.**—Initial work has been undertaken for installation of tower and head-end in Malden. Herbert S. Hoffman, president of Malden Cablevision Co. also announced that construction is scheduled to begin soon in three other communities—Medford, Everett and Somerville.

**Crete, Neb.**—TV Transmission, Inc., has announced energizing of the city's cable system. Subscribers will receive 7 video channels and FM.

**New Hamburg and Stratford, Ont.**—Grand River Cable TV, Ltd., headquartered in Kitchener, has launched a half-million-dollar rebuild program for New Hamburg and Stratford.

**Strathroy, Ont.**—Airland Communications has hooked up its first subscribers in Strathroy. The system will carry signals from 3 Detroit (Mich.) stations as well as stations from London, Windsor and Kitchener. 

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July 1968

*TV Communications*

# *CATV Technician*



*System manager and chief technician Harold Daniels makes amplifier adjustments on Vumore Company's Abilene, Kansas system*

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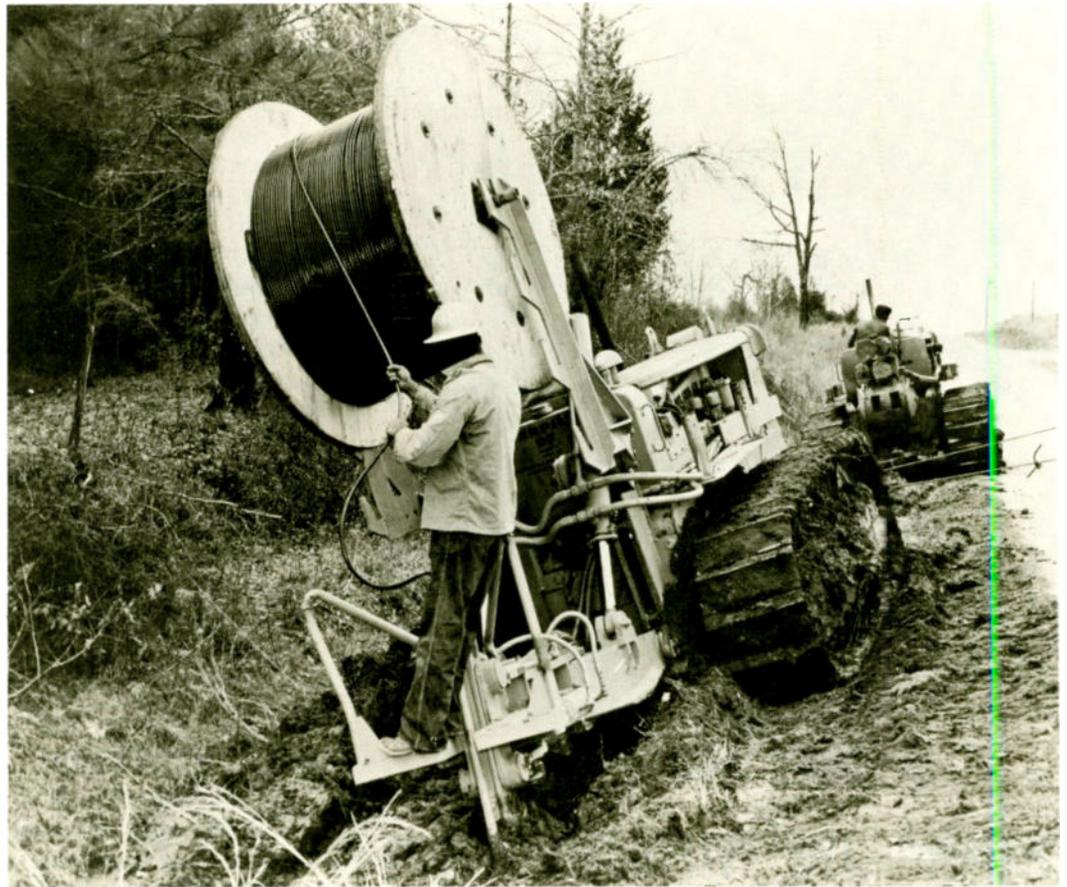
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# Considerations In Buried Plant Construction

**Buried construction for CATV plant has been receiving increased attention recently, and will continue to grow in importance. Here are pertinent considerations for cablemen going underground.**

*By E. Mark Wolf, Chief Engineer  
Communication Products Division  
Anaconda Wire and Cable Co.*

**E**ach year more and more underground community-antenna television systems are built. Each system is a special case, of course, and presents unique problems to its designers and builders. Nevertheless, there are a few general principles that apply to all systems. A look at the problems solved and to be solved may smooth the way for operators and engineers who are becoming involved in building underground CATV.

## Cable Design

First, let us look at certain aspects of cable design. Outer coverings on buried cable are used to protect and preserve the electrical integrity of the cable core. They

must protect the cable core against mechanical damage, and isolate it from the unfriendly environment of the soil.

Polyethylene is still the front runner as a jacketing material. It is tough and abrasion resistant; it is resistant to most of the acids, alkalis, and other contaminants found in soil and in polluted air. It does not absorb moisture and when properly pigmented with carbon black it withstands weathering and exposure to the elements. It is also relatively inexpensive.

There were some bad experiences with polyethylene in the past, but as a result of those early failures and the study they stimulated, we know today that high-

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molecular-weight polyethylene is a safe and reliable material to use for cable jackets. The mechanism of the failures, known as Environmental Stress Cracking is now quite well understood.

At points of failure the polyethylene was found to have developed deep radial cracks, for no readily evident reason. A comprehensive investigation was initiated, involving users, manufacturers, and raw material suppliers. This study showed:

(1) Only certain members of the polyethylene family were subject to this cracking. High-molecular-weight polyethylenes were not subject to this phenomenon.

(2) When cracking occurred, it appeared in sections of cable where the jacket was under stress, as at a bend.

(3) The cracking was caused by certain soil chemicals. Laboratory studies revealed many such materials, which became known as "cracking agents."

(4) A laboratory test was completely feasible, using one of the worst known cracking agents, which would quickly tell whether or not a given polyethylene was subject to Environmental Stress Cracking.

As a result of this study, we now have sensitive tests for crack resistance, and we have adequate raw material specs to assure that the problem is eliminated.

### Moisture Permeation

The chief mechanism by which moisture can penetrate undamaged non-metallic cable coverings is osmosis. This phenomenon permits most insulating and jacketing materials, under the right conditions, to act as permeable membranes through which moisture vapor can pass. The detailed theory and mathematical equations of osmosis are quite complex, but the principle is simple. Consider a thin film or membrane exposed on both sides to air. The air on one side is dry, but on the opposite side it is humid. Moisture vapor will pass through the membrane from the humid side to the dry side, and it will continue to do so until the partial vapor pressures on opposite sides of the membrane come into equilibrium. Note that the movement of moisture vapor is caused by a difference in *partial vapor pressures*, not atmospheric pressures. Thus, increasing the air pressure on the dry side does not stop the movement.

The rate of moisture permeation due to osmotic pressure is influenced by:

(1) *The membrane material itself.* Materials vary widely in their permeability. Fortunately, polyethylene is one of the best materials from the standpoint of resistance to permeation.

(2) *The thickness of the membrane.* The rate of permeation can be appreciably retarded by increasing the wall thickness. However, if this means alone were used to provide buried cable with 20-30 year life expectancy, jacket thicknesses would be too heavy to be practical.

(3) *The difference in vapor pressure.* We really have no control over this. We must assume that the buried cable is externally exposed to a saturated environment, and the cable core and shield are dry.

One solution to the problem of osmosis is to bond the outer polyethylene jacket at its inner surface to an impermeable metallic moisture barrier. If this bond is complete, tight, and permanent, the process of osmosis is effectively stopped and there is no moisture permeation. This is the approach used in Anaconda's Seal-

metic coaxial cable. In this cable, the outer conductor, or shield is used as the impermeable moisture barrier. An adhesive copolymer, which bonds to both metal and plastic, makes possible the use of a thin strip of aluminum for the outer conductor. Because the outer conductor is bonded to the polyethylene jacket by this copolymer, no moisture pockets can form between the jacket and the metal.

Moisture permeation due to osmotic pressure is not limited to underground installations. There have been a number of failures of overhead cable in seacoast areas and other areas of constant high humidity, when the



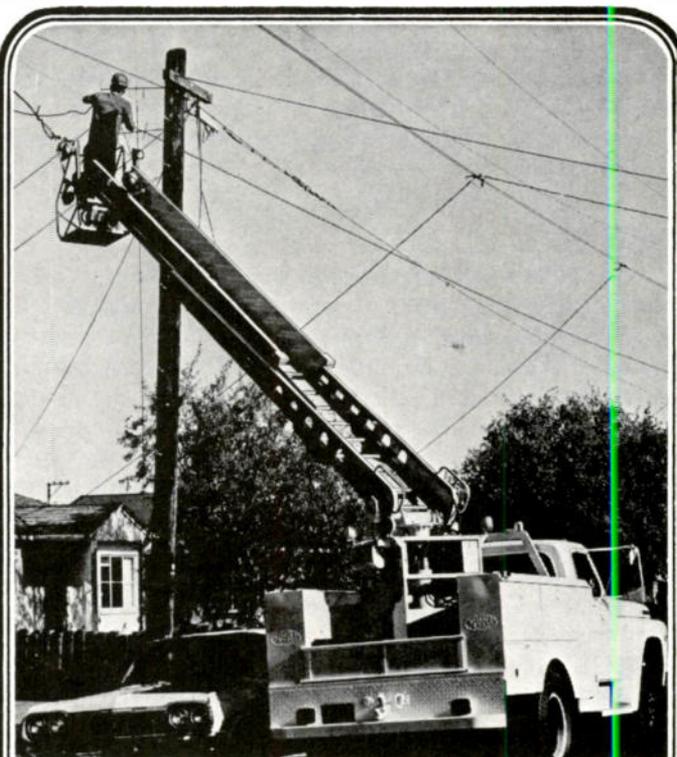
Flexibility and durability are necessary characteristics of direct buried cable. Shown above and in the photo on page 103 is Anaconda Sealmetic going underground.

cable has not had properly bonded and sealed outer covering and shield. In overhead installations, however, the action reverses when the humidity drops; moisture then moves *out* of the cable. There have been a number of installations with unsealed cable in which cable attenuation has been quite unstable for this reason. Attenuation increased in wet weather, and dropped in dry weather.

### Shielding

The use of aluminum as a shielding material always comes up in discussions of buried cable. Its use has been questioned by some people, presumably because bare aluminum, when it is exposed to a damp soil environment, corrodes quite rapidly. To resolve the controversy, one should understand the intended functions of the various cable components. The inner conductor, the cellular polyethylene insulation, and the outer conductor or shield have chiefly electrical functions; to perform these electrical functions they must be kept dry, to protect it from soil chemicals, and to provide mechanical protection. The shield, therefore, like the rest of the cable core, should be housed in a permanently dry environment.

Under these conditions aluminum is a logical engineering choice for the shielding material. We formerly



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used a copper shield in this construction for underground use, but no longer offer this construction as standard. We feel the aluminum shield is actually superior to copper, because we have found that the adhesive bond between jacket and shield is stronger and more permanent.

## Lightning

In some areas of the country, the possibility of lightning damage is a matter of serious concern, and should be taken into account in system design. There are many theories of lightning damage; they will probably remain theories because of the difficulty of making direct measurements of a bolt of lightning.

One explanation of lightning-caused sheath punctures in cable is the standing wave theory. This analysis postulates that a surge is induced in the cable sheath when lightning strikes near an overhead section. The surge travels along the cable, and at points where the cable impedance to ground changes drastically, reflections are introduced. Note that reflections are caused by changes in impedance to *ground*, not the characteristic impedance of the cable itself. The combination of the travelling wave front and the reflections creates standing waves along the cable. At the voltage peaks of these standing waves, the dielectric strength of the sheath is exceeded, the sheath is punctured, and the charge leaks off to ground. Typical of such an event is the occurrence of sheath punctures at widely spaced intervals, underground. According to this theory, these punctures will always occur in an underground section

of cable which at some point runs overhead. The transition from overhead to underground provides a considerable change in impedance to ground, and hence a large reflection, which causes the standing wave.

A somewhat different theory, which predicts results with quite similar accuracy, says that the voltage is induced in underground cable by ground currents resulting from a lightning strike. Impedance-to-ground changes in this case are caused by variations in ground resistance or soil moisture content.

Regardless of the theory one accepts, there are three preventive measures. Where there is a transition point from overhead to underground, take elaborate precautions at the last pole to get a good low-resistance ground. To stabilize the impedance to ground of the underground section, lay a bare copper wire near the cable, preferably about 3 inches directly above it. Finally, when possible lay underground runs near and parallel to power and telephone lines, if at all possible, since they provide an excellent "umbrella" against lightning.

In overhead cables, lightning surges are not a serious problem, because they are normally installed lashed to a messenger wire which can be grounded at frequent intervals. This insures uniform impedance to ground, and the standing wave therefore does not develop.

## Installation

Cable should always be buried as deeply as possible, since the danger of damage from digging, frost heaving, and insect and rodent attack decreases as the depth increases. A depth of 36 inches is good, and is well within the capability of modern plowing and trenching equipment. With currently available plowing equipment, it is possible to place cable in the ground without damage, but good equipment, experienced crews, and adequate supervision are essential.

Vibratory plows work well in rocky terrain, and some of them leave the cable surrounded with rock-free dirt. For unusual situations, heavily protected—even steel-armored—cable can be used. Such cables are expensive, however, and their cost should be compared with the cost of careful installation of less heavily protected cable.

Installation of the cable in flexible polyethylene pipe should also be considered. The pipe is coilable, and the cable can usually be delivered to the site on reels, already installed in the pipe. Polyethylene pipe is not expensive, and it provides good protection during installation. It also provides a "buried hole" so that the cable can be replaced without digging it up.

## Cooperation Yields Results

It is impossible, of course, to offer a single neat package of advice, complete with practices and procedures, that will insure a successful buried system under any conditions. Nevertheless, this brief discussion of theories, principles, and problems should provide a basis of understanding among operating engineers, construction engineers, and cable engineers. This is important, because by working as a team and pooling our knowledge, CATV can be gotten underground quickly, efficiently, economically, and effectively. 

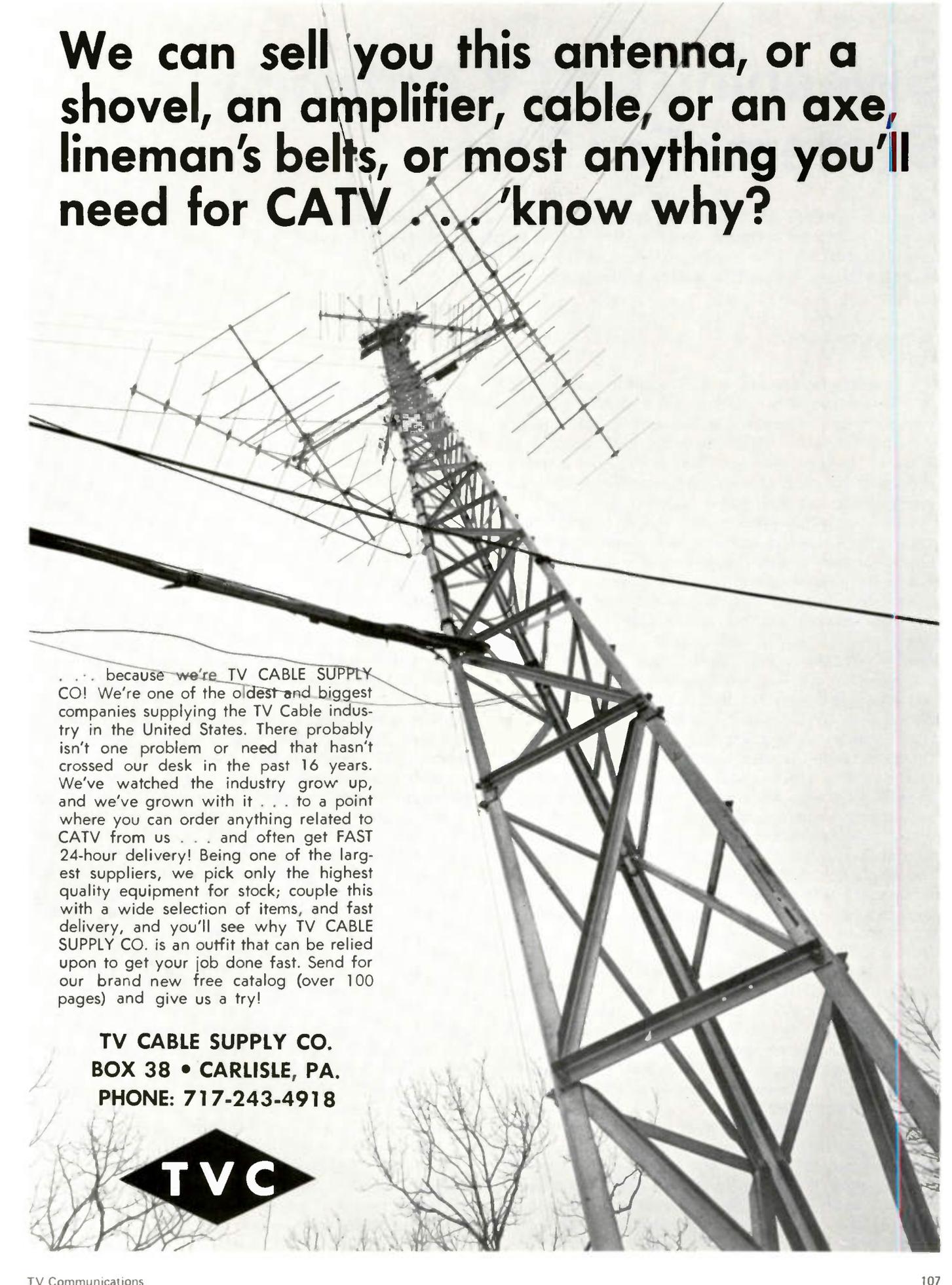
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# Sweeping CATV Antenna Systems For Color

**Proper match of stacking harness components requires a minimum of effort, and will yield a higher quality, lower loss signal to the system; possibly a critical factor in providing saleable color reception.**

*By Peter S. Carr  
Home Telephone Co.  
Ridgway, Pa.*

The plant equipment in use today is designed for flat response in addition to high output. This characteristic is necessary to assure a proper balance of color information within the video bandwidth as received at the home receiver. However, the flat response of the distribution gear is not efficiently used if the signal applied to the head-end is not also flat.

Television signal coming into the antenna array is subject to atmospheric and man made interference which, through phase changes, may alter the amplitude of random frequencies in the bandwidth. The only control the operator has, is one of total bandwidth quantity through the use of multiple antennas and signal preamplification equipment. In practical use these devices are superior to the home antenna system in terms of giving the incoming signal stability. While this gear is industry standard it is common practice to install it at the head-end site without tuning to the same specs as the outside plant.

Lets consider the wiring of the typical quad stacked antenna array. Cut-to-channel antennas are supported on an H type frame which places the antennas in proper relationship for narrow beamwidth and maximum gain. When coax leads are used, the individual antenna outputs are combined by means of three splitter/mixers. The single downlead may go directly to the head-end or, in cases of weak signal or long downlead length, may go to a mast-mounted preamp. Any of these items may have nonlinear attenuation which tilts the signal applied to the head-end.

Taking the coax combining leads first, we have a length of cable, usually RG-59/U of a length determined by the physical size of the H frame. A sweep test of RG-59/U shows that it has the poorest attenuation linearity of all the standard cables. The longer the combining lead lengths, the greater the possible distortion. For this reason the use of semi-rigid coax should be considered.

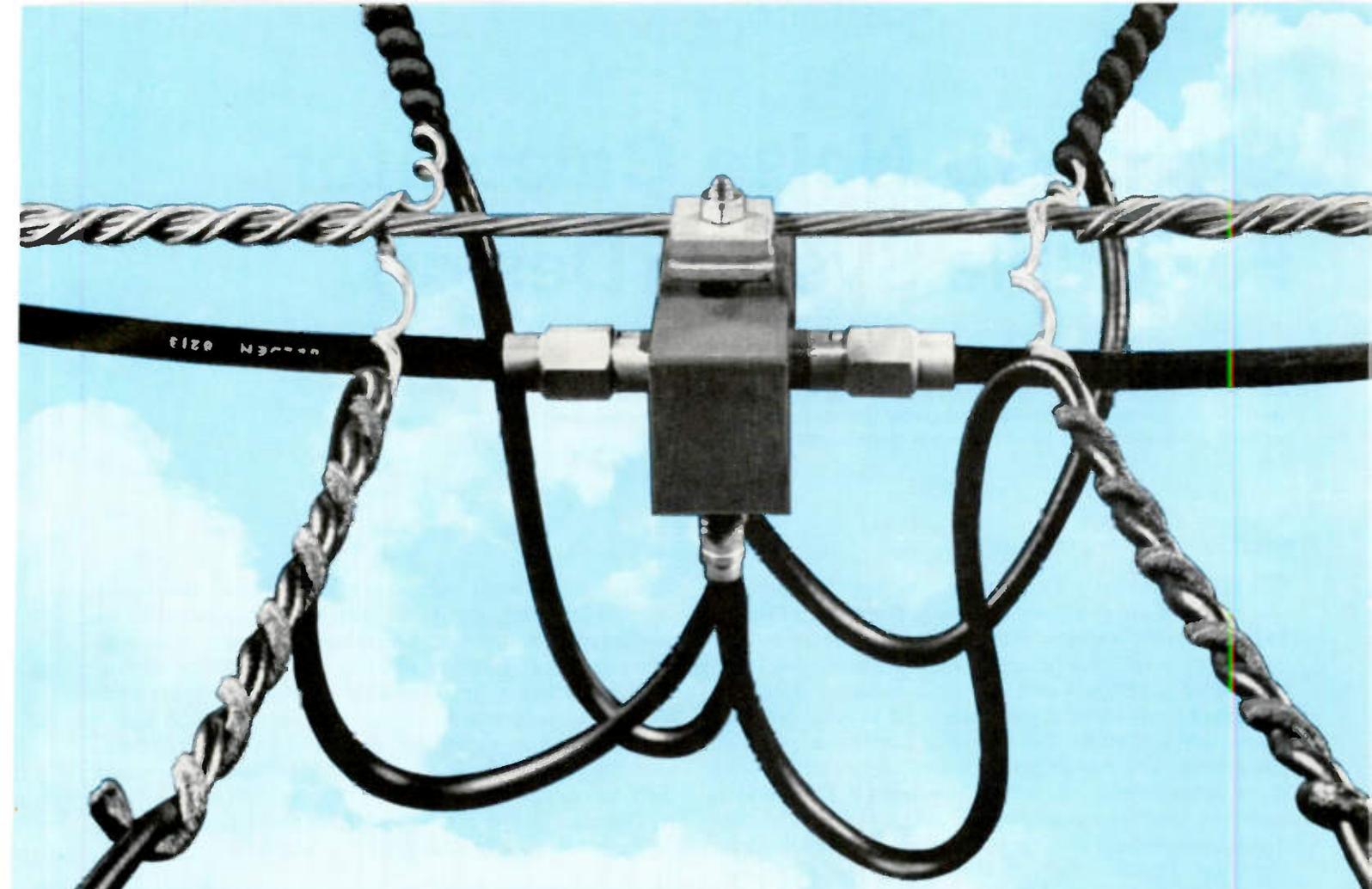
Next we use three splitter/mixers to combine four leads to two, and two into a single downlead. These units fall into two groups, the broadband and cut-to-channel types. While the broadband model was suitable for black and white signals and is still in wide use today, the single channel splitter/mixer offers flatter response in addition to adjacent channel rejection.

When using a preamp on the tower it is best to use a single channel type, since, as with the splitter, it is easier to obtain flat response on a single channel bandwidth than it is over the full TV spectrum. These units have an associated power supply/coupling network which is generally broadband as to output and therefore may be distorted in attenuation. In testing these power supplies, their ambient heat should be taken into consideration as they will change characteristic with varying temperature.

Having selected the components to be used, the next step is to test them as a working unit. This is done by setting up sweep and marker generators plus scope and pads in a standard sweep test facility. The sweep generator is adjusted for output in the desired video bandwidth and the marker for high and low frequency test limits. The use of a dual trace scope and electronic switch makes possible the comparison of direct sweep-marker output with that coming through the stacking harness. The input of the scope is connected to the preamp power supply output directly or through the electronic switch. Sweep and marker signal goes to one of the four harness inputs and to the electronic switch. The scope is adjusted to show the full 6 MHz band with high and low markers at maximum trace width. Amplitude calibration of the scope should be carried out on both traces at this time, although we are not as interested in absolute values as in obtaining a comparative minimum difference between the two traces.

Apply the test signal to each of the four harness inputs and note any sizeable distortion. If one spike is present on all four legs, a common component is at fault. This would be the center splitter, downlead, preamp or power supply. Change one at a time while looking for the smoothest overall trace. Next, compare the trace of the top and bottom legs, again noting common faults. Try several splitters and use the one giving the smoothest trace. If there are still serious spikes, then change the cable, making sure that lengths are equal. Repeat the routine for the other half of the harness.

When regarded separately, the stacking harness components are nickle and dime items as is the time invested in tuning them into an efficient working unit. The results of their proper match will be a higher quality, lower loss signal available to the system.



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# Signal-To-Noise Calculator For Cable System Design

The increasing complexity of cable system design and construction continues to complicate the task of the system design engineer. The techniques described here can reduce effort and error in plant layout applications.

By Donald Z. Dworkin  
Chief Engineer, Vikoa, Inc.

The design of CATV systems has steadily become more of an exact science with the publication of amplifier specifications that more truly describe the amplifiers' actual operation. With the growing sophistication of amplifiers and all the associated head-end gear, has come some mystification of exactly what is gained (or lost) with the use of a particular piece of equipment. The numerous formulas and charts are all there, ready to be used, but the average CATV operator may feel less than confident in going through all the manipulations and coming up with an answer which he can trust. In addition, with the growth and expansion of existing systems and the necessity of planning these expansions, not to mention new systems, with relatively inexperienced personnel, it has become apparent that there is a need for simplification of design procedures.

A nomograph is presented (Figure 2) which enables the CATV designer to obtain, very simply, all the pertinent information he needs regarding input signal levels in each part of the system: head-end, trunk, and distribution. These levels are combined in a straightforward way without going through additional steps such as computing system noise figures, so that the designer can easily see the result of changing any part of the system and then its effect on the total system. The designer really gets the "feel" for what happens and, hopefully, can confidently manipulate the system design according to his needs, not the other way around.

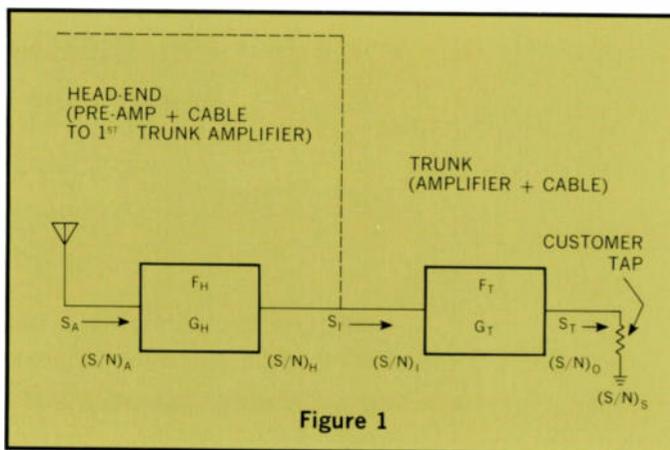
The final step is to obtain the output levels, also from the same nomograph. Knowing input and output levels, the system is completely described—amplifier gains, trunk cable spacing, minimum acceptable head-end signals, etc. and all this with an accurate idea of the quality of the final picture in terms of its S/N ratio.

## Explanation Of Nomograph

The nomograph is drawn up on the basis of an antenna signal required to produce a 62 dB S/N ratio from the head-end equipment and a 40 dB S/N ratio at the last trunk amplifier in a system. These requirements are average conditions for most systems. In

addition, a high head-end S/N ratio produces negligible effect on overall system S/N and may be neglected in computing overall performance. However, if necessary, the S/N ratios may be changed by adding or subtracting a fixed number to suit any individual system specifications. When this is done, the effect of low antenna signal (or high head-end noise figure) may be separately computed and the overall system S/N calculated.\*

The nomograph\*\* is based upon the diagram shown in Figure 1 of a typical CATV system.



It is assumed, in accordance with practice, that the head-end AGC compensates for any antenna signal, maintaining the signals into the trunk amplifiers constant. Also, the S/N ratios shown in the above diagram are the individual S/N ratios, considering each section separately. Their combination, which gives the resulting S/N ratio for the overall system,  $(S/N)_S$ , will be illustrated by the following examples:

### EXAMPLE #1

What is the minimum antenna signal necessary using

\*A slide rule, incorporating this feature, may be obtained, free of charge, by writing to Vikoa Incorporated, Attention: Alan Lipp, 400-9th Street, Hoboken, New Jersey, 07030.

\*\*For information on the derivation of the nomograph and justification for using the procedure described, see the Appendix on page 114.

head-end equipment with a 6 dB noise figure, assuming a desired  $S/N_S$  of 40 dB for the system and 62 dB  $S/N$  for the head-end?

**SOLUTION**

Draw a line from Point A to "6 dB" under "Amplifier Noise Figure." Read 9 dBmv under "Input Level, Head-end." Thus 9 dBmv into a 6 dB NF device would produce a 62 dB  $S/N$  at the head-end.

**NOTE**

If only 2 dBmv were actually available at the antenna site, this would produce:

$9-2 = 7$  dB poorer  $S/N$  ratio from the head-end, or  $62-7 = 55$  dB  $S/N$  from the head-end.

**EXAMPLE #2**

The UHF signal feeding a 12 dB noise figure U-V converter fades to -2 dBmv at times. What is the effect on head-end and system performance if the system  $S/N$  ratio is normally 44 dB?

**SOLUTION**

Draw a line from Point A to "12 dB" under "Amplifier Noise Figure." Read "15 dBmv" under "Input Level, Head-end" as the required signal for a 62 dB  $S/N$ . (This level will have negligible effect on the system). When the signal fades to -2 dBmv, this degrades the head-end  $S/N$  by  $15 - (-2)$  or 17 dB. The head-end  $S/N$  will now be  $62-17$  or 45 dB. The combination of the reduced head-end  $S/N$  of 45 dB and the system  $S/N$  of 44 dB will degrade the overall system by 2.4 dB by checking against the chart "Combination of Two  $S/N$  Ratios," as the difference (45-44) equals 1 dB.

**EXAMPLE #3**

There are 30 trunk amplifiers in the above system having 10 dB noise figures. What should the input level be to maintain a 43 dB  $S/N$  when the UHF signal fades as in Example 2 with at least 44 dB  $S/N$  under good signal condition?

**SOLUTION**

Draw a line from "30" under "Longest Trunk Cascade" to "10 dB" under "Amplifier Noise Figure." Read "6 dBmv" under "System." This input level is for a 40 dB  $S/N$  system so that the required input is  $44-40 = 4$  dBmv more or 10 dBmv for the system with good head-end conditions. We note that the head-end  $S/N$  falls to 45 dB and, from Example 2, there is a 2.4 dB degradation under signal fade conditions. The system can be operated so that the overall  $S/N$  will not fall below the 43 dB requirement by using an input signal to all trunk amplifiers of 13 dBmv producing a system  $S/N$  of 47 dB. The combination of 45 dB head-end  $S/N$  and 47 dB system  $S/N$  yields the required 43 dB  $S/N$  for the overall system under signal fade conditions.

**EXAMPLE #4**

For the system discussed in Examples 2 and 3, will four line extenders in cascade, having individual noise figures of 15 dB, degrade the system noise figure if the minimum inputs to the extenders are 14 dBmv?

**SOLUTION**

We can treat the four line extender cascade as we did the trunk; that is, determine its  $S/N$  and combine with the preceding  $S/N$  (in this case, the overall head-end plus trunk  $S/N$ ).

Draw a line from "4" under "Longest Trunk Cascade" to "15" under "Amplifier Noise Figure" and read "2" under "Input Level-System." Since 14 dBmv will actually be used, the line extender cascade will have its  $S/N = 40 + (14-2) = 52$  dB. The combination of

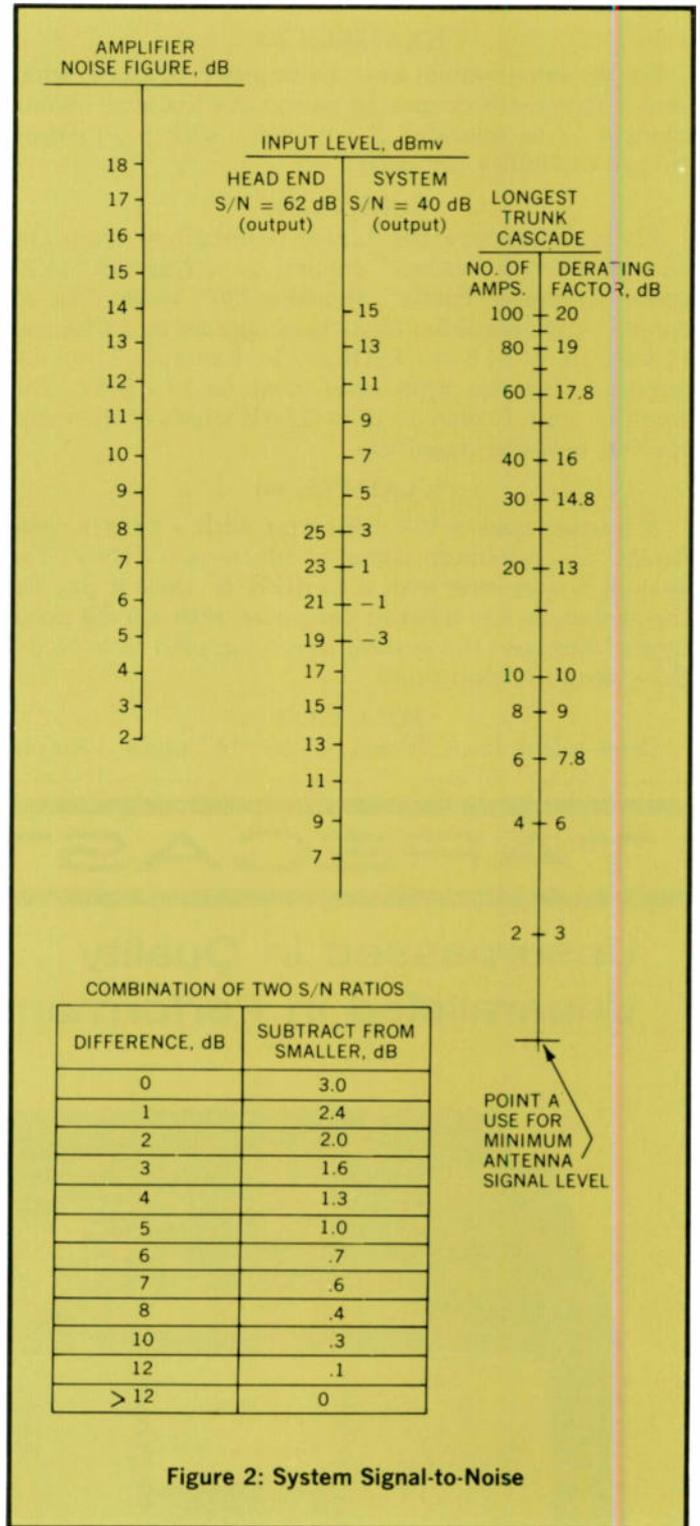


Figure 2: System Signal-to-Noise

the extender  $S/N$  of 52 dB and the head-end plus trunk  $S/N$  of 45 dB under good signal conditions (see Example 3) is seen to produce a degradation of 0.6 dB by checking the "Combination" chart for a 7 dB difference. This may be neglected, particularly for the resultant excellent  $S/N$  of 44.4 dB for the entire system.

When the head-end signal fades to -2 dBmv, the head-end plus trunk S/N falls to 43 dB, as calculated in Example 3. Checking the "Combination" chart for a 52-43 = 9 dB difference, it shows that the entire system S/N will be degraded by less than .4 dB which again may be neglected.

**EXAMPLE #5**

For the same system as in Examples 2, 3, and 4, what should the amplifier spacing be and at what level should channel 13 be operated if amplifiers with a 50 dBmv output capability are used?

**SOLUTION**

The system derating factor is obtained from the "Longest Trunk Cascade" column by noting the "14.8" under "Derating Factor" opposite "30" under "No. of Amps." Each amplifier must then operate at a Channel 13 level of 50-14.8 or 35 dBmv. In Example 3, we determined that the input level must be 13 dBmv. The amplifier gain is then 35-13 = 22 dB which is the cable spacing between amplifiers.

**EXAMPLE #6**

A system uses a U-V converter with a 14 dB noise figure. The minimum signal available is 0 dBmv. The system is operating with a 40 dB S/N. Does it pay for the system to buy a better converter with a 5 dB noise figure? Suppose the system were upgraded to a 44 dB S/N, would it then pay?

**SOLUTION**

Draw a line from "Point A" to "14" under "Ampli-

fier Noise Figure." Read "17 dBmv" under "Input Level" as the required signal for a 62 dB S/N. Since only 0 dBmv is available, the actual S/N is 62-17 = 45 dB.

This degrades overall system performance by only 1 dB and may be neglected. (See "Combination" Chart for a 5 dB difference). It, therefore, would not pay to invest in a better converter. However, if the old converter would produce a 2.4 dB degradation which is noticeable. Then a lower N.F. converter would be worthwhile.

**EXAMPLE #7**

A proposed CATV system wants to know what antenna signals are required to produce various picture qualities if the trunk is designed for a 44 dB S/N and the head-end equipment has 6 dB noise figures.

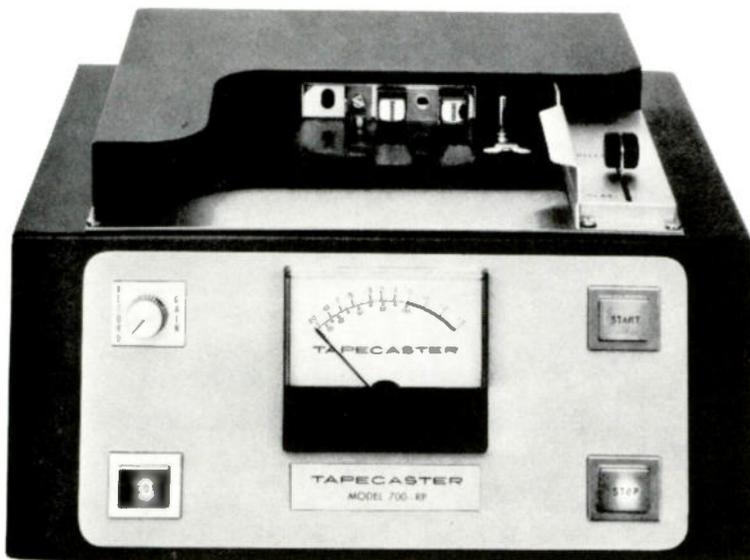
**SOLUTION**

From Example 1, we know that 9 dBmv is required

| ANTENNA SIGNAL | HEAD-END S/N | TRUNK S/N | DIFFERENCE BETWEEN COL. 2 AND COL. 3 | AMOUNT TO SUBTRACT FROM SMALLER S/N | OVERALL SYSTEM S/N | PICTURE QUALITY             |
|----------------|--------------|-----------|--------------------------------------|-------------------------------------|--------------------|-----------------------------|
| dBmv           | dB           | dB        | dB                                   | dB                                  | dB                 |                             |
| +9             | 62           | 44        | 18                                   | 0                                   | 44                 | EXCELLENT                   |
| -1             | 52           | 44        | 8                                    | 0.4                                 | 43.6               | NO APPARENT CHANGE          |
| -8             | 45           | 44        | 1                                    | 2.4                                 | 41.6               | SLIGHTLY BELOW EXCELLENT    |
| -11            | 42           | 44        | 2                                    | 2                                   | 40                 | VERY GOOD                   |
| -14            | 39           | 44        | 5                                    | 1.0                                 | 38                 | FINE                        |
| -16            | 37           | 44        | 7                                    | 0.6                                 | 36.4               | FINE, SNOW JUST PERCEPTIBLE |

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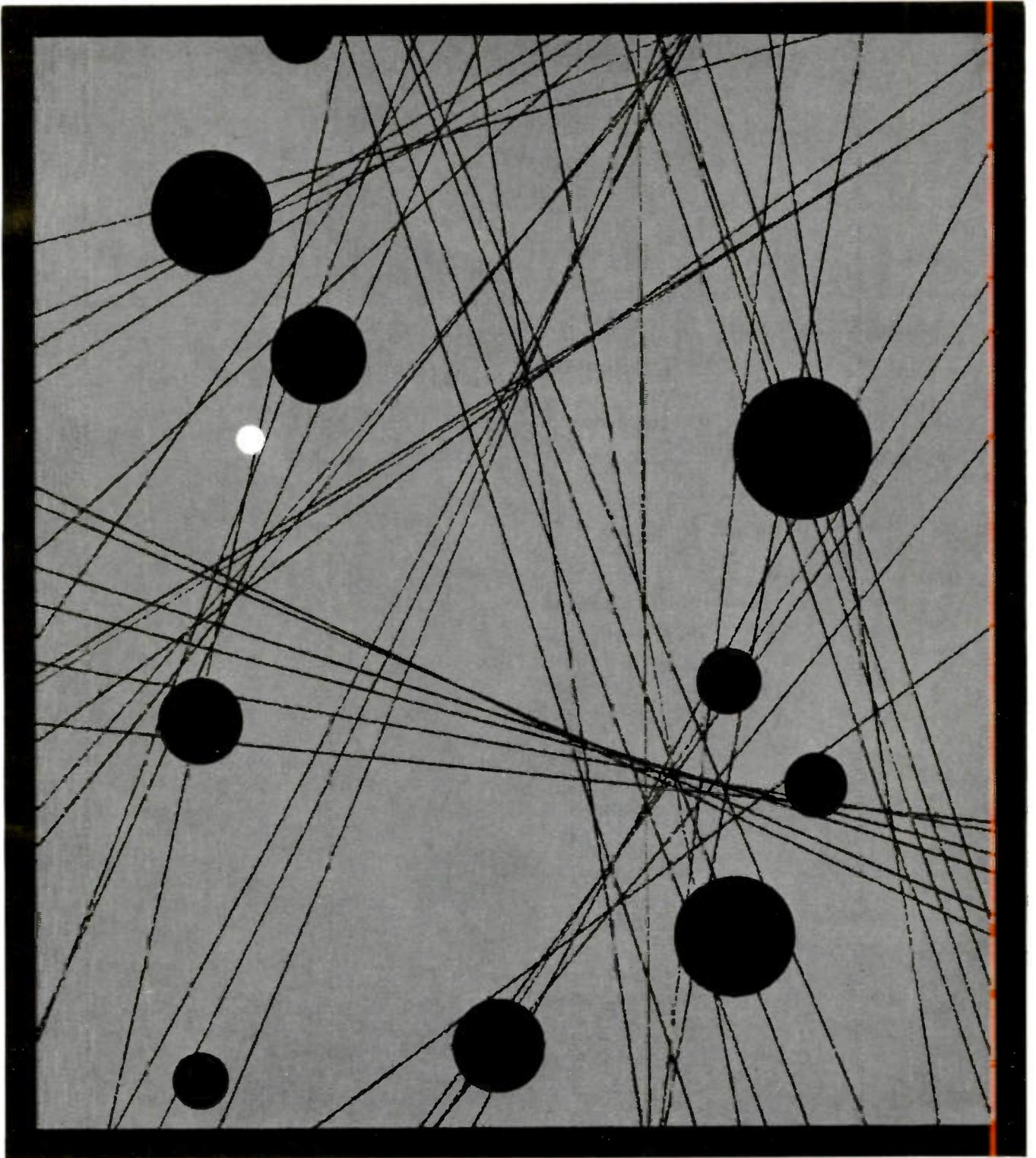
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to produce a head-end S/N of 62 dB. This will produce negligible effect on overall system S/N. By reducing the antenna signal in steps, we can tabulate the effect on the system as shown in the accompanying table.

## APPENDIX

### Derivation of Nomograph

The nomograph equation is based upon the definition of noise figure for an amplifier

$$F = \frac{(S/N)_{in}}{(S/N)_{out}} \quad (1)$$

where  $F$  = noise figure of amplifier

$(S/N)_{in}$  = signal-to-noise ratio at the input to amplifier

$(S/N)_{out}$  = signal-to-noise ratio at the output of amplifier

Rearranging:

$$(S/N)_{out} = \frac{(S/N)_{in}}{F} \quad (1a)$$

with all terms in dB form

$$(S/N)_{out} = S_{in} - N_{in} - F \quad (1b)$$

Substituting the well-known relation for the noise figure,  $F_T$ , of a cascade of "n" identical amplifiers, equally spaced between cable attenuation equal to the amplifier gain:

$$F_T = F_A + 10 \log n \quad (2)$$

where  $F_A$  = noise figure of individual amplifiers in dB

Also, for a 4 MHz bandwidth at room temperature

$$N_{in} = -59 \text{ dBmv} \quad (3)$$

Substituting Eqs. (2) and (3) into (1b), we get

$$(S/N)_s = S_{in} - F_A - 10 \log n + 59 \quad (4)$$

where  $(S/N)_s$  = overall system signal-to-noise ratio, dB

$S_{in}$  = input signal level to each amplifier, dBmv at the highest channel, usually Channel 13

$n$  = number of equally spaced, identical amplifiers.

### Derivation of Validity of Adding Signal-to-Noise Ratios

For CATV purposes, the system, excluding distribution, can be shown as in Figure 1.

The noise figure,  $F$ , of the system of Figure 1 is:

$$F = F_H + \frac{F_T - 1}{G_H} \quad (\text{all terms as power ratios}) \quad (5)$$

Using the relationship of (1b) and converting to logarithmic form, the exact equation for overall system signal-to-noise ratio,  $(S/N)_s$ , is:

$$(S/N)_s = S_A - N_{in} - \left( F_H + \frac{F_T - 1}{G_H} \right) \quad \text{in dB} \quad (6)$$

A good approximation to Eq. (6) can be obtained, without the necessity of going through the intermediate noise figure calculations by adding the separate signal-to-noise ratios of the head-end and trunk on a power basis.

The justification for this is as follows:

Using Figure 1 as our system model, let us consider the head-end and the cable from the head-end to the first amplifier of the trunk as a single unit with a gain,  $G_H$ , from the antenna. Let us also consider the trunk as a system whose gain,  $G_T$ , is unity. Then:

$$S_1 = G_H S_A = S_T$$

In other words, the input signal,  $S_1$ , to each amplifier is common to the entire system—head-end output, each amplifier input and system output.

Bearing in mind that  $S_1$  is a common reference, when we combine the individual section S/N ratios on a power basis, as we do when we use the "Combination of Two S/N Ratios" chart on the nomograph, we are really adding the individual noise powers of each section together. We, therefore, are adding the noise power from the head-end,  $N_H$ ,

$$N_H = G_H N_{IN} F_H \quad (7)$$

to the noise power produced by the trunk amplifiers,  $N_T$ , considered as a separate section,

$$N_T = G_T N_{IN} F_T = N_{IN} F_T \quad (8)$$

since  $G_T = 1$

and we get the total system noise,  $N_S$ , as:

$$N_S = N_H + N_T = N_{IN} (G_H F_H + F_T) \quad (9)$$

The combined S/N ratios therefore, give us:

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$$(S/N)_s \text{ (approx.)} = \frac{S_T}{N_s} \quad (10)$$

$$= \frac{G_H S_A}{N_{IN} (G_H F_H + F_T)}$$

$$= \frac{S_A}{N_{IN} (F_H + \frac{F_T}{G_H})} \quad (10a)$$

The logarithmic form for Eq. (10a) is:

$$(S/N)_s \text{ (approx.)} = S_A - N_{IN} - (F_H + \frac{F_T}{G_H}) \text{ in dB} \quad (10b)$$

Comparing the exact equation, Eq. 6, and the approximate Eq. 10b, we see that the only difference is between the terms

$$\frac{F_T - 1}{G_H} \text{ and } \frac{F_T}{G_H}$$

Since  $F_T$  is usually larger than 100 (as a power ratio) for a trunk of 10 amplifiers with 10 dB noise figures, this can be easily neglected.

An interesting confirmation of the above results can be seen by comparing results obtained from the nomograph with those from an exact calculation. The calculations were done in the paper "Noise Figure and the System Signal-to-Noise Ratio" by Carmine D'Elia (published by Vikoa). The system shown there is indicated in Figure 3.

D'Elia calculated the overall system noise figure to

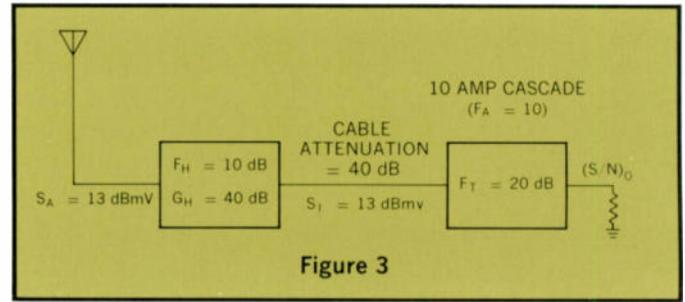


Figure 3

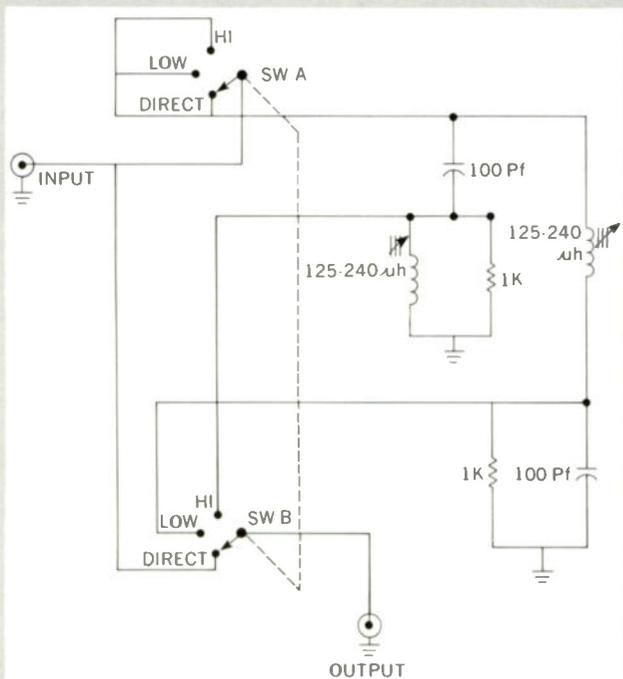
be 20.4 dB. This yielded an  $(S/N)_O = 51.6$  dB. (First case). He then postulated a reduced antenna signal of 3 dBmV while maintaining the amplifier signal levels, or, in effect, a good head-end AGC. He recalculated the overall system noise figure to be 13.2 dB. This yielded an  $(S/N)_O = 48.8$  (Second case).

|                        | FIRST CASE |                   | SECOND CASE |                   |
|------------------------|------------|-------------------|-------------|-------------------|
|                        | NOMOGRAPH  | EXACT CALCULATION | NOMOGRAPH   | EXACT CALCULATION |
| ANTENNA SIGNAL, dBmV   | 13         | 13                | 3           | 3                 |
| HEAD-END S/N, dB       | 62         |                   | 52          |                   |
| TRUNK S/N, dB          | 52         |                   | 52          |                   |
| OVERALL SYSTEM S/N, dB | 51.7       | 51.6              | 49          | 48.8              |

By using the nomograph, we avoid the calculations of noise figure and get the results shown in the accompanying table. TVC

### CATV Tech Tip

## High And Low Pass Color/Video Filter



This month's Tech Tip has been provided by G.L. (Newt) Newton, El Monte, California. The High and Low Pass filter diagrammed here can be used to separate color information (3.58 MHz) from video information, and can be a very useful tool when the CATV Technician is concerned with noise in color or video. It is a quick method for pinpointing noise or other conflicting RF that might be present in the composite picture. The unit used by Newton is in a 3"x5"x2" box and utilizes F fittings for input and output.

**Note to Technicians:** TV Communications pays for any useful "Tech Tip", whether it's on gaff care . . . or microwave system testing. In addition to earning editorial credits and a liberal payment, contributors will be assisting in an exchange of knowledge which is profitable to the entire CATV technical profession. Items may be of any length, and need not be in "finished draft" form. Schematics (pencil drawings are adequate) and photos which go with the item are welcome, of course, and any materials submitted will be returned upon request. Address materials or inquiries to: Milt Bryan, Managing Editor, TV Communications, 207 N.E. 38th, Oklahoma City, Oklahoma 73105.

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# Advancing The Concept Of Antenna Phasing

The technique of phasing out interfering signals from more than one undesired station, while not a completely new concept, may prove to be the answer to specific co-channel problems on your system.

By Milton D. Schmidt  
Manager, D and E Cable TV

Sometimes co-channel interference at a particular receiving location is caused by one interfering, or undesired signal. Then the phasing formula:

$$S (\sin \theta) \cdot R (1 - \cos \theta) = \frac{n\lambda}{2} \text{ will apply.}$$

Where  $\theta$  =  $\angle$  between desired and undesired signals - taken clock wise

$\lambda$  = center frequency of channel involved. Figure 1.

S = horizontal separation of antennas

R = retardation of one antenna

n = any odd number 1, 3, 5, etc.

However, in many cases, perhaps most cases, the end product of the signal received is the combined total of the "desired" signal plus increments of more than one "undesired" signal.

We know that we can space antennas to cancel out one undesired signal by substituting in and solving the equation above.

Going one step farther it then appears that if we have more than one undesired signal there could possibly be a common solution to cancelling out all of these signals simultaneously. Let us then set up a hypothetical situation involving more than one undesired signal at a particular receiving location, and investigate this possibility.

We will assume a tower-site at the coordinates:

Lat. -  $39^{\circ} 27' 35''$  N

Long. -  $78^{\circ} 03' 49''$  W

We will assume a desired signal at the coordinates:

Lat. -  $38^{\circ} 37' 05''$  N

Long. -  $78^{\circ} 37' 57''$  W

The hypothetical desired signal is Channel 3. Next, we investigate possible sources of co-channel interference and find three possibilities:

Undesired 1 - Lat. -  $40^{\circ} 02' 38''$  N

Long. -  $75^{\circ} 14' 26''$  W

Undesired 2 - Lat. -  $38^{\circ} 30' 34''$  N

Long. -  $82^{\circ} 13' 09''$  W

Undesired 3 - Lat. -  $36^{\circ} 48' 56''$  N

Long. -  $76^{\circ} 28' 00''$  W

## Problem:

To determine by plotting the coordinates of the three Channel 3 stations above, which two would be the most likely suspects to cause co-channel interference to the Channel 3 station we desire to receive, and stack antennas against co-channel interference to minimize the signal increment from these undesired stations.

## Solution:

Referring to graph of coordinates (Figure 2) it is obvious that any solution to cancellation of Undesired Signal 2 will also cancel Undesired Signal 1 since they are  $180^{\circ}$  apart.

This reduces problem to resolving only two interfering signals, and we will attempt to solve for Undesired Station 2 -  $40.5^{\circ}$  clockwise and Undesired Station 3 -  $252^{\circ}$  clockwise.

## Analysis:

Note #1 - Orientate the coordinate system so that the direction line from which angle measurements are made falls on the R axis thus having the angles  $252^{\circ}$  and  $221^{\circ}$  falling in the third quadrant (Do not really think this is necessary — just convenient — as will be demonstrated later).

Note #2 - The distance between two objects is relative

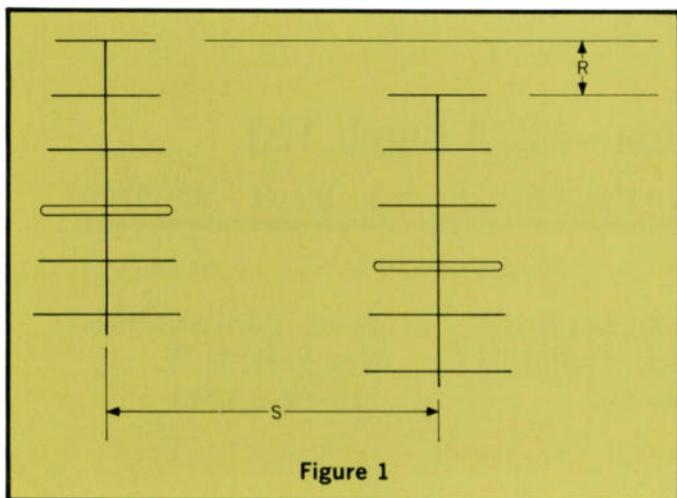
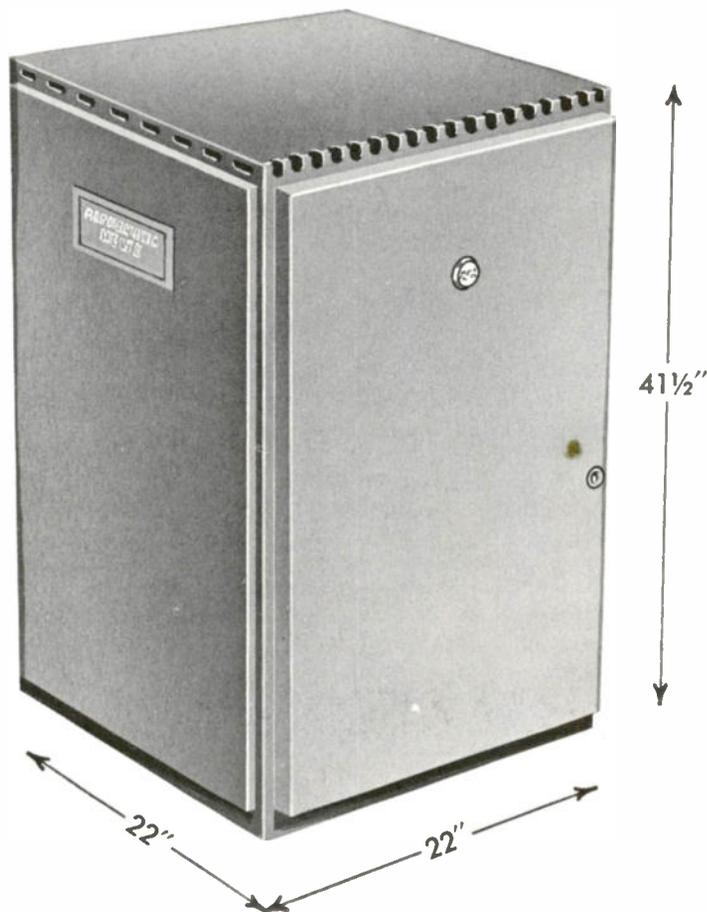


Figure 1

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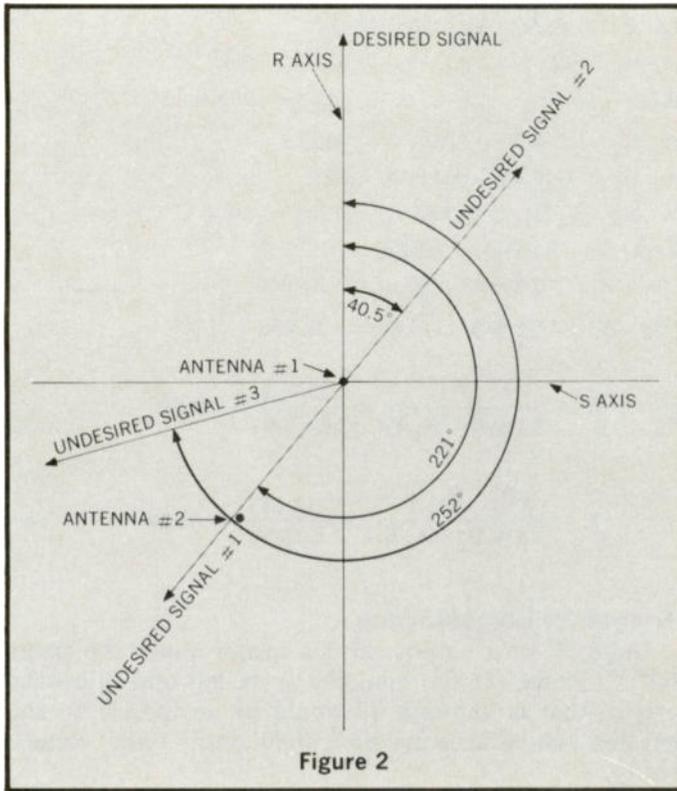


Figure 2

to one as a fixed object, the other being displaced from that one. since we fixed one antenna at the origin of the coordinate system. Thus the values of R and S will be measured from this point. This does two things:

(1.) Relates the antennae to the desired position on the graph.

(2.) Gives physical significance to negative values for R and S.

Note #3 - The mathematical manipulations creating a system of linear equations to be solved simultaneously, checks out and yields the following general formulas for R and S, once values for  $\theta_1$  and  $\theta_2$  have been given.

$$R = \frac{(A_2 - A_1) \lambda n}{2(A_1 B_2 - A_2 B_1)}$$

where  $A_1 = \sin \theta_1$ ,  $A_2 = \sin \theta_2$

$$B_1 = 1 - \cos \theta_1, B_2 = 1 - \cos \theta_2$$

$$S = \frac{(B_2 - B_1) \lambda n}{2(A_1 B_2 - A_2 B_1)}$$

with  $A_1 A_2 B_1 B_2$  defined as above

Where  $\lambda = 15.6'$  and where  $n = 1, 3, 5, \text{etc.}$

### Computations for above:

For each value of  $\theta$  the equation  $S(\sin \theta) + R(1 - \cos \theta) = \frac{n\lambda}{2}$

becomes of the form:  $A_k S + B_k R = \frac{n\lambda}{2}$  where  $A_k = \sin \theta_k$   
 $B_k = 1 - \cos \theta_k$

Then suppose we have values  $\theta_1, \theta_2$  then we have equations:

$$A_1 S + B_1 R = \frac{n\lambda}{2} \quad A_2 S + B_2 R = \frac{n\lambda}{2}$$

Let n take on its successive values  $n = 1, 3, 5, 7, \dots$

$$\left. \begin{aligned} \text{For R} \quad A_1 S + B_1 R &= \frac{n\lambda}{2} \\ A_2 S + B_2 R &= \frac{n\lambda}{2} \end{aligned} \right\} \text{solve simultaneously}$$

$$\left. \begin{aligned} \text{Solution 1} \cdot A_1 A_2 S + B_1 A_2 R &= \frac{n\lambda A_2}{2} \\ 2 \cdot A_1 A_2 S + B_2 A_1 R &= \frac{n\lambda A_1}{2} \end{aligned} \right\} \text{subtract \#2 from \#1}$$

$$-B_1 A_2 R - (-B_2 A_1 R) = \frac{n\lambda A_2}{2} - \frac{n\lambda A_1}{2}$$

$$R = \frac{(A_2 - A_1) \lambda \cdot n}{2(A_1 B_2 - A_2 B_1)}$$

$$\left. \begin{aligned} \text{For S} \quad A_1 S + B_1 R &= \frac{n\lambda}{2} \\ A_2 S + B_2 R &= \frac{n\lambda}{2} \end{aligned} \right\} \text{solve simultaneously}$$

$$\left. \begin{aligned} \text{Solution 1} \cdot B_2 A_1 S + B_1 B_2 R &= \frac{n\lambda B_2}{2} \\ 2 \cdot B_1 A_2 S + B_1 B_2 R &= \frac{n\lambda B_1}{2} \end{aligned} \right\} \text{subtract \#2 from \#1}$$

$$B_2 A_1 S - B_1 A_2 S = \frac{n\lambda B_2}{2} - \frac{n\lambda B_1}{2}$$

$$S = \frac{n\lambda B_2 - n\lambda B_1}{2(B_2 A_1 - B_1 A_2)}$$

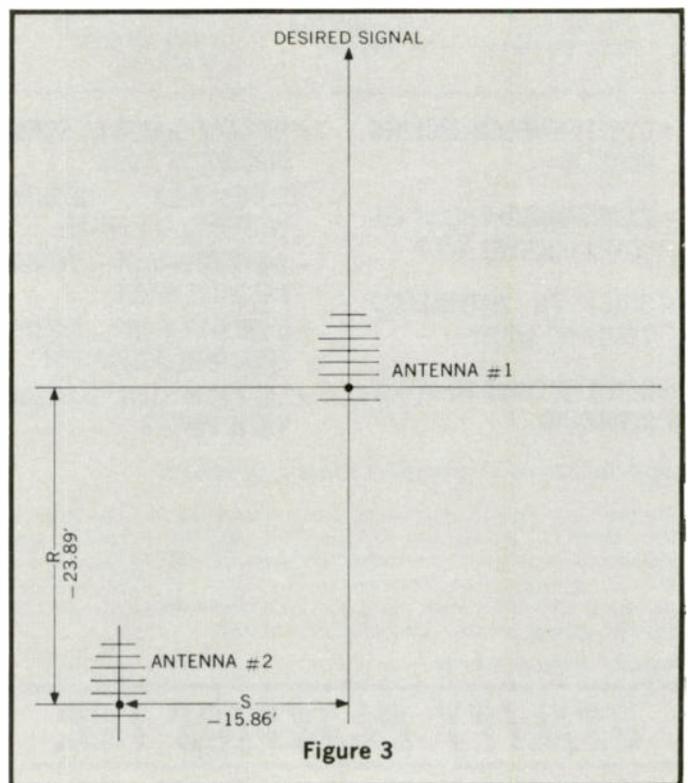
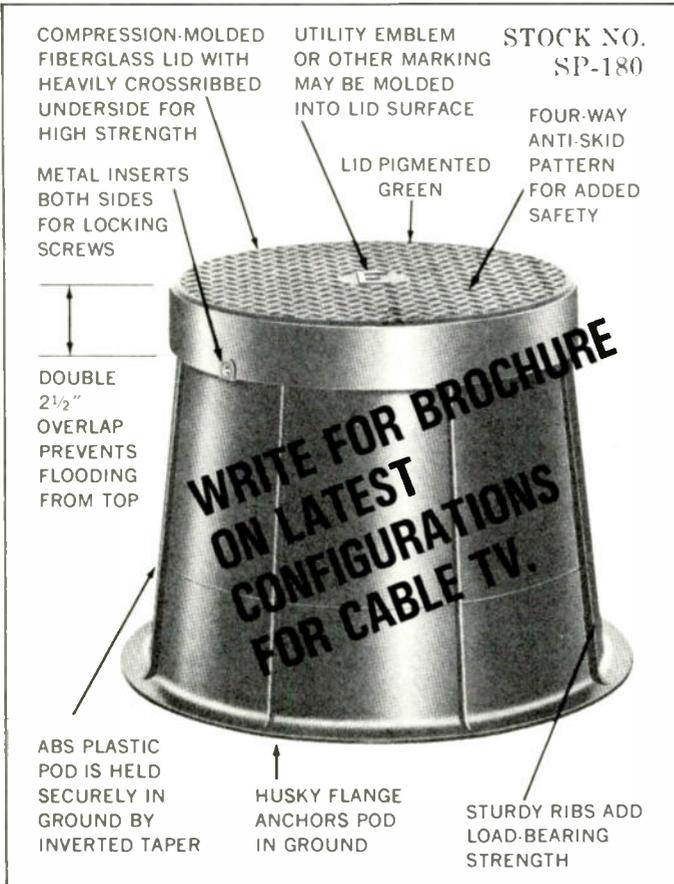


Figure 3

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Let  $\theta_1 = 40.5^\circ$ ,  $\theta_2 = 252^\circ$  then:

$$A_1 = .6495 \quad B_1 = .7604$$

$$A_2 = -.9511 \quad B_2 = -.3090$$

$$A_1 B_2 = (.6495)(-.3090) = -.2007$$

$$A_2 B_1 = (.7604)(-.9511) = -.7232$$

$$A_1 B_2 - A_2 B_1 = (-.2007) - (-.7232) = .5225$$

$$2(A_1 B_2 - A_2 B_1) = 1.0450$$

$$(A_2 - A_1) = (-1.6006)(15.6) = -24.969'$$

$$(B_2 - B_1) = (-1.0694)(15.6) = -16.683$$

$$n = 1 R = \frac{(A_2 - A_1) \lambda n}{2(A_1 B_2 - A_2 B_1)} = \frac{-29.969}{2.0450} = -23.89'$$

$$S = \frac{(B_2 - B_1) \lambda n}{2(A_1 B_2 - A_2 B_1)} = \frac{-16.683}{1.0450} = -15.86'$$

**Analysis of Computations:**

Using 5' to a square on the graph paper the point  $RS = (-23.89, -15.86)$  would be to the left and below the origin; that is antenna #2 would be positioned to the left and behind antenna #1 - 23.89' and -15.86' respectively.

**Harnessing:**

Note #1 - Be sure dipoles are in the same plane — do not invert one antenna.

Note #2 - It appears from graph that we would need stacking lines 5/4 wave length.

Note #3 - Antennas used must be identical.

Note #4 - e.g. — Center frequency of Channel 3 is 63 MHz.

Note #5 - To convert spacing in wave lengths to spacing in inches, divide FREQ in MHz into 11803.

**Conclusion:**

It is possible, in some cases, to phase out interfering signals from more than one undesired station. The limiting factor being the physical dimension the antennas must be spaced.

While this is not a new concept in eliminating co-channel interference, it could be a step further than has been taken before, and may solve some co-channel problems.

TVC



# Gear up now for **C.A.R.S.**

with Jerrold **440** solid-state **C.A.R.S.** microwave

With the new Community Antenna Relay Service (C.A.R.S.), CATV operators can relay distant programs to the head-end on their own microwave system.

Here is the first multi-channel *solid-state* microwave system designed specifically for use in the C.A.R.S. band (12.7-12.95 GHz). Using the same proven solid-state circuitry as the 6-8 GHz common-carrier 440, the new Jerrold CARS 440 provides sharp, true color and black-and-white pictures over even the longest hops. Transmitters and receivers are designed for stacking to a single antenna without auxiliary equipment. With CARS 440 you're assured maximum stability, high output, minimum maintenance—at a surprisingly low price.

It's not too early to plan your CARS system. Start by talking with Jerrold, the people who know CATV best. Write today for complete information.

## 440 features (12 GHz)

1-watt (min.) transmitter output • 12 MHz base-band, flat within  $\pm 0.25$  db • Frequency stability  $\pm 0.005\%$  • Individually self-contained power supplies • Modular construction throughout • Solid-state receiver and local oscillator • Vapor-stabilized transmitter klystron • Compact—only 10½ inches high.

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Communication Systems Division  
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# PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

## LINE EXTENDER AND TAP PLUGS

A new line extender has been added to Vikoa's Futura series. The unit is designated Model 461, is solid-state, has modular construction, and is designed to use the new Vikoa family of plug-in pads. According to the manufacturer, separate gain and tilt controls, plus a switchable 11 dB equalizer allow full compensation for cable lengths of 0 to 22 dB (at channel 13). The Model 461 is housed in a single



bolt, hinged case, constructed of cast alloy aluminum. The case can be provided with either 412 SM or 500 SM fittings.

Vikoa has also announced the availability of two new plug assemblies to prevent illegal cable tapping. The Model 463 Protect-a-tap plug assembly has been designed for attachment to a pressure tap (tap-off-block) when its output connector to the subscriber is not in use. Price of the 463 is \$.50. The Model 464 Protect-a-tap 75 ohm terminator is designed to prevent illegal tapping when employed on unused "F" type output connectors of directional taps, hybrid splitters, or couplers. Its price is \$.75. Both devices can only be attached or removed using a Vikoa Model 465 key which is priced at \$1.00.

For further information on this new product, contact Vikoa Inc., 400 Ninth Street, Hoboken, New Jersey 07030. Ph. (201) 656-2020.

## UNIVERSAL TAPOFF

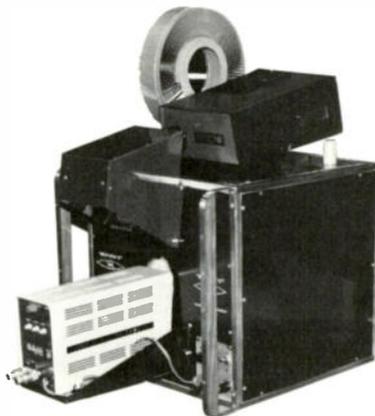
A new series of multiple tapoffs, designated the SMT series, is now available from Entron, Inc. The tapoff devices can be inserted either on the strand, in a pedestal, or in underground housing. The standard unit has a blank tapoff plate which can be re-

placed with a 2 or 4 tapoff plate on site as required, without disturbing the thru-line signal. Tapoff fittings accept either solid or foam type RG-59 cable. Thru-line threaded openings are  $\frac{5}{8}$ " x 24" and will fit all available sizes of both flare and compression fittings. Manufacturer's specifications are as follows: Bandwidth— 50 MHz to 300 MHz; Impedance, in and out— 75 ohms; Isolation between any two tapoff terminals—20 dB minimum; Dimensions—2-1/2" high x 5" wide x 2-3/8" deep.

For further information on this new product, contact Entron, Inc., 2141 Industrial Parkway, Silver Spring, Maryland 20904. Ph. (301) 622-2000.

## TIME/WEATHER UNIT

A new time/weather unit, designated the "Weathereye" is now available from Tetrionics Instruments Ltd. The unit displays time, temperature, wind velocity and barometric pressure and can be switched manually or automatically. Automatic switching has a 10 second dwell time, with switching time itself less than 1/10th second. The display continuously recycles as follows: Time (clock with second hand



sweep, 360 degree dial), Temperature (-50 °F to 100 °F, 240 degree dial), Wind direction (360 degree dial), Wind velocity (0 to 100 MPH, 240 degree dial), Barometric pressure (29.00" to 31.00", 300 degree dial), and message space (4" diameter area). The sta-

tionary camera is solid-state, except for Vidicon and features approximately 400 lines resolution at center. A 50 mm lens is supplied. The complete package includes camera, weather instruments, clock and switching unit, and sells for approximately \$4,000. A projector and 100 slide continuous tray can be purchased for an additional \$250.00. The Weathereye is 16" wide, 15 $\frac{3}{4}$ " high, and 16" long minus camera and projector.

For further information on this new product, contact Tetrionics Instruments Limited, 4 Regal Road, Toronto, Ontario, Canada.

## CRAFTSMAN LINE EXTENDER

A new wideband line extender amplifier has been introduced by Craftsman Electronic Products, Inc. The Model 961 incorporates temperature compensated, solid-state circuitry to cover 20 dB of feederline cable from 54 MHz to 250 MHz. It also features die cast aluminum housing, choice of "Sure-Grip" and other .412 and .500 fittings, and a regulated 18-30 volt AC power



supply. Input and output capabilities are designed to accommodate typical feederline levels without cross modulation. In addition, an external -20 dB test point is available. Other outlet plates for house drops are optional. Craftsman's new line extender measures 4" x 4" x 3" and weighs under two pounds—for pole or strand mounting.

For further information on this new product, contact Craftsman Electronic Products, Inc., 133 West Seneca Street, Manlius, New York 13104. Ph. (315) 682-9105.

## NEW CATV COAX

Two new types of CATV cable have been developed by Vikoa, Inc. One new cable, called "Vikobond" is said to be ideally suited for installations where greater flexibility is required. Vikobond's center conductor is electrolytic copper insulated by foam polyethylene. A .008" plastic clad aluminum tape shield is longitudinally applied; sealed at the overlap and to the dielectric and covered by an outer jacket of high molecular weight black polyethylene.

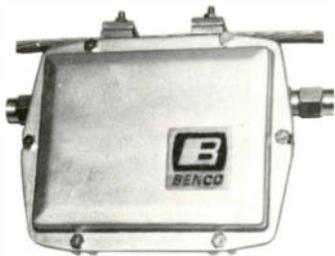
Vikoa has also recently introduced a rodent repellent CATV cable. The

rodent repellent works on a bleeding principle. When it is laid in the earth, the repellent bleeds to the surface of the cable jacket and saturates the surrounding soil. This deters the rodents until the loose soil surrounding the cable becomes well packed and acts as its own rodent repellent.

For further information on these new products, contact Vikoa, Inc., 400 Ninth Street, Hoboken, New Jersey. Ph. (201) 656-2020.

### BENCO AMPLIFIER

A new CATV amplifier, designated Benfeed, has been introduced by Benco Television Corporation. The strand mounted amplifier can be used in short trunk or feeder lines, distribution lines, or as a distribution or line extension amplifier. According to the



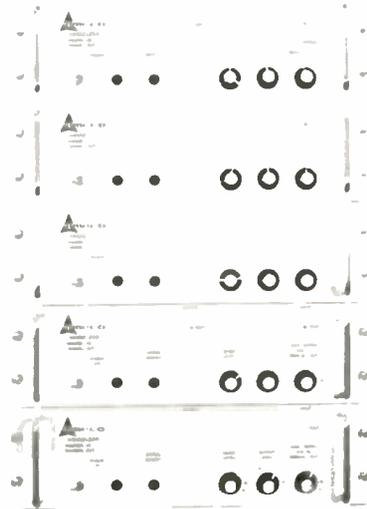
manufacturer, the versatility of the four stage silicon transistor unit is provided by its manual and thermistor controlled gain and tilt which compensates for thermal variations in the amplifier itself and attenuation changes in the cable. The device is also said to have low cross modulation, and can utilize an optional plug-in equalizer, said to allow installation in almost any location. The cast aluminum housing is designed to accept VSF connectors and for direct mounting to messenger strand. Amplifier board is of plug-in construction.

For further information on this new product contact Benco Television Corporation, P.O. Box 10068, Jacksonville, Florida 32207. Ph. (904) 398-6907.

### BECKER DAVISON INDOOR SPLITTERS

Becker Davison Corporation has introduced a new line of low loss, 75 ohm indoor splitters that feature good return loss and response linearity to 240 MHz. The "F" type connectors accept either RG-59U or JT-207 type center conductors. The model 772 two-way features a response of +5 dB (50-240 MHz). Isolation between taps is 24 dB with an insertion loss of 3 dB at each tap. Input and output match is given as 20 dB. The model 774 four-

# Do you need your head Examined?



**99.9% of all CATV operators do! They are the ones that have obsolete headends – headends that are more than one year old.**

Now, Ameco introduces the "Channeleer ST" – a new solid-state headend that gives you a synthesized cable system! The "Channeleer ST" has the lowest operating cost while providing peak picture quality. It comes in a new compact 5¼" housing and features modular construction, full color bandwidth, excellent adjacent channel isolation, wide dynamic AGC range and regulated power supply.

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|--|-----------------------------|
| <b>Output level</b>  | <b>Better than +54 dbmv</b> |
| <b>Noise figure</b>  | <b>7 db maximum</b>         |
| <b>Image rejection</b>   | <b>50 db minimum</b>        |
| <b>Adjacent channel rejection</b>  | <b>50 db minimum</b>        |
| <b>Spurious TV outputs</b>   | <b>Down 60 db minimum</b>   |
| <b>Plus crystal-controlled local oscillators and continuously variable output level control!</b> |                             |

Compare the specifications, compare the performance of Ameco's new "Channeleer ST". If your present system can't match it, let us send our head(end) examiner to you. Call us quick!

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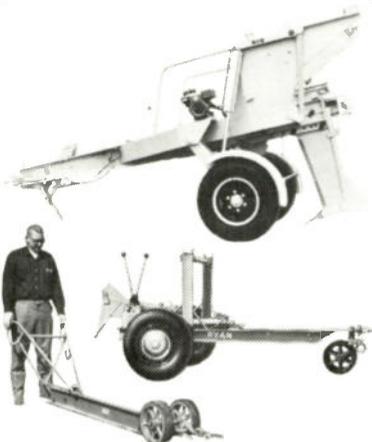
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way features an isolation between taps of 27 dB and an insertion loss of 7 dB at any tap. Input match is 20 dB. Output taps have a match of 26 dB. "F" connectors accept RG-59U or JT-207 type center conductors. F-59 connectors are supplied with all units and have captive type rings. Price for the model 772 ranges from \$2.60 to \$1.95, depending on the quantity purchased. Price for the model 774 ranges from \$3.75 to \$3.20.

For further information on this new product, contact Becker Davison Corporation, 307 3rd Avenue South, Seattle, Washington 98104.

### BALL BROTHERS PRODUCTS

Ball Brothers Research Corporation has developed a video processing and AGC amplifier that provides continuous monitoring and processing of video signals from a variety of originating sources. The unit, designated the Mark 10, automatically adjusts video level variations of  $\pm 6$  dB. According to the manufacturer, it facilitates handling of night scenes and fade-to-black scenes by sensing peak-white to peak-black video and developing a control voltage for signal amplification or attenuation. The unit is available in two basic models. The Mark 10-A is a video processing amplifier. The Mark 10-B is a video processing and AGC amplifier. Both models have remote control panels.

Ball Brothers has also developed a transistorized, high performance color monitor. The unit is designated the TCB-14R, features a 14-inch display and fits into rack space measuring 10½ inches high by 19 inches wide by 18 inches deep.

For further information on these new products contact Ball Brothers Research Corporation, Boulder Industrial Park, Boulder, Colorado 80302.

### TRIM-LINE CONNECTOR

A new seized center conductor CATV connector is available from Trim-Line Connectors Ltd. According to the manufacturer, the center conductor and aluminum jacket are gripped in one operation. Other features listed include: waterproof construction, use of non-corrosive 62 62-T9 aluminum alloy, silver-plated, high conductivity copper alloy contact, contact insulator of methyl pentene, a new high temperature polymer, and a center conductor axial load strength in excess of 100 lbs.

For further information on this new product, contact Trim-Line Connectors Limited, Unit # 21, 3650 Weston Road, Weston, Ontario. Ph. (416) 742-3577.

### COPPERWELD LASHING WIRE

Alumoweld lashing wire has been recently developed by Copperweld Steel Company, as a companion product to Alumoweld messenger strand. The lashing wire is .064" in diameter, and has a cladding of aluminum—a minimum of 10% of the wire radius—permanently welded to a steel core, in order to help insure long life and lasting strength. This new product is available from most suppliers of lashing wire and cable-spinning equipment.

For further information on this new product, contact Copperweld Steel Company, Glassport, Pennsylvania 15045.

### NEW LOCAL ORIGINATION DRUM

Automated TV Products has developed a new local origination drum to provide the CATV system operator with news, time and temperature origination capability. The drum includes space for over 100 inches of news material, public service features,



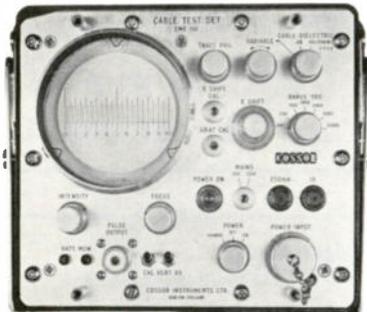
photographs or other data. It also has a built-in high precision time and temperature dial. It cycles every 2 minutes, is compact and comes with its own camera.

For further information on this new product, contact Automated TV Products, Division of Electra-Tronics, Inc., 21 N. Lemon Avenue, Sarasota, Florida.

### TEST SET FOR CATV COAX

The availability of a test set especially applicable to coaxial cable testing has been announced by Cossor Electronics Ltd. The unit, designated CME 110, locates cable faults by displaying pulses reflected by a discontinuity in the cable. The CME 110 displays this reflected pulse on a C.R.T., at a time delay proportional to the distance the discontinuity is down the cable. The distance may be measured directly in yards or meters from the C.R.T. graticule, or more accurately on a ten-turn dial. According to the manufacturer, faults can be located in a

cable from 2 yards to 10,000 yards distant, with an accuracy of up to +2%. The instrument is fully transistorized, and operates from self-contained or external batteries or mains supply. It has a 3-inch C.R.T. display with a linear time base. The pulse generator is triggered at the beginning of each sweep and this



pulse supplies both the 'y' deflection system and the cable under test. According to the manufacturer, the unit is suitable for bench and field use.

For further information contact Megatronix Ltd., 1800 Avenue Road, Toronto 12, Ontario, Canada.

### CABLE TV INFORMATION BOOKLET

"Know Your TV" is the title of a new 16-page cable TV booklet, now available from Dray Publications, Inc. Colorful illustrations show why a TV picture tube needs strong signal reception (including Color TV) such as can be provided by CATV service. Hints for TV set location, lighting and home care cautions are shown. This message is especially useful to promote new "hookups" and avoid needless service calls from current subscribers. Ideal size for direct mail promotion and counter display.

For further information on this new CATV product, contact Dray Publications Inc., Public Information Division, Deerfield, Massachusetts 01342.

### NEW GILBERT CONNECTORS

A new connector is available from Gilbert Engineering Co. The connectors are available for .412, .500, and .750 cable and are said to have a minimum tensile rating of 150 lbs. maximum tension for the .412", 200 lbs. maximum tension for the .500" and 540 lbs. maximum tension for the .750". According to the manufacturer, increased return loss is obtained due to uniform compression of the ferrule which eliminates dents in the cable sheath. Since the ferrule is built into the nut, the number of loose parts is held to a minimum.

For further information on this new

product, contact Gilbert Engineering Company, 3700 North 36th Avenue, Phoenix, Arizona 85019.

### NEW MONITOR FROM CONRAC

A new monitor is now available from Conrac Corporation. The Model KNA9 is a compact 9-inch video monitor designed for closed circuit applications. According to the manufacturer, video response is flat to 7 MHz and resolution is 600 lines at the center of the screen and 400 lines at the corners. The unit has a single glass-epoxy circuit board and an integral die-cast front mask which is fitted into a formed-aluminum cabinet. The unit is compatible with all EIA and industrial 525-line television standards. Manufacturer's specifications list input power as 120 volts, 60 Hz, 30 watts; input video signal as 0.35 peak-to-peak for 50 volts at kinescope; input video impedance as bridging equivalent to 35,000 ohms in parallel with 20 pF; and video response as  $\pm 1$  dB to 7 MHz, less than 3 dB down at 8 MHz.

For further information on this new product, contact Conrac Corporation, 330 Madison Avenue, New York, N.Y. 10017.

### CONCORD VTR

Concord Electronics Corp. has introduced a new video tape recorder with electronic editing. The new VTR-620 is available for immediate delivery at \$1050. A sync controlled gate is utilized so that all additions to the tape are in phase with any previous information on the tape. The VTR-620 will allow the operator to create a continuous, uniform video tape—unbroken by loss of sync or irregular inserts. The unit is a helical-scan, dual rotating-head system using  $\frac{1}{2}$  inch videotape.

For further information on this new product, contact Concord Electronics Corporation, 1935 Armacost Avenue, Los Angeles, California 90025.

### COUPON PAYMENT BOOK

A hand-punched coupon payment book for cable TV subscribers has been introduced by T-C Specialities Co. The book has been designed to fill the need of intermediate size CATV systems. The new book supplements the company's coupon books made for smaller systems and the perforated style made for large systems utilizing IBM.

For further information on this new product, contact T-C Specialities Company, Box 192-B, Coudersport, Pennsylvania 16915.



## ATECO CABLE LAYERS

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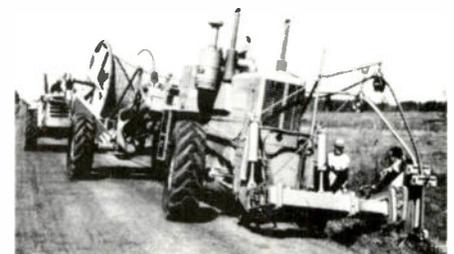
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(CATV Goodwill... Continued from page 98)

in its relations with the personnel. If these break down, it will be difficult to make such claims convincing to the public, the television dealers and the community.

Accordingly, the principles that are the foundation of public relations as we have described it, apply very closely to all relationships with the employees. Just as a good signal is the essential starting point of a good cable system operation, so good faith is the starting point in attaining employee goodwill.

### Customer Service – Operator's Responsibility

While most of the contacts a cable system has with its subscribers are directed by the office and handled by its servicemen, others call for separate handling. Such things as replying to letters of inquiry, general public service, and handling complaints can be assigned to one person to give it a touch of special service.

As a principal source of a community's income, as well as a major user of its facilities, the system must accept a responsibility to the community. This will involve helping with United Fund drives, lending facilities for public gatherings and recreation, having personnel serve on committees for social welfare and civic enterprises.

As an organization, the cable company can create much goodwill by serving as a leader in the common cause, and through the work of its employees, it can further identify itself with projects of general welfare. TVC



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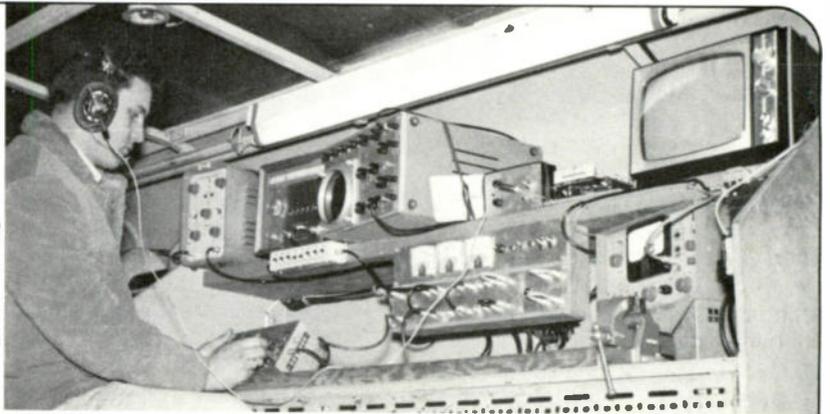
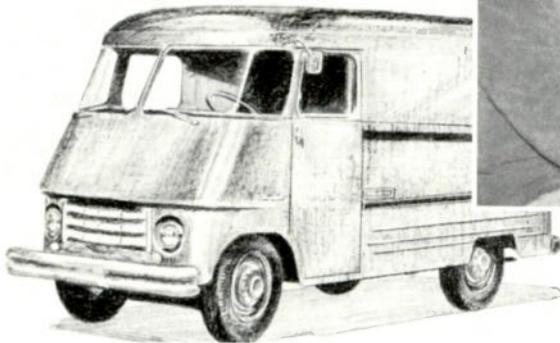
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## NEW! B. C. Cable's Mobile Test Lab.



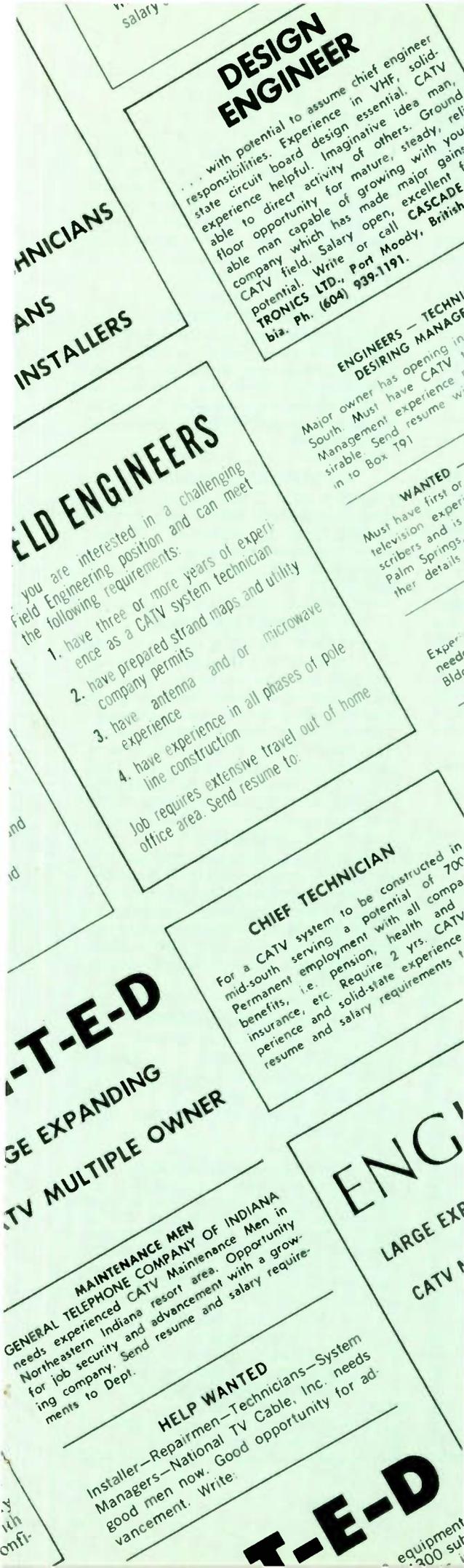
We now have a complete mobile CATV test lab, comprised of a walk-in van truck with full bench facilities. We can travel right to your particular problem and can sweep and align your head end equipment (tube and solid state).

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Interested applicants please apply in person or writing to:

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University of Alberta  
89 Avenue and 114 Street  
Edmonton, Alberta CANADA

## CHIEF ENGINEER SYSTEMS

A newly created position responsible for the maintenance and operational quality of systems product. Must be heavy in head-end and antenna orientation areas. Extensive travel from company base. Send resume to Director of Personnel, Entron, Inc., 2141 Industrial Parkway, Silver Spring, Maryland 20904.

## CATV DESIGNER

A leading manufacturer of CATV electronics equipment has an opening for circuits designer. Participation will be for development through first production run on UHF-VHF head-end equipment. CATV or TV experience and degree preferred. Southeastern location. Please send resume, including salary requirements to Dept. T5-1, TV Communications, 207 N.E. 38th, Okla. City, Okla. 73105.

## CHIEF TECHNICIAN

An excellent opportunity is available for a technician experienced in equipment installation and maintenance, minor head-end and amplifier repairs and adjustments, and general system checkout. System located in Louisiana. Excellent working conditions and growth opportunity in multiple system operation. Send resume to Director of Personnel, Entron, Inc., 2141 Industrial Parkway, Silver Spring, Maryland 20904.

## CHIEF TECH. & ASSISTANT WANTED

125 mile 20-channel system in the design and about-to-construct stage is looking for a good chief technician and number one assistant. East Pennsylvania. Reply to Dept. T5-7 TV Communications, 207 N.E. 38th, Okla. City, Okla. 73105

## TELEVISION PRODUCER-DIRECTOR

Experienced Producer-Director to work with faculty members in production of television programs for broadcast as well as closed circuit. Capable of working with varied temperaments and interests and knowledgeable about educational principles. Capable of teaching course in television production. Masters degree preferred.

Interested applicants please apply in person or writing to:

Personnel Office  
University of Alberta  
89 Avenue and 114 Street  
Edmonton, Alberta  
CANADA

## HELP WANTED:

Tired of the snow and slush? Medium size CATV company needs technician with at least second class license; experienced in standard CATV equipment; also microwave; cameras; VTR & etc. Excellent location in southwest. Send full resume together with salary requirements and availability. All replies confidential and will be answered. Reply to Dept. T5-5, TV Communications, 207 N.E. 38th, Okla. City, Okla. 73105.

## POSITION WANTED

I would like the position as manager of a cable system. I have had 5 years experience in CATV, both in sales, and as manager, and chief technician. Contact Larry Stephenson, 1510 N. Gaskin Ave., Douglas, Ga. 31533, Phone Res.: 912/384-2551, Phone Bus.: 912/384-1200.

## TV DEVELOPER ENGINEER

Broadcast, CCTV, CATV and film systems: cameras, projectors, color transmitters and receivers, video test equipment. 25 years tube and solid state experience. Contact Wm. P. Kruse, SMPTE, 324 Tyrone, El Cajon, Calif. 92020.

## PROJECT MANAGER

Currently with one of the largest and best CATV construction companies. Mature, experienced manager in aerial and underground operations. Prefer maintaining a relationship with a progressive team having a high quality goal. Sound growing financial requirements create a need for a higher income. All replies kept confidential. Reply Project Mgr., Dept. T5-6, TV Communications, 207 N.E. 38th, Okla. City, Okla. 73105.

## FOR SALE:

Two CATV systems in Idaho. 750 subscribers, present plant in front of 2500 homes. Subscribers could be doubled with good campaign. One local off air station available. Five channels presently available on cable plus three FM stations. Contact: Elmer Wood, Cable View, Inc., 211 South Lincoln, Jerome, Idaho 83338.

## JERROLD TEST EQUIPMENT

New recently purchased, never used.

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3 - FD30 Electronic Coax Switch \$200.00  
8 - AV75 RF Attenuators \$100.00

Contact: T. Norgard, 133 Park Ave., Long Beach, Calif. 90803.

## CATV FRANCHISE WANTED

Will provide all financing, including "risk" capital, "Top 100" restriction no bar. Need local ownership and management. We are multi-system owners. Replies confidential. Bernard Karlen, Northeast Management and Development Company, 630 Fifth Avenue, New York, N. Y. 10020, 212/247-6250.

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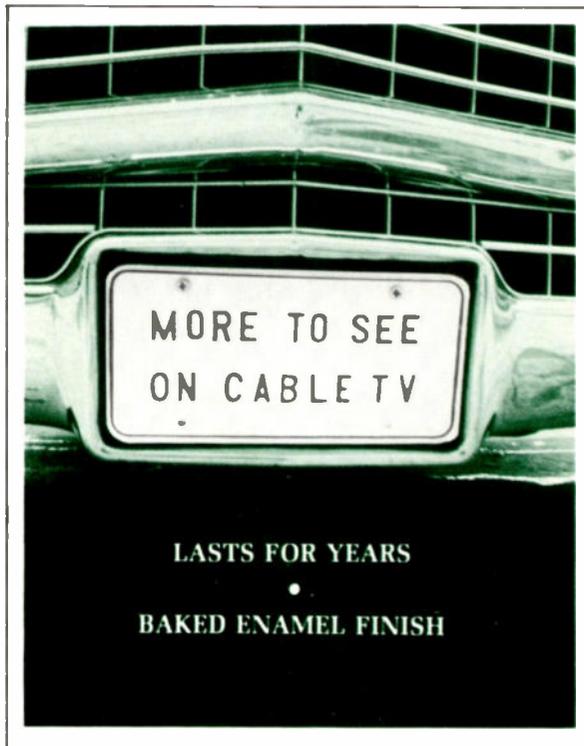
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